CHAPTER 4
OTHER STATUTORY REQUIREMENTS

This section describes growth-inducing impacts, irreversible and irretrievable commitments of resources, and the relationship between short-term uses of the environment and long-term productivity of the proposed project under Alternatives A and B and the no action (no permit) alternative. The no action (no build) alternative would have no growth-inducing impacts, irreversible or irretrievable commitments of resources, or short-term uses of the environment.

4.1 GROWTH-INDUCING IMPACTS

NEPA implementing regulations at 40 CFR Section 1508.8(b) require that EIS preparers discuss growth-inducing impacts of a project. The discussion must address how a proposed project may remove obstacles to growth or encourage or facilitate other activities that could significantly impact the environment, either individually or cumulatively. Typically, the growth-inducing potential of a proposed project would be considered significant if it were to foster growth or a concentration of population above what is assumed in local and regional land use plans or in projections made by regional planning authorities. Significant growth impacts could also occur if a project were to add infrastructure or service capacity that could accommodate growth levels that exceed those permitted by local or regional plans and policies.

Alternatives A and B and the no action (no permit) alternative would not result in growth-inducing impacts related to population, housing, services, or infrastructure. They also would not have growth-inducing impacts related to future energy development in eastern San Benito County given land use, contractual, and biological impediments to additional utility-scale projects in the Panoche Valley. These impediments include the availability of land and federal, state, and local permitting requirements related to sensitive species.

The PG&E telecommunication upgrades would not result in growth-inducing impacts.

4.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

A resource commitment is considered irreversible when direct and indirect impacts from its use limit future use options. Irreversible commitments apply primarily to nonrenewable resources, such as cultural resources, and also to those resources that are renewable only over long periods, such as soil productivity. A resource commitment is considered irretrievable when the use or consumption of the resource is neither renewable nor recoverable for future use. Irretrievable commitment applies to the loss of production, harvest, or natural resources.

Alternatives A and B and the no action (no permit) alternative would not result in a large commitment of nonrenewable resources. Land would be disturbed during construction. There would be some loss of vegetation, habitats, and wildlife resources. Cattle grazing would be excluded from the project footprint. Land not needed for operation and maintenance of the facilities would be reclaimed immediately after construction. At the end of the useful life of the proposed project, developed lands could be reclaimed as well.

Project construction would require the irretrievable commitment of fossil fuels (diesel and gasoline), oils, and lubricants used by construction equipment and by workers commuting to the site. Construction materials and some equipment that may not be productively recycled would be consumed by the proposed project.

Cultural resources are by their nature irreplaceable, so altering or eliminating any such resource would represent an irreversible and irretrievable commitment, if such a resource were uncovered. No irretrievable commitment of biological resources would occur, as no species would become extinct. In addition, the applicant would conserve approximately 24,176 acres of Valley Floor Conservation Lands and off-site habitat under the no action (no permit) alternative and approximately 25,618~~24,176~~ acres of Valley Floor Conservation Lands, On-site Conservation Lands, and off-site habitat under Alternatives A and B for affected species, providing protected and potentially enhanced habitat for species even if the project footprint was not used by wildlife. Conservation easements would be in perpetuity; therefore, certain future uses of those lands would be precluded if the uses were to conflict with the goals for which the easements had been created, even ~~after~~ if the proposed project is decommissioned in the future.

Alternatives A and B and the no action (no permit) alternative would increase the availability of electricity generated from renewable sources. Measures listed in **Appendix C** would be implemented to ensure that all natural resources are conserved to the maximum extent practicable.

4.3 THE RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

This section compares the potential temporary effects of the proposed project to the potential effects on its long-term productivity. The USACE must consider the degree to which a proposed project or alternatives would sacrifice a resource value that might benefit the environment in the long term for some temporary value to the applicant or the public.

Implementing Alternatives A and B and the no action (no permit) alternative would require the use of environmental resources for constructing the PV arrays, the substation, the switching station, access roads, inverters, the operations and maintenance facility, and collection lines. Construction-related surface disturbance would occur for temporary staging areas, building foundations, and some site preparation in areas of steeper grade.

The effects from these activities are soil disturbance, increased erosion potential, water use, vehicle and equipment emissions, fugitive dust, and habitat disturbance. Applicant-proposed measures and mitigation measures in **Appendix C** would minimize disturbances and reclaim or improve vegetation cover, soil, and wildlife habitat on these lands. To the extent that disturbances can be reclaimed, other productive use of these lands would not be precluded in the long term. Regional economies could experience temporary benefits from expenditures and employment opportunities during construction of the proposed project and long-term benefits from expenditures, employment opportunities, and tax revenue over the life of the project.

Land within the project footprint would be lost to other productive uses. There would be some loss of vegetation, soil, and quality of habitat available for wildlife. The PV arrays would cause aesthetic impacts. Aesthetic resources would be affected on the project site for the life of these facilities or their successors. If no longer needed, these lands could be restored to pre-project conditions. Full recovery of these lands and restoration of any lost habitat or associated wildlife is possible but not assured.

Alternatives A and B and the no action (no permit) alternative would increase the availability of electricity generated from renewable energy sources. Implementing these alternatives would contribute toward meeting California's Renewable Portfolio Standards, described in **Section 1.4**, Project Purpose and Need. Overall, the proposed project's use of the environment has low adverse impact on the maintenance and enhancement of long-term productivity, as the development of a solar facility on the project site is unlikely to physically preclude other uses if the facility is decommissioned in the future. Implementing the no action (no permit) alternative would have no impact on areas designated as waters of the U.S.

CHAPTER 5
CONSULTATION AND COORDINATION

5.1 FEDERAL AGENCIES

US Fish and Wildlife Service
Doug Cooper, Ventura Field Office
Chris Diel, Ventura Field Office

5.2 STATE AGENCIES

Native American Heritage Commission
Debbie Pilas-Treadway
Katie Sanchez

California Office of Historic Preservation
Julianne Polanco

5.3 LOCAL AGENCIES

San Benito County, Planning & Building Inspection Services
Michael Krausie

Westlands Water District
Kiti Buelna Campbell
Jose Gutierrez

5.4 NATIVE AMERICAN TRIBES

Native American Heritage Commission Native American Contact Lists

Doug Alger, Cultural Resources Coordinator, Salinan Nation Cultural Preservation Association
Anthony Brochini, Chairperson, Southern Sierra Miwuk Nation
Jerry Brown, Chowchilia Tribe of Yokuts

Gregg Castro, Administrator, Salinan Nation Cultural Preservation Association
Robert Duckworth, Environmental Coordinator, Salinan Nation Cultural Preservation Association
Johnny Eddy, Jr., Xolon Salinan Tribe
Les James, Spiritual Leader, Southern Sierra Miwuk Nation
Jay Johnson, Spiritual Leader, Southern Sierra Miwuk Nation
Edward Ketchum, Amah Mutsun Tribal Band
Valentin Lopez, Chairperson, Amah Mutsun Tribal Band
Katherine Erolinda Perez, Ohlone/Costanonan, Northern Valley Yokuts
Ann Marie Sayers, Chairperson, Indian Canyon Mutsun Band of Costanoan
Xielolixii, Salinan-Chumash Nation
Irene Zwierlein, Chairperson, Amah Mutsun Tribal Band of Mission San Juan Bautista

CHAPTER 6
RESPONSE TO COMMENTS

6.1 INTRODUCTION

In accordance with the CEQ regulations implementing NEPA, a Final EIS shall provide responses to comments on the Draft EIS (40 CFR 1503.4). In compliance with those regulations, this Response to Comments chapter presents the comments received during the public review period on the Draft EIS and responses to substantive issues raised in those comments. This chapter considers all comments received during the public review period. **Section 6.2** contains the written comment letters and the public meeting transcript, while **Section 6.3** contains the USACE's responses to these comments. Note that the text in the **Chapter 6** tables, while additions in the Final EIS, are not underlined.

6.2 DRAFT EIS PUBLIC COMMENTS

The public had the opportunity to review and comment on the *Panoche Valley Solar Facility Draft EIS* during a 45-day public review period from September 11, 2015 to October 26, 2015. A request for an extension of time for the public comment period from the Sierra Club California, The Nature Conservancy, Defenders of Wildlife, and Center for Biological Diversity was received by the USACE on October 20, 2015. On October 23, 2015, the USACE notified the requesters of their determination that there is not a need to extend the comment period, after taking into consideration the timeliness of the distribution of the document, the prior involvement of the requesters in the proposed action, and the scope and complexity of the proposed action. The USACE also identified in their response that information, comments, or concerns could be provided at any time, which would be maintained in the administrative record and considered before a permit decision is made on the permit application. The public could submit written comments on the EIS to the USACE or provide verbal comments during two public meetings held on October 6 and 7, 2015. The public review process is described in detail in **Section 1.8.2**.

Sixteen written comment letters and nineteen verbal comments were received during the Draft EIS public comment period. Written comment letters have been assigned a letter, and discrete comments within each letter have been identified (**Table 6-1**). The transcript from the October 6, 2015 public meeting has likewise been coded to identify discrete comments by commenter (**Table 6-2**); no verbal comments were received at the October 7, 2015 public meeting.

Table 6-1
Comment Letters Received on the Draft EIS

Comment Letter #	Agency/Organization	Signature	Date Received
	FEDERAL AGENCIES		
A	US Environmental Protection Agency, Region IX	Kathleen Martyn Goforth, Manager, Environmental Review Section	October 28, 2015
B	US Department of the Interior, Office of Environmental Policy and Compliance	Patricia Sanderson Port, Regional Environmental Officer	October 23, 2015
C	US Department of the Interior, Bureau of Land Management, Central Coast Field Office	Rick Cooper, Hollister Field Manager	October 26, 2015
	STATE AGENCIES		
D	Office of Historic Preservation, Department of Parks and Recreation	Julianne Polanco, State Historic Preservation Officer	October 12, 2015
E	Central Valley Regional Water Quality Control Board	Debra Mahnke, Water Resource Control Engineer	October 19, 2015
	ORGANIZATIONS		
F	Aircraft Owners and Pilots Association (AOPA)	Rune Duke, Director, Airspace and Air Traffic	September 17, 2015
G	The Nature Conservancy	Erica Brand, California Energy Program Director	October 26, 2015 and October 30, 2015
H	Sierra Club, Defenders of Wildlife, and Center for Biological Diversity	Sarah Friedman, Senior Campaign Representative for the Beyond Coal Campaign, Sierra Club; Kim Delfino, California Director, Defenders of Wildlife; Ileene Anderson, Biologist, Center for Biological Diversity	October 26, 2015
I	Audubon Society of California	Garry George, Renewable Energy Director	October 29, 2015

Table 6-1
Comment Letters Received on the Draft EIS

Comment Letter #	Agency/Organization	Signature	Date Received
INDIVIDUALS			
J		William "Tim" Bean, Assistant Professor, Humboldt State University	October 23, 2015
K		Genesis Garcia	October 6, 2015
L		Pat McCullough	October 6, 2015
M		Daniela Salazar	October 6, 2015
N		Al Sciocchetti	October 7, 2015
O		Constance Vigno	November 2, 2015
P		Barry Sinervo, PhD	November 23, 2015

Table 6-2
Verbal Comments Received on the Draft EIS
October 6, 2015 Public Meeting[1]

Comment #	Agency/Organization	Signature
INDIVIDUALS		
T-1		Martin Richman
T-2		Bob Tiffany
T-3		Emery Smith
T-4		Paul Rovella
T-5		Robert Rodriguez
T-6		Jose Luis De La Rosa
T-7		Salvador Melchor Serrano
T-8		Jose Velasco
T-9		Nelson Serrano
T-10		Enos Innocente
T-11		Carlos Luis Gallegos
T-12		Daniela Salazar
T-13		Genesis Garcia
T-14		Jose Julio Flores
T-15		Leslie Curiel
T-16		John W. Eade
T-17		Carlos Vargas
T-18		Sergio Sanchez
T-19		Marcos Coviel

[1]No verbal comments were entered into the public record at the October 7, 2015 public meeting at Panoche Elementary School, Paicines, California.

Letter A

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco. CA 94105-3901

OCT 2 8 2015

Lisa Gibson
U.S. Army Corps of Engineers, Sacramento District
Regulatory Branch
1325 J Street, Room 1350
Sacramento, CA 95814-2922

Subject: Draft Environmental Impact Statement for the proposed Panoche Valley Solar Facility, San Benito County, California (CEQ #20150258)

Dear Ms. Gibson:

The U.S. Environmental Protection Agency has reviewed the Draft Environmental Impact Statement for the proposed Panoche Valley Solar Facility. Our review and comments are provided pursuant to the National Environmental Policy Act, the Council on Environmental Quality Regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act. We appreciate the U.S. Army Corps of Engineers willingness to accept and respond to our comment letter after the public comment period.

EPA supports increased renewable energy resource development. Using renewable energy resources, such as solar power, can help the nation meet its energy requirements while minimizing the generation of greenhouse gas emissions. The proposed project includes construction and operation of a 247 megawatt (MW) solar photovoltaic electricity generating facility on approximately 2,506 acres in eastern unincorporated San Benito County, with associated transmission infrastructure located in Fresno County, California.

I

EPA provided extensive formal scoping comments for the project on September 7, 2012, including detailed recommendations regarding purpose and need, range of alternatives, cumulative impacts, biological and water resources, and other resource areas of concern. We appreciate the efforts of the U. S. Army Corps of Engineers (USACE), the applicant, and its consultants to address our comments in the Draft EIS. We note that the project footprint has been reduced from 4,700 to 2506 acres to avoid certain impacts to aquatic and biological resources, and we are pleased to see that grading will be limited, and existing drainage patterns and vegetation will be maintained, where possible. We understand that the applicant has identified 24,176 acres of mitigation lands to compensate for impacts on biological and agriculture resources. We also note that some of our concerns, such as those pertaining to fugitive dust, valley fever, noise and traffic, have been addressed in the applicant-proposed measures and additional mitigation measures that were adopted in the San Benito County's conditional use permit process and are considered part of this proposed project (pg. 2-54).

Letter A

While we appreciate the substantial efforts that have been made to minimize the impacts of the proposed project on air and water resources, we are aware that the project, as proposed, would be located in a core recovery area for multiple threatened and endangered species. We note that the offsite Alternative C - Westlands CREZ, which would site the project in an area designated by California's Renewable Energy Transmission Initiative (RETI) as a Competitive Renewable Energy Zone, would avoid such high value habitat and offer substantial other advantages, as well. As noted in the DEIS, the Westlands CREZ acreage has been retired from agriculture due to water shortages and selenium contamination, is next to existing transmission and Gates Substation, and has the potential to accommodate up to 5,000 MW of solar energy. The CREZ lands are formally recognized as drainage impaired by the US Bureau of Reclamation, and do not contain a high degree of wildlife diversity or high-quality habitat. The DEIS concludes that the impacts of constructing and operating the project at that site would be less than significant, given the implementation of standard mitigation measures likely to be required by the involved permitting agencies. We recommend that the applicant consider siting the project at the Westlands CREZ location. 1 cont.

The USACE has not identified a preferred alternative in the Draft EIS. Based on our review, EPA is rating all alternatives evaluated in the document as *Lack of Objections* (LO) (Please see the enclosed "Summary of EPA Rating Definitions."). We recommend that the USACE identify, in the Final EIS, the Least Environmentally Damaging Practicable Alternative and the USACE's preferred alternative, and describe how the proposed project would comply with the Clean Water Act section 404(b)(1) Guidelines. The enclosed Detailed Comments provide additional recommendations to further minimize the impacts of the proposed project. 2

We are available to further discuss our enclosed detailed comments. Thank you for the opportunity to review this Draft EIS. When the Final EIS is published, please send one hard copy to us at the address above (Mail Code: ENF-4-2). If you have any questions, please contact me at 415-972-3521or contact Anne Ardillo, the lead reviewer for this project. Anne can be reached at (415) 947-4257 or ardillo.anne@epa.gov.

Sincerely,

Kathleen Martyn Goforth, Manager
Environmental Review Section (ENF-4-2)

Enclosures: Summary of EPA Rating Definitions
EPA's Detailed Comments

Cc: Doug Cooper, U.S. Fish and Wildlife Service
Amedee Brickey, U.S. Fish and Wildlife Service

Letter A

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

Letter A

U.S. EPA DETAILED COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED PANOCHE VALLEY SOLAR FACILITY, SAN BENITO COUNTY, CALIFORNIA, OCTOBER 2015

Water Supply

Water required for on-site construction and operation of the proposed project would be provided by pumping groundwater from the Panoche Valley Groundwater Basin, using existing water wells or new wells. Water needed for the total construction phase (18 months) is estimated to be 385 acre-feet per year (AFY), while annual operation water usage is estimated at approximately 2 AFY (pp. 2-41, 3-479). The DEIS concludes that the aquifer recharge is approximately 2,700 AFY. It further states "*although these numbers may vary with annual variations in precipitation, groundwater usage, and run-off, and site-specific data were limited for several components of the water budget, the observed rise in the water table (since irrigation declined) supports the conclusion that the Panoche Valley aquifer is being recharged by precipitation infiltration.*" (pp. 465, 466).

It is unclear from the DEIS whether the characterization of groundwater conditions reflect critical drought years. The current drought is perhaps the most severe the state has ever experienced and would be the relevant baseline for additional impacts from the proposed action, slated to commence in 2016. According to the California Department of Water Resources' November 2014 Drought Update[1], over 50 percent of monitored wells in the Central and Sacramento Valleys have experienced groundwater level decreases of 2.5 feet or more from spring of 2013 to spring of 2014, with over 20% experiencing decreases of more than 10 feet. For the period from spring 2010 to spring 2014, nearly 30% of monitored wells have experienced declines in excess of 10 feet. 3

Per mitigation measure WR-1.1 Groundwater Monitoring and Reporting Plan, pre- and post-construction groundwater level trends would be monitored near the project pumping wells and near the potentially impacted private wells (pg. 474). The mitigation measure states, "*if results of the monthly trend analyses indicate that the project pumping has resulted in water level decline of 5 feet or more below the baseline trend at nearby private wells, the applicant shall be prohibited from using the well(s) as a water source for the project, or shall reduce groundwater pumping until water levels stabilize or recover*" (pp. C-58, 59). The DEIS does not provide a contingency plan in the event that the five foot threshold is met and water must be obtained either from another well or purchased from an off-site water source.

> *Recommendations:*
> Describe in the Final EIS the effects of the most recent drought on the Panoche Valley Groundwater Basin and clarify the extent to which data from the drought period were included in the groundwater analysis.

[1] "Public Update for Drought Response: Groundwater Basins with Potential Water Shortages, Gaps in Groundwater Monitoring, Monitoring of Land Subsidence, and Agricultural Land Fallowing," Department of Water Resources, November 2014, http://www.water.ca.gov/waterconditions/docs/DWR_PublicUpdateforDroughtResponse_GroundwaterBasins.pdf

Letter A

Confirm availability of an adequate water supply for all phases of the proposed project and evaluate the environmental impacts of relying on the proposed, and any contingent, source of water. 3 cont.

Biological Resources

The proposed site supports a diversity of plants, mammals, birds, bats, and reptiles, including special status species, and is located in a core recovery area for blunt-nosed leopard lizards, giant kangaroo rats, and San Joaquin kit foxes. The DEIS acknowledges that the potential for direct and indirect impacts to bats and migratory and nesting birds will continue through the construction, operation and maintenance phases of the proposed project. We understand that the U.S. Fish and Wildlife Service (FWS) has issued its final Biological Opinion (BO) regarding the USACE's proposed action. The BO will play an important role in informing the decision on which alternative to approve and what commitments, terms, and conditions will accompany that approval. In addition, the DEIS indicates that a draft Avian Conservation Strategy and Eagle Conservation Plan has been prepared and will be finalized in consultation with California Department of Fish and Wildlife and FWS (pg. 3-217). 4

Recommendations:
Provide, in the Final EIS, updates on the Endangered Species Act section 7 consultation process and the Avian Conservation Strategy and Eagle Conservation Plan. Summarize and append the final BO and the final Conservation Plan. Incorporate into the Final EIS and Record of Decision (ROD) any mitigation and monitoring measures that would be required pursuant to those documents.

Climate Change

We believe the Council on Environmental Quality's December 2014 revised draft guidance for Federal agencies' consideration of GHG emissions and climate change impacts in NEPA outlines a reasonable approach for climate change analysis. This guidance explains that agencies should consider both the potential effects of a proposed action on climate change, as indicated by its estimated greenhouse gas emissions, and the implications of climate change for the environmental effects of a proposed action.

According to the DEIS, the Panoche Valley has relatively few anthropogenic (human-caused) greenhouse gas emission sources, due to low population and agricultural activity and a lack of large stationary sources of emissions. The emission estimate for construction of the proposed project is 22,390 MTCO2e, and the DEIS concludes that the proposed project would not be a locally, regionally, or nationally significant source of greenhouse gases (pg. 3-71). 5

In disclosing the potential impacts of the proposed project and alternatives, consideration should be given to whether and to what extent the impacts, across all resources, may be exacerbated by expected climate change in the project area. In keeping with the draft guidance, we recommend that the USACE provide a more robust discussion of the anticipated effects of climate change on the overall project.

Letter A

Recommendations:
Include, in the Final EIS, a summary discussion of climate change and ongoing and reasonably foreseeable climate change impacts relevant to the project, based on U.S. Global Change Research Program[2] assessments, to assist with identification of potential project impacts that may be exacerbated by climate change and to inform consideration of measures to adapt to climate change impacts.

Considering that the project is planned to be in operation for up to 30 years, provide a more robust discussion of the anticipated effects of climate change upon overall project goals and objectives. Compare the action alternatives with regard to their vulnerability to such effects and indicate what actions, if any, could be taken to minimize these effects where they are found to represent a risk to any goals or stipulations.

Consider, in the Final EIS, practicable changes to the proposal to make it more resilient to anticipated climate change, as appropriate.[3]

5 cont.

Consider committing in the Final EIS and ROD to include the following requirements in contract solicitations for project construction and operations:

a) The use of energy- and fuel-efficient fleets;
b) Assurance, to the extent possible, that construction activities will utilize grid-based electricity and/or onsite renewable electricity generation, rather than diesel and/or gasoline powered generators;
c) The use of zero emission or alternative fueled vehicles;
d) The use of lighting systems that are energy efficient, such as LED technology;
e) The use of the minimum amount of GHG-emitting construction materials that is feasible;
f) The use of cement blended with the maximum feasible amount of fly ash or other supplemental cementitious materials that reduce GHG emissions from cement production;
g) The use of light-colored pavement where feasible; and,
h) Recycling of construction debris to the maximum extent feasible.

Air Quality

The EPA is pleased to see the incorporation of applicant-proposed air quality measures and additional mitigation measures that would minimize impacts on air resources. We recommend that the best available emission control technologies be implemented for construction, ahead of the California Air Resources Board's in-use off-road diesel vehicle regulations, regardless of

6

[2] http://www.globalchange.gov/

[3] See footnotes 52 and 53 of the CEQ's December 2014 revised draft guidance for additional information and references on climate change adaptation and resiliency.

Letter A

fleet size.[4] EPA began phasing-in Tier 4 standards for non-road engines in 2008;[5] however, the DEIS does not mention the availability of Tier 4 non-road engines. The use of such engines would result in an approximately 90% reduction in NO_x and PM emissions, compared to Tier 3.

Recommendations:
Ensure that the proposed mitigation measures in the DEIS are implemented on a schedule that would reduce construction emissions to the maximum extent feasible.

Discuss, and include emission tables for, various classifications of on-road and non-road engines, highlighting emission levels for PM_{10}, $PM_{2.5}$ and NO_x.

Disclose the expected availability of Tier 4 engines for the construction equipment. Commit to using non-road construction equipment that meets Tier 4 emission standards, when available, and best available emission control technology, for construction that occurs prior to Tier 4 standards availability.

Include in the Final EIS all applicable state and local requirements, and the additional and/or revised measures listed below. Include a commitment that the following measures will be incorporated into construction contracts:

6 cont.

Mobile Source Controls:

- Employ periodic, unscheduled inspections to limit unnecessary idling and to ensure that construction equipment is properly maintained, tuned, and modified consistent with established specifications.
- Prohibit any tampering with engines and require continuing adherence to manufacturer's recommendations.

Administrative controls:

- Identify where implementation of mitigation measures is rejected based on economic infeasibility.
- Prepare an inventory of all equipment prior to construction, and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking.[6] Where appropriate, use alternative fuels.
- Develop a construction, traffic and parking management plan that minimizes traffic interference and maintains traffic flow.

[4] See CARB's Factsheet at: http://www.arb.ca.gov/msprog/ordiesel/faq/overview_fact_sheet_dec_2010-final.pdf
[5] See EPA website: http://www.epa.gov/nonroad-diesel/2004fr/420f04032.htm#standards
[6] Suitability of control devices is based on: whether there is reduced normal availability of the construction equipment due to increased downtime and/or power output, whether there may be significant damage caused to the construction equipment engine, or whether there may be a significant risk to nearby workers or the public.

Letter A

Consultation with Tribal Governments

The USACE initiated government to government consultation with Native American tribes in August 2012 and again in November 2014. The Amah Mutsun Tribal Band submitted a scoping letter on September 6, 6 2012, noting its opposition to the proposed project and identifying its concerns. According to the DEIS, the USACE is continuing to work with the tribe and applicant to further evaluate the tribe's concerns (pg. 4 3-424).

7

Recommendations:
Describe, in the Final EIS, the process and outcome of government-to-government consultation between the USACE and the Amah Mutsun Tribal Band. Identify the issues that were raised, and explain how those issues were addressed and how impacts to tribal or cultural resources will be avoided or mitigated, consistent with Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, Section 106 of the NHPA, and EO 13007, *Indian Sacred Sites*.

Letter B

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Pacific Southwest Region
333 Bush Street, Suite 515
San Francisco, CA 94104

IN REPLY REFER TO:
(ER 15/0509)

Filed Electronically

23 October 2015

Lisa Gibson, Project Manager
US Army Corps of Engineers, Sacramento District
1325 J Street, Suite 1350
Sacramento, California 95814-2922

Subject: Review of the Draft Environmental Impact Statement (DEIS) Department of Defense (DOD), US Army Corps of Engineers, (USACE), Panoche Valley Solar Facility, CA

Dear Ms. Gibson:

The Department of the Interior has received and reviewed the subject document and has no comments to offer. I

Thank you for the opportunity to review this project.

Sincerely,

Patricia Sanderson Port
Regional Environmental Officer
cc: OEPC Staff Contact:; Lisa.Treichel@ios.doi.gov

Letter C

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Central Coast Field Office
20 Hamilton Court
Hollister, California 95023-2535
http//www.blm.gov/ca/hollister

In Reply Refer to:
1610 (P)
CA-0900.38

Lisa M. Gibson
Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

RE: Public Notice SPN-2009-00443

Dear Lisa Gibson,

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the Panoche Valley Solar Facility. The environmental impact statement (EIS) prepared for this project evaluates the effects of proposed PG&E transmission line upgrades on BLM-administered public lands.

The US Department of Interior considers it a priority to provide competent and timely review comments on environmental review documents prepared by other agencies. The BLM's review of the Draft EIS is predicated on the Hollister Field Office's jurisdiction and special expertise in the project area. Our comments are divided below into three comments and a table of specific annotated comments on the DEIS.

General Comment 1- Agency Coordination

US Bureau of Land Management is a major landowner in the region. BLM has institutional knowledge, tools and standing relationships that allow them to efficiently manage lands, especially when grazing is expected to be a primary tool of management. Therefore, we recommend the USACE coordinate planning with BLM because we are actively conducting survey and inventory of endangered species and developing management plans and conservation strategies for endangered species in the region.

Agency coordination would likely improve species management and monitoring plans; coordination on routes and access from conservation lands to Federal lands; and triggers for adaptive management in the future. Establishing and maintaining coordination as a mitigation measure would greatly promote recovery of endangered species in the Ciervo-Panoche Natural Area. BLM recommends the FEIS include a formal mitigation measure that requires coordination with CDFW and BLM for management of populations of special status species. The FEIS should also require the owners of the conservation lands to grant broad access to scientists. I

General Comment 2- Best Available Information (Scientific Research)

The Biological Opinion prepared by the USFWS indicates that over 2,000 acres of occupied BNLL habitat will be lost to conversion as a result of the project. BLM is supporting ongoing studies of endangered species that suggest significant genetic differentiation exists within the CPNA for blunt-nosed leopard lizards. In particular, the primordial genetic distinctiveness of the BLM-administered Panoche Hills population of blunt-nosed leopard lizards from the Silver Creek Ranch population is cause for concern. Preliminary genetic data suggests that the western Panoche Valley population on the project site assigns to the same highly distinctive group as the Panoche Hills population, and not to the Silver Creek Ranch population. Protection of the Silver Creek Ranch population would therefore not be sufficient to protect the standing genetic diversity of the species within the Ciervo-Panoche Natural Area, one of five core recovery areas for the species. Furthermore, the Panoche Hills population appears to be at risk of extirpation. Surveys for neonate lizards in 2014 found a sole neonate lizard in the Panoche Hills population in 2014 and no neonates in the same population in 2015. Preliminary analsysis strongly suggests that failure of lizards to reproduce in the Panoche Hills was due to the drought. Droughts are predicted to increase in frequency and severity due to climate change. Because the Panoche Hills population is extremely small and isolated to a few tens of acres of habitat, this subpopulation may face extirpation. The western Panoche Valley population located on the project site may be crucial to the protection of the population's genetic diversity, which in turn is crucial to population resilience and viability. Genetic data is in a mature stage of analysis and is available from the USGS. 2

The DEIS identifies suitable habitat for blunt-nosed leopard lizards on the private and public lands where proposed project activities would occur. The FEIS should incorporate and assess the results of USGS data as well as recent habitat modelling studies from UC Santa Cruz and the Bren school for relevant data for the impact analysis.

General Comment 3- Avoidance and Minimization Measures

The DEIS states that preconstruction surveys must take place 30 days before construction to avoid and minimize impacts to listed species. These surveys are especially important because suitable habitat exists where ground disturbance is proposed. The FEIS should clarify that the requirement for protocol surveys within 30 days of construction precludes ground disturbance in the winter months because no lizards are expected to be visible above ground. Without this clarification, this avoidance and minimization measure is not effective in reducing take of listed species. 3

Specific Annotated Comment Table

Ref. EIS Section, (Page Number)	Comment	Recommendation	
1.7 (1-11)	Table 1-1 indicates SF-299 application submitted June 2015; cost reimbursement agreement in review with PG&E; BLM approval anticipated October 2015	Cost reimbursement agreement with PG&E is not complete. BLM approval is anticipated once the FEIS is certified.	4
Table 2-15 (2-55)	Table 2-15 should include a mitigation measure to establish and maintain coordination with BLM and CDFW to	Create BR-AMM-# for these measures and include them in Table 2-15.	5

Letter C

Ref. EIS Section, (Page Number)	Comment	Recommendation	
	promote recovery of endangered species in the Ciervo-Panoche Natural Area. The FEIS should also include a mitigation measure to require the owners/managers of the conservation lands to grant broad access to scientists.		5 cont.
2.8.2 (2-81)	Little Panoche Reservoir is not a "wilderness area".	Replace with: Little Panoche Reservoir Wildlife Area	6
3.2.2 (3-15)	Reference to State Highway 129 is incorrect. SR-129 is not designated scenic, and is not 15 miles southwest of the project area.	Replace with: The nearest designated scenic corridor, State Highway 25, is approximately 15 miles southwest of the project site.	7
3.2.2 (3-16)	Third paragraph describes the VRM Class III objective for Call Mountain.	Fourth paragraph should include a similar description of the VRM Class I objective for the Panoche Hills North and South WSA(s). Edit 4th paragraph, last sentence: The Panoche Hills North WSA and the Panoche Hills South WSA are both directly south of the Panoche Mountain microwave tower site. Panoche Mountain is visible from areas at higher elevations in both WSA's.	8
3.6 (3-135)	The original surveys for blunt-nosed leopard lizards performed by the proponents on the project site took place in the productive years following the 2010 above-average rainfall season, when thatch levels on the uplands away from the washes was unusually high.	The FEIS should incorporate and assess the results of USGS data as well as recent habitat modelling studies from UC Santa Cruz and the Bren school.	9
3.6 (3-136)	Make the habitat models constructed by Live Oak Assoc. for both giant kangaroo rats and blunt-nosed leopard lizard available for review.	Include details in an appendix to the FEIS.	10
3.6.2 (3-157)	The DEIS references an Appendix G, but BLM was unable to locate Appendix G for review and comment.	Edit reference to Appendix G and/or make available for public review and comment.	11
3.10.2 (3-490)	The Panoche Hills Ecological Reserve is State land managed by the California Department of Fish and Wildlife, not BLM.	Replace with: BLM-administered lands in the Panoche Hills include the Panoche Hills North and Panoche Hills South Wilderness	12

Letter C

Ref. EIS Section, (Page Number)	Comment	Recommendation	
	Last sentence on the page needs an extra space between "land" and "ownership".	Study Areas, and the Panoche/Coalinga Area of Critical Environmental Concern (BLM 2009).	12 cont.
Fig. 3-19 (3-491)	Map legend correctly labels Panoche Hills Ecological Reserve as State land, but caption (incorrectly) says BLM-administered.	Same as above.	13

Feel free to contact me at the Hollister Field Office, (831) 630-5000, if BLM can be of any further assistance.

Sincerely,

Rick Cooper

Rick Cooper,
Hollister Field Manager

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
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Letter D

October 12, 2015 In Reply Refer To: COE_2015_0916_001

Lisa M. Gibson
Regulatory Permit Specialist, Regulatory Division
Department of the Army Corps of Engineers
U.S. Army Engineer District, Sacramento
1325 J Street
Sacramento, CA 95814-2922

Re: Section 106 Consultation for the Panoche Valley Solar Farm Project, San Benito County (USACE SPK-2009-00443).

Dear Ms. Gibson:

Thank you for your letter received September 16, 2015 initiating consultation on the above referenced undertaking to comply with Section 106 of the National Historic Preservation Act of 1966 (as amended) and its implementing regulation at 36 CFR Part 800. The Army Corps of Engineers (COE) is considering issuing a Clean Water Act Section 404 permit to Panoche Valley Solar (Applicant) to place fill materials in waters of the U.S. The Applicant proposes developing a solar facility on 2,506 acres as well as upgrading the existing Panoche-Moss Landing 230kV transmission line to support connection to the electrical grid. Additional on-site and off-site acreage will be managed as conservation lands. The COE has defined the Area of Potential Effects (APE) as the permit area which includes approximately 4,717 -acres for the solar facility and conservation lands (2,506 of which will be developed into the solar facility), 523 acres for the telecommunication upgrade areas, and 57.76 acres for the off-site conservation lands.

Along with your letter, you submitted the following supporting documents:

- *Panoche Valley Solar Farm Project Cultural Resource Survey Final Report, San Benito County California.* (POWER Engineers with contributions by Far Western Anthropological Research Group, Inc. and JRP Historical Consulting. LLC 2010)
- Six supplemental Cultural Resources Inventory reports prepared by Natural Investigations Company (2014-2015)

I

Efforts to identify historic properties began in 2010 and continue to the present. These efforts included several field investigations, historical research, and consultation with Native American Tribes. The COE has consulted with the Amah Matsun Tribal Band, including the Applicant's consultant having a field review with a tribal representative. Your submittal details consultation with Mr. Ed Ketchum of the Amah Matsun Tribal Band regarding whether a plant traditionally used by his people was present in the project area. After consultation, COE determined the plant was likely either common reed (Phragmites australis) or Giant wild rye (Elymus condensatus) neither of which occurs on the proposed project site.

Letter D

The COE has identified the following properties within the APE and has made the following determinations of eligibility to the National Register of Historic Places:

Designation	**NRHP Status**
Panoche 01, Ranch Complex	Not Eligible
Panoche 02, Water Diversion Structure	Not Eligible
Panoche 03, Ranch Features (trough, corral)	Not Eligible
Panoche 04, Ranch Complex(residence, tankhouse, outbuildings)	Not Eligible
Panoche 05, Moss Landing-Panoche 230 kV Electrical Transmission Lines	Not Eligible
P-10-005463, Isolated Handstone	Not Eligible
P-10-005835, Isolated Porcelain Fragment	Not Eligible
P-10-005887, Chaney Ranch Buildings (two groups of farm/ranch residences)	Not Eligible
P-10-006013, Panoche Substation	Not Eligible
Panoche Road Bridge (Bridge no. 42-0248	Not Eligible (Previous SHPO concurrence)
Historic-era Refuse Deposit (NIC 2015-02)	Not Eligible
CA-FRE-46 (P-10-0046), Prehistoric Lithic Scatter	Treat as Eligible

I concur with the above determinations of eligibility.

I cont.

Your submittal explains site CA-FRE-46 is a lithic scatter located approximately 21 meters inside the northern boundary of the APE for Study Area 6 of the telecommunication upgrade area. No documented archaeological testing has occurred at this site. The site is located approximately 100 meters from the closest temporary (75-foot by 75-foot) wire pull site within the transmission right-of-way in Study Area 6; however, the COE has determined that the site will not be directly or indirectly impacted by the proposed telecommunication service improvements.

In a follow up conversation on October 9, 2015, you explained that, given the general sensitivity of the area, the COE will require archaeological monitoring of initial grading as a permit condition. Additionally, the Applicant has stated they will have Native American monitors for work within 200 meters of the creek and any other sensitive areas. I appreciate this responsiveness to tribal comments and attention to cultural resources.

The COE has concluded that issuing a permit would have no effect on historic properties and has requested my review and comment. I have the following comments:

- Pursuant to 36 CFR 800.4(b), I find that the COE has made a reasonable and good faith effort to identify historic properties within the area of potential effects.
- Pursuant to 36 CFR 800.4(d)(1)(i), **I do not object to a finding of no historic properties affected for this undertaking.**

Letter D

Thank you for seeking my comments and for considering historic properties in planning your project. Be advised that under certain circumstances, such as unanticipated discovery or a change in project description, the COE may have additional future responsibilities for this undertaking under 36 CFR Part 800. If the COE requires additional information, please contact Anmarie Medin of my staff at (916) 445-7023 or Anmarie.Medin@parks.ca.gov. I cont.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

CALIFORNIA
Water Boards

EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIQUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

RECEIVED
OCT 19 2015
Regulatory Division
USACE-Sacramento

15 October 2015

Lisa Gibson
US Army Corps of Engineers, Sacramento District
Regulatory Branch
1325 J Street, Room 1350
Sacramento, CA 95814-2922

DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR PANOCHE VALLEY SOLAR FACILITY, SAN BENITO COUNTY

During review of the Draft Environmental Impact Statement for Panoche Valley Solar Facility we noted the statement on page 3-452 under the Porter-Cologne Water Quality Act discussion that, "No surface waters on the proposed project have designated beneficial uses." This statement is incorrect as described below and should be corrected.

In accordance with California Water Code §13050, all surface and groundwater resources in the Project area are waters of the State and are subject to designated Beneficial Uses identified in the Tulare Lake Basin Water Quality Control Plan. Surface waters on the project site are designated "westside streams" and have specific designated beneficial uses, per the Water Quality Control Plan for the Tulare Lake Basin. The designated beneficial uses of West Side Streams are Agricultural Supply; Groundwater Recharge; Industrial Service Supply; Industrial Process Supply; Rare, Threatened, or Endangered Species Habitat; Water Contact Recreation; Noncontact Water Recreation; Warm Freshwater Habitat; and Wildlife Habitat. I

If you have any questions regarding these comments, please contact me at (559) 445-6281 or by email at debra.mahnke@waterboards.ca.gov.

Debra Mahnke

DEBRA MAHNKE
Water Resource Control Engineer

cc: Jason Brush, Supervisor, Wetlands Regulatory Office, U.S. Environmental Protection Agency, Region 9, San Francisco (email)
Kate Dadey, Chief, Sacramento South Branch, Regulatory Unit, Department of the Army, Corps of Engineers, Sacramento
Bill Orme, Water Quality Certification Unit Chief, Division of Water Quality, State Water Resources Control Board, Sacramento (email)
Jeffrey Single, Regional Manager, San Joaquin Valley-Southern Sierra Region, California Department of Fish and Wildlife, Fresno

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Letter F

September 17, 2015

Lisa M. Gibson
Regulatory Permit Specialist
Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

Re: Identification No. SPN–2009–00443S, Draft Environmental Impact Statement (EIS) for Panoche Valley Solar Facility

Dear Ms. Gibson,

The Aircraft Owners and Pilots Association (AOPA), the world's largest aviation membership association, submit the following comments in response to the Draft Environmental Impact Statement (EIS) regarding the proposed Panoche Valley Solar Facility. AOPA is concerned the visual glare produced by the proposed 4 million solar photovoltaic panels may have a substantial negative impact on local and transient aircraft.

Hazard to Aviation

The ocular hazard of glare, created by solar plants, can be blinding, disorienting, and dangerous for pilots. Aviators who routinely fly near solar plants have reported being unable to see their instrumentation, long-lasting ocular debilitation, and being completely unable to look out the window for extended periods. Pilots must be able to visually scan around their aircraft for other traffic and creating an obstacle to that is hazardous.

The impact of glare can be felt by all types of aircraft from gliders to commercial airliners. For example, pilots flying up to 18,000' Mean Sea Level (MSL) and up to 20 Nautical Miles (NM) reported a negative side effect to glare from a solar facility producing 377 Megawatts of power. The proposed Panoche Valley facility would use a similar number of photovoltaic panels, stretch over 1,600 acres, and produce over 300 Megawatts of power.

Aircraft in the Area

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Glider organizations based out of Hollister Municipal Airport (CVH) utilize the Panoche Valley thanks to the favorable soaring opportunity the Diablo Mountain Range affords. These pilots utilize an airfield located less than 1 NM south of the proposed site for cross country flights. It has a 2,000' dirt runway and is located where Panoche Road meets Little Panoche Road. These pilots would be exposed to the glare for long periods of time and significant glare impacts could make their airfield and the valley unusable. Additional information on gliders in the area can be found here:
http://www.soarhollister.com/documents/Panoche_Guide.pdf?tpid=7

General aviation aircraft also frequent this area as the valley is a significant landmark for visual navigation and allows pilots to avoid higher terrain. Pilots flying on Instrument Flight Rules (IFR) flight plans could utilize VOR Federal Airway 87 (V-87), which connects Panoche VORTAC (PXN) and Salinas VORTAC (SNS), or V-113, found between PXN and Priest VOR (ROM), and be exposed to the hazard of glare posed by this solar complex. The courses for both airways are within 20 NMs. Higher altitude aircraft may also be impacted by this facility as Jet Route 110's (J-110) centerline, which extends from SNS to Clovis VORTAC (CZQ), is less than 10 NMs away.

Letter F

Recommendations

AOPA contends the proposed solar plant design would have a negative impact on many aircraft and offers the following recommendations to mitigate the glare effect:

- The Solar Glare Hazard Analysis Tool (SGHAT) should be utilized to capture the extent of the glare's hazard to pilots. Any potential for glare other than what is considered "low" should be mitigated. The study should look at the airways nearby, the airfield less than 1 NM south, aircraft flying in the valley, and should utilize multiple geographic points and altitudes.

- A formal obstruction evaluation should be submitted via FAA Form 7460-1 to the FAA for analysis and a formal determination. Any additional transmission line towers or microwave should be submitted to the FAA for study as well. 2

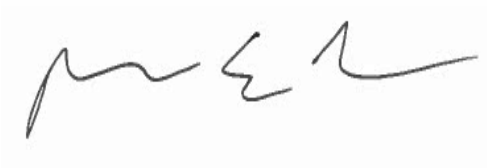
- All photovoltaic panels should be treated, such as with anti-reflection coatings, to reduce their mirror effect and thus reduce their glare hazard.

- Solar panels should be angled in a manner that reduces their impact on aircraft. Glare shields should be installed if practical. Panels that are out of alignment which would put them at a hazardous angle must be repaired quickly.

The AOPA supports the effort for renewable and sustainable energy. We believe these efforts can be done in a manner that will not cause an undue hazard to aviation.

Thank you for the opportunity to comment on this important issue.

Sincerely,



Rune Duke
Director, Airspace and Air Traffic

The Aircraft Owners and Pilots Association (AOPA) is a not-for-profit individual membership organization of General Aviation Pilots and Aircraft Owners. AOPA's mission is to effectively serve the interests of its members and establish, maintain and articulate positions of leadership to promote the economy, safety, utility and popularity of flight in general aviation aircraft. Representing two thirds of all pilots in the United States, AOPA is the largest civil aviation organization the world.

Letter G1

The Nature Conservancy
Protecting nature. Preserving life.™

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nature.org

October 26, 2015

Lisa Gibson
US Army Corps of Engineers, Sacramento District
Regulatory Branch
1325 J Street, Room 1350
Sacramento, CA 95814-2922

Via Email: Lisa.M.Gibson2@usace.army.mil

Re: Comments on the Draft Environmental Impact Statement for the Panoche Valley Solar Project, SPN-2009-00443S

Dear Ms. Gibson:

The California Chapter of The Nature Conservancy respectfully submits these comments to the United States Army Corps of Engineers (Corps) regarding the Draft Environmental Impact Statement (DEIS) for the Panoche Valley Solar Farm Project (Project) proposed by Panoche Valley Solar LLC in San Benito County.

The Nature Conservancy's science-based opinion is that the DEIS does not provide necessary or adequate protections for endangered species. As detailed below, the Conservancy believes the Corps' Alternative A (applicant's preferred alternative) to site a utility scale solar facility in the Panoche Valley does not conform to the interests of the recovery of the federally and state listed endangered giant kangaroo rat, blunt-nosed leopard lizard, and San Joaquin kit fox. Further, relative to the magnitude of the habitat values that will be lost, the mitigation measures are not sufficient. I

All of the studies and presentations in this letter are incorporated by reference to these comments.

Letter G1

Introduction

The Nature Conservancy (Conservancy) is a global, non-profit organization dedicated to the conservation of biodiversity. The Conservancy seeks to achieve its mission through science-based planning and implementation of conservation strategies that provide for the needs of people and nature. The Conservancy has been actively involved in planning for renewable energy within the Western San Joaquin Valley of California. In 2013, the Conservancy produced the report, *Western San Joaquin Valley Least Conflict Solar Energy Assessment*[1]. The results of this assessment, including a web map, are publicly available on the Conservancy's Science for Conservation website (link).

The Nature Conservancy strongly supports the development of renewable sources of energy to mitigate the increasing threat of climate change. However, if not located, built, and operated responsibly, renewable energy projects can negatively impact biodiversity, harm wildlife and their important habitats, and diminish water resources. For these reasons, The Conservancy supports siting renewable energy facilities in locations where ecological impacts can be avoided, minimized, contained, and mitigated. There are many such locations in California. For example, the results of The Conservancy's 2013 *Western San Joaquin Valley Least-Conflict Solar Energy Assessment* identified 435,601 acres of Low Biodiversity Conservation Value / Salt-affected lands where solar projects could be sited without unnecessarily impacting biodiversity or agricultural values. The Conservancy recognizes the proposed Project can clearly be expected to have substantial, significant and unmitigable impacts to populations of federally and state protected giant kangaroo rat, blunt-nosed leopard lizard, and San Joaquin kit fox.

1 cont.

[1] Butterfield, H.S., D. Cameron, E. Brand, M. Webb, E. Forsburg, M. Kramer, E. O'Donoghue, and L. Crane. 2013. Western San Joaquin Valley least conflict solar assessment. Unpublished report. The Nature Conservancy, San Francisco, California. 27 pages. http://scienceforconservation.org/downloads/WSJV_Solar_Assessment.

Letter G1

The Panoche Valley is significant as rich habitat for a suite of sensitive San Joaquin Valley species. These species have been in decline throughout their ranges due largely to increased fragmentation and loss of habitat. The Panoche Valley is designated by the United States Fish and Wildlife Service (USFWS) as one of the three core population areas essential to recovery of these San Joaquin Valley upland species[2]. The other two core recovery areas – the Carrizo Plain and natural areas of Western Kern County – have been significantly degraded by development, making conservation of the Panoche Valley core recovery area increasingly important. The results of The Conservancy's 2013 *Western San Joaquin Valley Least-Conflict Solar Energy Assessment* have identified the Panoche Valley as an area of high conservation value. Impacts from the proposed Project will have cumulative impacts far beyond the Panoche Valley that will threaten recovery of these species and the large public and private conservation investments that have been made by the Conservancy and its partners to support recovery of these species over the last 30+ years.

1 cont.

Biological Resources

According to the DEIS, Panoche Valley Solar LLC plans to construct a 247 megawatt solar photovoltaic power plant on 2,506 acres on the floor of Panoche Valley. The openness and flatness of the Panoche Valley are qualities that are indispensable for the survival of a suite of San Joaquin Valley species. Among the species dependent on valley floor habitat are federally and state endangered San Joaquin kit fox, giant kangaroo rat and blunt-nosed leopard lizard (blunt-nosed leopard lizard is also a California fully protected species, meaning there can be no take of this species during construction and operation); state threatened San Joaquin antelope squirrel, Swainson's hawk and California tiger salamander; state endangered tricolored blackbird; and California fully protected golden eagle and white-tailed kite. Panoche Valley provides a critical refuge for many additional rare avian species that are state

2

[2] U.S. Fish and Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California. Region 1, Portland, OR. 319 pp.

Letter G1

listed as California Bird Species of Special Concern, including: burrowing owl, mountain plover, short-eared owl, long-eared owl, ferruginous hawk, loggerhead shrike, grasshopper sparrow, Northern harrier, and Oregon vesper sparrow. Additional rare species present in the Panoche Valley include short-nosed kangaroo rat, San Joaquin pocket mouse, Tulare grasshopper mouse, and the federally threatened California red-legged frog and vernal pool fairy shrimp. Because of its unique grasslands and the constellation of bird species attracted to them, Panoche Valley is designated a globally significant Important Bird Area by the National Audubon Society[3]. 2 cont.

Specific Comments on the DEIS

The DEIS does not Incorporate Recent Research nor Adequately Describe the Biological Baseline at the Project Site:

The Conservancy recognizes and appreciates the large volume of data that has been collected by the Project applicants since 2009. This was largely in response to requests by the California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS) to describe the biological baseline at the Project site. Despite these efforts, the biological baseline has not been adequately described. The DEIS failed to include more recent species-specific biological resource data, including data from the Panoche Valley, as the Conservancy suggested in person when they met with the Project applicant and their contractors. Specifically, the DEIS should have incorporated biological resource monitoring, current research data, and expert review on: 3

[3] The Important Bird Areas Program, administered by the National Audubon Society in the United States, is part of an international effort to designate and support conservation efforts at sites that provide significant breeding, wintering, or migratory habitats for specific species or concentrations of birds. Panoche Valley was labeled as "globally significant" because of the presence of a significant portion of the global population of mountain plover wintering there.

Letter G1

- Giant kangaroo rats at the Panoche Valley (research leads: Dr. Tim Bean, Humboldt State University, Dr. Mike Westphal, Bureau of Land Management, and Dr. Mark Statham, UC-Davis).
- Blunt-nosed leopard lizards at the Panoche Valley (research leads: Dr. Barry Sinervo and Joseph Stewart, UC-Santa Cruz, Dr. Mike Westphal, Bureau of Land Management, Dr. Scott Butterfield, The Nature Conservancy, Dr. Chris Lortie, York University & UC-Santa Barbara, Dr. Jonathan Richmond, United States Geological Survey, and Erin Tennant, CDFW).
- Giant kangaroo rats at the Carrizo Plain (research leads: Dr. Laura Prugh, University of Alaska-Fairbanks, Dr. Justin Brashares, UC-Berkeley, Dr. Tim Bean, Humboldt St. University, Dr. Mike Westphal, Bureau of Land Management, Dr. Scott Butterfield, The Nature Conservancy, and Bob Stafford, CDFW).
- Blunt-nosed leopard lizards at the Carrizo Plain (research leads: Dr. Barry Sinervo and Joseph Stewart, UC-Santa Cruz, Dr. Mike Westphal, Bureau of Land Management, Dr. Scott Butterfield, The Nature Conservancy, Dr. Chris Lortie, York University & UC-Santa Barbara, Dr. Jonathan Richmond, United States Geological Survey, and Erin Tennant, CDFW).
- San Joaquin kit fox at the Panoche Valley (research leads: Dr. Tammy Wilbert, Smithsonian Institution, and Dr. Mike Westphal, Bureau of Land Management).
- San Joaquin kit fox at the Carrizo Plain (research lead: Bob Stafford, CDFW).

3 cont.

This group's expertise is demonstrated by this representative group of presentations, none of which were referenced in the DEIS:

Blunt-nosed leopard lizard:

- Westphal, M.F., E.N. Tennant, J.A.E. Stewart, H.S. Butterfield, and B.R. Sinervo. When things heated up: the 2014 drought and the first blunt-nosed leopard

Letter G1

lizard rangewide recruitment survey. The Western Section of the Wildlife Society 2015 Annual Meeting, Santa Rosa, CA, January 2015.

- Stewart, J., B. Sinervo, M. Westphal, and S. Butterfield. Vegetation interactions with the blunt-nosed leopard lizard. California Native Plant Society Conservation Conference, San Jose, CA, January 2015.
- Stewart, J., M. Westphal, S. Butterfield, and B. Sinervo. Interactions between climate, vegetation, prey, and the federally endangered blunt-nosed leopard lizard (*Gambelia sila*). University of California, Santa Cruz-Stanford University Annual Species Interaction Workshop, Stanford, CA, December 2013.
- Stewart, J., R.D. Cooper, D. Illowsky, C. Barrows, J. Bergengren, M. Westphal, S. Butterfield, and B. Sinervo. The potential impacts of climate change and vegetation succession on extinctions of blunt nosed leopard lizards. Carrizo Colloquium, San Luis Obispo, CA, November 2013.
- Stewart, J., R.D, Cooper, M. Westphal, S. Butterfield, and B. Sinervo. The potential impacts of climate change on extinctions of blunt-nosed leopard lizards. Blunt-nosed leopard lizard research symposium, Bakersfield, CA, May 2013.

3 cont.

Giant kangaroo rat:

- Bean, W.T., R. Stafford, H.S. Butterfield, and J.S. Brashares. Following the food: incorporating spatial and temporal resource availability in species distribution models. North America Congress for Conservation Biology Annual Meeting, Oakland, CA, July 2012.
- Brashares, J., L. Prugh, S. Butterfield, L. Saslaw, R. Stafford, B. Allen-Diaz, and J. Bartolome. Direct and indirect effects of rodents and cattle on invasive plants in a California grassland ecosystem. USDA-AFRI Annual Conference. Washington, D.C, July 2011.
- Bean, W.T., L. Prugh, J. Brashares, S. Butterfield, and R. Stafford. An evaluation of monitoring methods for giant kangaroo rats at multiple scales.

Letter G1

San Joaquin Valley Natural Communities Conference. Bakersfield, CA March, 2011.

- Bean, T., J. Brashares, L. Prugh, H.S. Butterfield, L. Saslaw, and R. Stafford. Towards an easy and inexpensive method for monitoring giant kangaroo rats in Carrizo Plain National Monument. San Joaquin Natural Communities Conference, Bakersfield, CA, March 2010.
- Brashares, J., L. Prugh, J. Bartolome, B. Allen-Diaz, L. Saslaw, H.S. Butterfield and R. Stafford. Interactive effects of native rodents and cattle on the restoration of California rangelands. Society for Range Management Annual Conference, Denver, CO, February 2010.

3 cont.

San Joaquin kit fox:

- Stafford, R., C. Fiehler, B. Cypher, L. Prugh, and S. Butterfield. Long term population trends and density estimates for San Joaquin kit fox on Carrizo Plain National Monument. The Western Section of the Wildlife Society 2015 Annual Meeting, Santa Rosa, CA, January 2015.

Baseline Failed to Reflect Effects of Multi-Year Drought:

The most recent monitoring and research data for all of these species suggests that the current drought (2012-present) has pushed populations to their lowest levels in the past 30+ years. The DEIS did not explicitly address the issues with establishing biological baselines using data collected in drought years. There are serious issues with using data collected in 2013 and 2014, when populations of giant kangaroo rats and blunt-nosed leopard lizards, for example, were at their lowest levels in the past 30+ years. The DEIS should have assessed the viability of populations of giant kangaroo rat, San Joaquin kit fox, and blunt-nosed leopard lizard, considering current (and projected) population size, range, existing and proposed land uses (cumulative effects), drought-induced effects, and the Project's direct and indirect

4

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habitat impacts. Additionally, Warrick et al. 1998[4] and the applicants' own data suggest that blunt-nosed leopard lizards may have dispersed away from wash areas as a response to the drought and may now be widely distributed across the construction footprint, creating the real probability of takings of these lizards during construction.

4 cont.

Blunt-Nosed Leopard Lizard Habitat Suitability Modeling:

Precisely assessing the presence of blunt-nosed leopard lizards at the Project site is essential because the blunt-nosed leopard lizard is a California fully protected species, meaning there can be no take of these lizards during construction and operation. To do this, the Project applicant's relied on on-site surveying in 2009-2010, 2013, and 2014, and on a habitat suitability model to predict potential occurrence. We believe the applicants failed in three major ways to precisely assess the presence of blunt-nosed leopard lizards at the Panoche Valley: 1) the applicants did not incorporate current and extensive blunt-nosed leopard lizard monitoring data for the Panoche Valley collected by University of California, Santa Cruz and Bureau of Land Management scientists, despite offers to share data and independently evaluate the Project applicant's data; 2) the applicants did not incorporate detection dog technology (used by the applicant for San Joaquin kit fox surveys) to ground truth their blunt-nosed leopard lizard surveys despite the proven success of this technology for unbiased and highly accurate survey data; and 3) the applicants did not independently evaluate the validity of their habitat suitability models, despite the availability of at least two additional current habitat suitability models for blunt-nosed leopard lizard in the Panoche Valley. The Conservancy, in collaboration with researchers from the University of California, Santa Cruz, the Bureau of Land Management, and the California Department of Fish and Wildlife has spent the past 3+ years developing and testing habitat suitability models for the blunt-nosed leopard lizard across its entire range, including at the

5

[4] Warrick, G.D., T.K. Kato, and B.R. Rose. 1998. Microhabitat use and home range characteristics of blunt nosed leopard lizards. Journal of Herpetology 32(2): 183-191.

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Panoche Valley. In addition, Conservancy scientists worked with University of California, Santa Barbara Bren School students to develop a range-wide blunt-nosed leopard lizard habitat suitability model as part of their 2015 report *San Joaquin Valley Landscape-Scale Planning for Solar Energy and Conservation*[5]. Both habitat suitability models have already been publically shared and successfully incorporated in to the *Solar in the San Joaquin Valley* stakeholder planning process being led by the Governor's office and the University of California's Center for Law, Energy & the Environment.

Importantly and of concern to the Conservancy, neither the University of California, Santa Cruz model nor the University of California, Santa Barbara model supports the habitat suitability model developed by the Project applicant's for the DEIS. The Conservancy believes significant problems exist with the project applicant's habitat suitability modeling efforts that may explain why their results are different than those developed as part of these academic studies, including: 1) the Project applicant's model relies heavily upon and then incorrectly applies the findings of Warrick et al. 1998, biasing its suitability scores towards washes and to a lesser extent, shrubs, and against open grasslands, as determinants of blunt-nosed leopard lizard habitat use, 2) the Project applicant's model is overly simplistic and fails to incorporate a large number of environmental and climatological variables known to impact blunt-nosed leopard lizard habitat use, and 3) the parameterization of the Project applicant's model uses species occurrence data from the site to predict species occurrence at the site, a form of pseudoreplication. The Conservancy believes that because of these flaws, the Project applicants underestimated the extent of suitable habitat for blunt-nosed leopard lizard within the Panoche Valley, and have overlooked the presence of highly suitable, and likely occupied, habitat within the presently proposed construction footprint. The DEIS should evaluate these significant modeling issues, comparing their model to those models developed

5 cont.

[5] Cowan, J., A. Gwin, D. Pearce, G. Wesolowski, and S. Young. 2015. Wildlight: San Joaquin Valley landscape-scale planning for solar energy and conservation. Final report for the Bren School of Environmental Science & Managements' Master of Environmental Science and Management degree.

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by University of California, Santa Cruz and University of California, Santa Barbara researchers. 5 cont.

Blunt-Nosed Leopard Lizard Climate Change Modeling:

Recent climate change extinction modeling for blunt-nosed leopard lizards[6] suggests that areas like the Panoche Valley will likely serve even more important recovery roles, as areas previously suitable become unsuitable as climate change progresses. Given the current stress this species is experiencing, further reducing habitat and fragmenting this core recovery area could be a tipping point that could prevent species recovery. Because of the potential severity of these impacts and the availability of new data from Dr. Barry Sinervo at the University of California, Santa Cruz to assess the potential impacts of the Project within different climate change scenarios, the DEIS must incorporate this new climate change extinction modeling into the biological baseline and impact analysis. The preparers of the DEIS should have contacted, and incorporated into the DEIS, expert review from Dr. Sinervo and the other research leads for this ongoing work. Together these steps would have provided a more complete, and necessary, treatment of the potential implications of Project development on blunt-nosed leopard lizard recovery. 6

Giant Kangaroo Rat Habitat Suitability Modeling:

The DEIS failed to incorporate, compare, or ground-truth their giant kangaroo rat habitat suitability model with a model published in peer reviewed journals by Dr. Tim Bean in Bean et al. 2014a[7] and Bean et al. 2014b[8]. Importantly and of concern to the Conservancy, the independently developed, peer-reviewed, and published 7

[6] Research leads: Barry Sinervo and Joseph Stewart, UC-Santa Cruz, Mike Westphal, Bureau of Land Management, Scott Butterfield, The Nature Conservancy.
[7] Bean, W.T., R. Stafford, H.S. Butterfield, and J.S. Brashares. 2014. A multi-scale distribution model for non-equilibrium populations suggests resource limitation in an endangered rodent. PLoS ONE 9(9): e106638.doi: 10.1371/journal.pone.0106638.
[8] Bean, W.T., L.P. Prugh, R. Stafford, H.S. Butterfield, M. Westphal, and J.S. Brashares. 2014. Species distribution models of an endangered rodent offer conflicting measures of habitat quality at multiple scales. Journal of Applied Ecology 51(4):1116-1125.

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Bean et al. model does not support the non-peer reviewed habitat suitability model findings developed by the Project applicant's for the DEIS. The DEIS should evaluate the Project applicants modeling results in comparison to these published studies, assessing the accuracy of the baseline giant kangaroo rat estimates, impact analyses, and mitigation calculations in the DEIS. 7 cont.

Blunt-Nosed Leopard Lizard Genetics:

Recent genetic evidence from blunt-nosed leopard lizards[9] at the Panoche Valley demonstrates that there is significant blunt-nosed leopard lizard genetic variability, and that valley floor (just east of the project site) populations are more similar to the Panoche Hills population than to the Silver Creek Ranch population. In addition, the Silver Creek Ranch population is genetically distinct from both the valley floor and the Panoche Hills populations. The Project applicant does not provide any data, current or historical, of their own to support their assertions that these three populations are likely the same. Because of this and the importance of genetic diversity to species recovery, it is not possible to offset valley floor Project site impacts to blunt-nosed leopard lizard by protecting blunt-nosed leopard lizard populations elsewhere in the Panoche Valley. The DEIS should address these issues, which should be done by requesting data and expert review from Drs. Richmond and Westphal. 8

Giant Kangaroo Rat Genetics:

The DEIS failed to incorporate recent genetic work on giant kangaroo rats at the Panoche Valley[10]. Based on their initial work from 2013, Drs. Statham and Westphal identified distinct giant kangaroo rat populations at the northern and southern limits of the Panoche Valley. In addition, they examined one valley floor site in 2013, 9

[9] Research leads: Jonathan Richmond, United States Geological Survey, Mike Westphal, Bureau of Land Management.
[10] Research leads: Mark Statham, UC-Davis, Mike Westphal, Bureau of Land Management.

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and found preliminarily that the small number of animals from this location were different from the Northern Panoche Hills population, and that the valley floor population was closely related to the Tumey Hills population. Although these are preliminary findings, they call into question the DEIS's conclusion that giant kangaroo rat individuals on the Project site and conservation lands are genetically similar and demonstrate "recent connectivity" of populations. In fact, while the authors cite Loew et al. 2005[11] in their assertion of "recent connectivity" among Panoche giant kangaroo rat subpopulations, the major finding from Loew et al. 2005 was not that recent connectivity existed among subpopulations but rather that there was significant genetic subdivision within the northern populations relative to the southern populations. Because of this, and the importance of genetic diversity to species recovery, it is not possible to offset valley floor Project site impacts to giant kangaroo rat by protecting giant kangaroo rat populations elsewhere in the Panoche Valley. Perturbation of subpopulations could have significant negative effects on the genetic diversity of giant kangaroo rats overall in the Panoche region. The DEIS should address these issues, which should be done by requesting data and expert review from Drs. Statham and Westphal.

9 cont.

Conclusion

In closing, the Conservancy remains strongly supportive of the development of renewable energy to achieve California's 2030 climate commitments[12]. The Nature Conservancy continues to develop ecological analyses to support the state of California's efforts to protect natural and working lands while supporting the timely development of renewable energy resources in California. Our most recent analysis finds that avoiding sensitive ecological areas in the siting of future renewable energy projects, to achieve a 50% renewables portfolio, is feasible at a low

10

[11] Loew, S.S., D.F. Williams, K. Ralls, K. Pilgrim, and R.C. Fleischer. 2005. Population structure and genetic variation in the endangered giant kangaroo rat (*Dipodomys ingens*). Conservation Genetics 6: 495-510.
[12] Established in Executive Order B-30-15

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incremental cost (over status quo planning)[13]. In order to meet the dual goals of renewable energy production and nature conservation, facilities must not be sited in places of critical ecological importance. Regrettably, the Panoche Valley Solar Project is proposed for an area that is rich habitat for a suite of sensitive species, many of which are listed as threatened or endangered, and the mitigation strategy does not compensate for the impacts to the species.

We do not believe that the Panoche Valley is an appropriate location for a utility-scale solar facility and remain very concerned with the impact that this Project will have on the suite of threatened and endangered San Joaquin Valley upland species, including potential extirpation of genetically unique populations. Therefore, we urge the Corps to take actions that will contribute to the recovery of the suite of sensitive San Joaquin Valley species represented in the species-rich Panoche Valley, rather than lead to the further decline of the species.

10 cont.

Thank you again for the opportunity to provide comments on the DEIS. Please include us in any future notices for the proposed Project.

Respectfully submitted,

Erica Brand

Erica Brand
California Energy Program Director
The Nature Conservancy

[13] Integrating Land Conservation and Renewable Energy Goals in California (2015); http://scienceforconservation.org/downloads/orb_report

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CC:
Michael Jewell, U.S. Army Corps of Engineers
Alexis Strauss, Deputy Regional Administrator, U.S. EPA
Mike Fris, USFWS
Kevin Hunting, CDFW
Dave Hacker, CDFW
Julie Vance, CDFW
Steve Henry, USFWS
Roger Root, USFWS
Douglass Cooper, USFWS
Christopher Diel, USFWS

Letter G2

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October 30, 2015

Michael Jewell
Chief, Regulatory Division
U.S. Army Corps of Engineers, Sacramento District
1325 J Street
Sacramento, CA 94814-2922

Re: Panoche Valley Solar Project

Dear Mike:

We greatly appreciate the opportunity to have a direct dialogue with you, your staff and colleagues about the proposed Panoche Valley Solar Project.

As we discussed in the meeting (October 23, 2015), the Panoche Valley Solar Project is proposed in a location that is extremely sensitive from an ecological perspective, representing some of the last remnants of San Joaquin Valley grassland habitat, critical for species such as the San Joaquin Valley kit fox, the giant kangaroo rat and the blunt-nosed leopard lizard. We have repeatedly communicated this to San Benito County, to each of the developers of the project as they have changed, to the U.S. Army Corps of Engineers, to the California Department of Fish and Wildlife, and to the United States Fish and Wildlife Service. While we do not believe that this particular location is appropriate for a solar facility, we want to reiterate our commitment to support lower impact and lower conflict solar development in the Central Valley and in San Benito County. Additionally, The Nature Conservancy has offered to offer to work with the developers to purchase the Panoche Valley land and seek to find a more suitable location for this project. I

As requested in the meeting, we are providing information and research that we believe should be considered by the U.S. Army Corps of Engineers before a permit decision is made. This information is included in Attachment A to this letter and was included in The Nature Conservancy's comments to the Draft Environmental Impact Statement[1].

[1] Comments of The Nature Conservancy on the Draft Environmental Impact Statement for the Panoche Valley Solar Project (Public Notice SPN-2009-00443). October 26, 2015.

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We look forward to continued dialogue with your office.

Sincerely,

Erica Brand

Erica Brand
California Energy Program Director
(415) 281-0451

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Attachment A

We have identified below by species, those experts who should be contacted. Each of these experts is engaged in research on the species which would be impacted by the Panoche Valley Solar Project. We have also identified specific research which should be considered by the U.S. Army Corps of Engineers before a permit decision is made.

Giant kangaroo rats

Research leads (species experts):

- Dr. Tim Bean, Humboldt State University
  tim.bean@humboldt.edu
  (707) 826-3658
  Humboldt State University
  Department of Wildlife
  Wildlife and Fisheries Building, Room 262
  1 Harpst St., Arcata, CA 95521
  http://www2.humboldt.edu/wildlife/faculty/bean/

- Dr. Mike Westphal, Bureau of Land Management
  mwestpha@blm.gov
  (831) 630-5023
  20 Hamilton Court
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  http://www.researchgate.net/profile/Michael_Westphal

- Dr. Mark Statham, UC-Davis
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  (530) 754-7932
  University of California, Davis
  One Shields Avenue/Old Davis Rd.
  Davis, California 95616-8744 USA
  https://www.vgl.ucdavis.edu/cdcg/MarkStatham_000.php

- Dr. Laura Prugh, University of Washington
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  University of Washington
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- Dr. Justin Brashares, UC-Berkeley
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  University of California Berkeley, CA 94720-3114
  http://nature.berkeley.edu/BrasharesLab/

- Dr. Scott Butterfield, The Nature Conservancy
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  201 Mission Street, 4th Floor
  San Francisco, CA 94105-1832
  http://scienceforconservation.org/about/scott_butterfield

Peer reviewed papers (data collected in the Panoche Valley and/or relevant to the Panoche Valley – *all available here*: https://drive.google.com/folderview?id=0Bxz4hVnxXwQyWUc2NnVYYlNLRmM&usp=sharing): 2 cont.

- Bean, W.T., R. Stafford, H.S. Butterfield, and J.S. Brashares. 2014. A multi-scale distribution model for non-equilibrium populations suggests resource limitation in an endangered rodent. PLoS ONE 9(9): e106638.doi: 10.1371/journal.pone.0106638.
- Bean, W.T., L.P. Prugh, R. Stafford, H.S. Butterfield, M. Westphal, and J.S. Brashares. 2014. Species distribution models of an endangered rodent offer conflicting measures of habitat quality at multiple scales. Journal of Applied Ecology 51(4):1116-1125.
- Bean, W.T., R. Stafford, L.R. Prugh, H.S. Butterfield, and J.S. Brashares. 2012. An evaluation of monitoring methods for the endangered giant kangaroo rat. Wildlife Society Bulletin 36:587-593. (*Incorrectly cited/treated in the DEIS*)
- Prugh, L.P., and J.S. Brashares. 2012. Partitioning the effects of an ecosystem engineer: kangaroo rats control community structure via multiple pathways. Journal of Animal Ecology 81:667-678.

Research reports (data collected in the Panoche Valley):

Letter G2

- Bean, W.T. 2014. Population genetics and monitoring of the giant kangaroo rat. Comprehensive Annual Project Report. (*Reports available here*: https://drive.google.com/folderview?id=0Bxz4hVnxXwQyWUc2NnVYYlNLRmM&usp=sharing)
- Bean, W.T. 2013. Population genetics and monitoring of the giant kangaroo rat. Comprehensive Annual Project Report. (*Reports available here*: https://drive.google.com/folderview?id=0Bxz4hVnxXwQyWUc2NnVYYlNLRmM&usp=sharing)

Presentations at professional conferences (abstracts peer reviewed):

- Bean, W.T., R. Stafford, H.S. Butterfield, and J.S. Brashares. Following the food: incorporating spatial and temporal resource availability in species distribution models. North America Congress for Conservation Biology Annual Meeting, Oakland, CA, July 2012. (*Abstract available here*: http://www.carnivoreconservation.org/files/meetings/naccb_2012.pdf).

2 cont.

Active projects (proposals peer reviewed):

- Bean, W.T., M. Statham, and M. Westphal. Population genetics and monitoring of the giant kangaroo rat in the Panoche Valley. Funded by: BLM, BOR ($430,000).
- Bean, W.T., H.S. Butterfield, M. Westphal, and R. Stafford. Range-wide giant kangaroo rat surveys and monitoring optimization. Funded by: CDFW/USFWS/TNC/BLM ($157,196 – Section 6 grant).
- Prugh, L.R., J.S. Brashares, and K.N. Suding. Interactive effects of climate, ecosystem engineering, and tropic interactions on grassland community dynamics. Funded by: National Science Foundation, DEB ($744,758).
- Stafford, R., E. Tennant, M. Westphal, T. Bean, K. Tomlinson, J. Brashares, L. Prugh, and H.S. Butterfield. Giant kangaroo rat core recovery areas supplemental feeding study. Funded by: CDFW.

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Blunt-nosed leopard lizards

Research leads (species experts):

- Dr. Barry Sinervo, UC-Santa Cruz
  lizardrps@gmail.com
  (831) 459-4022
  University of California, Santa Cruz
  Department of Ecology & Evolutionary Biology Earth & Marine Sciences Building Lab is in Room D-450 (Send mail to Room A-316)
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  http://bio.research.ucsc.edu/~barrylab/

- Dr. Mike Westphal, Bureau of Land Management
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  Hollister, CA 95023
  http://www.researchgate.net/profile/Michael_Westphal

- Dr. Scott Butterfield, The Nature Conservancy
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  201 Mission Street, 4th Floor
  San Francisco, CA 94105-1832
  http://scienceforconservation.org/about/scott_butterfield

- Dr. Christopher Lortie, York University & UC-Santa Barbara
  chris@christopherlortie.info
  (805) 637-5766
  http://biology.gradstudies.yorku.ca/faculty/c-lortie/
  http://www.christopherlortie.info/

- Dr. Jonathan Richmond, United States Geological Survey
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  (619) 225-6434
  U. S. Geological Survey
  4165 Spruance Rd. Suite 200
  San Diego, CA 92101
  http://www.werc.usgs.gov/person.aspx?personID=129

- Erin Tennant, CDFW
  etennant@dfg.ca.gov
  (661) 477-9239
  1234 E. Shaw Avenue
  Fresno, CA 93710

2 cont.

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Peer reviewed papers (data collected in the Panoche Valley and/or relevant to the Panoche Valley):

- Filazzola, A. and C.J. Lortie. 2014. A systematic review and conceptual framework for the mechanistic pathways of nurse plants. Global Ecology and Biogeography 23: 1335–1345. doi: 10.1111/geb.12202.
- Westphal, M.F., J.E. Stewart, E.N. Tennant, H.S. Butterfield, and B. Sinervo. *In review at Conservation Biology*. Contemporary drought and future effects of climate change on endangered species. (*Available for review upon request*).
- Filazzola, A., A. Liczner, M. Westphal, and C.J. Lortie. 2015. *In review at New Phytologist*. Examining co-occurring gradients of moisture and consumer pressure on plant interactions in shrub-understorey system. (*Available for review upon request*).
- Liczner, A., D. Sotomayor, A. Filazzola, and C.J. Lortie. 2015. *In review at Journal of Plant Ecology*. Germination response of desert annuals to shrub facilitation is species specific but not ecotypic. Journal of Plant Ecology. (*Available for review upon request*).
- Ruttan, A., A. Filazzola, and C.J. Lortie. 2015. *In review at Oecologia*. Facilitation between plants mediates insect community structure in deserts. (*Available for review upon request*).
- Richmond, J. and M. Westphal. *In prep*. Population genetic connectivity patterns in the endangered blunt-nosed leopard lizard (Gambelia sila) reveal clues about the former landscape of California's San Joaquin Desert. (*Data available upon request through USGS*).
- Stewart, J.E., B. Sinervo, E.N. Tennant, H.S. Butterfield, and M.F. Westphal. *In prep*. Assessing causes of extirpation and decline of the endangered blunt-nosed leopard lizard: habitat loss, climate, and thermal physiology, and exotic grasses.

2 cont.

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Research reports (data collected in and/or relevant to the Panoche Valley):

- Cowan, J., A. Gwin, D. Pearce, G. Wesolowski, and S. Young. 2015. Wildlight: San Joaquin Valley landscape-scale planning for solar energy and conservation. Final report for the Bren School of Environmental Science & Managements' Master of Environmental Science and Management degree. (*Report available here*: https://drive.google.com/file/d/0B2Jc1kiRqWklOFNQc3FweG1jeGc/view?usp=sharing; *Documentation for the habitat suitability modeling here*: http://sjvp.databasin.org/galleries/2e0a678476284fe788e5d2168991f288#expand=89337).
- Sinervo, B.R. and J.A.E. Stewart. 2015. Evaluating the potential risk from altered grazing regimes, plant habitat change, and climate-driven extinctions for the endangered blunt-nosed leopard lizard, *Gambelia sila*. Comprehensive Final Project Report. (*Available for review upon request*).

2 cont.

Presentations at professional conferences (abstracts peer reviewed):

- Westphal, M.F., E.N. Tennant, J.A.E. Stewart, H.S. Butterfield, and B.R. Sinervo. When things heated up: the 2014 drought and the first blunt-nosed leopard lizard rangewide recruitment survey. San Joaquin Valley Natural Communities 2015 Conference, Bakersfield, CA, March 2015. (*Abstract available here*: http://drupal.wildlife.org/sanjoaquin/sites/wildlife.org.sanjoaquin/files/2015_NCC_Schedule_and_Abstracts.pdf).
- Stewart, J., B. Sinervo, M. Westphal, and S. Butterfield. Vegetation interactions with the blunt-nosed leopard lizard. California Native Plant Society Conservation Conference, San Jose, CA, January 2015. (*Abstract available upon request*; https://www.cnps.org/cnps/conservation/conference/2015/pdf/cnps2015_program-final2.pdf).

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- Richmond, J.Q., D.A. Wood, M.F. Westphal, and R. Fisher. 2015. Population genetic connectivity patterns in the endangered blunt-nosed leopard lizard *Gambelia sila* reveal clues about the former landscape of California's San Joaquin Desert. American Society of Ichthyologists and Herpetologists 2015 Annual Meeting, Reno, NV, July 15-19. (*Abstract available here*: http://www.werc.usgs.gov/ProductDetails.aspx?ID=5273).

Active projects (proposals peer reviewed):

- Richmond, J. and M. Westphal. Phylogeography and population genetic structuring of the endangered blunt-nosed leopard lizard. Funded by: BLM ($175,000).
- Tennant, E., M. Westphal, B. Sinervo, J. Stewart, H.S. Butterfield, D. Germano. Investigating blunt-nosed leopard lizard population size, demographics, space use, and future population trends on Department Ecological Reserves. Funded by: CDFW/USFWS ($267,011.57 – Section 6 grant).
- Sinervo, B., J. Stewart, M. Westphal, E. Tennant, and H.S. Butterfield. Evaluating the potential risk from altered grazing regimes, plant habitat change, and climate-driven extinctions for the endangered blunt-nosed leopard lizard, *Gambelia sila*. Funded by: TNC ($52,163).
- Sinervo, B., J. Stewart, H.S. Butterfield, E. Tennant, and M. Westphal. Niche-habitat suitability and physiological extinction models for blunt-nosed leopard lizards. Funded by: BLM ($122,163)
- Lortie, C., A. Filazzola, and M. Westphal. Examining the role of dominant shrubs such as Mormon tea (*Ephedra californica*) in the maintenance of habitat for the endangered blunt-nosed leopard lizard (*Gambelia sila*). Funded by: BLM ($60,000).
- Lortie, C., T. Noble, M. Westphal, and H.S. Butterfield. A study of blunt-nosed leopard lizard shrub dynamics at the Carrizo Plain National Monument. Funded by: TNC ($30,011).

2 cont.

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San Joaquin kit fox

Research leads (species experts):

- Dr. Tammy R. Wilbert, Smithsonian Conservation Biology Institute
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  (202) 670-3699
  Smithsonian Conservation Biology Institute
  Center for Conservation and Evolutionary Genetics
  3001 Connecticut Ave. NW
  Washington DC, 20008
  http://www.researchgate.net/profile/Tammy_Wilbert

- Dr. Mike Westphal, Bureau of Land Management
  mwestpha@blm.gov
  (831) 630-5023
  20 Hamilton Court
  Hollister, CA 95023

- Robert Stafford, CDFW
  Bob.Stafford@wildlife.ca.gov
  (805) 594-6165
  3196 South Higuera Street, Suite A
  San Luis Obispo, CA 93401

2 cont.

Peer reviewed papers (data collected in the Panoche Valley and/or relevant to the Panoche Valley):

- Wilbert, T.R., D.A. Smith Woollett, M.F. Westphal, A. Whitelaw, K. Ralls, and J.E. Maldonado. *In prep*. Distribution and connectivity of San Joaquin kit foxes in the Panoche Valley, California: the power of non-invasive surveys.

Presentations at professional conferences (abstracts peer reviewed):

- Stafford, R., C. Fiehler, B. Cypher, L. Prugh, and S. Butterfield. Long term population trends and density estimates for San Joaquin kit fox on Carrizo Plain National Monument. The Western Section of the Wildlife Society 2015 Annual Meeting, Santa Rosa, CA, January 2015. (Abstract available upon request; http://tws-west.org/events/2015/TWS2015ConferenceProgram_final_web.pdf).
- Wilbert, T.R., M.F. Westphal, D.A. Smith Woollett, A. Whitelaw, K. Ralls, and

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J.E. Maldonado. 2013. Searching for San Joaquin kit foxes in the Panoche Valley and discovering populations. American Society of Mammalogists 93rd Annual Meeting, Philadelphia, PA, June 2013. (*Abstract available upon request*).

2 cont.

Active projects (proposals peer reviewed):

- Wilbert, T. and M. Westphal. Distribution and connectivity of San Joaquin kit foxes in the Panoche Valley, California. Funded by: BLM.
- R. Stafford, C. Fiehler, B. Cypher, L. Prugh, S. Butterfield. Long term population trends and density estimates for San Joaquin kit fox on Carrizo Plain National Monument. Funded by: CDFW.

Letter H

October 26, 2015

Via Electronic Mail

Lisa Gibson
US Army Corps of Engineers, Sacramento District
Regulatory Branch
1325 J Street, Room 1350
Sacramento, CA 95814-2922
E-mail: Lisa.M.Gibson2@usace.army.mil

RE: Comments on Draft Environmental Impact Statement for Panoche Valley Solar Facility, San Benito County, California - SPN–2009–00443S

Dear Ms. Gibson,

This letter constitutes the comments representing the 1.2 million members and supporters of Defenders of Wildlife ("Defenders"), the 900,000 members and supporters of the Center for Biological Diversity and the 2.5 million members and supporters of the Sierra Club in the United States regarding the September 11, 2015, Public Notice ("Public Notice") for the application submitted to the U.S. Army Corps of Engineers ("Corps") pursuant to Section 404 of the Clean Water Act ("CWA") with respect to the Panoche Valley Solar Farm in San Benito County, California ("Panoche Solar Project," "Project," or "DEIS"). In addition to the information presented below in this letter, the scientific documents, and other information referenced in this letter can be found at the embedded Google drive hyperlink (drive). All of the documents found at the embedded Google drive hyperlink should be considered a part of our comment letter and therefore incorporated into the administrative record. 1

We urge the Corps to deny this application and choose the no-action alternative because the Project will likely drive the endangered giant kangaroo rat to extinction in the Ciervo-Panoche recovery area, permanently foreclosing recovery of this species in California. It will also negatively impact the State and federally endangered San Joaquin kit fox, the State fully protected and federally endangered blunt-nosed leopard lizard, and the state and federally threatened California tiger salamander. It will also preclude critical recovery opportunities for the three upland species of the San Joaquin Valley (San Joaquin kit fox, blunt-nosed leopard lizard and giant kangaroo rat) in the only remaining northerly core which is predicted to be their last best refugia under climate change. The project is not supported by the best available science and has no precedent for success. Moreover, the project 2

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does not comply with Clean Water Act, National Environmental Policy Act ("NEPA") and Endangered Species Act ("ESA") standards.

The proposed project will impact only 0.122 acres of waters of the U.S. – impacts that could be fully avoided if the project included recommended alterations identified by the California Department of Fish and Wildlife ("CDFW"), and would meet the safety requirements of by San Benito Fire Department[1]. Avoiding impacts to Waters of the U.S. should be the Corps highest priority. Instead, we see the atypical and unique circumstances where the Corps is taking jurisdiction over, not just the federal waters, but the whole project, and not just for construction, but for the life of the project. This change in Corps action suggests a new and concerning approach to facilitating private lands developments on endangered species habitat and core recovery areas, which is intrinsically problematic. 2 cont.

I. THE PANOCHE SOLAR PROJECT VIOLATES THE CLEAN WATER ACT.

The CWA is designed to "restore and maintain the chemical, physical and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The CWA generally prohibits the discharge of pollutants, including dredged or fill material, into the waters of the United States unless authorized by a permit. See id. § 1311(a). Section 404 of the CWA authorizes the Corps to issue permits for the discharge of dredge or fill material into waters of the United States. *Id.* § 1344. The Corps adopted regulations, known as the "public interest" factors, to implement this permitting authority. 33 C.F.R. §§ 320 et seq. The Corps "must weigh the benefits that reasonably may be expected to accrue from the proposal against its reasonably foreseeable detriments, considering all relevant factors." *Alliance to Save the Mattaponi v. U.S. Army Corps of Engineers*, 606 F. Supp. 2d 121, 124 (D.D.C. 2009) (citing 33 C.F.R. § 320.4). The Corps must consider a broad range of potential impacts as part of its public interest review, including "conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people." 33 C.F.R. § 320.4(a)(1). Moreover, in the evaluation of every permit, the Corps must consider: 3

> (i) The relevant extent of the public and private need for the proposed structure or work; (ii) Where there are unresolved conflicts as to resource use, the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work; and (iii) The extent and permanence of the beneficial and/or detrimental effects which the proposed structure or work is likely to have on the public and private uses to which the area is suited.

Id. § 320.4(a)(2).

In addition, the Environmental Protection Agency ("EPA") promulgated regulations, known as the "404(b)(1) Guidelines," for Section 404 permits. 33 U.S.C. § 1344(b)(1); 40 C.F.R. § 230 *et seq.* The

[1] Comment Letter on Panoche Valley Solar Project Draft Supplemental Environmental Impact Report (SCH#2010031008) (CDFW 2015)

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Corps reviews all proposed Section 404 permits under both the Corps' public interest factors and EPA's 404(b)(1) guidelines. 33 U.S.C. § 1344(b)(1); 33 C.F.R. § 320.2(f). A permit must be denied if it is contrary to the public interest or does not comport with the Section 404(b)(1) Guidelines. 33 C.F.R. §§ 320.4, 323.6; 40 C.F.R. §§ 230.10, 230.12. Although the Corps does not issue itself a "permit," the Corps authorizes its own discharges of dredge or fill material only if the discharges comply with all substantive requirements of the CWA and other environmental laws, including the public interest factors and EPA's 404(b)(1) guidelines. *See* 33 C.F.R. §§ 335-337.

3 cont.

To ensure these mandatory CWA requirements are satisfied, the Corps must fully evaluate the direct, secondary, and cumulative impacts of the activity, including impacts to endangered species, the aquatic environment, fish and wildlife, and human impacts. *See, e.g.,* 33 C.F.R. §§ 320.4(a)(1), 336.1(c)(5) (endangered species), 336.1(c)(8) (fish and wildlife); 40 C.F.R. §§ 230.11(a)-(h), 230.20-23 (aquatic ecosystem), 230.30 (threatened and endangered species), 230.31 (fish and wildlife), 230.53 (aesthetics). The 404(b)(1) guidelines also set forth particular restrictions on discharges, described more fully below. 40 C.F.R. § 230.12. The Corps must set forth its findings in writing on the short-term and long-term effects of the discharge of dredge or fill activities, as well as compliance or non-compliance with the restrictions on discharge. *Id.* §§ 230.11, 230.12(b).

A. The Corps Must Deny This Application under Clean Water Act Standards

EPA's 404(b)(1) guidelines prohibit the Corps from authorizing an application for dredge and fill activities under two circumstances relevant to this case:

(1) the activity "jeopardizes the continued existence" of an endangered species under the Endangered Species Act ("ESA") (40 C.F.R. §§ 230.10(b)(3), 230.12(a)(3)(ii));
(2) there is a practicable alternative which would have less adverse impact and does not have other significant adverse environmental consequences (40 C.F.R. §§ 230.10(a), 230.12(a)(3)(i));

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See also *Utahns for Better Transp. v. U.S. Dep't of Transp.,* 305 F.3d 1152, 1163 (10th Cir. 2002), *as modified by* 319 F.3d 1207 (10th Cir. 2003) (citing 40 C.F.R. § 230.12(a)(3)(i-iv)). The Corps must document its findings of compliance or noncompliance with the restrictions on discharge set forth in these guidelines. 40 C.F.R. § 230.12(b).

1. <u>The project will jeopardize the endangered giant kangaroo rat.</u>

Under EPA's guidelines, the Corps may not permit a dredge and fill activity that "jeopardizes the continued existence" of an endangered species – the standard for prohibiting federal activities under Section 7 of the ESA, 16 U.S.C. § 1536(a) (2); 40 C.F.R. § 230.10(b)(3). According to FWS regulations, jeopardy results when it is reasonable to expect that a federal action would "reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." 50 C.F.R. § 402.02. As detailed below and in the October 26, 2015, letter from Assistant Professor William "Tim" Bean to the Corps, the Panoche Solar Project, if adopted by the Corps, will reduce the reproduction, numbers, and distribution of the most significant population of giant kangaroo rat ("GKR") remaining, reduce

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appreciably the likelihood of survival and recovery of the kangaroo rat, and thus jeopardize the species.[2]

The giant kangaroo rat has already lost over 95% of its historic range due to development (DEIS at 3-388). More recent calculations indicate that its populations are only found in 1.8% of its historical range[3]. The proposed project area is identified as a core recovery area for all of the upland species of the San Joaquin Valley including the giant kangaroo rat, and therefore represents one of the last best places for these species' (including the giant kangaroo rat's) persistence. Unfortunately, the unprecedented and on-going drought in California has impacted the giant kangaroo rat's population throughout the range. Bean et al (2015) found a significant reduction in giant kangaroo rat populations in the Ciervo-Panoche Natural Area based on trapping results for new individuals – "success for new individuals in 2011 was 16.8%; in 2013 trap success had declined to 9.9%. In 2014, trap success was 1.5%". Significant and concerning declines in giant kangaroo rat populations are not limited to the Ciervo-Panoche population, as population crashes are noted in the Carrizo Plains, another core recovery area (CDFW personal communication at the Carrizo Plains Biological Working Group – August 24, 2015). The giant kangaroo rat exhibits "boom and bust" population cycles, however, the on-going drought coupled with additional destruction and fragmentation of habitat during the low population part of the cycle could cause localized extirpations that may not recover especially if projections for climate change for their current habitat are accurate. While on-going climate change and drought are not human-controllable factors, prevention of extirpation must incorporate eliminating other human-controllable stressors to this species including preventing development in its core habitat. 5 cont.

Preliminary genetic work by researchers at BLM and U.C. Davis have identified distinct giant kangaroo rat populations at the northern and southern limits in the Panoche Valley. In addition, they examined one valley floor site in 2013, and found preliminarily that the small number of animals from this location were different from the Northern Panoche Hills population and more closely related to the Tumey Hills population[4]. These distinct genetics call into question the feasibility of the proposed mitigation to actually attempt to mitigate impacts from this large of an impact to the giant kangaroo rats on the valley floor. 6

The Recovery Plan for the Upland Species of the San Joaquin Valley[5] lays out a number of goals for recovery of the giant kangaroo rat. One key downlisting criteria includes requirements for habitat conservation throughout the species range[6] The DEIS fails to evaluate the impact that the proposed project will have on the recovery of the species, as proposed by U.S. Fish and Wildlife Service ("USFWS"). 7

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[2] Bean, W. 2015. Letter to Lisa Gibson, US Army Corps of Engineers on the Panoche Valley Solar Facility (October 26, 2015).

[3] http://www.wildlifeprofessional.org/western/tws_abstract_detail.php?abstractID=755

[4] http://www.wildlifeprofessional.org/western/tws_abstract_detail.php?abstractID=755

[5] USFWS 1998

[6] USFWS 2010a

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Alternative A would fully eliminate 2,420 acres of occupied giant kangaroo rat habitat in the core area of Panoche Valley (DEIS at 3-149) – precluding future recovery in this area and pushing this beleaguered keystone species farther towards extinction. Indeed the DEIS' presentation of the giant kangaroo rat information is inherently biased. For example the DEIS (at 3-151) states "Based on the results of this survey, as of 2013, a minimum of 197 giant kangaroo rats are estimated to occur in the project footprint, with up to 506 individual giant kangaroo rats expected to have the potential to be supported in the project footprint. In general, the lands in the project footprint support small colonies of giant kangaroo rats (Panoche Valley Solar 2014)". Statham et al (2015) had documented ongoing declines in giant kangaroo rats in the Ciervo-Panoche area in 2013, and it is unclear how the 516 animal estimate was produced. Regardless, the conclusion (based on the applicant's Biological Assessment) that the lands in project footprint support "small colonies" ignores the current science on the importance of the Panoche valley for the giant kangaroo rat and appears to try to discount the impact to it, without any data to back up the conclusion. 7 cont.

While the proposal recognizes that direct and indirect impacts from the project will unnecessarily destroy habitat and create habitat fragmentation, create new opportunities for predation of giant kangaroo rats, and potential poisoning, the DEIS fails to avoid or minimize those impacts. For example, as documented in the CDFW letter on the Supplemental Environmental Impact Report[7], laydown areas for other solar projects in core habitat for the giant kangaroo had no permanent construction "laydown areas" and an order of magnitude less temporary impacts despite one project being twice the size. This avoidance was achieved by using construction laydown areas within the footprint of the solar arrays. In addition, these same projects in in core habitat for the giant kangaroo agreed not to use rodenticides, which is not the case with this proposed project (see APM BIO-34). 8

The effects of habitat fragmentation on species persistence is well documented in the scientific literature. Specific to Alternative A, the proposed project, despite connectivity through the site will fragment currently occupied habitat for the giant kangaroo rat. It will create new hazards for them in adjacent habitat including new perching opportunities for avian predators on the perimeter fences and facilities; increase light pollution at night when the giant kangaroo rat is most active making them more vulnerable to predation. 9

The mitigation specifically for giant kangaroo rat remains unclear. While the DEIS states that 2,420 acres of occupied habitat are proposed to be developed, only 4,580 acres of occupied habitat will be set aside on the Valley Floor Conservation Area. No estimate of the acres of occupied habitat is provided for the Silver Creek Ranch or the Valedeo Ranch. While an estimate of the population size of giant kangaroo rat is given for both of the ranches, it is unclear how they were derived. Indeed no core populations occur on the Valedeo Ranch (DEIS at 3-150) and it is unclear how "core populations" relate to high-medium-low suitability. The Panoche Valley contains much more suitable habitat for the giant kangaroo rat, based the kangaroo rat's preference for relative low relief landscapes with appropriate soils for excavating burrows and establishing precincts. Neither the 10

[7] Comment Letter on Panoche Valley Solar Project Draft Supplemental Environmental Impact Report (SCH#2010031008) (CDFW 2015)

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Silver Creek Ranch nor the Valedeo Ranch provide as extensive and connected habitat as the Panoche Valley.

Development in the recovery core for this species needs to be mitigated at a minimum 5:1 conserved: developed ratio[8]. Indeed, even with robust mitigation, development results in a *net loss* to this highly imperiled species, which is particularly precarious for giant kangaroo rats at this time when their populations are depressed throughout its remaining range. Finally, as discussed in his October 26, 2015, letter to the Corps on the Panoche Project, Professor Bean states that this project will cause serious and potentially irreparable harm to the GKR population and, even with mitigation, would appreciably reduce the likelihood of both survival and recovery of GKR. 10 cont.

Translocation

The proposed project entertains the idea of translocation of GKR, which has been used elsewhere. While initial translocation has occurred without significant initial mortality, confounding factors including drought have made giant kangaroo rat less than successful. Long-term monitoring results are not yet available to truly allow for an evaluation of effectiveness. See also letter from Professor Tim Bean to the Corps at 6 ("[N]othing has been released publicly about the long term fate of [GKR] populations translocated from solar projects in the Carrizo Plain.") Moreover, as Professor Bean points out in his letter, in a review of eight different studies in 2012, translocation of kangaroo rats have been ineffective with no documented cases in which a viable population persists over the long term. *Id.* 11

In addition, translocating animals often occurs into already occupied habitat and sets up competition for resources that disadvantages the translocated animal (compared to the resident animal)[9]. Moving animals into historic habitat may be prudent if factors causing abandonment of the historic habitat are identified and proven to not be a threat to potential translocated animals. In the absence of even a draft plan, it is impossible to evaluate or comment on the proposed translocation of the giant kangaroo rats currently occupying the proposed project site.

2. <u>Project Purpose is defined too narrowly.</u>

The purported purpose of this project is "to construct an approximately 247 MW solar PV energy facility and associated transmission and support facilities in the west-central portion of California's Central Valley (generally encompassing portions of San Benito, Merced, Madera, Fresno and Kings Counties." Panoche DEIS at ES-4. The Corps must evaluate, and adopt, the least environmentally damaging alternative that would fulfill this purpose. 12

Basing the project purpose on the stated contract capacity in applicant's power purchase agreement (PPA) is too restrictive and constrains the range of alternatives in violation of the Section 404(b)(1)

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[8] Moilanen 2009

[9] Germano 2010.

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Guidelines.[10] The DEIS states: " The overall project purpose is to construct an approximately 247 MW_{AC} solar PV energy generating facility and associated transmission and support facilities in the west-central portion of California's Central Valley.." (DEIS ES-4). The project purpose is based on a "power purchase agreement with Southern California Edison in August 2014. Under this agreement, the applicant is **obligated** to deliver 247 MW_{AC} of power annually for 20 years beginning in 2019." (EIS ES-3) (emphasis added) Two on-site project alternatives—one to develop only the western side (1,058 acres) and one to develop only the eastern side (1,054 acres) were rejected because they would not meet the project purpose despite that "(t)hese alternatives would likely reduce impacts to waters of the U.S. and sensitive biological resources, compared with the proposed project. " (EIS 2-76) Clearly, relying on the PPA's stated contract capacity unduly constrained environmentally preferable alternatives.

Environmental groups raised concerns at the California Public Utilities Commission (CPUC) that approving the PPA prior to completing federal environmental review would foreclose a real alternatives analysis. [11] This concern was echoed by CPUC Commissioners Sandoval (who filed a dissent) and Commissioner Peterman, who stated: "from what I have learned I am troubled with the environmental issues that are present here. So I want to say very clearly that if we approve this project, PPA today I do not want my vote to at least be assumed to represent any pressure on the agencies with environmental permitting authority to permit this project. I expect and hope that they will make an independent assessment based on the environmental merits of the project within their own authority."[12] On April 2, 2015 Commissioner Peterman sent a letter to San Benito County and the California Department of Fish and Wildlife stating: "I wanted to emphasize, however, that my vote of approval of the PPA should not be interpreted as adding any additional pressure on your separate environmental permitting processes." These fears were realized as the project purpose reflects the PPAs stated contract capacity, foreclosing practical alternatives that would reduce impacts on endangered species habitat and Waters of the U.S.

12 cont.

The project purpose is also *unnecessarily* restrictive because the PPA allows the applicant to reduce the project. The DEIS states multiple times the applicant is *obligated to* deliver 247 MW of power. However, the PPA allows for project 'downsizing.' SCE's 2013 Pro-Forma Renewable Energy Purchase and Sale Agreement (Pro-Forma PPA) Section 1.01 (h) states "(T)he Contract Capacity may be reduced as set forth in Section 3.06(g)."[13] Section 3.06(g) states: "If the Contract Capacity set forth in Section 1.01(h) is greater than the Demonstrated Contract Capacity, The Contract Capacity will be reduced to an amount equal to the Demonstrated Contract Capacity;' with the performance assurance bond in excess of the demonstrated contract capacity, to be returned to the seller. [14] "Contract Capacity" means the lesser of what the seller (applicant) committed to install at the Site

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[10] USACE 2009 Standard Operating Procedures

[11] R-11-05-005 Protest of Audubon California, Defenders of Wildlife, Santa Clara Valley Audubon Society and Sierra Club of the Approval of Southern California Edison (SCE)'s Advice Letter 3119-E concerning a Renewables Portfolio Standard power purchase agreement between SCE and Panoche Valley Solar, LLC.

[12] California Public Utilities Commission Business Meeting, March 12, 2015

[13] SCE 2013 Pro-Forma Purchase and Sale Agreement, page 2.

[14] SCE Pro-Forma, page 21.

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and (ii) the Demonstrated Contract Capacity.[15] Therefore, the PPA does not obligate the applicant to deliver 247 MW of power at all, since the applicant is free to downsize the project using the stated contract capacity under the PPA, and indeed, the performance security will likewise be reduced. To eliminate environmentally preferable alternatives based on incorrect interpretations of the PPA, is unnecessarily restrictive. 12 cont.

3. There are less environmentally damaging practicable alternatives.

The Corps is required to deny the application "if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 40 C.F.R. § 230.10(a). The Clean Water Act "compels that the [least-damaging] alternative be considered and selected unless proven impracticable." *Utahns for Better Transp. v. U.S. Dep't of Transp.*, 305 F.3d at 1189; *Alliance to Save the Mattaponi*, 606 F. Supp. 2d at 130 ("The Corps must adequately explain why there is no less-damaging practicable alternative. If the Corps cannot so explain based on the record before it, it must reconsider its determination based on an adequate analysis of the alternatives."). An alternative is practicable if it is available and "capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." *Id.* § 230.10(a)(2).

The "no build" no project alternative was improperly rejected. This alternative is rejected because it would cause the applicant to breach its 'obligation' to provide 247 MW to SCE. However, if the Corps to identify the no project alternative as the least environmentally damaging alternative, the applicant would not bear any additional repercussions if the agreement is terminated. Under Section 2.03(a) of the PPA, the seller (applicant) has the right to terminate the PPA and get back a full return of its security deposit if the project does not obtain necessary construction permits. Per Maverick Energy, the Independent Evaluator for the Panoche PPA, "(I)t is far more typical in the renewable solicitations of which Maverick Energy is aware that Sellers who fail to achieve commercial operations due to failure to receive permits take the financial risk in the PPA-by forfeiting all or a portion of the security damage as liquidated damages. This may help in reducing the 'project failure rate,' by deterring developers with major project permitting risks from bidding or by requiring them to price the risks into the bids."[16] 13

The "no permit" Project Alternatives also is practicable and less environmentally damaging. Under the no action (no permit) alternative, the applicant's proposed 247 MW solar facilities would still be constructed, but it would involve a free span bridge crossing over Las Aguilas Creek. The freespan bridge would avoid the discharge of fill into these waters of the U.S., but still allow for the adequate emergency access to the site required by the Hollister Fire Chief. It would also avoid impacts to the three ephemeral drainages on the eastern side of the project footprint that are waters of the U.S. (EIS 2-12) The 'no permit' alternative both avoids the waters of the U.S and reduces upland disturbance. (EIS 2-31) Per CDFW, the freespan bridge is environmentally preferable, to the singlespan design, yet

> "(T)he applicant has chosen to propose the latter design, which requires permanent, direct

[15] SCE Pro-Forma, page 5.

[16] IE Report page 38.

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> impacts within the streambed and Waters of the US, at the risk of exacerbating already unstable banks by installing hard surfaces on banks comprised of unconsolidated material. … A greater setback would also likely obviate the need for Streambed Alteration Agreements at those locations (and possibly Clean Water Act permits). This is a feasible approach in the Department's experience, and would be an environmentally superior alternative to the bridges that are currently proposed. Abutment setbacks would also more closely align with the original intent of the 2010 condition of approval, which was to minimize and avoid blunt-nosed leopard lizard and other wildlife habitat impacts by keeping crossing structures out of the streams." [17]

The Westlands CREZ alternative also is practicable and is significantly less environmentally damaging. Unlike each of the other off-site alternatives analyzed, the DEIS notably does not state whether the applicant has contacted the landowner—in this case, the Westlands Solar Park. It is public knowledge the Westlands Solar Park has actively tried to develop a solar project in the Westlands CREZ for many years,[18] and is moving forward with permitting. The DEIS states the Corps has not yet determined whether the Westlands CREZ is practical. We urge the Corps to consider the wealth of available information on transmission capacity and landowner interest—all showing the Westlands CREZ alternative is practical.

The Westlands CREZ is broadly supported by environmentalists, farmland groups, local governments and agencies—as one commentator put it: "the Westlands Solar Park would be located on what is arguably the least environmentally sensitive place in the state."[19] Because of the broad political support for developing the Westlands lands and other low-value conservation lands in the Western San Joaquin Valley, the Governor's Office of Planning and Research has convened a group of solar developers, utilities, farmland groups, environmental groups and local governments to identify consensus lands for development in the San Joaquin Valley.[20] The kernel of these lands are the retired Westlands Water District Lands in Kings and Fresno Counties. A key part of this process is determining what transmission may be needed to develop these lands for solar. It is clear there *is* near-term transmission capacity although more may be needed to build-out the consensus lands to their full potential (3,000-6,000 MW).

13 cont.

The DEIS states that although the CAISO has publicly stated 800 MW could come online in the Westlands CREZ without substantial new transmission upgrades "it is unknown if a 247 MW solar facility would be able to interconnect to the existing electric grid." (DEIS 2-73) This confusion seems solely based on a report prepared by the applicant in 2014 showing nine projects totaling 1500 MW in the queue. This report was not provided to the reader. Neither the applicant nor the Corps seems to have contacted the CAISO directly to determine if these projects in the queue are still

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[17] Comment Letter on Panoche Valley Solar Project Draft Supplemental Environmental Impact Report (SCH#2010031008) (CDFW 2015).

[18] Westlands Solar Park Comments to the August 5th Lead Commissioner Workshop on Integrating Environmental Information in Renewable Energy Planning Processes

[19] http://switchboard.nrdc.org/blogs/czichella/growing_a_solar_park_in_califo.html

[20] http://sjvp.databasin.org

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active, nor reviewed the CAISO's most recent final, approved transmission plans. Notably, the DEIS does not mention key approved transmission projects in the San Joaquin Valley which will dramatically improve the total capacity in this area. For example, although DEIS references the Gates to Greg 230 kv line, it does not mention other approved transmission projects, each of which will serve solar projects in the San Joaquin Valley-including, the Gates #2 500/230kV Transformer Addition, Warnerville-Wilson 230kV Line Reactor and the Kearney-Hearndon 230kV Line Reconductoring, each analyzed in the CAISO's most recent final approved transmission plan.[21] In addition to these projects already approved, the Western Area Power Administration (WAPA) and Duke-American Transmission Co. (DATC) are proposing to build a new 62-mile, electric 500 kv transmission line to run from Western's Tracy Substation in the north to the Los Banos and San Luis substations in the south[22] -- specifically to serve solar projects in this area. The 2,000-3,000 MW identified by CAISO and SCE is incremental to existing generation. However, per the CAISO, there continues to be 800 MW capacity, subject to the exact interconnection of the generation that the system can accommodate in the area prior to the identified upgrades in the area. (personal communication with J.E.(Jeff) Billington, California Independent System Operator Manager, Regional Transmission – North, Solar and the San Joaquin Valley, October 26, 2015).

13 cont.

Moreover, per a recent CAISO presentation, based on the analysis in their 2013/2014 Transmission Plan, within the general areas of the consensus lands in the San Joaquin Valley study area there is "Area interconnection capability with approved upgrades in the 2,000 – 3,000 MW range.[23] Southern California Edison likewise stated there is transmission capability in the 2,000-3,000 MW range within this area.[24] Even assuming the 1,500 MW of solar mentioned in the applicants report moves forward (unlikely) there would *still* be more than sufficient transmission capacity to develop 247 MW of solar in the Westlands CREZ.

II. THE DEIS VIOLATES NEPA.

The National Environmental Policy Act ("NEPA") has "twin aims. First it places upon [a federal] agency the obligations to consider every significant aspect of the environmental impact of a proposed action. Second, it ensures that the agency will inform the public that it has indeed considered environmental concerns in its decision making process." *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council, Inc.,* 462 U.S. 87, 97 (1983) (citation and internal quotation marks omitted). To achieve these goals, "[a]n EIS must include a comprehensive discussion of all substantial environmental impacts and inform the public of any reasonable alternatives which could avoid or minimize these adverse impacts." *High Sierra Hikes Ass'n v. U.S. Dep't of Interior*, 848 F.Supp.2d 1036, 1048-49 (N.D. Cal. 2012) (citing 40 C.F.R. § 1502.1). NEPA "emphasizes the importance of

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[21] CAISO 2013/14 Final Transmission Plan, Board Approved July 16, 2014.

[22] "San Luis Transmission Project." December 2014, provided by Duke American Transmission Company, more information at: *sltpeis-eir.com*

[23] San Joaquin Valley Transmission Planning, J.E.(Jeff) Billington, Manager, Regional Transmission – North, Solar and the San Joaquin Valley, August 29, 2015, p 5.

[24] "San Joaquin Solar Transmission Group Next Steps" presentation by Kevin Richardson, Southern California Edison, September 28. 2015.

coherent and comprehensive up-front environmental analysis to ensure informed decision making to the end that the agency will not act on incomplete information, only to regret its decision after it is too late to correct." *Blue Mtrs. Biodiversity Project v. Blackwood,* 161 F.3d 1208, 1216 (9th Cir. 1998) (quotation marks and citation omitted).

14 cont.

In several key respects, the Panoche DEIS violates fundamental provisions of NEPA. First, the DEIS uses flawed environmental baselines which understate the environmental impacts of the Panoche Solar Project and fail to inform the public and decision makers of the actual impacts. Second, the DEIS fails to include a reasonable range of alternatives, and rely on unreasonably narrow purpose and need statement to exclude reasonable alternatives. Third, the DEIS fails to adequately analyze cumulative impacts. Finally, the DEIS fails to use sound science and provide accurate information to the public and decision makers regarding potential impacts of the Panoche Solar Project and the DEIS's conclusions regarding several impacts are not supported by substantial evidence and understate the true environmental impacts.

A. The DEIS Uses an Illegal Baseline that Understates the Likely Adverse Environmental Impacts of the Draft Plan and Alternatives.

NEPA requires that the Project be analyzed against the existing environmental conditions (the "environmental baseline"), in order that the Project's environmental impacts can be meaningfully analyzed and compared to alternatives. 40 C.F.R. § 1502.15.

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As detailed in the February 6, 2015, letter from The Nature Conservancy, Defenders of Wildlife, Santa Clara Audubon Society, Sierra Club, Audubon California, and the Center for Biological Diversity ("Conservation Organizations") to Michael Krausie ("Conservation Organization Letter"), the project has failed to provide an adequate analysis of the biological baseline. Conservation Letter at 4. Indeed, the project baseline fails to incorporate the most current available science and data, failed to include the effects of the multi-year drought, failed to include the most recent genetics information about BNLL and GKR and suffers from serious problems with a failure to conduct biological surveys and impact analysis. *Id. at* 6-8. Further, the DEIS acknowledges that the project applicant has failed to conduct protocol level surveys for threatened and endangered species in the footprint of the PG&E line and telecommunications upgrades. In fact, the only species surveys conducted were over a four day period last September. Panoche Project DEIS at 3-97. Four days of non-protocol surveys does not provide the sufficient level of information to create a reasoned analysis. There was <u>no reason</u> provided for the fact that the PG&E transmission line and telecommunications upgrades were allowed to proceed with only 4 days of non-protocol level surveys while the rest of the project was required to conduct more detailed biological surveys.

B. The DEIS Fails to Analyze a Reasonable Range of Alternatives

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NEPA requires that a reasonable range of alternatives to the proposed project be considered in the environmental review process, including a no project alternative. 42 U.S.C. § 4332; 40 C.F.R. §§ 1502.14, 1508.25(b). Indeed, the range of alternatives analysis is the "heart of the environmental impact statement." 40 C.F.R. §1502.14. NEPA requires the USACE to "rigorously explore and objectively evaluate" a range of alternatives to proposed federal actions." *See* 40 C.F.R. §§ 1052.14(a) and 1508(c).

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Unfortunately, the DEIS fails to include a reasonable range of alternatives, particularly because it (a) fails to include a range of alternatives that achieve the standards of the ESA and other environmental laws, consistent the Project's objectives.

The range of off-site alternatives overlooks publicly available information that would have identified less environmentally damaging alternative sites with interested landowners. The DEIS states the analysis for alternative locations included the entire west-central portion of the Central Valley (2-7). However, the alternative project sites included only: the Westlands CREZ (portions of Kings and Fresno), Moss-Landing Panoche (San Benito County), Panoche Ranch (Western Fresno County), and Firebaugh (Madera County). Each of these alternate sites (barring Westlands) apparently had an uninterested landowner. Several appear to have environmental conflicts due to water features. Per the California Energy Commission, there are more there are 55 large-scale solar projects in nearby Monterey, Fresno, Merced and Kings Counties approved or seeking permits.[25] Each of these project sites will have an interested landowner, and some transmission viability. These developers do not appear to have been contacted by the applicant. Additionally, several organizations have produced publicly available reports identifying lands with low agricultural and conservation value suitable for solar. In 2013, The Nature Conservancy released their Western San Joaquin Valley Solar Assessment.[26] The objective of this assessment was to characterize the land use and conservation constraints for siting solar in the Western San Joaquin Valley. The assessment identified hundreds of thousands of acres in the Western San Joaquin Valley suitable for solar because of both low conservation and low agricultural value. This publicly available report was provided to the Corps, USFWS, CDFW and the applicant. In 2015, Defenders of Wildlife and students at the University of California Santa Barbara's Bren School of Environmental Science and Management released a report on San Joaquin Valley Landscape Level Planning for Solar and Conservation.[27] This report found over one million acres of 'consensus' lands suitable for solar development due to low conservation and agricultural value.[28] Fresno County (26%), Kern (20%), Tulare (11%) and Kings (11%) counties contain the majority of consensus areas for solar development.[29] Publicly available information on low agricultural value, which often indicates a willing landowner, or on conservation value, which indicates less environmentally damaging alternative, does not appear to have been included in the search for alternative site.

16 cont.

The DEIS "alternative screens" are arbitrary and screen out practicable, less damaging project alternatives. For example, the DEIS states: *"(I)f the alternative was not within 2,000 feet of an existing 230 kV transmission line, it will be eliminated. "* (DEIS 2-9) The DEIS rationalizes this requirement by stating that connecting to a 500 kV transmission line would add cost and area, adding a totally unsupported concern that connecting to a 500 kv line creating capacity and reliability concerns for California's grid. (DIS 2-9) The DEIS states that *"(*C) onstructing a transmission line longer than

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[25] California Energy Commission 2015 data

[26] http://scienceforconservation.org/downloads/WSJV_Solar_Assessment_Data

[27] San Joaquin Valley Landscape Level Planning for Solar and Conservation. ("Bren School Report")

[28] Bren School Report, page 6.

[29] Bren School Report page 37

2,000 feet would result in impacts on cost and schedule. The CPUC exempts power lines or substations that have undergone CEQA review as part of a larger project. Under CEQA's Section III.A, a proponent relocating up to 2,000 feet of existing electrical line over 200 kV is exempt from the requirement to obtain a permit to construct or to begin the certification of public convenience and necessity ("CPCN") licensing process. The planning and permitting process for a new transmission line exceeding 2,000 feet would take approximately six to eight years to complete." (DEIS 2-9) The implication that 2,000 feet is a cut-off for whether an electricity line will trigger a CPCN is completely incorrect. California Public Utilities Commission's General Order (GO) 131-D III.A states a CPCN is required for a 'major transmission line.' GO 131-D III.B.1. enumerates the many situations in which a CPCN is not required, including: "(c) the minor relocation of power facilities up to 2,000 feet in length, …. (f) "power lines or substations to be relocated or constructed which have undergone environmental review pursuant to CEQA as part of a larger project and for which the final CEQA document (Environmental Impact Report ("EIR") or Negative Declaration) finds no significant unavoidable impacts caused by the proposed line or substation, and (g) power lines facilities or substations to be located in existing franchise, road widenings, set back easements, public utilities easements or in a utility corridor designated precisely mapped and officially adopted pursuant to law by federal, state or local agencies for which a final Negative Declaration or EIR finds no significant unavoidable impacts." (CAL. PUB. UTIL. Gen'l Order 131-D (1995). In our experience, gen-ties of any lengths are always studied in the relevant environmental documents (including gen-ties of multiple miles) so qualify for the 'larger project' exception, and indeed, we have never encountered a gen-tie which triggers as CPCN. The Corps' determination that projects more than 2,000 feet of a 230 kV transmission line is arbitrary and constrained less environmentally damaging, practicable alternatives. 16 cont.

Additionally, statements regarding length of time to permit an electricity line are exaggerated. For example, Pacific Gas & Electric's ("PG&E") Atascadero project, replacing 15.5 miles of 70kv line, completed environmental review in seven months, with only six additional months for public review and to final document. [30] The Tehachapi Renewable Transmission Project, including 173 miles of upgraded or new transmission, three new substations, work at six additional substations and including three counties and 21 cities, completed environmental permitting within two years and four months from when the application was originally filed.[31]

We are also concerned the DEIS analysis did not consider all of the approved transmission projects in the San Joaquin Valley. Although the DEIS mentions Gates to Gregg, nowhere does it mention the Gates #2 500/230kV Transformer Addition, the Warnerville-Wilson 230kV Line Reactor and the Kearney-Hearndon 230kV Line Reconductoring. If the DEIS continues to use some distance from a transmission line as a screen, proximity to each approved line must be analyzed.

The "logistics screen" is used by the Corps to screen out less environmentally damaging alternatives. The DEIS states that if the alternative does not provide for emergency access to the project site it was not carried forward. (DEIS 2-9) The determination of "emergency access" seems to be solely dictated by the personal opinions of Hollister Fire Department Chief. For example, the DEIS states: "One alternative was found that reduced aquatic impacts by avoiding placing fill into Panoche and

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[30] CPUC CEQA First Friday Forum powerpoint, April 6, 2012, page 23.

[31] CPUC CEQA First Friday Forum powerpoint, April 6, 2012, page 36.

Las Aguilas Creeks (waters of the U.S.). However, this alternative would not provide for adequate emergency access to the site required by the Hollister Fire Chief (Hollister Fire Department 2014), so it was not evaluated in detail." (DEIS 2-6) Given that the Corps' jurisdiction for this project is wholly based in emergency egress and access roads that would cross waters of the U.S. (there is no 'basic project purpose'), and that the applicants project *already* includes a 20-foot-wide perimeter road for emergency response (DEIS 2-23), we believe the DEIS should not rely solely on statements by the Hollister Fire Department Chief to eliminate less environmentally damaging alternatives. Additionally, statements from the Fire Department have at times, been contradictory. Indeed, as CDFW stated in comments to the Draft Supplemental EIR, the: "(D)epartment still questions the justification for those bridges given the many points of access from Little Panoche Road that would not require any stream crossings, and which would also meet the fire code requirements (see attached letter). The fire code requires providing full access to a site via a minimum 20-foot wide road with pullouts for passing, and **the proposed bridges are not required for the Project to satisfy the fire code** (personal communication, Chief Michael O'Connor, Hollister Fire Department). " [32] (emphasis added).

16 cont.

C. The DEIS Improperly Segments the Project by Failing to Analyze the Impacts of Decommissioning or Repowering.

Federally funded projects that significantly affect the quality of the environment must be accompanied by a NEPA review that considers the reasonably foreseeable effects on the environment. *Natural Resources Defense Council, Inc. v. U.S. Nuclear Reg. Comm'n,* 606 F.2d 1261, 1269 (D.C. Cir. 1979). This environmental analysis is intended to evaluate the entire scope of a single and complete project. However, when a federal action is divided and analyzed into smaller separate components it is known as "segmentation." Since all projects must start and end somewhere, project components may have independent utility and can be considered individually under NEPA. *Bark Creek Ass'n. v. Federal Highway Admin.,* 950 F.2d 1129 (5th Cir. 1992). However, when an agency intentionally attempts to circumvent NEPA by dividing a federal action into smaller components in order to allow those smaller components to avoid studying the overall impacts of the single project then "improper segmentation" has occurred. *O'Reilly v. U.S. Army Corps of Engineers,* 950 F.1129 (5th Cir. 2007).

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In this case, the DEIS and the USFWS Biological Opinion only analyze the construction, operation and maintenance of the Panoche Solar Project. The environmental documents from the Corps ignore the fact that this project includes decommissioning or repowering at the end of 30 years. Indeed, in the Final SEIR, the project description includes repowering or decommissioning, including "the removal, recycling, or disposal of all solar arrays, inverters, transformers and other structures on the site." Panoche Solar Project FSEIR at B-20. Further, the Biological Assessment prepared for the Panoche Solar Project for the Section 7 consultation includes a Decommissioning Plan as part of the Project Activities. Panoche Solar Project DEIS, Volume II, Part 3, at 28. Decommissioning includes, among other activities, panel removal, fence removal, bridge and gravel road removed, and soil erosion and sedimentation control measures. *Id.* All of these activities can have significant environmental impact. At the end of 30 years, the Panoche Solar Project does not disappear. It will either be decommissioned or it will be repowered. This is the logical end to the

[32] CDFW 2015. Comment Letter on Panoche Valley Solar Project Draft Supplemental Environmental Impact Report (SCH#2010031008), page 8.

project. The Corps cannot ignore the fact that project includes decommissioning or repowering and thus cannot fail to analyze the impacts associated with decommissioning or repowering of the project. 17 cont.

D. The DEIS Fails to Adequately Analyze Cumulative Impacts

Cumulative impact is defined as the impact on the environment which results from the incremental impacts of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency or person undertakes such actions. 40 C.F.R. § 1508.7. Cumulative impacts can result from individual minor but collectively significant actions taking place over a period of time. *Id.*

18

In several respects, the Panoche DEIS analysis of cumulative impacts is significantly flawed, understating the potential environmental impacts of the Panoche Solar Project in combination with other projects and outcomes.

As detailed in the Conservation Organization Letter, the project has failed to analyze the cumulative impacts to threatened and endangered species from other projects, including the Kern Solar Ranch and California Flats Solar Project. [33]

E. The DEIS Has Failed to Adequately Analyze Impacts to Biological Resources.

NEPA requires an analysis of the proposed action's effects on biological resources as these impacts are an important part of the environmental consequences of the proposed action. *See Nat'l Parks & Conservation Ass'n v. BLM*, 606 F.3d 1-58, 1072 (9th Cir. 2010) ('Under NEPA, and EIS must contain a 'reasonably thorough' discussion of an action's environmental consequences." (*citing State of California v. Block,* 690 F.2d 753, 761 (9th Cir. 1982)).

19

As discussed above, the DEIS has failed to analyze the impacts to biological resources from the decommissioning or repowering of the Panoche Solar Project. Further, the DEIS has failed to provide for basic biological surveys for impacts to sensitive and listed species from the PG&E transmission line and telecommunications upgrades. In addition, as discussed above, the DEIS has failed to adequately analyze the impacts to GKR. Finally, as detailed below, the DEIS has failed to adequately analyze the impacts to a number of listed species and deferred a number of important plans that are essential to understanding the full impacts of this project.

<u>Blunt-nosed Leopard Lizard</u>

The DEIS fails to recognize that the blunt-nosed leopard lizard is a fully-protected species under state law, where "take" is only allowed if the project successfully undertakes a Natural Communities Conservation Plan ("NCCP"). Otherwise mortality of a blunt-nosed leopard lizard is illegal. 20

Blunt-nosed leopard lizard is another critically endangered species, whose numbers are declining, whose habitat is shrinking and that has been on the endangered species list since 1967 – over 40

[33] Conservation Organization Letter at 8-9.

years. As with the giant kangaroo rat, the blunt-nosed leopard lizard is one of the upland species of the San Joaquin Valley, whose range has been drastically reduced.

Recent data is available from the U.S. Geological Survey ("USGS") and Bureau of Land Management ("BLM") on the genetics of the blunt-nosed leopard lizard. Preliminary results from genetic data collected across the Panoche Valley demonstrates that there is significant blunt-nosed leopard lizard genetic variability, and that valley floor (just east of the project site) populations are more similar to the Panoche Hills population than to the Silver Creek Ranch population, which is distinct from the valley floor and Panoche Hills populations. Because of this and the importance of genetic diversity to species recovery, it is not possible to offset valley floor proposed project site impacts to blunt-nosed leopard lizard by protecting blunt-nosed leopard lizard populations elsewhere in the general area.

The Recovery Plan for the Upland Species of the San Joaquin Valley[34] lays out a number of goals for recovery of the blunt-nosed leopard lizard. One key downlisting criteria for the blunt-nosed leopard lizard includes requirements for "Protection of five or more areas, each about 5,997 acres or more of contiguous, occupied habitat"[35] The DEIS fails to evaluate the impact that the proposed project will have on the recovery of the species, as proposed by U.S. Fish and Wildlife Service. 20 cont.

The avoidance proposal "by buffering any BNLL sighting with a 52.4-acre area" is wholly inadequate. Based on the best available science, the CDFW[36] has determined that a minimum 395-acre buffer is actually needed to avoid many impacts to blunt-nosed leopard lizards and a buffer of up to 657 acres from sightings would provide the greatest assurances to avoid impacts.

We echo other concerns documented by the CDFW[37] including the timing of blunt-nosed lizard construction surveys, the inclusion of historic sightings of blunt-nosed leopard lizards and applying buffers to these areas.

Recent science indicates that climate change will have a devastating range-wide impact on the already endangered blunt-nosed leopard lizard[38]. Indeed, in a letter from Professor Barry Sinervo to Lisa Gibson on the Panoche Solar Project, Professor Sinervo states that the DEIS "provides an inadequate assessment of the likely take of BNLL, and ignores the specific value of the Panoche Valley in the contest of species-wide refugia from climate change."[39] The DEIS fails to include

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[34] USFWS

[35] USFWS 2010.

[36] CDFW 2015.

[37] *Ibid.*

[38] Stewart et al. 2013.

[39] Sinervo, B. 2015. Letter to Lisa Gibson, US Army Corps of Engineers. Comment on the Panoche Valley Solar Project DEIS.

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these data in its analysis of how the propose project would impact essential refugia habitat for the blunt-nosed leopard lizard in the Panoche Valley.

The DEIS (at 3-258) identifies 1,829 acres of habitat for the blunt-nosed leopard lizard will be permanently impacted by the proposed project and an additional 434 acres will be temporarily impacted. We could not find the amount of blunt-nosed leopard lizard habitat that occurs on the proposed mitigation lands, so the analysis of adequacy of mitigation is incomplete. As with the giant kangaroo rat and San Joaquin kit fox, the minimum mitigation ratio should be 5:1 conservation acres: development acres, and the quality of the habitat is also a consideration. 20 cont.

San Joaquin Kit Fox

The San Joaquin kit fox is another critically endangered species, whose numbers are declining, whose habitat is shrinking and that has been on the endangered species list since 1967 – over 40 years! As with the giant kangaroo rat and the blunt-nosed leopard lizard, the San Joaquin kit fox is one of the upland species of the San Joaquin Valley, whose range has been drastically reduced.

The Recovery Plan for the Upland Species of the San Joaquin Valley[40] lays out a number of goals for recovery of the San Joaquin kit fox. One key downlisting criteria for the San Joaquin kit fox includes requirements for protection of core areas.[41] While the DEIS notes that the project is within an identified core area for the San Joaquin kit fox, it fails to evaluate the impact that the proposed project will have on the recovery of the species, as proposed by U.S. Fish and Wildlife Service.

Monitoring of the San Joaquin kit fox on the mitigation lands for solar projects on the Carrisa Plain north of Carrizo Plains, documented 20% confirmed mortalities of kit fox, and despite good body condition and ample dens, no evidence of successful reproduction[42]. While these results are undoubtedly confounded by drought, the additive impact from development undoubtedly affects this highly endangered canid. 21

Decreases in population are also noted in another part of the San Joaquin kit fox's range where an outbreak of sarcoptic mange has negatively impacted the animals in the greater Bakersfield area[43]. It is the first time that sarcoptic mange has been detected in San Joaquin kit foxes[44].

The DEIS (at 3-240) identifies 1,796 acres of habitat for the San Joaquin kit fox will be permanently impacted by the proposed project and an additional 712 acres will be temporarily impacted, for a total of 2,508 acres. However at pg. 3-155, the DEIS states "the project footprint was found to contain 2,492 acres of suitable San Joaquin kit fox habitat". The inconsistencies in the amount of habitat that will be impacted needs to be rectified.

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[40] USFWS

[41] USFWS 2010.

[42] Cypher and Fiehler 2013

[43] http://www.turnto23.com/news/local-news/mange-hits-kit-fox-population-in-bakersfield

[44] http://ww2.kqed.org/news/2015/09/27/deadly-skin-disease-threatens-endangered-kit-foxes-in-bakersfield

The San Joaquin kit fox's habitat on the Valadeo Ranch is identified as containing 4700 acres and the Silver Creek Ranch as 6800 acres (DEIS at 3-157). However, it is unclear as to how these acreages are determined. Indeed recent modeling of San Joaquin kit fox habitat suitability[45] shows that the Panoche Valley floor is much better San Joaquin kit fox habitat than the Valadeo or Silver Creek Ranches. As with the giant kangaroo rat and blunt-nosed leopard lizard, the minimum mitigation ratio should be 5:1 conservation acres: development acres for the San Joaquin kit fox, and the quality of the habitat should also be a consideration. 22

<u>California Tiger Salamander</u>

The DEIS fails to incorporate the latest science on California tiger salamanders. As CDFW[46] noted, the proposed project impacts in and around the breeding California tiger salamander breeding pools now substantially overlap with the upland areas used the salamanders, based on Searcey and Schaffer's research[47]

Subsequent research indicates that "juvenile density was positively correlated with higher elevations (the regions of the prairie least subject to inundation) and adult density was positively correlated with flood intolerant vegetation"[48] This subsequent work also refined the reproductive value of the landscape around the breeding pools as follows: "the distance required to protect 50%, 90%, and 95% of the A. californiense population averaged across ponds, years and age classes… these distances were 556 m, 1486 m, and 1849 m"[49] respectively. The proposed project avoidance of crucial habitat for the California tiger salamander needs to be re-evaluated based on these new data. 23

F. The DEIS Has Failed to Adequately Analyze Impacts to Traffic.

The DEIS fails to show impacts to Traffic are less than significant. The DEIS predicts a peak of 550 employees accessing the site per day, with 200 additional large truck trips. Using a prediction of 1.2 occupants per vehicle, an estimate of 1,150 trips per day is provided. Because no carpooling is required, estimates should be based on 1 occupant per vehicle. The DEIS estimates that 75 percent of workers will come from Hollister, but calculates usage of Panoche Road from Highway 25 to be only 60 percent of workers. It is not explained why 15 percent of workers would take the longer route via Highway I-5 and Little Panoche Road. There is also no rational provided for the predicted origin of workers (Hollister vs. Fresno, Santa Clara, or other parts of San Benito County). For traffic prediction purposes, commuter use of 550 workers coming from either Highway 25 or Highway I-5 should be analyzed. With the scenario of 550 workers driving daily from either Highway 25 or I-5 (and additional small truck construction traffic), there could be over 1100 vehicle trips generated on either Panoche Road or Little Panoche Road, with additional 200 large truck trips 24

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[45] Cypher et al 2013.

[46] Comment Letter on Panoche Valley Solar Project Draft Supplemental Environmental Impact Report (SCH#2010031008) (CDFW 2015)

[47] Searcey and Schaffer 2011

[48] Searcey et al 2013

[49] *Ibid.*

on the latter. Panoche Road is a narrow, winding road with sharp drop-offs in some locations, not designed for the level of traffic that may be generated. While less winding, Little Panoche Road is also narrow, and not designed to accommodate this amount of traffic. Use of both roads by the public would be impaired, and safety would be compromised. Traffic use on Little Panoche Road east of the project site includes visitors to a privately operated hot springs resort and a California Department of Fish and Wildlife Area. The levels of traffic and traffic impacts outside of the immediate project area that will be impacted by the project are not discussed. The DEIS relies on Mitigation Measure TR-1.4 to Ensure Traffic Safety. This measure would require that a Traffic Safety Plan be developed, and a response program be implemented. As with many other mitigation measures proposed for this project, specific mitigations are deferred to future plans and are not available for review. 24 cont.

The EIS states that "construction would occur from sunrise to sunset…although some activities would occur during the nighttime hours…Trucks would arrive at the site evenly distributed between 6:00 a.m. and 6:00 p.m…. The project would generate the greatest amount of traffic, 448 trips, between 6:00 and 7:00 a.m…" It is also stated that "equipment deliveries requiring pilot cars are limited to traveling along Little Panoche Road during daylight hours," which implies that deliveries not requiring pilot cars will be allowed at night. These traffic patterns, with substantial amounts of traffic during early morning (some pre-dawn) and at night would be in conflict with mitigation requirements for protection of San Joaquin kit fox, giant kangaroo rat, and other special status species. 25

G. The DEIS Has Failed to Adequately Analyze Impacts to Hydrology.

The DEIS does not analyze the impacts of the proposed project on the hydrology of the site. The document refers to impacts of the "No Permit" alternative, with little additional discussion of the impacts of or mitigation for fill of all of the ephemeral drainages on the eastern portion of the site and or parts of Las Aguilas and Panoche Creeks. Changes in drainage patterns will occur, and avoidance of erosion, sedimentation, and siltation has not been demonstrated. 26

H. The DEIS Has Deferred Avoidance, Minimization and Mitigation Plans

Numerous plans are referenced in the DEIS to avoid, minimize and mitigate impacts from the proposed project. However none of these plans are available for public review as part of the DEIS despite references to some plans being at draft stage. It is impossible for the public and decision makers to evaluate the effectiveness of these plans to adequately mitigate the impacts. No future review of the draft or final plans will be possible, leaving details for avoidance, minimization and mitigation unclear. These plans include:

- Spill Management Plan (DEIS at pg. 3-196)
- Wetland Mitigation and Monitoring Plan (WMMP) (DEIS at pg. 3-197)
- Habitat Management Plan (HMP) (DEIS at pg. 3-197)
- A comprehensive Weed Control Plan (DEIS at pg. 3-198)
- Construction Stormwater Pollution Prevention Plan (SWPPP) (DEIS at pg. 3-198)
- Habitat Restoration and Revegetation Plan (HRRP) (DEIS at pg. 3-203)
- Grazing Plan (DEIS at pg. 3-203)

27

- Avian Conservation Strategy and Eagle Conservation Plans (which have been prepared by the Applicant in draft format) (DEIS at pg. 3-217)
- Giant Kangaroo Rat Relocation Plan (DEIS at pg. 3-243)
- Habitat Mitigation and Monitoring Plan (HMMP) (DEIS at pg. 3-245)
- BNLL Protection Plan (DEIS at pg. 3-251)

27 cont.

III. THE PANOCHE SOLAR PROJECT VIOLATES THE ENDANGERED SPECIES ACT.

Pursuant to Section 7(a)(2) of the ESA, the Corps may not take an action – here, authorizing the construction of a solar project – that is "likely to jeopardize the continued existence" of endangered or threatened species. 16 U.S.C. § 1536(a)(2); see 50 C.F.R. §§ 402.02, 402.03. To ensure that it meets this substantive obligation, Section 7(a)(2) requires the Corps to consult with FWS when proposing an action that "may affect" an endangered species. 16 U.S.C. § 1536(a)(2). As a result, the Corps must consult before making a determination on this project under CWA Section 404. The consultation must include an analysis of the direct, indirect, and cumulative effects of building, operating and decommissioning or repowering the solar project, including the effects on species recovery. See, e.g., 50 C.F.R. §§ 402.02, 402.12, 402.14; see also 33 C.F.R. § 336.1(c)(5) (Corps regulation requiring the Corps to initiate discussions with FWS where an action "may affect" a listed species).

Any authorization of this project absent a consultation and appropriate Incidental Take Statement will also violate the ESA Section 9 "take" prohibition. 16 U.S.C. § 1538(a)(1)(B). "Take" is defined in the ESA to include "harm" to an endangered species. 16 U.S.C. § 1532(19). "Harm" includes "significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering." 50 C.F.R. § 17.3.

28

A. The Panoche Solar Project is Unlawful and Cannot Receive Incidental Take Authorization under the Federal ESA.

Incidental take refers to takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant. 50 C.F.R. §402.02. Thus, if an agency or applicant is seeking approval from the USFWS for the "incidental take" of a listed species under Section 7 or Section 10 of the ESA, the activity must be "lawful." In other words, the USFWS is authorized to provide authorization for "take" under the ESA only if the activity for which the "take" authorization is sought is lawful. The USFWS cannot authorize "take" pursuant to an illegal activity.

The "take" of a fully protected reptile is prohibited under state law unless it is for a recovery action or as part of a Natural Community Conservation Plan. California Fish and Game Code §5050. BNLL are fully protected under state law. Here, there is substantial evidence that the Panoche Solar Project will result in the direct take (killing) of BNLL. In the Panoche Solar Project Biological Opinion, the USFWS states "we expect individual blunt-nosed leopard lizards would be killed or injured by the proposed activities." Final Biological Opinion at 83; see also Final Biological Opinion

at 82 ("we expect some blunt-nosed leopard lizards to be killed or injured during project activities (e.g., grading, installation of solar panels.")).

As such, the project activities will violate California Fish and Game Code §5050 rendering it an unlawful activity. Thus, the USFWS cannot make a legally valid finding that the takings "result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant." 50 C.F.R. §402.02. Therefore, the USFWS cannot make all of the legal findings necessary to issue a take authorization under Section 7. 28 cont.

B. Panoche Solar Project Biological Opinion Fails to Analyze Adequately All of the Effects of the Project.

As discussed above, the DEIS failed to analyze or address in any form the effects from decommissioning or repowering of the solar project. The Biological Opinion also appears to avoid analyzing the impacts from decommissioning when the USFWS states, in the opinion, that it "cannot specifically analyze the effects of decommissioning at this time." Biological Opinion at 63. This is an impermissible and arbitrary dismissal of a key part of a project's effects, particularly when decommissioning has been described as part of the project in Biological Assessment. Panoche Solar Project DEIS, Volume II, Part 3, at 28. In a cursory dismissal of the impacts from decommissioning, the Biological Opinion states that the "effects of decommissioning to each species will be similar to those described for construction activities" so that the USFWS's analysis of construction impacts to species also applies to decommissioning and repowering. Biological Opinion at 63. However, decommissioning includes, among other activities, panel removal, fence removal, bridge and gravel road removed, and soil erosion and sedimentation control measures. DEIS, Volume II, Part 3, at 28. These activities are not the same activities. Removal of a bridge and road can have completely different impacts from the construction of a road or bridge due to the amount of grading and/or debris associated with destroying and hauling away the structures and material. Further, panel and fencing removal could require far greater digging and trenching than when poles and panels were first installed by pounding them into the ground. The USFWS did not provide any analysis as to why decommissioning activities are the same in effect as the building of the project itself. The Biological Opinion must include an analysis of these impacts as well as avoidance, minimization and reasonable measures. 29

In addition, as noted above, the project proponents did not do any protocol level surveys (other than one rare plant survey) of the lands associated with the Interconnection and Network Upgrades or Primary Telecommunication Network Upgrades ("PG&E Activities"). While the Solar Project footprint had numerous surveys, the Panoche Solar Project DEIS reveals that no such survey work has been completed for the PG&E Activities. Without protocol level surveys it is impossible for the USFWS to determine with any level of accuracy what the impacts of the activities are on listed species. Thus, it is arbitrary and capricious for the USFWS to determine that its current assessment, reasonable measures and terms and conditions satisfy the Section 7 obligations of the ESA.

C. The Panoche Solar Project Will Jeopardize the Continued Existence of the Giant Kangaroo Rat. 30

As detailed at length above and in comments submitted by Professor Tim Bean, the Panoche Solar Project will jeopardize the continued existence of GKR.

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D. The Panoche Solar Project Will Jeopardize the Continued Existence of San Joaquin Kit Fox.

As detailed above in the section discussing impacts to San Joaquin kit fox, the Panoche Solar Project will have a significant impact on San Joaquin kit fox survival and recovery. The Biological Opinion fails to adequately analyze the impacts of the project on the kit fox's survival and recovery, particularly in light of cumulative impacts (discussed above) and persistent drought (discussed above). *Id.* 31

E. The Panoche Solar Project Will Jeopardize the Continued Existence of Blunt-Nosed Leopard Lizard.

As detailed above and in the comment letter on the Panoche Solar Project submitted by Professor Barry R. Sinervo to the Corps, dated October 26, 2015, the project will have significant impacts on BNLL. In particular, Professor Sinervo states that locating the Panoche Solar Project "nearby or on such long-term population centers [as found in the Panoche Valley] will jeopardize the long-term persistence of the species." 32

F. The Panoche Solar Project Vernal Pool Species Avoidance and Minimization Measures Are Arbitrary and Capricious.

In the Biological Opinion, the USFWS states that the Panoche Solar Project is not likely to adversely affect listed vernal pool species mainly because the project will incorporate a 100 foot buffer around occupied pools, which will protect the hydrology of the pools. Biological Opinion at 3. There is no explanation as to why a 100 foot buffer would provide this level of protection particularly when, in its request for formal consultation on the Panoche Project to the Corps, dated October 5, 2010 ("USFWS Formal Consultation Letter"), the USFWS stated that they believed that project implementation would affect hydrology at the project site because "[t]he installation of impermeable surfaces, such as solar panels, and the resulting sheeting effect of precipitation to a single edge of the surface could have an effect on the current hydrological function at the project site." USFWS Formal Consultation Letter at 4. In addition, the 100 foot buffer is a departure from the USFWS's normal buffer of 250 feet for vernal pool impact avoidance. Indeed, in both the biological opinions for the California Valley Solar Ranch and Topaz Solar Project, in the Carrizo Plain, the USFWS required a 250 foot buffer around any currently occupied or unoccupied vernal pool fairy shrimp habitat. There is no explanation as to why the USFWS had concluded that a 100 foot buffer is sufficient to avoid adverse effects to listed vernal pool species. 33

G. The USFWS Has Failed to Demonstrate that the Corps Has Sufficient Authority to Enforce the Biological Opinion's Reasonable Measures and Terms and Conditions.

The Section 7 Consultation for the Panoche Solar Project occurred because the project will result in the fill of 0.122 acres of jurisdictional waters. Once the dredge and fill activities cease after project construction, the Corps' role in this project effectively ends. There is no reason to believe that the Corps will continue to monitor this project over the 30 year life of the permit. Further, once the fill activities cease, the Corps will fail to have any kind of authority or control of this project, which is critical to ensuring that enforcement of the biological opinion's reasonable measures and terms and 34

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conditions occur. Indeed, once the dredge and fill of 0.122 acres is completed, there is no need for any oversight of the Clean Water Act 404 permit as no permit is necessary. Without any ongoing permit to suspend or revoke, the Corps has no enforcement authority over the project owners. For these reasons, it is arbitrary and capricious for the USFWS to conclude that there is sufficient enforcement of the Biological Opinion's terms and conditions. 34 cont.

CONCLUSION

From the biological perspective, the proposed project could not be sited in a much more sensitive habitat for a variety of listed and rare species – an incredible sixteen different rare species documented as occurring on the propose project site during recent surveys (DEIS at Table 3-13). Regarding the listed species, many have been under Endangered Species Act protections for *decades* and yet still continue to decline and show no measurable signs of recovery. Because of the flexibility of the particular solar technology proposed for this project, the Corps should deny the permit and the project should be sited at a better location as described above to avoid impact to these highly imperiled plants and animals.

Sincerely,

Ileene Anderson
Biologist
Center for Biological Diversity

Kim Delfino
California Director
Defenders of Wildlife

Sarah Friedman
Senior Campaign Representative for the Beyond Coal Campaign
Sierra Club

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Westlands Solar Park Comments to the August 5th Lead Commissioner Workshop on Integrating Environmental Information in Renewable Energy Planning Processes

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Letter I

October 29, 2015

Via Email
Lisa Gibson
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: Lisa.M.Gibson2@usace.army.mil

Re: Comments on the Draft Environmental Impact Statement for the Panoche Valley Solar Project, SPN-2009-00443S

Dear Ms. Gibson:

On behalf Audubon California's 150,000 members and supporters we thank you for the opportunity to submit our comments on the Draft Environmental Impact Statement (DEIS) for the Panoche Valley Solar Farm Project (Project), a large scale solar project originally proposed by Solargen Energy, Inc., and now held by PV2. We write to express our concern about the inadequacy of the DEIS and the significant negative impacts that this project will unnecessarily create on the areas birds, other wildlife, and their habitats. We previously submitted comments to the Army Corps of Engineers on September 7, 2012 the Notice of Preparation of a DEIS SPN-2009-00443S and incorporate those comments herein by reference.

Audubon California is firmly committed to fighting global warming. In recognition of the growing threats to human and ecological communities presented by the unabated release of greenhouse gases we have championed the aggressive development of both energy conservation and renewable energy generation. Throughout the country, Audubon and our chapters have successfully collaborated on the development of renewable energy facilities—striking a balance between landscape conservation priorities and renewable energy.

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Unfortunately, in our assessment the solar project proposed for Panoche Valley does not strike this balance due to the considerable cumulative ecological impacts to this location both locally and regionally, and on the unprecedented number of sensitive species of wildlife impacted by this project, and also is not needed to meet our renewable energy goals in California.

Panoche Valley is also biologically significant because it attracts a large number of bird species that specialize in grassland ecosystems; most of these species are listed in California and considered declining throughout their range. In addition to multiple sensitive bird species documented at Panoche Valley, the area is generally considered high in avian diversity. For example, records from birding databases indicate that approximately 210 bird

species (based on Audubon Christmas Bird Count[i] and eBird[ii] databases combined; all years) have been recorded in Panoche Valley, including ten special-status bird species recorded in the project area by citizen scientists.

National Audubon Society has recognized Panoche Valley as a globally significant *Important Bird Area,*[iii] [iv]a point highlighted in all comments to San Benito County as Lead Agency in the DEIR and SDEIR. The Important Bird Areas Program, administered by the National Audubon Society in the United States, is part of an international effort to designate and support conservation efforts at sites that provide significant breeding, wintering, or migratory habitats for specific species or concentrations of birds. Sites are designated based on specific and standardized criteria and supporting data. Panoche Valley was labeled as "globally significant" because of the presence of a significant portion of the global population of Mountain Plover that winter there. Mountain Plover is currently being reviewed by the United States Fish & Wildlife Service (USFWS) for listing under the Endangered Species Act as Federally Threatened[v] and is listed under the International Union for the Conservation of Nature Red List as "Near Threatened" and decreasing in population. The Panoche Valley Important Bird Area (IBA) is also notable for providing breeding habitat for multiple sensitive grassland bird species (including Burrowing Owl, a California Species of Special Concern and potential candidate for listing under the state Endangered Species Act), and for its high concentrations of wintering raptors and enormous sparrow flocks in fall and winter.

I cont.

Comment: The DEIS is inadequate in considering the impacts of the project on species of birds and other wildlife listed in our comments of September 7, 2012 submitted to the A.C.O.E. on the N.O.P, incorporated by reference herein and attached herewith. We are especially concerned about new data that was gathered for the Supplemental Draft Environmental Impact Report under California Environmental Quality Act approved by the Board of Supervisors of San Benito County and the lack of analysis using this new data by the ACOE in the DEIS, especially for the following species:

1. Golden Eagle

2

Golden eagle is protected under the under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA) under federal law. The Golden Eagle is a fully protected species under California law.

> Comprehensive Golden Eagle population estimates are uncertain within California, but the species is believed to be declining across its range within the contiguous United States (Pagel et. al, Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance, US Fish & Wildlife Service, 2010). Take means "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb." Disturb means "to agitate or bother a Bald Eagle or a Golden Eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially

> interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior. (Pagel et. al, Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance, US Fish & Wildlife Service, 2010.)

The FSEIR approved by San Benito County Board of Supervisors (FSEIR) for the project identified Active and presumed Inactive Golden eagle nests within 10 miles of the project site and reports "suitable foraging habitat present, species has been observed in the immediately vicinity." (FSEIR, p. C6-11). Additionally, the FSEIR states

> The Revised Project site still contains suitable foraging habitat for golden eagles, California condors, and other special-status raptors. See Figure C.6-3 for results of golden eagle surveys in the project area. Golden eagles, California condors, and other special-status raptors could occur in all areas of the Revised Project site directly and indirectly affected by the construction of the solar arrays, buildings, substation, and other infrastructure or activities. Up to 1,888 acres of potential habitat would be permanently lost due to project impacts and an additional 618 acres would be temporarily impacted. (San Benito County FSEIR, p. C 6-38)

2 cont.

> The golden eagle aerial nest surveys conducted by Bloom Biological within ten miles of the Revised Project in January and April 2014, resulted in the documentation of 46 golden eagle nests and an estimated 30 golden eagle territories, with nine of them active. None were located within three miles of the Revised Project site; however, four nests comprising four breeding territories were located within four miles of the Revised Project boundary. Two of these four nests were active in 2014, though neither nest was ever found to contain eggs or nestlings. The next closest active Golden Eagle nest to the Project in 2014 was located 5.79 miles north-northwest of the Revised Project boundary (Bloom, 2014). (Ibid, p. C6-39)

This analysis from the FSEIR does not release the Applicant from the potential "take" of Golden eagle from removal of foraging habitat.

> Golden Eagles forage close to and far from their nests, i.e. < 6 km from the center of their territories, but have been observed to move 9 km from the center of their territories in favorable habitat (McGrady et al. 2002). (Pagel et al, 2010)

As trust agency for the Bald and Golden Eagle Treaty Act the USFWS in consultation with ACOE, and the ACOE in the DEIS, fails to analyze the impact of removing foraging habitat for these nesting eagles near to the project site based **on the best scientific information** available as stated in Eagle guidance documents by USFWS, nor analyzes whether this loss of foraging habitat could be considered "take" of Golden eagle under Bald and Golden Eagle Protection Act. Permits under the Bald and Golden Eagle Protection Act are currently available from the U.S. Fish & Wildlife Service. The DEIS should analyze whether the impacts to Golden eagle of the project would be reduced to less than significant through modification of the project, and application for a permit and preparation of an Eagle

Conservation Plan in consultation with the Fish & Wildlife Service Region 8 Migratory Bird Division before the project begins construction.

Additionally, the DEIS fails to consider the impacts from the commotion and disturbance of construction activities and increased human activities to the Golden Eagle pairs within the proposed Project area. \

> Human disturbance is a known threat to the species, with the likelihood that nest failures occur predominantly from human disturbance (Pagel et. al 2010). Clear line of sight of humans or human disturbance can cause a significant change in a raptor's habitat usage (Richardson and Miller 1997). The impacts on Golden Eagles from human disturbance can be very large with a suggested buffer of 800 meters for all human disturbances, extending to 1600 meters (Richardson and Miller 1997).

2 cont.

This suggested buffer area calls into question whether the project will be able to reduce impacts to Golden Eagle without protecting the nests and providing additional suitable lands near occupied Golden eagle nests to compensate for lost foraging habitat.

Additionally, since Golden eagle is a Fully Protected Species under California state law, the proposed Project may need to acquire appropriate state "take" permit for Golden eagle as well by adopting a Natural Communities Conservation Plan, which is currently the only mechanism that allows for the issuance of a "take" permit for fully protected species such as the Golden eagle in the state of California. This requirement is not analyzed in the DEIS.

2. Mountain Plover (CA Bird Species of Special Concern; candidate for federal listing)

The USFWS has reinstated a proposal (after an initial proposal in 2003) to list the Mountain Plover as a Threatened species under the Federal Endangered Species Act.[vi]

Mountain Plovers breed in the western Great Plains and Rocky Mountain States from the Canadian border to northern Mexico. They winter primarily in California and also in southern Arizona, Texas and Mexico. California's Sacramento, San Joaquin, and Imperial Valleys are believed to support the greatest number of wintering Mountain Plovers[vii]. Unlike other plovers, Mountain Plovers inhabit flat areas with short grass or bare ground. In the Central Valley Mountain Plovers are found on flat tilled or burned fields or heavily grazed annual grasslands. Movement patterns of wintering birds vary, including the potential for birds to move within local areas as well as between sites up to 127 km.[viii] California is estimated to have 50-88% of the world's population and up to 95% of the total plovers reported in the U.S. during annual (from 1988 to present) Christmas Bird Counts[ix]. The global population estimates range from 11,000-14,000 birds.[x] The North American population was recently estimated at 8,000 to 10,000 birds.[xi] Based on sporadic birding surveys and Christmas Bird Count data (0 to 630 birds reported 1987 – 2009), Panoche Valley can contain from 1-5% of the global population in a given year and up to 10% of the US population.

3

The FEIS needs to analyze cumulative impacts of this project and others on populations of wintering Mountain Plover. 3 cont.

3. Tricolored Blackbird (CA Endangered)

A more thorough analysis of impacts to Tricolored Blackbird must be included in the FEIS, and those impacts should be analyzed with sufficient and scientifically defensible data in light of the recent change in status of the species to endangered in the state of California.

The DEIR states "Tricolored blackbirds have been observed on the proposed project site and suitable foraging habitat for tricolored blackbirds is present throughout, although nesting habitat (i.e., cattail marshes, blackberry thickets, thistle stands) is absent. A large tricolored blackbird colony is known to occur approximately 8 miles north of the proposed project at Little Panoche Reservoir. 4

The FEIS should analyze the impacts of the project and the cumulative impacts on Tricolored blackbird from solar projects as well as habitat loss and drought in consideration of the elevated conservation status of the bird.

Comment: USFWS and ACOE action in the consultation and permitting process for this project sets a new precedent in permitting utility-scale solar PV projects in California, creating an inconsistent and confusing playing field that may slow or confound renewable energy development. In effect, the precedent used in the DEIS picks winners and losers by rewarding this project that has the greatest impacts on endangered and threatened species with a less rigorous regime and expense by not having to create an HCP for an Incidental Take Permit. The use of Section 7 in one case and Section 10 in another shows inconsistent policy in protecting endangered species. This action should be considered in the DEIS in cumulative impacts analysis not only on endangered and threatened species but also on its impact on renewable energy developers and development in California by creating inconsistencies that give advantage to different developers. 5

USFWS. announced the issuance of an Endangered Species Act, Section 10(a)(1)(B) incidental take permit to Wright Solar Park, LLC for their 2,446-acre Wright Solar Park Habitat Conservation Plan (HCP) for a solar energy generating facility in Merced County for only three federally endangered and threatened species. (http://www.fws.gov/sacramento/outreach/2015/10-26/outreach_newsroom_2015-10-26.htm)

Although Panoche Valley Solar Project proposes impacts greater than the Wright Solar Park project, the USFWS seems inclined in consultation in the biological opinion to offer the same kind of accommodation to a project through Section 7 to a developer who has not applied for an ESA Section 10 permit creating an unfair playing field for protection of endangered and threatened species as well as development of renewable energy.

Issuance of a 404 permit to a developer who has not applied for a permit under Endangered

Letter I

5 cont.

Species Act while setting a standard for other developers to apply for an Incidental Take Permit is a harmful precedent to set for protecting federally endangered and threatened species in California and the U.S., and encourages development with "take" to proceed without Incidental Take permits.

Thank your for the opportunity to comment on the DEIS.

Sincerely,

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Letter I
Attachment

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September 7, 2012

Ms. Katerina Galacatos,
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Regulatory Division
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San Francisco, CA 94103-1398

VIA Email: spn.eis.panoche@usace.army.mil
415-503-6778

RE: SPN-2009-00443S

Dear Ms. Galacatos:

For more than a century, Audubon has built a legacy of conservation success by mobilizing the strength of its network of members, Chapters, Audubon Centers, state offices and dedicated professional staff to connect people with nature and the power to protect it.

On behalf Audubon California's 150,000 members and supporters we thank you for the opportunity to submit our scoping comments on the Notice of Preparation (NOP) of an Environmental Impact Statement (EIS) for the Panoche Valley Solar Farm Project (Project), a large scale solar project originally proposed by Solargen Energy, Inc., and now held by PV2, its third owner in the two years since it's approval by San Benito County Board of Supervisors.

Audubon California is firmly committed to fighting global warming. In recognition of the growing threats to human and ecological communities presented by the unabated release of greenhouse gases we have championed the aggressive development of both energy conservation and renewable energy generation. In locations throughout our state Audubon at the state level and our chapters at a local level have successfully collaborated on the development of renewable energy facilities—striking a balance between landscape conservation priorities and renewable energy.

Unfortunately, in our assessment the solar project proposed for Panoche Valley does not strike this balance due to the considerable cumulative ecological impacts to this location both locally and regionally, and on the unprecedented number of sensitive species of wildlife impacted by this project.

In November 2010 the San Benito County Board of Supervisors certified the final Environmental Impact Report (EIR) in compliance with the California Environmental Quality Act. That certification and the EIR itself are currently under continuing California Environmental Quality Act litigation by our chapter Santa Clara Valley Audubon Society and others. We opposed the project at

the San Benito County hearing to certify the FEIR, and we support our colleagues at Santa Clara Valley Audubon in this litigation.

Our comments follow:

Purpose and Need

While ACOE's jurisdiction may be limited in some ways to waters, the critical role of water in sustaining an ecology that includes species of wildlife in California is clearly established, even and perhaps more importantly on former or current agricultural lands such as the Panoche Valley. The EIS must address the impacts of the entire project, including the alteration of waters over which ACOE has jurisdiction, on the ecology and all biological resources.

It is clear that renewable energy development, like other forms of energy development, has environmental impacts on biological resources. In the case of endangered, threatened or sensitive biological resources, we ask our agencies to fulfill their obligation and duty to the public to ensure the survival and persistence of those species by analyzing and mitigating impacts to their survival. We firmly support avoidance over mitigation as the most successful minimization of impact.

The permitting of energy development by our federal agencies includes the option to avoid significant and irreversible impacts of a project by denying a permit application and by preferring the environmentally superior NO PROJECT Alternative.

Therefore, the ACOE's statement of purpose and need in the EIS should be broader than responding to an application for a permit, or meeting national, state or local renewable energy goals.. **We ask that ACOE consider including the avoidance, minimization or mitigation of impacts of the entire project on ecological and biological resources as an additional purpose and need for the EIS.**

Alternatives

The EIS is an opportunity to fully analyze a more appropriate range of alternatives to the project than was analyzed in the EIR including the proposed project and no project as required by NEPA. This range of alternatives should include environmentally superior alternatives that meet the goals of the project to generate 399 MW of renewable energy to meet California's Renewable Energy goals.

Those environmentally superior alternatives should include an analysis of mechanically disturbed lands including agricultural lands that will have considerably less impact on biological resources than the project. For example, **the Westlands CREZ alternative** may be an environmentally superior alternative presented in the EIS. The 30,000 acres of fallow, degraded farmland of Westlands Water District in Fresno and Kings County is one of the most promising in the state for large scale solar development outside of the desert. The Westlands CREZ site could provide up to 5,000 MW (5GW) of renewable energy with seemingly low impact to biological resources and high potential for more certainty in environmental review and permitting. A project built within the Westlands CREZ would remove the need for a smaller project with significant and immitigable impacts on biological resources in a globally recognized area of conservation importance such as the Panoche Valley.

Additionally, obstacles to this alternative stated in the FEIR no longer exist such as deadlines for federal funding, economic status or ability of SolarGen, Inc., etc. no longer apply and this alternative should be evaluated again by ACOE in the EIS.

Impacts on biological resources

The project proposes to develop a large portion of the valley floor that is home to a significant proportion of many federally listed and other special status species, and remains one of the few places in California with remnant, intact populations of San Joaquin Valley endemic sub-species. The project will utilize upwards of 40% of the valley floor (almost 5,000 of approx. 12,000 acres) and there will be significant and unavoidable direct impacts, including many that are immitigable, to a host of species. There will also be indirect impacts on these species on acres adjacent to the project site.

Panoche Valley is notable for its extensive grassland habitat, a rare and declining ecosystem throughout California and the US. It remains one of the few intact places in the Central Valley that still contains a suite of upland San Joaquin Valley species, three of which are federally endangered (San Joaquin Kit Fox, Blunt-nosed Leopard Lizard, and Giant Kangaroo Rat). Panoche Valley contains habitat for these species because it is relatively isolated, remains largely undeveloped, and contains expansive grasslands that have not been converted to row crops. The Recovery Plan for the Upland Species of the San Joaquin Valley[1] cites Panoche Valley as important to the recovery of many San Joaquin species that formerly occupied large areas of the San Joaquin Valley floor.

Species of birds

Panoche Valley is also biologically significant because it attracts a large number of bird species that specialize in grassland ecosystems; most of these species are listed in California and considered declining throughout their range. For example, the DEIR states that seven special status bird species (all reliant on grasslands) were observed within the project area based on limited surveys and anecdotal observations, and another four species with a moderate to high chance of occurring. In addition to multiple sensitive bird species documented at Panoche Valley, the area is generally considered high in avian diversity. For example, records from birding databases indicate that approximately 210 bird species (based on Audubon Christmas Bird Count[2] and eBird[3] databases combined; all years) have been recorded in Panoche Valley, including ten special-status bird species recorded in the project area by citizen scientists.

National Audubon Society has recognized Panoche Valley as a globally significant *Important Bird Area,*[4] [5]a point highlighted in the DEIR. The Important Bird Areas Program, administered by the National Audubon Society in the United States, is part of an international effort to designate and support conservation efforts at sites that provide significant breeding, wintering, or migratory habitats for specific species or concentrations of birds. Sites are designated based on specific and standardized criteria and supporting data. Panoche Valley was labeled as "globally significant" because of the presence of a significant portion of the global population of Mountain Plover wintering here. Mountain Plover is currently being reviewed by the United States Fish & Wildlife Service (USFWS) for listing under the Endangered Species Act as Federally Threatened[6] and is listed under the International Union for the Conservation of Nature Red List as "Near Threatened" and decreasing in population. The Panoche Valley Important Bird Area (IBA) is also notable for

providing breeding habitat for multiple sensitive grassland bird species (including Burrowing Owl), and for its high concentrations of wintering raptors and enormous sparrow flocks in fall and winter.

The EIS should consider the impacts of the project on all species of birds and other wildlife, including but not limited to the following species of birds that we are especially concerned about:

Mountain Plover (CA Bird Species of Special Concern; candidate for federal listing)

The USFWS has reinstated a proposal (after an initial proposal in 2003) to list the Mountain Plover as a Threatened species under the Federal Endangered Species Act.[7]

Mountain Plovers breed in the western Great Plains and Rocky Mountain States from the Canadian border to northern Mexico. They winter primarily in California and also in southern Arizona, Texas and Mexico. California's Sacramento, San Joaquin, and Imperial Valleys are believed to support the greatest number of wintering Mountain Plovers[8]. Unlike other plovers, Mountain Plovers inhabit flat areas with short grass or bare ground. In the Central Valley Mountain Plovers are found on flat tilled or burned fields or heavily grazed annual grasslands. Movement patterns of wintering birds vary, including the potential for birds to move within local areas as well as between sites up to 127 km.[9] California is estimated to have 50-88% of the world's population and up to 95% of the total plovers reported in the U.S. during annual (from 1988 to present) Christmas Bird Counts[10]. The global population estimates range from 11,000-14,000 birds.[11] The North American population was recently estimated at 8,000 to 10,000 birds.[12] Based on sporadic birding surveys and Christmas Bird Count data (0 to 630 birds reported 1987 – 2009), Panoche Valley can contain from 1-5% of the global population in a given year and up to 10% of the US population.

Burrowing Owl (CA Bird Species of Special Concern)

Impacts to Burrowing Owl must be included in the EIS, and those impacts should be analyzed with data from surveys in the Project Impact Evaluations that follow recently released **Staff Report on Burrowing Owl Mitigation** State of California Natural Resources Agency **Department of Fish and Game** March 7, 20121 as the data in the EIR is deficient.

The FEIR for the project reports "Nearly the entire 4,885 acre proposed project site provides suitable foraging, nesting, and roosting habitat for burrowing owls." "LOA (project proponent's environmental consultant) reported eleven occurrences of Burrowing Owls on the site, and there are two CNDDB (2010) records of Burrowing Owls within a ten-mile radius of the site. There are abundant small mammal burrows on-site that owls may use for refuge and/or nesting, and there is abundant prey present."[13]

There was no Burrowing Owl mitigation plan prepared for the project.

Golden Eagle (CA Fully Protected Species)

Golden Eagles are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (Eagle Act), both of which prohibit take. Take means *pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest,* or *disturb. Disturb* means "to agitate or bother a Bald Eagle or a Golden Eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially

interfering with normal breeding, **feeding**, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

In response to our comments, the EIR was revised to state "However, in consultation with the USFWS, flight surveys were conducted in the non- breeding season by Bloom Biological in early August 2010 within 10 miles of the site. Fifteen golden eagle nests were observed within the 10-mile radius of the project site. Four of the nests showed evidence of having young fledged in 2010. No golden eagle nests occurred within 2 miles of the project boundary (survey results are presented in Appendix 4)."

Additionally, loss of foraging habitat can be considered "take."

In response to our comments the EIR was revised to include "**Golden eagle foraging habitat.** The Applicant shall compensate for permanent impacts to habitat for foraging golden eagles with the creation of permanent conservation easement(s). Conservation easement(s) shall provide habitat preservation, in perpetuity at a ratio of 2:1 for all impacted acreage. Preserved habitat shall be of equal or greater quality after any restoration activity (as defined in Table C.6-6) compared to the impacted habitat. This mitigation may occur on lands used simultaneously as mitigation for impacts to other species."

The EIS should consider the effectiveness and availability of this mitigation measure for Eagles that nest near the project site, as well as migrating Eagles and floaters.

Short-eared Owl (CA Bird Species of Special Concern)

Impacts to Burrowing Owl must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

As stated in the DEIR, Short-eared Owls have nested in the project vicinity typically in response to vole population irruptions following exceptionally rainy years. Nests were noted in 1998 [14] and a bird was observed in the mitigation area in March 2008.[15] No surveys were targeted for this species so we are unable to determine their current status during the breeding season or winter months. As a diurnal owl that forages at dawn and dusk and roosts in long grasses during the day, this bird is challenging to detect, and specialized surveys should be conducted in both the project area and on mitigation lands from October through March, when most birds occur in California, as well as during the breeding season. Birds are more likely to be nesting in Panoche Valley during El Nino years so one survey in February/March 2010 reported in the EIR is not sufficient, particularly during the El Nino year of 2009, to determine presence of nests. Mitigation for this species requires expansive grasslands. For example, conservation of breeding and foraging habitat is recommended to be at least 250 acres of appropriate grassland habitat.[16]

Loggerhead Shrike (CA Bird Species of Special Concern)

Impacts to Loggerhead Shrike must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

Project proponent did not conduct surveys specifically for this species but observed them during Blunt-nosed Leopard Lizard surveys and incidentally within the project area. The entire project area

provides foraging habitat for Loggerhead Shrike both during the breeding and winter months, and like many grassland birds this species will move around Panoche Valley and numbers will fluctuate based on availability of prey species. Nesting locations for this species may be located throughout the project area and are difficult to find and therefore targeted breeding season surveys need to be conducted to determine nesting locations and numbers of breeding pairs.

Loggerhead Shrikes are experiencing significant declines in California, particularly in the Central Valley due to habitat loss and degradation.[17] Panoche Valley CBC annually records between 11 and 50 birds in the winter suggesting this area's regular occurrence of the species during the winter. It is not known specifically where and how many of these birds breed in Panoche Valley. The habitat requirements for Loggerhead Shrikes are complex, and therefore mitigation strategies can not be lumped wholesale with other grassland species or grassland habitat in general. We are also concerned that impacts to insect and small mammal populations within and adjacent to the construction area, including in the "mitigation" lands might eliminate the entire project site as foraging habitat.

Grasshopper Sparrow (CA Bird Species of Special Concern)

Impacts to Grasshopper Sparrow must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

While much of the grassland within the project area is heavily grazed and therefore probably not suitable for Grasshopper Sparrows, this species is known to nest within Panoche Valley, likely in spring after heavy rainfall or along the base of the foothills in longer grasses and in areas with scattered shrubs or forbs.
Without targeted surveys during the appropriate time of year, the species can not be considered either present or absent. Grasshopper Sparrows are extremely difficult to detect except during the period when they are singing within a nesting territory (only for several weeks during April – July) and no surveys were conducted during this period.

Biologists trained and able to hear Grasshopper Sparrows (many people can not hear the range within which they sing) need to conduct weekly spot-mapping surveys before determining impacts from this project. In addition, ACOE should ask DFG for all records of rare, threatened and endangered species of birds that have may have been submitted to but not yet entered into the CNDDB for analysis of this species.

Grasshopper Sparrows typically will only select grasslands as nesting and foraging habitat that is a minimum size of 50 acres, and preferable more than 100 acres of continuous open grassland, with scattered shrubs or forbs as nesting habitat.[18] It is highly unlikely that birds, if occurring within the project footprint, would continue to occur following construction as the layout of solar panels will break the appearance of a contiguous large grassland. Mitigation strategies need to determine whether the species occurs within the mitigation lands, and maintain or restore the types and acreage of grassland required for this species.

Habitat requirements for Mountain Plover, Short-eared Owl, Loggerhead Shrike and Grasshopper Sparrow, while all grassland specialists, are considerably different in their ecology so that a "one size fits all" approach will not be an adequate mitigation strategy without habitat management and/or restoration aimed at specific life history habitat needs of each species.

Tricolored Blackbird (CA Bird Species of Special Concern)

Impacts to Tricolored Blackbid must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

The DEIR states "Tricolored blackbirds have been observed on the proposed project site and suitable foraging habitat for tricolored blackbirds is present throughout, although nesting habitat (i.e., cattail marshes, blackberry thickets, thistle stands) is absent. A large tricolored blackbird colony is known to occur approximately 8 miles north of the proposed project at Little Panoche Reservoir."[19]

Raptors

Impacts to raptors including endangered, threatened or sensitive species, must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

The FEIR added additional, limited surveys for the following species which should be evaluated fo with scientific defensible data.

- **Northern Harrier**
- **Swainson's Hawk**
- **White-tailed Kite**

Oregon Vesper Sparrow (CA Species of Special Concern)

Impacts to Oregon Vesper Sparrow must be included in the EIS, and those impacts should be analyzed with sufficient and scientifically defensible data.

California Condor (Federally endangered)

While the DEIR states that there in a moderate chance of condors occurring on the project site and that "medium voltage lines that will traverse the project site may present a substantial electrocution threat to large birds"[20] no further analysis or consideration was given to impacts to California Condors. Birds from either the Big Sur region or Pinnacles National Monument may fly over or forage within Panoche Valley.

The EIR was revised to state: "The project could result in the loss of foraging habitat for golden eagles, California condors, and other special-status raptors" and Global positioning system (GPS) flight data from the USFWS indicate that released California condors have passed over the project site (USFWS, 2010e)."

Proposed Mitigation

The EIS should address the mitigation proposed by the project proponent.

Many of the bird species that occur in Panoche Valley are grassland species that require flat, short grasslands without impeding buildings or structures. The DEIR for the Panoche Solar Farm clearly states that the land purchased for mitigation by the developer does not meet this simple requirement. The DEIR states that, "The topography of the mitigation lands is more variable and they support a

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greater diversity of habitat types," and that, "The amount and quality of information documenting the extent of occupancy of the proposed mitigation site by these and other special-status species, and the extent of suitable habitat for affected species on the mitigation site, is highly variable."[21]

Thank you for consideration of our comments.

Sincerely,

Garry George
Renewable Energy Project Director
AUDUBON CALIFORNIA

Letter I Attachment

ENDNOTES

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[18] Ibid
[19] San Benito County Planning Commission, Panoche Valley Solar Project DEIR, June 2010, Sec. c-6 Biological Resources, p. C-6, 69
[20]Ibid, p. C-6, 92
[21] San Benito County Planning Commission, Panoche Valley Solar Project DEIR, June 2010, Sec. c-6 Biological Resources, p. C-6, 13

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October 23, 2015

Lisa Gibson
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Re: Draft EIS SPN-2009-00443S

Dear Ms. Gibson:

I am writing with great concern over the proposed Panoche Valley Solar Facility, specifically in regards to its impacts on the giant kangaroo rat (*Dipodomys ingens*). It is my professional opinion that the project will have substantial and unmitigable impacts on the species that would forever preclude its recovery and de-listing from the Federal and California Endangered Species lists. According to USFWS regulations, jeopardy results when it is reasonable to expect that a federal action would "reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species" (50 C.F.R. § 402.02). Due to the permanent loss of habitat that the project would entail, as well as the negative impact on giant kangaroo rats during one of the worst droughts in recorded memory, I believe that this project would reduce reproduction, numbers and the distribution of the species. I detail my specific concerns about the Environmental Impact Statement prepared by the US Army Corps of Engineers and US Fish & Wildlife Service below. 1

I am an Assistant Professor of Wildlife at Humboldt State University, where I have been employed since 2012. Prior to that, I conducted graduate work at UC-Berkeley on the giant kangaroo rat in the Carrizo Plain National Monument and the Ciervo-Panoche Natural Area (CPNA). I have conducted research on this species since 2007, and in the CPNA since 2010, including both intensive and extensive trapping efforts throughout their range. In 2010-2012, I served on an expert panel reviewing the biological impacts on giant kangaroo rats from the California Valley Solar Ranch (CVSR). I am gravely concerned about the ongoing threat of climate change and was ultimately a proponent of the CVSR project and the mitigation measures approved. In contrast, I do not believe that the Panoche Valley Solar Facility can be mitigated.

My three major concerns about the Environmental Impact Statement are that the assessments of population size, the impact of habitat loss, and translocation success do not reflect a rational application of the available science. In summary: 2

- Estimating the current number of giant kangaroo rats on the project site or conservation lands is not possible without conducting mark-recapture trapping.

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Active precinct counts do not provide a reliable estimate of current population size, and the Environmental Impact Statement misstates my and my colleagues' conclusions on this issue. 2 cont.

- The Environmental Impact Statement does not include any information on recent trends for the giant kangaroo rat during the drought. We have seen a complete decimation of the population, and the EIS does not consider the impacts of the project at this sensitive time in the GKR population cycle. 3
- The cumulative impacts underestimates the value of the project footprint and overestimates the value of the conservation lands. The project footprint likely plays an important role as a stepping stone among colonies of GKR, and therefore a direct comparison of total habitat lost and conserved is not valid. 4
- The impact of translocation is vastly underestimated and ignores the sum total of available science on translocation of *Dipodomys* species. 5

Population Size

Estimating the number of giant kangaroo rats present on a site is not possible through the use of active precinct counts (Bean et al. 2012). The Draft Environmental Impact Statement misstates the conclusions of our paper. Specifically, the EIS states that our study concluded, "burrow counts were adequate to determine relative abundance, but were not reliable as an estimate of annual population size or growth." Here I quote from the abstract of our manuscript: "active burrow counts were adequate to determine relative abundance *averaged over multiple years*," and our Discussion: "active burrow counts appear to be a reliable method for determining *long-term*, relative abundance." Studies have shown over and over that burrow activity is not a reliable indicator of population size for burrowing mammals. Van Horne et al. (1997) found no relationship between burrow entrance counts for Townsend's ground squirrel; Powell et al. (1994) found the same for black-tailed prairie dogs; and Lisicka et al. (2007) found a non-linear 6

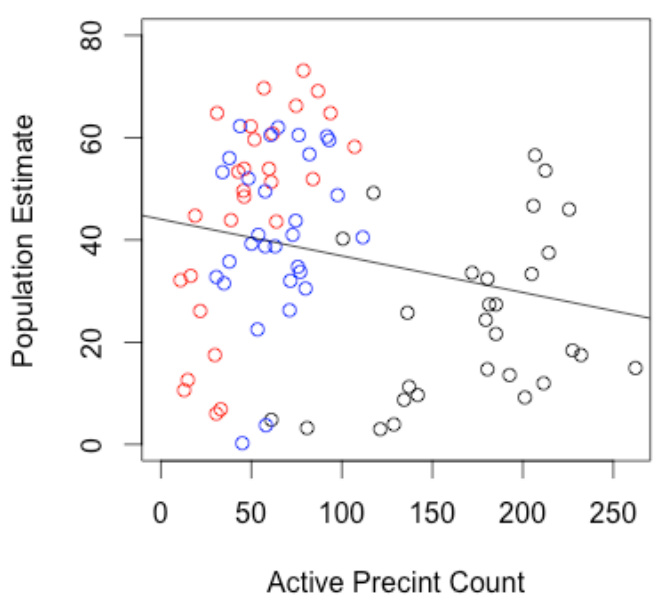

Figure 1 Relationship between active precinct counts and population estimates for giant kangaroo rats (black circles=2007; red circles=2008; blue circles=2009)

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relationship between burrow indices and common voles. Contrary to the EIS, one precinct does not equal one giant kangaroo rat. Cooper and Randall (2007) showed that in years of low population density (i.e. when lots of precincts are unoccupied and available), giant kangaroo rats will expand to occupy multiple precincts; and in years of high density, they will share precincts. It is unlikely that a count of active precincts could provide a reliable estimate of population size across sites or across years.

In Figure 1 I show the relevant data from our study on giant kangaroo rat active precinct counts and population size from much more reliable mark-recapture estimates. You can see that single year counts of active burrows can lead to serious under- or over-estimation of the "true" population size. To take two extreme examples, in 2007 we estimated that one of our study sites had 262 active burrows; but our trapping data suggested just 15 individuals were actually present. Conversely, in 2008 we estimated there were just 19 active precincts at one site, when the trapping data suggested there were 44 present. Worse, active burrow counts were not just inconsistent as a relative measure of abundance across sites within a given year. Relative abundance was also unreliably calculated between years. When trying to assess relative abundance across multiple years (as I have done in the figure above), there was a *negative* relationship between abundance and active precinct counts – the more burrows there were, the fewer rats we found! To re-iterate, it is not possible to know how many giant kangaroo rats will be directly impacted by the project with the available survey data.

6 cont.

The EIS provides a range of giant kangaroo rat population size estimates for the project footprint and conservation lands (presumably assuming a 1:1 relationship between active precinct count and number of giant kangaroo rats). Based on our estimates on the relationship between active precinct count and actual population size, I have prepared estimates of the giant kangaroo rat population size at each location, with 95% upper and lower confidence intervals. As Figure 1 shows, the relationship between active precinct count and population abundance varies between years. I therefore conducted the estimates using single year relationships from our study as well as the full data set:

Table 1. Population estimates based on active precinct counts. "EIS Estimate" is the range reported in the document. I assumed these were direct active precinct counts and related them to our "true" population estimates in 2007, 2008, 2009, and across years from the Carrizo Plain.

Site	EIS Estimate	2007 Model	2008 Model	2009 Model	All Years Combined
Project Footprint	197–506	26–61 (-5–113)	126–293 (80–401)	61–108 (-27–243)	7–29 (-38–69)
VFCL	1,572–2,800	180–316 (-8–642)	871–1,536 (526–2156)	267–452 (-179–1,261)	-156– -68 (-332–32)
SCRCL	3,300–5,700	373–640 (-42–1,322)	1,807–3,107 (916–2,536)	527–886 (-780-2,552)	-364– -192 (-723–14)
Valadeao Ranch	2,137	243 (-1–487)	1177 (706–1,648)	352 (-261–966)	-109 (-244–26)

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Clearly, these numbers show that there is no relationship between active burrow precinct counts and single year population sizes for giant kangaroo rats. The relationship between the two produces nonsensical results (including negative numbers, and much lower upper bounds than could be reasonably believed to exist). It is impossible to determine the direct take on living giant kangaroo rats based on active precinct counts, especially counts conducted across multiple years in different seasons.

That said, based on trapping efforts since 2011 I can provide some evidence of a dramatic decline in giant kangaroo rat population size. Since 2011, my colleagues and I have conducted population-wide surveys for giant kangaroo rat distribution throughout the Ciervo-Panoche Natural Area (Bean et al. 2014; Bean 2014). We have maintained consistent trapping techniques during that time, placing traps near active precincts to document the presence of giant kangaroo rat colonies and provide relative measures of population abundance. In 2011, we caught new, un-marked giant kangaroo rats in 16.8% of our trap-nights. In 2013, that success declined to 9.9%. In 2014, trap success was just 1.5%. In addition to these population-wide estimates, we have also estimated population density in the Indian Valley, just north of the project footprint with a 61-trap grid (following methods detailed in Prugh and Brashares 2012). In 2011, density was approximately 52 giant kangaroo rats per hectare (128/acre). In 2013, density had declined to 33 GKR/ha (81/acre). In 2014, we only captured 2 total rats on our grid (1.7 GKR/ha, 4.2/acre). With so few rats we could not conduct a formal estimate of density that year. There is a very real concern that at such low population density, giant kangaroo rats in the area may suffer from anti-regulating factors, whereby the smaller the population gets, the worse they do (Lidicker 2010). Small populations can suffer from increased predation, increased inter-specific competition, and fewer access to mates; these impacts may lead to increasingly smaller populations, increasingly greater rates of predation and competition and decreasing access to mates, ultimately leading to what conservation biologists call an "extinction vortex" (Fagan and Holmes 2006).

6 cont.

Habitat Loss

The USFWS in their Biological Opinion classified incidental take as "the number of acres of suitable habitat that would be temporarily or permanently impacted by the proposed project and the individuals that likely occupy that habitat." This is a more reasonable use of the active precinct count data, as our earlier work showed. Based on the active precinct counts as estimates of long-term habitat quality, the conservation lands are certainly critically important pieces of habitat for giant kangaroo rat recovery.

However, I do not feel that the cumulative impacts of the project have been accurately assessed. In the Recovery Plan for Upland Species, one criterion for down-listing giant kangaroo rats to Threatened is protection of the "entire metapopulation" in the Ciervo-Panoche Natural Area. Further, in order to down-list to Threatened, the target is to "secure and protect [all occupied lands in the Ciervo-Panoche Natural Area] from incompatible uses." In purely logical terms, the actions of this project will make it impossible to down-list the giant kangaroo rat because a significant piece of habitat in the Ciervo-Panoche Natural Area will not be secured nor protected from incompatible uses.

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As to protecting the entire metapopulation, it is my professional opinion that the take of 1,794 acres of suitable giant kangaroo rat habitat in the Panoche Valley may cause significant and irreparable harm to the metapopulation and the species. The USFWS 5-Year review for the giant kangaroo rat (2010) stated there are 95,000 acres of habitat available for the species in the CPNA, with 16,048 acres (17%) protected. The mitigation lands are reported to comprise over 20,000 acres of habitat for endangered species, however only approximately 1,800 of those acres are in "core habitat" for giant kangaroo rats (Williams et al. 1995).

Beyond total habitat lost, the protection of the entire metapopulation is not a simple numbers game. Just as giant kangaroo rats play a keystone role in the ecosystem, single kangaroo rat colonies can play an equally important role in maintaining the entire metapopulation. The loss of a single colony can have dramatic and unanticipated consequences. I see no evidence presented in the Biological Opinion or the Environmental Impact Statement that suggests anyone has conducted a rigorous analysis of the role that this site plays in maintaining the entire metapopulation. To my knowledge, the population viability analysis that would be necessary to quantitatively evaluate the dependence of the metapopulation on the project site does not exist. In the absence of such analysis, and in light of the evidence demonstrating the importance of the project site, discussed below, pointing to mitigation at 4:1 is akin to losing one wheel of a car but celebrating the remaining three.

7 cont.

There is substantial evidence to suggest that the CPNA area within the project footprint plays a critical role in maintaining the giant kangaroo rat metapopulation. In a metapopulation, individual colonies play two roles: first, as core habitat in sustaining giant kangaroo rats and producing emigrants that can colonize other areas; and second, as a stepping stone between other colonies. As for the first role, as stated above, there is no evidence to suggest that the loss of 1,794 acres on the project footprint would be mitigated by the continued existence of 1,800 core acres on Silver Creek Ranch.

As for the second role, the project footprint is at the center of the entire metapopulation (Williams et al. 1995). The Ciervo-Panoche Natural Area is characterized by a precipitation gradient from the northwest to the southeast. Giant kangaroo rat habitat is often limited at both precipitation extremes: too dry and there's not enough food available to sustain a population; too much precipitation leads to thick vegetation that increases competition, predation, and increased moisture likely leads to increased molding of seeds. Precipitation in California, as we all know, is extremely variable. In a drought, the northern wetter areas become highly suitable for giant kangaroo rats and southern areas become too dry (Bean 2013, Bean 2014). In a series of wet years, the northern areas become too wet and the southern areas are suitable again. This is not to say that there are individual giant kangaroo rats intrepidly journeying 50 kilometers every year to follow the rain. Instead, some colonies will do well and produce emigrants to re-colonize other areas; and some colonies will go extinct, only to be re-colonized in better years.

The project footprint lies in the middle of this entire system, providing suitable habitat year in and year out that can produce emigrants to move north in the dry years and move south in the wet years. Imagine a basin tipping slowly back and forth, north to south, with

the water representing the kangaroo rats. What happens to the water when you drill a hole in the center of the tub?

Our research in the CPNA since 2010 has provided support for this exact phenomenon. Since the drought began, populations in the south have been extirpated, while we have found higher trap success in the north. Since 2013, we have also documented giant kangaroo rats moving into wetter areas where we hadn't seen them before (Bean 2014). Genetic analysis done in collaboration with UC-Davis suggests that indeed, giant kangaroo rats in the project footprint are moving through providing important connectivity between the southern and northern populations. These results square with earlier work by Loew et al. (2005) and Good et al. (1997). 7 cont.

In sum, incidental take of 1,794 acres of suitable giant kangaroo rat habitat at the center of the distribution in the Ciervo-Panoche Natural Area would prevent recovery of the species as described in the Recovery Plan and 5 Year Review. Based on my best professional opinion, I believe it would appreciably reduce the likelihood of both the survival and recovery of the giant kangaroo rat by reducing the distribution of the species. Unfortunately, while the available evidence strongly supports this opinion, there is no rigorous, quantitative assessment available on the importance of this habitat.

Translocation

The USFWS has done an admirable job attempting to estimate the biological impacts on the giant kangaroo rat from the California Valley Solar Project. However, our understanding of mortality from translocation on this species is limited to the first few days of the project. The Biological Opinion reports a 2% mortality during capture and translocation, however translocation does not end when the individual is introduced to the new site. To understand the impacts of the Panoche Valley Solar Facility on the numbers and reproduction of the species, we must know whether the individuals will remain in the new location, survive and reproduce. To my knowledge, nothing has been released publicly about the long-term fate of giant kangaroo rat populations trans-located from solar projects in the Carrizo Plain. In a review of 8 different studies, Shier and Swaisgood (2012) reported that "translocations of kangaroo rats have been ineffective… there have been no documented cases in which a kangaroo rat translocation has successfully established a viable population that persisted over the long term." Their work suggested the need to translocate individuals in socially cohesive units. While this method proved more successful for the Stephens kangaroo rat (*Dipodomys stephensi*), survival was still less than 75% after 1 month and less than 50% after 12 months. 8

Conclusions

In sum, I believe that the project will cause serious, potentially irreparable harm to the giant kangaroo rat. The proponents have provided no evidence regarding the total number of giant kangaroo rats that will be harmed on the project site; how many giant kangaroo rats will be protected on the conservation lands; or how many will survive long-term after translocation. The permanent protection of the metapopulation in Ciervo-Panoche would likely be precluded, thereby making recovery impossible. Recovery of endangered species provides enormous political and economic benefits (Brown and Shogren 1998). I 9

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9 cont.

believe this project precludes recovery of the giant kangaroo rat, negating decades of hard work by countless scientists and managers to down-list and de-list the species.

Thank you for the opportunity to comment on this project.

Sincerely,

William "Tim" Bean

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Letter K

PANOCHE VALLEY SOLAR FACILITY
SAN BENITO COUNTY, CALIFORNIA
DRAFT ENVIRONMENTAL IMPACT STATEMENT

VETERANS MEMORIAL BUILDING
649 SAN BENITO STREET, HOLLISTER, CA 95023

PUBLIC MEETING: TUESDAY, OCTOBER 6, 2015

COMMENT CARD

Please check your affiliation below:

- ✓ Individual (no affiliation)
- __ Private Organization
- __ Federal, State, or Local Government
- __ Citizen's Group
- __ Elected Representative
- __ Regulatory Agency

Name: Genesis Garcia

Organization (if applicable):

Street Address:

City/State/Zip: Hollister, CA, 95023

E-mail:

Phone # (optional):

Please write your comments below (use back if needed). Thank you.

Comments:

I support this project because of all the benefits it will bring our community. It gives people many opportunities and it brings no harm to our environment. I

Please submit tonight or mail by Monday, October 26, 2015 to:

Ms. Lisa Gibson
US Army Corps of Engineers, Sacramento District, Regulatory Branch
1325 J Street, Room 1350, Sacramento, CA 95814-2922

Comments may also be e-mailed to: Lisa.M.Gibson2@usace.army.mil

US Army Corps of Engineers

Letter L

PANOCHE VALLEY SOLAR FACILITY
SAN BENITO COUNTY, CALIFORNIA
DRAFT ENVIRONMENTAL IMPACT STATEMENT

VETERANS MEMORIAL BUILDING
649 SAN BENITO STREET, HOLLISTER, CA 95023

PUBLIC MEETING: TUESDAY, OCTOBER 6, 2015

COMMENT CARD

Please check your affiliation below:

- ✓ Individual (no affiliation)
- __ Private Organization
- __ Federal, State, or Local Government
- __ Citizen's Group
- __ Elected Representative
- __ Regulatory Agency

Name: PAT McCullough

Organization (if applicable):

Street Address: 650 A ST

City/State/Zip: Hollister CA.

E-mail: mccattle@gmail.com

Phone # (optional):

Please write your comments below (use back if needed). Thank you.

Comments:

THE PROJECT MEETS THE DEMANDS OF THE STATES RENEWABLE ENERGY REQUIREMENT WHILE AT THE SAME TIME PROTECTING THE ENVIRONMENT.

I

Please submit tonight or mail by Monday, October 26, 2015 to:

Ms. Lisa Gibson
US Army Corps of Engineers, Sacramento District, Regulatory Branch
1325 J Street, Room 1350, Sacramento, CA 95814-2922

Comments may also be e-mailed to: Lisa.M.Gibson2@usace.army.mil

Letter M

PANOCHE VALLEY SOLAR FACILITY
SAN BENITO COUNTY, CALIFORNIA
DRAFT ENVIRONMENTAL IMPACT STATEMENT

VETERANS MEMORIAL BUILDING
649 SAN BENITO STREET, HOLLISTER, CA 95023

PUBLIC MEETING: TUESDAY, OCTOBER 6, 2015

COMMENT CARD

Please check your affiliation below:

__ Individual (no affiliation)
__ Private Organization
__ Federal, State, or Local Government
__ Citizen's Group
__ Elected Representative
__ Regulatory Agency

Name: Daniela Salazar

Organization (if applicable):

Street Address:

City/State/Zip: Hollister, CA. 95023

E-mail:

Phone # (optional):

Please write your comments below (use back if needed). Thank you.

Comments:
I want this project to be successful because it will benefit our community with the oportunity to bring us LOCAL JOBS. And will not harm our enviorment in any way. Lots of people need this opportunity to have a job. And we support this project.

I

Please submit tonight or mail by Monday, October 26, 2015 to:

Ms. Lisa Gibson
US Army Corps of Engineers, Sacramento District, Regulatory Branch
1325 J Street, Room 1350, Sacramento, CA 95814-2922

Comments may also be e-mailed to: Lisa.M.Gibson2@usace.army.mil

US Army Corps of Engineers

Letter N

PANOCHE VALLEY SOLAR FACILITY
SAN BENITO COUNTY, CALIFORNIA
DRAFT ENVIRONMENTAL IMPACT STATEMENT

PANOCHE SCHOOL
31441 PANOCHE ROAD, PAICINES, CA 95043

PUBLIC MEETING: WEDNESDAY, OCTOBER 7, 2015

COMMENT CARD

Please check your affiliation below:

__ Individual (no affiliation)
__ Private Organization
__ Federal, State, or Local Government
__ Citizen's Group
__ Elected Representative
__ Regulatory Agency

Name: AL SCIOOCHETTI

Organization (if applicable): NONE

Street Address: 29935 PANOCHE RD.

City/State/Zip: PAICINES, CALIFO, 95043

E-mail: NONE

Phone # (optional): 1-831-628-3250

Please write your comments below (use back if needed). Thank you.

Comments: Their will be very little effect on the wildlife in this area. Rattlesnakes will be your biggest concern.

I

Please submit tonight or mail by Monday, October 26, 2015 to:

Ms. Lisa Gibson
US Army Corps of Engineers, Sacramento District, Regulatory Branch
1325 J Street, Room 1350, Sacramento, CA 95814-2922

Comments may also be e-mailed to: Lisa.M.Gibson2@usace.army.mil

US Army Corps of Engineers

Letter O

From: decv013@gmail.com [mailto:decv013@gmail.com]
Sent: Monday, November 02, 2015 11:40 PM
To: HQ-PUBLIC AFFAIRS <HQ-PUBLICAFFAIRS@usace.army.mil>
Subject: [EXTERNAL] Headquarters U.S. Army Corps of Engineers Contact Form: Panoche Valley Solar Project

This message was sent from the Headquarters U.S. Army Corps of Engineers website.

Message From: Constance Vigno

Email: decv013@gmail.com

Response requested: No

Message:

Dear Sir/Madam,

I understand that your agency is about to permit a solar project in Panoche Valley in a globally significant Important Bird Area. 1

While the impact of this project on birds is bad enough, the impacts on four threatened and endangered species - Giant Kangaroo Rat, San Joaquin Kit Fox, California Tiger Salamander and Blunt-nosed Leopard Lizard is worse and may drive these iconic California species to extinction, in spite of efforts by the developers to mitigate the impact of this project. 2

We support renewable energy to combat climate change, but there are plenty of places in California that have little or no conflict with wildlife to site these kinds of projects.

In addition, Panoche Valley is spectacular place that provides vast vistas and solitude that will be forever despoiled by this development. 3

Please stand with us for birds and wildlife over poorly sited energy development that is not needed to meet our renewable energy goals.

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

BERKELEY • DAVIS • IRVINE • LOS ANGELES • MERCED • RIVERSIDE • SAN DIEGO • SAN FRANCISCO • SANTA BARBARA • SANTA CRUZ

BARRY SINERVO
DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY
EARTH AND MARINE SCIENCES BUILDING
UNIVERSITY OF CALIFORNIA
SANTA CRUZ, CALIFORNIA 95064
VOICE: (831) 459-3425 / FAX: (831) 459-5353
E-MAIL, GMAIL VIDEO: lizardrps@gmail.com, SKYPE: bsinervo

Lisa Gibson
US Army Corps of Engineers,
Sacramento District Regulatory Branch
1325 J Street, Room 1350 Sacramento, CA 95814-2922
E-mail: Lisa.M.Gibson2@usace.army.mil

October 26, 2015

Comment on the DEIS (SCH#2010031008)

Dear Ms. Gibson--

The DEIS (Draft EIS SPN-2009-00443S) prepared for the proposed Panoche Valley Solar Project seems to suggest that the take of BNLL is difficult to estimate. However, the observed locations of BNLL in and around the project can be used to construct habitat suitability models (of BNLL occupancy) under current climate change (and future change). Previous analyses based on physiological traits indicate that the Panoche Valley will continue to be a refuge from climate change (Stewart, Westphal, Butterfield, and Sinervo, in preparation, and talk presented at the California Native Plant Society by Stewart, and Carrizo symposium by Sinervo in 2014 and by Steward in 2015). More detailed models premised on demography of the BNLL and the impacts of climate support the observation that the Panoche Valley will be a key refuge from climate change. Any population center in this Valley is therefore critical to the long-term persistence of the species and locating any development nearby or on such long-term population centers will jeopardize the long-term persistence of the species. Large ranging movements of BNLL (as noted in the literature on BNLL: Germano and others cited in the DEIS) from the BNLL population core into the project are also likely to impact reproduction and the local distribution of the species. I

The likely take from the project can be computed using the habitat suitability model developed by Joseph Steward (Doctoral student in Dr. Sinervo's laboratory, University of California, Santa Cruz) (See Figure 1 to 3). The entire project is in a habitat suitability area considered to moderate quality and the main project fringes on one of the core population centers of BNLL in that part of the Panoche Valley. The potential take is large enough to jeopardize the viability of the population in the region of the proposed Solar Farm.

A recent range wide survey of BNLL during the previous two years of the California Drought (spanning dozens of study sites, Westphal et al.) confirms that the Panoche Valley appears to be a robust refuge from the effects of the ongoing drought, one of the predicted scenarios of climate change. In contrast, many San Joaquin Valley floor populations have been severely impacted by the ongoing drought.

Therefore the current DSEIR is an inadequate assessment of the likely take of BNLL, and ignores the specific value of the Panoche Valley in the context of species-wide refuge from climate change. BNLL

can only occupy habitat within a narrow window of herbaceous vegetation productivity. Climate change is altering vegetation productivity. Resulting shifts in vegetation productivity may result in BNLL habitat within Panoche Valley shifting from its current configuration to areas proposed to be covered in solar arrays. I cont.

Under a climate change scenario of decreased precipitation Panoche Valley would become a refuge for the species, with the species becoming extinct in drier portions of its range.

Sincerely,

Barry R. Sinervo, PhD

Professor of Ecology and Evolutionary Biology
Department of Ecology and Evolutionary Biology
Earth and Marine Sciences Building,
University of California, Santa Cruz, CA 95064
Director, Institute for the Study of the Ecological and Evolutionary Climate Impacts,
The UC-wide research consortium and climate change observatory using UC Natural Reserves

Fig 1. BNLL habitat quality in the Panoche Valley premised on soil chemistry, soil texture, climate, and slope. Red areas are high suitability. Yellow areas are moderate suitability. BNLL record locations are shown as red dots.

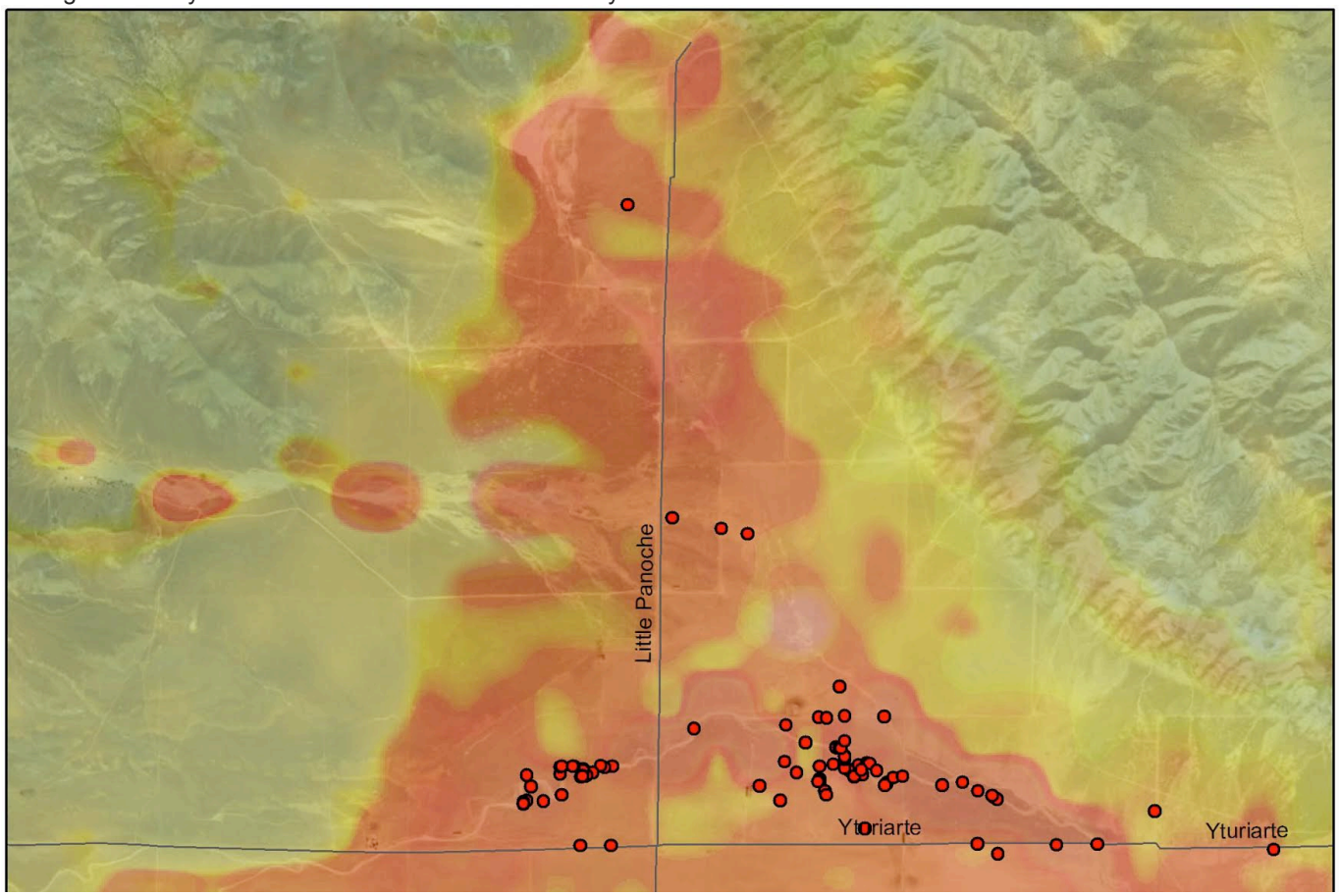


Fig 2. The proposed solar development would result in take by covering high suitability habitat with solar arrays and fragmenting currently suitable habitat patches into lower suitability smaller patches (e.g. transmission lines, new roads).

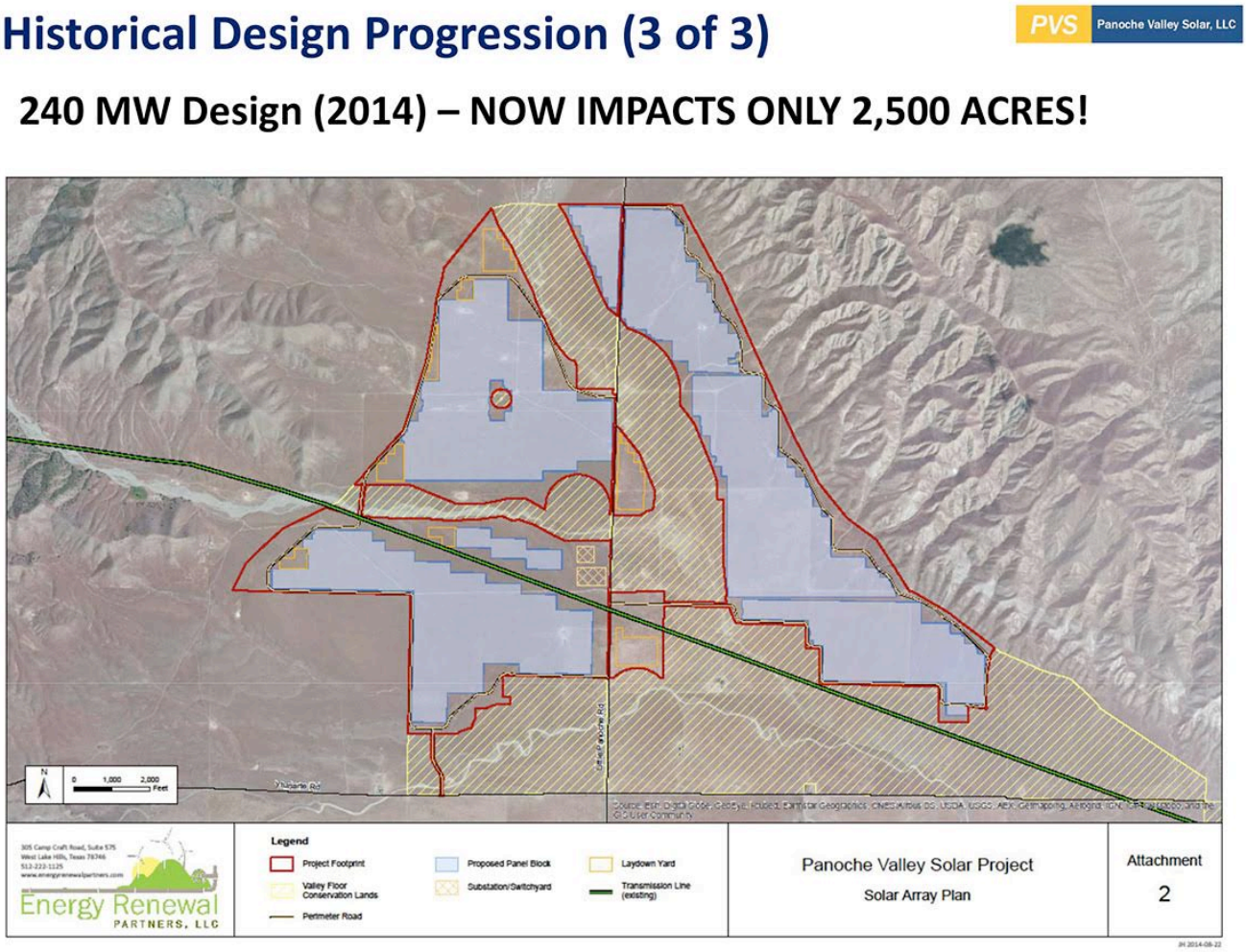
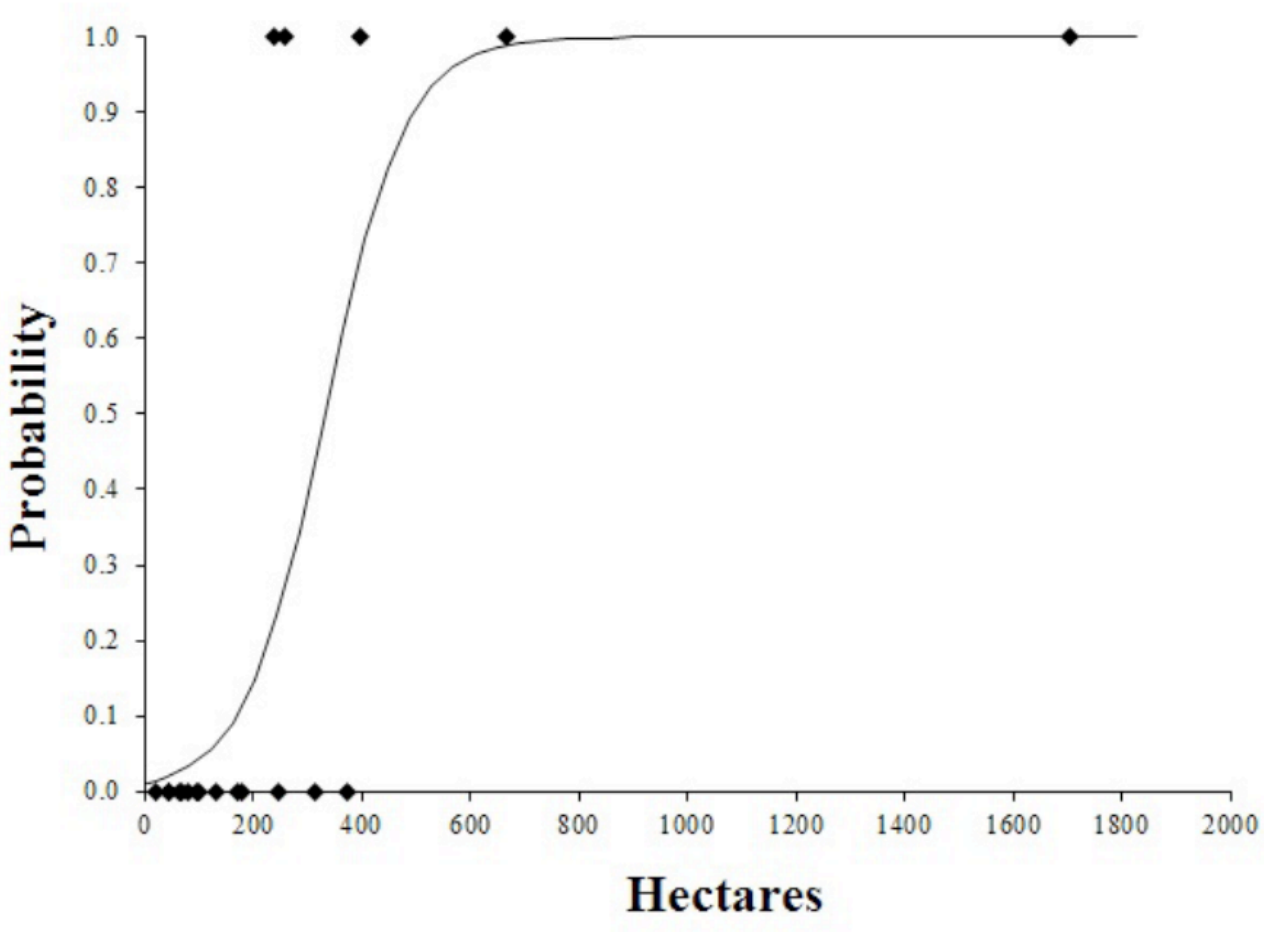


Fig 3. Probability of BNLL occupancy by habitat patch size. Habitat patch boundaries may include paved roads, solar arrays, and transmission lines. Further fragmentation BNLL habitat by proposed solar development activities may render otherwise suitable habitat no longer suitable by dividing it into smaller patches. Under the proposed development, several contiguous patches of currently suitable habitat would be divided into sections that fall below the threshold for BNLL occupancy (50% threshold is approximately 350 hectares. From Bailey C. V & Germano D.J. (2015) Probability of Occupancy of Blunt-nosed Leopard Lizards on Habitat Patches of Various Sizes in the San Joaquin Desert of California. 23–28.)



Transcript

PANOCHE VALLEY SOLAR FARM

ENVIRONMENTAL IMPACT STATEMENTS

PUBLIC SCOPING MEETING

DATE: Tuesday, October 6, 2015

TIME: 6:00 P.M.

PLACE: Veteran's Memorial Building

649 San Benito Road, Room 204

Hollister, California 95023

REPORTER: Connie J. Parchman, CSR License No. 6137

Creekside Court Reporting

2425 Porter Road, Suite 9

Soquel, California 95073

(831)426-5767

Interpreters: Sergio Sanchez and Leslie Curiel

Transcript

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STATEMENT BY MR. MARTIN RICHMAN

MR. MARTIN RICHMAN: I am in support of the Panoche Valley Solar project. When it was first proposed, I opposed it because I was concerned that they did not have adequate resources to fulfill the enormous amount of mitigation they promised. They have since proved me wrong.

They have shown they have adequate resources. Mitigation measures are more than adequate. They are not minimal. I have no financial interest in this at all. And I have no political interest in this at all. I would support this project if there were no jobs and no money coming to the county. And the reason is, that I believe that America's very vulnerable because it is not energy independent. And this project is just another step toward energy independence.

T-1

The people at the Corps of Engineers and other government agencies are there to make judgments. If they didn't want them to use their brains, we could have robots decide.

So, I ask you to take everything into account. The EIR is not absolutely perfect. I've seen a thousand projects. I've never seen a perfect EIR.

Those who oppose it are just -- just want it gone. They do not want it improved, so they're examining

Transcript

the EIR with a microscope trying to find errors. But you're there to make a judgment on the whole and I encourage you to use your expertise and the trust that we put into the government agencies to make the right judgment and to help America get energy independence so that we can bring home our troops from overseas and go on to our great lives as Americans.

T-1 cont.

Thank you very much.

STATEMENT BY MR. BOB TIFFANY

MR. BOB TIFFANY: Who I am: I guess I'm here on several levels.

I'm a long-time resident. My family -- I'm fourth-generation Hollister, San Benito County. I'm a fourth-generation Ford dealer here in San Benito County. I have a business. I'm also very involved in the San Benito Business Council.

T-2

I'm here as an individual, a business owner and also as a member of the Business Council.

I've been, along with many of us, many business people also -- I mean, this is a project that, frankly, has almost 100 percent support by the community. I think the only individuals in the community that are not supportive of it are probably a couple of homeowners -- landowners, maybe adjacent. But other than that, it's supported by virtually every sector in this community.

Transcript

The only people that are really against it are outside of this community: Environmentalists that have come down and have continuously tried to stop this project.

San Benito is a small community, small county. We always struggle to get our share against Santa Clara County, against Monterey County. It's tough -- from the economic standpoint, it's tough.

And this is a major project that would be a huge impact to this community. Huge.

Probably somewhere around 65 to 70 percent of the people in this community commute for jobs outside the community, so we badly need jobs. This would bring some jobs.

T-2 cont.

But more importantly it would bring revenue, would bring sales tax revenue to this community, which it really needs. You know, the infrastructure, the roads, everything is tough here.

And any -- best of all, this is a good project. It's an alternative energy, clean project. This is what all of us in the United States and the State of California want is solar. And yet ironically enough, we have environmentalists that are against it.

And there's a ten to one mitigation for this project. Which is, my understanding, unheard of. So,

Transcript

you know, it's: What's there is not to like? It is something that needs to move forward.

And every hurdle, whether it be through the courts or through the various CEQA and all the various mitigation that was done, at every hurdle -- I mean, this has been going on since I think 2010. This is -- everyone's been moving forward on this and now we're at the 11th hour plus plus. And if it's delayed any further, it won't happen unless they can extend tax credits at Congress. And who knows?

So, right now we're at the point where the permitting process has -- the permits have got to get issued. And obviously the opponent, a handful of people, politically noticed and they're playing -- you know, they're basically playing political games, dragging this project out knowing they can kill this project. That would be tragic for this community if that were to happen. And it's about ready to happen because if this project doesn't get started soon, it will not get built in time.

T-2 cont.

So anyway, I'm here to urge, you know, the Army Corps of Engineers and the State and Federal to issue the permits and to get this project finally moving forward.

So that's my statement.

//

Transcript

STATEMENT BY EMERY SMITH:

MR. EMERY SMITH: I've been a resident of San Benito County since 1990, raised five children here, have spent 40 years in the construction sales field that took me out of the county. I loved being here as a home owner, as a resident and as a family person. I was very disappointed that I had to go outside of the county in order to make my income match my needs.

I've been an advocate for solar since the '70s. I went to UCSC, majored in environmental studies, communities studies, with the intention of going into that field. Other things took place, so I went into the construction field. T-3

I saw the benefit of solar both on a large scale commercial as well as residential. I have seen the impact of P.G.&E. across the state and realized that with the power line centrally going through the county, it only made sense that we would put the two together and have clean energy as a source right here in the county.

I am a proponent of job creation and being able to work here in the county.

STATEMENT BY PAUL ROVELLA:

(Through Interpreter)

MR. PAUL ROVELLA: I support this project. It stands to provide employment and economic benefits that T-4

Transcript

this county has not seen before.

With regard to the environmental impacts of this project, it is providing a ten to one mitigation ratio for disturbed habitat for protected species. It's got mitigations built in for transportation, air quality, and protection of groundwater resources.

And it has been supported by our state and federal elected officials, including Luis Alejo and Anthony Cannella, and Sam Farr.

T-4 cont.

And it has -- its environmental protections have withstood legal challenge on five separate occasions. It may not be perfect, but it satisfies the California Environmental Quality Act and the National Environmental Protection Act, and should be permitted so it can start -- and can start construction as soon as possible.

STATEMENT BY ROBERT RODRIGUEZ

(Through Interpreter)

MR. RODRIGUEZ: And I could say a good comment, we do need this for our local economy. And to move our county forward and the tax revenue potentially going to receive from this and all the potential jobs. And America runs on construction.

T-5

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Transcript

STATEMENT BY JOSE LUIS DE LA ROSA

(Through Interpreter)

MR. DE LA ROSA: I've been here since 1966. And my first work -- my first job was in the Panoche Valley area. I know that area perfectly. That area is perfect for this project also for the solar project, because the surrounding 500 miles or more, there's not a better adequate area for it. This project is an excellent project for everyone, 360 degrees. For the county, for the state, for the federal government, for the community. This kind of project is very excellent, super excellent. It fulfills all of the necessities. T-6

And for my experience in working there, it doesn't affect anyone, because the area is very deserted. Inclusively, in those years, it was not even enough water. It doesn't affect agriculture, it doesn't affect animals. In my opinion, it's a magnificent project for everybody.

STATEMENT BY SALVADOR MELCHOR SERRANO

(Through Interpreter)

MR. MELCHOR SERRANO: I support this project because it brings lots of resources to lift the economy of our city. It's going to create jobs, it's going to create lots of other benefits for the stores, for the -- in general, for the city and the people. T-7

Transcript

I support this project because we're going to be very busy. It's going to -- the quick energy is going to improve our economy.

T-7 cont.

I believe this is going to raise our own personal economies. This is a great benefit to everyone.

STATEMENT BY JOSE VELASCO

(Through Interpreter)

MR. VELASCO: My name is Jose Velasco. I'm a resident of San Benito County.

I'm here today because I see that the project brings lot of benefits to the community. And to us personally, our family, it will help our economy. We support this project because we see that the benefits that it will bring for the future. Me and my colleagues are behind this project 100 percent.

T-8

STATEMENT BY NELSON SERRANO

(Through Interpreter)

MR. SERRANO: The project is a benefit for all of us. It's excellent because it's going to benefit the whole family. It provides a greater opportunity for employment. Personally, I work in agriculture and it's not a sufficient salary. And for that reason, I'm here today to support this project. Not just for myself, but for the community as a whole. That's all.

T-9

//

Transcript

STATEMENT BY ENOS INNOCENTE

(Through Interpreter)

MR. INNOCENTE: I'm here in support of the project because it brings good benefits for the family, to maintain ourselves, occupied. We have lots of employment. We need to have greater opportunities to support our families and grow as a community. In agriculture we're very limited in what we can actually make. And that's all.

T-11

STATEMENT BY CARLOS LUIS GALLEGOS

(Through Interpreter)

MR. GALLEGOS: I'm here in support of the project. I support it to have more employment in the area to have a better life. That is why I support this project.

T-11

STATEMENT BY DANIELA SALAZAR

MS. SALAZAR: I want this project to be successful because it will bring more --

Oh, my name? Daniela Salazar, D-A-N-I-E-L-A, S-A-L-A-Z-A-R.

I'm just in support of it for our community here. I want this project to be successful because it will benefit our community with opportunity to bring us more local jobs. And it will not have any harm to our environment. And a lot of us are supporting this

T-12

Transcript

100 percent to have more jobs that we need in this community. T-12 cont.

STATEMENT BY GENESIS GARCIA

MS. GARCIA: Pretty much same thing. I support this project -- my name is Genesis Garcia. All the benefits it brings to our community and gives people many opportunities and it doesn't bring any harm to our community -- to our environment. T-13

STATEMENT BY JOSE JULIO FLORES

(Through Interpreter)

MR. JULIO FLORES: Jose Julio Flores.

I'm in agriculture work and I come in support of the project. We all want there to be more jobs for everyone in the community. And that is all. T-14

STATEMENT BY LESLIE CURIEL

MS. CURIEL: My story -- my name is Leslie Curiel. I'm a recent graduate of UC Riverside, currently looking for a job.

I think it's actually a really good project because it will provide the community with, you know, employment opportunities that aren't going to be limited to ag. Agriculture isn't really sufficient because, you know, sometimes they have to leave their families, go to different counties and follow the work. T-15

So I think solar energy is definitely the way

Transcript

to go, the wave of the future. Our natural resources are definitely, you know, going to be limited. So I think the sun should be around for a little bit longer. I guess that's all.

T-15 cont.

STATEMENT BY JOHN W. EADE

MR. EADE: This is a great, green, job-creating, tax-generating project. It has no impact on agriculture production. It is grossly over-mitigated. The only reason this great project is not online and producing green energy is due to the actions of a few rogue, radical, low-level California Department of Fish and Wildlife employees and a total lack of leadership by Chuck Bonham and John Laird.

T-16

STATEMENT BY CARLOS VARGAS

(Through Interpreter)

MR. VARGAS: In the past couple of years, I've been supporting this great project. Since I started learning more about solar energy, I realized that this will benefit all of us in our county, San Benito County. And also the -- what's more important to my point of view is that it will bring lots -- lots of jobs to our community especially. I know so many people in town, so many young adults that there really needs this kind of good jobs to support their families.

T-17

Also, it will bring -- it will help our city

Transcript

T-17 cont.

1 and our county.

2 STATEMENT BY SERGIO SANCHEZ

3 MR. SANCHEZ: I am a local business owner. I
4 do consulting services in the Tri-County area. And I
5 work with different projects and different government
6 agencies and mostly working with the Latino community,
7 Latino businesses, Latino leaders. But then just with
8 everyone else including elected officers. I work in
9 building relationships and connecting government with
10 people and people with business and the process
11 especially, with an emphasis on the Latino community.

12 My testimony is that this project has gone
13 beyond what I ever seen in regards to mitigating any
14 impact study has on the environment or species. And it
15 provides so much, 40,000 plus acres of space that would
16 normally be not accessible to the project. It protects
17 species. And I believe it is actually going to benefit
18 the species, because now they'll be protected. And also
19 there's going to be private property, going to be public
20 property so more oversight. I think the species and
21 plants everything, I think they're going to be in better
22 shape. That's my personal opinion, based on what I read
23 and what I've seen. I never have seen a project that
24 does so much mitigation, ten to one is unheard of. I've
25 seen two to one, I've seen three to one, I've seen four

T-18

Transcript

to one, but never seen ten to one.

So I think that they have gone beyond what is expected of a project. And more. And I really believe this is what this community needs.

Part of my work with Assemblyman Luis Alejo, which is the local state representative, is that he finally got legislation forgiving some millions of dollars' worth of funds that were owed to the state by the County of San Benito. And those have been forgiven. So they are no longer on the deficit when it comes to those funds.

So this county can't help a lot of its people because it doesn't have resources. It's a very poor county. It doesn't have the resources to sustain its services to its community.

T-18 cont.

The unemployment rates are probably one of the highest in the region because of the burst of the Silicon Valley bubble back then left a lot of people stuck here. They bought homes and they're stuck here when the market was really high for homes, which has resulted in a high level of unemployment.

People are very anxious for jobs. Businesses are holding on hoping for something like this.

This was what this community needs in regards to the work that I do and the work that others do. A lot

Transcript

of these folks that are working around here are agriculture workers, are looking forward to the training opportunities, the partnerships with the college, the local college, partnerships with the whole employment agencies and all that.

It's going to not only educate this community, but train this community for the future jobs. That doesn't come very often. And the investment of hundreds of millions of dollars to this community, it is just unthinkable that things are going to happen to this community, to businesses, for businesses, to farm workers. Upgrade their skills and get the jobs of tomorrow.

T-18 cont.

That's what they're looking for: Construction. And I think this project has done everything it can to mitigate any impact. And that's why it's moving forward. And it is unfortunate that some don't want it. And I respect that, but I think the overall benefit to any community supersedes any impact, if there was any, to the environment and that has been mitigated.

I totally support this project. I've been working in San Benito for many, many years and continue to do so, but this really brings -- this is the wave that brings almost, you know, moves us forward. So it is 100 percent supported and hoping that it happens sooner

Transcript

rather than later.

STATEMENT BY MARCOS COVIEL

(Through Interpreter)

MR. COVIEL: I am a carpenter. I believe this is good for the environment so we can take advantage of the sun and to stop contaminating. That is why I support that project. 20 years as a carpenter.

T-19

(Concludes community statements.)

---o0o---

Transcript

REPORTER'S CERTIFICATE

I, the undersigned, a Certified Shorthand Reporter of the State of California, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth; that any witnesses in the foregoing proceedings, prior to testifying, were placed under oath; that a verbatim record of the proceedings was made by me using machine shorthand which was thereafter transcribed under my direction; further, that the foregoing is an accurate transcription thereof.

I further certify that I am neither financially interested in the action nor a relative or employee of any attorney or any of the parties.

IN WITNESS WHEREOF, I have this date subscribed my name.

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Connie J. Parchman

CSR No.6137

6.3 RESPONSE TO COMMENTS

The USACE's responses to the public comments contained in **Section 6.2** are shown in **Table 6-3**. Each response corresponds to the discrete comment number contained in each comment letter or the transcript. Thus, Comment A-1 refers to Comment 1 in Letter A, as identified in the prior section.

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	FEDERAL AGENCIES
Letter A. Kathleen Martyn Goforth, US Environmental Protection Agency, Region IX	
A-1	The EPA's recommendation for the applicant to consider siting the proposed project at the Westlands CREZ site is noted. The actions the applicant has undertaken to evaluate the Westlands CREZ are described in the applicant's updated 404(b)(1) alternatives information in **Appendix B** of the Final EIS. The USACE will publish its determination on the practicability of the Westlands CREZ alternative in the Record of Decision for this action.
A-2	The USACE considered the EPA's Section 404(b)(1) Guidelines in preparing the Panoche Valley Solar Facility EIS, including in the alternatives considered but rejected analysis (**Section 2.8**) and in ensuring that factual information needed to make a final determination is provided in the EIS. At the time the Draft EIS was published, the USACE had not received sufficient information to determine the practicability of the alternatives fully analyzed in the Draft EIS (**Sections 2.4** to **2.7**). The EIS is not intended to make a determination on compliance with the Section 404(b)(1) Guidelines, but to provide sufficient information for the USACE to determine compliance with the Guidelines in its Record of Decision. In addition, the USACE is neither a proponent nor an opponent of the project applicant's proposal; therefore, the project applicant's final proposal (Alternative A) is identified as the "applicant's preferred alternative" in the Final EIS in accordance with 33 CFR Part 325, Appendix B(9)(b)(5). The USACE will make a final determination on the environmentally preferable alternative and LEDPA in the Record of Decision, following completion of the Section 404(b)(1) alternatives analysis.
A-3	**Section 3.9**, Hydrology and Water Quality, of the Draft EIS described the baseline groundwater conditions based on a 2010 hydrologic study (Geologica, Inc. 2010b). **Section 3.9.2** of the Final EIS has been updated to include more recent baseline information from the December 2014 technical memorandum update (Geologica, Inc. 2014) to the 2010 hydrological study. A description of changes in groundwater levels as measured in over 40 wells within the groundwater basin from 2004 to 2014 has been added to **Section 3.9.2**; this time period, which includes pre-drought and drought conditions, provides trends information to show how the recent drought is affecting basin groundwater levels. Additions to the affected environment text of the Final EIS are as follows:

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	A technical memorandum was prepared in December 2014 (Geologica, Inc. 2014) to update the 2010 hydrologic study. The following excerpt from the study describes the groundwater use, groundwater availability, and groundwater budget information since the original study was prepared in 2010, thus providing an updated baseline reflective of the current drought conditions: "A staff scientist visited the [project] site on May 16, 2014 and measured depth to water in 17 wells on the property…In addition to measuring water levels in wells on the property, Geologica accessed a water level database maintained by the state DWR [California Department of Water Resources] to obtain water level data for wells on the property and in other locations in Panoche Valley." "A review of DWR water level measurement records did not identify a uniform trend or pattern of water level change across the valley. Based on DWR records, water level elevations in a number of wells in Panoche Valley, including wells 0, 1, 2, 4, 7, 9, 11, 17, 18, 19 and others, declined over the last five years. This decline is presumably due to drought conditions in California in the last few years. However, water levels in some of the wells were relatively stable, while water levels in other wells over the same time period fluctuated several feet, presumably from intermittent pumping for stock watering, irrigation, or domestic use…Generally lower groundwater gradients were observed in 2014 compared to 2010, reflecting reduced groundwater recharge in the last few years." The analysis in the Draft EIS considered drought trend conditions in its determination of project impacts on groundwater supply and recharge based on the Geologica, Inc. 2014 technical memorandum referenced above (Geologica, Inc. 2014). **Section 3.9.3** of the Final EIS has been expanded to indicate that the impact analysis accounts for drought conditions in its assessment of impacts. Revisions to the environmental consequences text are as follows: Geologica, Inc. (2014) analyzed groundwater supply and recharge from the proposed project using current (2014) groundwater levels as the baseline condition. This report concluded that g~~G~~roundwater extraction during the construction phase could result in maximum groundwater drawdown of three feet near the southern edge of the property and one to two feet at locations farther off-site at the end of construction. This assumes a construction duration of 18 months. These drawdown effects would be transient, and the analysis suggests that the water table would begin to recover once construction ends. The drawdown would most likely dissipate over roughly the same time as it developed during construction (Geologica, Inc. 2014).

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	To aid in responding to comments on the Draft Supplemental EIR prepared for the proposed project (San Benito County 2015), a second review was sought to evaluate project impacts on water resources (Kleinfelder 2015a). This review specifically considered the potential effect of the current drought and determined that there has not been a consistent negative effect on water levels in valley wells as a result of the recent drought. Water levels at some wells increased during the drought, and others did not change. Both the Geologica report (2014) and the Kleinfelder review agreed that an adequate supply of water at the necessary pumping rates is available in the Panoche Valley for the construction of the proposed project. As described in **Section 3.9.3** of the EIS, County-required mitigation measure WR-1.1 contains automatic prohibitions on the use of certain wells if pumping causes water level declines of 5 feet or more below baseline trends at nearby private wells, while mitigation measure WR-1.2 requires that the applicant submit testing and analysis prior to pumping from or creating new wells south of Well #19. In response to the comment that the EIS does not provide a contingency plan in the event that the 5-foot threshold is met, because the studies outlined above indicate that adequate water supply exists for construction needs, no additional water sources have been identified. Though not anticipated to occur, if the project pumping resulted in a water decline of 5 feet, the applicant would reduce groundwater pumping until water levels stabilized or recovered. If wells did not stabilize or recover, the applicant would use alternate wells or drill new wells to provide needed water. If required, the applicant would purchase water from a private entity (e.g., local ranchers or municipality) to supply water needed for construction. Mitigation Measure WR-1.1 requires that the effectiveness of the Groundwater Monitoring and Reporting Plan be continually evaluated to confirm its effectiveness in protecting groundwater resources. If a change in the proposed groundwater extraction was warranted, modifications to the plan would be required and would satisfy the need for the applicant to prepare a contingency plan for obtaining sufficient groundwater supplies for construction. Aquifer testing completed at the project site in November 2015 concluded that there should be no significant well interference effects associated with water use during construction (Kleinfelder 2015b). As described in **Section 3.9.3**, because of the relatively small volume of water needed for operation, groundwater use after completion of the PV system would be unlikely to have a substantial impact on groundwater levels in the valley, even given baseline drought conditions.
A-4	The USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. In its opinion, included in **Appendix G** of this Final EIS, the USFWS concluded that the proposed project analyzed in the Draft EIS was "not likely to jeopardize the continued existence of the giant kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard, and the California tiger salamander." In addition, the USFWS

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	concurred with the determination that "the proposed project may affect, but is not likely to adversely affect the California condor, vernal pool tadpole shrimp, Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp." **Section 3.6.1**, Regulatory Environment, *Endangered Species Act of 1973* of the Final EIS has been revised to update the Section 7 consultation process. The applicant's Avian Conservation Strategy and Eagle Conservation Plan are currently under review by the USFWS Ventura Office and the Migratory Bird Office; the draft versions of these plans have been included in **Appendix H** of the Final EIS. These plans were approved by San Benito County in September 2015 and are referenced in the USFWS's Biological Opinion. If the USACE decides to issue a permit for the applicant's proposed project, compliance with the USFWS's Biological Opinion, and thus with the mitigation and monitoring measures from the Avian Conservation Strategy and the Eagle Conservation Plan, will be required as a condition of the Section 404 permit. Measure APM BIO-5 (**Table 2-14** and **Table C-1** in the Draft and Final EISs) states that "mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service." The USFWS's October 5, 2015, Biological Opinion includes reasonable and prudent measures, terms and conditions to implement these measures, and reporting requirements. These items are detailed in pages 107-112 of the Biological Opinion included in **Appendix G** of the Final EIS. If the USACE decides to issue a permit for the applicant's proposed project, compliance with the USFWS's Biological Opinion and the measures contained therein will be required as a condition of the Section 404 permit. A listing of the measures contained in the Biological Opinion have been added as **Table C-4** of the Final EIS, and these measures have been added to the San Joaquin kit fox, blunt-nosed leopard lizard, giant kangaroo rat, and California tiger salamander impact analyses in **Section 3.6.3** of the Final EIS. Through ongoing consultation with the California Department of Fish and Wildlife (CDFW) since the Draft EIS was published, the applicant has committed to further reducing impacts on sensitive species by reducing the project footprint from 2,506 acres to 2,154 acres and creating an additional 442 acres of on-site conservation lands. Project impacts have decreased from 1,794 acres to 1,688 acres of permanent impact and from 712 acres to 466 acres of temporary impact. Two additional wildlife corridors have been added to the proposed project, one approximately 200-foot-wide north-south corridor along Little Panoche Road and another approximately 95-acre corridor on the eastern side of the project footprint (see **Figure 1-2** in the Final EIS). The applicant has also modified design elements to increase avoidance of active and inactive giant kangaroo rat cells identified during prior surveys. In total, impacts on giant kangaroo rat cells have decreased from 285 cells to 114 cells (based on 2013 field survey data). These revisions to the proposed project have been reflected in Alternative A and Alternative B in the Final EIS. In addition, CDFW issued an Incidental Take Permit

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	for the applicant's preferred alternative on November 20, 2015. A listing of the measures contained in the Incidental Take Permit have been added as **Table C-5** of the Final EIS, and these measures have been added to the San Joaquin kit fox, giant kangaroo rat, and California tiger salamander impact analyses in **Section 3.6.3** of the Final EIS.
A-5	A summary of the CEQ Guidance on addressing climate change in NEPA documents has been added to **Section 3.5.1**, Regulatory Environment. The potential impact of the proposed project on climate change, as indicated by its estimated greenhouse gas emissions, has been fully disclosed in **Section 3.5.3** of the Draft EIS. As discussed in this section, construction of the proposed project would result in the estimated emission of 22,390 metric tons of carbon dioxide equivalent emissions, while operation and maintenance would result in an estimated 480 metric tons of carbon dioxide equivalent emissions annually. By potentially displacing natural gas and other fossil fuels used to produce electricity, PV solar installations reduce the generation of carbon dioxide and other greenhouse gases. As described in **Section 3.5.3**, the proposed project would generate a small amount of greenhouse gas emissions from operations and maintenance but would save approximately 155,460 MTCO2e per year, compared to a fossil fuel-fired power plant. A number of the suggested requirements for contract solicitations for project construction and operation have already been incorporated into the applicant-proposed measures and County-required mitigation measures described in the Draft EIS (see APM AQ-2 in **Table C-1** of the EIS). These include electrifying off-road construction equipment when feasible and using alternatively fueled construction equipment on-site where feasible (APM AQ-2). In addition, construction trailers will use grid-based power and energy efficient lighting (APM AES-3), the majority of pavement will be class 2 base/aggregate, and materials will be recycled to the extent feasible (APM PSU-3). Given that the estimated construction emissions are below the 25,000 metric tons of carbon dioxide equivalent emissions threshold specified in the CEQ Guidance for quantifying greenhouse gas emissions in a NEPA document, the low level of operational emissions, and the long-term benefit of renewable energy on climate change, the USACE is not requiring additional or more stringent measures to reduce greenhouse gas emissions in the Final EIS. Information on the implications of climate change for the environmental effects of the proposed project has been added to the Final EIS based on the US Global Change Research Program's (USGCRP's) *Climate Change Impacts in the United States: The Third National Climate Assessment* (Melillo et al. 2014). A summary discussion of ongoing and reasonably foreseeable climate change impacts relevant to the project area has been added to **Section 3.5.2**, Affected Environment, of the Climate Change section. This discussion includes an overview of the observed and projected changes in climate in the

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	Southwest, as well as an overview of projected climate change impacts for those resources where impacts of the proposed project may be exacerbated by expected climate change in the project area. These resources included agriculture, energy supply and use, ecosystems, biodiversity, and ecosystem services, and water resources. After examining climate change impacts as discussed in Melillo et al. 2014 for the above resources, it was determined that climate change would not be expected to exacerbate impacts of the proposed project on agriculture. The ability of the project site and conservation lands to support grazing in the future in light of climate change would not be decreased by the presence of the proposed solar facility; therefore, no changes were made relating to agricultural impacts in the Final EIS. Melillo et al. 2014 identifies renewable energy development as a potential response to climate change, particularly in the Southwest where energy demands are projected to sharply increase with rising population and rising temperatures, and where solar resource is abundant. The potential benefits of renewable energy to avoid greenhouse gas emissions that may otherwise be emitted by nonrenewable forms of energy was described in **Section 3.5.3** of the Draft EIS. Further discussion of renewable energy as an adaptation to climate change was added to this section of the Final EIS. Climate change would have the potential to exacerbate impacts from the proposed project on biological resources, particularly sensitive species; **Section 3.6.4** of the Final EIS has been updated to reflect this statement. Specific climate change effects on the Panoche Valley cannot be described with certainty, but it is reasonable to assume that generalized effects on ecosystems, biodiversity, and ecosystem services that are described in **Section 3.5.2** of the Final EIS could occur within the Panoche Valley, including increasing temperatures and drought that could cause changes in vegetative composition, shifting in species assemblages, and timing of annual and seasonal biological events over the long term. The USFWS's Biological Opinion (**Appendix G** of the Final EIS) for the proposed project took climate change into effect in evaluating the potential long-term effects of the proposed project on blunt-nosed leopard lizard. The opinion states: "The Panoche Valley currently has lower average temperatures than the San Joaquin Valley. The average projected increase in temperature due to climate change is expected to maintain suitable temperatures within the Panoche Valley for blunt-nosed leopard lizards whereas the majority of the San Joaquin Valley may become too warm. This minor shift in temperature of the Panoche Valley would make it a refuge from climate change in the next century." (p. 82). The opinion also states that, "The preservation and management of the conservation lands would provide suitable habitat in the Panoche Valley area for the species to inhabit and are expected to minimize the risk of impacts from climate change by providing habitat for blunt-nosed leopard lizards, in perpetuity." As inferred in this statement, a key focus of the conservation strategy for the proposed project is maintaining a large area of intact habitat to support known populations of special status species, allowing the species to adapt to future climate

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	conditions, or providing future options for conservation in light of the uncertainty associated with climate change predictions. As added to **Section 3.5.2** of the Final EIS, the ecosystem chapter of climate assessment states that (Groffman et al. 2014) whole system management is often more effective than focusing on one species at a time, and can help reduce the harm to wildlife, natural assets, and human well-being that climate disruption might cause. Adaptive management, which is a structured process of flexible decision-making under uncertainty that incorporates learning from management outcomes, has received renewed attention as a tool for helping resource managers make decisions relevant to whole systems in response to climate change. The proposed creation and management of 25,618 acres of conservation lands is intended to compensate for project impacts by providing long-term resilience for species in the project area. Absent conservation easements, landowners would be able to maximize future use of their lands. With conservation easements and a habitat management plan, land managers would be able to adapt the uses and management of the lands to benefit sensitive species as conditions change. The draft Habitat Management Plan has been included in **Appendix H** of the Final EIS. Because the goal of the conservation lands is to manage for the long-term health of the species, no additional measures to adapt to climate change impacts have been identified. Climate change is expected to intensify short-term and long-term droughts, affecting water demand, groundwater withdrawals, and aquifer recharge and potentially reducing groundwater availability in the project area. Given the small amount of water use required by the proposed project over the long term, no groundwater-related measures to adapt to climate change have been identified in the Final EIS.
A-6	State and local air quality regulations have been added to **Section 3.4.1**, Regulatory Environment. **Tables 3-7** and **3-8** of the Draft EIS describe air emissions associated with construction and operation of the proposed solar facility, respectively. Because these emissions are within APCD significance threshold levels (and Clean Air Act conformity de minimis levels for actions in Fresno County), no additional emission quantification or breakdown has been performed. Breakdown of project emissions by source categories and assumptions on on-road and non-road equipment type and usage rates are contained within the model source documentation prepared in support of the impact analysis (SCEC 2010 and AMEC 2014). As described in **Table 2-14** and **Table C-1** of the Draft EIS, the applicant has committed to the following measures to minimize impacts on air quality, including impacts from non-road equipment:

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	APM AQ-1: All requirements of those entities having jurisdiction over air quality matters would be adhered to and any necessary permits for construction activities would be obtained. Open burning of construction trash would not be allowed. **APM AQ-2:** The Applicant shall implement the following BMPs to further reduce construction vehicle emissions (NOx, VOC, and Diesel Particulate Matter) during project construction: • Maintain all construction equipment in proper tune according to manufacturer's specifications; • Use diesel construction equipment, including portable equipment rated more than 50 horsepower, meeting the California Air Resources Board's (CARB's) Tier 2 standards for certified engines or cleaner off-road heavy-duty diesel engines (e.g., Tier 3 and Tier 4, where feasible), and comply with the State In-Use Off-Road Diesel Vehicle Regulation (California Code of Regulations [CCR] Title 13, Article 4.8, Chapter 9, Section 2449); • Prohibit on and off-road diesel equipment idling for more than 5 minutes, or within time necessary to comply with Title 13, CCR, Section 2485 (c) (1) regarding idling of commercial vehicles. Signs shall be posted in the designated queuing areas and or job sites to remind drivers and operators of all idling limits; • Prohibit diesel idling within 1,000 feet of sensitive receptors; • Staging and queuing areas shall not be located within 1,000 feet of sensitive receptors; • Electrify off-road construction equipment when feasible; • Provide incentives for workers to use carpooling, where feasible; and • Use alternatively fuel construction equipment on-site where feasible, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, biodiesel, or electric.
	While the USACE appreciates the desire to minimize air quality emissions to the greatest extent possible, more stringent mitigation measures, such as requiring Tier 4 engines for non-road equipment, are not being required of the applicant because: 1) the proposed project meets the Monterey Bay Unified APCD and the San Joaquin Valley APCD construction emission thresholds; 2) construction emissions would be temporary and short term; 3) air quality emissions from operations and maintenance would be minor; and 4) the majority of the overall project and all of the solar facility would be constructed within an attainment area and away from sensitive receptors. In addition, the USACE does not have the authority to enforce additional air quality-related mitigation measures. Mitigation measure APM AQ-2 requires the applicant to maintain all construction equipment in proper tune according to manufacturer's specifications and prohibits

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	diesel equipment from idling for more than 5 minutes, or within time necessary to comply with Title 13, CCR, Section 2485(c)(1) regarding idling of commercial vehicles. No mitigation measures have been rejected based solely on economic infeasibility; the availability and use of equipment will vary throughout construction. Equipment will be evaluated prior to operating at the project site for compliance with mitigation measure requirements. A Traffic Control Plan that minimizes traffic interference and maintains traffic flow has been prepared for the project and is included in **Appendix H** of the Final EIS.
A-7	Tribal consultation efforts were discussed in **Section 3.7.5** of the Draft EIS. The text of the Final EIS has been revised as follows to update tribal consultation efforts that have occurred since the Draft EIS was published and how tribal concerns were addressed: ~~The~~ Mr. Valentin Lopez of the Amah Mutsun Tribal Band submitted a scoping letter on September 6, 2012, noting ~~its~~the tribe's opposition to the proposed project and identifying its concerns. The comment letter asserted that the proposed project would negatively intrude on the sacred lands of their ancestors, irreversibly damage natural resources with both ecological and cultural significance, and cause environmental and economic degradation to the tribe, their culture, and neighboring residents. The tribe noted that they believe the effects from the project on the resources would be significant and requested that if the proposed project is approved, that a Native American monitor from their tribe be hired to monitor all ground disturbance during construction and any removal, repair, or replacement of any solar panel poles during maintenance. The applicant committed to having a Native American tribal monitor on-site for work performed in sensitive locations and to have an archeological monitor on-site for all subsurface construction disturbances (Mitigation Measure CR-2.1). In addition, Mitigation Measure CR-2.2 addresses treatment of previously undiscovered archeological resources, and Mitigation Measure CR-2.3 addresses inadvertent discovery of human remains. On June 29, 2015, Mr. Ed Ketchum of the Amah Mutsun Tribal Band responded to the follow-up telephone calls and emails sent by the USACE. Mr. Ketchum noted that a plant traditionally harvested in the Panoche Valley, known as Panoche for which the valley was named, is not identified or included in any construction-related or operational environmental monitoring, protection, or enhancement plans. Mr. Ketchum noted that the plant should be investigated further because of its significance to the valley. In response to this concern, additional information regarding panoche has been included in the EIS (see discussion above under **Section 3.7.2**, Affected Environment, *Ethnography*). Mr. Ketchum noted that the source of panoche is likely the

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	Phragmites australis (the common reed), the plant needs a fairly wet environment in which to grow, and the project site might not be wet enough to support *Phragmites australis*, though the stream areas might be wet enough. Mr. Ketchum indicated that based on this information, he did not think the subject warranted further investigation. ~~However, the USACE is continuing to work with the tribe and applicant to further evaluate the tribe's concerns.~~ Since publication of the Draft EIS, the USACE has continued to solicit input from the Amah Mutsun Tribal Band, including soliciting comments on the analysis contained in the Draft EIS. The tribe did not provide comments on the Draft EIS or raise additional concerns. The USACE will continue to coordinate with the tribe and respond to tribal concerns and inquiries about the proposed project if and as they are raised. **Section 3.7** of the Draft EIS describes the mitigation measures developed to avoid or reduce impacts on tribal and cultural resources. No additional mitigation measures have been identified through the USACE's consultation process since publication of the Draft EIS. As described above, the USACE will continue to respond to tribal concerns and inquiries about the proposed project if and as they are raised.
Letter B. Patricia Sanderson Port, US Department of the Interior, Office of Environmental Policy and Compliance	
B-1	The USACE appreciates DOI's review of the Draft EIS and acknowledges that DOI has no comments to offer on the EIS.
Letter C. Rick Cooper, US Department of the Interior, Bureau of Land Management, Central Coast Field Office	
C-1	The USACE recognizes the BLM's responsibilities in administration of public lands near the proposed project site and conservation lands, including administration of lands in 6.4 miles of the PG&E right-of-way corridor and administration of lands on Call and Panoche Mountains where microwave equipment would be collocated on existing towers for which CAL FIRE and American Tower Corporation have existing rights-of-way grant agreements (**Section 3.10.1** of the Draft EIS). As described in **Section 2.5.8** of the Final EIS, the applicant has proposed conservation of 24,618 acres of on-site and adjacent off-site mitigation lands, as well as 1,000 acres of Additional Conservation Lands in the Panoche Valley that have not yet been identified, to address the proposed project's impacts on biological and grazing resources. These lands would be preserved in perpetuity, in accordance with conservation easements to be developed in coordination with county, state, and federal resource agencies, including the CDFW and USFWS. The USACE acknowledges that agency coordination would likely improve species management but does not have the authority to require or enforce the mitigations requested in the comment letter; therefore, the proposed

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	measures have not been added to the Final EIS. If the USACE issues a permit for the applicant's preferred alternative, or other alternative, the USACE would have authority to approve operations and maintenance activities only on conservation lands required as compensatory mitigation for the loss of waters of the U.S. on the project site. However, use and administration of conservation lands would be required to comply with the terms of the USFWS's Biological Opinion as a condition of the Section 404 permit, including any species and habitat management plans referenced therein. Management of conservation lands would be governed by a Habitat Management Plan prepared for these lands. Section 8.0 of this plan, available in draft form in **Appendix H** of the Final EIS, describes coordination and outreach as follows: Given the conservation objectives and mitigation-related origin of the Conservation Lands, the property will be largely managed as an independent unit. However, where there are opportunities to enhance the conservation values, reduce stewardship costs, or increase stewardship efficiency, coordination with and outreach to others will be used to best effect. *Agency Coordination* – Where lands adjacent to or in the vicinity of the Conservation Lands are owned and managed for similar conservation objectives and with compatible land uses—in particular, by BLM and CDFW—effort will be expended to coordinate any management or monitoring activities in a way that would increase efficiency, improve conservation effect or information gained, and/or reduce costs. Coordination will also take the form of notification for any opportunities to improve their stewardship activities or gain additional stewardship funding, any activities that may impact their lands (e.g., pesticide application under certain conditions), new and concerning exotic invasives, pathogen outbreaks, and other forms, as necessary. In general, a "good neighbor" ethic will be embraced for stewardship. *Public access criteria* – In general, there will be no public access to the Conservation Lands, the primary purpose being conservation and there being certain habitat and species sensitivities…Access would be provided under certain circumstances to entities other than the Owner/Applicant, including the following uses and conditions: f. Research: Biological monitoring and applied research are part of the management approach and key to adaptive management on the Conservation Lands. Where this lends itself to publications, these will be prepared and submitted to an appropriate scientific or other professional journal so as to enhance the capacity in the general conservation community. Such information will also be communicated in meetings, conferences, informal reports, and website representations. In addition, there will be requests

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	received from others (e.g., academic or other nonprofit organization researchers, private consultants, etc.) to conduct research on the Conservation Lands. Each research request will be reviewed to determine whether it: 1. Poses no appreciable risk to the species, biological processes, or abiotic environment; 2. Will result in information that contributes to effective conservation of the Conservation Lands 3. Does not require excessive oversight or other management resources.
C-2	The USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. The Biological Opinion is included in **Appendix G** of the Final EIS. The Biological Opinion states that the project would result in the conversion of "suitable and/or occupied" blunt-nose leopard lizard (BNLL) habitat (p. 78). None of the surveys to date, including a survey conducted in 2013 following the full CDFW (2004) protocol, have detected any BNLL closer than 850 feet to the project footprint. While the habitat within the area that will be impacted by the project is suitable, it is not documented as actually occupied based on the surveys conducted to date, nor have any historical observations been reported within the current project footprint. Further, 2014 and 2015 surveys focused on areas within the project footprint that were within approximately 1,800 feet of all observations recorded during project surveys but where no previous occupation had been recorded. With a single exception, biologists continued to observe no BNLL within the project footprint. The one hatchling (neonate) area that was observed north of Las Aguilas Creek was subsequently removed from the project footprint, along with a 52.4-acre buffer area, and relocated to the Valley Floor Conservation Lands for permanent protection. Because the focus of the measures to protect BNLL is on avoidance of individuals, no census of the Valley Floor Conservation Lands was conducted during either 2014 or 2015; therefore, drawing conclusions regarding the risk of extirpation of the Panoche Hills population based on surveys conducted in previously unoccupied areas of the Panoche Valley is not viable. Moreover, fluctuations in population may occur during drought cycles. With the implementation of minimization and avoidance measures, any subsequently discovered individuals will be avoided. To date, all of the areas of the Panoche Valley adjacent to the project footprint documented to be occupied by BNLL have been incorporated into the Valley Floor Conservation Lands. In addition, to minimize the risk of isolation of the individuals observed in the portion of the Panoche Valley evaluated for the project, the Valley Floor Conservation Lands are connected to both the Silver Creek Conservation Lands and the Valadeao Ranch Conservation Lands. The Valley

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	Floor Conservation Lands additionally include a north-south corridor measuring 1,640 feet wide connecting through the Project Footprint to the Valadeao Ranch Conservation Lands and other suitable BNLL habitat north of the project footprint. As stated in the Biological Opinion, the Panoche Valley population is already experiencing a low incidence of migrants into the population. Permanent protection of these lands will enhance the likelihood of persistence of this population by permanently protecting lands that would allow for potential migrants into the population. When combined with management activities that will optimize the habitat suitability for this and other sensitive species in the Panoche Valley, the population will have a chance at more stability than the status quo where the future use of lands connecting to this population is unknown. Unlike the project commitment to conserve these lands in perpetuity to benefit BNLL, continued private ownership of these lands in the absence of a conservation easement provides no such guarantee that the occupied lands would remain in their current state. With regards to the use of recent modeling studies from UC Santa Cruz and the Bren School, although modeling is useful in evaluating habitat suitability on a landscape level, models are limited in terms of identifying occupation and habitat quality on a finer scale. The project documents identify that the Ciervo-Panoche region has high conservation value for this species. Numerous studies and surveys have been conducted on the proposed project site and conservation lands; these provide more accurate and suitable information than habitat modeling conducted on a broad scale for a specific region or state. Recent research on blunt-nosed leopard lizards by Drs. Lortie, Sinervo, and Westphal has been incorporated into **Section 3.6**. Information on USGS data was requested; however, the USGS has a strict policy that precludes it from circulating draft/incomplete papers that have not undergone both an internal and external review process. USGS also cannot release data until the paper has been accepted for publication either in an academic journal or as an official USGS report (email communication, Dr. Jonathan Richmond, USGS to Meredith Zaccherio, EMPSi, December 10, 2015). As a result, the USGS data were not able to be incorporated into the Final EIS. The project's compensation strategy will permanently protect lands that have long been acknowledged as important to the recovery of this species and will substantially contribute towards the regional downlisting criteria of protecting at least one block of habitat measuring at least 5,997 acres in size. The configuration of the project's conservation lands over a variety of suitable habitat types adds to the potential for management flexibility to optimize conditions for the protected species. When combined with the BLM-administered lands in the region, permanent protection of these lands for the purpose of conservation will provide significant opportunities for managing this species and others that are not currently available.

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	Without conservation easements and habitat management plans, many landowners would likely continue to maximize the land for agricultural uses by implementing practices such as dryland farming and grazing. With the conservation easements and plans, land owners can use various management strategies, including limited or targeted grazing, as part of the plan to maintain suitable habitat for the BNLL. The flexibility is particularly important in light of climate change and its accompanying drought cycles. **Section 3.6** of the Final EIS has been updated to include additional discussion of BNLL and climate change.
C-3	Numerous field surveys for BNLL have been conducted between 2009 and 2015, as summarized in **Table 3-11** of the EIS, including a full protocol-level survey for BNLL. No BNLL individuals were observed within the project footprint. **Table 3-11** and **Section 3.6.2** have been updated with the most recent surveys conducted for BNLL; these surveys have also been added to **Appendix F** of the Final EIS. Surveys have identified the locations within and adjacent to the proposed project site where lizards, including the BNLL, may be located; these surveys were completed in targeted areas during the last survey season. The proposed project includes a 52.4-acre buffer around any historic BNLL observations; this buffer is described in the USFWS Biological Opinion, as well as included as part of the proposed project that was issued an Incidental Take Permit by CDFW in November 2015 (included as **Appendix I** of the Final EIS). Further, preconstruction surveys would be performed 30 days prior to construction and include identification of burrows that could support sensitive species. As part of excavation and relocation activities associated with mitigation measures for giant kangaroo rat, California tiger salamander, and San Joaquin antelope squirrel, these burrows will be identified and excavated to avoid injury or death to these species, though the USACE acknowledges the potential for impact on some species. Any lizards remaining belowground in these burrows, including BNLL, will receive incidental protection from these measures, including during the winter months. Although performing surveys during winter months is not ideal for identifying species' presence, it would minimize the potential for impacting species during construction in winter months. Performing protocol-level surveys 30 days prior to construction is not practicable or feasible. Protocol surveys for the types of lizards found at the site occur within different timeframes. Protocol surveys for BNLL can only be conducted during the spring and summer months and take more than 30 days to complete (including adult and juvenile surveys). Therefore, completion of protocol surveys within 30 days of the start of construction for just BNLL would not be feasible. As stated in APM BIO-24 b), a biological monitor(s) shall be present while ground-disturbing activities are occurring. In addition to conducting preconstruction surveys, the biological monitors shall aid crews in satisfying take avoidance criteria for BNLL and

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	implementing project mitigation measures. This will occur throughout construction to avoid and minimize impacts to all species. Together, these measures will ensure avoidance of BNLL to the greatest extent possible, and no revisions to the minimization measures are warranted.
C-4	**Table 1-1** of the Final EIS has been revised as suggested in the Final EIS.
C-5	Please see the response to Comment C-1, above.
C-6	The **Section 2.8.2** language has been revised as suggested in the Final EIS.
C-7	The **Section 3.2.2** language has been revised as suggested in the Final EIS.
C-8	The **Section 3.2.2** language has been revised as suggested in the Final EIS.
C-9	The applicant has performed multiple years of protocol-level surveys, including a BNLL full protocol survey of the project footprint and Valley Floor Conservation Lands (October 2013); additional surveys were also conducted in 2010, 2012, 2014, and 2015; these are described further below. The surveys have shown no BNLL observations within 850 feet of the revised project footprint. Further, from 2009 to 2015, biologists conducted numerous surveys for other species in the same area; the biologists were instructed to report any BNLL observations during these surveys for other species. Although many of these surveys were conducted during times that BNLL would be expected to be active although outside of the protocol survey dates—e.g., certain months, times of day, and weather conditions—no BNLL were observed on the project footprint during these other biological surveys. In coordination with CDFW, the applicant performed a focused blunt-nosed leopard lizard survey in 2014 in accordance with the methodology presented in the Supplemental Blunt-nosed Leopard Lizard Study Plan Survey Methodology letter sent to the CDFW on April 29, 2014. The locations surveyed included portions of the revised project footprint closest to any recorded BNLL observations and locations specifically identified by CDFW as being of concern as possible dispersal areas from previously recorded observations. The focused surveys were conducted in the spring and summer of 2014 as documented in the April 29, 2014 letter to CDFW. The surveys followed the CDFG (2004) protocol in the area that they were conducted. Generally, the surveys were completed within the central portion of the project site between portions of the Valley Floor Conservation Lands where multiple individuals were observed along Panoche Creek during multi-year surveys conducted for the project and within an approximately 1,500-foot buffer around a single individual sighting that was recorded in 2013 immediately north of Las Aguilas Creek. The applicant also conducted 2015 spring and summer surveys for a portion of the eastern project footprint; there were no BNLL detected within the project footprint.

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	Finally, the applicant will conduct focused surveys prior to construction on the project footprint within a reasonable distance of observations recorded since 2009 to assess potential dispersal areas from these known locations. BNLL survey reports are included in **Appendix F** of the Final EIS. Also see response to Comment C-2.
C-10	The Habitat Suitability Model for the giant kangaroo rat was provided in the Biological Assessment, Appendices B and C as described in "Habitat Suitability Modeling" on page 74 (**Appendix F.15** of the Draft and Final EIS). The Habitat Suitability Model used for the blunt-nosed leopard lizard was described in detail on pages 102 and 103 of the Biological Assessment under "Decision Rule Based on Habitat Suitability" and "Habitat Suitability Modeling."
C-11	Reference to **Appendix G** has been changed to **Appendix F** in the Final EIS.
C-12	The **Section 3.10.2** language has been revised as suggested in the Final EIS.
C-13	The **Figure 3-19** caption has been revised as suggested in the Final EIS.
	STATE AGENCIES
Letter D. Julianne Polanco, Office of Historic Preservation, Department of Parks and Recreation	
D-1	The SHPO's concurrence with eligibility determinations and with the finding of no effect has been added to **Sections 3.7.2** and **3.7.3** of the Final EIS.
Letter E. Debra Mahnke, Central Valley Regional Water Quality Control Board	
E-1	The beneficial uses described by the Central Valley RWQCB have been added to **Section 3.9.2** of the Final EIS.
	ORGANIZATIONS
Letter F. Rune Duke, Aircraft Owners and Pilots Association (AOPA)	
F-1	**Section 3.15.2** of the Draft EIS described airports in the project area. A description of the private airstrip in Panoche Valley has been added to **Section 3.15.2** of the Final EIS as follows: ***Airports*** San Benito County is home to two public airports: the Hollister Municipal Airport and the Frazier Lake Airpark. Neither provides commercial passenger traffic. Hollister Municipal Airport is the closest public airport to the project site, approximately 40 miles west. <u>There is a private airstrip in the Panoche Valley. It has a 2,000-foot dirt runway and is primarily used by glider pilots. The airstrip is near the</u>

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	intersection of Panoche Road and Little Panoche Road, approximately one nautical mile south of the project footprint. **Section 3.15.3** of the Final EIS has been updated to describe the glint and glare study (Power Engineers 2010c) performed for the proposed project as follows: Glider pilots using the private airstrip approximately one nautical mile south of the project footprint may be affected by glare or glint from the solar panels. A glint and glare study was performed for the proposed project in 2010 (Power Engineers 2010c). The study analyzed whether glint and glare would be visible to offsite viewers and what the duration and intensity of glint and glare would be, should it be present. The study used the Key Observation Points described in the analysis of aesthetics (see **Section 3.2**, Aesthetics). Glint and glare may be visible to aircraft during midmorning to afternoon hours for all positions studied. These occurrences are dependent on altitude, relationship to the project area, and panel position. Due to the position of the panels and because the panel faces would be non-reflective black or blue, the study concluded that aircraft would not be affected by the proposed project (Power Engineers 2010c). Impacts on aviation can also occur from unmarked or poorly marked structures. The Federal Aviation Administration (FAA) regulates marking of structures that exceed 200 feet in height or are in certain proximity to airports or other navigation facilities. No structures would be over 200 feet in height, and the applicant also completed the Federal Aviation Administration's Notice Criteria Tool application form, which determined that formal notice and/or aviation marking and lighting would not be required. In summary, the study found that pilots may experience glint and glare during limited midmorning and evening hours, but that air traffic would not be adversely affected. The Final EIS has also been edited to clarify that FAA notice is not required.
F-2	The USACE considered the Federal Aviation Administration (FAA) regulations in preparing the Panoche Valley Solar Facility EIS. The FAA requires evaluation of ocular impact using the Solar Glare Hazard Analysis Tool (SGHAT) for solar energy systems proposed to be constructed on a federally obligated airport to determine glare on air traffic control towers and on pilots on approach to landing from two miles away from the runway to touchdown. While the SGHAT was not determined appropriate for evaluation of the airstrip, the applicant prepared a glint and glare study, as described in response to Comment F-1, to evaluate potential glint and glare impacts from the proposed project. The FAA regulates marking of structures that exceed 200 feet in height or are in certain proximity to airports or other navigation facilities. The applicant completed the FAA's Notice Criteria Tool application form, which determined that formal notice and/or aviation marking and lighting would not be required.

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	As described in **Section 2.5.2**, the panel faces would be non-reflective black or blue, thus limiting glint and glare (see **APM AES-1** in **Table C-1** of the Final EIS). In addition, panels will be angled in a manner that reduces glare.
Letter G. Erica Brand, The Nature Conservancy	
G1-1	The Nature Conservancy's opinion that the Draft EIS does not provide necessary or adequate protections for endangered species and that the proposed project would have substantial, significant, and unmitigable impacts to populations of federally and state protected giant kangaroo rat, blunt-nosed leopard lizard, and San Joaquin kit fox is noted. The USACE will take this into consideration when making a final decision on permit issuance for the proposed project. As described in response to Comment A-4, the USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. In its opinion, included in **Appendix G** of this Final EIS, the USFWS concluded that the proposed project analyzed in the Draft EIS was "not likely to jeopardize the continued existence of the giant kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard, and the California tiger salamander." The USACE concurs with the commenter's statement that the Panoche Valley has rich habitat for sensitive San Joaquin Valley species, and that these species have been in decline throughout their ranges due to increased fragmentation and loss of habitat, which is reflected in the discussion of the affected environment and cumulative impacts in **Section 3.6** of the EIS. The identification of the Panoche Valley as an area of high conservation value as identified by The Nature Conservancy in their 2013 *Western San Joaquin Valley Least-Conflict Solar Energy Assessment* is noted. Per the Section 404(b)(1) Guidelines, no discharge of dredged and/or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. Under the 404(b)(1) Guidelines, an alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose (40 CFR 230.10[a]). In addition, in conducting its Public Interest Review, the USACE takes into consideration, when there are unresolved conflicts as to resource use, the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work. A final determination on the practicability of an alternative for compliance with the Section 404(b)(1) Guidelines and the Public Interest Review is made by USACE in the record of decision.
G1-2	The USACE agrees with the characterization of species present in the Panoche Valley. This information is consistent with the species identified in **Section 3.6.2** of the EIS. In addition, the Final EIS has been updated to include the Panoche Valley as an Audubon Society-designated Important Bird Area.

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G1-3	**Section 3.6** of the Draft EIS incorporated the results of numerous site-specific studies, surveys, and research into the baseline analysis of biological resources at the proposed project site. **Section 3.6** of the Final EIS has been updated to include three additional surveys that have been completed since the Draft EIS was published. These additional surveys are included in **Appendix F** of the Final EIS. The USACE reviewed the presentations listed in this comment and has incorporated additional information, as appropriate, into **Section 3.6** of the Final EIS. The USACE also contacted Drs. Westphal, Lortie, and Sinervo to obtain additional information regarding their references that are under review or in press. The information that has been received to date has also been incorporated into **Section 3.6** of the Final EIS. **Chapter 8**, References, indicates via underlined text all new references that have been incorporated into the Final EIS. The new information incorporated into the Final EIS supplements but does not appear to contradict the baseline data presented **in Section 3.6** of the Draft EIS. A listing of all additional references examined for the Final EIS are included in a matrix at the end of this chapter. This matrix identifies if the reference contained information that was incorporated into the Final EIS and how it was incorporated. It also identifies references that were examined but not included and the reasons that the information contained within the reference was not determined to be relevant or appropriate for inclusion in the Final EIS.
G1-4	As described in **Section 3.6** of the Draft EIS, substantial biological resource data have been collected by the applicant since 2009, which includes both periods of above average rainfall (2009-2011) and below average rainfall (2012-2015). This information was independently reviewed in order to compile an accurate description of the baseline biological conditions for the project and to evaluate impacts on biological resources. An attempt to isolate drought-induced effects on local populations of special status species within the Panoche Valley would require speculation. The survey data collected over multiple years and published literature demonstrate that an adequate biological baseline was established for purposes of the analysis in the Draft EIS. In addition, a key focus of the conservation strategy for the proposed project is maintaining intact habitat to support known populations of special status species, allowing the species to adapt to future climate conditions, or providing future options for conservation in light of the uncertainty associated with climate change predictions. The USACE has reviewed the additional literature suggested by The Nature Conservancy and has incorporated additional discussion regarding the influence of drought on special status species into **Section 3.6** of the Final EIS.
G1-5	The habitat suitability model was completed in 2010 for the project footprint and the Valley Floor Conservation Lands; this model was based on extensive field surveys conducted at the project site. The BNLL survey data, including locations where BNLL

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	were noted as present or absent, allowed the use of multiple logistic regression and an information-theoretic approach to build predictive models of BNLL occurrence across the entire project site. The suitability model was developed to predict the probability of BNLL occurrence as a function of the landscape-scale habitat variables indicated below: • Soils: To determine dominant soil types occurring on the site, the applicant obtained a soil data layer from Natural Resources Conservation Service (NRCS). The applicant reclassified the categorical data layer to emphasize the 'river wash' soil type. • Streams: The USGS National Hydrography Dataset was used to derive a variable estimating the distance to the nearest ephemeral stream feature, which captured fine-scale habitat features adjacent to ephemeral streams. • Slope: The USGS National Elevation Dataset was used to estimate slope (in degrees) across the project site. • Location (Latitude and Longitude): Because spatial location can serve as a surrogate for unmeasured biotic and abiotic influences on species occurrence, coordinates for longitude and latitude were included in the model. The USFWS considered this model in the Biological Assessment (contained in **Appendix F** of the EIS) and the development of the Biological Opinion. The model uses a robust estimate of spatial use of the site by blunt-nosed leopard lizard, predicts impacts on the species from full build-out of the project, and demonstrates how the project may affect changes in distribution, other demographic parameters, or use of the site by blunt-nosed leopard lizard over time. The habitat suitability model found that the entire project footprint and Valley Floor Conservation Lands were considered suitable habitat; therefore, the applicant conducted protocol-level BNLL surveys on the entire project footprint and portions of the Valley Floor Conservation Lands (see **Table 3-11 in Section 3.6.2** of the Final EIS for a list of the surveys performed). The surveys of the suitable BNLL habitat showed that BNLL were primarily associated with the habitat in or immediately outside ephemeral streams or washes. The data collected by University of California, Santa Cruz and the Bureau of Land Management scientists referenced in the comment were not available during the preparation of the Biological Assessment. The comment letter describes a range-wide BNLL habitat suitability model developed by The Nature Conservancy and University of California, Santa Barbara Bren School students. This Environmental Evaluation Modeling System (EEM model) was from the WildLight Final Report,[1] which was not available during the initial preparation of the

[1] Cowan, J., A. Gwin, D. Pearce, G. Wesolowski, and S. Young. 2015. Wildlight: San Joaquin Valley landscape-scale planning for solar energy and conservation. Final report for the Bren School of Environmental Science & Managements' Master of Environmental Science and Management degree.

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	BNLL habitat suitability model used in the Biological Assessment. The main purpose of the EEM model is to help identify areas for development that are agreeable to the major stakeholder groups within the region: agriculture, solar development, and conservation. The output of this model is meant to serve as a support tool for planners, developers, and other groups, by identifying maximum consensus areas for solar development. The EEM model uses species occurrence data and environmental predictor variables to determine the likely distribution of species on the landscape. The predictor variables used in the model are a combination of species occurrences and climatic, soil, land classification, and topographic variables described in detail below. The model is not able to give enough detail to define different levels of suitable habitat for BNLL (e.g., low, moderate, and high) or any other species on the project level, as the finest resolution in the model is one-kilometer cells. Additional differences between the habitat suitability model used in development of the Biological Assessment and the EEM model are detailed below. Both models use some form of species occurrence data. The habitat suitability model uses specific on-site BNLL occurrences that were gathered during abridged protocol-level adult BNLL surveys in Sections 10 and 15 within the portions of both the project site and the Valley Floor Conservation Lands in 2009 and 2010, full-protocol adult season BNLL surveys on Section 16, and dynamic occupancy sampling within 135 sample locations. In contrast, the EEM model uses only California Natural Diversity Database occurrence data, which is composed of reported BNLL occurrences in the general area and does not include any ground-truthed survey data. Both models use soil characteristics to determine potential habitat suitability. The habitat suitability model uses NRCS databases to determine the dominant soil types occurring within the model area and focuses on preferred soil types/characteristics for BNLL as verified during surveys. In contrast, the EEM model uses two soil variables to complete the model: soil particle size and water holding capacity at 100 centimeters. Both models use land classification as a variable in determining habitat suitability. Due to the specific project location, the EIS model uses the USGS National Hydrography Dataset to derive a variable estimating the distance to the nearest ephemeral stream or river, which allowed the model to capture fine-scale habitats adjacent to these features. In contrast, because the EEM model has a regional focus, the model uses general land cover and general wetland databases in development of the model. Similarly, topographic and climatic variables were used by both models. While the specific project area analyzed in the EIS allowed for a detailed model input of slope classes based on the USGS National Elevation Dataset, the regional focus of the EEM model necessitates use of several variables, including slope, elevation, relief, and solar radiation. While climate within the project area is assumed to be suitable for BNLL in the habitat suitability model, the EEM model's regional focus necessitates complex climatic variables to model suitable habitat across hydrologic regions of California. In response to the comment

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	that the applicant's model relies heavily upon and then incorrectly applies the findings of Warrick et al. (1998), the USACE does not believe this to be true. The findings of the 2009 and 2010 surveys that were completed for use in the model, and the 2013 surveys that were completed in areas found by the model to be suitable habitat for BNLL, confirmed that BNLL within the project site were primarily associated with the habitat in or immediately outside ephemeral streams or washes and not within large expanses of nonnative annual grassland further from ephemeral streams or washes. In response to the comment that the model is overly simplistic and fails to incorporate a large number of environmental and climatic variables, the USACE acknowledges that the model does not use the same environmental variables as the EEM model. However, given the regional scale of the EEM model in comparison to the relatively small and homogeneous site-specific scale of the habitat suitability model, incorporation of all of the variables found in the EEM model was not necessary to achieve high-quality model outputs. For instance, climatic variables do not change appreciably across the project site model area, while they change drastically across the species' range in California. In response to the comment that the model uses species occurrence data from the site to predict species occurrence at the site, a form of pseudoreplication, the USACE acknowledges that BNLL occurrence data from the project site was used in part to develop the model, along with the environmental variables described above. The 2013 protocol surveys of the entire project footprint and a majority of the Valley Floor Conservation Lands, which were completed after the model, found these areas to be suitable habitat for BNLL. This concurred with the findings of the model that predicted BNLL were mostly associated with the habitat in or immediately outside ephemeral streams or washes.
G1-6	The effects of the proposed project on blunt-nosed leopard lizard and the role of the Panoche Valley as it pertains to climate change was addressed by USFWS on page 82 of its Biological Opinion, included in **Appendix G** in the Final EIS: "The potential effects of climate change on blunt-nosed leopard lizards are difficult to assess. We have attempted to make inferences through comparisons to the conditions expected to occur to the rangewide population and in particular the subpopulations in the San Joaquin Valley (B. Sinervo, pers. comm.). The Panoche Valley currently has lower average temperatures than the San Joaquin Valley. The average projected increase in temperature due to climate change is expected to maintain suitable temperatures within the Panoche Valley for blunt-nosed leopard lizards whereas the majority of the San Joaquin Valley may become too warm. This minor shift in temperature of the Panoche Valley would make it a refuge from climate change in the next century. Removal of suitable habitat in the area of a refuge from climate change could adversely affect recovery efforts by reducing the overall amount of habitat available for the species. However, the permanent impacts from implementation of the project would represent only a portion of the suitable habitat in the area for the species. The preservation and management of the conservation lands would provide suitable habitat in the Panoche

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	Valley area for the species to inhabit and are expected to minimize the risk of impacts from climate change by providing habitat for blunt-nosed leopard lizards, in perpetuity." The applicant has conducted numerous surveys since 2009 to document blunt-nosed leopard lizard populations in the project area, as summarized in **Table 3-11** of the Draft EIS. As described in **Section 1.3** of the Draft EIS, since the project was first proposed, the project design and construction have been refined, resulting in an overall reduction in permanently disturbed areas and an increase in the mitigation lands that will be placed under conservation easement. The project avoids the identified, occupied blunt-nosed leopard lizard habitat in the ephemeral reaches of Panoche Creek in the southern portion of the original project footprint, and preserves this habitat via conservation easement within the larger Valley Floor Conservation Area (2,514 acres). Since the Draft EIS was published, the applicant, through ongoing consultation with CDFW, has committed to conserve an additional 442 acres of on-site habitat and an additional 1,000 acres of off-site habitat (see the response to Comment A-4). **Figure 3-10** in the Draft and Final EIS shows an overview of special status species observations (including blunt-nosed leopard lizard) on the project site and the conservation lands. Through the conservation strategy described in the EIS, the applicant has committed to acquiring 25,618 acres of mitigation land to place into conservation easement in perpetuity. As described in the EIS, these mitigation lands include approximately 13,325 acres of suitable habitat for blunt-nosed leopard lizard within the Panoche Valley. Preserving these large areas of intact occupied blunt-nosed leopard lizard habitat in perpetuity within the Panoche Valley and surrounding area meets the recovery goals of the species and provides future options for conservation in light of the uncertainty associated with climate change predictions. The Final EIS discusses the effect of climate change on blunt-nosed leopard lizards in **Section 3.6**. New literature from Drs. Lortie, Sinervo, and Westphal has been incorporated into **Section 3.6** in the Final EIS. The USACE understands and agrees that climate change would result in global and regional effects to a variety of resources, including special status plants and animals, and that the Panoche Valley may serve an important role in providing habitat for the blunt-nosed leopard lizard. However, the USACE does not believe that this changes the determination made in the Draft EIS that permanent impacts to between 1,650 and 1,760 acres of suitable habitat for blunt-nosed leopard lizard as a result of the no action (no permit) alternative, Alternative A, and Alternative B would be less than significant due to the mitigation measures proposed as part of these alternatives, as well as the proposed preservation of between 11,883 and 13,325 acres of suitable habitat on conservation lands in the Panoche Valley.
G1-7	The USACE believes the habitat suitability model for the giant kangaroo rat was sufficiently accurate for analysis in the Draft EIS. As described in response to Comment G1-5, the applicant completed the habitat suitability model in 2010 for the project footprint and the Valley Floor Conservation Lands. The USFWS accepted this model in

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	the Biological Assessment (contained in **Appendix F** of the EIS) and considered the model in the development of their Biological Opinion. Additional details on development and deployment of the giant kangaroo rat habitat suitability model are provided below. The 2014 model developed by Dr. Tim Bean referenced by the commenter was not publicly available during the preparation of the Biological Assessment and therefore was not used by USFWS in the preparation of the Biological Opinion. The giant kangaroo rat model was developed to predict the probability of precinct occurrence as a function of landscape-scale habitat variables. A spatially explicit predictive model of giant kangaroo rat occurrence was derived by the use of a multiple-logistic regression and an information-theoretic approach. This statistical approach provided a robust prediction of giant kangaroo rat habitat suitability for the project footprint and Valley Floor Conservation Lands. The habitat suitability model provided estimates of occurrence based on the underlying habitat predictor variable. The portion of the source population area previously defined by Williams et al. (1995) and shown in Figure 41 of the Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) was also entirely categorized as highly suitable habitat per the habitat suitability model. The findings of the model were ground-truthed by performing full coverage giant kangaroo rat distribution surveys in 2013 (see **Table 3-11** in **Section 3.6.2** of the EIS). The results of the full coverage survey were used by the applicant to generate estimates of the total number of giant kangaroo rats potentially supported in the project footprint. An attempt was made to field verify the density of giant kangaroo rats per active cell; however, based on field conditions (heavy grazing), it was not possible to identify individually clipped precincts within the grid cells. Without performing a systematic grid trapping study, it is assumed that each active cell within the project footprint is occupied with at least one individual giant kangaroo rat. The resulting assumed minimum density is within the range provided by Williams (1992) and above the density predicted by the giant kangaroo rat habitat suitability model. Using this density estimate, the applicant estimates that a minimum of 130 giant kangaroo rats are expected to occur within the project footprint; however, approximately 36 active cells are located along the boundaries of the Project Footprint and will be avoided through micro-siting during construction. Typically, giant kangaroo rat populations fluctuate significantly from year-to-year and within years, potentially leading to a population increase across the project footprint outside of the cells identified as active during the survey. A population increase would likely result in occupancy of at least the currently inactive cells found within the project footprint. Therefore, a minimum reasonably expected estimate of the population potentially supported within the project footprint is 200 individual giant kangaroo rats.

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	To account for possible increases in density from one year to the next, a potentially higher density of giant kangaroo rats was assumed by the applicant. The project footprint density estimates are not available in the literature. The only colony evaluated in Williams (1992) from the Panoche Valley was not trapped, and no density estimate was calculated specifically for that giant kangaroo rat colony. In the Panoche region, other density estimates are available for Silver Creek Ranch, the vicinity of Valadeao Ranch, and on the east side of the Panoche Region in the vicinity of the Panoche Creek alluvial fan. Of these colonies, densities in the project footprint are likely more similar to densities within Valadeao Ranch than Silver Creek Ranch or Panoche Creek, given the very high-quality habitat conditions present in the latter two areas. Therefore, using the maximum measured density for the Valadeao Ranch area (7.90 giant kangaroo rats per acre), up to 343 giant kangaroo rats may be present within the project footprint using the applicant's estimate. For the Final EIS, USACE determined that it was appropriate to use an estimated number of giant kangaroo rats that may occur in the footprint consisting of the number of giant kangaroo rats estimated by the applicant as the low range, and a high range of the maximum number of giant kangaroo rats authorized to be relocated by USFWS in its Biological Opinion. By dividing the acres of suitable habitat for giant kangaroo rat proposed to be preserved in the on-site and off-site conservation lands (including the additional 1,000 acres yet to be identified) (18,018 acres), divided by the suitable habitat that would be permanently impacted by implementation of Applicant's Preferred Alternative (1,650 acres), the preservation-to-impact ratio for giant kangaroo rat would be 10.9:1.
G1-8	The applicant has conducted numerous surveys since 2009 to document blunt-nosed leopard lizard populations in the project area, summarized in **Table 3-11** of the Draft EIS. The project avoids the identified, occupied blunt-nosed leopard lizard habitat in the ephemeral reaches of Panoche Creek in the southern portion of the original project footprint, and preserves this habitat via conservation easement within the larger Valley Floor Conservation Area (2,514 acres). **Figure 3-10** of the Draft and Final EIS shows an overview of special-status species observations (including blunt-nosed leopard lizard) on the project site and the mitigation lands. Through the conservation strategy described in the EIS, the applicant has committed to acquiring 25,618 acres of mitigation land. As described, these mitigation lands include approximately 13,325 acres of suitable habitat within the Panoche Valley, adjacent to the proposed project site. The EIS does not determine that there are not genetically distinct populations of blunt-nosed leopard lizard lizards throughout their range, nor does the EIS indicate that the Panoche Hills, Panoche Valley, and Silver Creek Ranch populations of blunt-nosed leopard lizard are genetically the same. New data regarding the genetic variability of blunt-nosed leopard lizard populations on or near the proposed project site was requested from the USGS; however, the USGS has a strict policy that precludes it from circulating draft/incomplete papers that have not

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	undergone both an internal and external review process. USGS also cannot release data until the paper has been accepted for publication either in an academic journal or as an official USGS report (email communication, Dr. Jonathan Richmond, USGS to Meredith Zaccherio, EMPSi, December 10, 2015). As a result, the USGS data were not able to be incorporated into the Final EIS. The USACE does not believe that the identification of three genetically diverse populations of blunt-nosed leopard lizards would change the analysis provided in the EIS, or the determination that the permanent loss of between 1,650 and 1,760 acres of suitable habitat as a result of the no action (no permit) alternative, Alternative A, and Alternative B is less than significant after taking into account the mitigation measures proposed as part of these alternatives, including the permanent preservation of between 11,883 and 13,325 acres of conservation lands on and adjacent to the project site. Preserving these large areas of intact occupied blunt-nosed leopard lizard habitat in perpetuity within the Panoche Valley and surrounding area would allow for the flow of genetic material between populations. As a result, there are not expected to be population-level effects that would impact the genetic diversity of the species. See the response to Comment C-2 for a more detailed response.
G1-9	The applicant has conducted numerous surveys since 2009 to document giant kangaroo rat populations in the project area, summarized in **Table 3-11** of the Draft EIS. The applicant is proposing to relocate giant kangaroo rats off-site according to a relocation plan, which would reduce the likelihood of impacts caused by on-site activities. Relocation of giant kangaroo rats off-site has been approved by USFWS in its Biological Opinion (**Appendix G**) and by CDFW in its California Endangered Species Act Incidental Take Permit (**Appendix I**). Through the conservation strategy described in the EIS, the applicant has committed to acquiring 25,618 acres of mitigation land. As described, these mitigation lands include approximately 13,325 acres of suitable habitat within the Panoche Valley (see **Section 2.5.7** of the Final EIS). As described in **Section 1.3** of the Final EIS, additional changes to the applicant's proposed project have been made since the Draft EIS was published. Through negotiations with CDFW, the applicant identified additional giant kangaroo rat avoidance areas and further reduced the project footprint from 2,506 acres to 2,154 acres. This reduction includes converting permanent impact areas into an additional giant kangaroo rat avoidance corridor on the east side of the project equivalent to approximately 95 acres (East Side GKR Corridor). The East Side GKR Corridor includes a north arm that is approximately 700 feet wide by 2,200 feet long and a south arm that is approximately 550 feet wide by 2,200 feet long. The two arms are connected by a north-south corridor that is approximately 600 feet wide by 2,100 feet along the east side of the project footprint. An additional north-south giant kangaroo

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	rat corridor has been located along Little Panoche Road through the northern solar array block. This corridor is 200 feet wide from the centerline of the road, or approximately 80 feet from the edge of pavement on the east and west sides, equivalent to approximately 13 acres. In addition to giant kangaroo rat avoidance corridors, several areas of proposed temporary impacts would be avoided and converted into additional conservation lands. These include areas in the vicinity of known and historic California tiger salamander ponds in the northwestern portion of the project site. Overall, the project footprint was reduced by 352 acres from the project analyzed in the Draft EIS. An additional approximately 93 acres of land within the two temporary laydown yards would also be converted to conservation land after construction is complete, yielding a total of approximately 442 acres of additional conservation land beyond what was identified in the Draft EIS. Impacts on giant kangaroo rats have decreased from 285 cells to 114 cells. By reducing impacts and preserving large areas of intact occupied giant kangaroo rat habitat in perpetuity within the Panoche Valley and surrounding area, the project would allow for the continued flow of genetic material between populations. As a result, there are not expected to be population-level effects that would impact the genetic diversity of the species. Information on USGS data was requested; however, the USGS has a strict policy that precludes it from circulating draft/incomplete papers that have not undergone both an internal and external review process. USGS also cannot release data until the paper has been accepted for publication either in an academic journal or as an official USGS report (email communication, Dr. Jonathan Richmond, USGS to Meredith Zaccherio, EMPSi, December 10, 2015). As a result, the USGS data were not able to be incorporated into the Final EIS. However, the Draft EIS does not conclude that giant kangaroo rat individuals on the project site and conservation lands are genetically similar and demonstrate "recent connectivity" of populations. Additional discussion of giant kangaroo rat genetics has been added to the EIS in **Section 3.6**, including literature by Good et al. 1997 and Loew et al. 2005, as suggested by The Nature Conservancy and Dr. Bean.
G1-10	The USACE acknowledges The Nature Conservancy's support of renewable energy and opposition to the proposed project.
G2-1	The USACE acknowledges The Nature Conservancy's opposition to the project.
G2-2	The USACE has reviewed the additional studies and literature cited and has incorporated this information, as appropriate, into **Section 3.6** of the Final EIS as described in response to Comment G1-3. Drs. Westphal, Lortie, and Sinervo have also been contacted to obtain additional information regarding their references that are under review or in press. Those references that have been received have also been incorporated into **Section 3.6** of the Final EIS. **Chapter 8**, References, indicates via underlined text all new references that have been incorporated into the Final EIS.

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Letter H. Sarah Friedman, Sierra Club; Kim Delfino, Defenders of Wildlife; Ileene Anderson, Center for Biological Diversity	
H-1	The USACE acknowledges receipt of the information provided. The Final EIS has been updated as appropriate to incorporate additional scientific documents and other references provided and referenced in the letter, as described in response to Comment G1-3. All information provided was reviewed; sources used in updating **Section 3.6**, Biological Resources, of the Final EIS are shown in **Chapter 8**, References, of the Final EIS, as indicated by underlined text. A listing of all additional references examined for the Final EIS are included in a matrix at the end of this chapter.
H-2	The USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. In its opinion, included in **Appendix G** of this Final EIS, the USFWS concluded that the proposed project analyzed in the Draft EIS was "not likely to jeopardize the continued existence of the giant kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard, and the California tiger salamander." Additional information regarding giant kangaroo rat is included in response to Comment H-5. Responses to the commenter's statement that the project does not comply with the Clean Water Act, National Environmental Policy Act, and Endangered Species Act standards are included in response to Comments H-3 through H-13; H-14 to 27; and H-28 to 34, respectively. A response to the commenter's statement that the proposed project could fully avoid impacts to waters of the U.S. is included as Comment H-13.
H-3	The USACE agrees with the commenter that in the evaluation of a proposed action under Section 404 of the Clean Water Act, the USACE must consider a variety of factors as part of the Public Interest Review and ensure compliance with the Section 404(b)(1) Guidelines. The USACE will make a final determination on whether the applicant's preferred action is contrary to the public interest or complies with the 404(b)(1) Guidelines in the Record of Decision.
H-4	The USACE agrees with the commenter that the EPA's 404(b)(1) Guidelines prohibit the USACE from issuing a permit for any activity, including discharge of dredged or fill material into waters of the U.S., that jeopardizes the continued existence of an endangered species or where there is a practicable alternative, and then also include the other restrictions on discharge.
H-5	The USACE agrees with the statement by the commenters that under the Section 404(b)(1) Guidelines, no discharge of dredged or fill material into waters of the U.S. shall be permitted if it would jeopardize the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973. The USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. In its opinion, included in **Appendix G** of this Final EIS, the USFWS concluded that the proposed project is not likely to jeopardize the continued existence of the giant kangaroo rat (p. 92). Accordingly, the project complies with this requirement of the

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	Section 404(b)(1) Guidelines, as it would not jeopardize the continued existence of the giant kangaroo rat under the Endangered Species Act. In the Biological Opinion, the USFWS states that "Because we do not anticipate an appreciable decline in giant kangaroo rats within the action area, the proposed action will not appreciably reduce the likelihood of the species' survival and recovery in the wild. The effects on reproduction and numbers of individuals are expected to be minimal and offset during subsequent breeding cycles, the metapopulation distribution would shift but the rangewide distribution would only be slightly altered, and the effects on recovery are expected to be minimal due to the preservation and management of important habitat specifically for the species consistent with recovery efforts." The USFWS states in the Biological Opinion, "Establishment of the Silver Creek Ranch Conservation Lands would benefit the giant kangaroo rat by providing protection and management of an area identified in the Recovery Plan as important for recovery of the species (Service 1998). The conservation and management of Silver Creek Ranch Conservation Lands would protect a large area with a dense population of giant kangaroo rats. Conservation of these lands along with conservation lands established by solar facilities in the Carrizo Plains would provide a series of large, protected habitat areas for the species to inhabit. Although some occupied and suitable habitat would be removed and mortality of a few individuals is expected, implementation of the proposed project would have minimal effect on, and would not impede recovery of the species due to preservation of important occupied habitat in the conservation lands and the capture and relocation measures incorporated into the project to minimize mortality to giant kangaroo rats (p. 70)." The commenters suggest that the Silver Creek Ranch Conservation Lands do not have extensive or connected habitat for giant kangaroo rat. However, Silver Creek Ranch is specifically identified in the Recovery Plan for the Upland Species of the San Joaquin Valley (USFWS 1998) as necessary for the long-term recovery of giant kangaroo rat in the region, and according to the Recovery Plan for the Upland Species of the San Joaquin Valley (USFWS 1998) and five-year review (USFWS 2010b), Silver Creek Ranch supports 90.3 percent of the giant kangaroo rat source population area in the Panoche Valley. The USFWS goes on to state in the Biological Opinion that "The local distribution of the species would be altered due to the removal of occupied habitat and suitable habitat for local range expansion. Also, relocated individuals would change the distribution if relocated to an area not currently occupied or increase the density of the area if relocated to an inactive burrow system in an occupied area. However, linkages between the local and range wide metapopulations are expected to be maintained through the establishment of the Valley Floor Conservation Lands. The species' larger geographic range includes portions of at least five counties on the western side of the San Joaquin Valley. We conclude that despite some changes to the species' local distribution, the proposed action would not reduce the rangewide distribution of the giant kangaroo rat (p. 70)."

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	In addition, in their Biological Opinion, the USFWS concludes that "Four of the larger colony concentrations within the proposed project footprint were converted to avoidance areas and added to the Valley Floor Conservation Lands. These areas were selected due to the large numbers of concentrated active and inactive giant kangaroo rat precincts, the presence of suitable habitat, and direct connectivity to protected lands, such as the Valley Floor Conservation Land, Valadeao Ranch Conservation Lands, and adjacent BLM-administered land (p. 54)." In addition to their preparation of the Biological Opinion, the USFWS, as a cooperating agency, provided input, review, and comment throughout the preparation of the Draft and Final EIS. Through recent negotiations with the CDFW, the applicant will provide permanent protection and management of at least 1,000 acres of Additional Conservation Lands identified as suitable habitat for giant kangaroo rat, will convert approximately 92.82 acres of 105 acres of temporary laydown areas to On-site Conservation Lands once project construction is complete, and will avoid impacts to an additional 442 acres of suitable giant kangaroo rat habitat. As a result, total project footprint has been reduced from 2,506 to 2,154 acres and the total acreage of conservation lands has increased from 24,176 to 25,618 acres. The USACE acknowledges that the drought that is currently occurring in California has likely adversely affected reproduction, habitat, and numbers of threatened and endangered species, including giant kangaroo rat. The USACE also acknowledges and agrees that climate change would likely adversely affect threatened and endangered species. However, as identified in **Section 3.5** of the Final EIS, the US Global Change Research Project's Third National Climate Assessment (Melillo et al. 2014) identifies renewable energy production as an adaptation response to climate change in the Southwest to reduce urban heat stress and reduce emissions. The report states: "The Southwest's abundant geothermal, wind, and solar resources could help transform the region's electric system into one that uses substantially more renewable energy and lead to large reductions in heat-trapping gas emissions. This would also reduce the need for power plant cooling water, which will be more scarce in a hotter, drier future." In addition, under Alternative A, 18,018 acres of suitable habitat for giant kangaroo rat within on-site and off-site conservation lands would be preserved in perpetuity, which would provide permanent protection of suitable habitat. Without the preservation of these lands, which are currently under private ownership, there is no guarantee that future development would not result in the loss of additional habitat for giant kangaroo rat.
H-6	See response to Comment G1-9 regarding genetic variability of giant kangaroo rat populations.

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H-7	With regards to the comment related to the USFWS Recovery Plan for the Upland Species of the San Joaquin Valley, the EIS evaluates the direct, indirect, and cumulative effects of the proposed action on federally listed threatened and/or endangered species. **Section 3.6.4** the EIS identifies that: "The proposed project's conservation strategy would effectively remove some of the private ownership barriers that have prevented widespread species conservation in the Panoche Valley. This substantial conservation effort would be consistent with conservation efforts set forth in the recovery plan (USFWS 1998)." In addition, the Biological Opinion issued by USFWS identifies the effects of the proposed action on the recovery of the giant kangaroo rat, stating: "Although some occupied and suitable habitat would be removed and mortality of a few individuals is expected, implementation of the proposed project would have minimal effect on, and would not impede recovery of the species due to preservation of important occupied habitat in the conservation lands and the capture and relocation measures incorporated into the project to minimize mortality to giant kangaroo rats." USACE has determined that the effects of the no action (no permit) alternative, Alternative A, and Alternative B on giant kangaroo rat discussed in the EIS are sufficient to determine that the effects would be less than significant, after taking into account measures proposed as part of these alternatives, and the proposed preservation of 18,018 acres of suitable habitat for giant kangaroo rats at the on-site and off-site conservation lands, and that no changes are needed to the EIS with regards to this comment. The applicant has modified their proposed project, which is identified as the applicant's preferred alternative (Alternative A) in the Final EIS, to reduce the project footprint from 2,506 acres to 2,154 acres. As a result of the modification, the applicant's preferred alternative would now adversely affect fewer acres of occupied giant kangaroo rat habitat than identified in the Draft EIS. The USACE understands the opinion of the commenters that the loss of giant kangaroo rat habitat in the core area of Panoche Valley would preclude future recovery in this area and put the species farther towards extinction. However, based on the analysis of the effects of the applicant's preferred alternative in the EIS and the USFWS Biological Opinion, USACE disagrees that the applicant's preferred alternative would jeopardize the continued existence of the species. In its Biological Opinion, the USFWS stated that although the potential for giant kangaroo rat to re-inhabit the land under panel arrays exists, this scenario cannot be expected. Therefore, as a result of the no action (no permit) alternative, Alternative A, and Alternative B, these alternatives may result in the permanent loss of between 1,650 and 1,770 acres of suitable habitat for giant kangaroo rat. This potential loss of habitat would correspond to between 1.7 and 1.8 percent of

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	total habitat for the species in the Ciervo-Panoche Recovery Area (95,000 acres of remaining giant kangaroo habitat, see Biological Opinion, page 36). However, the no action (no permit) alternative, Alternative A, and Alternative B would also result in the permanent preservation of between 16,576 and 18,018 acres of suitable habitat for the giant kangaroo rat in the on-site and off-site conservation lands, which corresponds to 17 percent of total remaining habitat for this species in the Ciervo-Panoche Recovery Area. In addition, the preservation of an additional 442 acres of on-site lands that would occur under the revised Alternatives A and B in the Final EIS would allow corridors for the movement of the species through the project site. The preservation of the on-site and off-site conservation lands under the no action (no permit) alternative, Alternative A, and Alternative B would protect suitable habitat for giant kangaroo rat from future development. The commenter's statement regarding the decline in the giant kangaroo rat population is noted. **Section 3.6** of the EIS has been modified to state: "Independent researchers found fewer giant kangaroo rats in 2013 and 2014 within the Ciervo-Panoche Natural Area than in previous years. This may potentially be due to drought, particularly in the southern portion of the Ciervo-Panoche Natural Area, which is drier than northern areas (Bean 2013, 2015)." With regards to the comment regarding the estimates provided in the EIS for the number of giant kangaroo rats on the project site, these estimates were based on the number of active and inactive precincts and density estimates based on local data (see response to Comment G1-7 for additional information on methods used to estimate numbers of giant kangaroo rats in the project footprint). Because of the changes to the proposed action since the Draft EIS was published, **Section 3.6** of the EIS has been modified to identify that the number of giant kangaroo rats occurring within the footprint of the applicant's preferred alternative (Alternative A) is estimated to range from 343 to 521 or more. USACE acknowledges that these are estimates, and that the actual number of giant kangaroo rats on the project site may be less than or greater than the estimate provided in the EIS. However, these estimates were made using the best available science. If fewer than 343 giant kangaroo rats occur on the project site, the no action (no permit) alternative, Alternative A, and Alternative B may have fewer impacts to giant kangaroo rat individuals than analyzed in the EIS. If more than 521 giant kangaroo rats occur on the project site, the no action (no permit) alternative, Alternative A, and Alternative B may have greater impacts on giant kangaroo rat individuals than analyzed in the EIS. In the latter case, USACE would need to determine if any additional analysis is required under NEPA. In addition, in their Biological Opinion, USFWS provided take for up to 521 giant kangaroo rat individuals to be captured and relocated and up to 11 individuals to die as a result of their handling. If more than 521 giant kangaroo rat individuals are captured and relocated or more than 11 die in handling, USACE would be required to re-initiate consultation with USFWS.

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	While the EIS identifies that the project site supports "small colonies" of giant kangaroo rats, USACE disagrees with the commenter that this statement indicates that the Panoche Valley is not important for the giant kangaroo rat or discounts the impacts of the proposed action on giant kangaroo rat. This statement was intended solely to provide information to the public that based on the location of giant kangaroo rat burrows, the site supports various small colonies of giant kangaroo rats, as opposed to one large population.
H-8	USACE disagrees that the EIS fails to provide measures that avoid or minimize impacts to giant kangaroo rats. The EIS identifies a variety of mitigation measures included as part of the no action (no permit) alternative, Alternative A, and Alternative B, which include conducting pre-construction clearance surveys and avoiding active precincts; restricting the movement and speed of construction vehicles; limiting the extent of construction activities; maintaining giant kangaroo rat corridors to improve wildlife movement; preserving on-site and mitigation lands; educating to prevent inadvertent human-caused errors; monitoring the site; prohibiting pesticides, herbicides, firearms and pets on-site; removing trash; reducing the likelihood for spills and exposure to hazardous substances; conducting pre-construction surveys; and relocating giant kangaroo rats off-site according to a relocation plan. While there may be impacts to giant kangaroo rat habitat from the temporary laydown areas identified in Alternatives A and B, this habitat would be restored in accordance with a habitat restoration and revegetation plan following construction. Because giant kangaroo rats would be relocated prior to initiation of construction in temporary laydown areas, there are not expected to be any giant kangaroo rats in the temporary laydown area during construction. The applicant's preferred alternative (Alternative A) has been revised since the Draft EIS to convert laydown areas from permanent impacts to temporary impacts. Further, approximately 93 acres of laydown areas would be restored and placed into permanent habitat conservation once construction is complete. The amount of proposed laydown areas is normal for a construction project of the nature and size of the proposed project. USACE acknowledges that while other projects may have the ability to move laydown yards during construction, the schedule for the proposed project does not allow for laydown yards to overlap with project facilities, and thus laydown areas cannot be sited within the project facilities. The USACE acknowledges the commenter's concern about rodenticides. APM BIO-34 addresses these concerns by restricting the use of rodenticides and states: "Use of rodenticides and herbicides in project areas is prohibited with the exception of those applied near buildings/critical facilities. Only agency-approved compounds will be applied (if necessary) by licensed applicators in accordance with label directions and other restrictions mandated by US Environmental Protection Agency, County Agricultural Commissioner, regional label prescriptions on use, California Department of Food and

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	Agriculture, and other State and Federal legislation." In its Biological Opinion (**Appendix G**), the USFWS states that "Limiting the use of rodenticides as described in the Project Description section would minimize the risk to giant kangaroo rats."
H-9	USACE acknowledges the statement from the applicant that the effects of habitat fragmentation on species persistence is well documented. The EIS acknowledges that adverse impacts may occur due to habitat fragmentation, and conservatively assumes that no habitat for giant kangaroo rat would exist within the project footprint of the no action (no permit) alternative, Alternative A, and Alternative B following construction of a solar facility, as there are not currently long-term, peer-reviewed studies regarding habitat suitability following construction of solar facilities in the area. The Draft EIS also acknowledges that increased predation may occur due to the construction of perimeter fences and facilities, and that night-lighting may have an adverse effect on species. However, as identified in the EIS, because of the proposed conservation lands, in which continuous corridors are provided between all conservation lands, the effects of habitat fragmentation on giant kangaroo rat is less than significant. Mitigation Measure APM AES-3, which requires the use of motion-sensor lighting at the main entrance, substation, and switching station, and that the motion sensors will have sensitivities set to avoid activating the lights when animal activity is occurring, and Mitigation Measure BR-G.2, which requires that new light sources be minimized and designed to limit the lighted area to the minimum necessary, would minimize impacts of lighting on giant kangaroo rat. While the EIS identifies that increased predation may occur due to an increase in perching areas for the no action (no permit) alternative, Alternative A, and Alternative B, overall impacts to the giant kangaroo rat would be less than significant after taking into account the avoidance and minimization measures and preservation of between 16,576 and 18,018 acres of suitable habitat within on-site and off-site conservation lands.
H-10	With regards to the mitigation for giant kangaroo rat, as identified in **Section 3.6,** a variety of mitigation measures are proposed as part of the no action (no permit) alternative, Alternative A, and Alternative B to avoid and minimize effects to giant kangaroo rat, consisting of restricting the movement of construction vehicles; limiting the extent of construction activities; maintaining giant kangaroo rat corridors to improve wildlife movement; preserving on-site and mitigation lands; educating to prevent inadvertent human-caused errors; monitoring the site; prohibiting pesticides, herbicides, firearms and pets on-site; removing trash; reducing the likelihood for spills and exposure to hazardous substances; conducting pre-construction surveys; and relocating giant kangaroo rats off-site according to a relocation plan. In addition, under the no action (no permit) alternative, Alternative A, and Alternative B, the applicant would permanently preserve between 2,523 and 3,965 acres of suitable habitat for giant kangaroo rat in the on-site conservation lands, 6,830 acres of suitable habitat for the giant kangaroo rat on the Valadeao Ranch site, 7,223 acres of suitable habitat on the Silver Creek Ranch site, and under Alternative A and Alternative B, another 1,000 acres

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	of suitable habitat for giant kangaroo rat in the Panoche Valley on lands that have not yet been identified. **Section 3.6** of the Final EIS has been updated to identify acres of suitable habitat for giant kangaroo rat on the Valadeao Ranch Conservation Lands and the Silver Creek Ranch Conservation Lands. As described in Response to Comment H-5, according to the Recovery Plan for the Upland Species of the San Joaquin Valley (USFWS 1998) and five-year review (USFWS 2010b), Silver Creek Ranch supports 90.3 percent of the giant kangaroo rat source population area in the Panoche Valley. It is unclear from the comment the basis for the opinion provided by the commenters that neither the Silver Creek Ranch nor the Valadeao Ranch site provide as extensive and connected habitat as the Panoche Valley. Both the Silver Creek Ranch and Valadeao Ranch site would provide habitat for giant kangaroo rat, which is connected via habitat corridors, to the proposed project site. Under Alternative A, with the proposed permanent impacts to 1,650 acres of suitable habitat for giant kangaroo rat and the proposed preservation of 18,018 acres of suitable habitat, the proposed conservation to impact ratio of the applicant's preferred alternative would be 10.9:1, which is higher than the 5:1 ratio identified by the commenter (see the response to Comment G1-7 for an explanation of how the ratio was calculated). USACE acknowledges the commenter's statement that even with robust mitigation, development of the no action (no permit) alternative, Alternative A, and Alternative B would result in a net loss of suitable habitat for giant kangaroo rat, as establishment and re-establishment of suitable habitat is not being created. The comments related to the comment letter from Professor Bean are addressed in the response to Comment Letter J.
H-11	The USACE recognizes that the commenters question the effectiveness of the giant kangaroo rat relocation plan. The plan, included in draft form in **Appendix H** of the Final EIS, will implement methodology similar to other successful kangaroo rat relocations (Bender et al. 2010; Germano 2001, 2010; Germano and Saslaw 2007; Germano et al. 2009; Tennant et.al. 2013). All relocation areas shall be approved by the USFWS and the CDFW prior to relocation. Giant kangaroo rat will not be relocated to burrows that are occupied by other kangaroo rat species. Long-term monitoring of relocated individuals, as required by the plan, will document results of relocation activities, and annual reports will be submitted to the USFWS and CDFW. **Section 3.6** has been updated to state: "Relocation efforts will focus on suitable unoccupied habitat and will include seed provision and long-term monitoring. The success of relocation efforts is uncertain due to a lack of long-term monitoring of similar efforts as well as the potential for predation, competition, and damage to the social structure. While the long-term success of relocating giant kangaroo rats is uncertain, the effects to the species from relocating are likely less than if the giant kangaroo rats remained on-site during construction activities. In addition, the uncertainty of giant kangaroo rat relocation does not affect the determination made in the EIS that the effects to giant kangaroo rat would

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	be minimized by the avoidance and minimization measures included as part of the no action (no permit) alternative, Alternative A, and Alternative B. These measures include restricting the movement of construction vehicles; limiting the extent of construction activities; maintaining giant kangaroo rat corridors to improve wildlife movement; preserving on-site and mitigation lands; educating to prevent inadvertent human-caused errors; monitoring the site; prohibiting pesticides, herbicides, firearms and pets on-site; removing trash; reducing the likelihood for spills and exposure to hazardous substances; conducting pre-construction surveys; and relocating giant kangaroo rats off-site according to a relocation plan. With the minimization measures identified and the conservation of between 16,576 and 18,018 acres of suitable habitat in the on-site and off-site conservation lands, the impacts to giant kangaroo rat would be less than significant." Relocation of giant kangaroo rats off-site has been approved by USFWS in its Biological Opinion and by CDFW in its California Endangered Species Act Incidental Take Permit.
H-12	As described in **Section 1.4** of the Final EIS, the project's purpose and need have been developed in accordance with NEPA and the Section 404(b)(1) of the Clean Water Act guidelines. According to USACE guidance in its 2009 Standard Operating Procedures, "The overall project purpose should be specific enough to define the applicant's needs, but not so restrictive as to constrain the range of alternatives that must be considered under the Section 404(b)(1) Guidelines." **Sections 2.3** and **2.8** provide further explanation of the methodology used to define the reasonable range of alternatives that are analyzed in the Final EIS, including rationales for eliminating alternatives from detailed consideration. Reasonable alternatives are those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply being desirable from the standpoint of the applicant (46 *Fed. Reg.* 18026). The range of potential reasonable alternatives may include alternative sites, project configurations, project sizes, and technologies. The Final EIS purpose and need statement satisfies these requirements and allows the comparative merits of all alternatives to be considered by agency decision makers and the public (40 CFR, Part 1502.14). Contrary to the statement by the commenters, the executed power purchase agreement was not used in the development of the overall project purpose by USACE. As explained in **Section 2.3.2** of the EIS, USACE determined that it was appropriate to include a minimum 247 MW solar facility for the following reasons: – The construction of a solar facility that is less than 247 MW requires the same amount of infrastructure and telecommunications upgrades as a solar facility that is 247 MW or higher; therefore, the construction costs would be the same, but there would be less revenue for the cost of power. This would result in a solar facility that is not commercially viable.

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	– Since the original proposal, the applicant has reduced the proposed solar facility from 1,000 MW, to 420 MW, to 399 MW, to the currently proposed 247 MW facility. Based on the substantial reduction in the proposed size of the facility, as well as the avoidance and minimization that has occurred throughout project development, it is not appropriate to require further reductions in the solar facility output. While the Draft EIS identifies the agreement made by the applicant in the power purchase agreement, this agreement was not used in the development of the overall project purpose by USACE.
H-13	USACE notes the opinion of the commenters that the no action (no build), no action (no permit) alternative, and Alternative C (Westlands CREZ) are less environmentally damaging and practicable. With regards to the Section 404(b)(1) process, the USACE will make a determination on the practicability of each of the alternatives evaluated in detail in the EIS in the Record of Decision. In accordance with the Section 404(b)(1) Guidelines, the USACE disagrees that the "no build" no action alternative was improperly rejected, as the effects of this alternative were analyzed in the EIS. Except as provided under Section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences (40 CFR 230.10(a)). In addition, an alternative is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes. If it is otherwise a practicable alternative, an area not presently owned by the applicant, which could reasonably be obtained, utilized, expanded or managed in order to fulfill the basic purpose of the proposed activity may be considered (40 CFR 230.10(a)(2). USACE will base its final decision on the practicability of any alternative evaluated in detail in the EIS utilizing the requirements of the Section 404(b)(1) Guidelines.
H-14	The USACE disagrees with the commenter's assertion that the Draft EIS violates NEPA. Responses to the commenter's specific subsequent statements that support the assertion that the Draft EIS violates NEPA are included in response to Comments H-14 through H-27.
H-15	As described in the response to comment G1-4, the Draft EIS used the best available information to determine baseline conditions. The Final EIS has been updated with newer data where appropriate (see **Section 3.6**). Formal consultation with the USFWS per Section 7 of the Endangered Species Act concluded on October 5, 2015 with the issuance of a Biological Opinion, which has been included in the Final EIS in **Appendix G**. USACE and the USFWS took into consideration the best available information during the consultation process.

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	No surveys were required for the transmission line and telecommunications upgrades based on the limited impacts and habitats available at those sites, which were dominated by nonnative plant species, as described in **Section 3.6** of the Final EIS. **Appendix E** of the EIS contains the PG&E Natural Resource-Related Studies performed for the telecommunication upgrade actions. In the EIS, it was assumed that all proposed work areas for the PG&E transmission line upgrade contain suitable habitat for several federally threatened and endangered species, including round-leaved filaree (*California macrophylla);* California jewelflower (*Caulanthus californicus*)*;* San Joaquin woollythreads (*Monolopia congdonii*)*;* California tiger salamander (*Ambystoma californiense*)*;* blunt-nosed leopard lizard (*Gambelia sila*)*;* giant kangaroo rat (*Dipodomys ingens*)*;* and San Joaquin kit fox (*Vulpes macrotis mutica*) (see **Tables 3-12** and **3-13** of the EIS). The minor ground-disturbing work that would occur for the PG&E transmission line upgrades would result in minimal adverse effects to suitable habitat, and a number of avoidance and minimization measures would be implemented to reduce the potential for impacts (see **Appendix C**, **Table C-3** of the EIS). These include conducting preconstruction surveys for special status amphibians and reptiles; avoidance of giant kangaroo rat burrows and San Joaquin kit fox dens; and delineating exclusion zones for blunt-nosed leopard lizard and special status plants. Conducting protocol-level surveys of the transmission line area would not have changed the analysis of effects or the determination that the effects would be less than significant.
H-16	The range of alternatives analyzed in the Draft EIS is consistent with the purpose and need identified in **Section 1.4**. Reasonable alternatives are those that are practical or feasible from a technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant (46 Federal Register 18026 [Question 2a]). Reasonable alternatives do not include those that are remote or speculative or that do not achieve the project purpose and need. The alternative screening process was used to determine which alternatives would be technically and economically feasible while still achieving the project purpose and need. The screening process clearly details the rationale for how each criterion would conform to the project purpose and need. Location siting, including that for the alternatives analysis, was based on, but not limited to, proximity to infrastructure, land available for long-term purchase/lease, high solar resource areas, topography, and the extent of discharge of dredged and/or fill material into waters of the U.S. All of these factors were evaluated when determining potential locations for construction of the project. The commenter identified that there are more than 55 large-scale solar projects in nearby Monterey, Fresno, Merced, and Kings Counties approved or seeking permits. This comment is noted. The Section 404(b)(1) Guidelines state: The Guidelines user, including the agency or agencies responsible for implementing the Guidelines, must recognize the different levels of effort that should be associated with varying degrees of impact and require or prepare commensurate

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	documentation. The level of documentation should reflect the significance and complexity of the discharge activity." The USACE believes that the range of alternatives evaluated in the EIS are sufficient to ensure that a range of reasonable alternatives were evaluated for compliance with NEPA, and that requiring the applicant to provide information on the practicability of 55 off-site alternatives for a project resulting in the discharge of fill material into 0.121 acre of waters of the U.S. would be unreasonable. The alternative screening criteria identified in the EIS were not arbitrary. On the contrary, a methodical approach was used to determine the alternatives for analysis based on whether a given alternative met the purpose and need for the project. Those alternatives that did not meet the purpose and need were eliminated from detailed analysis. For instance, alternatives greater than 2,000 feet from an existing 230 kV transmission line were eliminated because construction of a transmission line greater than 2,000 feet would impact cost and schedule in a way that would make an alternative impracticable to construct. If the project were to be located greater than 2,000 feet from a 230 kV line, additional infrastructure would be required. Construction of the additional infrastructure would cause additional ground disturbance in an already sensitive area. Various criteria also would need to be met in order for the additional infrastructure to be exempt from certification of public convenience and necessity (CPCN), including, but not limited to 1) the possibility that the infrastructure could impact an environmental resource of hazardous or critical concern; 2) the cumulative impact of successive projects is significant; and 3) unusual circumstances are present that would create impact of successive projects is significant. While the commenters identified that the length of time to permit an electricity line identified in the EIS were exaggerated, this information was obtained from "General Information on Permitting Electric Transmission Projects at the California Public Utilities Commission" presentation completed by the CPUC Transmission and Environmental Permitting Team in June 2009, which is available CPUC website (see http://www.cpuc.ca.gov/PUC/energy/Environment/). While USACE understands that in some cases planning and permitting times may be less, USACE has determined that it is reasonable to utilize the average times publicly available from the permitting entity. The information provided by the commenters regarding approved transmission projects in the San Joaquin Valley is noted. USACE has determined that a reasonable range of alternatives was analyzed in the EIS, and that it is not appropriate to require that the applicant provide information on all alternative sites located along all approved transmission projects. The USACE believes that it is reasonable to consider the input of the Hollister Fire Department for determining emergency access requirements as the agency responsible for providing emergency service to the project site. As noted in the Final EIS, the applicant has modified the alternative proposed in the Draft EIS, and has eliminated the

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	crossing of Panoche Creek, based on comments and recommendations provided by the Hollister Fire Department.
H-17	Decommissioning of the proposed solar facility is not included in the scope of analysis because the USACE has determined that the timeframe and activities associated with repowering or decommissioning are too speculative for USACE to control or evaluate thoroughly. Thus, decommissioning and repowering have not been included in the EIS. The lifespan of the proposed project is 30 years. Innumerable factors may decrease or extend this lifespan, making it implausible to assign a meaningful timeline for decommissioning or repowering. Examples include the price of solar energy, competition from other projects and energy sources, state and federal renewable energy mandates, and new technologies that may emerge in the interim. The market for solar energy and its associated technology may evolve in ways that are difficult or impossible to predict at the present time. Likewise, predicting with meaningful certainty the scope of activities associated with decommissioning or repowering is not possible. Analyzing complete project decommissioning that may occur 30 or more years in the future while relying on present-day methods, technologies, and conditions carries no meaning, when these factors are certain to evolve and when the operator may elect to repower, pushing decommissioning further into the future. The impacts associated with decommissioning would also be dependent upon land use patterns, socioeconomic conditions, traffic levels, and other factors that will evolve in the coming decades in ways impossible to accurately predict. Finally, because the analysis would involve speculation, the USACE would be unable to identify mitigation or other measures relevant to these potential future impacts. **Section 1.5**, Scope and Focus of This Environmental Impact Statement, has been updated as follows: The focus of the environmental analysis for each alternative includes the direct and indirect effects of constructing a solar facility. This includes short-term effects from construction activities and long-term effects from the presence of a solar facility. It also includes the effects from operational and maintenance activities associated with operating the facility, which are considered an indirect effect of the construction of the solar facility. Impacts associated with operational and maintenance activities are included within the NEPA scope of analysis, as they may affect federally listed threatened and/or endangered species. However, these activities, because they would not result in the discharge of dredged and/or fill material into waters of the U.S., do not require a Section 404 permit and are not within USACE jurisdiction. <u>Decommissioning of the proposed solar facility is not included in the scope of analysis because activities that would occur at</u>

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	the end of the 30-year project under decommissioning are speculative, given potential changes in technology over that time. It is also possible that rather than being decommissioned, the proposed facility could be repowered. The decision to not include decommissioning within the scope of analysis does not preclude the need to evaluate decommissioning or possible repowering under NEPA in the future. It should be noted the Biological Opinion did consider decommissioning in its analysis of effects: "The proposed solar energy facility is expected to operate for approximately 30 years once constructed. At the end of the project's operational life, it would be decommissioned or potentially repowered with more efficient PV panels. Therefore, the jeopardy analysis in this biological opinion includes effects of operation, maintenance, and decommissioning or repowering (the effects of which are assumed to be similar to construction impacts) of the solar facility." (p. 4). The determination by USACE that decommissioning or repowering is not within the scope of analysis for NEPA does not obviate the potential need for any future decommissioning to comply with NEPA.
H-18	The USACE prepared the cumulative impacts analysis consistent with applicable laws, regulations, and guidelines. As part of the analysis process, a geographic scope was established in which impacts were reasonably expected to occur. The geographic scope for the cumulative effects analysis varies depending on the resource being evaluated. For biological resources, the geographic scope for the cumulative impacts biological resources analysis for the no action (no permit) alternative, Alternative A, and Alternative B includes the Panoche Valley and the larger Ciervo-Panoche region, plus areas of western Fresno and Kings Counties, regions of western Kern County in the San Joaquin Valley, eastern San Luis Obispo County, southeastern Monterey County, and northern Santa Barbara County. The areas included in this cumulative analysis contain suitable and occupied habitat for San Joaquin kit fox, giant kangaroo rat, San Joaquin antelope squirrel, and blunt-nosed leopard lizard and may also support core, critical, or unique populations essential to recovery and long-term survival of these species (USFWS, 2010a; 2010b; 2010c; 1998). The geographic boundary encompasses areas in which the no action (no permit) alternative, Alternative A, and Alternative B would reasonably expect to contribute to cumulative effects for biological resources. The Kern Solar Ranch and California Flats Solar Project are within the geographic scope of the cumulative impact analysis and have been added to the analysis in the Final EIS (see **Table 3-1**).
H-19	An explanation of why decommissioning is not included in the scope of analysis of the EIS can be found in the response to Comment H-17, above. An explanation regarding surveys in the PG&E transmission upgrade area can be found in the response to comment H-15, above. USACE disagrees with the commenters that the Draft EIS failed to adequately analyze the impacts on giant kangaroo rat. The response to the comment regarding the effects on giant kangaroo rat can be found in responses to Comment

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	G1-9, and H-5 through H-11. The comment regarding the analysis of impacts on listed species and prepared plans can be found below in the responses to Comments H-21 through H-23.
H-20	**Table 3-13** and text in **Section 3.6** of the EIS state that the blunt-nosed leopard lizard is a fully protected species under state law. Text has been added to **Section 3.6** to state that for a California fully protected species, no take may be authorized except for scientific research or unless a project undertakes a Natural Communities Conservation Plan; no such plan is required for this project. Maintaining intact habitat supporting species such as blunt-nosed leopard lizard is a recovery goal that would assist in allowing the species to adapt to the uncertainties under future climate conditions. This goal was a primary focus of the project design and the conservation strategy for the species outlined in the EIS. The applicant has conducted numerous surveys since 2009 to document blunt-nosed leopard lizard populations in the project area, summarized in **Table 3-11** of the Draft EIS. The applicant has performed multiple years of protocol level surveys including a BNLL full-protocol survey of the project footprint and Valley Floor Conservation Lands (October 2013); additional surveys were also conducted in 2010, 2012, 2014, and 2015; these are described further below. The surveys have shown no BNLL observations within 850 feet of the revised project footprint. Further, from 2009 to 2015, biologists conducted numerous surveys for other species in the same area; the biologists were instructed to report any BNLL observations during these surveys for other species. Although many of these surveys were conducted during times that BNLL would be expected to be active although outside of the protocol survey dates—e.g., certain months, times of day, and weather conditions—no BNLL were observed on the project footprint during these other biological surveys. In coordination with CDFW, the applicant performed a focused blunt-nosed leopard lizard survey in 2014 in accordance with the methodology presented in the Supplemental Blunt-nosed Leopard Lizard Study Plan Survey Methodology letter sent to the CDFW on April 29, 2014. The locations surveyed included portions of the Revised Project closest to any recorded BNLL observations and locations specifically identified by CDFW as being of concern as possible dispersal areas from previously recorded observations. The focused surveys were conducted in Spring and Summer 2014 as documented in the April 29, 2014 letter to CDFW. The surveys followed the CDFG (2004) protocol in the area that they were conducted. Generally, the surveys were completed within the central portion of the Project site between portions of the Valley Floor Conservation Lands where multiple individuals were observed along Panoche Creek during multi-year surveys conducted for the project and within an approximately 1500-foot buffer around a single individual sighting that was recorded in 2013 immediately north of Las Aguilas Creek.

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	The applicant also conducted 2015 spring and summer surveys for a portion of the eastern project footprint; there were no BNLL detected within the project footprint. Finally, the applicant will conduct focused surveys prior to construction on the project footprint within a reasonable distance of observations recorded since 2009 to assess potential dispersal areas from these known locations. The project avoids the identified, occupied blunt-nosed leopard lizard habitat in the ephemeral reaches of Panoche Creek in the southern portion of the original project footprint, and preserves this habitat via conservation easement within the larger Valley Floor Conservation Area (2,514 acres). See **Figure 3-10** of the Draft EIS for an overview of special-status species observations (including blunt-nosed leopard lizard) on the project site and the mitigation lands. In the Biological Opinion (**Appendix G** of the Final EIS), the USFWS analyzed the applicant's proposed 52.4-acre buffer along with numerous other avoidance and minimization measures. The USACE understands that in their February 6, 2015, letter on the Draft Supplemental Environmental Impact Report, the CDFW recommended that a 395-acre buffer from all locations of the blunt-nosed leopard lizard be required. The EIS identifies that the proposed buffer and other avoidance and minimization measures incorporated as part of the no action (no permit) alternative, Alternative A, and Alternative B would reduce the likelihood of take of blunt-nosed leopard lizard by reducing the likelihood of injury or mortality caused by construction activities. The EIS concludes that the impacts to blunt-nosed leopard lizard would be less than significant, taking into account the mitigation measures included as part of the no action (no permit) alternative, Alternative A, and Alternative B, as well as the permanent preservation of suitable habitat for blunt-nosed leopard lizard in the on-site and off-site conservation lands. While USACE is not required to ensure that the applicant comply with CDFW requirements, USACE understands that blunt-nosed leopard lizard is a fully protected species under California state law. The applicant is responsible for ensuring compliance with the requirements of the CDFW, and CDFW would be responsible for enforcement of their requirements. The proposed action would result in permanent impacts to 1,650 acres and temporary impacts to 470 acres of suitable habitat for blunt nosed leopard lizard. Through the conservation strategy described in the EIS, the applicant has committed to acquiring 25,618 acres of mitigation land. As described, these mitigation lands are composed of approximately 13,325 acres of suitable habitat for blunt-nosed leopard lizard within the Panoche Valley (see **Section 2.5.7** of the Final EIS), which equates to a conservation to impact ratio of 6.3:1. Preserving these large areas of intact occupied blunt-nosed leopard lizard habitat in perpetuity within the Panoche Valley and surrounding area would allow for the flow of genetic material between populations. As a result, there are not expected to be population-level effects that would impact the genetic diversity of the species. In addition, the habitat conservation strategy is consistent with the recovery goals of the species and provides future options for conservation in light of the uncertainty associated with climate change predictions. The Final EIS discusses the

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	effect of climate change on blunt-nosed leopard lizards in **Section 3.6**. New literature from Drs. Sinervo, Lortie, and Westphal has been incorporated into **Section 3.6** in the Final EIS, and a response to Dr. Sinervo's comment letter can be found in response to Comment Letter P. The Final EIS incorporates this information in **Section 3.6**.
H-21	USACE acknowledges the statement by the commenters that the San Joaquin kit fox is a species whose numbers are declining, whose habitat is shrinking, and that has been on the endangered species list since 1967. Regarding impacts on the San Joaquin kit fox, the USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. In its opinion, included in **Appendix G** of this Final EIS, the USFWS concluded that the proposed project analyzed in the Draft EIS was "not likely to jeopardize the continued existence of the giant kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard, and the California tiger salamander." As identified in the EIS, the no action (no permit) alternative, Alternative A, and Alternative B would result in adverse effects to San Joaquin kit fox habitat and individuals. These alternatives would result in the permanent loss of between 1,688 and 1,796 acres of suitable habitat for San Joaquin kit fox following construction of a solar facility. In order to minimize effects on San Joaquin kit fox, mitigation measures have been included as part of the no action (no permit) alternative, Alternative A, and Alternative B, including restricting the movement of construction vehicles; limiting the extent of construction activities; constructing fences to improve wildlife movement; preserving between approximately 10,000 and 11,442 acres of suitable habitat for San Joaquin kit fox in the on-site and off-site mitigation lands; educating to prevent inadvertent human-caused errors; monitoring the site; prohibiting pesticides, herbicides, firearms and pets on-site; removing trash; and reducing the likelihood for spills and exposure to hazardous substances. With regards to recovery, the Draft EIS identified 14,863 acres of lands suitable for San Joaquin kit fox that would be preserved in perpetuity. This was based on an evaluation which rated lands between zero and 11 percent slope as optimally suitable. Lands with slope over 11 percent were presumed to be less than optimally suitable, with the proportion of lands considered suitable contingent upon the slope value. For example, half of all lands between 11.01 and 21 percent slope were considered suitable, one-quarter of all lands between 21.01 and 35 percent slope were considered suitable, and no lands over 35 percent slope were considered suitable. These classes and proportions are based on results of scat-sniffing dog survey results. Based on subsequent USFWS input and as stated in the Biological Opinion, only lands between zero and 11 percent slope in an open landscape are considered suitable habitat for San Joaquin kit fox. As a result of this determination, the Final EIS has been revised to state that the proposed project would preserve approximately 10,000 acres of San Joaquin kit fox habitat in the on-site and off-site conservation lands. This would protect 10.1 percent of the unprotected portion of the Ciervo-Panoche core population area.

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	Conservation of the Ciervo-Panoche core population is an important aspect of recovery for this species, as identified in the recovery plan. In addition, in their Biological Opinion, USFWS stated: "The project could disrupt normal life history patterns of some individual San Joaquin kit foxes within one of the three core populations for San Joaquin kit fox: the Ciervo-Panoche Natural Area (Service 1998). The proposed project would also permanently remove some occupied, optimal habitat in the Ciervo-Panoche Natural Area. The avoidance, minimization, and conservation measures are expected to reduce these effects to the species in the area and minimize adverse effects to recovery efforts. In particular, the project design incorporates a habitat corridor that allows for more site permeability from north to south and allows for movement between lands conserved as part of the proposed project. The corridor is expected to provide a path of suitable habitat for San Joaquin kit fox occupation and movement through the area which will allow for continued function of the Ciervo-Panoche Natural Area. Based on information from similar solar power projects in the Carrizo Plains, the Service concludes that San Joaquin kit fox can persist, at least in the short term, in and around solar arrays. With the protection of lands to the north and south of the project site and the habitat corridor to through the project footprint, the function of the Ciervo-Panoche Natural Area will be maintained and recovery of the species will not be impeded by the proposed project." The comment identifying that monitoring of San Joaquin kit fox on the mitigation lands for solar projects on the Carissa Plain north of Carrizo Plains, documenting 20 percent confirmed mortalities of kit fox, and no evidence of successful reproduction is noted. Based on the presentation provided by the commenters, the 20 percent confirmed mortality was from bobcat predation. The rationale by the commenters that "the additive impact from development undoubtedly affects this highly endangered canid" is not clear, as no evidence has been provided that would lead to the reasonable conclusion that mortality from a bobcat and lack of evidence of reproduction is the result of the off-site construction of a solar facility. The comment identifying that decreases in population have been noticed in the greater Bakersfield area, where an outbreak of sarcoptic mange has negatively impacted the animals, is noted. USACE does not have any information regarding this outbreak, and this comment does not appear to affect the analysis of the effects evaluated in the EIS. USACE appreciates the comment that the Draft EIS identifies 2,508 acres of suitable habitat for San Joaquin kit fox will be permanently impacted by the proposed project and that 2,492 acres of suitable habitat exists on site. The acres have been corrected in **Section 3.6** of the Final EIS.

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H-22	With regards to the comment requesting clarification on how suitable habitat was determined, the determination of habitat suitability for San Joaquin kit fox is described in **Section 3.6** of the EIS. In the Draft EIS, lands between zero and 11 percent slope were considered optimally suitable. Lands with slope over 11 percent were presumed to be less than optimally suitable, with the proportion of lands considered suitable contingent upon the slope value. For example, half of all lands between 11.01 and 21 percent slope were considered suitable, one-quarter of all lands between 21.01 and 35 percent slope were considered suitable, and no lands over 35 percent slope were considered suitable. These classes and proportions are based on results of scat-sniffing dog survey results. However, based on subsequent USFWS input and as stated in the Biological Opinion, only lands between zero and 11 percent slope in an open landscape are considered suitable habitat for San Joaquin kit fox. As a result of this determination, the Final EIS has been revised to state that the proposed project would preserve approximately 10,000 acres of San Joaquin kit fox habitat in the on-site and off-site conservation lands. Overall, the no action (no permit) alternative, Alternative A, and Alternative B would result in permanent adverse effects to between 1,688 and 1,796 acres of suitable habitat for San Joaquin kit fox, and would result in the on-site and off-site preservation of between approximately 10,000 and 11,442 acres of suitable habitat for San Joaquin kit fox on the conservation lands.
H-23	Surveys have been conducted on-site to determine the presence and location of California tiger salamanders, as shown in **Table 3-11** of the Final EIS. Research from Searcy and Schaffer (2011) and Searcy et al. (2013) from the Jepson Prairie Preserve in Solano County has been incorporated into **Section 3.6** of the Final EIS. The Biological Opinion specified a number of conservation measures to protect California tiger salamander, including pre-construction surveys, erecting exclusion fencing within 1.2 miles of breeding ponds, a relocation plan, ceasing work if rain exceeds 0.25 inches within a 24-hour period, and creation of breeding ponds on conservation lands. The Biological Opinion is included as **Appendix G** of the Final EIS. **Section 3.6** of the Final EIS discusses and analyzes the direct and indirect effects of the alternatives on California tiger salamander and analyzes mitigation measures identified in **Appendix C** of the EIS as well as any new measures included in the Biological Opinion (**Appendix G**) and Incidental Take Permit (**Appendix I**). Per the California Tiger Salamander Pre-construction Avoidance and Minimization Plan dated March 2015 and included in **Appendix H**, burrow excavations for the project will be conducted where ground-disturbing activities are proposed in the project footprint out to 700 meters (2,300 feet) from each identified breeding pond. Burrow excavations will be conducted in all areas to be graded (e.g., arrays, roads, buildings, mitigation pond creation, etc.). However, due to uncertainties in regards to the efficacy of the Searcy and Shaffer

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	(2011) model as it relates to California tiger salamander in the Panoche Valley (mostly due to the lack of empirical data to validate the model), salvage and relocation of individuals will be extended an additional 300 meters beyond the 700-meter threshold predicted by the model (i.e., two contiguous 150-meter concentric rings) to 1,000 meters (3,281 feet). If no salamanders are found within the additional 300 meters, no additional burrow excavations will be conducted for the associated breeding pond. However, if salamanders are found within one or more of the 150-meter rings, additional burrow excavation will occur until there have been two contiguous 150-meter rings with no documented occurrences. Burrow excavations will not extend beyond 1,900 meters from any identified California tiger salamander breeding pond (i.e., the distance roughly correlated to the 1,866 meters found by Searcy and Shaffer (2011) to correspond to the 95 percent population threshold at the Jepson Prairie Preserve in Solano County, California). Where burrow excavations for other special status species (e.g., giant kangaroo rat) must be conducted outside of the above criteria, a Project Biologist will be in attendance to salvage and relocate California tiger salamander if any are observed.
H-24	The EIS conservatively assumes a carpool rate of 1.2 passengers per vehicle. While carpooling is not required, the USACE feels it is reasonable to assume some personnel will carpool, especially given the distance between the proposed project site and municipalities where personnel may reside. Carpooling reduces fuel costs and depreciation on car values. It also accounts for workers who may not own an automobile. The USACE agrees that the percentage of workers using a given commuting route should mirror the percentage of workers residing in municipalities along that route. As a result, the Final EIS has been revised to state that 75 percent of workers would commute via State Route 25 and Panoche Road, and 25 percent of workers would commute via Interstate 5 and Little Panoche Road. The analysis in **Section 3.15.3** has been revised to account for these percentages. The estimate of which areas and municipalities workers would be drawn from is based on the best professional judgement of the applicant. Factors including distance to the project site, local and regional population, and employment statistics were used to make this determination. As identified in the EIS, with the additional traffic, both Panoche Road and Little Panoche Road would remain LOS A, and therefore the impacts of the proposed project on traffic would be less than significant. The Draft EIS analyzes the indirect impacts of traffic levels on regional roads expected to be used during construction; these include roads or sections of roads outside of the project area that would be used for deliveries and commuting. Examples include Highway 25, Interstate 5, Panoche Road, and Little Panoche Road. It is not clear what other areas the commenter believe should evaluated,

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	but USACE has determined that evaluating the effects of traffic from further distances would be too attenuated, and would be difficult, if not impossible, to predict. The Traffic Control Plan, of which the Traffic Safety Plan is one component, was approved by San Benito County in 2015. The plan was developed based on state and local traffic ordinances, and in particular it was prepared in accordance with the applicable San Benito County, CA Code of Ordinances, Chapter 17.01 Motor Vehicles and Traffic and Fresno County, CA Code of Ordinances, Title 11 Vehicles and Traffic. It has been included in **Appendix H** of the Final EIS.
H-25	The commenter states that the Draft EIS statement that "equipment deliveries requiring pilot cars are limited to traveling along Little Panoche Road during daylight hours," implies that deliveries not requiring pilot cars will be allowed at night. While there are no mitigation measures restricting the time of day that vehicles can travel to and from the proposed project site, project deliveries are not proposed to occur during nighttime hours. The specific issue of impacts on special status species from project-related traffic was analyzed in **Section 3.6.3** of the Draft EIS and was considered in the USFWS's Biological Opinion (see page 72). Per the Biological Opinion, vehicles would be required to adhere to speed limits to reduce the potential for vehicle strikes. In discussing the effects of construction and operations and maintenance of the project, the USFWS Biological Opinion (**Appendix G**) acknowledges that special status wildlife species may be injured or killed by traffic, including construction-related traffic during the designated hours of construction and during night-time traffic as part of facility operations and maintenance. In order to reduce impacts, San Benito County-required and applicant-proposed measures are included as conditions of approval in the conditional use permit for the proposed project and are considered part of the proposed project. These measures are outlined in the Biological Opinion and discussed in detail in **Section 3.6.3** of the Final EIS.
H-26	The Draft EIS evaluated impacts on hydrology from the proposed project in **Section 3.9**. Additional analysis on hydrological impacts associated with development in the eastern drainages has been added to **Section 3.9.3**, *Alternative A (Applicant's Proposed Project)* in the Final EIS. As discussed in this section, impacts will be mitigated through implementation of the Wetland Mitigation and Monitoring Plan (WMMP). Additionally, the Regional Water Quality Control Board requires all construction projects to comply with Section 402 of the Clean Water Act, which requires the applicant to maintain and implement a Storm Water Pollution Prevention Plan (SWPPP). The SWPPP, which must meet Regional Water Quality Control Board standards, shall implement best management practices to prevent erosion, sedimentation, and siltation of or in aquatic features. Draft versions of these plans have been included in **Appendix H** of the Final EIS.

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H-27	The USACE incorporated all mitigation measures in its analysis of environmental consequences in the Draft EIS. These measures included those listed in **Appendix C**, and other measures listed by the commenter, including several stand-alone plans to monitor and mitigate impacts on specified resources. In some cases, the analysis identifies specific measure(s) in the plan that will mitigate impacts, and the analysis accounts for these measures. In other cases, no specific measures are identified, but a certain level of mitigation is anticipated because the plan would be subject to approval by applicable permitting authorities such as San Benito County and/or the County would approve the qualified individual who would be responsible for developing the plan. Since the availability of the Draft EIS, numerous plans, including several of those listed by the commenter, have been developed, as shown in **Table 1-2** and available plans are included in **Appendix H**. **Section 3.6** of the Final EIS has been updated to incorporate reference to these completed plans.
H-28	The Endangered Species Act directs all federal agencies to work to conserve endangered and threatened species and to use their authorities to further the purposes of the Act. Section 7 of the Act, called "Interagency Cooperation," is the mechanism by which Federal agencies ensure the actions they take, including those they fund or authorize, do not jeopardize the existence of any listed species. The USACE formally consulted with the USFWS for this project. The USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. In its opinion, included as **Appendix G** of this Final EIS, the USFWS concluded that the proposed project analyzed in the Draft EIS was "not likely to jeopardize the continued existence of the giant kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard, and the California tiger salamander." In addition, USFWS concurred with the determination that "the proposed project may affect, but is not likely to adversely affect the California condor, vernal pool tadpole shrimp, Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp." The Incidental Take Statement is included on pages 97-107 of the Biological Opinion. This comment is outside the scope of the EIS; therefore, no changes have been made to the Final EIS.
H-29	The USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. In its opinion, included in **Appendix G** of this Final EIS, the USFWS concluded that the proposed project analyzed in the Draft EIS was "not likely to jeopardize the continued existence of the giant kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard, and the California tiger salamander." The Biological Opinion was issued by the USFWS using the best available science and is supported by the analysis of effects in the Final EIS. Comments on the USFWS's Biological Opinion are outside the scope of the EIS.

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H-30	The USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. In its opinion, included in **Appendix G** of this Final EIS, the USFWS concluded that the proposed project analyzed in the Draft EIS was "not likely to jeopardize the continued existence of the giant kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard, and the California tiger salamander." The Biological Opinion was issued by the USFWS using the best available science and is supported by the analysis of effects in the EIS. Comments on the USFWS's Biological Opinion are outside the scope of the EIS.
H-31	The USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. In its opinion, included in **Appendix G** of this Final EIS, the USFWS concluded that the proposed project analyzed in the Draft EIS was "not likely to jeopardize the continued existence of the giant kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard, and the California tiger salamander." The Biological Opinion was issued by the USFWS using the best available science and is supported by the analysis of effects in the EIS. Comments on the USFWS's Biological Opinion are outside the scope of EIS.
H-32	The USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. In its opinion, included in **Appendix G** of this Final EIS, the USFWS concluded that the proposed project analyzed in the Draft EIS was "not likely to jeopardize the continued existence of the giant kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard, and the California tiger salamander." The Biological Opinion was issued by the USFWS using the best available science and is supported by the analysis of effects in the EIS. Comments on the USFWS's Biological Opinion are outside the scope of the EIS.
H-33	The Biological Opinion was issued by the USFWS using the best available science and is supported by the analysis of effects in the EIS. Comments on the USFWS's Biological Opinion are outside the scope of the EIS.
H-34	The Biological Opinion was issued by the USFWS using the best available science and is supported by the analysis of effects in the EIS. Comments on the USFWS's Biological Opinion are outside the scope of the EIS.
Letter I. Garry George, Audubon Society of California	
I-1	The USACE acknowledges the Audubon Society of California's opposition to the proposed project and that the Panoche Valley attracts a large number of bird species that specialize in grassland ecosystems, and that the area is generally considered high in avian diversity. **Section 3.6.2** of the Final EIS discusses the avian species known to occur on the project site. In addition, statements have been added to **Section 3.6.2**of

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	the Final EIS recognizing the avian diversity of the Panoche Valley and identifying the site as an Important Bird Area. The USACE acknowledges the Audubon Society's previously submitted comments from September 7, 2012, in response to the Notice of Intent to prepare a Draft EIS. All comments received during the scoping process were considered during development of the Draft EIS.
I-2	The Audubon Society's concerns regarding golden eagle are noted. **Section 3.6** of the Draft EIS described golden eagle use and nesting surveys and the availability of foraging habitat on the proposed project site and conservation lands. **Section 3.6.3** of the EIS identifies the effects of the no action (no permit) alternative, Alternative A, and Alternative B on avian species, including golden eagles, which includes the potential for nest abandonment or displacement due to noise, visual impact, or human presence; injury or mortality due to collision with machinery or panels; illness, mortality, or habitat contamination due to spilled substances; injury or mortality due to increases in predator populations; injury or mortality due to ingestion of microtrash; loss of prey base due to habitat conversion; increased foraging opportunities; increased potential for electrocution; and preservation of potential foraging, wintering, or nesting habitat. Therefore, the USACE disagrees with the commenter that the Draft EIS does not evaluate the potential impacts of these alternatives on golden eagle. As described in **Section 3.6**, the proposed project evaluated in the Draft EIS includes numerous avoidance and minimization measures, as well as compensatory mitigation for potential habitat loss; because these measures have been included as conditions of approval by San Benito County, the USACE considers them part of the proposed project under evaluation in the EIS. Per the measures described in detail in **Appendix C** of the EIS, the applicant will conduct preconstruction surveys for nesting and breeding birds, including raptors. Surveys for nesting birds will be conducted within the recognized breeding season in all areas within 500 feet of solar arrays, staging areas, substation sites, and access road locations. Surveys for raptors will be conducted for all areas between February 1 and August 15. If nesting golden eagles are identified, a 0.5-mile no activity buffer will be implemented. The proposed project also avoids the introduction of other hazards (e.g., prey attractants) to reduce the potential for golden eagle harassment, injury, or mortality. The mitigation strategy includes, but is not limited to, siting considerations, panel design, best management practices, incorporation of safety features into appurtenant facilities (e.g., transmission lines), compensatory mitigation, and adaptive management measures. The proposed project could result in an occasional indirect effect on individual eagles during operation; however, those effects are not anticipated to result in take. As identified in the EIS, the USACE has determined that the mitigation measures proposed as part of the no action (no permit) alternative, Alternative A, and Alternative B are sufficient to ensure that impacts on avian species are less than significant and has not identified any additional mitigation measures to further reduce impacts. The applicant is not applying for a take permit, as the golden

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	eagle is a fully protected species under California state law. The applicant has prepared an Avian Conservation Strategy and Eagle Conservation Plan. Both are currently under review by the USFWS Ventura Office and Migratory Bird Office and are included in **Appendix H** in the Final EIS. Any additional measures that may be further adopted through the approval of the Avian Conservation Strategy and Eagle Conservation Plan would be expected to further avoid and minimize impacts on avian species.
I-3	**Section 3.6** of the Draft EIS describes mountain plover status and wintering habitat in the project area. **Section 3.6.3** of the EIS identifies the effects of the no action (no permit) alternative, Alternative A, and Alternative B on avian species, including mountain plover, which are described in the response to Comment I-2. As part of the proposed project evaluated in the EIS, a number of mitigation measures would be implemented to avoid, minimize, or compensate for the loss of high-quality mountain plover wintering habitat on the proposed project footprint. These measures are detailed in **Appendix C** of the EIS and include Mitigation Measures **BR-G.1** through **BR-G.6**, which would ensure that (1) All construction personnel participate in the Worker Environmental Education Program; (2) Best Management Practices (BMPs) for biological resources are implemented; (3) A Habitat Restoration and Revegetation Plan is developed and implemented; (4) Biological construction monitoring is implemented; (5) Conservation easements are created for permanent habitat protection as appropriate; and (6) A Habitat Mitigation and Monitoring and/or Management Plan is developed and implemented for mitigation lands. In addition, as described above, an Avian Conservation Strategy has been developed and would be implemented consistent with Mitigation Measure **BR-14.2**. As described in **Section 3.6.4** of the EIS, while the proposed project would provide for an incremental increase in cumulative effects to vegetation, wildlife, and special status species, the proposed preservation of 25,618 acres of conservation lands would remove the potential for future habitat loss in the area. A statement has been added to **Section 3.6.4** of the Final EIS identifying that the Panoche Valley can contain up to five percent of the global population of mountain plover in a given year. With the mitigation measures proposed as part of the no action (no permit) alternative, Alternative A, and Alternative B, as well as the permanent preservation of on-site and off-site conservation lands, the USACE has determined that the individual and cumulative effect to avian species, including mountain plover, is less than significant.
I-4	**Section 3.6** of the Draft EIS describes tricolored blackbird foraging habitat on the proposed project site and nesting colonies on off-site conservation lands and in the surrounding area. Tricolored blackbird received temporary protection as endangered under the California Endangered Species Act, but those protections expired as of June 2015. On December 10, 2015, the California Fish and Game Commission designated this species as a Candidate for listing under the California Endangered Species Act, which extends the act's protections to this species until a final listing decision is made. **Section 3.6** of the Final EIS has been updated to reflect this. The USACE has

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	determined that the change in legal designation does not affect the analysis of the effects to the species provided in the EIS. An attempt to isolate drought-induced effects on local populations of special status species within the Panoche Valley would require speculation; therefore, an analysis of drought-induced effects is not included within this document. Furthermore, a key focus of the conservation strategy for the project is maintaining intact habitat supporting known populations of special status species, allowing the species to adapt to future climate conditions, and providing future options for conservation in light of the uncertainty associated with climate change predictions. As described in **Section 3.6.4**, while the proposed project would provide for an incremental increase in cumulative effects to vegetation, wildlife, and special status species, the proposed preservation of 25,618 acres of conservation lands would remove the potential for future habitat loss.
I-5	The Audubon Society's comment, while noted, is outside the scope of this EIS. Per the Endangered Species Act, Section 7 and Section 10 provide mechanisms for equally rigorous protection of listed species. The scope of analysis under NEPA and the action area for consultation under Section 7 of the Endangered Species Act is determined by USACE on a case-by-case basis and is dependent upon a variety of factors. For the proposed project, USACE used existing regulations at 33 CFR 325, Appendix B in the determination of the scope of analysis under NEPA, and Section 7 regulations at 50 CFR 402 for the determination of action area for compliance with Section 7 of the Endangered Species Act.
INDIVIDUALS	
Letter J. William "Tim" Bean	
J-1	The commenter's opinion that the proposed project would have substantial and unmitigable impacts on the giant kangaroo rat is noted. The USACE will take this into consideration when making a final decision on permit issuance for the proposed project. As described in response to Comment A-4, the USFWS issued its Biological Opinion on the applicant's proposed project on October 5, 2015. In its opinion, included in **Appendix G** of this Final EIS, the USFWS concluded that the proposed project analyzed in the Draft EIS was "not likely to jeopardize the continued existence of the giant kangaroo rat..." Applicant-proposed measure BIO-5 (**Table 2-14** and **Table C-1** in the Draft and Final EISs) states that "mitigation measures that will be developed during the consultation period under Section 7 of the Endangered Species Act will be adhered to as specified in the Biological Opinion of the US Fish and Wildlife Service." The USFWS's October 5, 2015, Biological Opinion includes reasonable and prudent measures, terms and conditions to implement these measures, and reporting requirements, including measures pertaining to giant kangaroo rat. If the USACE decides to issue a permit for the applicant's proposed project, compliance with the USFWS's Biological Opinion and

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	the measures contained therein will be required as a condition of the Section 404 permit. These measures, as outlined in the Biological Opinion, have been added to the giant kangaroo rat impact analysis in **Section 3.6.3** of the Final EIS. As described in **Section 1.3** of the Final EIS, additional changes to the applicant's proposed project have been made since the Draft EIS was published. Through negotiations with CDFW, the applicant identified additional giant kangaroo rat avoidance areas and further reduced the project footprint from 2,506 acres to 2,154 acres. This reduction includes converting permanent impact areas into an additional giant kangaroo rat avoidance corridor on the east side of the project equivalent to approximately 95 acres (East Side GKR Corridor). The East Side GKR Corridor includes a north arm that is approximately 700 feet wide by 2,200 feet long and a south arm that is approximately 550 feet wide by 2,200 feet long. The two arms are connected by a north-south corridor that is approximately 600 feet wide by 2,100 feet along the east side of the project footprint. An additional north-south giant kangaroo rat corridor has been located along Little Panoche Road through the northern solar array block. This corridor is 200 feet wide from the centerline of the road, or approximately 80 feet from the edge of pavement on the east and west sides, equivalent to approximately 13 acres. In addition to giant kangaroo rat avoidance corridors, several areas of proposed temporary impacts would be avoided and converted into additional conservation lands. These include areas in the vicinity of known and historic California tiger salamander ponds in the northwestern portion of the project site. Overall, the project footprint was reduced by 352 acres from the project analyzed in the Draft EIS. An additional approximately 93 acres of land within the two temporary laydown yards would also be converted to conservation land after construction is complete, yielding a total of approximately 442 acres of additional conservation land beyond what was identified in the Draft EIS. Impacts on giant kangaroo rats are estimated to have decreased from 285 cells to 114 cells. These revisions to the proposed project have been reflected throughout the Final EIS.
J-2	**Section 3.6** of the Final EIS has revised the citation from Bean et al. 2012 to clarify that burrow counts are adequate to determine relative abundance over the long term. The method used in giant kangaroo rat surveys at the project site was not via counting active precincts. A full coverage survey of the project area for giant kangaroo rats was conducted and a systematic stratified sampling effort was completed on the conservation lands and on the project footprint. The surveys were intended to provide population estimates as a snapshot in time. Field surveys used a grid sampling system to evaluate for the presence of giant kangaroo rat sign. Burrow precincts were considered occupied based on presence of scat, tracks, tail-drags, pit caches, fresh excavations, and cropped vegetation around suitably sized burrow openings. Precincts that did not appear to be occupied were also identified and

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	mapped as inactive. Within the project area and Valley Floor Conservation Land, the surveyed grid accounted for full coverage plus a 500-foot buffer (in areas where landowner access was granted). Of the 16,775 total survey grid cells located within the project footprint and the 500-foot buffer study area, approximately 13,825 survey grid cells were able to be evaluated. The applicant assumed that both inactive and active cells were occupied, resulting in a potential density of 8 giant kangaroo rats per acre. This figure was applied to the giant kangaroo count that was used to design the mitigation measures described in **Tables C-1** and **C-2** of **Appendix C** in the Draft and Final EIS. The survey methodology that was implemented to estimate population size was discussed with CDFW and was provided to USFWS prior to start of the survey.
J-3	Giant kangaroo rat numbers are variable and as the comment indicates, the species' numbers appear to have negative correlation to both low and high rainfall. An attempt to isolate drought-induced effects on local populations of special status species within the Panoche Valley in the EIS would be speculative. The survey data collected for the site over multiple years demonstrate that an adequate biological baseline was established for purposes of the analysis in the Draft EIS. Furthermore, a key focus of the conservation strategy for the proposed project is maintaining intact habitat supporting known populations of giant kangaroo rats and other special status species, including providing corridors through the project footprint to suitable habitat to the north and south, in order to maintain connectivity and allow the species to adapt to climatic variation.
J-4	The USFWS Biological Opinion concluded that the project was not likely to jeopardize the continued existence of the giant kangaroo rat. The USFWS concluded that effects on reproduction and population size were likely to be minimal and to be offset in subsequent breeding cycles. Although the development of the project footprint would alter the dynamics of the giant kangaroo rat metapopulation, in the USFWS's opinion, the dynamics would not be altered so much that metapopulation function would be threatened. As described in response to Comment J-1, the applicant is setting aside an additional 442 acres of on-site lands on the valley floor specifically to maintain giant kangaroo rat populations in Panoche Valley and reduce the number of giant kangaroo rats to be relocated. With the adjustments in the project footprint, 94 active and 22 inactive giant kangaroo rat cells would be impacted, a reduction from 197 active and 88 inactive cells in the previous project footprint. These changes would further reduce the overall impact to giant kangaroo rats and lessen the chance of irreversibly altering metapopulation dynamics. The USACE disagrees that the cumulative impact analysis underestimates the value of the proposed project site or overestimates the value of the conservation lands. The analysis of effects for the no action (no permit) alternative, Alternative A, and Alternative B identifies that there would be adverse effects from the

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	proposed action, including habitat loss. However, the USACE believes that the mitigation measures incorporated as part of the no action (no permit) alternative, Alternative A, and Alternative B, plus the preservation of between 16,576 and 18,018 acres of suitable habitat in the on-site and off-site conservation lands, is sufficient to ensure that the impacts are less than significant.
J-5	**Section 3.6** of the Final EIS has been amended to state that the success of translocation efforts for giant kangaroo rats is uncertain. As stated in the USFWS's Biological Opinion, "Survivorship of translocated wildlife, in general, is reduced due to intraspecific competition, lack of familiarity with the location of potential breeding, feeding, and sheltering habitats, and increased risk of predation." The Giant Kangaroo Rat Relocation Plan for the site will include long-term monitoring to better understand giant kangaroo rat population trends and populations estimated once individuals are relocated outside of the project footprint; the Giant Kangaroo Rat Relocation Plan, currently in draft form, is included in **Appendix H** of the Final EIS. As described in response to the comment above, the project footprint has been revised under Alternatives A and B to reduce impacts on giant kangaroo rats on the valley floor. As such, the number of active cells that will be impacted has been reduced from 197 to 94, and the number of inactive cells from 88 to 22. The revised project footprint maintains a giant kangaroo rat population within the on-site conservation lands that can help sustain the giant kangaroo rat metapopulation of the region, even in the absence of successful establishment of the translocated population.
J-6	**Section 3.6** of the Final EIS has revised the citation from Bean et al. 2012 to clarify that burrow counts are adequate to determine relative abundance over the long term. The method used in giant kangaroo rat surveys at the project site was not via counting active precincts. A full coverage survey of the project area for giant kangaroo rats was conducted and a systematic stratified sampling effort was completed on the conservation lands and on the project footprint. Field surveys used a grid sampling system to evaluate for the presence of giant kangaroo rat sign. Burrow precincts were considered occupied based on presence of scat, tracks, tail-drags, pit caches, fresh excavations, and cropped vegetation around suitably sized burrow openings. Precincts that did not appear to be occupied were also identified and mapped as inactive. Within the project area and Valley Floor Conservation Lands, the surveyed grid accounted for full coverage plus a 500-foot buffer (in areas where landowner access was granted). Of the 16,775 total survey grid cells located within the project footprint and the 500-foot buffer study area, approximately 13,825 survey grid cells were able to be evaluated. The survey methodology that was implemented to estimate population size was discussed with CDFW and was provided to USFWS prior to the start of the survey.

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	The USACE acknowledges that these are estimates, and that the actual number of giant kangaroo rats on the project site may be less than or greater than the estimate provided in the EIS. However, these estimates were made using the best available science.
J-7	Giant kangaroo rat numbers are variable and as the comment indicates, the species' numbers appear to have negative correlation to both low and high rainfall. An attempt to isolate drought-induced effects on local populations of special status species within the Panoche Valley would require extensive study. The survey data collected for the site over multiple years demonstrate that an adequate biological baseline was established for purposes of the analysis in the Draft EIS. Furthermore, a key focus of the conservation strategy for the project is maintaining intact habitat supporting known populations of giant kangaroo rats and other special status species, including providing corridors through the project footprint to suitable habitat to the north and south, in order to maintain connectivity and allow the species to adapt to climatic variation. The USFWS Biological Opinion concluded that the project was not likely to jeopardize the continued existence of the giant kangaroo rat. The USFWS concluded that effects on reproduction and population size were likely to be minimal and to be offset in subsequent breeding cycles. Although the development of the project footprint would alter the dynamics of the giant kangaroo rat metapopulation, in the USFWS's opinion, the dynamics would not be altered so much that metapopulation function would be threatened. The project is setting aside an additional 442 acres of land specifically to maintain giant kangaroo rat populations in Panoche Valley and reduce the number of giant kangaroo rats to be relocated. With the adjustments in the project footprint, 94 active and 22 inactive giant kangaroo rat cells would be impacted, a reduction from 197 active and 88 inactive cells in the previous project footprint analyzed in the Draft EIS. These changes will further reduce the overall impact to giant kangaroo rats and lessen the chance of irreversibly altering metapopulation dynamics.
J-8	**Section 3.6** of the Final EIS has been amended to state that the success of translocation efforts for giant kangaroo rats is uncertain. The USFWS Biological Opinion acknowledges the risks associated with translocation: "Survivorship of translocated wildlife, in general, is reduced due to intraspecific competition, lack of familiarity with the location of potential breeding, feeding, and sheltering habitats, and increased risk of predation." The Giant Kangaroo Rat Relocation Plan for the site will include long-term monitoring to better understand giant kangaroo rat population trends and populations estimated once individuals are relocated outside of the project footprint. Since the Draft EIS was published, the project footprint has been revised to reduce impacts on giant kangaroo rats, as described in response to Comment J-1. Under the

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	currently proposed project, the number of active cells that will be impacted has been reduced from 197 to 94, and the number of inactive cells from 88 to 22. The revised project footprint maintains a giant kangaroo rat population on the Valley Floor Conservation Lands that can help sustain the giant kangaroo rat metapopulation of the region, even in the absence of successful establishment of the translocated population.
J-9	The commenter's conclusions are noted. The USACE will take this into consideration when making a final decision on permit issuance for the proposed project. Impacts to giant kangaroo rat are analyzed in **Section 3.6** of the Final EIS, and changes made to the Draft EIS are described in the response to comment J-1 above.
Letter K. Genesis Garcia	
K-1	The commenter's support of the project is noted.
Letter L. Pat McCullough	
L-1	The commenter's support of the project is noted.
Letter M. Daniela Salazar	
M-1	The commenter's support of the project is noted.
Letter N. Al Sciocchetti	
N-1	The commenter's support of the project is noted.
Letter O. Constance Vigno	
O-1	The USACE is evaluating an application by Panoche Valley Solar LLC to construct the proposed project evaluated in the EIS. A decision on whether to issue the permit, issue the permit with modification, or deny the permit will be made after completion of the Final EIS. USACE will publish its decision in the Record of Decision for this action. **Section 3.6.2** of the Final EIS has been updated as follows to indicate that the Panoche Valley is considered an Important Bird Area as follows: *Birds* <u>Records from birding databases indicate that approximately 210 bird species have been recorded in Panoche Valley (Avian Knowledge Network 2009; National Audubon Society 2002). The Panoche Valley is a globally Important Bird Area (National Audubon Society 2013).</u> Both resident and migratory birds, particularly raptors and grain-eating birds, use the project site as foraging habitat. Resident and migratory birds adapted to ground-nesting also likely use the project site for nesting during the breeding season. Raptors observed on the project and valley floor included red-tailed hawk (*Buteo jamacensis*), northern harrier (*Circus cyaneus*), prairie falcon (*Falco mexicanus*), American kestrel (*F. sparverius*), and turkey vulture (*Cathartes aura*; Live Oak Associates 2009a). Other raptors that may forage on-site are white-tailed kite

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	(*Elanus leucurus*), ferruginous hawk (*Buteo regalis*), Swainson's hawk (*B. swainsoni*), and golden eagle (*Aquila chrysaetos*).
O-2	The commenter's opposition to the project is noted. In its biological opinion, included in **Appendix G** of this Final EIS, the USFWS concluded that the proposed project analyzed in the Draft EIS was "not likely to jeopardize the continued existence of the giant kangaroo rat, San Joaquin kit fox, blunt-nosed leopard lizard, and the California tiger salamander." In addition, the USFWS concurred with the determination that "the proposed project may affect, but is not likely to adversely affect the California condor, vernal pool tadpole shrimp, Conservancy fairy shrimp, longhorn fairy shrimp, and vernal pool fairy shrimp."
O-3	The commenter's opposition to the project is noted.
Letter P. Barry Sinervo, PhD	
P-1	Please see response to Comment G1-6 and Comment H-20.
Transcript (T). October 6, 2015 Public Meeting	
T-1. Martin Richman	
T-1	The commenter's support of the project is noted.
T-2. Bob Tiffany	
T-2	The commenter's support of the project is noted.
T-3. Emery Smith	
T-3	The commenter's support of the project is noted.
T-4. Paul Rovella	
T-4	The commenter's support of the project is noted.
T-5. Robert Rodriguez	
T-5	The commenter's support of the project is noted.
T-6. Jose Luis De La Rosa	
T-6	The commenter's support of the project is noted.
T-7. Salvador Melchor Serrano	
T-7	The commenter's support of the project is noted.
T-8. Jose Velasco	
T-8	The commenter's support of the project is noted.
T-9. Nelson Serrano	
T-9	The commenter's support of the project is noted.

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T-10. Enos Innocente	
T-10	The commenter's support of the project is noted.
T-11. Carlos Luis Gallegos	
T-11	The commenter's support of the project is noted.
T-12. Daniela Salazar	
T-12	The commenter's support of the project is noted.
T-13. Genesis Garcia	
T-13	The commenter's support of the project is noted.
T-14. Jose Julio Flores	
T-14	The commenter's support of the project is noted.
T-15. Leslie Curiel	
T-15	The commenter's support of the project is noted.
T-16. John W. Eade	
T-16	The commenter's support of the project is noted.
T-17. Carlos Vargas	
T-17	The commenter's support of the project is noted.
T-18. Sergio Sanchez	
T-18	The commenter's support of the project is noted.
T-19. Marcos Coviel	
T-19	The commenter's support of the project is noted.

Reference Recommended	Response
Audubon California, Defenders of Wildlife, Santa Clara Audubon Society, and the Sierra Club. 2015. Letter to Edward Randolph, CPUC Energy Division, regarding comments on draft proposed Resolution E-4707 approving Southern California Edison Advice Letter 3119-E. February 23, 2015.	Type of reference: Letter Summary: This letter expresses the groups' concern of the viability of the Panoche Valley Solar Project and its benefits to SCE customers. The letter includes comments from CDFW, which the commenters say reinforce the likelihood that the project is not viable, raise issues that the project could meet the terms of the PPA, and indicate that the project will violate environmental laws. Reference cited in FEIS? No. Letter does not contain any new information that was not already considered in the DEIS regarding biological or other resources that could be incorporated into the project design, environmental baseline, or impacts analysis.
Avian Knowledge Network. 2009. Avian Knowledge Network: An online database of bird distribution and abundance [web application]. Ithaca, New York. Available: <www.avianknowledge.net>. (Accessed: Date [e.g., February 2, 2009]).	Type of reference: Website Summary: This is a website database of avian observational data. The Avian Knowledge Network is a partnership of people, institutions and government agencies supporting the conservation of birds and their habitats based on data, the adaptive management paradigm, and the best available science. Reference cited in FEIS? Yes. The following language was inserted in Section 3.6.2: "Records from birding databases indicate that approximately 210 bird species have been recorded in Panoche Valley (Avian Knowledge Network 2009; National Audubon Society 2002)." The reference does not change the analysis in the EIS.
Bean, W. 2015. Letter to Lisa Gibson, US Army Corps of Engineers on the Panoche Valley Solar Facility (October 26, 2015).	Type of reference: Letter Summary: Commenter is a local expert on giant kangaroo rat. The letter expresses the commenter's concerns regarding potential impacts on giant kangaroo rat. Reference cited in FEIS? Yes. Reference was used to update the environmental baseline and impacts analysis for giant kangaroo rat, as outlined in response to Comments J-1 through J-9. Additionally, references provided by commenter were reviewed and incorporated into the FEIS as applicable. This letter was submitted to USACE separately and is responded to in response to Comments J-1 through J-9.

Reference Recommended	Response
Bean, W. 2015. Population Genetics and Monitoring of the Giant Kangaroo Rat 2014 Comprehensive Project Report. 23 pgs.	Type of reference: Report Summary: Report by a local expert on giant kangaroo rat. This is an annual report (2014) for an ongoing giant kangaroo rat monitoring project in the Ciervo-Panoche region. Objectives of the project include estimating giant kangaroo rat density, occupancy, and connectivity in the Ciervo-Panoche region, as well as developing population monitoring guidelines. Reference cited in FEIS? Yes. The following language was inserted in Section 3.6.2: "Independent researchers found fewer giant kangaroo rats in 2013 and 2014 within the Ciervo-Panoche Natural Area than in previous years. This may potentially be due to drought, particularly in the southern portion of the Ciervo-Panoche Natural Area, which is drier than northern areas (Bean 2013, 2015)." The reference does not change the analysis in the EIS.
Bean, W. T. 2013. Population genetics and monitoring of the giant kangaroo rat. Comprehensive Annual Project Report.	Type of reference: Report Summary: Report by a local expert on giant kangaroo rat. This is an annual report (2013) for an ongoing giant kangaroo rat monitoring project in the Ciervo-Panoche region. Objectives of the project include estimating giant kangaroo rat density, occupancy, and connectivity in the Ciervo-Panoche region, as well as developing population monitoring guidelines. Reference cited in FEIS? Yes. The following language was inserted in Section 3.6.2: "Independent researchers found fewer giant kangaroo rats in 2013 and 2014 within the Ciervo-Panoche Natural Area than in previous years. This may potentially be due to drought, particularly in the southern portion of the Ciervo-Panoche Natural Area, which is drier than northern areas (Bean 2013, 2015)." The reference does not change the analysis in the EIS.
Bean, W. T., J. Brashares, L. Prugh, H. S. Butterfield, L. Saslaw, and R. Stafford. Towards an easy and inexpensive method for monitoring giant kangaroo rats in Carrizo Plain National Monument. San Joaquin Natural Communities Conference, Bakersfield, CA, March 2010.	Type of reference: Presentation Summary: Reference was not publically available for review by USACE and was not provided to USACE; therefore, a summary cannot be provided. However, the title indicates that it contains information on possible methods for monitoring giant kangaroo rat. Reference cited in FEIS? No. This reference was unavailable for review, so USACE cannot determine if it contains any information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis.

Reference Recommended	Response
Bean, W. T., L. Prugh, J. Brashares, S. Butterfield, and R. Stafford. An evaluation of monitoring methods for giant kangaroo rats at multiple scales. Sam Joaquin Valley Natural Communities Conference. Bakersfield, CA. March, 2011	Type of reference: Presentation Summary: Comparison of several monitoring methods for giant kangaroo rat to determine best practices for monitoring. Study carried out in Carrizo Plain National Monument between 2007 and 2011. Reference cited in FEIS? No. Information in this presentation was subsequently published (*Bean, W.T., R. Stafford, L.R. Prugh, H.S. Butterfield, and J.S. Brashares. 2012. An evaluation of monitoring methods for the endangered giant kangaroo rat. Wildlife Society Bulletin 36:587-593*) and information from the published reference was incorporated into the FEIS as described below.
Bean, W. T., L. R. Prugh, R. Stafford, H. S. Butterfield, M. Westphal, and J.S. Brashares. 2014. Species distribution models of an endangered rodent offer conflicting measures of habitat quality at multiple scales. Journal of Applied Ecology 51:1116-1125.	Type of reference: Journal article Summary: Species distribution models (SDMs) are increasingly used to estimate species' ranges, with an implicit assumption that areas of high suitability will result in higher probability of persistence. This assumption underlies efforts to use SDMs to design protected areas, assess the status of cryptic species or manage responses to climate change. Recent tests of this relationship have provided mixed results, suggesting SDMs may predict abundance but not other measures of high-quality habitat (e.g., survival, persistence). In this study, the researchers created a suite of SDMs for the endangered giant kangaroo rat and compared these models with three measures of habitat quality: survival, abundance and body condition. Species distribution models were not correlated with survival, while models at all scales were positively correlated with abundance. Reference cited in FEIS? Yes. The following language was inserted in Section 3.6.2: "Habitat suitability models have been positively correlated with species abundance, but may be constrained by environmental conditions such as precipitation (Bean et al. 2014a; Bean et al. 2014b)." The reference does not change the analysis in the EIS.
Bean, W. T., R. Stafford, H. S. Butterfield, and J. S. Brashares. 2014. A multi-scale distribution model for nonequilibrium populations suggests resource limitation in an endangered rodent. PLoS ONE 9(9): e106638.doi: 10.1371/journal.pone.0106638.	Type of reference: Journal article Summary: Authors present an approach to estimate the realized and potential distribution of the endangered giant kangaroo rat using species distribution models. The authors improved the predictive ability of the models, as well as revealed an unanticipated relationship between population extent and precipitation at multiple scales. Reference cited in FEIS? Yes. The following language was inserted in Section 3.6.2: "Habitat suitability models have been positively correlated with species abundance, but may be constrained by environmental conditions such as precipitation (Bean et al. 2014a; Bean et al. 2014b)." The reference does not change the analysis in the EIS.

Reference Recommended	Response
Bean, W. T., R. Stafford, H. S. Butterfield, and J. S. Brashares. Following the food: incorporating spatial and temporal resource availability in species distribution models. North America Congress for Conservation Biology Annual Meeting, Oakland, CA, July 2012.	Type of reference: Presentation (Peer-reviewed abstract) Summary: The researchers used distribution data collected over the course of a decade for the endangered giant kangaroo rat in Carrizo Plain National Monument, California, to create a distribution model that incorporated both spatial and temporal variability of resource availability. Reference cited in FEIS? No. Reference did not provide new information not already discussed in other published literature from Bean. However, concepts from the presentation were incorporated in the FEIS based on Bean's subsequently published literature about habitat suitability models.
Bean, W. T., R. Stafford, L. R. Prugh, H. S. Butterfield, and J. S. Brashares. 2012. An evaluation of monitoring methods for the endangered giant kangaroo rat. Wildlife Society Bulletin 36:587-593.	Type of reference: Journal article Summary: Comparison of several monitoring methods for giant kangaroo rat to determine best practices for monitoring. Study carried out in Carrizo Plain National Monument between 2007 and 2011. Reference cited in FEIS? Yes. The following edits were made to Section 3.6.2: "~~Burrow counts were adequate to determine relative abundance, but were not reliable as an estimate of annual population size or growth~~Active burrow counts appear to be a reliable method for determining long-term, relative abundance, but may not be adequate to assess population size or change over time (Bean et al. 2012)." The reference does not change the analysis in the EIS.
Brashares, J., L. Prugh, J. Bartolome, B. Allen-Diaz, L. Saslaw, H. S. Butterfield and R. Stafford. Interactive effects of native rodents and cattle on the restoration of California rangelands. Society for Range Management Annual Conference, Denver, CO, February 2010.	Type of reference: Presentation Summary: Reference was not publically available for review by USACE and was not provided to USACE; therefore, a summary cannot be provided. Reference cited in FEIS? No. This reference is unavailable for review, so USACE cannot determine if it contains any information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis.
Brashares, J., L. Prugh, S. Butterfield, L. Saslaw, R. Stafford, B. Allen-Diaz, and J. Bartolome. Direct and indirect effects of rodents and cattle on invasive plants in a California grassland ecosystem. USDA-AFRI Annual Conference. Washington, DC, July 2011.	Type of reference: Presentation Summary: Reference was not publically available for review by USACE and was not provided to USACE; therefore, a summary cannot be provided. Reference cited in FEIS? No. This reference is unavailable for review, so USACE cannot determine if it contains any information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis.

Reference Recommended	Response
Brown, G. M., and J. F. Shogren. 1998. Economics of the Endangered Species Act. The Journal of Economic Perspectives 12:3-20.	Type of reference: Journal article Summary: A summary of the economic costs and benefits of the Endangered Species Act. Reference cited in FEIS? No. In his comment letter on the DEIS (see response to comments Letter J), Bean states that: "Recovery of endangered species provides enormous political and economic benefits (Brown and Shogren 1998)." However, the citation does not appear relevant for inclusion in the EIS as it would not enhance or strengthen the environmental baseline or impact analysis. In his letter, Bean does not state or imply that this reference should be included.
Butterfield, H. S., D. Cameron, E. Brand, M. Webb, E. Forsburg, M. Kramer, E. O'Donoghue, and L. Crane. 2013. Western San Joaquin Valley least conflict solar assessment. Unpublished report. The Nature Conservancy, San Francisco	Type of reference: Report Summary: The objective of this assessment is to characterize the land use and conservation constraints and opportunities associated with siting solar energy facilities in the Western San Joaquin Valley. This approach identifies areas with high conservation value that are important to avoid when planning energy infrastructure, as well as areas of lower environmental conflict potentially suitable for development. Reference cited in FEIS? No. Report was provided by the commenter to identify locations they believe are the most appropriate for solar facilities. USACE acknowledges receipt of this report. The EIS acknowledges that there may be direct and indirect impacts to the human environment from the proposed solar development. The USACE is evaluating alternatives to the proposed action for compliance with Section 404(b)(1) Guidelines. However, this report does not provide additional information applicable to the EIS.
CAISO 2013/14 Final Transmission Plan, Board Approved July 16, 2014.	Type of reference: Report Summary: The objective of this assessment is to characterize the land use and conservation constraints and opportunities associated with siting solar energy facilities in the Western San Joaquin Valley. This approach identifies areas with high conservation value that are important to avoid when planning energy infrastructure, as well as areas of lower environmental conflict potentially suitable for development. Reference cited in FEIS? No. Report provided by the commenter to identify locations they believe are the most appropriate for solar facilities. USACE acknowledges receipt of this report. The EIS acknowledges that there may be direct and indirect impacts to the human environment from the proposed solar development. The USACE is evaluating alternatives to the proposed action for compliance with Section 404(b)(1) Guidelines. However, this report does not provide additional information applicable to the EIS.

Reference Recommended	Response
CDFW. 2010. Letter to Eric Cherniss, Solargen Energy, Inc. regarding recommendations on surveying for and avoiding blunt-nosed leopard lizard (Gambelia sila) at the proposed Panoche Valley Solar Farm in San Benito County, California. July 8, 2010.	Type of reference: Letter Summary: The letter addresses the pre-project survey methods and avoidance through project design. Reference cited in FEIS? No. The letter provides pre-project survey methods and avoidance recommendations. The letter does not provide new information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis. USACE acknowledges receipt of this letter. The applicant has worked with CDFW to receive authorization for the Applicant's Preferred Alternative in the Department's Incidental Take Permit (No. 2081-2014-035-04) issued November 20, 2015.
CDFW. 2014. Letter to the chief of the Hollister Fire Department regarding fire code requirements and access to the proposed Panoche Valley Solar Farm. September 22, 2014.	Type of reference: Letter Summary: The letter addresses fire code requirements and emergency access to the project. Reference cited in FEIS? No. The letter does not provide information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis. USACE acknowledges receipt of this letter. The applicant has worked with CDFW to receive authorization for the Applicant's Preferred Alternative in the Department's Incidental Take Permit (No. 2081-2014-035-04) issued November 20, 2015.
CDFW. 2015. Letter to Michael Krausie, Aspen Environmental Group, regarding the Panoche Valley Solar Project Draft Supplemental Environmental Impact Report. February 2, 2015.	Type of reference: Letter Summary: The letter provides comments on the Draft Supplemental Environmental Impact Report prepared by San Benito County. Reference cited in FEIS? Yes. The USACE acknowledges receipt of this reference. The applicant has worked with CDFW to make revisions to the project description, and receive authorization for the Applicant's Preferred Alternative in the Department's Incidental Take Permit (No. 2081-2014-035-04) issued November 20, 2015.
Cooper, L. D., and J. A. Randall. 2007. Seasonal changes in home ranges of the giant kangaroo rat (Dipodomys ingens): a study of flexible social structure. Journal of Mammalogy 88:1000-1008.	Type of reference: Journal article Summary: To characterize the social system and mating strategies of an endangered species, the giant kangaroo rat (Dipodomys ingens), the authors compared home ranges of males and females during the breeding and nonbreeding seasons using radiotelemetry. Reference cited in FEIS? Yes. The following language was inserted in Section 3.6.2: "The number of giant kangaroo rats occurring within the revised Alternative A project footprint is estimated to range from 343 to 521 or more (San Benito County 2015; Cooper and Randal 2007)." The reference does not change the analysis in the EIS.

Reference Recommended	Response
Cowan et al. Documentation for habitat suitability modeling	Type of reference: Datasets and modeling notes Summary: Datasets and documentation for Wildlight Report planning tool, described in next row. Reference cited in FEIS? No. USACE considered the Wildlight Report planning tool and determined that no changes to the FEIS were warranted. See response to Comment G1-5 for additional responses to the comment provided related to this reference.
Cowan, J.; Gwin, A.; Pearce, D.; Wesolowski, G.; Young, S. 2014. Wild Light: San Joaquin Valley Landscape Level Planning for Solar and Conservation. http://www.bren.ucsb.edu/research/2015Group_Projects/documents/WildLight_Final_PaperCopy.pdf	Type of reference: Report/Master's Thesis Summary: The goal of the San Joaquin Valley (SJV) Landscape-Scale Planning for Solar Energy and Conservation analysis (WildLight) is to identify appropriate areas for photovoltaic solar development within the SJV. A secondary goal of the analysis is to identify high value conservation lands within the SJV that can targeted for protection and serve as mitigation areas for the construction of solar developments. Data from the major stakeholder groups in the region are used to generate a spatial model identifying and highlighting the most compatible areas for utility-scale solar development. Reference cited in FEIS? No. Report provided by the commenter to identify locations they believe are the most appropriate for solar facilities. USACE acknowledges receipt of this report. The EIS acknowledges that there may be direct and indirect impacts to the human environment from the proposed solar development. The USACE is evaluating alternatives to the proposed action for compliance with Section 404(b)(1) Guidelines. However, this report does not provide additional information applicable to the EIS. See response to Comment G1-5 for additional responses to the comment provided related to this reference.
Cowan, J.; Gwin, A.; Pearce, D.; Wesolowski, G.; Young, S. 2015. Wild Light: San Joaquin Valley Landscape Level Planning for Solar and Conservation.	This reference is a finalized version of the Cowan et al. 2014 report, above. See the response above.
CPUC Approval of PPA in the Panoche Valley Discussion. March 12, 2015.	Type of reference: Transcript Summary: A transcript of the March 12, 2015 CPUC meeting discussing approval of the project PPA. Reference cited in FEIS? No. The transcript does not appear relevant for inclusion in the EIS as it would not enhance or strengthen the environmental baseline or impact analysis. See response to Comment H-12 for additional responses to the comment provided related to this reference.

Reference Recommended	Response
CPUC CEQA First Friday Forum PowerPoint, April 6, 2012.	Type of reference: Presentation Summary: Overview of CPUC CEQA Energy Division role and responsibilities, including several project case studies. Reference cited in FEIS? No. USACE considered this reference and determined that it does not contain any information that could be incorporated into the project design, environmental baseline, or impacts analysis. See response to Comment H-16 for additional responses to the comment provided related to this reference.
CPUC. 2015. Letter to Byron Turner, Director, Planning and Building Department for the County of San Benito and Charlton Bonham, Director, California Department of Fish and Wildlife regarding the Panoche Valley Solar Project. April 2, 2015.	Type of reference: Letter Summary: Letter from Commissioner Peterman, CPUC, stating that her vote to approve the PPA "should not be interpreted as adding any additional pressure" on the agencies' environmental review, as originally stated by Commissioner Peterman during the March 12, 2015 CPUC meeting discussing approval of the project PPA and referenced above. Reference cited in FEIS? No. The letter is not relevant for inclusion in the EIS as it would not enhance or strengthen the environmental baseline or impact analysis. See response to Comment H-12 for additional responses related to this reference.
Cypher B. L, S. E. Phillips and P. A. Kelly 2013. Quantity and Distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. Canid Biology and Conservation 16(7); 25-31	Type of reference: Journal article Summary: To identify lands to target for habitat protection, the authors used a GIS-based map-algebra model to determine the distribution of remaining suitable habitat for San Joaquin kit foxes. The primary variables used in the model included land use/land cover, vegetation density, and terrain ruggedness. Suitability was categorized as high, medium, or low, based on habitat attributes relative to the presence and persistence of kit fox populations. Reference cited in FEIS? Yes. The following language was inserted in Section 3.6.2: "Optimal habitat for San Joaquin kit fox includes arid habitats with relatively low ~~grassland vegetation~~cover of herbaceous vegetation (Cypher et al. 2013)." The reference does not change the analysis in the EIS. Additionally, the DEIS contains multiple references to the Habitat Management Plan, including under Mitigation Measures BR-G.6, which references Cypher et al. (2013) when discussing life history requirements for San Joaquin kit fox.

Reference Recommended	Response
Cypher, B and C. Fiehler 2013. San Joaquin Kit Fox Demography, Ecology, and Conservation in the Northern Carrizo Plains. Presentation at the Carrizo Colloquium. November 2013.	Type of reference: Presentation Summary: The presentation outlines the demography, ecology, and conservation of San Joaquin kit foxes, especially in the vicinity of the Topaz Solar Project in the Northern Carrizo Plains. Reference cited in FEIS? No. This reference does not include any new information regarding biological resources within the project site that could be incorporated into the project design, environmental baseline, or impacts analysis. See response to Comment H-21 for additional responses to the comment provided related to this reference.
Duke American Transmission Company. "San Luis Transmission Project." December 2014, provided by Duke American Transmission Company, more information at: sltpeis-eir.com	Type of reference: Presentation Summary: This presentation was given at the project public scoping meetings. The presentation outlines the proposed San Luis Transmission Project. Reference cited in FEIS? No. This reference does not include any information regarding biological or other resources that could be incorporated into the project design, environmental baseline, or impacts analysis.
Endicott, R. 2014. Giant kangaroo rat study annual report. September 29, 2014.	Type of reference: Report Summary: 2014 annual report from the Carrizo Plains to determine effects of cattle grazing on giant kangaroo rat and other environmental factors, conducted under USFWS Permit #TE-157221-0 (Brashares). Reference cited in FEIS? No. This annual report from a local researcher provides observational data relevant to the Carrizo Plain. This reference does not include any new information regarding biological resources within the project site that could be incorporated into the project design, environmental baseline, or impacts analysis.

Reference Recommended	Response
Fagan, W. F. and E. E. Holmes. 2006. Quantifying the extinction vortex. Ecology Letters 9:51-60.	Type of reference: Journal article Summary: The authors developed a database of 10 wild vertebrate populations whose declines to extinction were monitored over at least 12 years. The article quantitatively characterized the final declines of these well-monitored populations and tested key theoretical predictions about the process of extinction, obtaining two primary results: 1) evidence of logarithmic scaling of time-to-extinction as a function of population size for each of the 10 populations; and 2) two lines of evidence suggested that these extinction-bound populations collectively exhibited dynamics akin to those theoretically proposed to occur in extinction vortices. Specifically, retrospective analyses suggested that a population size of *n* individuals within a decade of extinction was somehow less valuable to persistence than the same population size was earlier. Reference cited in FEIS? No. The USACE acknowledges this reference. The USACE determined that the reference does not change the analysis presented in the EIS.
Filazzola, A. and C. J. Lortie. 2014. A systematic review and conceptual framework for the mechanistic pathways of nurse plants. Global Ecology and Biogeography 23: 1335–1345. doi: 10.1111/geb.12202.	Type of reference: Journal article Summary: The authors conducted a quantitative review examining 298 articles to categorize the literature on nurse-plant interactions and found that shrubs were the dominant nurse life-form (46% of total studies). Reference cited in FEIS? Yes. The following language was inserted in Section 3.6.2: "Loss of certain vegetation species known as nurse plants (Filazzola and Lortie 2014) may indirectly affect associated, or protégé, plant species. Nurse species are those that benefit other plants or taxa through various mechanisms and are generally perennial species, including shrubs. Effects from loss of nurse plants can include reduced pollination, seed dispersal and germination, exposure to herbivory, and reduced survival and reproductive output of associated species." The reference does not change the analysis in the EIS.

Reference Recommended	Response
Filazzola, A., A. Liczner, M. Westphal, and C. J. Lortie. 2015. In review at New Phytologist. Examining co-occurring gradients of moisture and consumer pressure on plant interactions in shrub-understory system. (Available for review upon request)	Type of reference: Journal article (in review) Summary: Journal article was not publically available for review by USACE and was not provided to USACE; therefore, a summary cannot be provided. However, USACE did obtain a personal communication from Dr. Lortie regarding results of studies currently in review. Reference cited in FEIS? Yes. The following language was inserted in Section 3.6.2: "Blunt nosed leopard lizards appear to favor areas containing native shrub species over nonnative annual grasses; in an experiment in the Panoche Hills within known habitat, lizard scat was more frequently observed in areas of low annual grass cover. Conversely, lizard scat was more frequently observed under native ephedra shrubs than within adjacent open microsites (Lortie 2015)." The reference does not change the analysis in the EIS.
Germano, D. J. 2010 Survivorship of Translocated Kangaroo Rats in the San Joaquin Valley, California. California Fish and Game 96(1): 82-89	Type of reference: Journal article Summary: Monitored four Tipton kangaroo rats and seven Heermann's kangaroo rats fitted with radio transmitters that were translocated away from development at an electrical substation to protected native land of the San Joaquin Valley, Kern County, California. Only 1 individual survived the 45 days of the study. All four Tipton kangaroo rats were dead within 5 days of release, and all appear to have been eaten by predators. Two Heermann's kangaroo rats appeared to have been killed by conspecifics, three were killed by predators, and the fate of one was undetermined. Reference cited in FEIS? Yes. The DEIS APM BIO-15, in part, references the Giant Kangaroo Rat Relocation Plan, which references Germano (2010) in describing the relocation methodology. USACE reviewed this reference again and determined that it does not include any new information regarding biological resources within the project site that could be incorporated into the project design, environmental baseline, or impacts analysis.

Reference Recommended	Response
Good, S. V., D. F. Williams, K. Ralls, and R. C. Fleischer. 1997. Population structure of Dipodomys ingens (Heteromyidae): the role of spatial heterogeneity in maintaining genetic diversity. Evolution 51:1296-1310.	Type of reference: Journal article Summary: A genetic study comparing the current giant kangaroo rat population distribution, in two geographic areas. The study suggests that population sizes have fluctuated over time or that populations have not been geographically isolated from one another, or both. Reference cited in FEIS? Yes. The following language was inserted in Section 3.6.2: "Though giant kangaroo rat populations within the Panoche Valley region are much smaller than populations in the southern portion of the species' range, these populations maintain a higher level of genetic variation than the southern populations (Good et al. 1997). Research also found that the Panoche Valley population in particular has maintained distinct genetic lineages not found in other populations, and that this population is relatively old compared to other distinct populations (Good et al. 1997; Loew et al. 2005)." The reference does not change the analysis in the EIS.
Hernandez, L.; Stateham, M.; Bean T.; Fresquez, S.; Westphal, M.; Sacks, B. Population Genetic Structure of the Giant Kangaroo Rat (Dipodomys Ingens) in the Panoche-Ciervo Area. http://www.wildlifeprofessional.org/western/tws_abstract_detail.php?abstractID=755. 31	Type of reference: Abstract Summary: Abstract states that the presentation discusses preliminary microsatellite-based findings on the giant kangaroo rats of the Panoche-Ciervo area as part of a metapopulation genetics study aimed at understanding the dynamics and connectivity of the satellite populations, including number of discrete populations, magnitude and directionality of geneflow, and identification of source and sink populations. Reference cited in FEIS? No. This reference was not cited in any comment letter but was provided by a group of organizations. It is unknown how the organizations would like this reference incorporated into the EIS. This reference does not contain any new information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis. However, additional information regarding giant kangaroo rat genetics is provided in Section 3.6.2: "Though giant kangaroo rat populations within the Panoche Valley region are much smaller than populations in the southern portion of the species' range, these populations maintain a higher level of genetic variation than the southern populations (Good et al. 1997). Research also found that the Panoche Valley population in particular has maintained distinct genetic lineages not found in other populations, and that this population is relatively old compared to other distinct populations (Good et al. 1997; Loew et al. 2005)." See response to Comment G1-9 for additional responses to the comment provided related to giant kangaroo rat genetic diversity.

Reference Recommended	Response
Hernandez, R. R., M. K. Hoffacker, M. L. Murphy-Mariscal, G. C. Wu, and M. F. Allen. 2015. Solar energy development impacts on land cover change and protected areas. PNAS.	Type of reference: Journal article Summary: Researchers assessed siting impacts of >160 USSE installations by technology type, area, and capacity within California. They also used the Carnegie Energy and Environmental Compatibility model, a multiple criteria model, to quantify each installation according to environmental and technical compatibility. Last, they evaluated installations according to their proximity to protected areas, including inventoried roadless areas, endangered and threatened species habitat, and federally protected areas. Reference cited in FEIS? No. This reference was not cited in any comment letter but was provided by a group of organizations. This reference does not contain any new information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis.
HT Harvey. 2013. California Valley Solar Ranch Project Giant Kangaroo Rat (Dipodomys ingens) Relocation. Final Report. December 2013.	Type of reference: Report Summary: This report summarizes all giant kangaroo rat avoidance, trapping, and relocation activities conducted at the CVSR project site during the design, pre-construction, and construction phases of the project. Reference cited in FEIS? No. This reference was not cited in any comment letter but was provided by a group of organizations. It is unknown how the organizations would like this reference incorporated into the EIS. The USFWS is working with the applicant to finalize the giant kangaroo rat relocation plan for this project. Section 3.6.3 has been revised to acknowledge the uncertainty of relocation efforts by stating "The success of relocation efforts is uncertain due to lack of long-term monitoring of similar efforts as well as the potential for predation, competition, and damage to the social structure." Reference does not provide additional information that would change the analysis in the EIS. See response to Comment H-11 for additional responses to the comment provided related to giant kangaroo rat relocation.

Reference Recommended	Response
HT Harvey. 2015. CVSR Conservation Lands Habitat Mitigation and Monitoring Plan. Year 3 Annual Report	Type of reference: Report Summary: Per the requirements in the Habitat Mitigation and Monitoring Plan, this is the Year 3 report with a detailed description of the condition of the CVSR Project Conservation Lands; a description of management actions taken on the CVSR Project Conservation Lands along with a description of any problems encountered in managing the CVSR Project Conservation Lands; the results of monitoring or other studies conducted on the CVSR Project Conservation Lands; an accounting of funds expended in the management of the CVSR Project Conservation Lands; and detailed recommendations for adaptive management actions that will be undertaken in subsequent years. Reference cited in FEIS? No. This reference was not cited in any comment letter but was provided by a group of organizations. It is unknown how the organizations would like this reference incorporated into the EIS. The USACE and USFWS have worked with the applicant to determine the mitigation and monitoring requirements for the project. Reference does not provide additional information that would change the analysis in the EIS.
Knopf, Fritz L. and M. B. Wunder. 2006. Mountain Plover (Charadrius montanus), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/211	Type of reference: Online book Summary: Mountain plover species description in the Birds of North America online book. Reference cited in FEIS? No. Reference does not provide additional information that would change the analysis in the EIS. See response to Comment I-1 for additional responses to the comment provided related to this reference.
Liczner, A., D. Sotomayor, A. Filazzola, and C.J. Lortie. 2015. In review at Journal of Plant Ecology. Germination response of desert annuals to shrub facilitation is species specific but not ecotypic. Journal of Plant Ecology. (Available for review upon request).	Type of reference: Journal article Summary: Scientific paper is in review at a journal and was not publically available to review by USACE and was not provided to USACE. However, USACE contacted Dr. Lortie, who provided a personal communication with information that summarized his recent research. Reference cited in FEIS? Yes. Section 3.6.2 has been revised to include: "Blunt nosed leopard lizards appear to favor areas containing native shrub species over non-native annual grasses; in an experiment in the Panoche Hills within known habitat, lizard scat was more frequently observed in areas of low annual grass cover. Conversely, lizard scat was more frequently observed under native ephedra shrubs than within adjacent open microsites (Lortie 2015)." The reference does not change the analysis in the EIS. See response to Comment G2-2 for additional responses to the comment provided related to this reference.

Reference Recommended	Response
Lidicker, W. Z. 2010. The Allee effect: its history and future importance. The Open Ecology Journal 3:71-82.	Type of reference: Journal article Summary: The role of mutually beneficial interactions is a rapidly growing research field in population dynamics, microevolution, and conservation biology. Such positive influences cause destabilizing pressures in population dynamics and can generate Allee effects. Reference cited in FEIS? Yes. Section 3.6.2 has been revised to state: "As suitable habitat is lost and populations continue to decline, populations may begin to suffer from anti-regulating factors (Lidicker 2010), whereby declines are accelerated due to factors that inherently impact small populations (e.g., greater rates of loss to predation, decreasing access to mates)." This reference does not provide information that changes the analysis in the EIS. See response to Comment J-6 for additional responses to the comment provided related to this reference.
Lisicka, L., J. Losik, J. Zejda, M. Heroldova, J. Nesvadbova, and E. Tkadlec. 2007. Measurement error in a burrow index to monitor relative population size in the common vole. Folia Zoologica 56:169– 176.	Type of reference: Journal article Summary: Various population indices are widely used to monitor relative population size of many pest and game species to aid their management. However, information on the level of uncertainty associated with their estimates is rarely available. The researchers explore sampling and systematic error associated with the index of re-opened burrow entrances which is used extensively in central Europe for surveying common vole populations. They demonstrated that the index is related to population size in a non-linear fashion, overestimating the population change at high densities. Consequently, population dynamics of the common vole described by the untransformed burrow index appear more variable than they are in reality. Reference cited in FEIS? No. This reference concerns statistical analysis of population estimates of voles. This reference does not provide information that changes the analysis in the EIS.

Reference Recommended	Response
Loew, S. S., D. F. Williams, K. Ralls, K. Pilgrim, and R.C. Fleischer. 2005. Population structure and genetic variation in the endangered giant kangaroo rat (Dipodomys ingens). Conservation Genetics 6:495-510.	Type of reference: Journal article Summary: Populations of the endangered giant kangaroo rat have suffered increasing fragmentation and isolation over the recent past, and the distribution of this unique rodent has become restricted to 3% of its historical range. To assess the fine-scale population structure, gene flow, and genetic diversity of remnant populations of Dipodomys ingens, the researchers examined variation at six microsatellite DNA loci in 95 animals from six populations. Genetic subdivision was significant for both the northern and southern part of the kangaroo rat's range although there was considerable gene flow among southern populations. Reference cited in FEIS? Yes. USACE acknowledges that there may be genetically-distinct populations of giant kangaroo rat. Section 3.6.2 has been revised to state: "Research also found that the Panoche Valley population in particular has maintained distinct genetic lineages not found in other populations, and that this population is relatively old compared to other distinct populations (Good et al. 1997; Loew et al. 2005)." This reference does not provide information that changes the analysis in the EIS. See response to Comment G1-9 for additional responses to the comment provided related to this reference.
Moilanen, A., A. J. A. van Teeffelen, Y. Ben-Haim and S. Ferrier. 2009. How much compensation is enough? A framework for incorporating uncertainty and time discounting when calculating offset ratios for impacted habitat. Restoration Ecology 17(4): 470-478.	Type of reference: Journal article Summary: Biodiversity offset areas may compensate for ecological damage caused by human activity elsewhere. One way of determining the offset ratio, or the compensation area needed, is to divide the present conservation value of the development site by the predicted future conservation value of a compensation area of the same size. Instead, researchers propose an uncertainty analytic framework for calculating what they call robustly fair offset ratios, which guarantee a high enough probability of the exchange producing at least as much conservation value in the offset areas than is lost from the development site. Reference cited in FEIS? No. While USACE will take into account any applicable information when evaluating the applicant's proposed compensatory mitigation plan, this reference does not provide information that changes the analysis in the EIS.
National Audubon Society (2002). The Christmas Bird Count Historical Results [Online]. Available http://www.audubon.org/bird/cbc [August 2010]	Type of reference: Internet web site Summary: Website for Christmas bird count results. Reference cited in FEIS? Yes, Section 3.6.2 has been revised to include: "Records from birding databases indicate that approximately 210 bird species have been recorded in Panoche Valley (Avian Knowledge Network 2009; National Audubon Society 2002)." The reference does not change the analysis in the EIS. See response to Comment I-1 for additional responses to the comment provided related to this reference.

Reference Recommended	Response
National Audubon Society. 2008. Important Bird Areas in the U.S. Available at http://ca.audubon.org/maps/pdf/Panoche_Valley.pdf	Type of reference: Internet website Summary: Link provided is not an active link, so it is unknown exactly what the reference is. Based on the title of the website, the site shows the Important Bird Areas in the Panoche Valley. Reference cited in FEIS? No, reference was not publicly available for review by USACE and was not provided to USACE. However, Section 3.6.2 has been revised to include: "The Panoche Valley is a globally Important Bird Area (National Audubon Society 2013)." The reference does not change the analysis in the EIS. See response to Comment I-1 for additional responses to the comment provided related to this reference.
National Audubon Society. 2010. http://iba.audubon.org/iba/viewState.do?state=USCA	Type of reference: Internet web site Summary: Link provided is not an active link, so it is unknown exactly what the reference is. Based on the title of the website, the site shows the Important Bird Areas in California. Reference cited in FEIS? No, reference was not publically available for review by USACE and was not provided to USACE. However, Section 3.6.2 has been revised to include: "The Panoche Valley is a globally Important Bird Area (National Audubon Society 2013)." The reference does not change the analysis in the EIS. See response to Comment I-1 for additional responses to the comment provided related to this reference.
Plumb et al., Minimum Population Size of Mountain Plovers breeding in Wyoming, Wilson Bulletin 117(1):15-22, 2005	Type of reference: Journal article Summary: A summary cannot be provided, as this reference was not publically available for review by USACE and was not provided to USACE. Reference cited in FEIS? No. Reference was not available for review. However, according to the title, the reference discusses breeding in Wyoming and is not relevant to this EIS. No information regarding mountain plovers was provided that changes the analysis in the EIS. See response to Comment I-3 for additional responses to the comment provided related to this reference.

Reference Recommended	Response
Powell, K. L., R. J. Robel, K. E. Kemp, and M. D. Nellis. 1994. Aboveground counts of black-tailed prairie dogs—temporal nature and relationship to burrow entrance density. Journal of Wildlife Management 58:361–366.	Type of reference: Journal article Summary: Black-tailed prairie dog (Cynomys ludovicianus) colonies are important to many vertebrate populations in the shortgrass prairie ecosystem. Researchers tested whether aboveground counts of black-tailed prairie dogs were related to burrow entrance densities. Higher densities of burrow entrances have been assumed to reflect higher prairie dog densities. Average maximum aboveground counts varied temporally in the morning (P = 0.05) and evening (P = 0.03) but not in the morning with the emergence of juvenile prairie dogs (P = 0.23). Maximum counts were higher in the evening (P < 0.001), and differed among low, medium, or high burrow entrance density areas (P = 0.02), but not linearly. Reference cited in FEIS? No. Black-tailed prairie dogs are not found within the project footprint. The USACE does not feel this document is applicable to this EIS and the reference does not provide information that would change the analysis within the EIS.
Prugh, L. P., and J. S. Brashares. 2012. Partitioning the effects of an ecosystem engineer: kangaroo rats control community structure via multiple pathways. Journal of Animal Ecology 81:667-678.	Type of reference: Journal article Summary: Ecosystem engineers impact communities by altering habitat conditions, but they can also have strong effects through consumptive, competitive, and other non-engineering pathways. Engineering effects can lead to fundamentally different community dynamics than non-engineering effects, but the relative strengths of these interactions are seldom quantified. Researchers combined structural equation modelling and exclosure experiments to partition the effects of a keystone engineer, the giant kangaroo rat (*Dipodomys ingens*), on plants, invertebrates and vertebrates in a semi-arid California grassland. They found that engineering was the primary factor structuring plant and small mammal communities, whereas non-engineering effects structured invertebrate communities and increased lizard abundance. Reference cited in FEIS? Yes. Reference was already cited on page 3-148 of the DEIS. The comment letters did not specify additional applicability of this document to the EIS. No additional information was provided that would change the analysis in the EIS.

Reference Recommended	Response
Richardson, Kevin. "San Joaquin Solar Transmission Group Next Steps" presentation, Southern California Edison, August 28, 2015.	Type of reference: Presentation Summary: This presentation outlines the next steps of the San Joaquin Solar (SJS) Transmission Group, which is studying the SJS Transmission System capacity given the existing system and proposed new corridors. The goals of the study are to produce results that will influence the existing CAISO Transmission Planning Process and RETI 2.0. Presentation outlines use of science-based environmental data to identify low-conflict lands for renewable energy development. Reference cited in FEIS? No. This reference does not include any information regarding biological or other resources that could be incorporated into the project design, environmental baseline, or impacts analysis.
Richmond, J. and M. Westphal. In prep. Population genetic connectivity patterns in the endangered blunt-nosed leopard lizard (Gambelia sila) reveal clues about the former landscape of California's San Joaquin Desert. (Data available upon request through USGS).	Type of reference: Data/journal article in preparation Summary: Scientific paper is in preparation and was not publically available to review by USACE. The USACE contacted Dr. Richmond, who stated that they could not release the data per USGS policy. Reference cited in FEIS? No. Reference was not available. See response to Comment C-2, G1-8, and G1-9 for additional responses to the comment provided related to this reference.
Richmond, J. Q., D. A. Wood, M. F. Westphal, and R. Fisher. 2015. Population genetic connectivity patterns in the endangered blunt-nosed leopard lizard Gambelia sila reveal clues about the former landscape of California's San Joaquin Desert. American Society of Ichthyologists and Herpetologists 2015 Annual Meeting, Reno, NV, July 15-19, 2015.	Type of reference: Presentation Summary: Presentation was not available for review. The following is an excerpt from the abstract found online: "We used mtDNA sequences, microsatellite allele frequency data, and restriction associated digest sequences from 18 locations covering the range of G. sila to test the extent to which population structuring and gene exchange were shaped by mesic habitat or other barriers within this otherwise desert ecoregion. Our results suggest that wetland and riparian areas did little to impede historical movement across the Valley floor, and instead point to precipitation patterns owing to topographic effects as a more cogent factor in determining population structuring and directionality of gene flow." Reference cited in FEIS? No. Presentations and abstracts are generally not considered as sources for the EIS as they can be taken out of context when they are without the presenter to elucidate the content of the slides. However, additional information regarding blunt-nosed leopard lizard habitat has been incorporated into Section 3.6.2.

Reference Recommended	Response
Ruttan, A., A. Filazzola, and C. J. Lortie. 2015. In review at Oecologia. Facilitation between plants mediates insect community structure in deserts. (Available for review upon request).	Type of reference: Journal article Summary: Scientific paper is in review at a journal and was not available to review. However, USACE contacted Dr. Lortie, who provided a personal communication with information that summarized his recent research. Reference cited in FEIS? Yes. Section 3.6.2 has been revised to include: "Blunt nosed leopard lizards appear to favor areas containing native shrub species over non-native annual grasses; in an experiment in the Panoche Hills within known habitat, lizard scat was more frequently observed in areas of low annual grass cover. Conversely, lizard scat was more frequently observed under native ephedra shrubs than within adjacent open microsites (Lortie 2015)." The reference does not change the analysis in the EIS. See response to Comment G2-2 for additional responses to the comment provided related to this reference.
San Joaquin Solar Convening Conservation map.	Type of reference: Presentation Summary: Map showing areas with high and low conservation value in the San Joaquin Valley. Reference cited in FEIS? No. This is not a full reference and does not have any text associated with it to give any context. The project area is not shown on the map, so it is difficult to determine exactly where it occurs. However, text has been incorporated into several places within Section 3.6 emphasizing the importance of the project area for several sensitive species.
San Joaquin Valley Transmission Planning, J.E. (Jeff) Billington, Manager, Regional Transmission – North, Solar and the San Joaquin Valley, August 29, 2015.	Type of reference: Presentation Summary: Presentation describes transmission planning in California, including integration with state processes, ISO planning process, transmission projects underway, projects in the San Joaquin valley, and CAISO queue map. Reference cited in FEIS? No. The slides in this presentation do not contain any information regarding biological or other resources that could be incorporated into the project design, environmental baseline, or impacts analysis. Transmission planning was incorporated into the project design prior to the release of this presentation.

Reference Recommended	Response
Searcy, C. A., and H. B. Shaffer. 2011. Determining the migration distance of a vagile vernal pool specialist: how much land is required for conservation of the California tiger salamander? Pages 7387 in D.G. Alexander and R.A. Schlising (Editors), Research and Recovery in Vernal Pool Landscapes. Studies from the Herbarium, Number 16. California State University, Chico, CA.	Type of reference: Book Summary: Study calculated average migration distance and the 95% tail of the migration distribution for California tiger salamander. They also modeled the percentage of the reproductive potential of the population as a function of distance from the vernal pool shoreline. Results indicate that tiger salamanders are capable of migrating up to 2,484 m each breeding season and that 95% of the breeding population occurs in upland habitat within 1,867 m from the breeding pond. Reference cited in FEIS? Yes. Section 3.6.2 has been revised to include: "Studies have found that 95 percent of a breeding population occurs within approximately 1.1 miles of breeding habitat during migration (Searcy and Schaffer 2011)." The reference does not change the analysis in the EIS. See response to Comment H-23 for additional responses to the comment provided related to this reference.
Searcy, C. A., E. Gabbai-Saldate and H. B. Shaffer. 2013. Microhabitat use and migration distance of an endangered grassland amphibian. Biological Conservation 158 80–87	Type of reference: Journal article Summary: There have been many studies of microhabitat use in forest-dwelling amphibians, but very few for grassland specialists. This study examines habitat use of the California tiger salamander (Ambystoma californiense), which inhabits grasslands in California's Great Central Valley. Researchers used an extensive drift fence array to capture most of the surface-active salamanders over two years at two adjacent breeding ponds in a natural prairie ecosystem. Adults tended to use microhabitats with flood intolerant vegetation and juveniles were most often found at higher elevation sites; both of these results suggest that California tiger salamanders favor the driest microhabitats in the prairie. A literature review indicated that A. californiense have the second longest migration distance reported for any salamander (median = 556 m) and the longest among ambystomatids. The results suggest that habitat use of grassland amphibians may be fundamentally different from that of forest-dwelling amphibians in that they require larger terrestrial buffers and use different microhabitats within those buffers. Reference cited in FEIS? Yes. Section 3.6.2 has been revised to include: "California tiger salamanders migrate long distances from their breeding ponds. Searcy et al. (2013) report that the median migration distance for California tiger salamander was 556 meters (0.35 mile)." The reference does not change the analysis in the EIS. See response to Comment H-23 for additional responses to the comment provided related to this reference.

Reference Recommended	Response
Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds No. 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.	Type of reference: Online book Summary: Book revises the original (1978) bird species of conservation concern document. The revised list includes and ranks 39 species and 24 subspecies. The reference includes species accounts which describe the status, population trends, ecological requirements, threats, and management, research, and monitoring needs for each special concern taxon. Reference cited in FEIS? Yes. The source was already cited several times in the DEIS and is cited in the Avian Conservation Plan. The following additional information has been incorporated into Section 3.6.2: "The Panoche Valley also provides regionally important wintering habitat for migratory birds, including special status species. For example, based on the Christmas Bird Count data, Panoche Valley can contain up to five percent of the global population of mountain plover in a given year (Shuford and Gardali 2008)." See response to Comment I-1 for additional responses to the comment provided related to this reference.
Sierra Club and Santa Clara Valley Audubon Society. 2015. Letter to the San Benito County Board of Supervisors regarding the revised Panoche Valley Solar Project. May 19, 2015.	Type of reference: Letter Summary: Letter expresses opposition to the project and states that the Final SEIR does not meet CEQA requirements and comments on the Final SEIR. Reference cited in FEIS? No, as the source does not provide information that would change the alternatives, affected environment, or impacts analysis. The reference is related to the EIR, not the EIS. However, new information regarding giant kangaroo rat has been incorporated into Section 3.6.2 and this addresses some of the concerns in the letter. Opposition of the commenters to the proposed project is noted.
Sierra Club and Santa Clara Valley Audubon Society. 2015. Verified petition for writ of mandate	Type of reference: Petition Summary: This reference is a petition against the County of San Benito, stating that their approval of the project is invalid and that the SEIR fails to satisfy requirements of CEQA. Reference cited in FEIS? No, as the source does not provide data for inclusion and is unrelated to the NEPA document. Opposition of the commenters to the proposed project is noted.

Reference Recommended	Response
Sinervo, B. 2015. Letter to Lisa Gibson, US Army Corps of Engineers. Comment on the Panoche Valley Solar Project DEIS.	Type of reference: Letter Summary: The letter recommends ways to estimate the number of blunt-nosed leopard lizard on the project site and describes impacts from climate change on blunt-nosed leopard lizard. Reference cited in FEIS? No, as the source does not provide data for inclusion. However, changes to the affected environment for blunt-nosed leopard lizard were incorporated based on other comments and these changes address Dr. Sinervo's concerns. This letter was submitted to USACE separately and is responded to in response to Comment P.
Sinervo, B. R. and J. A. E. Stewart. 2015. Evaluating the potential risk from altered grazing regimes, plant habitat change, and climate-driven extinctions for the endangered blunt-nosed leopard lizard, Gambelia sila. Comprehensive Final Project Report. (Available for review upon request).	Type of reference: Report Summary: A summary cannot be provided, as this reference was not available for review. Reference cited in FEIS? No, as the report was not received from Dr. Sinervo. However, the EIS did incorporate information from a personal communication with Dr. Sinervo. The following additional information has been incorporated into Section 3.6.2: "Blunt-nosed leopard lizard populations have responded poorly to the recent extended drought; rangewide surveys in 2014 and 2015 have yielded unusually low numbers of observations (Sinervo 2015)." The report does not change the analysis in the EIS. See response to Comment G2-2 for additional responses to the comment provided related to this reference.
Southern California Edison. 2013 Pro-Forma Purchase and Sale Agreement	Type of reference: Agreement Summary: A summary cannot be provided, as this reference was not available for review. Reference cited in FEIS? No. The document was not available to review and determine its applicability to the EIS and whether changes to the EIS would be warranted. Based on the title of the reference, the agreement does not appear to be relevant to the EIS and would not change the content or analysis within the EIS.
Southern California Edison. 2013. Southern California Edison Company's (U 338-E) 2013 Renewables Portfolio Standard Procurement Plan, Volume 2. June 28, 2013.	Type of reference: Rulemaking Summary: In this 2013 Renewable Energy Request for Proposals, Southern California Edison Company is soliciting proposals from bidders to supply product from eligible renewable energy resources sufficient to permit SCE to execute power purchase and sale agreements in substantially the form specified in SCE's Pro Forma Agreement located on the RFP website. Reference cited in FEIS? No. Rulemaking does not apply to the EIS and would not change the content or analysis within the EIS.

Reference Recommended	Response
Southern California Edison. 2014. Submission of Contract for Procurement of Renewable Energy from SCE's 2013 Renewables Portfolio Standard Solicitation. October 27, 2014.	Type of reference: Letter Summary: In this Advice Letter, Southern California Edison Company submits the contract and seeks approval of a Renewables Portfolio Standard power purchase agreement between SCE and Panoche Valley Solar, LLC. Reference cited in FEIS? No. Letter does not apply to the EIS and would not change the content or analysis within the EIS.
Stafford, R., C. Fiehler, B. Cypher, L. Prugh, and S. Butterfield. Long term population trends and density estimates for San Joaquin kit fox on Carrizo Plain National Monument. The Western Section of the Wildlife Society 2015 Annual Meeting, Santa Rosa, CA, January 2015.	Type of reference: Presentation Summary: A summary cannot be provided, as this reference was not publically available for review. Reference cited in FEIS? No. This reference was unavailable for review, so USACE cannot determine if it contains any relevant information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis.
Stewart, J., B. Sinervo, M. Westphal, and S. Butterfield. Vegetation interactions with the blunt-nosed leopard lizard. California Native Plant Society Conservation Conference, San Jose, CA, January 2015.	Type of reference: Presentation Summary: A summary cannot be provided, as this reference was not publically available for review by USACE and was not provided to USACE. Reference cited in FEIS? No. This reference is unavailable for review, so USACE cannot determine if it contains any information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis.
Stewart, J., M. Westphal, S. Butterfield, and B. Sinervo. Interactions between climate, vegetation, prey, and the federally endangered blunt-nosed leopard lizard (Gambelia sila). University of California, Santa Cruz-Stanford University Annual Species Interaction Workshop, December 2013.	Type of reference: Presentation Summary: A summary cannot be provided, as this reference was not publically available for review by USACE, and was not provided to USACE. Reference cited in FEIS? No. This reference is unavailable for review, so USACE cannot determine if it contains any information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis.

Reference Recommended	Response
Stewart, J., R. D, Cooper, M. Westphal, S. Butterfield, and B. Sinervo. The potential impacts of climate change on extinctions of blunt-nosed leopard lizards. Blunt-nosed leopard lizard research symposium, Bakersfield, CA, May 2013.	Type of reference: Presentation Summary: A summary cannot be provided, as this reference was not publically available for review by USACE and was not provided to USACE. Reference cited in FEIS? No. This reference is unavailable for review, so USACE cannot determine if it contains any information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis.
Stewart, J., R.D. Cooper, D. Illowsky, C. Barrows, J. Bergengren, M. Westphal, S. Butterfield, and B. Sinervo. The potential impacts of climate change and vegetation succession on extinctions of blunt nosed leopard lizards. Carrizo Colloquium, San Luis Obispo, CA, November 2013.	Type of reference: Presentation Summary: A summary cannot be provided, as this reference was not publically available for review by USACE and was not provided to USACE. Reference cited in FEIS? No. This reference is unavailable for review, so USACE cannot determine if it contains any information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis.
Stewart, J. E., B. Sinervo, E.N. Tennant, H.S. Butterfield, and M. F. Westphal. In prep. Assessing causes of extirpation and decline of the endangered blunt-nosed leopard lizard: habitat loss, climate, and thermal physiology, and exotic grasses	Type of reference: Journal article Summary: A summary cannot be provided, as this reference was not publically available for review by USACE and was not provided to USACE. Reference cited in FEIS? No. This reference was not available for review to determine whether it would affect the analysis within the EIS.

Reference Recommended	Response
The Nature Conservancy, Defenders of Wildlife, Santa Clara Audubon Society, Sierra Club, Audubon California, and the Center for Biological Diversity. February 6, 2015. Letter to Michael Krausie, Aspen Environmental Group regarding Panoche Draft Supplemental EIR.	Type of reference: Letter Summary: This letter, regarding the Draft Supplemental EIR, expresses the conservation organizations' concerns regarding the Panoche Valley Solar Project. They state that the project and alternatives will have substantial, significant and unmitigable impacts to local populations of federally and state listed endangered giant kangaroo rat, blunt-nosed leopard lizard, and San Joaquin kit fox, state listed threatened California tiger salamander, Swainson's hawk and San Joaquin Valley antelope squirrel, and the fully protected golden eagle and white-tailed kite, among many other sensitive species in the Panoche Valley. They continue to oppose the project and the letter describes comments on the inadequacies of the draft SEIR. Reference cited in FEIS? No. Letter is in regards to the Draft Supplemental EIR and does not contain any new information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis. The concerns raised by the commenter are noted.
The Nature Conservancy. 2015. Letter to Byron Turner, Director of the Planning and Building Department for the County of San Benito regarding the Panoche Valley Solar Project. April 24, 2015.	Type of reference: Letter Summary: This letter, regarding the Draft Supplemental EIR, expresses The Nature Conservancy's concern regarding the Panoche Valley Solar Project, which is proposed for an area that is rich habitat for a suite of sensitive species, many of which are listed as threatened or endangered. The commenter feels that the mitigation strategy does not compensate for the impacts to the species. Reference cited in FEIS? No. Letter is in regards to the Draft Supplemental EIR and does not contain any new information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis. The concerns raised by the commenter are noted.
USACE. 2009 Standard Operating Procedures	Type of reference: Memo Summary: Provides a summary of current policies and procedures to be used as day-to-day informal guidance by regulatory project managers as they implement the program. The SOPs highlight existing policies and procedures to be used in reviewing applications for Department of the Army permits under Section 404 of the Clean Water Act and other applicable regulations. Reference cited in FEIS? No. The SOPs do not relate to the EIS or to the NEPA process. See Response to Comment H-12 for additional responses to the comment provided related to this reference. During the permit review process, USACE utilizes all existing regulations and guidance, including the 2009 SOP.

Reference Recommended	Response
US Fish & Wildlife Service press release, June 28, 2010. Mountain Prairie Region	Type of reference: Press release Summary: Press release reinstating a proposal to list the mountain plover, a native bird of short-grass prairie and shrub-steppe landscapes, as a threatened species under the Endangered Species Act. In the press release, the USFWS also requests the public to provide scientific information regarding the reinstated proposal and the newly available information regarding the status of the mountain plover. Reference cited in FEIS? No. Citation is used in the comment letter to support the statement that mountain plover is proposed threatened under the ESA. No changes to the EIS are needed, as the DEIS discussed mountain plover. See response to Comment I-3 for additional responses to the comment provided related to this reference.
US Fish & Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California. Region 1, U.S. Fish and Wildlife Service, Portland, OR.	Type of reference: Recovery Plan Summary: This recovery plan covers 34 species of plants and animals that occur in the San Joaquin Valley of California. The majority of these species occur in arid grasslands and scrublands. The recovery plan delineates, justifies, and schedules the research and management actions necessary to support recovery of these species. Reference cited in FEIS? No. Citation is used in the comment letter to support background statements. Reference was already cited in the DEIS.
US Fish & Wildlife Service. 2010. Blunt-nosed Leopard Lizard: 5-year review: summary and evaluation. U.S. Fish & Wildlife Service Sacramento Fish & Wildlife Office, Sacramento, CA	Type of reference: Report Summary: The USFWS conducts a status review of each listed species at least once every 5 years. The purpose of a 5-year review is to evaluate whether or not the species' status has changed since it was listed (or since the most recent 5-year review) and recommend whether the species should be removed from the list of endangered and threatened species or be changed in status. Based on this 5-year review, the USFWS did not recommend a change in status for blunt-nosed leopard lizard. Reference cited in FEIS? No. Citation is used in the comment letter to support background statements. Reference was already cited in the DEIS.
US Fish & Wildlife Service. 2010. Giant kangaroo rat (Dipodomys ingens) 5-year review: summary and evaluation. US Fish & Wildlife Service Sacramento Fish & Wildlife Office, Sacramento, CA	Type of reference: Report Summary: The USFWS conducts a status review of each listed species at least once every 5 years. The purpose of a 5-year review is to evaluate whether or not the species' status has changed since it was listed (or since the most recent 5-year review) and recommend whether the species should be removed from the list of endangered and threatened species or be changed in status. Based on this 5-year review, the USFWS did not recommend a change in status for giant kangaroo rat. Reference cited in FEIS? No. Citation is used in the comment letter to support background statements. Reference was already cited in the DEIS.

Reference Recommended	Response
US Fish and Wildlife Service. 2010c. San Joaquin Kit Fox: 5-year review: summary and evaluation. U.S. Fish & Wildlife Service Sacramento Fish & Wildlife Office, Sacramento, CA	Type of reference: Report Summary: The USFWS conducts a status review of each listed species at least once every 5 years. The purpose of a 5-year review is to evaluate whether or not the species' status has changed since it was listed (or since the most recent 5-year review) and recommend whether the species should be removed from the list of endangered and threatened species or be changed in status. Based on this 5-year review, the USFWS did not recommend a change in status for San Joaquin kit fox. Reference cited in FEIS? No. Citation is used in the comment letter to support background statements. Reference was already cited in the DEIS.
Van Horne, B., R. L. Schooley, S. T. Knick, G. S. Olson, and K. P. Burnham. 1997. Use of burrow entrances to indicate densities of Townsend's ground squirrels. Journal of Wildlife Management 61:92-101.	Type of reference: Journal article Summary: Counts of burrow entrances have been positively correlated with densities of semi-fossorial rodents and used as an index of densities. VanHorne et al. evaluated their effectiveness in indexing densities of Townsend's ground squirrels in the Snake River Birds of Prey National Conservation Area, Idaho, by comparing burrow entrance densities to densities of ground squirrels estimated by live trapping in 2 consecutive years over which squirrel populations declined by >75%. They did not detect a consistent relation between burrow entrance counts and ground squirrel density estimates within or among habitat types. Repeated count of entrances late in the squirrels' active season varied in a manner that would be difficult to use for calibration of transects sampled only once during this period. Reference cited in FEIS? No. Paper is not applicable, as there is no Townsend's squirrel in the project footprint, only California ground squirrel. However, EIS text has been revised per Bean et al. 2012, which covers the same general topic. See response to Comment J-6 for additional responses to the comment provided related to this reference.

Reference Recommended	Response
Warrick, G. D., T. K. Kato, and B. R. Rose. 1998. Microhabitat use and home range characteristics of blunt nosed leopard lizards. Journal of Herpetology 32(2): 183-191	Type of reference: Journal article Summary: Warrick et al. used radiotelemetry to determine habitat use and home range characteristics of 16 blunt-nosed leopard lizards (Gambelia sila) at two sites on the Naval Petroleum Reserves in California. Home range size, core area size, and amount of overlap of ranges did not differ significantly between sites. The difference in average home range size between males and females was borderline significant. Female home ranges and core areas were overlapped extensively by male ranges. At the more densely vegetated site, leopard lizards used washes significantly more than grassland, floodplain, and road habitats and they used grassland significantly less than other habitats. At the sparsely vegetated site, grassland was used more than wash habitat and hills were used less than all other habitats. The data indicate that leopard lizard activity is concentrated in washes and other open areas when herbaceous cover is dense, but they are capable of utilizing the more extensive grassland habitat if vegetation is sufficiently sparse. Creating open space within the grassland habitat may have important management implications for this species in some areas. Reference cited in FEIS? No. See response to Comment G1-4 and G1-5 for additional responses to the comment provided related to this reference.
Westlands Solar Park Comments to the August 5th Lead Commissioner Workshop on Integrating Environmental Information in Renewable Energy Planning Processes	Type of reference: Letter Summary: This letter includes arguments in support of solar development in the Westlands Solar Park and Challenges to Landscape Planning Low Conflict Areas for Renewable Generation. Reference cited in FEIS? No. Letter does not contain any new information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis. The USACE acknowledges this document and is evaluating alternatives to the proposed action for compliance with Section 404(b)(1) Guidelines. See response to Comment H-1 for additional responses to the comment provided related to this reference.

Reference Recommended	Response
Westphal, M. F., J. E. Stewart, E. N. Tennant, H. S. Butterfield, and B. Sinervo. *In review* at Conservation Biology. Contemporary drought and future effects of climate change on endangered species. (Available for review upon request).	Type of reference: Journal article Summary: Novel weather events can provide unique opportunities for testing models that predict the effect of climate change. Droughts of increasing severity have been predicted under numerous models, thus contemporary droughts may allow us to test these models prior to the onset of the more extreme effects predicted with a changing climate. In the third year of an ongoing drought in 2014, the researchers observed a marked dichotomy in the presence and absence of neonate endangered blunt-nosed leopard lizards among sites that had received differing levels of precipitation, suggesting a drought-related effect on reproduction. They discovered that a strong negative correlation existed between winter precipitation and the presence of neonate leopard lizards, in accordance with a model that predicted such an effect as an outcome of climate change. Reference cited in FEIS? Yes. Reference supplemented affected environment description in Section 3.6. The following text was added: "Blunt-nosed leopard lizard populations have responded poorly to the recent extended drought; rangewide surveys in 2014 and 2015 have yielded unusually low numbers of observations (Sinervo 2015), including of young lizards, which is suggestive of reproductive failure (Westphal et al. *in review*). Westphal et al. (in review) found a strong negative correlation between winter precipitation and young blunt-nosed leopard lizard presence, in accordance with modeled predicted effects of climate change on the species. Because climate-change drought events are predicted to increase across the species' range, Westphal et al. in review suspect that climate change poses a credible risk to this species' persistence across a large portion of its range." Reference did not change the conclusions of the impact analysis. See response to Comment G2-2 for additional responses to the comment provided related to this reference.

Reference Recommended	Response
Westphal, M. F., E. N. Tennant, J. A. E. Stewart, H. S. Butterfield, and B. R. Sinervo. When things heated up: the 2014 drought and the first blunt-nosed leopard lizard range wide recruitment survey. The Western Section of the Wildlife Society 2015 Annual Meeting, Santa Rosa, CA, January 2015.	Type of reference: Presentation Summary: This full presentation was not publically available for review by the USACE, though an abstract was available online. Assessing the future impacts of global warming requires both theoretical modeling but also the input of empirical data. Opportunities to collect relevant empirical data may be unexpected and difficult to exploit in a short time frame. Robust partnerships may provide a framework for rapid-response data collection when novel opportunities arise. The extreme drought of 2014 provided a unique opportunity to test models of persistence in the face of climate change in the endangered blunt-nosed leopard lizard, *Gambelia sila*. Due to an existing partnership between the Bureau of Land Management, California Department of Fish and Wildlife, the Nature Conservancy, and UC Santa Cruz, personnel were able to mobilize within a matter of days when preliminary data suggested that lizards were not recruiting in some populations. By conducting rigorous surveys, field workers were able to gather meaningful data from over 20 sites within the narrow window when neonate lizards could be observed, resulting in a dataset that confirmed a strong causal link between drought and recruitment on *Gambelia sila* and also provided a geographic visualization of the drought by recruitment interaction. Reference cited in FEIS? No. Only the abstract was available to review, which did not contain sufficient information to assess the analysis in the EIS.
Wilbert, T. R., D. A. Smith Woollett, M. F. Westphal, A. Whitelaw, K. Ralls, and J. E. Maldonado. In prep. Distribution and connectivity of San Joaquin kit foxes in the Panoche Valley, California: the power of non-invasive surveys.	Type of reference: Journal article Summary: A summary cannot be provided, as this reference was not publically available for review by USACE and was not provided to USACE. Reference cited in FEIS? No. This reference was not available for review to determine whether it would affect the analysis within the EIS.
Wilbert, T. R., M. F. Westphal, D. A. Smith Woollett, A. Whitelaw, K. Ralls, and J. E. Maldonado. 2013. Searching for San Joaquin kit foxes in the Panoche Valley and discovering populations. American Society of Mammologists 93rd Annual Meeting, Philadelphia, PA, June 2013.	Type of reference: Presentation Summary: A summary cannot be provided, as this reference was not publically available for review by USACE and was not provided to USACE. Reference cited in FEIS? No. This reference was unavailable for review, so USACE cannot determine if it contains any information regarding biological resources that could be incorporated into the project design, environmental baseline, or impacts analysis.

Reference Recommended	Response
Williams, D. F., M. K. Davis, and L. P. Hamilton. 1995. Distribution, population size, and habitat features of giant kangaroo rats in the northern segment of their geographic range. California Department of Fish and Game, Bird and Mammal Conservation Program Report 95-01, 38pp.	Type of reference: Report Summary: Researchers inspected sites with potential habitat for giant kangaroo rats (Dipodomys ingens) in western Fresno and eastern San Benito counties between June and August 1992. In June 1993, they revisited sites to take tissue samples for genetic studies, and looked for and discovered additional giant kangaroo rat colonies. The largest colonies were found on Panoche and Mugata fine sandy-loam soils, though small numbers of small colonies were found on a wide variety of soil textures. All colonies were located in annual grassland-dominated communities. The extant colonies occupied a total estimated area of 1,882.8 ha, which is almost 6.6 times greater than the 287 ha calculated from studies in the 1980's. The estimated population size for the study area in 1992-93 was 37,125, a substantial increase compared to a prior estimate of approximately 2,000 in 1980-1985. The increase resulted from a population irruption starting in summer 1991 at the end of a 5-year drought. This irruption was widespread in central California and involved many kinds of animals. Reference cited in FEIS? Yes. Changed text in Section 3.6 to state: "Giant kangaroo rats are known to occur on the project site and vicinity; the project site is at the center of the giant kangaroo rat metapopulation in the Ciervo Panoche Natural Area (Williams et al. 1995). The CNDDB has…" The report does not change the analysis in the EIS. See response to Comment J-7 for additional responses to the comment provided related to this reference.

CHAPTER 7
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CHAPTER 8
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8.1 EXECUTIVE SUMMARY REFERENCES

There are no Executive Summary references.

8.2 CHAPTER 1 REFERENCES

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8.3 CHAPTER 2 REFERENCES

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8.5 CHAPTER 4-10 REFERENCES

There are no references in these chapters. For Chapter 6 material referenced in response to comments, see the references for **Chapter 3**, above.

CHAPTER 9
GLOSSARY

100-Year Flood. A stream flow caused by a discharge that is exceeded, on the average, only once in 100 years. A 100-year flood has a one percent chance of occurrence in any given year.

Adverse modification (Proposed definition). A direct or indirect alteration that appreciably diminishes the conservation value of critical habitat for listed species. Such alterations may include, but are not limited to, effects that preclude or significantly delay the development of the physical or biological features that support the life-history needs of the species for recovery.

Air Quality Standard. The specified average concentration of an air pollutant in ambient air during a specified time period, at or above which level the public health may be at risk. National ambient air quality standards have been set for the following criteria pollutants: carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, lead, and two categories of particulate matter (particulate matter with an aerodynamic diameter of 10 microns or less [PM_{10}] and particulate matter with an aerodynamic diameter of 2.5 microns or less [$PM_{2.5}$]).

Ambient Air. Any unconfined portion of the atmosphere; the outside air.

Ambient Noise Level. Noise from all sources, near and far. Ambient noise level constitutes the normal or existing level of environmental noise at a given location.

A-weighted Decibel (dBA). The A-weighted decibel scale representing the relative insensitivity of the human ear to low-pitched sounds; decibels are logarithmic units that compare the wide range of sound intensives to which the human ear is sensitive.

Baseline. A set of existing conditions against which change is to be described and measured.

Biota. Living organisms.

Carbon dioxide equivalents (CO_2e). Greenhouse gas emissions are tracked as carbon dioxide equivalents, with one gram of carbon dioxide molecule counting as one and other greenhouse gas molecules counting as some multiple.

Carbon Monoxide (CO). A colorless, odorless, toxic gas produced by incomplete combustion of carbon in fossil fuels.

Cultural Resource. Places or objects important for scientific, historical, and religious reasons to cultures, communities, and individuals.

Cumulative Impacts. The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Decibel (dB). A logarithmic unit which measures the pressure levels of sounds.

Emission. Unwanted substances released by human activity into air or water.

Fault. A fracture or zone of fractures in rock strata which have undergone movement that displaces the sides relative to each other, usually in a direction parallel to the fracture. Abrupt movement on faults is a cause of most earthquakes.

Fugitive Dust. Airborne soil particles resulting from direct surface disturbance, such as from construction equipment, or from natural sources, such as wind.

Generation-Tie (gen-tie). Transmission line connecting a generator to the electric grid.

Invertebrate. Animals that lack a spinal column.

Inverter. Inverters take the direct current (DC) output of the panels and convert it to alternating current (AC) for delivery to the transmission grid via the project's medium-voltage collection system, substation, and switchyard.

Jeopardy. When an action is reasonably expected, directly or indirectly, to diminish a species' numbers, reproduction, or distribution so that the likelihood of survival and recovery in the wild is appreciably reduced.

Key Observation Point (KOP). One or a series of points on a travel route or at a use area where the view of the Proposed Project would be most revealing.

Kilovolt (kV). A measure of electric voltage, one thousand volts.

Leq. Energy-equivalent sound level; average level of sound determined over a specific period of time.

Level of Service (LOS). A measure of roadway congestion, ranging from A (free-flowing) to F (highly congested).

Liquefaction. The process of making or becoming liquid (soils).

Megawatt (MW). A measure of electric power equal to 1,000 kilowatts or 1,000,000 watts.

Modified Mercalli Intensity (MMI). A subjective numerical index describing the severity of an earthquake in terms of its observed effects on humans, man-made structures, and the earth's surface.

Monitoring Station. A mobile or fixed site equipped to measure instantaneous or average ambient air pollutant concentrations.

Nitrogen Oxides. A gaseous mixture of nitric oxide (NO) and nitrogen dioxide (NO_2) and symbolically represented as NO_3.

NO_2. Nitrogen dioxide. A molecule of one nitrogen and two oxygen atoms. Results usually from further oxidation of nitric oxide (NO) in the atmosphere. Ozone accelerates the conversion.

Nonnative plant species. Those species that evolved in one region of the world but were moved by humans to another region. Often, these species thrive in the new environment and have a competitive advantage, allowing them to quickly spread in new territories because they are no longer controlled by their natural predators.

Noxious weeds. Any living stage (including seeds and reproductive parts) of a parasitic or other plant of a kind which is of foreign origin, is new to or not widely prevalent in the US, and can directly or indirectly injure crops, other useful plants, livestock, poultry or other interests of agriculture, including irrigation, navigation, fish and wildlife resources, or the public health.

Ozone. A molecule of three oxygen atoms - O_3. A colorless gas formed by a complex series of chemical and photochemical reaction of reactive organic gases, principally hydrocarbons, with the oxides of nitrogen, which is harmful to the public health, the biota, and some materials.

Particulate Matter (particulates). Very fine sized solid matter or droplets, typically averaging one micron or smaller in diameter. Also called "aerosol."

Parts per billion (ppb). A measure of the amount of one substance found in a second, which is the carrier.

Parts per million (ppm). Parts per million, a measure of the amount of one substance found in a second, which is the carrier.

Photovoltaic (PV) Array. An interconnected system of photovoltaic modules that function as a single electricity-producing unit.

Photovoltaic (PV) Module. The smallest assembly of solar cells and ancillary parts, such as interconnections and terminals, intended to generate direct current power under unconcentrated sunlight.

Photovoltaic (PV). Direct conversion of light into electricity.

PM_{10} . Particulate matter less than 10 microns in size, which is small enough to be inhaled deeply into the lungs and cause disease.

$PM_{2.5}$. Particulate matter less than 2.5 microns in size, which is small enough to be inhaled.

Prevention of Significant Deterioration (PSD). A Federal set of limits on emissions of sulfur oxide and particulates to protect air quality in non-urban area.

Right-of-way (ROW). An easement, lease, permit, or license across an area or strip of land to allow access or to allow a utility to pass through public or private lands.

Riparian. Area along the banks of a river or lake supporting specialized plant and animal species.

Sensitive Receptor. Land uses adjacent to or within proximity to the Proposed Project that could be impacted by construction, operation, and maintenance activities.

Shrink-Swell Potential. The expansion or contraction of primarily clay-rich soils during alternating wetting and drying cycles.

Skylining. Extending above the horizon line.

Substrate. Geologic term describing soil or geologic layers underlying the ground surface.

Sulfates. Compounds in air or water that contain four oxygen atoms for each sulfur atom. See SO_x.

Sulfur dioxide (SO_2). A corrosive and poisonous gas produced from the complete combustion of sulfur in fuels.

Sulfur Oxide (SO_x). The group of compounds formed during combustion or thereafter in the atmosphere of sulfur compounds in the fuel, each having various levels of oxidation, ranging from two oxygen atoms for each sulfur atom to four oxygen atoms.

Terrestrial. Related to or living on land. Terrestrial biology deals with upland areas as opposed to shorelines or coastal habitats.

Vernal pool. Seasonal depressional wetlands that occur under the Mediterranean climate conditions of the West Coast. They are covered by shallow water for variable periods from winter to spring, but may be completely dry for most of the summer and fall. Beneath vernal pools lies either bedrock or a hard clay [or mineral] layer in the soil that helps keep water in the pool.

Visual Sensitivity. Consideration of people's uses of various environments and their concerns for maintenance of scenic quality and open-space values; examples of areas of high visual sensitivity would be areas visible from scenic highways, wilderness areas, parks, and recreational water bodies.

Watershed. The area contained within a drainage divide above a specified point on a stream.

Wetland. Lands transitional between obviously upland and aquatic environments. Wetlands are generally highly productive environments with abundant fish, wildlife, aesthetic, and natural resource values. For this reason, coupled with the alarming rate of their destruction, they are considered valuable resources, and several regulations and laws have been implemented to protect them.

Wilderness study area (WSA). A roadless area on BLM-administered lands found to have wilderness characteristics, as described in Section 2(c) of the Wilderness Act of 1964, during the BLM inventory process in the 1980s and provided to the President and Congress in 1991.

Williamson Act. A state program administered by the County of San Luis Obispo under the California Land Conservation Act of 1965. The program provides an opportunity for landowners to voluntary place their property into a 10-year agricultural preserve in exchange for reduced property taxes. Beginning on the first year following the execution of a 10-year contract, a year is automatically added for each year that elapses to maintain an ongoing 10-year term unless a notice of nonrenewal is served. Once a notice of nonrenewal is served on a contract with 10 years remaining, it takes 9 to 10 years for the contract to expire. Contracts can be cancelled if they meet the findings of the County's Rules of Procedure to Implement the California Land Conservation Act of 1965 (June 1972).

CHAPTER 10
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