

**DOCKET**

**07-AFC-5**

DATE APR 01 2010

RECD. APR 05 2010

**STATE OF CALIFORNIA**

**Energy Resources Conservation and  
Development Commission**

In the Matter of: )  
)  
The Application for Certification )  
for the )  
**IVANPAH SOLAR ELECTRIC** )  
**GENERATING SYSTEM** )  
\_\_\_\_\_ )

Docket No. 07-AFC-5

**SIERRA CLUB'S OPENING BRIEF**

April 1, 2010

Gloria D. Smith  
Sierra Club  
85 Second Street, Second floor  
San Francisco, CA 94105  
(415) 977-5532 Voice  
gloria.smith@sierraclub.org

Devorah Ancel  
Sierra Club  
85 Second Street, Second floor  
San Francisco, CA 94105  
(415) 977-5721 Voice  
(415) 977-5739 Facsimile  
devorah.ancel@sierraclub.org

**TABLE OF CONTENTS**

SIERRA CLUB’S OPENING BRIEF .....1

I. INTRODUCTION .....1

II. THE MARCH 16, 2010 “PROJECT” .....3

III. STANDARD OF REVIEW AND BURDEN OF PROOF .....4

IV. ARGUMENT.....5

    A. The Project is Inconsistent With the California  
        Environmental Quality Act .....5

        1. The Evidentiary Record Shows that Project  
            Impacts on the Listed Desert Tortoise Cannot  
            be Fully Mitigated.....6

        2. Desert Tortoise Translocation Is Not Mitigation  
            Under CEQA .....7

        3. The In-Lieu Fee Program is Not Adequate  
            Mitigation for Desert Tortoise Under CEQA .....11

        4. Because the Ivanpah Valley Desert Tortoise Impacts  
            Cannot be Fully Mitigated, or even partially mitigated,  
            the Commission Must Require a Project Alternative  
            that Protects the Desert Tortoise .....14

            a. The Sierra Club Alternative.....14

            b. Staff’s Modified I-15 Alternative.....15

            c. Substantial Evidence Supports a  
                Sierra Club/Modified I-15 Alternative .....17

    B. The Proposed Project Violates the California Endangered  
        Species Act Because Proposed Mitigation Cannot Be Shown  
        to Protect the Desert Tortoise.....21

        1. Translocation is an unproven mitigation measure  
            and has recently been shown to result in high tortoise  
            mortality .....25

C. The Commission and BLM Choose to Side-Step the  
Cooperative Review Process Hampering Full Public  
Participation.....26

CONCLUSION.....28

**STATE OF CALIFORNIA**

**Energy Resources Conservation and  
Development Commission**

In the Matter of: )  
 )  
The Application for Certification )  
for the )  
**IVANPAH ELECTRIC** )  
**GENERATING SYSTEM** )  
\_\_\_\_\_ )

Docket No. 07-AFC-5

**SIERRA CLUB'S OPENING BRIEF**

**I. INTRODUCTION**

Throughout this proceeding, the Sierra Club has worked diligently and in good faith advocating for a feasible project alternative that would allow the full 400 MW Ivanpah Solar Electric Generating System Project to go forward in a timely manner, while still avoiding the Project's most significant impacts on the listed desert tortoise and its desert habitat. A meaningful alternative is required because, as it stands, the Project's severe impacts on desert tortoise cannot be mitigated. In June 2009, the Sierra Club provided the California Energy Commission ("Commission") and the Bureau of Land Management ("BLM") with a written proposal requesting that the agencies analyze a reconfiguration of the Project footprint so that much of the Project would be built on lands adjacent to Interstate 15; lands the record shows support fewer desert tortoise and rare plants than the Applicant's request to develop in the undisturbed higher reaches of the Ivanpah

Valley. The Sierra Club's alternative is not only feasible, but siting Ivanpah 3 and 2 closer to the interstate is the biologically superior alternative, as largely supported by Staff's modified I-15 alternative. Since June 2009, additional record evidence further supports Sierra Club's proposal to move as much of the Project as technically feasible and biologically beneficial to lands adjacent to Interstate 15.

Commission Staff, the BLM, and the Applicant all appear to recognize an alternative is required because, as originally proposed, the Project was untenable. The impacts on desert tortoise and rare plants would have been as devastating as they were preventable given the availability of the Sierra Club's feasible alternative. Sierra Club maintains that if the objective is to fully protect the desert tortoise, as required by law, and to allow the full 400 MW Project to go forward in a timely manner, then only the Sierra Club alternative meets these criteria.

By contrast, the Applicant's recently proffered Mitigated Ivanpah 3 alternative (hereinafter "Project") offers nothing new to protect desert tortoise, and it reduces overall generation by 30 MW or more. Given these and other limitations, the Mitigated Ivanpah 3 alternative appears to be based more on expediency than sound science in terms of desert tortoise and habitat protection.

As shown below, in contrast to the proposed Project, the Sierra Club alternative is consistent with the Warren-Alquist Act, the California Environmental Quality Act ("CEQA"), the National Environmental Policy Act ("NEPA"), and both the state and federal Endangered Species Acts ("ESA and "CESA"). Conversely, the proposed Project cannot fully mitigate the Project's significant impacts on the state

and federally listed desert tortoise. Given these continuing conflicts with state and federal law, the Commission cannot find the Project consistent with all applicable laws, ordinances, regulations, and standards (“LORS”).

The Sierra Club alternative is not only required by law, but as compared to the Project, is consistent with the Commission’s promise to site large scale renewable projects in an environmentally responsible way. The Project represents the first utility-scale thermal solar project to be approved in some two decades, and the Commission must not waste this opportunity to prove that the preservation of important desert ecosystems need not be sacrificed to meet our renewable energy goals. For this and future utility-scale solar projects to be acceptable in the Mojave desert, projects must be sited and configured on our public lands in a manner that fully considers both the requirements of a given project *and* the existing desert ecosystem.

## II. THE MARCH 16, 2010 “PROJECT”

Mitigated Ivanpah 3, as depicted in the FSA Addendum, shaves off 433 acres from the top of Ivanpah 3 leaving the permanent destruction of 3,582 acres of high quality desert tortoise habitat. (Ex. 315 Fig. 13; Reporter’s Transcript of Evidentiary Hearing (hereafter “Tr.”) at p. 177 (Jan. 11, 2010) (whatever the final project footprint, development will permanently destroy the impacted habitat).) In addition, the Project would generate just 370 MW of electricity, comprised of Ivanpah 1, 2, and 3, which will generate 120 MW, 125 MW, and 125 MW respectively. Shared facilities consisting of the substation, administration and

maintenance buildings would be developed during construction of the first power plant in an area between Ivanpah 1 and 2. (Ex. 315 at 2-4.) The major drawback of the new Project as compared to the original proposal is that the new Project would still occupy the center of the Ivanpah Valley and permanently destroy important habitat on public lands while reducing power generation from that initially offered. (*See e.g.* Ex. 300 at Figs. 2 and 3.)

### III. STANDARD OF REVIEW AND BURDEN OF PROOF

The Commission has exclusive power to certify sites and related facilities for thermal power plants in California. (Pub. Res. Code § 25500.)<sup>1</sup> A certificate issued by the Commission operates in lieu of many permits and supersedes otherwise applicable ordinances, statutes, and regulations. (*Id.*) Accordingly, the Commission itself must determine whether the Project adequately and lawfully protects biological resources, complies with air and water quality standards, and “other applicable local, regional, state, and federal standards, ordinances, or laws.” (§ 25523(d); *see also* Siting 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.” (§ 25525; Siting Regs. § 1752(k).)

---

<sup>1</sup> All statutory references herein are to the Public Resources Code unless otherwise specified. Citations herein to “Siting Regs.” refer to the Commission’s Power Plant Site Certification Regulations, codified in Title 20 of the California Code of Regulations. Citations herein to “CEQA Guidelines” refer to regulations codified in Title 14 of the California Code of Regulations.

The Commission also serves as lead agency for purposes of CEQA. (§ 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. (§ 21081; Siting Regs. § 1755.) These findings must be supported by substantial evidence in the record. (§ 21081.5; CEQA Guidelines § 15091(b), 15093; *Sierra Club v. Contra Costa County* (1992) 10 Cal.App.4th 1212, 1222-23.)

The Applicant bears the burden of providing sufficient substantial evidence to support each of the findings and conclusions required for certification of the Project. (Siting Regs. § 1748(d).)

#### **IV. ARGUMENT**

##### **A. The Project is Inconsistent With the California Environmental Quality Act**

The Commission’s thermal power plant siting process is a certified regulatory program for purposes of CEQA. (*See* § 21080.5; CEQA Guidelines § 15251(j).) Although certification exempts the Commission from CEQA’s environmental impact report requirement *per se*, the Commission still must issue CEQA documents that comply with the statute’s substantive and procedural mandates. (§§ 21000, 21002; *Sierra Club v. Bd. of Forestry* (1994) 7 Cal.4th 1215, 1236; *Joy Road Area Forest and Watershed Association v. Cal. Dept. of Forestry and Fire Protection* (2006) 142 Cal.App.4th 656, 667-68.)



Before the Commission can approve this Project, it must find either that the Project's significant environmental effects identified in the FSA have been avoided or mitigated, or that any unmitigated effects outweigh the Project's benefits. (§§ 21002, 21002.1, and 21081; Guidelines, §§ 15091-15093.) Significantly, the Commission cannot make this finding if there are feasible alternatives or feasible mitigation measures available “that would substantially lessen the significant environmental effects of such projects ....” (§ 21002.)

**1. The Evidentiary Record Shows that Project Impacts on the Listed Desert Tortoise Cannot be Fully Mitigated**

In terms of the Project’s impacts on biological resources in the Ivanpah Valley, the FSA contains a fatal recommendation that the Commission find that all of the Project’s impacts on desert tortoise would be fully mitigated if the FSA’s ill-defined and risky translocation plan is adopted into the license conditions. (Ex. 300 at p. 6.2-108 and 120; Ex. 315 at pp. 1-3; 4-7, 9.) That the translocation program would actually protect desert tortoise is not supported in the record; instead, all evidence shows that the Project’s impacts on desert tortoise remain significant and unmitigated because translocation activities would result in additional tortoise mortality throughout the Ivanpah Valley. Likewise, the recommended in-lieu fee program to purchase compensatory lands will do nothing to avoid direct mortality and loss of habitat for the desert tortoise and rare plant communities *in the Ivanpah Valley*. As such, the Commission cannot approve the Project as proposed.

## 2. Desert Tortoise Translocation Is Not Mitigation Under CEQA

A draft environmental document must propose and describe mitigation measures sufficient to demonstrate that significant adverse environmental impacts identified in the document would be minimized. (§§ 21002.1(a), 21100(b)(3).)

Where several mitigation measures are available to mitigate an impact, each must be discussed and the basis for selecting a particular measure identified. (CEQA Guidelines at § 15126.4(a)(1)(B).) A lead agency may not make the required CEQA findings regarding a project unless the administrative record clearly shows that **all uncertainties** regarding the mitigation of significant environmental impacts have been resolved. Furthermore, **the significant impacts caused by an agency's proposed mitigation measures must be investigated and disclosed to the public.**

(Guidelines 15126.4(a)(1)(D); *Save Our Peninsula Committee v. Monterey County Bd. of Supervisors* (2001) 87 Cal.App.4<sup>th</sup> 99.) This means that under CEQA, the Commission's draft environmental review document must:

1. Impose all feasible measures to fully mitigate any significant impacts on the listed desert tortoise;
2. Ensure required mitigation measures will actually work to reduce the significant impacts on desert tortoise; and
3. Investigate and disclose the potentially significant impacts associated with the desert tortoise translocation plan itself.<sup>2</sup>

The FSA violated these requirements because no feasible mitigation measures exist, including translocation, to mitigate the significant impacts on desert tortoise.

---

<sup>2</sup> These same factors apply to the in-lieu fee program discussed below.

The FSA briefly noted the risks and uncertainties associated with translocating desert tortoises, but then went on to recommend that a translocation plan serve as the central strategy to mitigate the Project's significant impacts on the species. In fact, the translocation discussion does not provide enough science-based, in-depth analysis for decision makers or the public to make an informed choice about the use of translocation for this particular project in the Ivanpah Valley. (*See* Ex. 300 at p. 6.2-48-51.) Put differently, the analysis is not commensurate with the magnitude of translocating desert tortoise. Worse, the information included in the FSA does not support a recommendation to adopt a translocation plan; instead, as shown below, the evidence in the record indicates a considerable percentage of the Ivanpah Valley desert tortoise will perish as a result of handling and moving. Thus, the FSA's bare assertion of a 15% mortality rate is not supported by the evidence. (Ex. 300 at 5.2-49.) CEQA requires more.

Finally, the FSA omitted any requirement that a translocation plan be developed with a robust scientific analysis disclosing and analyzing the potential risks to both the translocated tortoise and those tortoise already inhabiting the designated translocation sites. The FSA's analysis essentially consisted of:

**Impact:** Loss of ~~4,073~~ 3,582+ acres of occupied habitat; translocation of an estimated minimum of 25 desert tortoise, resulting in reduced survivorship and reproduction for translocated individuals; fragmentation and loss of connectivity with surrounding habitat; increased risk from ravens and other predators; increased road kill hazard from construction and operations traffic; cumulative impacts to Ivanpah Valley population. Impact would be to a threatened species, and would likely be highly controversial, resulting in a significant impact with respect to NEPA significance criteria in 40 CFR

1508.27

**Mitigation:** Off-site habitat acquisition, endowment, and enhancement of suitable desert tortoise habitat (BIO-17); conduct desert tortoise clearance surveys and establish exclusionary fencing (BIO-8); develop and implement desert tortoise translocation plan (BIO-9); implement avoidance measures and Best Management Practices (BIO-11); implement raven and weed management plant (BIO-12 and BIO-13)  
(Ex. 315 at p.4-7.)

### **DESERT TORTOISE TRANSLOCATION PLAN**

BIO-9 The project owner shall develop and implement a final Desert Tortoise Relocation/Translocation Plan (Plan) that is consistent with current USFWS approved guidelines, and meets the approval of BLM, USFWS, CDFG and Energy Commission staff. The final Plan shall be based on the draft Desert Tortoise Relocation/Translocation Plan prepared by the applicant dated May 2009 and shall include all revisions deemed necessary by BLM, USFWS, CDFG and the Energy Commission staff.  
(Ex. 300 at p. 6.2-108.)

BIO-9 above does not pass CEQA muster. CEQA requires that an agency “disclose to the public the analytic route the agency traveled from evidence to action.” (*Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 568.) In this way, mitigation must be supported by substantial evidence in the record. (*Federation of Hillside and Canyon Associations v. City of Los Angeles* (2000) 83 Cal.App.4th 1252, 1260.)

The record does not support the Commission relying on translocation as a strategy to minimize the significant impacts on desert tortoise. In fact, the record shows that translocation holds little potential for avoiding significant tortoise mortality as a result of the Project. Translocation risks are well documented in the desert tortoise scientific community. (Ex. 300 at p. 6.2-49.) Although the FSA noted

the Science Advisory Committee's finding that desert tortoise translocation is fraught with long-term uncertainties and should not be considered lightly as a management option, it recommended such a scheme nonetheless. (Ex. 300 at 6.2-49.) Given the dangers to desert tortoises associated with their translocation, the wildlife agencies and other wildlife biologists have repeatedly expressed concern about relying on translocation as a mitigation strategy for the Project. (*Id.*)

Translocation is considered a highly controversial management strategy given the low success rates of most projects which have attempted it. (Ex. 942 at p. 4.) For example, desert tortoise translocation was approved to mitigate an 110,000-acre expansion at the Fort Irwin military training center. Currently, tortoises are being translocated from two separate areas: one area is 23,000 acres and the other is 69,500 acres. (Ex 945 at p. 9) Biologists have been studying the completed portions of the efforts for just over one year using measures of success such as survival, dispersion, burrow use, reproduction, genetic assimilation, and habitat use monitoring 216 translocated, 108 resident, and 109 control individuals. (*Id.*)

The most recent results for the Fort Irwin monitored desert tortoises were issued at the Desert Tortoise Council Symposium on February 27, 2010; **the results document an overall 45% mortality level for translocated desert tortoise.** (Ex. 942 at p. 3.) In addition, the presence of mycoplasmosis which causes the usually fatal upper respiratory tract disease (URTD) has increased in the translocated animals, all of which were disease-free when moved; yet, by 2009, 9.2% of the remaining

translocated tortoises were positive or suspected positive for the disease. (*Id.*) This disease will likely increase mortality rates going forward.

This data indicates that translocation is not an effective strategy for mitigating impacts to desert tortoise. In fact, in addition to translocated individuals, translocation may cause harm to existing populations by introducing disease through translocated tortoises as vectors or by exposing translocated tortoises to diseased tortoises in the host area. (*Id.*) The FSA: (1) omitted any analysis of these types of secondary impacts; (2) did not attempt to quantify impacts on the whole Ivanpah population; and thus, (3) cannot justify the 15% mortality rate cited in the FSA. Until these flaws are corrected, the Commission cannot rely on translocation to mitigate the Project's significant impacts.

### **3. The In-Lieu Fee Program is Not Adequate Mitigation for Desert Tortoise Under CEQA**

In addition to translocating desert tortoise, the FSA recommends that the Applicant be required to fund an in-lieu fee program for compensatory mitigation for significant Project impacts on biological resources. Under CEQA, mitigation measures must address “the effects of projects on the actual environment upon which the proposal will operate,” payment of an in-lieu fee must be shown to constitute adequate mitigation within the relevant area. (*California Native Plant Society v. County of El Dorado* (2009) 170 Cal.App.4th 1026, 1029, 1030.) Similarly, CESA requires full mitigation for take of a threatened species based on habitat and population characteristics present at the site. (Ex. 609 at p. 2.) “[T]o be adequate, [in-lieu] mitigation fees ... must be part of a reasonable plan of actual mitigation’

...payment of mitigation fees must be tied to a functioning mitigation program.”  
(See *California Native Plant Society v. County of El Dorado* (2009) 170 Cal.App.4th 1026, 1055, quoting *Anderson First Coalition v. City of Anderson* (2005) 130 Cal.App.4th at p. 1188; citing *Gentry v. City of Murrieta* (1995) 36 Cal.App.4th 1359.)

The proposed in-lieu fee program is not tied to any reasonable mitigation plan for the desert tortoise. At present, the only mitigation measures offered to reduce impacts to the desert tortoise are an in-lieu fee program coupled with translocation, with its 45% risk of mortality. Combined, the two are not justifiable mitigation measures for the desert tortoise in the Ivanpah Valley. Nor are these measures a “reasonable plan of actual mitigation” as required by CEQA.

Specifically, the proposed in-lieu fee program would not mitigate impacts to desert tortoise in the Ivanpah Valley, in violation of CEQA and CESA. Desert tortoise in the Ivanpah Valley are genetically distinct and therefore warrant protections that will ensure the survival of this unique population. As Dr. Michael Connor testified: “The Ivanpah population appears to be a distinct assemblage, differing from other California populations in its matriarchal genealogy’ ... desert tortoise DNA [has] identified the Ivanpah population as being very different in California ...I think it’s indicative of how important that particular area is.” (Tr. at pp. 428, 435 (Jan. 11, 2010).) Whether this population is legally distinct or not, it still requires full protection.

Indeed, the fee program currently proposes no land within the Ivanpah Valley for acquisition. To date, the California Department of Fish and Game has not

identified any specific parcels for acquisition, and has generally suggested lands for acquisition outside the Ivanpah Valley only. (Ex. 310 at p. 2 (proposing land acquisition generally in the Shadow and Piute Valleys, West Mojave Desert area, and Mojave National Preserve).) In fact, there has been no clarification as to whether the applicant or the agency identify specific parcels for acquisition: “Our issue is acquisition of 8,000 acres. I’ve tried again and again and again to get some specificity on if there are areas that they would like to see acquired, to let us know where. And I’ve yet to receive anything on that. (Tr. at p. 197 (Jan. 11, 2010); testimony of Applicant staff Steve de Young.) “[T]he responsibility for identifying and acquiring the mitigation lands, as obligated by the permit, remain with the applicant. They do not become responsibility of the state or the department.” (Tr. at p. 272 (Jan. 11, 2010); testimony of CDFG staff Scott Flint.) The whole purpose of CEQA is to avoid these types of uncertainties at this late date.

Unless the in-lieu fee is approved with identified parcels capable of timely acquisition, the measure will be inconsistent with CEQA in the same manner as the translocation plan: CEQA requires that an agency “disclose to the public the analytic route the agency traveled from evidence to action,” *Citizens of Goleta Valley*, 52 Cal.3d at 568, and mitigation must be supported by substantial evidence in the record. (*Federation of Hillside and Canyon Ass.*, 83 Cal.App.4th at 1260.) Any in-lieu fee program adopted must show it will fully mitigate the unique and localized impacts to the Ivanpah Valley population of the desert tortoise as required by CEQA and CESA.



**4. Because the Ivanpah Valley Desert Tortoise Impacts Cannot be Fully Mitigated, or even partially mitigated, the Commission Must Require a Project Alternative that Protects the Desert Tortoise**

It is axiomatic that under CEQA a lead agency may not approve a project if there are feasible alternatives that would avoid or lessen its significant environmental effects. (§§ 21002, 21002.1(b).) In this way, the Commission must consider a range of potentially feasible Project alternatives that would attain most of the Project's basic objectives, while avoiding or substantially lessening its significant environmental impacts. (*Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal.App.4th 1437, 1456.) Importantly, the discussion of alternatives must be sufficiently detailed to foster informed decision-making and public participation, not simply vague or conclusory. (*Id.* at pp. 1456, 1460.) As shown above, Staff has not recommended a desert tortoise strategy that would fully mitigate, or mitigate by any standard, the Project's impacts on this listed species. Thus, in order to comply with LORS, the Commission must require a Project alternative that satisfies these requirements.

**a. The Sierra Club Alternative**

On June 22, 2009, the Sierra Club provided the decision making agencies with a Project alternative that would allow the full 400 MW project to go forward on schedule, while avoiding the most significant impacts on desert tortoise. (*See Ex. 600.*) Specifically, the Sierra Club showed that the Project's proposed footprint was situated on the best habitat for desert tortoise and special-status plant species, while the most disturbed lands, closest to existing development and Interstate 15

would either serve as desert tortoise translocation lands or remain undeveloped.

(*Id.*) From a biological perspective, this configuration made no sense to even the most casual observer. Similarly, the Project was proposed for lands with the most challenging drainage problems while lands closer to Interstate 15 posed fewer drainage issues.<sup>3</sup> (Ex. 300 at p.6.2-1.)

In short, the lower elevation lands closer to Interstate 15 are much better suited for large-scale solar development than the current, upslope habitat where a sizeable desert tortoise population resides undisturbed along with intact rare plant communities. Based on these and other facts, the Sierra Club formally requested that the BLM look at relocating the Project closer to the areas adjacent to Interstate 15 on lands originally mapped as Desert tortoise translocation sites. The lands adjacent to Interstate 15 were later found to be largely unsuitable for translocation, so the Applicant identified alternative translocation lands. (*See* Ex. 46; Ex. 612 at pp. 5-6.) The Sierra Club simultaneously provided Staff with its proposal.

#### **b. Staff's Modified I-15 Alternative**

The FSA included some 23 project alternatives. (Ex. 300 at p. 4-1.) Of most relevance to the Sierra Club was the FSA's analysis of the I-15 alternative because Staff prepared it in response to the Sierra Club's request that the agencies analyze the feasibility of reconfiguring the Project closer to the freeway to avoid the highest concentrations of desert tortoise and rare plants in the upper reaches of the valley. (*Id.* at 4-43; Ex. 600.) For the I-15 alternative, the FSA concluded that moving the

---

<sup>3</sup> The project would affect approximately 2,000 ephemeral drainage segments on the ISEGS site, potentially resulting in direct or indirect impacts to the wildlife functions and values provided by 198 acres of waters of the state.

entire Project to lands adjacent to I-15 was unlikely to significantly reduce impacts to desert tortoise and rare plants if lands adjacent to I-15, but well south, near Nipton Road, were needed for development. (Ex. 611 at p. 20.) Sierra Club agrees with Staff's assessment concerning the high quality habitat in the southerly areas adjacent to I-15, approaching Nipton Road. Nevertheless, The FSA concluded:

[T]here may be 1,500 acres or more of lower quality habitat at the north end of the I-15 Alternative that could be used for solar development. Engineering analysis by the applicant is required to determine the size of the solar field could be located within this area. Rebuttal Testimony Figure 2 (based on FSA Alternatives Figure 6) shows a yellow square that is the size of Ivanpah 3, the 200 MW phase. **If Ivanpah 3 were reduced in size (see Section 4 below) and Ivanpah 1 were expanded in size and relocated as shown in yellow, the overall 400 MW generation output might be retained, while still avoiding most valuable biological resources.**

(Ex. 305 at p. 7 (emphasis added).)

Thus, even though the FSA rejected the I-15 alternative *in toto* on grounds that it would not reduce or eliminate Project impacts (Ex.300 at 4-49), it did recommend Project reconfiguration so that all of Ivanpah 3 and perhaps some portion of Ivanpah 2 could be located closer to I-15. Staff explained the rationale for siting the Project adjacent to the interstate:

We were aware of the effect highways have on tortoises and that the effect diminishes as you move inland. We also found there was a lower diversity of plants as we move to lower elevations towards the golf course, for example . . . after you get below about 2800 feet in that location becomes more or less undercover. And there's areas there within both project sites that we consider of lesser -- not necessarily lesser quality, but lesser potential for tortoises. Again, we didn't see any tortoises. We didn't expect to. Tortoises were not out that time of the year . . . However, I agree that although I found that neither site was that much better than the other, there could be merit to developing closer to the road or some portions of both of the projects that are in the lower elevation habitat.

(Tr. at pp. 329-330 (Jan. 12, 2010).)

In its comments to the BLM on the FSA/DEIS, and in its supplemental testimony before the Commission, Sierra Club has shown that there are additional lands that are more suitable to solar development than the upper reaches of the valley. (See Attachment A.) Sierra Club submits that a viable Project configuration could be drawn in a timely manner; a footprint that optimizes development on lands currently unsuitable for desert tortoise given the location of the adjacent interstate and golf course. As shown below, the evidence supports this option; the only thing outstanding is the Applicant's cooperation in determining the details of an optimal configuration.

**c. Substantial Evidence Supports a Sierra Club/Modified I- 15 Alternative**

All of the parties agree that avoiding habitat fragmentation in the valley, especially its upper reaches, would reduce impacts on biological resources.

Representative excerpts from the record include:

- **Applicant:** “[w]hile all of the Ivanpah SEGS project area is within tortoise habitat, most biologists agree that **Ivanpah 3 supports relatively better quality habitat than areas to the south closer to Interstate 15 (I-15).**<sup>4</sup> This assessment is based on relatively greater frequency with which tortoise sign is observed, increased vegetative diversity and density, greater number of ephemeral washes in the northern portion of the project area and the greater number of tortoises found during spring surveys. Reducing the project footprint in this area is likely to have greater benefit to tortoises than would reductions in other areas.” (Ex.88, at 3-2 (emphasis added.)
- **Dr. Ron Marlow:** Lots of really good potential habitat is not occupied by tortoises because of the impacts of the existing road ... To the extent that we're going to have a project, then extending off at an angle to I-15 simply

---

<sup>4</sup>(emphasis added).

provides another division to the habitat ... And eventually whatever value a large piece of land might provide to a species like desert tortoises, which ranges over a relatively large area, which experiences localized extinctions and fluctuations of population by losing the connectiveness is pretty direct ... placing two linear impacts against each other would make more sense. It reduces the edge over which that impact is expressed in the population. (Tr. at pp. 419, 420 (Jan. 11, 2010).)

- **Dr. Michael Connor:** “We have a situation where we do, indeed, have a freeway running down the valley. And there’s absolutely no doubt that that freeway causes fragmentation of the habitat.” (Tr. at pp. 436-437 (Jan. 11, 2010).)
- **Mark Jorgensen:** “The obvious thing to me would be don’t go so high up on the alluvial fan. Go down, ... to a more impacted zone down near the freeway.” (Tr. at pp. 447, 465 (Jan. 11, 2010).)
- **Staff:** Staff believes that the northernmost portions of the I-15 Alternative likely have lower value habitat for both plants and desert tortoise. (Ex. 305 at 7.)
- **Scott Cashen:** It is “pretty clear that relocating the project on the lands adjacent to the freeway would have less of an impact on the desert tortoise population than the currently proposed location. I think that that conclusion is supported at the three levels of analysis: At the ecosystem level with the ecological principles I mentioned; at the organism level and the desert tortoise research that has been conducted; and finally my site specific level with the study that I conducted. All three of those things independently point to the conclusion that moving the project to the lands adjacent to the freeway would have less of an impact. And considering all three of those cumulatively, my conclusion is even stronger.” (Tr. at p. 311 (Jan. 12, 2010).)

Given that the Applicant has withdrawn the originally proposed Project, a refinement of the Sierra Club’s/Modified I-15 Alternative is now the most studied and most biologically defensible option before the Commission. More significantly, between the FSA’s so-called mitigation strategy and the Applicant’s Mitigated Ivanpah 3, the record confirms that among the options before it, only the Sierra

Club's/Modified I-15 Alternative would allow the full Project to go forward in a timely manner while avoiding the most significant impacts on desert tortoise. Specifically, the record shows that moving Ivanpah 3 and 2 adjacent to I-15 achieves all of the Project's objectives while greatly reducing habitat fragmentation and reducing the number of translocated/relocated desert tortoise. (Exs. 611, 612; Ex. 305 at 7.) In its supplemental testimony, Sierra Club provided a map showing that the entire Project could feasibly be moved to lands closer to the Primm golf course and along the interstate thereby avoiding development in the highest quality habitat and reducing habitat fragmentation:

[The Sierra Club map] depicts a reconfiguration of the Project such that it would reduce impacts on desert tortoises and desert tortoise habitat. The [mapped alternative] encompasses land that contains approximately one-half the density of desert tortoises as the proposed Project site. Furthermore, it encompasses land known to provide lower value to the organism due to its proximity to I-15, the golf course, and other types of anthropogenic disturbance. These considerations are particularly important to the long-term recovery of the species. "High quality" habitat provides little value to recovery if it is not suitable for long-term occupation. As desert tortoise expert Dr. Ron Marlow stated in his testimony, "lots of really good potential habitat is not occupied by tortoises because of the impacts of the existing road." The [mapped] site encompasses such habitat.

The [map] excludes the 1000-foot Caltrans ROW for the Joint Point of Entry and a 0.25-mile ROW for the Los Angeles Department of Water and Power. It encompasses approximately 3,072 acres of land adjacent to anthropogenic disturbance and known to have low plant species richness. Overall, the [mapped] location occupies the lower elevation region that has lower species diversity. From an ecological perspective, [this] would aggregate anthropogenic disturbance, and thus reduce the many indirect Project impacts (e.g.,

fragmentation, invasive species, edge-effects) on the desert tortoise.  
(Ex. 612 at p. 5; Fig. 1.)

There is substantial evidence in the record showing that a reconfiguration of the entire Project to lands closer to the interstate as depicted in Fig. 1 of Exhibit 612 is the environmentally superior alternative for desert tortoise if the Project is to go forward in the valley. However, Sierra Club has always stood ready to work with the Applicant and agencies to refine its alternative in a manner that optimizes the company's technology while protecting desert habitat.

As for the scientific basis for the Sierra Club/Modified I-15 alternative, the Sierra Club's expert Scott Cashen conducted a four-day field study with a crew of eight individuals, covering approximately 150 miles of transect lines in both the proposed project site and the I-15 alternative site. (Ex. 611 at pp. 8-11.) The survey employed the recommended U.S. Fish and Wildlife Service's protocol survey guidance for the desert tortoise and was specifically designed to attain information on tortoise resources and occupancy at the proposed Project and I-15 alternative sites.<sup>5</sup> The point of the survey was to assess both habitat quality as well as desert tortoise abundance through identification of desert tortoise burrows. (*Id.*)

The Cashen survey concluded that the I-15 alternative "would not have the same ecological system-level impacts as the proposed project site, and its impacts to individual plant and animal species would be less severe than the proposed project.

---

<sup>5</sup> "The objectives of the study were to: 1. Collect empirical data on tortoise abundance, such that I could test whether there was a significant difference in relative abundance between the two sites. 2. Thoroughly evaluate the two sites, such that I could assess the presence, distribution, and abundance of tortoise resources and threats at the two sites. 3. Evaluate the suite of biological resources present in the region so that I could formulate an educated opinion on whether the I-15 alternative site was appropriately configured to minimize impacts to sensitive biological resources." (Ex. 611 at pp. 8-9.)

Because the I-15 alternative is located adjacent to the freeway and the Primm Valley Golf Club, it would result in less habitat fragmentation and community-level disturbance. Habitat fragmentation and community-level disturbance are known threats to the long-term viability of many plant and animal species. In my opinion, reducing these threats would benefit the sensitive species known to occur in the Ivanpah Valley.” (*Id.*) Mr. Cashen’s survey results were consistent with the recommendation of the expert agency, California Department of Fish and Game.<sup>6</sup>

Because the Project’s significant impacts on desert tortoise cannot be mitigated, CEQA requires that the Commission impose a Project alternative that fully protects desert tortoise. The current proposed Project, Mitigated Ivanpah 3, does nothing to protect desert tortoise; thus, the Sierra Club alternative is the only proposed alternative that would allow the full project to go forward in a timely manner while still offering protections to the listed tortoise.

**B. The Proposed Project Violates the California Endangered Species Act Because Proposed Mitigation Cannot Be Shown to Protect the Desert Tortoise**

The Mojave population of the desert tortoise (*Gopherus agassizii*) was listed as a threatened species under the California Endangered Species Act (“CESA”) in 1989. A species is considered “threatened” when it “is likely to become an endangered species in the foreseeable future in the absence of . . . special protection and management efforts.” (Fish & Game Code § 2067; *Mountain Lion Found. v.*

---

<sup>6</sup> The CDFG recommended that the FSA present a “full analysis of alternative siting locations and scenarios ... given the fact the current Project area is excellent tortoise habitat [and] ... lower quality habitat is clearly within the range to potentially reduce the overall Project impacts to endangered and sensitive species.” (Ex. 609 (emphasis added).)



*Fish & Game Comm.*, (1997) 16 Cal. 4th 105, 114.) All state agencies and commissions have a duty to conserve listed species and are required to use “their authority in furtherance of the purposes” of CESA, meaning they must use “all methods and procedures . . . necessary to bring any [] threatened species to the point at which the measures provided pursuant to this chapter are no longer required.” (Fish & Game Code §§ 2061; 2055.)

As currently proposed, the Project would destroy over 3,582 acres of occupied desert tortoise habitat. (Ex. 315 at 4-7; Tr. at p. 258 (Jan 14, 2010) (“[t]he entire 4000-acre site is considered a loss for supporting future desert tortoise.”)) In addition to the total loss of high quality habitat, as discussed above, there will be direct mortality of individual desert tortoises if the species is translocated.

Central to CESA is its prohibition on the “take” of an endangered or threatened species. (*Envtl. Prot. Info. Ctrt. V. Cal. Dept. of Forestry & Fire Prot.*, (2008) 44 Cal.4th 459, 507; Fish & Game Code § 2080). The Fish & Game Code § 86 generally defines take as to “hunt, pursue, catch, capture or kill,” or to attempt to do any of the same. Additionally, the Department of Fish and Game has interpreted the prohibition on take to include acts that are the proximate cause of the death of a listed species. (See Edmund Brown, Attorney General, *Revised Supplemental Memo Regarding Reallocation of Water: California Fish & Game Code Issues*, 2 (n. 2) (Aug. 5, 2008.) Nevertheless, take may be authorized if specific conditions are met showing that harm would be minimized. “At the heart of CESA,” however, “is the obligation to mitigate such take. The impacts of the authorized take shall be

minimized and fully mitigated.” (*Envtl. Prot. Info. Ctrt.*, 44 Cal. 4<sup>th</sup> at 507.)

Finally, CESA requires that mitigation measures “be capable of successful implementation.” (Fish & Game Code § 2052.1.) Because the FSA relied upon a risky and an as-yet-undefined translocation plan and vague in-lieu fee program, the Commission cannot make the findings that the Project is fully mitigated and that all desert tortoise mitigation will be successfully implemented.

Finally, there is a very important legal issue here regarding the Commission recently assuming the California Department of Fish and Game’s authority to issue incidental take permits pursuant to CESA. As the Center for Biological Diversity showed in its opening brief, CESA is not preempted by the Warren-Alquist Act. Tellingly, until very recently, the Commission seemed to agree. Past practice shows that the issuance of a certificate by the Commission in most instances has not acted in lieu of an incidental take permit issued by the California Department of Fish and Game pursuant to CESA. In past proceedings, the Commission has not attempted to exercise “in lieu” jurisdiction; instead, it worked with CDFG to issue an incidental take statement where such a statement was required. (Tr. at p. 300 (Jan. 11, 2010 (“The department has issued incidental take permits in the past for energy projects.”); *see also, e.g.*, Commission Decision for Blythe Energy Project Phase II (02-AFC-1) (December 2005, CEC-800-2005-005-CMF) at 63 (requiring that the mitigation implementation and monitoring plan identify “All biological resources mitigation, monitoring and compliance measures required in other state agency terms and conditions, such as those provided in the CDFG Incidental Take Permit

and Streambed Alteration Agreement and Regional Water Quality Control Board permits”); Commission Decision for Sunrise Power Project (98-AFC-4) (December 2000, P 800-00-012) 159 (“The project will need a state incidental take permit, issued by CDFG.”), 161, 162, 168; Commission Decision for High Desert Power Project (97-AFC-1) (May 2000, P800-00-003) at 138 (noting CDFG would incorporate certain revisions into its incidental take permit), 139.

Sierra Club agrees with the Center for Biological Diversity that the Commission for the first time in 2008, asserted that its jurisdiction encompassed the CESA incidental take permit requirements.<sup>7</sup> This is troubling because, historically, the Commission’s siting of fossil-fueled power plants typically did not involve complicated endangered species issues. Yet, the Commission properly deferred such highly scientific matters to the proper agency, CDFG. Now, with utility-scale solar projects under Commission review, the Commission, for the first time, is asserting jurisdiction. Solar thermal projects require vast tracks of land and are presenting complicated CESA issues heretofore unseen by Commission Staff. For the Commission to now take over the CDFG incidental take process is backwards. If anything, the Commission should be relinquishing any asserted authority and deferring to CDFG given the highly complicated species and habitat issues presented by these projects. We ask that the Commission clarify this issue and restore full CESA authority to CDFG.

---

<sup>7</sup> Final Commission Decision for Victorville 2 Hybrid Power Plant (07-AFC-1) (July 2008, CEC-800-2008-003-CMF) at 180.

1. **Translocation is an unproven mitigation measure and has recently been shown to result in high tortoise mortality**

The Addendum recommended a finding that the Project's effects on the desert tortoise would be fully mitigated under the conditions for certification. (Ex. 315 at pp. 4-4, 9.) However, the Commission may not make such a finding because Staff did not take into account the effects that translocation itself would have on the desert tortoise population in the Ivanpah Valley. It is well settled that translocation is a highly risky strategy that often results in unacceptable levels of mortality within an affected tortoise population. As explained above, the Fort Irwin results combined with the Staff's assessment that:

The Desert Tortoise Recovery Office (DTRO) Science Advisory Committee (SAC) has made the following observation regarding desert tortoise translocations (DTRO 2009, p. 2): "As such, consensus (if not unanimity) exists among the SAC and other meeting participants that translocation is fraught with long-term uncertainties, notwithstanding recent research showing short-term successes, and should not be considered lightly as a management option. (Ex. 300 at 6.2-49.)"

Thus, while Staff acknowledged the inherent risks associated with relocation/translocation, Staff biologists failed to take into account these risks to the individual desert tortoises in the Ivanpah Valley, both to those relocated/translocated and to those inhabiting the relocation/translocation sites. For example, when asked whether staff had indeed considered the effects to desert tortoise of relocation/translocation, staff responded: **"Well, the translocation is a salvage operation. It's an avoidance measure trying to save the tortoise that can be saved. The entire 4,000 acre sire is considered a loss for supporting future desert**

tortoise. And we're just trying to preserve the ones we can by moving them to a suitable site." (Tr. at pp. 258-259 (Jan. 14, 2010).) There is nothing more in the record to show staff factored in translocation as an activity that may in itself cause take of a listed species, or looked at whether the Project could be deemed as fully mitigated given the reliance upon relocation/translocation as a "mitigation" strategy. Instead, the FSA simply asserted that implementation of measures Bio-8 and Bio-9 contain inherent risks and could result in direct effects such as mortality, but failed to quantify this mortality or recommend less uncertain mitigation or recommend feasible Project alternatives that would avoid siting the Project in high quality desert tortoise habitat. (See Ex. 300 6.2-48.)

In addition, as discussed above, the results of the recent Fort Irwin desert tortoise translocation monitoring document an overall **45% mortality** level for translocated desert tortoise. (Ex. 942 at p. 3.) With this most recent data, the Commission cannot make a finding that the Project's translocation plan will fully minimize and mitigate take of the desert tortoise under CESA.

### **C. The Commission and BLM Chose to Side-Step the Cooperative Review Process Hampering Full Public Participation**

The Commission and BLM entered into a memorandum of understanding (MOU) to facilitate agency work and public involvement for the "joint environmental review of solar thermal power plant projects." (*Memorandum of Understanding between the U.S. Department of the Interior, Bureau of Land Management California Desert District, and the California Energy Commission Staff Concerning Joint Environmental Review for Solar Thermal Power Plant*

*Projects* (2007), hereafter “MOU”.) The whole purpose of the MOU was to coordinate environmental review and “to avoid duplication of staff efforts, to share staff expertise and information, to promote intergovernmental coordination at the local, state, and federal levels, and to facilitate public review by providing a joint document and more efficient environmental review process.” (MOU at p. 2.)

Under the MOU’s “combined processing plan,” the agencies were supposed to issue one joint environmental review document on behalf of the Commission and BLM **at the draft stage and final stage**: staff would file the joint Preliminary Staff Assessment/Draft Environmental Impact Statement, affording time for public comment that concurrently addressed both state and federal review and proposed decision-making all in one. (MOU at p. 8, “BLM & CEC Combined Processing Plan” chart.)

Rather than follow the MOU’s cooperative approach, the agencies decided to proceed on separate schedules, effectively undermining the MOU’s purpose of ensuring cooperative environmental review and frustrating public participation. Thus, even though the Project is on the “fast-track,” it does no good to fast track the state permitting process when all involved have long known that the BLM would have to adhere to certain NEPA timing requirements. Now, we find the Commission working towards final resolution while the BLM is still drafting NEPA alternatives. According to the BLM, it will not be issuing a supplemental draft environmental impact statement before legal briefing is complete in the proceeding. July 2010 is the earliest date it can issue an FEIS. (Tr. at pp. 190-192 (Mar. 22,

2010); testimony of BLM project manager Tom Hurshman). This disjointed review compelled two, rather than one public comment period as proposed under the MOU, and will likely cause additional public process problems going forward.

All of this could yield the unfortunate result of the Commission issuing a draft decision before the public has a full opportunity to weigh in on the BLM's permitting process. Sierra Club raises this issue now because state and federal agencies frequently share permitting authority over a single project and do not have much trouble coordinating their public processes. There is no reason why this project should be any different. We urge the Commission to take heed of the public advisor's concern that the fast-tracked and disjointed public participation process, along with the last-minute submission of an entirely new project, is placing an unfair burden on the public, (Tr. at pp. 216-218 (Mar. 22).), and try to calendar the Project accordingly.

## V. CONCLUSION

For the foregoing reasons, Sierra Club requests that the Commission not make findings that the significant impacts to the listed desert tortoise are fully mitigated until Staff proposes for public review and comment measures that actually and fully mitigate impacts on desert tortoise in the Ivanpah Valley. If this is not possible, the Commission must either impose the Sierra Club alternative, which actually and fully mitigates all Project impacts on the desert tortoise in the Ivanpah Valley, or deny the application for certification.

Dated: April 1, 2010

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Gloria D. Smith". The signature is fluid and cursive, with the first name "Gloria" being more prominent and the last name "Smith" following in a similar style.

Gloria D. Smith, senior staff attorney  
Sierra Club  
85 Second Street, Second floor  
San Francisco, CA 94105  
(415) 977-5532 Voice  
(415) 977-5739 Facsimile  
[gloria.smith@sierraclub.org](mailto:gloria.smith@sierraclub.org)





February 11, 2010

**Via Electronic and U.S. Mail**

Bureau of Land Management  
EIS to both of the following: Needles Field Office  
Attention: George R. Meckfessel,  
Planning and Environmental Coordinator  
1303 South U.S. Highway 95  
Needles, CA 92363

**Re: Sierra Club Comments on the Ivanpah Solar Electric Generating System Draft Environmental Impact Statement**

Dear Mr. Meckfessel:

On behalf of the Sierra Club, we write to provide comments on the Bureau of Land Management's ("BLM") draft environmental impact statement ("DEIS") for the proposed Ivanpah Solar Electric Generating System ("Project" or ISEGS). This nominal 400-MW Project is proposed for approximately 4,073 acres (6.4 square miles) of public land in the Ivanpah Valley, San Bernardino County, California.

The BLM's DEIS is a joint document prepared with the California Energy Commission ("CEC") in order to meet the requirements of the National Environmental Policy Act ("NEPA") and California Environmental Quality Act ("CEQA").<sup>1</sup> For the BLM, the federal discretionary actions involve BLM granting a land use right-of-way ("ROW") pursuant to the

---

<sup>1</sup> The Sierra Club incorporates by reference all of the materials before the California Energy Commission regarding the approval of this project. BLM is a party to the CEC process, which is being conducted in concert with the BLM approval process, and BLM has access to all of the documents (which are also readily accessible on the internet), therefore, BLM should incorporate all of the documents and materials from that process into the administrative record for the BLM decision as well.

Federal Land Policy and Management Act, and amending its California Desert Conservation Area Plan. DEIS 1-1.

The Sierra Club is the oldest conservation organization in the United States, with over 600,000 members nationwide, and 151,000 members in California alone. Sierra Club is steadfastly committed to preserving the legacy of California's wildlands for future generations, while simultaneously recognizing that climate change has the potential to make radical changes in our habitats and landscapes. Sierra Club is working aggressively to reduce carbon emissions by supporting large scale renewable projects and by quickly ramping up energy efficiency and rooftop solar.

In order to help meet California's and the nation's renewable energy goals, the Sierra Club supports appropriately sited large-scale renewable development, i.e, projects that avoid or greatly minimize environmental impacts to wildlife and plants and the ecosystems they depend upon. For example, there are hundreds of thousands of acres of privately held agricultural lands in California that no longer support farming. These lands, with relatively high solarity and poor habitat values, present many opportunities to help meet our goals for large scale solar. The Sierra Club encourages companies and agencies to prioritize these types of lands going forward.

Recognizing that the BLM's decision here is limited to whether or not it would be appropriate to grant a right-of-way on federal land Sierra Club's comments on the DEIS are limited to the issue of Project alternatives within the Ivanpah Valley. As shown below, the Project as proposed would cause significant and unavoidable impacts to the federally threatened desert tortoise, rare plant communities, and to the Ivanpah Valley's unique and relatively undisturbed desert ecosystem. Therefore, because the BLM omitted viable alternatives from the DEIS that would avoid these unacceptable impacts, it may not issue any permits or approvals for the Project until it fully complies with all of NEPA's requirements in a supplemental EIS and recirculates it for a 90-day comment period.

## **I. BLM's Overarching Responsibilities Under NEPA**

As an initial matter, we found the DEIS confusing, poorly organized and missing key information necessary for the public and decision makers to understand and respond to what it is the BLM is proposing to do. The agency failed to explain the analytic route it traveled from the impacts identified to the conclusions drawn. NEPA requires that an EIS be well-organized and easily understood by both "governmental decision makers and by interested non-professional laypersons likely to be affected by actions taken under the

EIS.” *Oregon Environmental Council v. Kunzman*, 817 F.2d 484, 494 (9th Cir. 1987). The ISEGS DEIS fails on these points, and necessitates a revision and recirculation.

The requirement that the BLM would issue a comprehensive and understandable NEPA document is fundamental to the statute itself because NEPA is the “basic national charter for the protection of the environment.” 40 C.F.R. § 1500.1. Congress enacted NEPA “[t]o promote efforts which **will prevent or eliminate damage to the environment** and biosphere and stimulate the health and welfare of man; [and] to enrich the understanding of the ecological systems and natural resources important to the Nation.” 42 U.S.C. § 4321 (emphasis added). To accomplish these purposes, NEPA requires all federal agencies to prepare a “detailed statement” that discusses the environmental impacts of, and reasonable alternatives to, all “major Federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C). This statement is commonly known as an environmental impact statement (“EIS”). *See* 40 C.F.R. Part 1502.

The EIS must “provide full and fair discussion of significant environmental impacts and shall inform decision-makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.” 40 C.F.R. § 1502.1. This discussion must include an analysis of “direct effects,” which are “caused by the action and occur at the same time and place,” as well as “indirect effects which . . . are later in time or farther removed in distance, but are still reasonably foreseeable.” 40 C.F.R. § 1508.8. Most relevant to these comments, an EIS must “**rigorously explore and objectively evaluate all reasonable alternatives**” to the proposed project,” because the alternatives analysis is the “**heart of the environmental impact statement.**” 40 C.F.R. § 1502.14.

## II. The DEIS Omitted a Reasonable Range of Alternatives

According to the DEIS, the purpose of the proposed action is to “approve, **approve with modifications**, or disapprove ROW applications filed by Bright Source.” DEIS at 2-7 (emphasis added). It is the *approve with modifications* aspect of the above statement that gives rise to an expectation of a full range of Project alternatives in the DEIS. Yet, despite these obvious options, the BLM only considered two proposals: the right-of-way (the proposed Project) and denial of the right-of-way (no project alternative). DEIS at 4-1. It is entirely unclear how the BLM would impose modification to the Project absent a full discussion of such modifications in the DEIS’ alternatives analysis.

The BLM did not provide a clear explanation as to why the DEIS lacked a meaningful range of alternatives, but as best as Sierra Club could discern the rationale went as follows: first, only the proposed Project and No Project alternatives were within the agency's jurisdiction; second, only those two alternatives met the Project objectives for purpose and need; and, third, "no other right-of-way application was brought forward by the applicant." *Id.* As shown below, these explanations are not supported by fact or law. The BLM failed to inform the public and decision makers of a reasonable range of Project alternatives that were more protective of natural resources. This omission is a clear violation of NEPA.

### 1. **NEPA Requires the Action Agency to Investigate Alternatives Outside the Agency's Jurisdiction**

As the DEIS pointed out but then ignored, NEPA requires action agencies to develop and evaluate reasonable alternatives, including alternatives that are **not even within the agency's jurisdiction**, and are outside the applicant's ability to implement. DEIS at 4-1 *citing CEQ's guidance NEPA 40 Most Asked Questions*. Under CEQA, the CEC staff included a number of alternatives outside of federal jurisdiction and outside the applicant's ability to implement. NEPA required the BLM to complete a similarly broad analysis or adequately explain why other alternatives were rejected. It did neither.

An agency may not reject a reasonable alternative because it is "not within the jurisdiction of the lead agency." 40 C.F.R. § 1502.14(c); *see also Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800, 814 (9th Cir. 1999). For example, an agency's failure to consider an alternative that would require some action beyond that of its congressional authorization is counter to NEPA's intent to provide options for both agencies and Congress. *See Natural Res. Def. Council v. Morton*, 458 F.2d 827, 836 (D.C.Cir.1972) ("The mere fact that an alternative requires legislative implementation does not automatically establish it as beyond the domain of what is required for discussion, particularly since NEPA was intended to provide a basis for consideration and choice by the decision-makers in the legislative as well as the executive branch."). BLM was required to consider alternatives that would meet the Project's objectives of increasing generation of renewable energy while protecting sensitive biological resources on public lands even if those alternatives were beyond the BLM's immediate authority to implement.

With the approval of the ISEGS Project, the BLM will help facilitate the timely development of renewable energy, a national goal. DEIS at 2-8. Under NEPA, reasonable alternatives are defined by the scope of the problem addressed. Thus, projects dealing with national issues warrant a broad range

of project alternatives. *Natural Resources Defense Council v. Morton*, 458 F.2d 82, 7836 (D.C. Cir. 1972) (EIS violated NEPA because it failed to consider alternatives outside of the Department of the Interior's jurisdiction) Here, a broad articulation of “reasonable alternatives” is compelled by the national scope of the articulated problem: “When the proposed action is an integral part of a coordinated plan to deal with a broad problem, the range of alternatives that must be evaluated is broadened.” *Id.* at 835. Thus, as part of a coordinated effort to reduce the nation’s dependence on fossil fuels, a problem of national scope, the BLM was required to consider solutions outside its jurisdiction. *Id.* Thus, as part of a coordinated effort to reduce the nation’s dependence on fossil fuels, a problem of national scope, the BLM was required to consider solutions outside its jurisdiction. *Id.* For example, a reasonable scope of alternatives would include distributed energy generation, energy efficiency, private-land alternatives, reconfiguration, and other federal sites.

## **2. NEPA Requires the Action Agency to Investigate a Full Range of Alternatives Consistent with a Project’s Purpose and Need**

According to the DEIS’ stated purpose, the BLM was required to determine “whether granting the requested ROW is in the public interest.” DEIS at 2-7. As for the Project’s need, the DEIS cited several federal orders and laws covering renewable energy development. DEIS at 2-7, 2-8. The three cited authorities promote approval of renewable projects on federal land. For example, the DEIS cited state and federal goals to produce 10% of the nation’s electricity from renewable sources by 2012 and 25% by 2025; and approving 10,000 MW of non-hydropower renewable energy projects on public lands by 2015. *Id.* Importantly, the cited authorities did not waive environmental protection in order to meet renewable energy goals. On the contrary, Executive Order 13212 requires development of renewable energy in an expeditious, safe and environmentally sound manner. Similarly, Secretarial Order 3285 mandates development of renewable energy in an “environmentally responsible” way, and there is nothing in the 2005 Energy Policy Act that preempted federal environmental laws. Environmental protection is express in any BLM public interest determination, and implicit in the cited authorities. Therefore, protection of natural desert resources is part of the Project’s stated purpose and need.

By simply including a Project and No Project option, it appears the BLM failed to fully consider the environment in its environmental impact statement. Worse, the BLM completely discounted any possibility of allowing renewable generation to go forward at the site in a less environmentally damaging way. Because protection of biological resources and promotion of new renewable generation are both by definition project objectives, a full

range of Project alternatives that avoided or reduced impacts on the environment and allowed some measure of generation was required. *City of Carmel-by-the-Sea v. U.S. Dep't of Transportation*, 123 F.3d 1142, 1155 (9th Cir. 1997) (stated project goal necessarily dictated the reasonable range of alternatives, thus agency cannot define its objectives in unreasonably narrow terms).<sup>2</sup>

Instead, absent any explanation, the DEIS cryptically claimed that some 22 additional alternatives had been considered and rejected. DEIS at 4-1. The BLM was required to explain its reasoning for eliminating alternatives. 40 CFR § 1502.14(a). The whole point of a full alternatives analysis is to foster “informed decision-making and informed public participation.” *City of Angoon v. Hodel*, 803 F.2d 1016, 1020 (9th Cir.1986). Without substantive, comparative environmental impact information regarding other possible courses of action, the ability of an EIS to inform agency deliberation and facilitate public involvement is gone. *See Baltimore Gas & Elec. Co.*, 462 U.S. at 97. NEPA requires the development of “information sufficient to permit a reasoned choice of alternatives as far as environmental aspects are concerned.” *Colorado Environmental Coalition v. Dombeck*, 185 F.3d 1162, 1174 (10th Cir. 1999). It follows that a court will hold an agency’s decision as arbitrary and capricious if it unreasonably eliminates alternatives, especially absent any explanation. The BLM violated NEPA by not considering alternatives consistent with the Project’s full purpose and need.

### **3. NEPA Requires the Action Agency to Investigate Alternatives Other than the Applicant’s Proposal**

As noted above, a proper alternatives analysis furthers NEPA’s environmental policies by requiring agencies to consider whether they can carry out federal actions in less environmentally damaging ways, and consider whether alternatives exist that make the action unnecessary. Specifically, NEPA’s regulations require an agency “to rigorously explore and objectively evaluate all reasonable alternatives.” 40 C.F.R. § 1502.14. “An agency must look at every reasonable alternative, within the range dictated by the nature and scope of the proposed action.” *Northwest Environmental Defense Center v. Bonneville Power Admin.*, 117 F.3d 1520, 1538 (9th Cir.1997). **“The existence of a viable but unexamined alternative renders an**

---

<sup>2</sup> See also *NRDC v. Evans*, 232 F.Supp.2d 1003, 1039 (N.D. Cal 2002) *citing Laguna Greenbelt, Inc. v. U.S. Dept. of Transportation*, 42 F.3d 517, 524 (9th Cir. 1994); *see also Kootenai Tribe of Idaho v. Veneman*, 142 F.Supp.2d 1231, 1243 (D. Idaho 2001) (“there is no evidence before the Court why the Forest Service failed to consider alternatives that are consistent with the stated purpose of the rule...”).

**environmental impact statement inadequate.”** *Morongo*, 161 F.3d at 575; *see also Resources Ltd. v. Robertson*, 35 F.3d 1300, 1307 (9th Cir.1994). The BLM’s failure to include other alternatives that might prevent or eliminate environmental damage in the Ivanpah Valley *and* meet most of the Project’s objectives is a clear violation of NEPA.

**a. Sierra Club Alternative**

In June, 2009, the Sierra Club provided the BLM with a Project alternative that would allow the full 400 MW project to go forward on schedule, while avoiding the most significant impacts on desert tortoise. *See* attached Letter to Tom Hurshman, BLM Project Manager from Sidney Silliman, Sierra Club San Gorgonio Chapter (June 22, 2009). As shown above, BLM was required to evaluate a range of options that would best meet the Project’s purposes and need. *Muckleshoot Indian Tribe v. U.S. Forest Service*, 177 F.3d 800 at 813 (9th Cir. 1999) (EIS unlawfully considered only a no action alternative along with two virtually identical alternatives). Importantly, the DEIS is legally insufficient because it fails to examine a viable alternative that both achieves the project’s objectives and avoids the project’s most significant environmental impacts. *Muckleshoot*, at 814, (*citing Citizens for a Better Henderson v. Hodel*, 768 F.2d 1051, 1057 (9th Cir. 1985); *NRDC v. U.S. Forest Service*, 421 F.3d 797, 814 (9th Cir. 2005) (EIS inadequate because the range of alternatives considered omitted the viable alternative of allocating less unspoiled area to development).

In the Sierra Club’s June 2009 letter, it explained that the Project’s proposed footprint was situated on the best habitat for desert tortoise and special-status plant species, while the most disturbed lands, closest to existing development and Interstate 15 would either serve as translocation lands or remain undeveloped. From a biological perspective, this configuration made no sense. In addition, the Project would be built on lands with the most challenging drainage problems while lands closer to Interstate 15 posed fewer drainage issues. In short, the lower elevation lands closer to Interstate 15 are much better suited for large-scale solar development than the current, upslope habitat where more than 25 desert tortoises and rare plant communities reside undisturbed.

Based on these and other facts, the Sierra Club formally requested that the BLM include a NEPA alternative that would analyze relocating the Project closer to the areas adjacent to Interstate 15, lands mapped as Desert tortoise translocation sites until it was determined these were largely unsuitable for that purpose. Inexplicably, the BLM never responded to the Sierra Club letter and certainly did not include it or any variation of the

conceptual alternative in the DEIS. Nor did it explain why this alternative was unsuitable for a ROW or CDCA plan amendment.

Not only did the DEIS omit a viable alternative, as discussed in section III below, it also failed to explain how translocation would protect Desert tortoise. Indeed, the DEIS is silent on how the agencies will resolve the uncertainties associated with translocating desert tortoises. Without details on how the translocation plan will differ from other plans (which resulted in high levels of mortality), or even the locations where tortoises will be released, translocation cannot be considered a viable form of mitigation for the Project. The Sierra Club's alternative proposed avoidance over highly risky mitigation in the form of translocation.

Since June 2009, additional scientific information generated in the Energy Commission proceeding lends additional support to moving the Project to degraded lands adjacent to I-15 and away from the upper reaches of the valley. New information shows that reconfiguring the Project, especially moving all of Ivanpah 3 closer to I-15 would reduce the need to translocate Desert tortoise. In support of reconfiguration, Sierra Club's expert, biologist Scott Cashen, reviewed the literature, the Energy Commission docket and all of the testimony from the evidentiary hearings. Based on this information, Mr. Cashen identified a more than 3,000 acre parcel of land adjacent to I-15 unsuitable as Desert tortoise habit but suitable for portions of the ISEGS Project. *See* attached Letter From Scott Cashen to Gloria D. Smith, Sierra Club (February 10, 2010) at Figure 1.

In support of Project reconfiguration, Mr. Cashen submitted substantial evidence to the Energy Commission supporting the hypothesis that certain lands near I-15 support fewer desert tortoises than the proposed Project site. *See* Mr. Cashen's Expert Testimony attached here. Because there were no recent desert tortoise surveys for the lands adjacent to I-15, Mr. Cashen led a field study specifically designed to test the hypothesis that tortoises were less abundant near the Interstate than at the Project site. Desert tortoises were hibernating in December when he conducted his survey, so he carefully surveyed tortoise burrows as an index of relative abundance. Mr. Cashen collected data from both sites (i.e., Project and I-15), then used statistical analysis to determine if there was a significant difference between the number of desert tortoise burrows between the two sites. *See* Mr. Cashen's Letter.

Mr. Cashen determined that burrow density at the Project site was more than double that of the I-15 Alternative sites he surveyed (0.67 burrows/mile on the Project site, and 0.30 burrows/mile on the I-15 site). The



difference was statistically significant at  $P < 0.01$ ). Mr. Cashen's results are comparable to those reported by other Desert tortoise experts.

In addition, lands adjacent to I-15 were originally proposed for translocation areas for tortoises cleared from the Project site. It is unclear what the status of that plan is now. However, at the request of the CDFG and the CEC staff, the applicant conducted vegetation sampling at several sites proposed for desert tortoise translocation. Results of those surveys support the Sierra Club's alternative to reconfigure the project. Specifically, the surveys indicated that approximately half of the sampling locations in the vicinity of I-15 had plant species richness too low to be viable for desert tortoises (CDFG's criteria for translocation sites requires a comparable ecological make up to habitat where the tortoises currently reside). Therefore, lands adjacent to I-15 lacked enough plant diversity to support desert tortoise.

Finally, the ISEGS Project is comprised of approximately 200,000 individual and relatively small heliostats configured around centralized power towers that ultimately feed into the three main power blocks. DEIS at 3-6, 7; see also Figure 3 to Project Description. Given that the Project is actually three individual projects comprised of smaller individual components (unlike a large fossil fuel plant or large hydropower dam), there is inherent flexibility in the final configuration of the heliostats and power towers. Moreover, the Project's three separately-owned developments all have separate power purchase agreements with different utilities and separate start up dates. California Energy Commission Evidentiary Hearing, Testimony of John Woolard, January 12, 2010 at pp. 152-53. Consequently, the Project's configuration is sufficiently flexible to analyze a suite of alternatives that meet all of the Project's objectives.

#### **b. Other Alternatives**

The DEIS omitted a full alternatives analysis on the grounds that the BLM only received one right-of-way application, and viewed its discretion as limited to simply responding to the right-of-way as written. DEIS at 4-1. Sierra Club fails to see how the application in this case differed from most other projects involving commercial development. In the normal course, applicants present the agency with a fixed proposal and the agency prepares a full analysis of the project's impacts and investigates various alternatives to the applicant's prepared plans. The fact that the applicant itself did not provide BLM with an array of alternatives has no bearing on the agency's statutorily mandated analysis. The BLM must now start over and consider a meaningful range of alternatives that meet federal objectives. *Muckleshoot Indian Tribe v. USFS*, 177 F.3d 800, 813 (9th Cir. 1999) (Forest Service

violated NEPA by considering only no-action alternative and two other similar alternatives), *See also Sierra Club v. Dombeck*, 161 F.Supp.2d 1052, 1068 (D.Ariz. 2001) (EIS inadequate in part because of a failure to evaluate all reasonable alternatives). Each analysis must “[d]evote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.” 40 C.F.R. § 1502.14(b).

If, the BLM remains unwavering in its position that only the Project and No-Project alternatives are required, it must dismiss the application based on the overwhelming evidence that the Project’s impacts to Desert tortoise cannot be mitigated to an acceptable level. See Mr. Cashen’s Letter. If on the other hand, the agency supplements the EIS’ alternatives analysis, it must look at alternatives that actually avoid or reduce impacts to desert tortoise and other sensitive plant and animal species’ habitat.

The Sierra Club understands that the Project applicant intends to offer a minor Project revision that would slightly reduce the northern and western boundaries of Ivanpah 3. There is universal agreement that Ivanpah 3 would fragment habitat and severely impact desert tortoise. Thus a reduced Unit 3 would simply result in less renewable energy production while still permanently destroying important desert tortoise habitat on public land. BLM should not waste resources analyzing an alternative that would do little to avoid the Project’s most severe impacts on desert tortoise and its habitat *and* reduce power generation. It makes no sense for BLM to undertake a separate analysis of an alternative that is “not significantly distinguishable from alternatives actually considered, i.e., the proposed Project, or which have substantially similar consequences.” *Westlands Water District v. U.S. Dept. of Interior*, 376 F.3d 853 at 868 (9<sup>th</sup> Cir. 2004). Reconfiguring the Project so that all or most of it is developed on fragmented and disturbed land adjacent to I-15 achieves all of the Project’s objectives. Based on all of the evidence, including that in the next section, small adjustments to the Project footprint will still require translocation, an unnecessary and unacceptable method of mitigating impacts to listed Desert tortoise.

### **III. Project Reconfiguration Would Not Cause Glare or Safety Impacts**

Reconfiguring ISEGS along the I-15 corridor would not present any significant human health impacts or safety hazards from glare beyond what is already anticipated by the current configuration and expected to be minimized by conditions TRANS-3 and TRANS-4, as long as the power tower receivers and I-15 **facing**-heliostats are located at least 1,000 meters from the highway.

The DEIS concluded that solar radiation and light reflected from the proposed heliostats (but not from the proposed power tower receivers) “could cause a significant human health and safety hazard to observers in vehicles on adjacent roadways.” 6.12-29. The CEC staff recommended two measures to “minimize to the maximum extent possible and reduce health or safety risks” from the potential impacts of glare. DEIS at 6.10-1. TRANS-3 requires ISEGS to identify 1) potential sensitive receptors to glare, including motorists, who could access locations close to the project and 2) heliostat movements and positions that could result in solar radiation reflected away from view. 6.10-16. TRANS-3 also requires ISEGS to create a Heliostat Operating Plan designed to avoid potential human health and safety impacts from glare to sensitive receptors and to monitor – and investigate and mitigate as necessary – less-than-significant impacts. *Id.* TRANS-4 requires Ivanpah to verify that glare levels do not exceed a certain limit and requires glare monitoring over the life of the project. DEIS 6.10-20.

The CEC’s proposed conditions would have similar impact reduction and risk minimizing effects if the Project was reconfigured on land adjacent to I-15. To address visual impacts, the CEC staff analyzed the energy potentially absorbed by the retina (“solar radiation”). DEIS at 6.10-13. The highest intensity solar radiation emitted by a single heliostat is 3.125 kw/m<sup>2</sup> at a focal distance of 500 meters. This rate is well below what the CEC staff identified as maximum permissible exposure (MPE) of reflected sunlight for momentary exposure (10 kw/m<sup>2</sup>), but above the MPE for continuous exposure (1 kw/m<sup>2</sup>). 6.10-14. However, at 1,000 meters, the intensity of solar radiation drops to less than 1 kw/m<sup>2</sup>. *Id.* The applicant has also indicated that the project’s optimization software would prevent the mirrors from being aimed toward the freeway, further decreasing potential impacts from the heliostats. Thus, the impacts of solar radiation from I-15 facing-heliostats located 1,000 meters from I-15 do not pose a significant risk to human health and safety. DEIS at 6.10-15.

The CEC staff also evaluated the luminance or brightness perceived by observers at the project’s proposed site. The brightness of reflected light from a single heliostat is approximately 1.34 billion cd/m<sup>2</sup> at its surface. 6.10-18. Brightness dissipates to 35 million cd/m<sup>2</sup> at 370 meters from the heliostat surface, a temporarily blinding level if viewed directly, causing an observer to divert his eyes. *Id.* Nonetheless, this measurement is well below the FSA/DEIS standard for lighting of roadways signs (44 to 89 cd/m<sup>2</sup>). *Id.* at 17-18. The intensity of brightness continues to diminish as the distance from the source increases; therefore, the intensity of brightness to motorists located at least 1,000 meters from I-15 facing-heliostats would be well below 35 million cd/m<sup>2</sup>. DEIS at 6.10-19.

CEC condition TRANS-4 would reduce luminance at the nearest receptor, minimizing the potential distractions to motorists caused by heliostat specular reflections and diffuse reflections from the power tower receivers. 6.10-20. TRANS-4 would provide the same mitigation to visual impacts at a reconfigured site adjacent to I-15. Luminance from both the I-15 facing-heliostats and power tower receivers at a distance of 1,000 meters from I-15 is not likely to pose human health and safety risks above that expected by the current proposed configuration. Moreover, TRANS-3 and TRANS-4 would mitigate any unavoidable luminance impacts on passing motorists.

#### **IV. The DEIS Inadequately Analyzed the Impacts to the Desert Tortoise.**

Under NEPA the BLM's DEIS was required to fully disclose all project-related adverse environmental effects which cannot be avoided. 42 U.S.C.S. § 4332(2)(C). The DEIS did not adequately address the Project's impacts on Desert tortoise. Although there is a wealth of scientific information showing that the Project will adversely and irreversibly impact the California population of the Mojave Desert tortoise, the following analysis is based purely on federal documents, i.e., the DEIS, the 1994 Recovery Plan and the 2008 Draft Recovery Plan. U. S. Fish & Wildlife Service *Desert Tortoise (Mojave Population) Recovery Plan* (1994); US Fish & Wildlife Service, *Draft Revised Recovery Plan for the Mojave Population of the Desert Tortoise (Gopherus agassizii)*. U.S Fish & Wildlife Service, California and Nevada Region, 2 (2008).

The Mojave population of the desert tortoise (*Gopherus agassizii*) was listed as a federally threatened species in 1990. 55 FR 12,178. In California, state laws have been in place since 1939 to protect the desert tortoise. The species was listed as threatened under the California Endangered Species Act in 1989 and is considered a "Species at Risk" under California's Wildlife Action Plan. According to the final federal listing, construction projects and energy development have significantly contributed to the destruction of native habitat. *Id.* The Project will destroy more than 4,000 acres of Desert tortoise habitat. The DEIS failed to adequately address the significant effects of the Project on Desert tortoise and failed to properly consider alternatives or mitigation to protect this federally-listed and protected species.

Throughout most of their range, tortoises are most common on gently sloping land where the ground is soft enough for them to dig into, but firm enough to ensure that their burrows do not collapse. *See* 2008 Draft Recovery Plan. The vast majority of threats to tortoise and their habitat come from human activity. *Id.* at V. NEPA requires that a complete

environmental impact statement be prepared to assess the impacts of any proposed projects on a listed species. The DEIS notes “[t]he ISEGS project, combined with the proposed 4,000-acre First Solar development immediately to the east, would eliminate a large swath of the better desert tortoise habitat found on the west side of I-15 within the Ivanpah Valley.” DEIS 6.2-71.

The Project area provides high quality habitat for the tortoise, with low levels of disturbance and high plant species diversity. DEIS 6.2-29. The population in this part of Ivanpah Valley is unique because it is the highest elevation at which the tortoise is known to live in California. *Id.* More importantly, tortoises in the Ivanpah Valley differ from other desert tortoise populations in California, and northeastern Mojave desert tortoises exhibit the greatest genetic differentiation of the five recognized units occurring in California (Murphy et al., 2007). The limited range, overall importance to genetic diversity, and behavioral adaptations underlie the need to conserve this desert tortoise population in California. The annual home range of a desert tortoise is estimated to be anywhere from 10-450 acres and is dependent on tortoise age, sex, availability of resources and the season. 1994 Recovery Plan.

**1. The DEIS did not Adequately Address the Direct Effects of the Project on the Desert Tortoise Population.**

The DEIS omitted any discussion the 1994 Final and 2008 Draft recovery goals. NEPA requires that the agency disclose to the public the underlying environmental data from which . . . [an] expert derived her opinion.” *Ecology Center v. Austin* 430 F.3d 1057, 1067-68 (9<sup>th</sup> Cir. 2005). Here, BLM was required to show, based on facts and evidence, that any federal approvals for the ISEGS Project was consistent with the 1994 Recovery Plan.

The 1994 and 2008 Plan recommend that land managers focus recovery efforts toward tortoise conservation areas; however, the Plans also emphasize that land managers should try to limit the loss of habitat outside conservation areas as much as possible. *Id.* The Recovery Plans emphasize that activities occurring outside the boundaries of existing tortoise conservation areas can negatively affect tortoise populations. Draft Recovery Plan.

In addition, the DEIS acknowledged that the direct impacts to the tortoise would be immense:

During construction of the ISEGS project desert tortoises may be harmed during clearing, grading, and trenching activities or may

become entrapped within open trenches and pipes. Construction activities could also result in direct mortality, injury, or harassment of individuals as a result of encounters with vehicles or heavy equipment. Other direct effects could include individual tortoises being crushed or entombed in their burrows, collection or vandalism, disruption of tortoise behavior during construction or operation of facilities, disturbance by noise or vibrations from the heavy equipment, and injury or mortality from encounters with workers' or visitors' pets. Desert tortoises may also be attracted to the construction area by application of water to control dust, placing them at higher risk of injury or mortality. **Increased human activity and vehicle travel would occur from the construction and improvement of access roads, which could disturb, injure, or kill individual tortoises.**

DEIS 6.2-47-48.

As discussed below, the mitigation measures set forth in the DEIS are insufficient. As such, these direct impacts would severely impact the desert tortoise, in contravention of the goals of the Endangered Species Act, the Recovery Plans and NEPA. Thus, the DEIS is inadequate.

## **2. The Project's Adverse Impacts Cannot be Mitigated**

According to the Recovery Plans, an integral factor in tortoise recovery “is maintaining the genetic and ecological variability known to exist within and among populations. This variation is necessary to allow tortoises to adapt to changes in the environment over time.” 2008 Draft Recovery Plan at p. 30. Also, because Desert tortoises occupy large home ranges, the “long-term persistence of extensive, unfragmented habitats is essential for the survival of the species.” *Id.* For this reason, translocating or relocating Desert tortoise either adjacent to I-15 or adjacent and west of the Project, will not work. Tortoises would essentially be stuck between two inhospitable habitats, curtailing their range. The DEIS acknowledges the potential dangers, but offers no other alternatives to the Project that would not translocate the tortoises into potentially fragmented habitat.

Still, the DEIS acknowledged the dangers of translocation: “[c]apturing, handling, and relocating desert tortoises from the proposed site after the installation of exclusion fencing could result in harassment and possibly death or injury.” DEIS 6.2-48. And, according to the DEIS, once a tortoise is moved outside of its home range, it will likely try to make its way back. DEIS 6.2-49. Indeed, **“translocation is fraught with long-term uncertainties, notwithstanding recent research showing short-term successes, and should not be considered lightly as a management option.”** *Id.*

NEPA regulations require that an EIS “include appropriate mitigation measures, not already included in the proposed action or alternatives.” 40 C.F.R. § 1502.14. Mitigation **includes avoiding the impact** by not taking certain actions, **minimizing impacts by limiting the degree of the action**, fixing the impacts by repairing or restoring the environment, reducing or eliminating impact over time by maintenance and preservation activities during the life of the action, or compensating for the effects by replacing or substituting resources or environments. 40 C.F.R. §1508.20 (emphasis added).

Also, the BLM was required to disclose mitigation measures in sufficient detail to ensure there has been a fair evaluation of environmental consequences. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989). The agency must take a hard look at these mitigation measures. *See, e.g., Neighbors of Cuddy Mtn. v. U.S. Forest Serv.*, 137 F.3d 1372 (9th Cir. 1998). Courts will find an EIS inadequate when it does not adequately discuss mitigation measures or does not discuss mitigation measures it should have discussed. *See, e.g., Environmental Defense Fund v. Froehlke*, 473 F.2d 346 (8th Cir. 1972) (failure to include land acquisition as mitigation measure for impact of channelization project on migratory fowl); *Oregon Nat. Res. Council v Harrell*, 52 F.3d 1499 (9th Cir. 1995) (remanded to consider additional mitigation measures); *Friends of the Earth v. Hall*, 693 F.Supp. 904 (W.D. Wash. 1988) (questioning mitigation measures).

Here, the DEIS completely failed as an information document concerning plans to relocate or translocate Desert tortoise. The DEIS completely omits a translocation plan for the public and decision makers to review:

Staff’s proposed Condition of Certification BIO-9 requires development of a final Desert Tortoise Translocation Plan in consultation with staff, CDFG and USFWS to address outstanding concerns that these agencies have regarding the specifics of the plan. Now that a satisfactory translocation site has been identified, staff concludes that implementation of this condition would minimize harm to desert tortoise during relocation and translocation activities associated with construction of the ISEGS.

DEIS 6.2-51.

This reliance on a state agency to analyze a Project’s impacts on federally endangered species and then propose mitigation for that species

violates NEPA on two grounds. First, the DEIS does not even disclose where the “satisfactory translocation site” is located in relation to the Project. Failure to provide any information on the relocation plan, the principle mitigation scheme, is per se a violation of NEPA.

Second, the BLM was required to disclose the adverse impacts associated with translocation itself. For example, successful translocation activities are considered to have approximately a 20% mortality rate. Recently, however, a large-scale translocation was attempted near Fort Irwin. Of the approximately 600 tortoises moved, at least 250 of them died.<sup>3</sup> In reality, that mortality estimate is low, as tortoises are currently in hibernation and the full impact of the translocation efforts on the tortoise population remains to be seen. Failure to examine and disclose the recent Fort Irwin experiment violates NEPA’s “hard look” requirement for the proposed mitigation measures. *See Seattle Audubon Soc. V. Espy*, 998 F.2d 699, 704 (9<sup>th</sup> Cir. 1993) (court found that forest service failed to take a hard look where it did not address in any meaningful way reports concluding that the spotted owl was declining more substantially and quickly than had been thought.)

In short, the Project’s disclosed impacts, combined with the undisclosed impacts associated with translocation show that the Project’s effects on Desert tortoise in the Ivanpah Valley could be catastrophic.

## V. Conclusion

The Sierra Club, members of the public, other environmental organizations, and various biologists for agencies and the applicant have, combined, provided overwhelming evidence showing that the Project would present detrimental if not devastating impacts on the federally listed Desert tortoise population in the Ivanpah Valley. Nevertheless, these comments show that the BLM may still issue a right-of-way that would allow the Project to generate all 400 MW of renewable energy *and still* avoid the most severe impacts on the Desert tortoise and other rare and sensitive desert species. Simply put, the BLM must reconfigure the Project adjacent to I-15.

\\\

\\\

\\\

---

<sup>3</sup> Rhishja Larson, *Army’s Desert Tortoise Translocation Plans Successfully Halted* (available at <http://ecolocalizer.com/2009/09/14/armys-desert-tortoise-translocation-plans-successfully-halted/>) (Sept. 14, 2009).



Therefore, the Sierra Club respectfully requests that the BLM revise and recirculate the DEIS consistent with these comments or reject the ROW application. Thank you for your consideration.

Dated: February 11, 2010

Respectfully submitted,



---

Gloria Smith, Senior Attorney  
Sierra Club  
85 Second Street, Second floor  
San Francisco, CA 94105  
(415) 977-5532 Voice  
(415) 977-5739 Facsimile  
gloria.smith@sierraclub.org

Devorah Ancel, Law Fellow  
Sierra Club  
85 Second Street, Second floor  
San Francisco, CA 94105  
(415) 977-5500 Voice  
(415) 977-5739 Facsimile  
devorah.ancel@gmail.com

February 9, 2010

Ms. Gloria D. Smith  
The Sierra Club  
85 Second Street, Second Floor  
San Francisco, California, 94105

**Subject: Comments on Draft Environmental Impact Statement for the Ivanpah Solar Electric Facility Generating System Project**

---

Dear Ms. Smith:

This letter contains my comments on the Draft Environmental Impact Statement (DEIS) prepared for the Ivanpah Solar Electric Facility Generating System Project (Project). My comments are directed specifically at the Bureau of Land Management's (BLM) analysis of project alternatives, and the failure of the BLM to examine an alternative, that in my professional opinion, would have considerably less of an impact on the desert tortoise (*Gopherus agassizii*) and other sensitive biological resources.

I am an environmental biologist with 17 years of professional experience in wildlife ecology, forestry, and natural resource management. For the past ten years I have served as an environmental consultant focusing on biological resource investigations. I have additional professional experience as a wildlife researcher, consulting forester, and instructor of wildlife management for the Pennsylvania State University. My educational background includes a B.S. in Resource Management from the University of California at Berkeley, and a M.S. in Wildlife and Fisheries Science from the Pennsylvania State University.

The comments contained herein are based on my knowledge and experience, my review of environmental documents pertaining to the Project, a site-specific field study, and the testimony presented at the Project evidentiary hearings. The information gathered from these sources has led me to the following conclusions:

1. The Project would have a significant adverse impact on the State and federally threatened desert tortoise and several special-status plant species.
2. The DEIS failed to analyze a proposed project alternative that would have greatly reduced impacts on sensitive biological resources, including the desert tortoise.
3. There is substantial evidence that reconfiguring the proposed Project closer to Interstate 15 would greatly reduce Project impacts on the desert tortoise and other sensitive biological resources.
4. The conclusions reached by a California Energy Commission (CEC) biologist were based on a hastily conducted qualitative analysis. Upon review of this

biologist's conclusions, it should be clear to any trained scientist that the conclusions were unsupported, and thus, invalid.

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

## **THE PROPOSED PROJECT'S IMPACTS ON DESERT TORTOISES**

The DEIS states the proposed project would result in the permanent loss of approximately 4,073 acres of occupied desert tortoise habitat, and that a minimum of 25 desert tortoises would need to be translocated off the project site.<sup>1</sup> In addition to direct loss of habitat, the project would fragment and degrade adjacent habitat, and could promote the spread of invasive non-native plants and desert tortoise predators such as ravens. Based on these factors, the DEIS concluded the **proposed project would result in impacts that would be significant with respect to NEPA significance criteria in 40 CFR 1508.27.**<sup>2</sup>

The DEIS proposes translocation as a mitigation measure for Project impacts to desert tortoises. However, translocation itself is known to have a significant impact on desert tortoises. The risks and uncertainties of translocation to desert tortoises are well recognized in the scientific community, and they were acknowledged in the DEIS.<sup>3</sup> The Science Advisory Committee of the Desert Tortoise Recovery Office has stated desert tortoise translocation is fraught with long-term uncertainties.<sup>4</sup> The high level of mortality associated with the recent Ft. Irwin translocation efforts highlights the need to refine mitigation strategies for impacts to desert tortoise. In the meantime, impact avoidance remains the only reliable strategy to maintaining viable desert tortoise populations.

Given the dangers translocation poses to desert tortoises, the California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and other wildlife experts have expressed concern regarding the outcome of proposed desert tortoise translocations for the Project.<sup>5</sup> Wildlife agencies and experts have requested that BLM address these concerns as part of any translocation plan approved for the Project.<sup>6</sup>

The DEIS provides no information on how the Project will reduce the risks and uncertainties associated with translocating desert tortoises. Despite repeated requests by wildlife agencies, the applicant has not yet provided a Desert Tortoise Translocation Plan acceptable to the CDFG and USFWS.<sup>7</sup> Without details on how the translocation plan will differ from other plans (which resulted in high levels of mortality), or even the locations where tortoises will be released, translocation cannot be considered a viable form of mitigation.

---

<sup>1</sup> DEIS, p. 6.2-1.

<sup>2</sup> *Id.*

<sup>3</sup> *Id.*, p. 6.2-49.

<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

## **THE DEIS FAILED TO ANALYZE OTHER VIABLE PROJECT ALTERNATIVES**

On June 22, 2009, the Sierra Club submitted a letter to the BLM asking the BLM to analyze an alternative project configuration that relocated the Project closer to I-15. The Sierra Club letter contained several scientifically valid reasons why the BLM should consider the proposed alternative. These included (a) empirical data indicating the proposed Project site contained more than twice the density of desert tortoises as the proposed alternative site; and (b) information on the adverse effects roads (e.g., I-15) are known to have on desert tortoise populations. The DEIS failed to analyze the Sierra Club's proposed alternative, or any alternatives besides the "Proposed Project" and "No Project" alternatives. Nevertheless, from a biological resources perspective the "Sierra Club Alternative" would have less severe impacts at all levels of analyses. However, if only the "Proposed Project" and "No Project" alternatives are available for consideration, in my professional judgment, the BLM must eliminate the Proposed Project alternative from consideration due to the significant adverse effects it will have on the desert tortoise and other sensitive biological resources and habitat.

### **Ecosystem-level Analysis**

Basic principles of conservation biology and landscape ecology support the conclusion that the Sierra Club Alternative would not have the same ecological *system-level* impacts as the proposed Project site, and that the Alternative's impacts to individual plant and animal species would be less severe than the proposed Project. Habitat fragmentation, community-level disturbance, edge-effects, and introduction of exotic species are all known threats to the long-term viability of many plant and animal species.<sup>8</sup> With respect to the desert tortoise, Boarman (2002) conducted a thorough review of the literature and concluded that fragmentation, loss of habitat, and habitat alteration can result in habitat being largely useless to tortoise populations.<sup>9</sup>

Each of these ecological concerns would be greater at the proposed Project site than at the Sierra Club Alternative. This conclusion is not debatable; it's obvious. Because the Sierra Club Alternative is located nearer to the Interstate and the Primm Valley Golf Club, it would result in less habitat fragmentation, community-level disturbance, and edge-effects than the proposed site. Similarly, roads and anthropogenic disturbance are known vectors for invasive plant and animal species; locating the Project adjacent to existing roads and disturbance (i.e., the golf course) would minimize the adverse effects associated with invasive species. The DEIS acknowledges these ecological concerns,<sup>10</sup> but fails to consider the viable, proposed alternative that would clearly alleviate them.

---

<sup>8</sup> Meffe GK, CR Carroll. 1997. Principles of Conservation Biology, 2nd edition. Sinauer Associates, Inc., Sunderland, MA.

<sup>9</sup> Boarman WI. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. Sacramento (CA): 86 p.

<sup>10</sup> DEIS, p. 4-5.

## Organism-level Analysis

There is undisputed evidence that roads have an adverse effect on tortoise populations. These adverse effects have been well documented, thus making it clear that the Sierra Club Alternative would have less of an impact on desert tortoises than the proposed Project site.<sup>11 12</sup> Road kill is considered a significant source of mortality to desert tortoises. Boarman and Sazaki (1996) reported a conservative estimate of one tortoise killed per 3.3 km (2 mi) of road surveyed per year.<sup>13</sup> A common mitigation for the impacts of roads and highways is a barrier fence, which has been shown to be highly effective at reducing mortality in tortoises and other vertebrates in the west Mojave.<sup>14</sup> However, fences only increase the fragmenting effects of roads on habitat.<sup>15</sup> Preliminary results of an eight-year study indicate that culverts are used by tortoises to cross highways,<sup>16</sup> but it is unknown whether their use is sufficient to ameliorate the fragmenting effects of fenced highways.<sup>17</sup>

In addition to direct mortality, roads and highways are believed to have several indirect effects on tortoise populations. Habitat fragmentation by satellite urbanization and high-density highways (e.g., I-15) may be preventing essential desert tortoise metapopulation processes and, ultimately, species recovery.<sup>18</sup> The presence of roads and highways may lead to increased predation on desert tortoises (and other species) by providing a travel corridor and reliable food source.<sup>19</sup> For example, common ravens, which are predators on juvenile tortoises, are known for cruising road edges.<sup>20</sup>

---

<sup>11</sup> LaRue EL, Jr. 1992. Distribution of desert tortoise sign adjacent to Highway 395, San Bernardino County, California. Proceedings of the Desert Tortoise Council 1992 Symposium. pp. 190-204. (Exhibit 609)

<sup>12</sup> Nicholson L. 1978. The effects of roads on desert tortoise populations. Proceedings of the Desert Tortoise Council 1978 Symposium. pp. 127-129. (Exhibit 610)

<sup>13</sup> Boarman WI, M Sazaki. 1996. Highway mortality in desert tortoises and small vertebrates: success of barrier fences and culverts. Pages 169 - 173 in Transportation and wildlife: reducing wildlife mortality and improving wildlife passageways across transportation corridors. G Evink, D Zeigler, P Garrett, J Berry, editors. U.S. Department of Transportation, Federal Highway Administration, Washington, DC.

<sup>14</sup> *Id.*

<sup>15</sup> Boarman WI. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. Sacramento (CA): 86 p. (Exhibit 611)

<sup>16</sup> Boarman WI, T Goodlett, GC Goodlett. 1998. Review of radio transmitter attachment techniques for chelonian research and recommendations for improvement. Herpet. Rev. 29:26-33.

<sup>17</sup> Boarman WI, M Sazaki. 1996. Highway mortality in desert tortoises and small vertebrates: success of barrier fences and culverts. Pages 169 - 173 in Transportation and wildlife: reducing wildlife mortality and improving wildlife passageways across transportation corridors. G Evink, D Zeigler, P Garrett, J Berry, editors. U.S. Department of Transportation, Federal Highway Administration, Washington, DC. (Exhibit 612)

<sup>18</sup> Tracy CR, R Averill-Murray, W Boarman, D Delehanty, J Heaton, E McCoy, D Morafka, K Nussear, B Hagerty, P Medica. 2004. Desert Tortoise Recovery Plan Assessment. Available at: [http://www.fws.gov/nevada/desert\\_tortoise/dtro\\_recover\\_plan\\_assess.html](http://www.fws.gov/nevada/desert_tortoise/dtro_recover_plan_assess.html).

<sup>19</sup> Boarman WI, M. Sazaki. 2006. A highway's road-effect zone for desert tortoises (*Gopherus agassizii*). Journal of Arid Environments 65:94-101.

<sup>20</sup> Boarman WI. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. Sacramento (CA): 86 p.

Roads and highways are a vector for introduced plant and animal species, which may affect desert tortoises and other native species in adjacent areas.<sup>21</sup> Other potentially harmful activities that likely occur in greater numbers near roads include: mineral exploration, illegal dumping of garbage and toxic wastes, release of ill tortoises, vandalism, handling and harassing of tortoises, illegal collection of tortoises, and anthropogenic fire.<sup>22</sup>

The numerous direct and indirect adverse effects of roads and highways may deplete desert tortoise populations two miles or more away.<sup>23</sup> Research studies conducted by Boarman and Sazaki (2006); Nicholson (1978); Von Seckendorff Hoff and Marlow (1997); and other researchers have detected a statistically significant relationship between road distance and presence of desert tortoise sign.<sup>24</sup> In sum, numerous studies have demonstrated roads and highways have several adverse impacts on desert tortoise populations. Many of these impacts result in habitat degradation, which may significantly reduce habitat quality for tortoises.<sup>25</sup> The cumulative effects of habitat loss and degradation have been implicated as causes in the extirpation and drastic reductions in tortoise populations in several locations.<sup>26</sup>

More specific to the Ivanpah Valley, the results of several research studies, and our site-specific data, suggest I-15 has adverse effects on the local tortoise population. The proposed Project location would contribute to the cumulative effects of these adverse effects; it conflicts with principles of conservation biology; and it is in direct opposition to the Desert Tortoise Recovery Plan.<sup>27</sup> Therefore, it is my professional opinion that there is ample evidence suggesting locating the Project adjacent to the Interstate would cause less impacts to the desert tortoise (and other sensitive wildlife) than the currently proposed location.

## **Site-level Analysis**

### Vegetation Sampling

At the request of the CDFG and the CEC staff, the applicant conducted vegetation sampling at several sites proposed for desert tortoise translocation. Results of those surveys support the Sierra Club Alternative. Specifically, they indicated that approximately half of the sampling locations in the vicinity of I-15 had plant species

---

<sup>21</sup> Boarman WI, M. Sazaki. 2006. A highway's road-effect zone for desert tortoises (*Gopherus agassizii*). *Journal of Arid Environments* 65:94-101. (Exhibit 612)

<sup>22</sup> Boarman WI. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. Sacramento (CA): 86 p.

<sup>23</sup> *Id.*

<sup>24</sup> *See* Boarman WI, M. Sazaki. 2006. A highway's road-effect zone for desert tortoises (*Gopherus agassizii*). *Journal of Arid Environments* 65:94-101.

<sup>25</sup> Boarman WI. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. Sacramento (CA): 86 p.

<sup>26</sup> *Id.*

<sup>27</sup> U.S. Fish and Wildlife Service. 1994. Desert Tortoise (Mojave Population) Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon.

richness too low to be viable for desert tortoises (CDFG's criteria for the translocation areas was that they have comparable ecological make up as the habitat where the tortoises currently reside).<sup>28</sup> Therefore, lands adjacent to I-15 lacked enough plant diversity to support desert tortoise.

### Desert Tortoise Burrow Sampling

In proposing its alternative, the Sierra Club provided credible evidence supporting the hypothesis that the land near I-15 supports fewer desert tortoises than the proposed Project site. However, recent desert tortoise surveys had not been conducted for the lands adjacent to I-15, and thus the hypothesis was untested. As a result, I led a field study that was specifically designed to test the hypothesis that tortoises were less abundant near the Interstate than at the Project site. Because desert tortoises would have been hibernating at the time of the study, I used the presence of tortoise burrows as an index of relative abundance. I collected data from both sites (i.e., Project and "I-15"), then used statistical analysis to determine if there was a significant difference between the number of desert tortoise burrows between the two sites.<sup>29</sup>

Burrow density at the proposed Project site was more than double that of the I-15 site (0.67 burrows/mile on the Project site, and 0.30 burrows/mile on the I-15 site). The difference was statistically significant at  $P < 0.01$ ). My results are comparable to those reported by Berry (1984), in which she reported tortoise density estimates in the Project area to be slightly more than double that of lower lying habitat along I-15 (50-100/sq mile versus 20-50/sq mile, respectively).<sup>30</sup>

## **FEASIBILITY OF OTHER PROJECT ALTERNATIVE**

The proposed Project would have a significant impact on the desert tortoise population. After viewing and reviewing all of the available testimony, and other evidence, I have concluded that the Project could be reconfigured to have considerably less impact on the Ivanpah Valley's desert tortoise population. My conclusion is supported by my examination of site conditions, the testimony provided by the experts, and the scientific literature.

Figure 1 depicts land suitable for Project reconfiguration such that it would reduce impacts on desert tortoises and desert tortoise habitat. The land depicted in Figure 1 contains approximately one-half the density of desert tortoises as the proposed Project site. Furthermore, it encompasses land known to provide lower value to the desert tortoise due to its proximity to I-15, the golf course, and other types of anthropogenic disturbance. These considerations are particularly important to the long-term recovery of

---

<sup>28</sup> CH2MHILL. 2009 Aug 10. Vegetation Surveys for Potential Relocation and Translocation Areas. Supplemental Data Response, Set 2I, Ivanpah Solar Electric Generating System (07-AFC-5). Letter from John Carrier, Program Manager to John Kessler, Project Manager, California Energy Commission.

<sup>29</sup> More information on the methods used for the study are provided in my testimony before the California Energy Commission attached here.

<sup>30</sup> Berry KH. 1984. The Status of the Desert Tortoise (*Gopherus agassizii*) in the United States. US Fish and Wildlife Services on Purchase Order No. 11210-0083-81.

the species. “High quality” habitat provides little value to recovery if it is not suitable for long-term occupation. As desert tortoise expert Dr. Ron Marlow stated in his testimony, “lots of really good potential habitat is not occupied by tortoises because of the impacts of the existing road.”<sup>31</sup> The proposed alternative site encompasses such habitat.

The land depicted in Figure 1 excludes the 1000-foot Caltrans ROW for the Joint Point of Entry and a 0.25-mile ROW for the Los Angeles Department of Water and Power. It encompasses approximately 3,072 acres of land adjacent to anthropogenic disturbance and known to have low plant species richness. Overall, the location occupies the lower elevation region that has lower species diversity.<sup>32 33</sup> From an ecological perspective, these lands would aggregate anthropogenic disturbance, and thus reduce the many indirect Project impacts (e.g., fragmentation, invasive species, edge-effects) on the desert tortoise. These lands should be used to reconfigure the Project closer to I-15.

Finally, through our discussions, I understand the applicant is proposing to avoid direct impacts to a strip of land along the northernmost portion of Ivanpah 3. This proposed reduction would do very little to reduce impacts to the desert tortoise, and it would do virtually nothing to ameliorate the long-term impacts of the Project on the local tortoise population. This is because a reduction of Ivanpah 3 would not reduce habitat fragmentation, edge effects and ecological disturbance. These conclusions are supported by both the record and the scientific literature. In my professional opinion, the only meaningful (and currently viable) alternatives to reducing Project impacts to desert tortoise are the No-Project alternative and a Project reconfiguration which utilizes the land depicted in Figure 1.

## **EXPERT TESTIMONY**

Between January 11 and 14, 2010, the California Energy Commission held evidentiary hearings on the application to construct and operate the ISEGS Project. With respect to desert tortoise impacts and protection, and Project alternatives, all of the experts that testified either directly or indirectly, supported the conclusion that the Sierra Club Alternative would have less of an impact on sensitive biological resources. This includes the experts presented by the applicant, agencies, and intervenors.

1. Mark Cochran and John Cleckler (applicant experts) testified that the margins of residential areas serve as a population sink to desert tortoises due to off-road activity, non-native predators, and a “number of different factors.” They further testified that collection of tortoises by humans has an adverse effect (tortoise collection frequently occurs along roadways).<sup>34</sup>

---

<sup>31</sup> Evidentiary Hearings Transcript. 2009 Jan 11. p. 419.

<sup>32</sup> See CH2MHILL. 2009 Aug 10. Vegetation Surveys for Potential Relocation and Translocation Areas. Supplemental Data Response, Set 2I, Ivanpah Solar Electric Generating System (07-AFC-5). Letter from John Carrier, Program Manager to John Kessler, Project Manager, California Energy Commission.

<sup>33</sup> DEIS, p. 4-45.

<sup>34</sup> Evidentiary Hearings Transcript. 2009 Jan 11. p. 146-147



2. Dr. W. Geoffrey Spaulding (applicant expert) testified that human caused edges (i.e., “edge effect”) and human activity have a deleterious effect on tortoise populations. Dr. Spaulding further testified that human development results in additional predators (e.g., common raven) in desert tortoise habitat.<sup>35</sup>
3. Dr. Michael Connor (Western Watersheds Project) testified that roads act as a sink to desert tortoise populations, resulting in fewer tortoises in the vicinity of roads.<sup>36</sup>
4. Dr. Ron Marlow (Defenders of Wildlife) testified that I-15 creates a significant impact on desert tortoises, and that “lots of really good potential habitat is not occupied by tortoises because of the impacts of the existing road.” Dr. Marlow testified that the impact can extend out to five kilometers from the road, and that the proposed Project location would further divide habitat. Dr. Marlow stated that the effect of losing habitat connectivity is fairly direct. Dr. Marlow concluded that linear impacts are more pervasive than very localized impact, and that “placing two linear impacts up against each other would make more sense” because it reduces the edge over which that impact is expressed in the population.<sup>37</sup>
5. Mark Jorgensen (Center for Biological Diversity) testified that the “obvious thing” to reduce impacts to bighorn sheep was to locate the Project further downslope in a more “impacted zone down near the freeway.”<sup>38</sup>
6. Dr. Susan Sanders (CEC staff) testified that her conversations about desert tortoise with experts at BLM and the Fish and Wildlife Service “all pointed to I-15 as being a problem with fragmentation.”<sup>39</sup> Dr. Sanders further testified that I-15 creates a problem to tortoise movement and habitat connectivity and that “there’s a problem with mortality from I-15.”<sup>40</sup> Dr. Sanders stated one of the most substantial effects of the Project on desert tortoise is loss of about 4,000 acres of occupied habitat, and fragmentation and disturbance to the adjacent habitat.<sup>41</sup>
7. Carolyn Chainey-Davis (CEC staff) testified that a mitigation technique agencies typically “love to see and push for” is one that maintains intact functioning ecosystems. Consequently, Ms. Chainey-Davis concluded the CEC needs to maybe re-examine a reconfigured footprint or reconfigured alternative.<sup>42</sup>
8. Dr. Andrew Sanders (applicant/U.C. Riverside Herbarium) testified that moisture was the limiting factor for the special-status plants that occur at the Project site. He stated that, in general, as elevation drops (e.g., towards the Interstate), the

---

<sup>35</sup> *Id.* p. 148-149.

<sup>36</sup> *Id.* p. 437-438.

<sup>37</sup> *Id.* p. 419-420.

<sup>38</sup> *Id.* p. 446-447.

<sup>39</sup> *Id.* p. 335.

<sup>40</sup> *Id.*

<sup>41</sup> *Id.* p. 284.

<sup>42</sup> *Id.* 2009 Jan 12. p. 191.

temperature increases and the amount of rainfall declines (therefore the water availability is greater up slope).<sup>43</sup>

9. Scott Flint (CDFG) testified that for mitigation, the Department seeks large, contiguous, easily manageable and defensible tracts of land; as well as lands that are near core populations or provide connectivity.<sup>44</sup>
10. Richard Anderson (CEC staff) testified that he agreed (a) quantitative data is better than qualitative data; (b) an assessment of actual occupancy and figuring out where the animal occurs is better than humans trying to predict where that animal might occur; (c) that there are ecological principles, such as fragmentation and maintenance of large blocks of habitat that are important to maintaining intact ecosystems; and (d) studies of desert tortoises have shown that roads are a sink for tortoises, and that they have an adverse effect (on tortoise populations).<sup>45</sup>

None of the above experts refuted any of the preceding testimony, nor did they discuss any alternative viewpoints with one exception. The only variation in the extensive evidence showing that locating the Project adjacent to disturbed land (e.g., the Interstate and golf course) came from Energy Commission staff biologist Richard Anderson. Mr. Anderson concluded that there is very little difference in value for desert tortoise and other special-status species between the proposed Project site and “I-15 alternative” site.<sup>46</sup>

Mr. Anderson’s conclusion contradicted established principles of conservation biology and the published work from dozens of desert tortoise researchers. More important, it contradicted the site-specific habitat assessment conducted by the applicant’s biological resource consultants, and my site-specific study that documented a significantly greater density of desert tortoises at the Project site than at the lands occupied by the I-15 Alternative. Mr. Anderson’s conclusion contradicted the testimony of the numerous experts presented by both the applicant and the intervenors at the Energy Commission’s evidentiary hearings. Finally, Mr. Anderson’s conclusion contradicted his own testimony, in which he stated he agreed that roads are a sink for desert tortoise, thereby adversely effecting desert tortoise populations overall. Mr. Anderson’s conclusion is so significantly flawed it warrants further discussion. In my opinion, Mr. Anderson’s conclusions are scientifically invalid and should not be a component of the BLM’s supplemental alternatives analysis for the DEIS.

Significant flaws with Mr. Anderson’s conclusion include:

1. Mr. Anderson testified that he sampled 11 variables across 7,128 acres (i.e., the area occupied by the two sites) in a single day in August. In my opinion, it would be impossible to collect reliable data or conduct a representative sample in such a short timeframe.

---

<sup>43</sup> *Id.* p. 115-116.

<sup>44</sup> *Id.* 2009 Jan 11, p. 338.

<sup>45</sup> *Id.* 2009 Jan 14, p. 230-231.

<sup>46</sup> DEIS, p. 4-45.

2. Mr. Anderson acknowledged that he did not collect any quantitative data. Rather, he “eye-balled” the two sites and used subjective factors to create numerical scores for habitat value. This type of data is considered unreliable.<sup>47</sup> Mr. Anderson’s data supports this assertion. For example, for the variable “Quality of Surrounding Habitat”, he provided every sampling site with the highest possible score of “3”.<sup>48</sup> He defines a “3” as high quality habitat with “little to no fragmentation, no nearby development, low or no recent grazing, and little human activity.”<sup>49</sup> The I-15 site is adjacent to Interstate 15 and a golf course. How then can one consider it to have little to no adjacent fragmentation, no nearby development, and little adjacent human activity?
3. Even the qualitative variables Mr. Anderson collected have little relevance to desert tortoise habitat quality. Instead of collecting information on variables that have been shown to be statistically significant predictors of desert tortoise habitat quality,<sup>50</sup> Mr. Anderson collected information on variables such as “Special Status Species Likely” and “Overall Habitat Quality for Wildlife”.<sup>51</sup> These variables are irrelevant to the desert tortoise.<sup>52</sup> In reference to use of indirect variables to measure habitat, Morrison (2006) states: “[m]any indirect measurements in the same analysis thus greatly compound the error in the results, making for weak conclusions.”<sup>53</sup>
4. The variables Mr. Anderson used are plagued by extreme co-linearity (i.e., two or more highly correlated variables), yet he treated them as independent. For example, how can the variable “Overall Habitat Quality for Tortoise” be used to evaluate “habitat quality for desert tortoises” (i.e., the purpose of his assessment)?<sup>54</sup> As a result of this co-linearity, Mr. Anderson violated basic statistical procedures.
5. Annual plants are known to be an important and preferred component of the desert tortoise diet. Arguably, sites with abundant and diverse annual plants provide higher “quality” habitat than those that do not. The USGS habitat model that was submitted as an exhibit to the evidentiary hearings includes annual plant growth potential as a significant predictor of desert

---

<sup>47</sup> See discussion provided in Boarman WI. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. Sacramento (CA): 86 p.

<sup>48</sup> Energy Commission Rebuttal Testimony, p. 36.

<sup>49</sup> Energy Commission Rebuttal Testimony, p. 34.

<sup>50</sup> See Nussear KE, TC Esque, RD Inman, LL Gass, KA Thomas, CSA Wallace, JB Blainey, DM Miller, RH Webb. 2009. Modeling habitat of the desert tortoise (*Gopherus agassizii*) in the Mojave and parts of the Sonoran Deserts of California, Nevada, Utah, and Arizona: U.S. Geological Survey Open-File Report 2009-1102, 18 p. (Exhibit 602)

<sup>51</sup> Energy Commission Rebuttal Testimony, p. 36.

<sup>52</sup> See Chapter 5 of Morrison ML, BG Marcot, and RW Mannan. 2006. Wildlife-Habitat Relationships: Concepts and Applications. 3<sup>rd</sup> ed. Washington (DC): Island Press. 493 p.

<sup>53</sup> See Chapter 5 of Morrison ML, BG Marcot, and RW Mannan. 2006. Wildlife-Habitat Relationships: Concepts and Applications. 3<sup>rd</sup> ed. Washington (DC): Island Press. 493 p.

<sup>54</sup> Energy Commission Rebuttal Testimony, p. 33.

tortoise habitat potential. However, Mr. Anderson’s assessment of habitat quality did not include a measure of annual plant cover, or even growth potential (as is used in the model).

6. Mr. Anderson assigned equal weight to each variable to derive a total score for each site. It’s well known that two variables rarely have an equal effect on an organism.<sup>55</sup> By assigning each variable equal weight, Mr. Anderson inherently produced unreliable results.
7. Mr. Anderson failed to establish a link between any of the variables he “measured” and desert tortoise habitat quality. That is, he never established whether shrub density (used to evaluate the variable “Dominant Shrubs”) provides high quality habitat (e.g., in the form of escape cover) or low quality habitat (e.g., due to competition with annual plants), and that his rationale is supported by scientific literature.

## CONCLUSION

The Project would result in numerous direct and indirect impacts on the desert tortoise population. It is my professional opinion that there has not been adequate mitigation to reduce these impacts to a level considered less-than-significant. As a result, the BLM must reject BrightSources’s ROW application.

The DEIS demonstrates that Project objectives could be maintained by a reconfigured design. All available evidence supports the conclusion that adopting a reconfigured design that includes the lands depicted in Figure 1 would reduce impacts on desert tortoise and other sensitive biological resources. The BLM should incorporate careful review of this alternative in a revised DEIS.

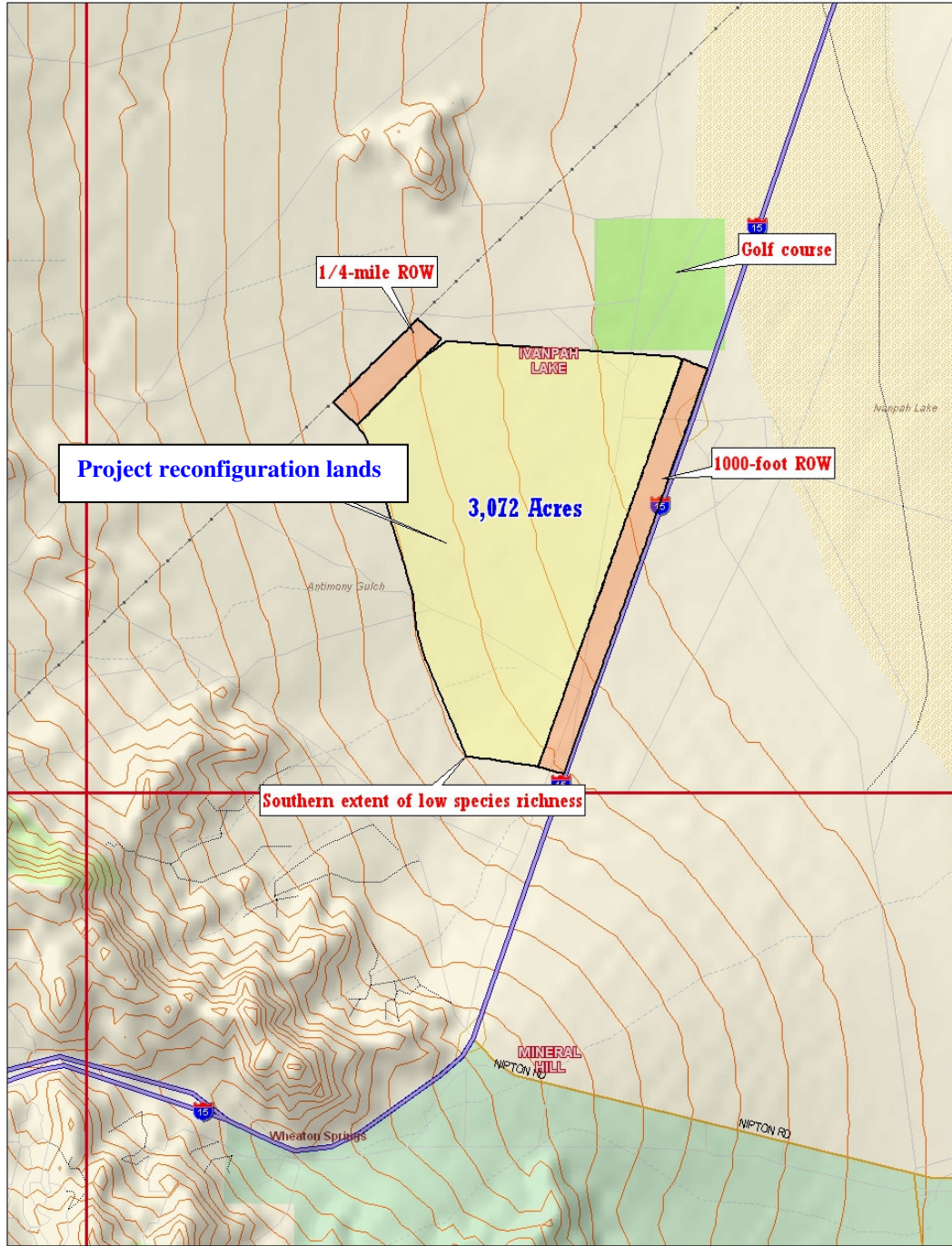
Sincerely,



Scott Cashen, M.S.  
Senior Biologist

---

<sup>55</sup> See Chapter 3 of Morrison ML, BG Marcot, and RW Mannan. 2006. Wildlife-Habitat Relationships: Concepts and Applications. 3<sup>rd</sup> ed. Washington (DC): Island Press. 493 p.



Data use subject to license.  
© 2004 DeLorme. XMap® 4.5.  
www.delorme.com



**Scott Cashen, M.S.**

**Senior Biologist / Forest Ecologist**

*3264 Hudson Avenue, Walnut Creek, CA 94597. (925) 256-9185. scottcashen@gmail.com*

---

---

In his 17 years in the profession, Scott Cashen has consulted on projects pertaining to wildlife and fisheries ecology, avian biology, wetland restoration, and forest management. Because of his varied experience, Mr. Cashen is knowledgeable of the link between the various disciplines of natural resource management, and he is a versatile scientist.

Mr. Cashen’s employment experience includes work as an expert witness, wildlife biologist, consulting forester, and instructor of Wildlife Management. He has worked throughout California, and he is knowledgeable of the different terrestrial and aquatic species and habitats present in the state.

Mr. Cashen is an accomplished birder and is able to identify bird species by sight and sound. His knowledge has enabled him to survey birds throughout the United States and instruct others on avian identification. Mr. Cashen’s research on avian use of restored wetlands is currently being used by the United States Fish and Wildlife Service to design wetlands for specific “target” species, and as a model for other restored wildlife habitat monitoring projects in Pennsylvania. In addition to his bird experience, Mr. Cashen has surveyed for carnivores, bighorn sheep, and other mammals; special-status amphibian species; and various fish species.

**PROFESSIONAL EXPERIENCE**

**Litigation Support / Expert Witness**

Mr. Cashen serves as the biological resources expert for the San Francisco law firm of Adams Broadwell Joseph & Cardozo. He is responsible for reviewing CEQA/NEPA documents, assessing biological resource issues, preparing written comments, providing public testimony, and interfacing with public resource agencies.

**REPRESENTATIVE EXPERIENCE**

- Victorville 2 Solar-Gas Hybrid Power Project: Victorville, CA (338-acre natural gas and solar energy facility) – Review of CEQA equivalent documents and preparation of written documents.
- Avenal Energy Power Plant: Avenal, CA (148-acre natural gas facility) – Review of CEQA equivalent documents and preparation of written documents.
- Ivanpah Solar Electric Generating System: Ivanpah, CA (3700-acre solar facility) – Review of CEQA equivalent documents and preparation of written documents.
- Carrizo Energy Solar Farm: San Luis Obispo County, CA (640-acre solar energy facility) – Review of CEQA equivalent documents. Preparation of data requests, comments on Preliminary Staff Assessment, comments on wildlife corridor model (CEQA equivalent

documents).

- Live Oak Master Plan: Hanford, CA (390-acre housing development) – Review of CEQA documents and preparation of comment letter.
- Rollingwood: Vallejo, CA (214-unit housing development) – Review of CEQA documents and preparation of comment letter.
- Columbus Salame: Fairfield, CA (430,000 ft<sup>2</sup> food processing plant) – Review of CEQA documents and preparation of comment letter.
- Concord Naval Weapons Station: Concord, CA (5028-acre redevelopment) – Review of CEQA documents, preparation of comment letters, and provision of public testimony at County hearings.
- Chula Vista Bayfront Master Plan: Chula Vista, CA (556-acre development) – Review of CEQA documents and preparation of comment letter.
- Beacon Solar Energy Project: California City, CA (2012-acre solar facility) – Review of CEQA equivalent and NEPA documents. Preparation of data requests, comments on Preliminary Staff Assessment, comments on Incidental Take Permit Application. Expert witness providing testimony at California Energy Commission hearings.
- Solar One Power Project: San Bernardino County, CA (8230-acre solar facility) – Review of CEQA equivalent and NEPA documents and preparation of data requests. Expert witness providing testimony at California Energy Commission hearings.
- Solar Two Power Project: Imperial County, CA (6500-acre solar facility) – Review of CEQA equivalent and NEPA documents. Preparation of data requests and other documents for case record. Expert witness providing testimony at California Energy Commission hearings.
- Alves Ranch: Pittsburgh, CA (320-acre housing development) – Review of CEQA documents.
- Roddy Ranch: Antioch, CA (640-acre housing and hotel development) – Review of CEQA documents and preparation of comment letter.
- Aviano: Antioch, CA (320-acre housing development) – Review of CEQA documents.
- Western GeoPower Power Plant and Steamfield: Geyserville, CA (887-acre geothermal facility) – Review of CEQA documents and preparation of comment letter.
- San Joaquin Solar I & II: Fresno County, CA (640-acre hybrid power plant) – Review of CEQA equivalent documents and preparation of data requests.
- Sprint-Nextel Tower: Walnut Creek, CA (communications tower in open space preserve) - Review of project documents and preparation of comment letter.

## **Project Management**

Mr. Cashen has managed several large-scale and high profile natural resources investigations. High profile projects involving multiple resources often require consideration of differing

viewpoints on how resources should be managed, and they are usually subject to intense scrutiny. Mr. Cashen is accustomed to these challenges, and he is experienced in facilitating the collaborative process to meet project objectives. In addition, the perception of high profile projects can be easily undermined if inexcusable mistakes are made. To prevent this, Mr. Cashen bases his work on solid scientific principles and proven sampling designs. He also solicits input from all project stakeholders, and provides project stakeholders with regular feedback on project progress. Mr. Cashen's educational and project background in several different natural resource disciplines enable him to consult on multiple natural resources simultaneously and address the many facets of contemporary land management in a cost-effective manner.

## REPRESENTATIVE EXPERIENCE

- Forest health improvement projects – Biological Resources (*CDF: San Diego and Riverside Counties*)
- San Diego Bark Beetle Tree Removal Project – Biological Resources, Forestry, and Cultural Resources (*San Diego Gas & Electric: San Diego Co.*)
- San Diego Bark Beetle Tree Removal Project - Forestry (*San Diego County/NRCS*)
- Mather Lake Resource Management Study and Plan – Biological Resources, Hydrology, Soils, Recreation, Public Access, CEQA compliance, Historic Use (*Sacramento County: Sacramento*)
- “KV” Spotted Owl and Northern Goshawk Inventory (*USFS: Plumas NF*)
- Amphibian Inventory Project (*USFS: Plumas NF*)
- San Mateo Creek Steelhead Restoration Project – TES species, Habitat Mapping, Hydrology, Invasive Species Eradication, Statistical Analysis (*Trout Unlimited and CA Coastal Conservancy: Orange County*)
- Hillslope Monitoring Project – Forest Practice Research (*CDF: throughout California*)
- Placer County Vernal Pool Study – Plant and Animal Inventory, Statistical Analysis (*Placer County: throughout Placer County*)
- Weidemann Ranch Mitigation Project – Mitigation Monitoring and Environmental Compliance (*Toll Brothers, Inc.: San Ramon*)
- Delta Meadows State Park Special-status Species Inventory – Plant and Animal Species Inventory, Special-status Species (*CA State Parks: Locke*)
- Ion Communities Biological Resource Assessments – Biological Resource Assessments (*Ion Communities: Riverside and San Bernardino Counties*)
- Del Rio Hills Biological Resource Assessment – Biological Resource Assessments (*The Wyro Company: Rio Vista*)



## Biological Resources

Mr. Cashen has a diverse background in biology. His experience includes studies of a variety of fish and wildlife species, and work in many of California's ecosystems. Mr. Cashen's specialties include conducting comprehensive biological resource assessments, habitat restoration, species inventories, and scientific investigations. Mr. Cashen has led investigations on several special-status species, including ones focusing on the foothill yellow-legged frog, mountain yellow-legged frog, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, and forest carnivores. Mr. Cashen was responsible for the special-status species inventory of Delta Meadows State Park, and for conducting a research study for Placer County's Natural Community Conservation Plan.

### REPRESENTATIVE EXPERIENCE

#### *Avian*

- Study design and Lead Investigator - Delta Meadows State Park Special-status Species Inventory (*CA State Parks: Locke*)
- Study design and lead bird surveyor - Placer County Vernal Pool Study (*Placer County: throughout Placer County*)
- Surveyor - Willow flycatcher habitat mapping (*USFS: Plumas NF*)
- Independent surveyor - Tolay Creek, Cullinan Ranch, and Guadacanal Village restoration projects (*Ducks Unlimited/USGS: San Pablo Bay*)
- Study design and Lead Investigator - Bird use of restored wetlands research (*Pennsylvania Game Commission: throughout Pennsylvania*)
- Study design and surveyor - Baseline inventory of bird species at a 400-acre site in Napa County (*HCV Associates: Napa*)
- Surveyor - Baseline inventory of bird abundance following diesel spill (*LFR Levine-Fricke: Suisun Bay*)
- Study design and lead bird surveyor - Green Valley Creek Riparian Restoration Site (*City of Fairfield: Fairfield, CA*)
- Surveyor - Burrowing owl relocation and monitoring of artificial habitat (*US Navy: Dixon, CA*)
- Surveyor - Pre-construction raptor and burrowing owl surveys (*various clients and locations*)
- Surveyor - Backcountry bird inventory (*National Park Service: Eagle, Alaska*)
- Lead surveyor - Tidal salt marsh bird surveys (*Point Reyes Bird Observatory: throughout Bay Area*)

#### *Amphibian*

- Crew Leader - Red-legged frog, foothill yellow-legged frog, and mountain yellow-legged frog surveys (*USFS: Plumas NF*)
- Surveyor - Foothill yellow-legged frog surveys (*PG&E: North Fork Feather River*)
- Surveyor - Mountain yellow-legged frog surveys (*El Dorado Irrigation District: Desolation Wilderness*)
- Crew Leader - Bullfrog eradication (*Trout Unlimited: Cleveland NF*)

#### *Fish and Aquatic Resources*

- Surveyor - Hardhead minnow and other fish surveys (*USFS: Plumas NF*)
- Surveyor - Weber Creek aquatic habitat mapping (*El Dorado Irrigation District: Placerville, CA*)
- Surveyor - Green Valley Creek aquatic habitat mapping (*City of Fairfield: Fairfield, CA*)
- GPS Specialist - Salmonid spawning habitat mapping (*CDFG: Sacramento River*)
- Surveyor - Fish composition and abundance study (*PG&E: Upper North Fork Feather River and Lake Almanor*)
- Crew Leader - Surveys of steelhead abundance and habitat use (*CA Coastal Conservancy: Gualala River estuary*)
- Crew Leader - Exotic species identification and eradication (*Trout Unlimited: Cleveland NF*)

#### *Mammals*

- Principal Investigator – Peninsular bighorn sheep resource use and behavior study (*California State Parks: Freeman Properties*)
- Scientific Advisor – Red Panda survey and monitoring methods. Study on red panda occupancy and abundance in eastern Nepal (*The Red Panda Network: CA and Nepal*)
- Surveyor - Forest carnivore surveys (*University of CA: Tahoe NF*)
- Surveyor - Relocation and monitoring of salt marsh harvest mice and other small mammals (*US Navy: Skagg's Island, CA*)

#### *Natural Resource Investigations / Multiple Species Studies*

- Scientific Review Team Member – Member of the science review team assessing the effectiveness of the US Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.
- Lead Consultant - Baseline biological resource assessments and habitat mapping for CDF management units (*CDF: San Diego, San Bernardino, and Riverside Counties*)
- Biological Resources Expert – Peer review of CEQA/NEPA documents (*Adams Broadwell Joseph & Cardoza: California*)

- Lead Consultant - Pre- and post harvest biological resource assessments of tree removal sites (*SDG&E: San Diego County*)
- Crew Leader - T&E species habitat evaluation for BA in support of a steelhead restoration plan (*Trout Unlimited: Cleveland NF*)
- Lead Investigator - Resource Management Study and Plan for Mather Lake Regional Park (*County of Sacramento: Sacramento, CA*)
- Lead Investigator - Wrote Biological Resources Assessment for 1,070-acre Alfaro Ranch property (*Yuba County, CA*)
- Lead Investigator - Wildlife Strike Hazard Management Plan (*HCV Associates: Napa*)
- Lead Investigator - Del Rio Hills Biological Resource Assessment (*The Wyro Company: Rio Vista, CA*)
- Lead Investigator – Ion Communities project sites (*Ion Communities: Riverside and San Bernardino Counties*)
- Surveyor – Tahoe Pilot Project: CWHR validation (*University of California: Tahoe NF*)

## **Forestry**

Mr. Cashen has five years of experience working as a consulting forester on projects throughout California. During that time, Mr. Cashen has consulted with landowners and timber harvesters on best forest management practices; and he has worked on a variety of forestry tasks including selective tree marking, forest inventory, harvest layout, erosion control, and supervision of logging operations. Mr. Cashen's experience with many different natural resources enable him to provide a holistic approach to forest management, rather than just management of timber resources.

## **REPRESENTATIVE EXPERIENCE**

- Lead Consultant - CDF fuels treatment projects (*CDF: San Diego, Riverside, and San Bernardino Counties*)
- Lead Consultant and supervisor of harvest activities – San Diego Gas and Electric Bark Beetle Tree Removal Project (*SDG&E: San Diego*)
- Crew Leader - Hillslope Monitoring Program (*CDF: throughout California*)
- Consulting Forester – Inventory and selective harvest projects (*various clients throughout California*)

## **EDUCATION / SPECIAL TRAINING**

- M.S. Wildlife and Fisheries Science, The Pennsylvania State University (1998)
- B.S. Resource Management, The University of California-Berkeley (1992)
- Forestry Field Program, Meadow Valley, California, Summer (1991)

**PERMITS**

U.S. Fish and Wildlife Service Section 10(a)(1)(A) Recovery Permit for the Peninsular bighorn sheep

CA Department of Fish and Game Scientific Collecting Permit

**PROFESSIONAL ORGANIZATIONS / ASSOCIATIONS**

The Wildlife Society

Society of American Foresters

Mt. Diablo Audubon Society

**OTHER AFFILIATIONS**

Scientific Advisor and Grant Writer – *The Red Panda Network*

Scientific Advisor – *Mt. Diablo Audubon Society*

Grant Writer – *American Conservation Experience*

Land Committee Member – *Save Mt. Diablo*

**TEACHING EXPERIENCE**

Instructor: Wildlife Management, The Pennsylvania State University, 1998

Teaching Assistant: Ornithology, The Pennsylvania State University, 1996-1997



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

APPLICATION FOR CERTIFICATION  
FOR THE *IVANPAH SOLAR ELECTRIC  
GENERATING SYSTEM*

DOCKET No. 07-AFC-5  
PROOF OF SERVICE  
(Revised 3/11/10)

**APPLICANT**

Solar Partners, LLC  
John Woolard,  
Chief Executive Officer  
1999 Harrison Street, Suite #500  
Oakland, CA 94612

Todd A. Stewart, Project Manager  
Ivanpah SEGS  
[sdeyoung@brightsourceenergy.com](mailto:sdeyoung@brightsourceenergy.com)  
**E-mail Preferred**

Steve De Young, Project Manager  
Ivanpah SEGS.  
1999 Harrison Street, Ste. 2150  
Oakland, CA 94612  
[tstewart@brightsourceenergy.com](mailto:tstewart@brightsourceenergy.com)

**APPLICANT'S CONSULTANTS**

John L. Carrier, J. D.  
2485 Natomas Park Dr. #600  
Sacramento, CA 95833-2937  
[jcarrier@ch2m.com](mailto:jcarrier@ch2m.com)

**COUNSEL FOR APPLICANT**

Jeffery D. Harris  
Ellison, Schneider  
& Harris L.L.P.  
2600 Capitol Avenue, Ste. 400  
Sacramento, CA 95816-5905  
[jdh@eslawfirm.com](mailto:jdh@eslawfirm.com)

**INTERESTED AGENCIES**

California ISO  
[e-recipient@caiso.com](mailto:e-recipient@caiso.com)

Tom Hurshman,  
Project Manager  
Bureau of Land Management  
2465 South Townsend Ave.  
Montrose, CO 81401  
[tom\\_hurshman@blm.gov](mailto:tom_hurshman@blm.gov)

Raymond C. Lee, Field Manager  
Bureau of Land Management  
1303 South U.S. Highway 95  
Needles, CA 92363  
[Raymond\\_Lee@ca.blm.gov](mailto:Raymond_Lee@ca.blm.gov)

Becky Jones  
California Department of  
Fish & Game  
36431 41st Street East  
Palmdale, CA 93552  
[dfgpalm@adelphia.net](mailto:dfgpalm@adelphia.net)

**INTERVENORS**

California Unions for Reliable Energy ("CURE")  
c/o: Tanya A. Gulesserian  
Marc D. Joseph  
Adams Broadwell Joseph & Cardozo  
601 Gateway Boulevard, Ste 1000  
South San Francisco, CA 94080  
[tgulesserian@adamsbroadwell.com](mailto:tgulesserian@adamsbroadwell.com)

Western Watersheds Project  
Michael J. Connor, Ph.D.  
P.O. Box 2364  
Reseda, CA 91337-2364  
[mjconnor@westernwatersheds.org](mailto:mjconnor@westernwatersheds.org)

Gloria Smith, Joanne Spalding  
Sidney Silliman, Devorah Ancel  
Sierra Club  
85 Second Street, 2<sup>nd</sup> Fl.  
San Francisco, CA 94105  
**E-mail Service Preferred**  
[gloria.smith@sierraclub.org](mailto:gloria.smith@sierraclub.org)  
[joanne.spalding@sierraclub.org](mailto:joanne.spalding@sierraclub.org)  
[gssilliman@csupomona.edu](mailto:gssilliman@csupomona.edu)  
[devorah.ancel@sierraclub.org](mailto:devorah.ancel@sierraclub.org)

\*indicates change

**INTERVENORS CONT.**

Joshua Basofin, CA Rep.  
Defenders of Wildlife  
1303 J Street, Ste. 270  
Sacramento, CA 95814

**E-mail Service Preferred**

[jbasofin@defenders.org](mailto:jbasofin@defenders.org).

Basin and Range Watch  
Laura Cunningham

Kevin Emmerich

P.O. Box 70

Beatty, NV 89003

[atmictoadranch@netzero.net](mailto:atmictoadranch@netzero.net)

Center for Biological Diversity

Lisa T. Belenky, Sr. Attorney

Ileene Anderson, Public Lands Desert Director

351 California Street, Ste. 600

San Francisco, CA 94104

**E-mail Service Preferred**

[lbelenky@biologicaldiversity.org](mailto:lbelenky@biologicaldiversity.org)

[ianderson@biologicaldiversity.org](mailto:ianderson@biologicaldiversity.org)

California Native Plant Society

Greg Suba, Tara Hansen & Jim Andre

2707 K Street, Suite 1

Sacramento, California, 95816-5113

**E-mail Service Preferred**

[gsuba@cnps.org](mailto:gsuba@cnps.org)

[thansen@cnps.org](mailto:thansen@cnps.org)

[granites@telis.org](mailto:granites@telis.org)

County of San Bernardino

Bart W. Brizzee, Deputy Co. Counsel

385 N. Arrowhead Avenue, 4<sup>th</sup> Fl.

San Bernardino, California, 92415

[bbrizzee@cc.sbcounty.gov](mailto:bbrizzee@cc.sbcounty.gov)

**ENERGY COMMISSION**

JEFFREY D. BYRON

Commissioner and Presiding Member

[jbyron@energy.state.ca.us](mailto:jbyron@energy.state.ca.us)

JAMES D. BOYD

Vice Chairman and

Associate Member

[jboyd@energy.state.ca.us](mailto:jboyd@energy.state.ca.us).

Paul Kramer

Hearing Officer

[pkramer@energy.state.ca.us](mailto:pkramer@energy.state.ca.us)

John Kessler

Project Manager

[jkessler@energy.state.ca.us](mailto:jkessler@energy.state.ca.us)

Dick Ratliff

Staff Counsel

[dratliff@energy.state.ca.us](mailto:dratliff@energy.state.ca.us)

Jennifer Jennings

Public Adviser

[publicadviser@energy.state.ca.us](mailto:publicadviser@energy.state.ca.us)

**DECLARATION OF SERVICE**

I, Violet Leheres declare that on April 1, 2010, I served and filed copies of the attached, brief dated, April 1, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: **[[www.energy.ca.gov/sitingcases/ivanpah](http://www.energy.ca.gov/sitingcases/ivanpah)].**

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

**(Check all that Apply)**

**FOR SERVICE TO ALL OTHER PARTIES:**

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

**AND**

**FOR FILING WITH THE ENERGY COMMISSION:**

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

**OR**

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

**CALIFORNIA ENERGY COMMISSION**

Attn: Docket No. 07-AFC-5  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512  
[docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)

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

Violet Leheres