

SUNPOWER

February 19, 2009

Mr. John Kessler
Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

DOCKET

07-AFC-8

DATE FEB 19 2009

RECD. FEB 19 2009

Subject: SunPower Comments on Data Model Inputs
Wildlife Corridor Study for the Carrizo Energy Solar Farm Project,
Docket No. 07-AFC-8

Dear Mr. Kessler:

In response to your request, SunPower is providing these comments and input regarding the Wildlife Corridor Study being conducted by SC Wildlands under contract to the California Energy Commission (CEC) as part of your review of the Carrizo Energy Solar Farm Project proposed by Ausra CA II, LLC (Ausra).

BACKGROUND AND SCOPE OF REVIEW

Three solar power projects have been proposed in the Carrizo Plain in eastern San Luis Obispo County. The sites for these projects are located near the former ARCO photovoltaic (PV) power plant, which was the largest such facility in the world from 1984 to 1993. The Ausra project is the subject of review by CEC because it proposes a solar thermal system, similar in some respects to a conventional power plant. Our project and that proposed by OptiSolar would both use solar PV technology and are not subject to CEC review, but are being reviewed under the County Conditional Use Permit and CEQA process. The three projects have been described as necessitating a cumulative impact analysis for which the corridor study is to be used.

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At the outset, we emphasize that SunPower is committed to the responsible management of all natural resources and we fully intend to comply with all applicable statutes and regulations that govern the management of threatened and endangered species. We also view all natural resources as including air quality and climate, and we are committed to the implementation of energy policies adopted at the state and federal level. These policies are aimed at retarding the broader global cumulative impacts of "business as usual" in our society's energy production and use.

Our comments below and attached are based on a review of several documents and on information gained at an inter-agency meeting in San Luis Obispo on February 4, 2009. The documents reviewed include:

- Draft Habitat Connectivity Planning for Selected Focal Species in the Carrizo Plain. This is the proposal and scope of work by SC Wildlands to conduct the corridor study, which was distributed by you at the Preliminary Staff Assessment meeting in California Valley in December, and posted on your web site December 29, 2009.
- The assumptions and input documents posted on the CEC website, which were available to us on Thursday, January 29, 2009. These include:
 - Carrizo veg map legend (1-27-09).pdf
 - Criteria Rankings Carrizo (1-27-09).xls
 - Google Earth Maps.zip, which contained the following files:
 - carrizo veg map (1-27-09).kmz
 - carrizo_protected_lands_map_(1-27-07).kmz
 - carrizo_roads_map_(1-27-09).kmz
 - Quick tips for using Google Earth and kmz Files.pdf
 - Study Area Delineation (1-27-09)
 - Carrizo veg map (1-27-09).zip, which contained
 - Carrizo veg map (1-27-09).kmz
- Other correspondence, schedules and documents from the CEC web site.
- Recovery Plan for Upland Species of the San Joaquin Valley, and other literature related to San Joaquin kit fox.

Attending the meeting with the County of San Luis Obispo on February 4, 2009, were the following:

- County of San Luis Obispo, Environmental and Resource Management Division: John McKenzie, Trevor Keith

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- California Department of Fish and Game (CDFG) David Hacker
- U.S. Fish and Wildlife Service, Susan Jones
- SunPower representatives and their biological consultant (URS Corporation, Central Coast)
- OptiSolar representatives and their biological consultant (Althouse and Meade)

In addition to the above information, we also had brief and informal communication with Kristeen Penrod at SC Wildlands and Brian Cypher at CSU Stanislaus.

GENERAL COMMENTS

We recognize the potential value of such corridor studies in regional planning. All of the studies cited by SC Wildlands in their proposal to you were regional, or perhaps multi-regional, in scope. Of the 16 reports available on the SC Wildlands website, only one appears to deal with a specific “project” in the sense of a single ownership – and that one addresses Tejon Ranch, a property of over 270,000 acres. In this context, we agree that a corridor study of the Carrizo Plain region and its interconnections with nearby regions may be a valuable contribution to resource agency planning. We also note from your record, that this particular corridor study was suggested and promoted by CDFG, which has a strong interest in, and desire for, such regional planning. While we recognize its potential value, we are less confident that the type of study being undertaken will have high utility in resolving issues associated with specific projects, at specific locations, with specific surroundings. Both the SC Wildlands proposal and the County staff indicate the intent to use this modeling effort in an analytical fashion to define impacts and to judge the effectiveness of mitigation. We have seen only the most general discussions of impacts and mitigation in other reports of this type. While it may provide some useful results, much additional work is still necessary for an adequate impact assessment. Given the much more detailed and site-specific information that is gathered through other required studies, the usefulness of a regional corridor analysis for a site-specific analysis is reduced.

The timing and progression of the study also warrant a general comment. We understand the time pressures associated with all of these projects, and recognize the efforts by you, agency staff, and our fellow applicants, to move all these projects forward expeditiously. Moving too quickly at this point, however, may not expedite the process. In their proposal, SC Wildlands defined a two-step process to the modeling effort: Step 1 – Landscape Permeability Analysis and Coordination with Experts, followed by Step 2 – Habitat Suitability, Patch Size, and Configuration Analyses. Your draft schedule for this process indicates that these two steps will be accomplished by February 17. The “Coordination with Experts”

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portion of Step 1 in the modeling effort appears to be limited to SC Wildlands' use of literature information and past consultation processes, and whatever input is possible by others in a few days of reviewing information from your web site. We do not fault SC Wildlands in making the best of a difficult situation and schedule. The consequences, however, of applying this effort to the analysis of specific projects are much different from those associated with regional planning efforts. We believe that more reasonable care and attention should be applied in the study. If your applicant in this matter were proposing such a study and schedule, we are confident that many would argue for a more thoughtful process.

We were assured by Mr. Hacker from CDFG that one of the values of the proposed corridor study using GIS techniques was the generation of "unbiased" results. We understand his meaning. It is incorrect, however, to believe that a result is free from bias simply because it is performed on a computer. Statistical errors or misapplications, systematic errors in input assumptions, or other sources may lead to bias. Our reviews indicate that the scientists at SC Wildlands are aware of the limitations of their process, and they are to be commended for their past efforts to recognize and respond to these issues. Nevertheless, a very careful review of all inputs, analytical processes, and interpretations of results is warranted. It is in the spirit of identifying and then minimizing sources of error, that we offer our comments.

CONCLUSION

The attached notes and requests for clarification present the results of our reviews. We have questions about some of the input assumptions, as well as about some details of the methodology. We present these with the intent of being cautiously supportive of the planning effort. We will continue our own work, however, in reaching a project design and set of appropriate management procedures to ensure the maintenance and protection of natural resources and our compliance with applicable federal and state law. Our project is not involved with the CEC process, but we will work in a cooperative effort with Ausra and OptiSolar to contribute our fair share towards appropriate measures to address cumulative effects.

Sincerely,



Brian Parker
SunPower Corporation, Systems

**Requests for Clarifications and Information Regarding the
Proposed Wildlife Corridor Study for the Carrizo Energy Solar Farm Project,
Docket No. 07-AFC-8**

1. Methodology – Derivation of Rankings

Background

In a scale of landscape permeability running from “1” = best to “10” = worst, here are some sample rankings from the information provided:

<u>Vegetation Type</u>	<u>Permeability Ranking</u>
Cropland	1
Dryland Grain Crops	1
Annual Grassland	3
Alkali Desert Scrub	8
Agriculture [not defined]	9

Based on our understanding, these are rankings, not absolute values or integers. Thus, the assignment of permeability “1” to Dryland Grain Crops does not necessarily mean that such land is three times more permeable than “3,” Annual Grassland. Nor is Annual Grassland exactly 2.67 times more permeable than “8” Alkali Desert Scrub. This is not a mere quibble over style and format, but is a very pervasive and serious mistake in statistical analysis. One goal in seeking expert opinion in the establishment of such rankings lies in trying to make the data as “integral” as possible to minimize the potential for error. We understand that SC Wildlands derived the individual rankings or ratings from a combination of literature review, and consultations with kit fox and other experts during performance of a similar corridor study dealing with the same species in a different region. We also know that several techniques are available to provide an indication of variability in model output as a function of possible input errors, but the performance of such an analysis is not part of the scope of work presented by SC Wildlands.

Request

Please provide a more thorough description of how the landscape permeability ratings were derived, and what controls or uncertainties are associated with them. Please have the study incorporate a sensitivity analysis or other appropriate mechanism to document the degree of variability that may be anticipated in its results.

2. Data Input and Mapping – Vegetation

Background

There are several discrepancies between regional vegetation mapping done by the state (available with updates on the County of San Luis Obispo web site), and the vegetation mapping provided in the corridor study assumptions used by SC Wildlands.

Three specific examples follow, which are located as items 1, 2 and 3 in the attached figure. In each of these areas, the statewide mapping from the County of San Luis Obispo shows the vegetation as Annual Grassland, but the SC Wildlands shows a different vegetation type.

1. In the area of the OptiSolar project and its immediate vicinity (shown as 1 in the attached figure), the vegetation type has been changed to one or two shades of yellow, representing some form of agricultural use (presumably cropland or dry land grain crops).
2. In the land north of and adjacent to SR 58 (shown as 2 in the attached figure) the vegetation type has been changed to Pasture.
3. In the land generally southwest of the California Valley subdivision area (shown as 3), the vegetation type has been changed to Alkali Desert Scrub.

In the SC Wildlands proposal, Task 1, Step 1, includes updating vegetation with 1-meter resolution aerial photographs “if necessary.” Apparently this update occurred in selective areas; and this process should be documented and reviewed. With the three specific examples cited, the effect of these mapping changes is to increase the permeability of lands on or near the proposed solar power projects and to decrease the permeability elsewhere. Whether by coincidence or intent, this type of change may affect results significantly, and illustrates the importance of very close review.

The rationale for updating vegetation mapping on the basis of a single new air photo might also be questioned since at a different season the ground cover may be entirely different, leading to a different agricultural mapping unit.

In our meeting with agency staff in San Luis Obispo on February 4, 2009, we asked the County and CDFG about the distinction between different types of agriculture land. The agricultural practices in the Carrizo Plain are sharply seasonal, and there is a significant temporal variation in permeability (i.e. in spring the crops are at their greatest height; while summer through winter, little

vegetation exist in these areas, especially if tilled). Mr. Hacker from CDFG responded that seasonal variations are considered in the assignment of the overall permeability rating for each vegetation type. It is not clear that this is the case, and if so, it is not clear how the distinction is made among the several types of agricultural vegetation.

Request:

Please provide the following information:

- either GIS shape files with attributes, or an improved color scheme and vegetation legend, so that distinctions can be made between vegetation types with similar or identical colors
- an explanation of how the vegetation mapping update was performed, and who did that work (i.e. SC Wildlands, the County of SLO, other agencies or consultants)
- an explanation of how seasonality was considered by which experts in distinguishing among the various agricultural vegetation units

3. Data Input and Mapping – Value of Landscape Permeability Ratings

Background

A brief example of several vegetation type ratings for permeability is provided above. Literature citations are the Excel spreadsheet of Criteria Rankings for the qualitative descriptions of each vegetation type, but the process of translating these qualitative descriptions to numerical ratings is not clear, even if a panel of experts was used.

Our consulting biologists have spent months in the field, making regular and continuous observations of many factors. Based on that experience, they suggest the following:

- Annual Grassland should receive a ranking of 1, because average annual grassland height is relatively low (1-2 feet) in the growing season and much shorter late spring through fall. Annual Grasslands also have patchy distribution in this area as they are mixed with forbs and open areas.
- Dry Grain Crops of barley, wheat, and alfalfa are taller than most annual grasses, hardier (more resistant to movement) and uniform in height and distribution. During the summer through fall, bare ground may be present. A ranking of 2 or 3 would be more appropriate.

There was some discussion at the inter-agency meeting with the County regarding mapping and consideration of fence lines. While fence lines would seem to be at

least a possible factor, and likely an important one for some species, there does not appear to be any consideration of fence lines as part of the model, either with respect to permeability or habitat suitability. In the notes within the criteria rankings, there are several statements to the effect that permeability within specific vegetation types is “poorer if fenced,” but there does not appear to be an input process to assess the presence or influence of fences. We understand the County is attempting to gather some data in this regard.

Request

Please consider the alternate ratings for vegetation permeability presented above, as part of a fuller explanation of how the numerical ratings were derived. If available and in a form that can be used in the model effort, please incorporate fencing information either as a separate parameter or in a more explicit fashion in the permeability ratings.

4. Data Input and Mapping – Roads

Background

We understand that the County’s data base of roads was used as the foundation for this layer in the data set, and we understand that the parameter is computed as a ratio of road length per unit of mapping area. This approach does not distinguish between widths and pavement types for different roads. While this lack of discrimination may be acceptable with respect to “permeability” for kit fox passage where least cost energy expenditure is the only value to be optimized, we question the omission of probability of road kills at this point. Certainly Bitterwater Road and SR 58 provide a higher probability of road kill mortality than most ranch roads in the region. Thus, even if they are “permeable” from an energy expenditure viewpoint they may represent a relative barrier when compared to other roads.

We also understand that the type of road pavement is an important factor in the movement of tule elk—hard road pavement is a major, if not absolute, barrier. It is not at all clear how this is incorporated into the model system.

Request:

Please provide background information on the interpretations or ratings for road density related to kit fox (no citations are in the material posted), and an explanation of how road type is input to the model relative to tule elk. Again, our understanding is that major paved roads represent essentially an absolute barrier to tule elk.

5. Data Input and Mapping – Habitat Suitability and Resident Populations

Background

Step 2 of the modeling effort addresses habitat suitability along and at ends of the defined corridors. The assumptions regarding how this is determined are less thoroughly documented than those for landscape permeability. There may be two separate concepts or components of the effort that have been confused in this respect. We understand that the “sightings” data for kit fox will be used as a surrogate to estimate relative population density and then compared with the “protected lands” layer to identify the locations of core populations to be connected. This is an obvious matter with the Carrizo Plains National Monument area, but is not so obvious in other areas. There appear to be different types of sightings data, and based on the information provided it would appear that they may be treated as equally representative of real populations. We were informed that there are little or no data available regarding movement of kit foxes.

The identification of suitable habitat “patches” adequate to support viable populations is a stated goal of Step 2 of the modeling effort by SC Wildlands. The assumption for kit fox habitat, contained in the "kit fox HS" tab of your Criteria Rankings Excel workbook with a citation of Zoellick et al 2002, is 11.6 square kilometers for a “home range” in the Carrizo Plain. In context, this appears to be related to interconnecting satellite populations with the identified core populations, or perhaps it is related to the desire to identify areas suitable for habitat improvement. But the same tab in the workbook also cites a much smaller home range of 2.59 square kilometers, applicable to "patch sizes." It is not clear how these different ranges in size are to be applied in the study.

We understand that most of the sightings data for tule elk are from a CDFG data base of radio tracking a small number of females (2 we were told, although the citation in the data provided indicates females from four subherds). Since the major portion of the SunPower project site is south of the paved, two-lane SR 58, effects on tule elk are not expected to be a major issue with our project. For the cumulative effects questions associated with the other solar projects, however, we believe that the actual movement information, as well as the spot locations data provided, may be useful.

The issue of habitat suitability, how it is determined and mapped, and how it is used in the process requires a better explanation, and perhaps more study on our part. For now, however, we do have specific questions.

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Request:

We believe that the available kit fox data provides a distinction among sightings, observed den locations, observed natal dens, and possibly other information. Please provide mapping of this data, since it may improve understanding of suitable habitat locations.

Please provide access to or copies of the data base files containing tule elk movement information.

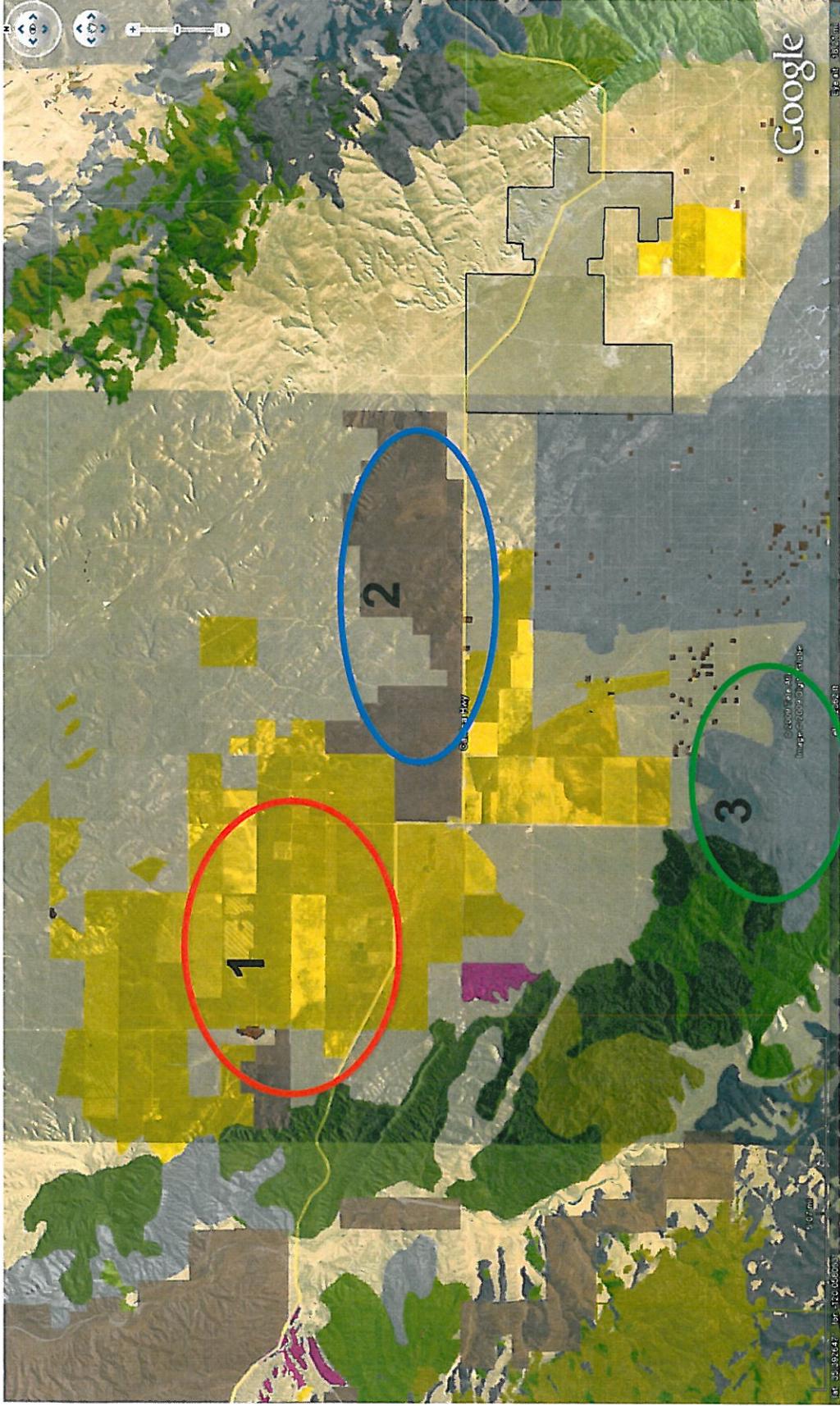


Figure 1: CEC Corridor Study Vegetation Mapping