

Chapter 7

Response to Comments

SCH# 2017081038

Volume 4

**AV Apollo Solar Project
Sunbow Solar I LLC, Syracuse Solar LLC, and Tours Solar LLC**

**CUP 37, Map 214
CUP 38, Map 214
CUP 39, Map 214
CUP 41, Map 214
GPA 5, Map 214**



**Kern County
Planning and Natural Resources Department
Bakersfield, California**

May 2020

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**PLANNING AND NATURAL
RESOURCES DEPARTMENT**

Planning
Community Development
Administrative Operations

May 29, 2020

File: CUP 37, Map 214; CUP 38, Map 214;
CUP 39, Map 214; CUP 41, Map 214;
GPA 5, Map 214

S.D.: #2- Scrivner

Addressee List (See Distribution List)

Re: Response to Comments for Draft Environmental Impact Report – AV Apollo Solar Project by Sunbow Solar I LLC, Syracuse Solar LLC, and Tours Solar LLC (PP17144)

Ladies and Gentlemen:

Enclosed is a document entitled *Volume 3 – Chapter 7 – Response to Comments*, for the above referenced project. Section 15088 of the California Environmental Quality Act Guidelines requires the Lead Agency to evaluate comments on environmental issues received from persons who reviewed the Draft Environmental Impact Report (EIR) and prepare a written response addressing each comment. This document is Chapter 7 of the Final EIR.

A public hearing has been scheduled with the Kern County Planning Commission to consider this request on June 11, 2020 7:00 p.m., with a public hearing before the Kern County Board of Supervisors tentatively scheduled for June 16, 2020.

Due to COVID-19 and subsequent local emergency declarations by the Kern County Board of Supervisors, Staff is evaluating the possibility of facilitating an alternative form of public participation during this hearing. If you have any questions about the format of the hearing and/or wish to get more information please contact the Staff Planner.

Thank you for your participation in the environmental process for this project. If you have any questions regarding this project, please do not hesitate to contact me at (661) 862-8612 or via email at catesr@kerncounty.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Randall Cates".

Randall Cates, Planner III
Advanced Planning Division

COMMENTING AGENCIES AND INTERESTED PERSONS: Santa Rosa Rancheria Tachi-Yokut Tribe;

California Department of Conservation - Geologic Energy Management Division; California Water Boards, Lahontan Regional Water Quality Control Board; California Department of Toxic Substances Control; Eastern Kern Air Pollution Control District; Kern County Fire Department; Kern County Public Works Department, Administration and Engineering Division; Kern County Public Works Department, Floodplain Management Section; Southern Kern Unified School District; Kern Audubon Society; Law Offices of John A. Belcher; National Audubon Society; Defenders of Wildlife; Adams Broadwell, Joseph and Cardozo; California Department of Fish and Wildlife; Governor's Office of Planning and Research – State Clearinghouse and Planning Unit

Santa Rosa Rancheria Tachi-Yokut Tribe
Attn: Samantha McCarty
P.O. Box 8
Lemoore, CA 93245

State Dept of Conservation
Geologic Energy Management Division
4800 Stockdale Hwy., Suite 100
Bakersfield, CA 93309

California Regional Water Quality
Control Board/Lahontan Region
15095 Amargosa Road - Bld 2, Ste 210
Victorville, CA 92392

California Department of Toxic
Substances Control
8800 Cal Center Drive
Sacramento, CA 95826-3200

East Kern Air Pollution
Control District

Kern County Fire Department

Kern County Public Works Department,
Administration and Engineering Division

Kern County Public Works Department/
Building & Development/Floodplain
Management Division

Kern County Superintendent of Schools
Attention Mary Barlow
1300 17th Street
Bakersfield, CA 93301

Kern Audubon Society
Attn: Franklin Bedard
P.O. Box 3581
Bakersfield, CA 93385

Law Offices of John A. Belcher
Attn: John A. Belcher
150 East Colorado Blvd., Suite 215
Pasadena, CA 91105

National Audubon Society
Attn: Garry George
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Los Angeles, CA 90031

Defenders of Wildlife/
Kim Delfino, California Dir
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Sacramento, CA 95814

Camille Stough
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080-7037

California Fish & Wildlife
1234 East Shaw Avenue
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State Clearinghouse
Office of Planning and Research
1400 - 10th Street, Room 222
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May 2020

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7.1 Introduction

Purpose

As defined by Section 15050 of the *California Environmental Quality Act (CEQA) Guidelines*, the Kern County Planning and Natural Resources Department is serving as “Lead Agency” for the preparation of the Environmental Impact Report (EIR) for the Apollo Solar Project (project or proposed project). The Final EIR presents the environmental information and analyses that have been prepared for the proposed project, including comments received addressing the adequacy of the Draft EIR, and responses to those comments. In addition to the responses to comments, clarifications, corrections, or minor revisions have been made to the Draft EIR. The Final EIR which includes the responses to comments, the Draft EIR, and the Mitigation, Monitoring, and Reporting Program, will be used by the Kern County Planning Commission and the Board of Supervisors in the decision-making process for the proposed project.

Environmental Review Process

A Notice of Preparation (NOP)/Initial Study (SCH No. 2017081038) was circulated for a 30-day public review period beginning on August 18, 2017 and ending September 19, 2017. Nine individual written comment letters were received and used in the preparation of the Draft EIR. The Draft EIR for the proposed project was circulated for a 45-day public review period beginning on December 23, 2019 and ending February 6, 2020. A total of fourteen comment letters were received on the Draft EIR.

Section 15088 of the *CEQA Guidelines* requires that the lead agency evaluate comments on environmental issues received from persons and agencies that reviewed the Draft EIR and prepare a written response addressing the comments received. The response to comments is contained in this document — Volume 3, Chapter 7 of the Draft EIR. Volumes 1, 2, and 3 together constitute the Final EIR.

7.2 Revisions to the Draft EIR

The revisions that follow were made to the text of the Draft EIR. Amended text is identified by page number. Additions to the Draft EIR text are shown with underline and text removed from the Draft EIR is shown with ~~strikethrough~~. The revisions, as outlined below, fall within the scope of the original project analysis included in the Draft EIR and do not result in an increase to any identified impacts or produce any new impacts. No new significant environmental impact would result from the changes or from a new mitigation measure proposed to be implemented. Therefore, no significant revisions have been made which would require recirculation of the Draft EIR pursuant to *CEQA Guidelines* Section 15088.5 (Recirculation of an EIR Prior to Certification).

Chapter 1, Executive Summary, Page 1-16:

TABLE 1-3: SUMMARY OF PROPOSED PROJECT IMPACTS THAT ARE LESS THAN SIGNIFICANT OR LESS THAN SIGNIFICANT WITH MITIGATION

Impact	Mitigation Measures
Agriculture and Forest Resources	MM 4.2-1
Air Quality	MM 4.3-1 through MM 4.3-9 <u>4.3-10</u>

Chapter 1, Executive Summary, Page 1-18:

TABLE 1-5: SUMMARY OF SIGNIFICANT AND UNAVOIDABLE PROJECT-LEVEL AND CUMULATIVE IMPACTS OF THE SOLAR FACILITY

Impact	Project Impacts	Cumulative Impacts	Mitigation Measures
Aesthetics	The project would convert presently rural land to solar energy production; however, there are no feasible mitigation measures that can be implemented to preserve the existing open space landscape character at the project site while at the same time developing a solar energy facility. Therefore, impacts to visual character would remain significant and unavoidable .	The project together with all other planned solar power projects within the surrounding area would result in significant and unavoidable cumulative impacts .	MM 4.1-1 and MM 4.1-2
Air Quality	Project implementation would result in increased air quality impacts and emissions; however, with mitigation, impacts are less than significant .	When combined with cumulative impacts from past, present, and reasonably foreseeable future projects, including comparable renewable energy projects proposed for construction in Kern County, the project's incremental contribution to air quality during construction is significant and unavoidable .	MM 4.3-1, MM 4.3-2, and MM 4.3-4 through MM 4.3-9 <u>4.3-10</u>

Chapter 1, Executive Summary, Page 1-30:

~~It is important to note that it is considered to be impracticable and infeasible to construct the Rooftop Solar Alternative within the same timeframe and/or with the same efficiency as the proposed project because the project proponent lacks control and access to the sites required to develop 60 MW of distributed solar generated electricity. In addition, Alternative 4 would not achieve the objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. Nonetheless, because~~

~~Alternative 4 reduces impacts to a greater degree than the three other alternatives analyzed. Alternative 4 is selected as the Environmentally Superior Alternative. However, it is impracticable and infeasible to construct the Rooftop Solar Alternative within the same timeframe and/or with the same efficiency as the proposed project because the project proponent lacks control and access to the sites required to develop 60 MW of distributed solar generated electricity. In addition, Alternative 4 would not achieve the objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. As a result, Alternatives 1 and 4 are infeasible.~~

Chapter 1, Executive Summary, Pages 1-33 and 1-34:

MM 4.1-2: Only the natural vegetation within the project boundary may be mowed for placement of the project components. Wherever possible, within the proposed project boundary the natural vegetation shall remain undisturbed. All natural vegetation adjacent to the proposed project boundary shall remain in place. Prior to the commencement of operations, the project proponent/operator shall submit a Landscape Revegetation and Restoration Plan for the project site to the Kern County Planning and Natural Resources Department for review and approval. The plan shall include, but not limited to the following:

1. Where feasible, root balls shall be maintained during vegetation clearing to maintain soil stability and ultimately vegetation re-growth following construction.
2. In areas temporarily disturbed during construction (including grading or removal of root balls resulting in loose soil), the ground surface shall be revegetated with a native seed mix or native plants and/or allowed to re-vegetate with the existing native seed bank in the top soil where possible to establish revegetation. Areas that contain permanent features such as perimeter roads, maintenance roads or under arrays do not require revegetation.
3. The seed mix or native plants shall be determined through consultation with professionals such as landscape architect(s), horticulturist(s), botanist(s), etc. with local knowledge as shown on submitted resume and shall be approved by the Kern County Planning and Natural Resources Department prior to planting. Phased seeding may be used if a phased construction approach is used (i.e. the entire site need not be seeded all at the same time).
4. The plan must include the approved California native seed mix or native plants, a timeline for seeding the site, details of which areas are to be revegetated, a list of the consultation efforts completed, and a prohibition of the use of toxic rodenticides.
5. The revegetation and restoration of the site shall be monitored annually for a three-year period and an annual evaluation report shall be submitted to the Kern County Planning and Natural Resources Department during the three-year period. Should efforts to re-vegetate with the existing native seed bank in the top soil prove in the second year to not be successful by 75 percent cover rate, re-evaluation of revegetation methods shall be made in consultation with the Kern County Planning and Natural Resources Department and an additional year shall be added to the monitoring program to ensure coverage is achieved. The three-year monitoring program is intended to ensure the site naturally achieve native plant diversity, establishes perennials, and is consistent with conditions prior to implementation of the proposed project, where feasible.

<p>Impact 4.2-3: The project would conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).</p>	<p>Potentially significant <u>Less than significant</u></p>	<p>MM 4.2-1: Prior to the issuance of building permits, the project proponent/operator shall ensure that the following note appears on all site plans associated with the proposed project: “The County of Kern encourages operation of properly conducted businesses in agriculture, oil, mining, manufacturing, and other non-residential operations within the County. If the property you are purchasing is located near these businesses, you may be subject to inconveniences or discomforts arising from such operations to the extent allowed by law. This notice does not waive your legal rights.”</p>	<p>Less than significant with mitigation.</p>
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Chapter 1, Executive Summary, Pages 1-45 through 1-48:

<p>Impact 4.3-2: Construction and operation of the project would expose sensitive receptors to substantial pollutant concentrations.</p>	<p>Potentially significant</p>	<p><u>Implement Mitigation Measures MM 4.3-1 through MM 4.3-8, and</u></p> <p>MM 4.3-9: Prior to ground disturbance activities, the project proponent/operator shall provide evidence to the Kern County Planning and Natural Resources Department that the project proponent and/or construction manager has developed a “Valley Fever Training Handout” and schedule of sessions for education to be provided to all construction personnel. All evidence of the training session(s) and handout(s) shall be submitted to the Kern County Planning and Natural Resources Department within 24 hours of the training session. Multiple training sessions may be conducted if different work crews come to the site for different stages of construction; however, all construction personnel shall be provided training prior to beginning work. The evidence submitted to the Kern County Planning and Natural Resources Department regarding the “Valley Fever Training Handout” and Training Session(s) shall include the following:</p> <ol style="list-style-type: none"> 1. A sign-in sheet (to include the printed employee names, signature, and date) for all employees who attended the training session. 2. Distribution of a written flier or brochure that includes educational information regarding the health effects of exposure to 	<p>Toxic Air Contaminants Except Valley Fever: Less than significant. No mitigation required</p> <p>Valley Fever: Less than significant with mitigation.</p>
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criteria pollutant emissions and Valley Fever.

3. Training on methods that may help prevent Valley Fever infection.
4. A demonstration to employees on how to use personal protective equipment, such as respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition of symptoms and earlier treatment of Valley Fever. Where respirators are required, the equipment shall be readily available and shall be provided to employees for use during work. Proof that the demonstration is included in the training shall be submitted to the Kern County Planning and Natural Resources Department. This proof can be via printed training materials/agenda, DVD, digital media files, or photographs.

While there is no vaccine to prevent Valley Fever, the following steps are important to take in order to limit risk:

1. Determine if your worksite is in an endemic area.
2. Adopt site plans and work practices that reduce workers' exposure, which may include:
 - a. Minimize the area of soil disturbed.
 - b. Use water, appropriate soil stabilizers, and/or re-vegetation to reduce airborne dust
 - c. Stabilize all spoils piles by tarping or other methods.
 - d. Provide air conditioned cabs for vehicles that generate heavy dust and make sure workers keep windows and vents closed.
 - e. Suspend work during heavy winds.
 - f. Onsite sleeping quarters, if provided, should be placed away from sources of dust.
3. When exposure to dust is unavoidable, provide NIOSH-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or HEPA. Employers must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144).
4. Take measures to reduce transporting spores offsite, such as:

-
- a. Clean tools, equipment, and vehicles before transporting offsite.
 - b. If workers' clothing is likely to be heavily contaminated with dust, provide coveralls and change rooms, and showers where possible.
5. Identify a health care provider for occupational injuries and illnesses who is knowledgeable about the diagnosis and treatment of Valley Fever
 6. Train workers and supervisors about the risk of Valley Fever, the work activities that may increase the risk, and the measures used onsite to reduce exposure. Also train on how to recognize Valley Fever symptoms.
 7. Encourage workers to report Valley Fever symptoms promptly to a supervisor. Not associating these symptoms with workplace exposures can lead to a delay in appropriate diagnosis and treatment.

MM 4.3-10: Prior to the issuance of grading permits, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of \$3,200 for Valley Fever public awareness programs.

Impact 4.3-3: The proposed project would result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors). Specifically, implementation of the proposed project would exceed any of the adopted thresholds of the East Kern Air Pollution Control District:

Potentially significant

Implement Mitigation Measures **MM 4.3-1**, **MM 4.3-2**, and **MM 4.3-4** through **MM 4.3-9** **4.3-10**.

Less than significant with mitigation.

i. San Joaquin Valley Air Pollution Control District ii. Eastern Kern Air Pollution Control District			
Impact 4.3: Cumulative impacts (and Impact 4.3-3)	Potentially significant	Implement Mitigation Measures MM 4.3-1 , MM 4.3-2 , and MM 4.3-4 through MM 4.3-9 <u>4.3-10</u> .	Construction: Significant and unavoidable. Operation: Less than significant with mitigation. Deconstruction: Significant and unavoidable.

Chapter 1, Executive Summary, Pages 1-69 and 1-70:

MM 4.4-12: To mitigate for potential impacts to nesting birds, special-status birds, and birds protected under the Migratory Bird Treaty Act and California Fish and Game Code during construction and decommissioning activities, the following measures shall be implemented as part of the approval for a grading or building permit.

1. During the avian nesting season (February 1 – August 31), a qualified biologist shall conduct a preconstruction avian nesting survey no more than 7 days prior to initial vegetation clearing. Surveys need not be conducted for the entire project site at one time; they may be phased so that surveys occur within 7 days prior to clearing or disturbance in specific areas of the site. The surveying biologist must be qualified to determine the species, status, and nesting stage without causing intrusive disturbance. At no time shall the biologist be allowed to handle the nest or its eggs. The survey shall cover all reasonably potential nesting locations on and within 500 feet of the project site (0.5 miles for Swainson's hawk), including ground nesting where species, such as California horned lark and killdeer might nest all shrubs that could support nests, and suitable raptor nest sites such as nearby trees, windrows and power poles. Swainson's hawk surveys will be conducted according to the *Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California* (CDFW, 2010). Access shall be granted on private offsite properties prior to conducting surveys on private land. If access is not obtainable, the biologist shall survey these areas from the nearest vantage point with use of spotting scopes or binoculars.
2. If construction is scheduled to occur during the non-nesting season (September 1 through February 1), no preconstruction surveys or additional measures are required for non-listed avian species.
3. If construction begins in the non-nesting season and proceeds continuously into the nesting season within any particular construction or decommissioning area, no surveys

are required for non-listed avian species so long as all suitable nesting sites have been cleared from active construction/decommissioning areas.

4. If active nests are found, a 300-foot no-disturbance buffer shall be created around passerine species' nests unless adjusted by the qualified biologist based on the needs and sensitivities of individual species, and a 500-foot no-disturbance buffer around raptor species' nests (or a suitable distance otherwise determined in conferral with California Department of Fish and Wildlife). Any nest of a federal- or State-listed bird species shall require consultation with the appropriate agency (U.S. Fish and Wildlife Service or the California Department of Fish and Wildlife) to determine the appropriate buffer distance surrounding the nest to provide adequate nest protection. These buffers shall remain in effect until a qualified wildlife biologist has determined that the birds have fledged or the proposed project component(s) have been redesigned to avoid the area. All no-disturbance buffers shall be delineated in the field with visible flagging or fencing material.

Chapter 1, Executive Summary, Page 1-74:

Impact 4.4-4: The proposed project would interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

Potentially significant

Implement Mitigation Measures **MM 4.1-4, MM 4.4-7, MM 4.4-8, MM 4.4-12, and MM 4.4-13.**

Construction: Less than significant with mitigation.

Operation: Less than significant with mitigation. ~~No mitigation required.~~

Deconstruction: Less than significant with mitigation.

Chapter 1, Executive Summary, Pages 1-85 and 1-86:

~~**MM 4.9-1:** Prior to the issuance of grading or building permits, the project proponent/operator shall prepare a Hazardous Materials Business Plan (HMBP) and submit it to the Kern County Public Health Services Department/Environmental Health Services Division/Hazardous Materials Section for review and approval.~~

- ~~1. The Hazardous Materials Business Plan shall:~~
 - ~~a. Delineate hazardous material and hazardous waste storage areas;~~
 - ~~b. Describe proper handling, storage, transport, and disposal techniques, including which routes will be used to transport hazardous materials;~~
 - ~~c. Describe methods to be used to avoid spills and minimize impacts in the event of a spill;~~

- ~~d. Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction;~~
- ~~e. Establish public and agency notification procedures for spills and other emergencies including fires; and~~
- ~~f. Include procedures to avoid or minimize dust from existing residual pesticide and herbicide use that may be present on the site.~~
- ~~2. The project proponent/operator shall provide the Hazardous Materials Business Plan to all contractors working on the project and shall ensure that one copy is available at the project site at all times.~~
- ~~3. A copy of the approved Hazardous Materials Business Plan shall be submitted to the Kern County Planning and Natural Resources Department.~~

MM 4.9-1: During the life of the project, including decommissioning, the project operator shall prepare and maintain a Hazardous Materials Business Plan, as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all the required information to the California Environmental Reporting System at <http://cers.calepa.ca.gov/> for review and acceptance by the Kern County Environmental Health Services Division/Hazardous Materials Section. The Hazardous Materials Business Plan shall:

- a. Delineate hazardous material and hazardous waste storage areas.
- b. Describe proper handling, storage, transport, and disposal techniques.
- c. Describe methods to be used to avoid spills and minimize impacts in the event of a spill.
- d. Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction.
- e. Establish public and agency notification procedures for spills and other emergencies, including fires.
- f. Describe federal, state, or local agency coordination, as applicable, and clean-up efforts that would occur in the event of an accidental release.
- g. Include procedures to avoid or minimize dust from existing residual pesticide and herbicide use that may be present on the site.

The project proponent shall ensure that all contractors working on the project are familiar with the facility's Hazardous Materials Business Plan as well as ensure that one copy is available at the project site at all times. In addition, a copy of the accepted hazardous materials business plan from California Environmental Reporting System shall be submitted to the Kern County Planning and Natural Resources Department for inclusion in the project's permanent record.

Chapter 1, Executive Summary, Page 1-88:

Impact 4.9-5: The project would result in a safety hazard for people residing or working in the project area, for a project located within the <u>adopted Kern County Airport Land Use Compatibility Plan</u> , vicinity of a private airstrip.	Less than significant	No mitigation required	Less than significant.
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Chapter 1, Executive Summary, Pages 1-101 and 1-102:

MM 4.14-2: The project proponent/operator shall implement the following mitigation steps at the project site:

- a) For facility operation, the project proponent/operator shall pay for impacts to countywide public protection, sheriff patrol and investigative services, and fire services at a rate of ~~\$29.59~~ \$28.84 per 1,000 square feet of panel-covered ground for the facility operations and related onsite structures for the entire covered area of the project. The total amount shall be divided by 20 and paid on a yearly basis. Any operation that continues past 20 years will pay the same yearly fee. If completed in phases, the annual amount shall be based on the square footage of ground covered by April 30 of each year. The amount shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year for each and every year of operation. Alternatively, the project proponent/operator may choose to pay the total amount, based on 20 years of operation, as a one-time lump sum rather than ongoing annual payments. Copies of payments made shall be submitted to the Kern County Planning and Natural Resources Department.
- b) Written verification of ownership of the proposed project shall be submitted to the Kern County Planning and Natural Resources Department by April 15 of each calendar year. If the project is sold to a city, county, or utility company that pays assessed taxes that total equal less than \$1,000 per megawatt per year, then they shall pay those taxes plus the an amount necessary to equal the equivalent of \$1,000 per megawatt. The amount shall be paid for all years of operation. The fee shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year.
- c) The project proponent/operator shall work with the County staff to determine how the use receipt of sales and use taxes from related *to the* construction of the project can be maximized. This process shall include, but is not necessarily limited to, the project proponent/operator: obtaining a street address within the unincorporated portion of Kern County for acquisition, purchasing, and billing purposes and, registering this

address with the State Board of Equalization, using this address for acquisition, purchasing and billing purposes associated with the proposed project. As an alternative to the aforementioned process, the project proponent/operator may make arrangements with Kern County for a guaranteed single payment that is equivalent to the amount of sales and use taxes that would have otherwise been received (less any sales and use taxes actually paid); with the amount of the single payment to be determined via a formula approved by Kern County. The project proponent/operator shall allow the County to use this sales tax information publicly for reporting purposes.

Chapter 1, Executive Summary, Pages 1-101 and 1-102:

Impact 4.15: Cumulative impacts	Potentially significant	Implement Mitigation Measures <u>MM 4.15-1</u> and <u>MM 4.15-2</u>	Less than significant with mitigation.
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Chapter 1, Executive Summary, Page 1-110:

Impact 4.18-1: The project would expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire due to slope, prevailing winds, and other factors.	Potentially significant	Implement Mitigation Measures MM 4.10-1 , MM 4.14-1 and MM 4.14-2	Less than significant with mitigation
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Chapter 3, Project Description, Page 3-19:

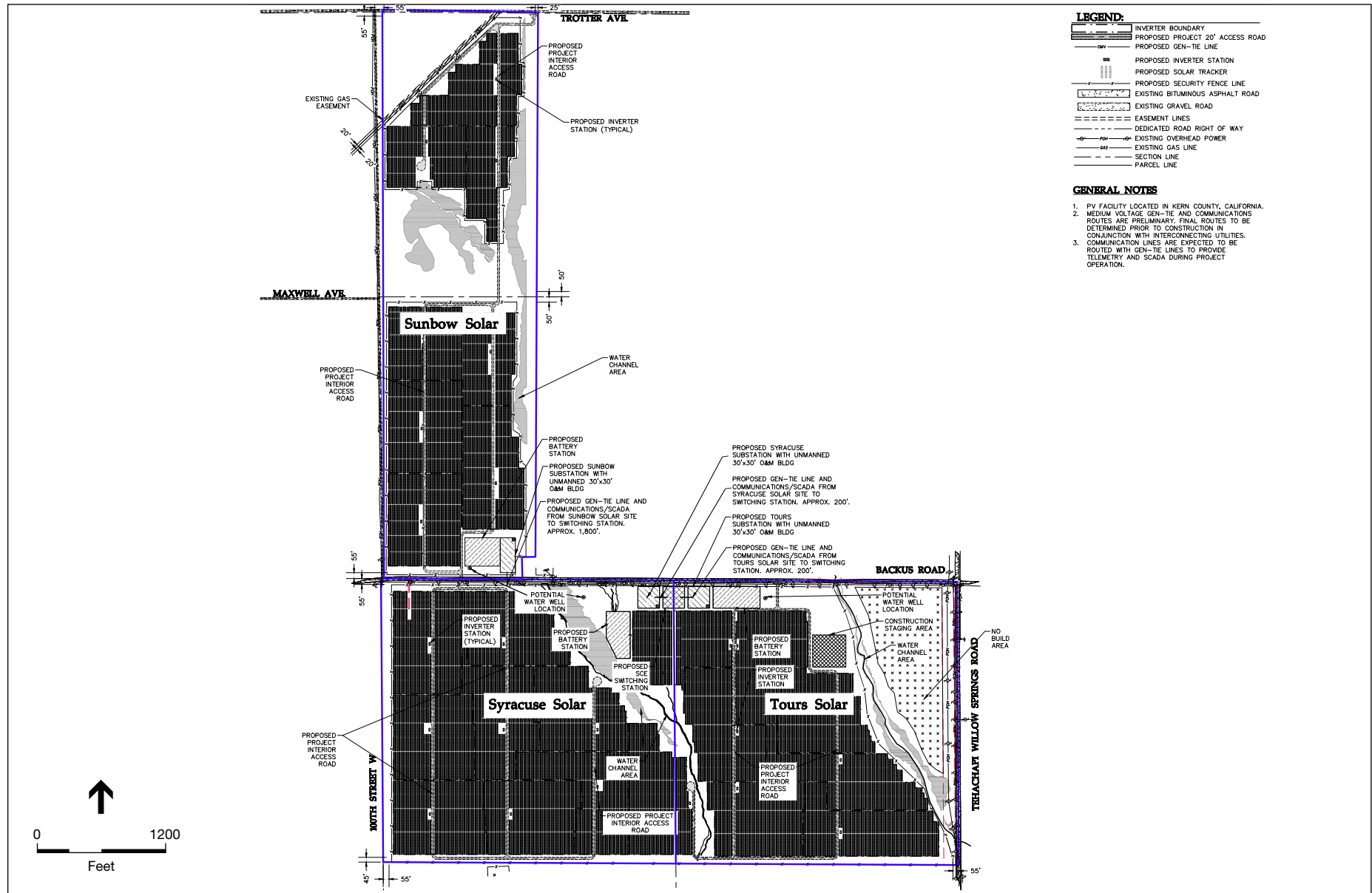
The construction activities for the proposed project fall into three main categories: (1) site grading and earthwork; (2) solar array construction; and (3) electrical interconnection to transmission owner infrastructure. The entire construction process is estimated to take up to approximately 300 construction days, over the course of a 12 to 14-month period. ~~Site grading and earthwork is anticipated to begin during the fourth quarter of 2019, with operations beginning in the fourth quarter of 2020.~~ Construction would primarily occur during daylight hours, Monday through Friday. Additional hours/days may be necessary to facilitate the schedule.

Chapter 3, Project Description, Page 3-12:

Figure 3-6, *Overall Site Plan*, in Chapter 3, *Project Description*, of the Draft EIR, has been updated to show the revised eastern fence boundary.



KERN COUNTY PLANNING AND NATURAL RESOURCES DEPARTMENT
AV APOLLO SOLAR PROJECT



Section 4.3, Air Quality, Pages 4.3-39 and 4.3-40:

Valley Fever

The proposed project has the potential to generate fugitive dust and suspend Valley Fever spores with the dust that could then reach nearby sensitive receptors. It is possible that onsite workers could be exposed to valley fever as fugitive dust is generated during construction. Mitigation Measure MM 4.3-9; would provide training and personal protective respiratory equipment to construction workers and provide information to all construction personnel and visitors about Valley Fever. In addition, Mitigation Measure MM 4.3-10 is proposed to ensure appropriate public awareness regarding Valley Fever. Therefore, the exposure to Valley Fever would be minimized. With the implementation of the ~~mitigation measures~~ Mitigation Measures MM 4.3-1 through MM 4.3-8, dust from the construction of the proposed project would not add significantly to the existing exposure level of people to this fungus, including construction workers, and impacts would be reduced to less-than-significant levels.

Section 4.3, Air Quality, Page 4.3-40:

Health Effects of Criteria Pollutants

The EPA and CARB have established AAQS at levels above which concentrations could be harmful to human health and welfare, with an adequate margin of safety. Further, California air districts, like the EKAPCD, have established emission-based thresholds that provide project-level estimates of criteria air pollutant quantities that air basins can accommodate without affecting the attainment dates for the AAQS. Accordingly, elevated levels of criteria air pollutants as a result of a project's emissions could cause adverse health effects associated with these pollutants. The EKAPCD is designated as an attainment area for O₃ (one hour), PM₁₀ and PM_{2.5} and a nonattainment area for O₃ (eight hour) under the NAAQS, and nonattainment for O₃, PM₁₀ and PM_{2.5} under the CAAQS.

Regarding health effects of criteria air pollutants, implementation of MM 4.3-1 through MM ~~4.3-9~~ 4.3-10 would reduce the projects potential to result in regional health effects associated with ROG, NOX, PM₁₀ and PM_{2.5}; however, localized health effects associated with NOX, PM₁₀, and PM_{2.5} could occur. However, implementation of the mitigation measures described in Impact 4.3-1 and Impact 4.3-2, above, would reduce both localized and regional project generated construction and operational emissions.

Section 4.3, Air Quality, Pages 4.3-42 and 4.3-43:

Implement Mitigation Measures 4.3-1 through 4.3-8.

MM 4.3-9: Prior to ground disturbance activities, the project proponent/operator shall provide evidence to the Kern County Planning and Natural Resources Department that the project proponent and/or construction manager has developed a “Valley Fever Training Handout” and schedule of sessions for education to be provided to all construction personnel. All evidence of the training session(s) and handout(s) shall be submitted to the Kern County Planning and Natural Resources Department within 24 hours of the training session. Multiple training sessions may be conducted if different work crews come to the site for different stages of construction; however, all construction personnel shall be provided training prior to beginning work. The evidence submitted to the Kern County Planning and

Natural Resources Department regarding the “Valley Fever Training Handout” and Training Session(s) shall include the following:

1. A sign-in sheet (to include the printed employee names, signature, and date) for all employees who attended the training session.
2. Distribution of a written flier or brochure that includes educational information regarding the health effects of exposure to criteria pollutant emissions and Valley Fever.
3. Training on methods that may help prevent Valley Fever infection.
4. A demonstration to employees on how to use personal protective equipment, such as respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition of symptoms and earlier treatment of Valley Fever. Where respirators are required, the equipment shall be readily available and shall be provided to employees for use during work. Proof that the demonstration is included in the training shall be submitted to the Kern County Planning and Natural Resources Department. This proof can be via printed training materials/agenda, DVD, digital media files, or photographs.

While there is no vaccine to prevent Valley Fever, the following steps are important to take in order to limit risk:

1. Determine if your worksite is in an endemic area.
2. Adopt site plans and work practices that reduce workers' exposure, which may include:
 - a. Minimize the area of soil disturbed.
 - b. Use water, appropriate soil stabilizers, and/or re-vegetation to reduce airborne dust
 - c. Stabilize all spoils piles by tarping or other methods.
 - d. Provide air conditioned cabs for vehicles that generate heavy dust and make sure workers keep windows and vents closed.
 - e. Suspend work during heavy winds.
 - f. Onsite sleeping quarters, if provided, should be placed away from sources of dust.
3. When exposure to dust is unavoidable, provide NIOSH-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or HEPA. Employers must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144).
4. Take measures to reduce transporting spores offsite, such as:
 - a. Clean tools, equipment, and vehicles before transporting offsite.
 - b. If workers' clothing is likely to be heavily contaminated with dust, provide coveralls and change rooms, and showers where possible.
5. Identify a health care provider for occupational injuries and illnesses who is knowledgeable about the diagnosis and treatment of Valley Fever

6. Train workers and supervisors about the risk of Valley Fever, the work activities that may increase the risk, and the measures used onsite to reduce exposure. Also train on how to recognize Valley Fever symptoms.
7. Encourage workers to report Valley Fever symptoms promptly to a supervisor. Not associating these symptoms with workplace exposures can lead to a delay in appropriate diagnosis and treatment.

MM 4.3-10: Prior to the issuance of grading permits, a one-time fee shall be paid to the Kern County Public Health Services Department in the amount of \$3,200 for Valley Fever public awareness programs.

Level of Significance after Mitigation

Impacts would be less than significant.

Section 4.3, Air Quality, Page 4.3-51:

Cumulative Impacts Summary

Based on the analysis of all potential projects within 6 miles of the project site, cumulative project construction emissions in tons per year would exceed the threshold established by EKAPCD, for ROG, NOX and PM10 emissions. Assuming on a worst case basis that the construction schedules for all projects would overlap with each other and with the proposed project, the localized effect would result in cumulatively significant NOX emissions. Additionally, at a Basinwide level, the project, when considered with other reasonably foreseeable planned solar projects with the MDAB, would potentially result in significant NOX and PM10 emissions during project construction. The majority of project emissions would occur temporarily during the construction phase.

Mitigation Measures MM 4.3-1, MM 4.3-2 and MM 4.3-4 through MM 4.3-6 would reduce impacts related to dust generation by implementing fugitive dust control measures, implementing a Phased Grading Plan, and establishing a public complaint protocol for excessive dust generation. Mitigation Measure MM 4.3-9 would require Valley Fever-related training for construction workers and Mitigation Measure MM 4.3-10 would ensure appropriate public awareness regarding Valley Fever. However, cumulative impacts during construction remain significant and unavoidable.

With regard to operational emissions, it was determined that the emissions resulting from the concurrent operation of the related projects and the proposed project would not create a cumulatively significant localized impact. Therefore, the long-term emissions that would be associated with the proposed project would not be cumulatively considerable and the associated cumulative impact would be less-than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.3-1, MM 4.3-2, and MM 4.3-4 through MM ~~4.3-9~~4.3-10.

Level of Significance after Mitigation

Cumulative impacts during construction would be continue to be significant and unavoidable.

Section 4.4, Biological Resources, Page 4.4-14:

TABLE 4.4-1: SPECIAL-STATUS PLANT SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State Status	CRPR ¹ Status	Habitat Requirements	Potential to Occur and Explanation
<i>Allium howellii</i> var. <i>clokeyi</i>	Mt. Pinos onion	None	None	1B.3	Restricted to a narrow range of coastal sage scrub habitat in the Transverse Range, in the foothills around Mount Pinos, which is west of the project site. <u>Blooms from April to June.</u>	Unlikely. The known range of this species is West of project and thus does not occur on site. Additionally, the project site does not provide suitable coastal sage scrub habitat. This species was not observed during floristic surveys.
<i>California macrophylla</i>	round-leaved filaree	None	None	1B.2	Occurs in valley grassland or oak woodland habitat, mostly in the foothills of the Central Valley of California but also recorded in the Antelope Valley. <u>Blooms from March to May.</u>	Unlikely. Habitat suitable to support this species is absent from the project site and its vicinity, and is outside the known range. This species was not observed during floristic surveys.
<i>Calochortus palmeri</i> var. <i>palmeri</i>	Palmer's mariposa lily	None	None	-- / -- / 1B.2	Mostly occurs in wetland habitat, though also occurs in yellow pine forest or chaparral at low-elevations in the foothills of the Sierra Nevada and Transverse Ranges. <u>Blooms from April to July.</u>	Unlikely. Ephemeral wetland habitat suitable to support this species is present on the project site in Oak Creek, but it is outside the known range. This species was not observed during floristic surveys.
<i>Nemacladus secundiflorus</i> var. <i>robbinsii</i>	<u>Robbins' nemacladus</u>			<u>1B.2</u>	<u>sandy gravelly soil; creosote bush scrub</u>	Moderate: <u>Suitable habitat found on the project. This species was not observed during floristic surveys</u>

Section 4.4, Biological Resources, Pages 4.4-11 to 4.4-12:

Of the 201 special status plant species identified in Table 4.4-1, two special-status plant species, Lemmon's jewelflower (*Caulanthus lemmonii*) and Clokey's cryptantha (*Cryptantha clokeyi*), were observed on the Sunbow site during the floristic surveys. Robbins' nemacladus (*Nemacladus secundiflorus* var. *robbinsii*)

has a moderate potential to occur, although it was not observed during the floristic surveys. Five species have low potential to occur based on marginally suitable habitat and/or known occurrences in the vicinity of the project site: alkali mariposa lily (*Calochortus striatus*), recurved larkspur (*Delphinium recurvatum*), Rosamond eriastrum (*Eriastrum rosamondense*), sagebrush loeflingia (*Loeflingia squarrosa* var. *artemisarum*), and Latimer's woodland gilia (*Saltugilia latimeri*). The remaining species were determined to have no potential to occur because suitable habitat is not present. The ~~two~~ three species that were present or have moderate potential to occur on the project site are described in further detail below.

Lemmon's jewelflower is a member of the mustard family, which primarily occurs in the Coastal Range, but is uncommon in the San Joaquin Valley and northwestern Mojave Desert. The species is listed as 1B.2 by the CNPS, which is a designation for rare, threatened, or endangered in California and elsewhere. Forty-seven individuals of Lemmon's jewelflower were observed during the floristic survey of Site 3 conducted on April 8, 2017. All individuals were observed within the boundary and associated floodplain of a blue line drainage on the Sunbow site. No individuals were observed in the upland areas of the project site (QK, 2017a).

Clokey's cryptantha is a member of the forget-me-not family that occurs in Mojave creosote bush scrub in the northwestern Mojave Desert. The species is also listed as a 1B.2 species by the CNPS. Two individuals were observed on the Sunbow site in disturbed roadside areas: one just south of Backus Road and another on the west side of Maxwell road. Based upon the results of the field surveys, no other specialstatus plant species are anticipated to be present on the project site (QK, 2017a).

Robbins' nemacladus

Robbins' nemacladus is a member of the bellflower family that occurs in open areas within chaparral and valley and foothill grassland habitat. The species is listed as 1B.2 by the CNPS. No individuals were observed on the Project site. The closest CNDDB records are approximately 40-miles from the site. However, the nearest Calflora record indicates that the species was observed approximately 1.0- mile west of the Project site, near Catalina Solar in 2010 (Calflora 2020).

Section 4.4, Biological Resources, Page 4.4-14:

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State ¹ Status	Habitat Requirements	Potential to Occur and Explanation
Birds					
<i>Agelaius tricolor</i>	tricolored blackbird	None	<u>STSSC</u> ²	Requires open water, protected nesting substrate and foraging area with insect prey within a few kilometers of the colony.	Unlikely. Habitat to support this species is absent from the project site. This species was not observed during the project surveys.

Section 4.4, Biological Resources, Pages 4.4-15 and 4.4-16:

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State ¹ Status	Habitat Requirements	Potential to Occur and Explanation
<i>Buteo swainsoni</i>	Swainson's hawk	None	ST ²	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, and agricultural areas; requires adjacent suitable foraging habitat such as grasslands, alfalfa or grain fields supporting rodent populations.	Low. No nesting Swainson's hawks were observed during pre-project surveys within 5 miles of the project. There were no Swainson's hawks known to occur <u>has been only one active Swainson's hawk nest within 5 miles of the project site within the past 5 years. Although the project site could serve as nesting or foraging habitat for Swainson's hawks, there is no evidence that Swainson's hawks are present within 5 miles of the project or use the project as nesting or foraging habitat, and they are unlikely to do so given the marginal habitat provided by the project site.</u>
<i>Circus hudsonius</i>	Northern harrier	None	SCS	<u>Widely distributed; occurs in grasslands, lodgepole pine and alpine meadows, open rangelands, desert sinks, fresh and saltwater emergent wetlands, and coastal beach scrub/dune habitats; typically nests on the ground in dense vegetation, often on edges of marshes; feeds on small mammals, birds, frogs and other species; hunts on the wing by flying low over the ground, so open habitat is a requirement</u>	Low. <u>No suitable nesting habitat exists on the project site. Suitable foraging habitat exists on and near the project site, especially in the irrigated agricultural fields southeast of the project site.</u>

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State ¹ Status	Habitat Requirements	Potential to Occur and Explanation
<u><i>Asio otus</i></u>	<u>Long-eared owl</u>		<u>SCS</u>	<u>This species roosts in dense vegetation and forage in open grasslands, shrublands, coniferous forests, and deciduous woodlands. They can nest in willows, cottonwoods, and junipers, as well as brushy vegetation adjacent to open habitat.</u>	<u>Absent.</u> <u>No suitable roosting or nesting habitat exists on the project site.</u>
<u><i>Chaetura vauxi</i></u>	<u>Vaux's swift</u>	<u>None</u>	<u>SCS</u>	<u>Nests in mature and old-growth coniferous and mixed forests especially those with plenty of hollow trees, forests with coastal redwood, grand fir, ponderosa pine, western hemlock, Douglas-fir, and western redcedar.</u>	<u>Low.</u> <u>This species may occur as a transient forager between wintering and nesting grounds.</u>
<u><i>Antrozous pallidus</i></u>	<u>Pallid bat</u>	<u>None</u>	<u>SCS</u>	<u>Occurs throughout California in wide variety of habitats: grasslands, shrublands, woodlands, forests up through mixed conifer; most common in open, dry habitats with rocky areas for roosting; yearlong resident; feeds mainly on insects and arachnids on the ground or by gleaning; day roosts in caves, crevices, mines, and occasionally hollow trees and buildings, including bridges; night roosts in more open sites.</u>	<u>Low.</u> <u>No suitable roosting habitat exists on the project site, though suitable foraging habitat does exist on the project site.</u>
<u><i>Toxostoma lecontei</i></u>	<u>Le Conte's thrasher</u>	<u>None</u>	<u>SCS</u>	<u>This species occurs in desert flats with sparse vegetation and sandy soils. It nests in tall, robust saltbushes that can support a nest approximately 26-38 inches above the ground</u>	<u>Moderate.</u> <u>(Sites 1, 2, and 3). Suitable habitat for nesting and foraging is present on the Project site. This species was not observed during the Project surveys.</u>

Section 4.4, Biological Resources, Pages 4.4-17 through 4.4-19:

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State ¹ Status	Habitat Requirements	Potential to Occur and Explanation
<i>Onychomys torridus</i>	Southern grasshopper mouse	None	ST ²	Inhabits open desert scrub, alkali scrub, and Joshua tree woodland; feeds in annual grassland; restricted to Mojave Desert. Prefers sandy to gravelly soils. Species nests in burrows.	Unlikely. Potentially suitable habitat exists within the project site; however, the species is considered extirpated west of SR 14 and south of SR 58. No occurrences of this species have been reported within 10 miles of the project site, and focused survey results for several adjacent solar developments were all negative.
<i>Onychomys torridus tularensis</i>	Tulare grasshopper mouse	None	SSC ²	Species inhabits low, open scrub and desert scrub.	Unlikely. The project site is outside of the distributional range of this species, which is limited to the Central Valley of California. Although there are several CNDDB records of this species in the Mohave Desert to the north of the project, these occurrences were in the lower foothills not the flat lands where the project occurs and are located on the edge of the species range those records are likely for the more widespread and common southern grasshopper mouse..
<i>Perognathus inornatus alticola</i>	Tehachapi pocket mouse	None	SSC ²	This Species is confined to grasslands, pinyon-pine woodlands, Joshua tree forests and fallow fields. This species historically occurred from the vicinity of Tehachapi Pass, west to Mount Pinos, and south to Elizabeth and Quail Lakes, at elevations from about 3,000 to 5,500 feet.	Unlikely Low. The project is outside of the known range of this species and the most recent reliable record of this species anywhere within its historical range is from 1983. Nearby CNDDB occurrences were at elevations greater than the project site. the species has not been observed in more than 50 years.

TABLE 4.4-2: SPECIAL-STATUS WILDLIFE SPECIES WITH THE POTENTIAL TO OCCUR ON THE PROJECT SITE

Scientific Name	Common Name	Federal Status	State ¹ Status	Habitat Requirements	Potential to Occur and Explanation
<i>Taxidea taxus</i>	American badger	None	SSC ²	Typically most abundant in drier open stages of shrub, forest, and herbaceous habitats with friable soils. Species requires open, uncultivated ground; preys on burrowing rodents.	Present. Suitable habitat for the species is present on the project site. Two badger digs (potential burrows) were observed on site.
<i>Vulpes macrotis arsipus</i>	desert kit fox	None	None ³	Species found in arid climates. Prefers grasslands, open desert scrub, and occasionally agricultural farmland. Species nests in burrows.	Present. Suitable habitat for this species is present on the project site. Potential desert kit fox dens were observed on all three project sites. This species was not directly observed during the time of the project surveys, but signs of this species indicates its presence.
<i>Xerospermophilus mohavensis</i>	Mohave ground squirrel	None	ST ²	Inhabits open desert scrub, alkali scrub, and Joshua tree woodland; feeds in annual grassland; restricted to Mojave Desert. Prefers sandy to gravelly soils. Species nests in burrows.	Unlikely. Potentially suitable habitat exists within the project site; however, the species is considered extirpated west of SR 14 and south of SR 58. No occurrences of this species have been reported within 10 miles of the project site, <u>and focused survey results for several adjacent solar developments were all negative.</u>

Section 4.4, Biological Resources, Page 4.4-20:

Swainson's Hawk. Swainson's hawk, a State threatened species, is protected under CESA. The historical breeding range of Swainson's hawk in California included the Great Basin, Sacramento and San Joaquin Basins, the coast from Marin County to San Diego County, and scattered sites in the Mojave and Colorado Deserts. The species continues to breed across its entire historical range, but in significantly lower numbers. In the Antelope Valley the species is known to nest in low densities in desert scrub habitat with a Joshua tree overstory. Throughout its range the species nests almost exclusively in trees, typically on the edges of woodland adjacent to grass or shrubland habitat. Between 1995 and 2012 several nesting pairs of Swainson's hawks have been reported from the Antelope Valley, all in association with cultivated habitats and all outside the project site and 5-mile project buffer (CDFW, 2017). A total of 16 individual nest sites were reported during this period; however, two of these are considered alternate nests of the same breeding

pair, so a total of 15 breeding territories were identified between 1995 and 2012 (CDFW, 2017). Three of these were initially reported in the late 1990s, four between 2004 and 2008, and nine between 2009 and 2012 (CDFW, 2017). During this time as many as eight active nest sites were reported in a single year (eight in 2009 and 2010, and seven in 2011) (CDFW, 2017). CDFW's Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California recommend CEQA significance be determined based on the removal of suitable foraging habitat within 5 miles of an active nest, which is defined as a nest active at any time during the previous 5 years. ~~Based on focused surveys, there were no Swainson's hawks observed on or within 5 miles of the project.~~ One Swainson's hawk nest, identified as "nest C," was located on Dawn Road approximately 2 miles from the project site, in a tamarisk windrow on the western, edge of a large, circular agricultural field. Nest C was active in 2018. One common raven nest was observed on the project site, and numerous other raven nests were documented within 5 miles of the project, mostly on the tops of transmission line and none of which are expected to be used by Swainson's hawks.

~~Lastly, †~~ There is no evidence that Swainson's hawks are present within 5 miles of the project or use the project as nesting or foraging habitat. The foraging habitat provided by the project site is less than optimal for Swainson's hawks. Swainson's hawks prefer to forage in grasslands, irrigated pasture, alfalfa, fallow fields, and row crops but may also forage in Joshua Tree Woodlands and other desert scrub habitats that support a suitable prey base (CDFW 2010). Although the project site contains potential foraging habitat there is more suitable foraging habitat in agricultural fields to the south, and there is no evidence of Swainson's hawks forage on the project sites. All observations of Swainson's hawks in the area were south and west of the project site (BigBeau DEIR 2020), indicating that migratory corridors, nesting, and even foraging are not focused on the project site. Swainson's hawks, prefer to nest adjacent to quality foraging habitat, such as agricultural fields. Although there is potential nesting habitat (in Joshua Trees) occurring on the AV Apollo project site, there is more suitable nesting habitat occurring to the south of the site at locations where potential nest trees exist near agricultural fields. Swainson's hawk have tended to nest around agricultural areas in the Antelope Valley. Thus, although Swainson's hawks occur in the area and the project site may contain limited nesting habitat for Swainson's hawk in onsite Joshua trees, it is unlikely that this species would nest at or in the vicinity of the project site.

Le Conte's Thrasher

The Le Conte's thrasher (*Toxostoma lecontei*) is a California species of special concern. It is characterized as having a long, curved bill and a pale grayish brown body with dark eyes, bill, and tail. The Le Conte's thrasher mainly forages on the ground eating insects, lizards, and other small vertebrates. They tend to inhabit drier climates using desert brush and cactus as cover. This species occurs in desert flats with sparse vegetation and sandy soils. It nests in tall, robust saltbushes that can support a nest approximately 26-38 inches above the ground. While suitable habitat for nesting and foraging is present on the project site, this species was not observed during surveys at the project site. Therefore, LeConte's thrasher is considered to have a moderate potential to occur on-site. (OK 2017)

Northern Harrier

The northern harrier (*Circus cyaneus*), a California species of special concern, is a groundnesting raptor species which nests in grassland, marshes, fallow fields, and active agricultural fields with tall vegetation (i.e., grain fields). This species forages on agricultural lands and in foothill areas. It is migratory in the region. There is no suitable nesting habitat on the project site (see DEIR Appendix E), and this species was

not detected during surveys of the project site. This species is considered to have a low potential to occur on site.

Section 4.4, Biological Resources, Page 4.4-21:

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. The project site ~~does not lie~~ within a newly recognized defined wildlife connectivity area as mapped by the California Essential Habitat Connectivity Project. This newly defined corridor is not based upon any specific wildlife species but instead has been added as an overall essential pathway to ensure connectivity throughout California. Species using this corridor would be expected to continue to use the project site because of the permeability of the perimeter fencing, and species would use other available extensive open space within the corridor. The corridor in its entirety is approximately 24 miles wide and connects the Tehachapi Mountains in the north to the San Gabriel Mountains to the south. The project lies within the easternmost portion of that corridor, impacting only a small fraction of it. Updated Figure 15 to Appendix E to the Draft EIR shows the project in relationship to this wildlife corridor. The project site and surrounding area contain expanses of open habitat with little development and the site lacks any significant barriers to local wildlife movement. Wildlife would be expected to traverse the project site unimpeded during foraging and dispersal. Various species may travel between and among surrounding areas of low disturbance (predominantly present immediately to the north and east of the project site), or between irrigated agricultural fields south and west of the project site. The most likely areas for wildlife movement in this portion of the Mojave Desert would be within larger drainages, uninterrupted spans of native vegetation (creosote scrub, Joshua tree woodland, etc.), or along the foothills of the Tehachapi Mountains to the north, or San Gabriel Mountains to the south. Several washes traverse the project site, generally trending northwest to southeast, toward Rosamond Dry Lake. These washes are landscape features that are the most likely to represent wildlife movement corridors locally; however, there is no evidence that they provide avenues for concentrations of wildlife. The project site is within the vicinity of the Pacific Flyway, a significant avian migration route. The presence of migratory bird species within the vicinity of the project site is recognized due to the proximity to the Pacific Flyway (QK, 2017a).

Section 4.4, Biological Resources, Pages 4.4-22 and 4.4-23:

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. A wildlife corridor study was not conducted as part of the proposed project since extensive, long-term studies of species ecology, movement patterns, and dispersal behavior would be required to conclusively demonstrate if a particular site or feature of a site served as an important movement corridor.

Currently, areas surrounding the project site are either occupied by solar power generation infrastructure, wind power generation infrastructure or are undeveloped. Desert habitats throughout the Antelope Valley are fragmented by ongoing agricultural operations and renewable energy and other types of development. The use of the project site as a wildlife corridor is diminished by existing solar power generation infrastructure and wind power generation infrastructure in the area. ~~and~~ Although the project site is ~~not~~ located within a known movement “corridor,” or “linkage.” that corridor in its entirety is approximately 24 miles wide and connects the Tehachapi Mountains in the north to the San Gabriel Mountains to the south. The project site lies within the easternmost portion of that corridor, impacting only a small fraction of it. Updated Figure 15 to Appendix E to the Draft EIR shows the project in relationship to this wildlife corridor.

Regional wildlife movement through the site and surrounding area is likely to continue to be fragmented by ongoing development and agricultural operations within the region. Because of the existing habitat fragmentation, wildlife in the area are likely adapted to life in close association with human activities, and the similarity between the project site and adjacent lands suggests that the project site is not of significant value to wildlife in the area. The most likely areas for wildlife movement in this portion of the Mojave Desert would be outside the project area within larger drainages, uninterrupted spans of native vegetation (creosote scrub, Joshua tree woodland, etc.), or along the foothills of the Tehachapi Mountains to the north and San Gabriel Mountains to the south. North-south habitat corridors exist several miles east and several miles west of the project site. Similarly, the project site does not lie within a West Mojave Multiple Species Habitat Conservation Plan area.

Although there are episodic water features on the project site, there are no perennial water features present that could act as potential corridors for aquatic species. In addition, no wildlife nursery sites have been identified on or in the vicinity of the project site. Similarly, the project site is not located within a known wildlife migration corridor or linkage connecting large open space areas in throughout the region or locally. As mentioned above, the immediate project area and surrounding region contain large expanses of open habitat that provide ample amounts of area for local and regional wildlife movement (QK, 2017a).

Section 4.4, Biological Resources, Pages 4.4-32:

Special-Status Plants

Two special-status plant species were identified at the proposed Sunbow site: Clokey's cryptantha and Lemmon's jewelflower. Clokey's cryptantha was only observed on the Sunbow site, and consisted of only two plants, both occurring as isolated plants along disturbed roadsides. These two areas are outside of the area that would contain solar panels. Forty-seven Lemmon's jewelflower were observed within or close to the Sunbow site's boundaries, but not within areas proposed for development onsite. Joshua trees are prolific throughout the project site, including proposed development areas. Although Joshua trees are not at densities high enough on the project site to be a Joshua tree woodland (QK, 2017a), a sensitive natural community, the individual plants are a protected resource in accordance with the California Desert Native Plant Protection Act.

Although not located in areas proposed for development onsite, Clokey's cryptantha and Lemmon's jewelflower have the potential to be impacted during construction through the use of onsite access roads, workers traveling across the site, and construction laydown areas throughout the site. Joshua trees would be directly impacted by clearing and grading required for solar panel installation. Disturbance and/or elimination of these species from the project site would be potentially significant. Implementation of Mitigation Measure MM 4.4-1 would require surveying of the site for precise locations of Lemmon's jewelflower and Clokey's cryptantha and fencing around plants to avoid disturbance where feasible, as well as salvaging of the seed bank in areas where these plants would be destroyed. Mitigation Measure MM 4.4-2 would require avoidance of Joshua trees to the maximum extent practicable, and Mitigation Measure MM 4.4-3 would require submittal of a Joshua Tree Preservation Plan to the County designed to provide compensation for Joshua trees that are removed or damaged onsite. Further, Mitigation Measure MM 4.4-4 would require implementation of measures to help prevent the introduction of exotic plant species to the site that could affect the vitality of special-status plants onsite. Mitigation Measure MM 4.4-5 requires construction monitoring by a qualified biologist that would ensure construction work halts to avoid impacts to any special-status species, including Lemmon's jewelflower and Clokey's cryptantha, and work resumes only after special-status species are no longer at risk. Mitigation Measure MM 4.4-6 requires all

construction workers to attend an Environmental Awareness Training and Education Program that presents information on the life history and identification of special-status species, including Lemmon's jewelflower and Clokey's cryptantha. With implementation of Mitigation Measures MM 4.4-1 through MM 4.4-6, impacts to special-status plants would be less than significant.

A third special-status plant species, Robbins' nemacladus, was not detected at the project site however, there are records within one mile of the Project (Calflora 2020). Therefore there is a moderate potential for this species to occur on site. Given that this species was not detected at the project site during surveys, if it occurs at the project site at all, it has less potential to be impacted than Clokey's cryptantha or Lemmon's jewelflower. For the same reasons discussed above, mitigation measures MM 4.4-4 through MM 4.4-7 will ensure that impacts to this species are less than significant

Section 4.4, Biological Resources, Pages 4.4-33 and 4.4-34:

Burrowing Owl. One western burrowing owl was observed on the Syracuse site. The burrowing owl is a California Species of Special Concern and is protected by California Fish and Game Code Section 3503 *et. seq.* and the federal MBTA. Burrowing owls and burrows with signs of burrowing owls were recorded in the project site. Direct impacts to burrowing owls could result from construction activities. Direct impacts could include death or injury to individuals, displacement of birds and loss of territory, disruption of breeding activities, crushing of burrows and viable eggs, and other impacts. Indirect impacts could include reducing foraging opportunities, increasing incidences of agitation, and other impacts. To ensure that impacts of the project to western burrowing owls are less than significant, avoidance measures shall be implemented.

Mitigation Measure MM 4.4-6 requires all construction workers to attend an Environmental Awareness Training and Education Program that presents information on the life history and identification of special-status species, including burrowing owls. Mitigation Measure MM 4.4-7 would require preconstruction surveys for special-status species including burrowing owls and establishment of a suitable buffer by a qualified biologist to avoid impacts to any special-status species observed during construction. Mitigation Measure MM 4.4-8 details general avoidance and protective measures designed to avoid impacts to special-status wildlife. Mitigation Measure MM 4.4-9 would require development of a Raven Management Plan to reduce the attraction of ravens to the project site and their potential predation on special-status wildlife including burrowing owls. Mitigation Measure MM 4.4-10 would require various burrowing owl-specific measures, including surveys, avoidance of burrows, and displacement of burrowing owls if burrows cannot be avoided along with compensatory mitigation, to ensure impacts to burrowing owls would be reduced during construction. Passive relocation of owls using artificial burrows, a method that has proven a reliable way to coax owls into taking up residence in new burrows, was first described in the literature by Collins and Landry (1977) who used the burrows to increase owl populations in areas disturbed by people. It has been shown that owls readily colonized the human-made burrows. Collins and Landry (1997), Trulio (1995). However, the success of passive relocation is dependent on distance of the artificial dens, within 100 meters. The sites of the burrowing owls at the project site (as of 2017) are within areas that are either within no build areas or within areas that can be mitigated with artificial dens less than 100 meters away. The success of passive relocation may also be dependent on there being sufficient nearby habitat. Again, though, there appears to be adequate habitat on the project site in areas that would be avoided by the project to support the number of burrowing owl pairs that may need to be relocated. In addition, there are thousands of acres of existing habitat adjacent to the Apollo Solar project that are also suitable habitat. Although these other areas are not protected in perpetuity, any other development on those lands would require additional

evaluation for losses to burrowing owls. With implementation of Mitigation Measures MM 4.4-6 through MM 4.4-10, impacts to burrowing owls would be less than significant.

Section 4.4, Biological Resources, Pages 4.4-35 and 4.4-36:

Prairie Falcon and other Foraging Raptors. Suitable foraging habitat for raptor species, including the prairie falcon includes open desert scrub communities present on and adjacent to the project site. The project site does not provide suitable nesting habitat for northern harrier and less than optimal foraging habitat because this species prefers to forage on agricultural lands and in foothill areas that are not present on the Project site. The availability of suitable foraging habitat on the project site for raptors would be reduced or lost as a result of vegetation and habitat removal from grading and constructing the proposed project. However, while availability of potential foraging habitat would be reduced or lost during construction, this reduction would not be a significant impact on an existing important foraging area, particularly when considered with the available remaining foraging habitat surrounding the project site in agricultural fields, along drainages, and among the foothills to the north and south.

Swainson's hawks have a low potential to nest on the project site but could use the site for foraging. If present during construction activities, the project would have the potential to directly impact this listed raptor species through mortality or injury which would be a significant impact. However, the foraging habitat at the project site is less than optimal for Swainson's hawk. There is no evidence that the site is actively used for foraging by that species, or that the loss of that potential habitat would result in nest abandonment, loss of nest trees, reduced nesting success, or result in direct mortality to individuals. There is no evidence that suggests that the loss of potential foraging habitat would result in a significant impact to any nesting Swainson's hawks that might be active near the project site. There have been no observations of Swainson's hawks overflying the project site. All observations of Swainson's hawks in the area were south and west of the project site, indicating that migratory corridors, nesting, and even foraging are not focused on the project site. Swainson's hawks are known to forage up to 10-miles from an active nest, encompassing an area of 201,056 acres. The loss of 493.5 acres of marginal habitat within this expansive area would not constitute a significant impact even if it was proven that the site is routinely used for foraging by Swainson's hawks.

All raptor species, including their nests and eggs, are protected under California Fish and Game Code Section 3503.5 and by the federal MBTA, which prohibits destruction of active nests and interference with nesting activities. ~~Suitable nesting habitat is present for certain raptor species, including merlin and northern harrier.~~ The loss of individual nests for any raptors would be avoided through impact minimization measures. Mitigation Measure MM 4.4-6 requires all construction workers to attend an Environmental Awareness Training and Education Program that presents information on the life history and identification of special-status species, including prairie falcon and Swainson's hawk. Mitigation Measure MM 4.4-7 would require pre-construction surveys for special-status species including prairie falcon and Swainson's hawk and establishment of a suitable buffer by a qualified biologist to avoid impacts to any special-status species observed during construction. Mitigation Measure MM 4.4-8 details general avoidance and protective measures designed to avoid impacts to special-status wildlife. Mitigation Measure MM 4.4-9 would require development of a Raven Management Plan to reduce the attraction of ravens to the project site and their potential predation on wildlife including raptors. Mitigation Measure MM 4.4-12 requires measures to avoid impacts to nesting birds and special-status birds including raptors, such as preconstruction nesting surveys and avoidance of active nests. With implementation of Mitigation Measures MM 4.4-6 through MM 4.4-9 and MM 4.4-12, impacts to raptors would be less than significant.

Section 4.4, Biological Resources, Page 4.4-50:

MM 4.4-12: To mitigate for potential impacts to nesting birds, special-status birds, and birds protected under the Migratory Bird Treaty Act and California Fish and Game Code during construction and decommissioning activities, the following measures shall be implemented as part of the approval for a grading or building permit.

1. During the avian nesting season (February 1 – August 31), a qualified biologist shall conduct a preconstruction avian nesting survey no more than 7 days prior to initial vegetation clearing. Surveys need not be conducted for the entire project site at one time; they may be phased so that surveys occur within 7 days prior to clearing or disturbance in specific areas of the site. The surveying biologist must be qualified to determine the species, status, and nesting stage without causing intrusive disturbance. At no time shall the biologist be allowed to handle the nest or its eggs. The survey shall cover all reasonably potential nesting locations on and within 500 feet of the project site (0.5 miles for Swainson's hawk), including ground nesting where species, such as California horned lark and killdeer might nest all shrubs that could support nests, and suitable raptor nest sites such as nearby trees, windrows and power poles. Swainson's hawk surveys will be conducted according to the *Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California* (CDFW, 2010). Access shall be granted on private offsite properties prior to conducting surveys on private land. If access is not obtainable, the biologist shall survey these areas from the nearest vantage point with use of spotting scopes or binoculars.
2. If construction is scheduled to occur during the non-nesting season (September 1 through February 1), no preconstruction surveys or additional measures are required for non-listed avian species.
3. If construction begins in the non-nesting season and proceeds continuously into the nesting season within any particular construction or decommissioning area, no surveys are required for non-listed avian species so long as all suitable nesting sites have been cleared from active construction/decommissioning areas.
4. If active nests are found, a 300-foot no-disturbance buffer shall be created around passerine species' nests unless adjusted by the qualified biologist based on the needs and sensitivities of individual species, and a 500-foot no-disturbance buffer around raptor species' nests (or a suitable distance otherwise determined in conferral with California Department of Fish and Wildlife). Any nest of a federal- or State-listed bird species shall require consultation with the appropriate agency (U.S. Fish and Wildlife Service or the California Department of Fish and Wildlife) to determine the appropriate buffer distance surrounding the nest to provide adequate nest protection. These buffers shall remain in effect until a qualified wildlife biologist has determined that the birds have fledged or the proposed project component(s) have been redesigned to avoid the area. All no-disturbance buffers shall be delineated in the field with visible flagging or fencing material.

Section 4.4, Biological Resources, Pages 4.4-53 and 4.4-54:**Impact 4.4-4: The project would interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.**

Although there are episodic water features on the project site, there are no perennial water features present that could act as potential corridors for aquatic species. No wildlife nursery sites have been identified on or in the vicinity of the project site. ~~Similarly, the project site is not located within a known wildlife migration corridor or linkage connecting large open space areas in throughout the region or locally.~~ Although the project site is located within a known movement “corridor,” that corridor in its entirety is approximately 24 miles wide and connects the Tehachapi Mountains in the north to the San Gabriel Mountains to the south. The project site lies within the easternmost portion of that corridor, impacting only a small fraction of it. Updated Figure 15 to Appendix E to the Draft EIR shows the Project in relationship to this wildlife corridor. Regional wildlife movement through the site and surrounding area is likely to continue to be fragmented by ongoing development and agricultural operations within the region. Because of the existing habitat fragmentation, wildlife in the area are likely adapted to life in close association with human activities, and the similarity between the project site and adjacent lands suggests that the project site is not of significant value to wildlife in the area.

A California horned lark was observed on the project site, which was likely onsite as a migrant. Further, the ferruginous hawk has a low potential to occur on the project site. Therefore, the project has the potential to impact migratory birds and raptors. Project-related direct impacts on nesting migratory birds and raptors during construction and decommissioning could include crushing or vehicle collisions with nesting birds and/or destruction of nests and eggs through vegetation clearing and grading with heavy machinery. Indirect impacts could include interference with reproductive success and nest abandonment brought on by increased human presence and noise levels during construction within the breeding season (i.e., January 15 through August 31). Additional indirect impacts to migratory birds and raptors from construction of the project could result from the conversion of open land to a solar facility, which would result in the loss of potential breeding habitat. Such impacts would be considered significant under CEQA. Mitigation Measures MM 4.4-7 and MM 4.4-12 would require surveys for foraging and nesting migratory birds to ensure no impacts result to these species during construction. Project operation also has the potential to impact migratory birds and raptors. Implementation of Mitigation Measure MM 4.4-13 would require implementation of an Avian Mortality Monitoring Program that would involve documentation of avian mortalities and implementation of adaptive management if mortality thresholds are exceeded. Further, as detailed in Section 4.1, *Aesthetics*, of this EIR, Mitigation Measure MM 4.1-4 would require the use of minimal nighttime lighting during construction, operation, and decommissioning to avoid indirect impacts on wildlife, including migratory birds and raptors. With implementation of these mitigation measures, impacts to migratory birds and raptors would be less than significant.

The project region contains large expanses of open habitat that provide ample amounts of area for local and regional wildlife movement. Moreover, because the proposed project is located in the greater western Mojave Desert and is surrounded by open space areas, there are opportunities for wildlife movement elsewhere in the vicinity of the project site and the greater region. ~~Therefore, implementation of the project would not restrict local or regional wildlife movement. Impacts would be less than significant.~~ And while the project site would use temporary exclusion fencing to prevent wildlife from entering the project site during construction and operations, this fencing would be removed when construction and

decommissioning activities are complete. Pursuant to Mitigation Measure MM 4.4-8, the project's perimeter fencing during operations must be made wildlife friendly, thereby reducing impacts on wildlife movement. The Project thus would not significantly diminish the functions or values of the newly defined wildlife corridor and would not significantly interfere with wildlife connectivity through the area or restrict local or regional wildlife movement. Impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures MM 4.1-4, MM 4.4-7, MM 4.4-8, MM 4.4-12, and MM 4.4-13. (See Section 4.1, *Aesthetics*, for full mitigation measure text of MM 4.1-4).

Level of Significance after Mitigation

Impacts would be less than significant.

Section 4.4, Biological Resources, Page 4.4-56:

The residual effects on migratory birds of the project were determined to be less than significant. This cumulative analysis analyzes the potential for these incremental impacts of the project to combine with other past, present, and reasonably foreseeable projects to cause or contribute to a significant cumulative ~~effects~~ effect within the ~~Central~~ Antelope Valley portion of the Pacific Flyway for the duration of the project. Identified cumulative projects that involve the installation of PV panels have the potential to cause impacts to migratory birds associated with collisions. Little is known about the potential for impacts to migratory birds associated with the “fake lake effect,” ~~particularly within the Central Valley~~. Based on available data, there is no consistent pattern to support or refute the hypothesis that water-dependent species were more susceptible to mortality at solar facilities. However, evidence suggests that significant impacts to migratory birds could occur at the cumulative level. Population-level mortality of migratory birds would be considered significant under CEQA. Therefore, the proposed project, in combination with all identified cumulative projects, could result in a cumulatively considerable contribution to a significant cumulative impact.

Section 4.9, Hazards and Hazardous Materials, Page 4.9-21:

~~MM 4.9-1: — Prior to the issuance of grading or building permits, the project proponent/operator shall prepare a Hazardous Materials Business Plan (HMBP) and submit it to the Kern County Public Health Services Department/Environmental Health Services Division/Hazardous Materials Section for review and approval.~~

~~1. — The Hazardous Materials Business Plan shall:~~

- ~~a. — Delineate hazardous material and hazardous waste storage areas;~~
- ~~b. — Describe proper handling, storage, transport, and disposal techniques, including which routes will be used to transport hazardous materials;~~
- ~~c. — Describe methods to be used to avoid spills and minimize impacts in the event of a spill;~~
- ~~d. — Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction;~~

- ~~e. Establish public and agency notification procedures for spills and other emergencies including fires; and~~
- ~~f. Include procedures to avoid or minimize dust from existing residual pesticide and herbicide use that may be present on the site.~~
- ~~2. The project proponent/operator shall provide the Hazardous Materials Business Plan to all contractors working on the project and shall ensure that one copy is available at the project site at all times.~~
- ~~3. A copy of the approved Hazardous Materials Business Plan shall be submitted to the Kern County Planning and Natural Resources Department.~~

MM 4.9-1: During the life of the project, including decommissioning, the project operator shall prepare and maintain a Hazardous Materials Business Plan, as applicable, pursuant to Article 1 and Article 2 of California Health and Safety Code 6.95 and in accordance with Kern County Ordinance Code 8.04.030, by submitting all the required information to the California Environmental Reporting System at <http://cers.calepa.ca.gov/> for review and acceptance by the Kern County Environmental Health Services Division/Hazardous Materials Section. The Hazardous Materials Business Plan shall:

- a. Delineate hazardous material and hazardous waste storage areas.
- b. Describe proper handling, storage, transport, and disposal techniques.
- c. Describe methods to be used to avoid spills and minimize impacts in the event of a spill.
- d. Describe procedures for handling and disposing of unanticipated hazardous materials encountered during construction.
- e. Establish public and agency notification procedures for spills and other emergencies, including fires.
- f. Describe federal, state, or local agency coordination, as applicable, and clean-up efforts that would occur in the event of an accidental release.
- g. Include procedures to avoid or minimize dust from existing residual pesticide and herbicide use that may be present on the site.

The project proponent shall ensure that all contractors working on the project are familiar with the facility's Hazardous Materials Business Plan as well as ensure that one copy is available at the project site at all times. In addition, a copy of the accepted hazardous materials business plan from California Environmental Reporting System shall be submitted to the Kern County Planning and Natural Resources Department for inclusion in the project's permanent record.

Section 4.9, Hazards and Hazardous Materials, Page 4.9-25:

Impact 4.9-5: The project would result in a safety hazard for people residing or working in the project area, for a project located within the adopted Kern County Land Use Compatibility Plan ~~vicinity of a private airstrip~~.

Section 4.9, Hazards and Hazardous Materials, Page 4.9-26:

While impacts would be less than significant, Mitigation Measure MM 4.15-1 would provide further assurances for emergency access. Mitigation Measure MM 4.15-1 requires the preparation of a Construction Traffic Control Plan that considers access for emergency vehicles to the project site. During project operation, Mitigation Measure MM ~~4.15-1~~ 4.15-2 requires the project operator obtain Kern County approval of all proposed access road designs prior to construction, further ensuring onsite emergency access is adequate.

Section 4.9, Hazards and Hazardous Materials, Page 4.9-29:

Impacts regarding the handling, use, and/or storage of hazardous materials would be project specific and would not cumulatively contribute to impacts. An accident involving a hazardous material release during project construction or operation through upset or accident conditions including site grading and the use and transport of petroleum-based lubricants, solvents, fuels, batteries, herbicides, and pesticides to and from the project site would be location specific. Conformance with existing State and County regulations, as well as project safety design features and the implementation of Mitigation Measures MM 4.9-1, MM 4.9-2, MM 4.14-1, and MM 4.17-1 identified above would further reduce cumulative impacts. In addition, implementation of appropriate safety measures during construction of the project, as well as other cumulative projects, would reduce the impact to a level that would not contribute to cumulative effects. Given the minimal risks of hazards at the project site, cumulative impacts are unlikely to occur. Therefore, impacts would not be cumulatively significant.

Hazardous materials to be used during decommissioning and removal activities are of low toxicity and would consist of fuels, oils, and lubricants. Because these materials are required for operation of construction vehicles and equipment, BMPs would be implemented to reduce the potential for or exposure to accidental spills or fires involving the use of hazardous materials. Impacts from minor spills or drips would be avoided by thoroughly cleaning up minor spills as soon as they occur. While foreseeable projects have the potential to cause similar impacts, it is assumed these projects would also implement similar BMPs. Conformance with existing State and County regulations, as well as implementation of Mitigation Measures MM 4.9-1, MM 4.9-2, and MM 4.14-1 (implementation of a Fire Safety Plan), and MM 4.17-1, would further reduce the potential for cumulative impacts. In addition, implementation of appropriate safety measures during construction of the project, as well as any other cumulative project, would reduce the impact to a level that would not contribute to cumulative effects. Therefore, impacts related to the use of hazardous materials would not be cumulatively significant.

Section 4.10, Hydrology and Water Quality, Pages 4.10-4 through 4.10-6:

The Antelope Valley Groundwater Basin includes an area of 1.01 million acres (1,580 square miles), and underlies an extensive alluvial valley in the western Mojave Desert. The basin is bounded on the northwest by the Garlock Fault zone at the base of the Tehachapi Mountains and on the southwest by the San Andreas

Fault zone at the base of the San Gabriel Mountains. The basin is bounded on the east by ridges, buttes, and low hills that form a surface and groundwater drainage divide and on the north by the ~~Fremont~~ Antelope Valley Groundwater Basin at a groundwater divide approximated by a southeast-trending line from the mouth of Oak Creek through Middle Butte to exposed bedrock near Gem Hill and the Rand Mountains farther east (DWR, 2004).

Groundwater in the Antelope Valley basin is used for both public water supply and local irrigation. The main aquifers in the basin are gravels, sands, silts, and clays, all derived from granitic parent material from the surrounding mountains. Public-supply wells in the basin are anywhere from 360 to 700 feet deep. Groundwater recharge in the Antelope Valley is primarily runoff from surrounding mountains, as well as direct infiltration from irrigation, sewer, and septic systems (USGS, 2013).

The groundwater basin is an undrained, closed basin, meaning there is no outlet for water to flow to the ocean. When water enters a closed basin, any minerals or chemicals in the water typically accumulate in the basin. Currently, groundwater quality is excellent within the principal aquifer but is not as good toward the northern portion of the dry lake areas. Some portions of the basin contain groundwater with high fluoride, boron, total dissolved solids, and nitrate concentrations, and arsenic. A salt and nutrient management plan has been developed to help monitor and maintain future water quality conditions in the Antelope Valley groundwater basin (Antelope Valley IRWMP, 2013).

The project site is located within the ~~Fremont~~ Antelope Valley Groundwater Basin which covers 523 square miles and is divided into a northern and a southern subunit. The basin is bounded to the northwest by the Garlock fault zone and in the east by crystalline rocks of the Summit Range, Red Mountain, Lava Mountains, Rand Mountains, Castle Butte, Bissel Hills and Rosamond Hills. Quaternary alluvium and lacustrine deposits are water-bearing; however, the alluvium is the most important water-bearing material in the basin. Alluvium is about 1,190 feet thick along the margin of the basin and thins toward the middle of the basin. Groundwater in the alluvium is generally unconfined, although locally confined conditions occur near Koehn Lake (AECOM, 2018). To the south and west is the Antelope Valley Groundwater Basin which is hydraulically connected to the ~~Fremont~~ Antelope Valley basin. Groundwater storage capacity is calculated to be approximately 4.8 million acre-feet (AECOM, 2018). Groundwater recharge is from percolation of ephemeral streams that flow from the Sierra Nevada Mountains and there is no appreciable quantity of groundwater flowing out of the basin (DWR, 2004). Additional recharge comes from groundwater flowing from the Antelope Valley Groundwater Basin.

Regional Groundwater Overdraft Conditions and Recharge Activities

Kern County is a semi-arid region that relies on its water supply for agriculture, municipal, and industrial uses. The goal for water resource management in the area is to reach a condition of “safe yield,” where the amount of water pumped from the basin is less than or equal to recharge of water into the basin. Groundwater overdraft occurs when groundwater-pumping rates exceed recharge rates. If groundwater pumping is not controlled, the groundwater table could be lowered to a depth where its use is not economical. Extended overdraft situations also raise the possibility of physical damage to aquifers through subsidence, where the aquifer collapses on itself as a result of insufficient pressure in its pore space (ESA, 2014).

Overdraft conditions have historically been an issue in the County, and in the worst-case scenario would lower groundwater to a depth where pumping for agricultural uses would no longer be economical. This would reduce withdrawals to balance recharge—thus achieving storage balance—but would make water

available only for municipal and industrial uses that could afford the increased cost (Antelope Valley IRWMP, 2013).

Water pumped from the local aquifer is recharged by precipitation runoff, whether in the form of direct precipitation and contributions from surface water flows of Cache Creek or subflow from Gloster subbasin (Antelope Valley IRWMP, 2013).

The approximate annual recharge to the Antelope Valley Groundwater Basin is unknown; estimates range from between 30,000 to 160,000 acre-feet per year (AFY). The Los Angeles County Superior Court of California ruled that the basin is in overdraft; groundwater extractions are in excess of the Court-defined safe yield of 110,000 AFY (Siade et al., 2014). To correct the state of overdraft, an adjudication process has recently been settled on December 23, 2015 (see additional discussion below under Regulatory Setting). As a result of the court decision, the Directors of the Antelope Valley-East Kern Water Agency (AVEK) have begun the process to create a Watermaster Board empowered to monitor the groundwater basin. The Watermaster Board will be tasked with arriving at a unanimous decision to hire the engineer who will serve as Watermaster Engineer and assign pumping allocations per user that will be metered and monitored on an annual basis. It is expected that there will be no charge for pumpage that does not exceed the assigned allocation. Pumping in excess of the allocation will require payment of a replenishment fee to the watermaster for acquisition of additional supplies.

Recharge to the ~~Fremont~~ Antelope Valley Groundwater Basin occurs from percolation of ephemeral streams that flow from the Sierra Nevada. There is no appreciable quantity of groundwater flowing out of the basin.

Section 4.10, Hydrology and Water Quality, Page 4.10-15:

There are multiple episodic/ephemeral drainages onsite that fill with water during and after storm events. Although the majority of project facilities would not be located within drainage areas, a section of solar panels on the Syracuse site would be constructed over an unnamed drainage near the southwest portion of the site. Additionally, the proposed security fence would cross multiple drainage areas on the Sunbow, Syracuse, and Tours sites, ~~including Oak Creek~~. Further, proposed gen-tie line posts could also be installed in an unnamed drainage on the Syracuse site. The proposed construction staging area, where construction materials, including hazardous materials, would be stored in large quantities, would be located on the Tours site within close proximity to Oak Creek. Thus, project construction activities within drainage areas and adjacent to drainage areas could impact the water quality of surface sheet flow, onsite drainages, and downstream drainages offsite.

To avoid impacts to water quality, the Kern County Public Works Department requires the completion of an NPDES Applicability Form for projects with construction activities that would disturb one or more acre within Kern County. Because stormwater runoff does not discharge to waters of the United States (because the project area drains to a terminal basin that is not hydrologically connected to a navigable waterway), acquisition of coverage under the State Construction General Permit for stormwater is not required. However, because the project would disturb more than one acre of ground surface and stormwater would not be contained onsite or discharge into a terminal drainage facility, the project proponent would be required to prepare and implement a SWPPP for the project. As required by Mitigation Measure MM 4.10-2, below, the proposed project would implement a SWPPP that would include erosion control and sediment control BMPs designed to prevent soil erosion from occurring and would retain sediment onsite. In addition, the project must comply with the Kern County Grading Ordinance, which requires implementation of dust

control during all grading operations and the use of temporary drainage and erosion control measures onsite as needed. Furthermore, Mitigation Measure MM 4.10-1 would require the preparation of a hydrologic study and drainage plan per the Kern County Development Standards and the Kern County Code of Building Regulations prior to issuance of a grading permit. Based on the findings of the hydrologic study, the drainage plan would recommend an onsite design that complies with all channel setback requirements and ensure facilities are located in such a way to lessen their impact on drainage areas and their water quality. Therefore, the concurrent ground disturbance required for construction of these facilities would mostly avoid drainage areas. Mitigation Measure 4.10-2 would require that ground disturbance is minimized within drainage areas and timed to avoid the rainy season where possible. This would decrease the potential of stormwater mixing with construction-related materials and degrading water quality.

Section 4.14, Public Services, Pages 4.14-13 and 4.14-14:

MM 4.14-2: The project proponent/operator shall implement the following mitigation steps at the project site:

- a) For facility operation, the project proponent/operator shall pay for impacts to countywide public protection, sheriff patrol and investigative services, and fire services at a rate of ~~\$29.59~~ \$28.84 per 1,000 square feet of panel-covered ground for the facility operations and related onsite structures for the entire covered area of the project. The total amount shall be divided by 20 and paid on a yearly basis. Any operation that continues past 20 years will pay the same yearly fee. If completed in phases, the annual amount shall be based on the square footage of ground covered by April 30 of each year. The amount shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year for each and every year of operation. Alternatively, the project proponent/operator may choose to pay the total amount, based on 20 years of operation, as a one-time lump sum rather than ongoing annual payments. Copies of payments made shall be submitted to the Kern County Planning and Natural Resources Department.
- b) Written verification of ownership of the proposed project shall be submitted to the Kern County Planning and Natural Resources Department by April 15 of each calendar year. If the project is sold to a city, county, or utility company that pays assessed taxes that total equal less than \$1,000 per megawatt per year, then they shall pay those taxes plus the an amount necessary to equal the equivalent of \$1,000 per megawatt. The amount shall be paid for all years of operation. The fee shall be paid to the Kern County Auditor/Controller by April 30 of each calendar year.
- c) The project proponent/operator shall work with the County staff to determine how the use receipt of sales and use taxes from related *to the* construction of the project can be maximized. This process shall include, but is not necessarily limited to, the project proponent/operator: obtaining a street address within the unincorporated portion of Kern County for acquisition, purchasing, and billing purposes and, registering this address with the State Board of Equalization, using this address for acquisition, purchasing and billing purposes associated with the proposed project. As an alternative to the aforementioned process, the project proponent/operator may make arrangements with Kern County for a guaranteed single payment that is equivalent to the amount of sales and use taxes that would have otherwise been received (less any sales and use

taxes actually paid); with the amount of the single payment to be determined via a formula approved by Kern County. The project proponent/operator shall allow the County to use this sales tax information publicly for reporting purposes.

Section 4.15, Traffic and Transportation, Pages 4.15-18 and 4.15-19:

While impacts would be less than significant, Mitigation Measures MM 4.15-1 and MM 4.15-2 would provide further assurances for emergency access. Mitigation Measure MM 4.15-1 requires the preparation of a Construction Traffic Control Plan that considers access for emergency vehicles to the project site and Mitigation Measure MM 4.15-2 limits the number of construction vehicles entering or exiting the project site during peak AM and PM hours. During project operation, Mitigation Measure MM 4.15-4 requires the project operator obtain Kern County approval of all proposed access road designs prior to construction, further ensuring onsite emergency access is adequate.

Section 4.15, Traffic and Transportation, Pages 4.15-21 and 4.15-22:

In addition, implementation of Mitigation Measures MM 4.15-1 and MM 4.15-2 includes measures such as designated haul routes for oversize load haul routes, minimizing construction traffic during the AM and PM peak hour, and distributing construction traffic flow across alternative routes to access the project site. With the implementation of the proposed mitigation measures, construction of the proposed project would not result in a cumulatively considerable impact related to traffic, as the Construction Traffic Control Plan could be modified to accommodate any overlapping construction use of existing roads.

TABLE 4.15-5: ESTIMATED PEAK-HOUR TRIPS – CUMULATIVE PROJECTS

Project	Average Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
		Inbound	Outbound	Inbound	Outbound
Rosamond Solar Array ¹	964	450	0	0	450
Willow Springs Solar Array ²	951	450	0	0	450
Valentine Solar ³	533	211	0	0	211
Windhub Solar Project ⁴	858	365	15	15	365
Total	3,306	1,476	15	15	1,476

SOURCES:

- ¹ Trip generation obtained from the Traffic Impact Analysis for the Rosamond Solar Array Project (RBF Consulting, July 20, 2012).
- ² Trip generation obtained from the Traffic Impact Analysis for the Willow Springs Solar Array Project (RBF Consulting, August 28, 2014).
- ³ Trip generation obtained from the Addendum to the Traffic Investigation for the Valentine Solar Project (Ruettgers & Schuler, December 10, 2015).
- ⁴ Trip generation obtained from the Traffic Analysis for the Windhub Solar Project (LSA, August 15, 2017).

The other cumulative projects listed in Table 3-4, *Cumulative Projects List*, are located a greater distance away from the project area. While the construction schedules for those projects may overlap with that of

the proposed project, they are several miles away, and their construction vehicles are not likely to travel extensively on the road segments that are in the vicinity of the project site because much of the traffic created by the cumulative projects is likely to disperse in different directions, using various highways and roadways. Additionally, the peak construction traffic created by the cumulative projects would be temporary, and their onsite operations staff would be minimal and not create considerable permanent increases to nearby traffic volumes.

The above discussion describes a highly-conservative scenario, in which there would be a reasonably-foreseeable overlap of construction peak periods for projects proposed in the project area. Based on these findings and the substantial increase in traffic associated with the proposed project and other related projects, the LOS of area roadways could be temporarily degraded, but, as described above, analysis of cumulative roadway and intersection LOS indicates that conditions would be LOS C or better. Because traffic increases associated with construction activity end when construction is completed, and operation and maintenance of the proposed project and other related projects would generate substantially less traffic than construction activities, these projects would not result in any permanent degradation to worse than the acceptable LOS D.

On the project-level (including the development of the gen-tie line), the proposed project would not include a design feature or utilize vehicles with incompatible uses that would create a hazard on the surrounding roadways with implementation of mitigation measures. And, implementation of mitigation measures would ensure the proposed project's contribution to emergency access and design hazards are reduced to a less than cumulatively considerable level. The proposed project is anticipated to create traffic impacts that are considered less-than-significant. Due to the temporary nature of construction, these impacts will be short-lived. These impacts would be mitigated to a less-than-significant level with development and implementation of a traffic mitigation plan as outlined in MM 4.15-1 and limitations on the number of construction vehicles entering or exiting the project site. Additionally, the project's contribution to potential cumulative impacts would be temporary and would fall to nominal levels upon completion of construction. Therefore, impacts of the proposed project when combined with impacts from other projects in the cumulative scenario would result in less-than-significant cumulative impacts related to traffic.

Mitigation Measure

Implement Mitigation Measure MM 4.15-1 and MM 4.15-2.

Level of Significance after Mitigation

Cumulative impacts would be less than significant.

Section 4.16, Tribal Cultural Resources, Page 4.16-12:

- 1) The Lead Agency sent consultation notification to applicable Native American tribes in accordance with Senate Bill (SB) 18 and Assembly Bill (AB) 52. Two responses were received, as follows:
 - (a) On September 5, 2017, the San Manuel Band of Mission Indians (SMBMI) replied to the County's AB 52 consultation notification via email. The email states in part that the proposed project area is located just outside of Serrano ancestral territory and, as such, SMBMI will not be requesting consulting party status with the lead agency or requesting to participate in the scoping, development, and/or review of documents created pursuant to these legal and regulatory mandates.

- (b) On October 16, 2017, the Twenty-Nine Palms Band of Mission Indians replied to the County's AB 52 consultation notification via email. Attached to the email was a letter from the Twenty-Nine Palms Band of Mission Indians dated October 12, 2017. The October 12 letter states in part that the Tribal Historic Preservation Office (THPO) is not aware of any additional cultural resources or any Tribal Cultural Resources, as defined by California Public Resources Code Section 21074(a)(1) (A)-(B), within the project area. The Twenty-Nine Palms Band of Mission Indians currently has no interest in the project and defer to the comments of other tribes.
- 2) While no tribal cultural resources have been identified within or immediately adjacent to the project site, nonetheless the potential exists for tribal cultural resources to be encountered. Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-4 and MM ~~4.5-8~~ 4.5-5 would reduce impacts to a less than significant level.

Section 4.16, Tribal Cultural Resources, Pages 4.16-13 and 4.16-14:

- 1) The Lead Agency sent consultation notification to applicable Native American tribes in accordance with Senate Bill (SB) 18 and Assembly Bill (AB) 52. Two responses were received, as follows:
 - (a) On September 5, 2017, the San Manuel Band of Mission Indians (SMBMI) replied to the County's AB 52 consultation notification via email. The email states in part that the proposed project area is located just outside of Serrano ancestral territory and, as such, SMBMI will not be requesting consulting party status with the lead agency or requesting to participate in the scoping, development, and/or review of documents created pursuant to these legal and regulatory mandates.
 - (b) On October 16, 2017, the Twenty-Nine Palms Band of Mission Indians replied to the County's AB 52 consultation notification via email. Attached to the email was a letter from the Twenty-Nine Palms Band of Mission Indians dated October 12, 2017. The October 12 letter states in part that the Tribal Historic Preservation Office (THPO) is not aware of any additional cultural resources or any Tribal Cultural Resources, as defined by California Public Resources Code Section 21074(a)(1) (A)-(B), within the project area. The Twenty-Nine Palms Band of Mission Indians currently has no interest in the project and defer to the comments of other tribes.
- 2) While no tribal cultural resources have been identified within or immediately adjacent to the project site, nonetheless the potential exists for tribal cultural resources to be encountered. Implementation of Mitigation Measures MM 4.5-1 through MM 4.5-4 and MM ~~4.5-8~~ 4.5-5 would reduce impacts to a less than significant level.

Section 4.17, Utilities and Service Systems, Page 4.17-14:

Water

The proposed project would require an estimated 147 AF of water during construction for dust suppression, concrete manufacturing, truck wheel washing, equipment washing, and fire safety. Water required during construction would be supplied via an offsite well located near the project site, (see well labeled as "existing water well (off site)") and/or up to three newly drilled wells (labeled as "potential water well location" on the site plan). Should well(s) be installed onsite, such well(s) would be in accordance with Kern County

standards and requirements. Potable water would be brought to the site ~~via water trucks~~ for drinking and domestic needs for construction workers.

Section 4.17, Utilities and Service Systems, Page 4.17-16:

Water

During project operation, quarterly panel washing activities are expected to generate a long-term operational water demand of approximately 6 AFY (2 AFY per site). Water for panel washing is expected to come from an offsite well located near the project site, and/or up to three onsite wells installed as part of the proposed project during construction. As discussed above, installation of these wells would be installed in accordance with Kern County standards and requirements and, thus, impacts would be less than significant.

Section 4.17, Utilities and Service Systems, Pages 4.17-18 and 4.17-19:

The minimal amount of solid waste generated at the project site would most likely be disposed of by a permitted hauler at the Mojave-Rosamond Landfill (approximately 9 miles northeast). As of 2019, approximately 76,310,297 cubic yards (97.8 percent of the total 78,000,000 cubic yards capacity) remained. The permitted maximum daily disposal is 3,000 tons per day (see Table 4.17-1). Another solid waste disposal site that could serve the project is the Tehachapi Sanitary Landfill, approximately 11 miles north. However, this landfill is scheduled to close June 1, 2020 but is expected to be available to accept construction debris, if needed. Project construction is anticipated to ~~begin fourth quarter of 2019~~ last for 12 to 14-months.

Section 4.18, Wildfire, Page 4.18-9:

Mitigation Measures

Implement Mitigation Measures ~~MM 4.10-1~~, MM 4.14-1 and MM 4.14-2.

Chapter 6, Alternatives, Page 6-26:

Relationship to Project Objectives

The Reduced Project Alternative would achieve the majority of project objectives listed above in Section 6.2. However, this alternative would not achieve the objective of maximizing renewable energy production. Although this alternative would result in fewer environmental impacts overall, it would not reduce significant and unavoidable impacts to less-than-significant levels, and would increase impacts related to greenhouse gas emissions. As a result, this alternative is not feasible. Furthermore, under this alternative the goals and objectives that shape the project would not be realized to the same extent as under the proposed project. ~~the goals and objectives that shape the project would not be realized to the same extent under this alternative.~~

Chapter 6, Alternatives, Page 6-32:

~~It is important to note that it is considered to be impracticable and infeasible to construct the Rooftop Solar Alternative within the same timeframe and/or with the same efficiency as the proposed project because the project proponent lacks control and access to the sites required to develop 60 MW of distributed solar generated electricity. In addition, Alternative 4 would not achieve the objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. Nonetheless, because Alternative 4 reduces impacts to a greater degree than the three other alternatives analyzed, Alternative 4 is selected as the Environmentally Superior Alternative. However, it is impracticable and infeasible to construct the Rooftop Solar Alternative within the same timeframe and/or with the same efficiency as the proposed project because the project proponent lacks control and access to the sites required to develop 60 MW of distributed solar generated electricity. In addition, Alternative 4 would not achieve the objective of assisting California load-serving entities in meeting their obligations under California's RPS Program. As a result, Alternatives 1 and 4 are infeasible.~~

Chapter 10, Bibliography, Page 10-4:

California Energy Commission and California Department of Fish and Game. 2010. Swainson's Hawk Survey Protocols Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California.

California Native Plant Society (CNPS). 2017 *Inventory of Rare and Endangered Plants* (online edition, v7-09c). California Native Plant Society. Sacramento, CA. Available at: <http://www.cnps.org/inventory>.

Collins CT and RE Landry. 1977. "Artificial Nest Burrows for Burrowing Owls." North American Bird Bander 2:151-154.

BigBeau DEIR 2020

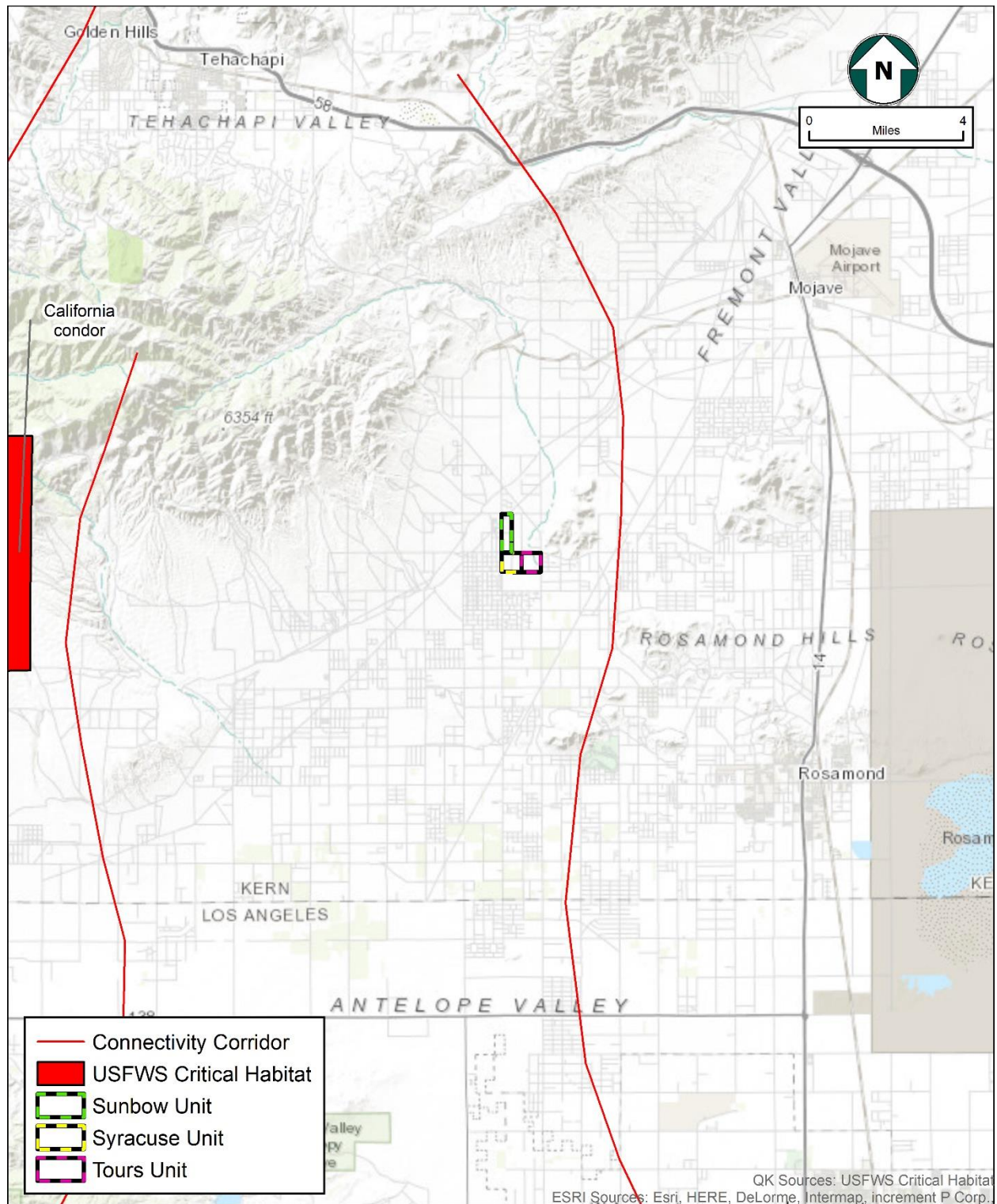
Google Earth. 2017. Available at: <https://www.google.com/earth/>.

Sawyer, J. O., T. Keeler-Wolf, and J. M. Evens. 2009. *A manual of California vegetation, 2nd edition*. California Native Plant Society, Sacramento, CA.

Trulio LA. 1995. "Passive Relocation: A Method to Preserve Burrowing Owls on Disturbed Sites." J. Field Ornithol 66: 99-106.

Appendix E, Biological Analysis Report, Figure 15, Critical Habitat and Movement Corridors and Linkages:

Figure 15, *Critical Habitat and Movement Corridors and Linkages*, of Appendix E, of the Draft EIR, has been updated to show the project's relationship to existing wildlife corridors.



7.3 Response to Comments

A list of agencies and interested parties who have commented on the Draft EIR is provided below. A copy of each numbered comment letter and a lettered response to each comment are provided following this list.

Tribes

Letter 1 – Santa Rosa Rancheria Tachi-Yokut Tribe (January 8, 2020)

State Agencies

Letter 2 – California State Clearinghouse (February 6, 2020)

Letter 3 – California Department of Conservation, Division of Geologic Energy Management (CalGEM) (January 9, 2020)

Letter 4 – California Water Boards, Lahontan Regional Water Quality Control Board (January 9, 2020)

Letter 5 – California Department of Toxic Substances Control (January 3, 2020)

Letter 6 – California Department of Fish and Wildlife (CDFW) (March 13, 2020)

Local Agencies

Letter 7 – Eastern Kern Air Pollution Control District (January 31, 2020)

Letter 8 – Kern County Fire Department (February 11, 2020)

Letter 9 – Kern County Public Works Department, Engineering Division (January 27, 2020)

Letter 10 – Kern County Public Works Department, Floodplain Management Section (January 23, 2020)

Letter 11 – Southern Kern Unified School District (January 6, 2020)

Interested Parties

Letter 12 – Kern Audubon Society (February 4, 2020)

Letter 13 – Law Offices of John A. Belcher (February 5, 2020)

Letter 14 – National Audubon Society and Defenders of Wildlife (February 6, 2020)

Letter 15 – Adams, Broadwell, Joseph & Cardozo (March 20, 2020)

Comment Letter No. 1: Santa Rosa Rancheria Tachi-Yokut Tribe

Randall Cates

From: Samantha McCarty <SMcCarty@tachi-yokut-nsn.gov>
Sent: Wednesday, January 8, 2020 8:32 AM
To: Randall Cates
Cc: Department, Planning; _SRR Cultural
Subject: AV Apollo Solar Project by Sunbow Solar 1 LLC, Syracuse Solar LLC and Tours Solar LLC (PP17144)

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Dear Randall,

Thank you for contacting the Santa Rosa Rancheria Tachi-Yokut Tribe regarding AV Apollo Solar Project by Sunbow Solar 1 LLC, Syracuse Solar LLC and Tours Solar LLC (PP17144). Due to the location of the project, we will be deferring to the Tejon Indian Tribe. If you have any further questions please contact me directly or the Santa Rosa Rancheria Cultural Department. Thank you.

1-A

Sincerely,

Samantha McCarty

Santa Rosa Rancheria Tachi-Yokut Tribe
Cultural Specialist II
SMcCarty@tachi-yokut-nsn.gov
(559) 924-1278 x 4091

Response to Comment Letter 1: Santa Rosa Rancheria Tachi-Yokut Tribe (January 8, 2020)

- 1-A:** The commenter states the Santa Rosa Rancheria Tachi-Yokut Tribe will be deferring to the Tejon Indian Tribe for any comments on the Draft EIR. This comment does not state a specific concern about the adequacy of the Draft EIR or otherwise comment on the contents of the Draft EIR. This comment has been noted for the record.

Comment Letter No. 2: California State Clearinghouse



Gavin Newsom
Governor

STATE OF CALIFORNIA
Governor's Office of Planning and Research
State Clearinghouse and Planning Unit



Kate Gordon
Director

February 6, 2020

Randall Cates
Kern County
2700 "M" Street Suite 100
Bakersfield, CA 93301

Subject: EIR 06-17; AV Apollo Solar Project by Sunbow Solar T LLC, Syracuse Solar LLC and Tours Solar LLC
SCH#: 2017081038

Dear Randall Cates:

The State Clearinghouse submitted the above named EIR to selected state agencies for review. On the enclosed Document Details Report please note that the Clearinghouse has listed the state agencies that reviewed your document. The review period closed on 2/5/2020, and the comments from the responding agency (ies) is (are) available on the CEQA database for your retrieval and use. If this comment package is not in order, please notify the State Clearinghouse immediately. Please refer to the project's ten-digit State Clearinghouse number in future correspondence so that we may respond promptly.

Please note that Section 21104(c) of the California Public Resources Code states that:

"A responsible or other public agency shall only make substantive comments regarding those activities involved in a project which are within an area of expertise of the agency or which are required to be carried out or approved by the agency. Those comments shall be supported by specific documentation."

Check the CEQA database for submitted comments for use in preparing your final environmental document: <https://ceqanet.opr.ca.gov/2017081038/2>. Should you need more information or clarification of the comments, we recommend that you contact the commenting agency directly.

This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act. Please contact the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process.

Sincerely,

Scott Morgan
Director, State Clearinghouse

cc: Resources Agency

RECEIVED

FEB 13 2020

**Kern County Planning &
Natural Resources Department**

Response to Comment Letter 2: California State Clearinghouse (February 6, 2020)

- 2-A:** Thank you for your comments. The commenter states the State Clearinghouse received the Draft EIR for the Apollo Solar Draft EIR and then sent the Draft EIR to selected States Agencies for review and comment. The content of this letter have been noted for the record and it is acknowledged that the Lead Agency has complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to CEQA.

Randall Cates

From: Medrano, Victor@DOC <Victor.Medrano@conservation.ca.gov>
Sent: Friday, January 10, 2020 12:53 PM
To: Randall Cates
Subject: CalGEM comments on Construction Site Well Review - EIR 06-17; AV Apollo Solar Project CUP 37, -38, -39, -41, Map 214; GPA 5, Map 214
Attachments: Randall Cates_1011771_20200109_052033_CSWR Report.pdf

CAUTION: This email originated from outside of the organization. Do not click links, open attachments, or provide information unless you recognize the sender and know the content is safe.

Good afternoon Mr. Cates,

Please find attached comments from the California Geologic Energy Management Division (CalGEM) regarding:

Assessor Parcel Number(s): 34613112, 34613113, 34613114, 34613115, 34613116, 34613117, 34613118, 34613119, 34602203

Property Owner(s): Sunbow Solar I LLC, Syracuse Solar LLC, Tours Solar LLC

Project Location Address: 9 mi SW and 8 mi NW of the unincorporated, community of Mojave and Rosamond, Mojave, California, 93560

Project Title: EIR 06-17; AV Apollo Solar Project CUP 37, -38, -39, -41, Map 214; GPA 5, Map 214

Sincerely,



Victor D. Medrano

Engineering Geologist | Inland District

**California Department of Conservation
Geologic Energy Management**

4800 Stockdale Hwy., Suite 100
Bakersfield, CA 93309

T: (661) 322-4031 | D: (661) 326-6016

E: Victor.Medrano@conservation.ca.gov

W: <https://www.conservation.ca.gov/calgem>



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California
Department of Conservation
Division of Oil, Gas, and Geothermal Resources

Gavin Newsom, Governor
David Shabazian, Director
801 K Street, MS 18-05
Sacramento, CA 95814
T: (916) 445-9686

01/09/2020

Randall Cates

9 mi SW and 8 mi NW of the unincorporated , community of Mojave and Rosamond , Mojave, CA
93560, USA

Construction Site Well Review (CSWR) ID: 1011771

Assessor Parcel Number(s): 34613112, 34613113, 34613114, 34613115, 34613116, 34613117,
34613118, 34613119, 34602203

Property Owner(s): Sunbow Solar I LLC, Syracuse Solar LLC, Tours Solar LLC

Project Location Address: 9 mi SW and 8 mi NW of the unincorporated, community of Mojave and
Rosamond, Mojave, California, 93560

Project Title: EIR 06-17; AV Apollo Solar Project CUP 37, -38, -39, -41, Map 214; GPA 5, Map 214

Public Resources Code (PRC) § 3208.1 establishes well reabandonment responsibility when a
previously plugged and abandoned well will be impacted by planned property development or
construction activities. Local permitting agencies, property owners, and/or developers should be aware
of, and fully understand, that significant and potentially dangerous issues may be associated with
development near oil, gas, and geothermal wells.

The Division of Oil, Gas, and Geothermal Resources (Division) has received and reviewed the above
referenced project dated 1/8/2020. To assist local permitting agencies, property owners, and
developers in making wise land use decisions regarding potential development near oil, gas, or
geothermal wells, the Division provides the following well evaluation.

The project is located in Kern County, within the boundaries of the following fields:

Our records indicate there are 0 known oil or gas wells located within the project boundary as
identified in the application.

- Number of wells Not Abandoned to Current Division Requirements as Prescribed by Law and
Projected to Be Built Over or Have Future Access Impeded by this project: 0
- Number of wells Not Abandoned to Current Division Requirements as Prescribed by Law and
Not Projected to Be Built Over or Have Future Access Impeded by this project: 0
- Number of wells Abandoned to Current Division Requirements as Prescribed by Law and
Projected to Be Built Over or Have Future Access Impeded by this project: 0
- Number of wells Abandoned to Current Division Requirements as Prescribed by Law and
Not Projected to Be Built Over or Have Future Access Impeded by this project: 0

As indicated in PRC § 3106, the Division has statutory authority over the drilling, operation,

3-A

3-B



California
Department of Conservation
Division of Oil, Gas, and Geothermal Resources

Gavin Newsom, Governor
David Shabazian, Director
801 K Street, MS 18-05
Sacramento, CA 95814
T: (916) 445-9686

maintenance, and abandonment of oil, gas, and geothermal wells, and attendant facilities, to prevent, as far as possible, damage to life, health, property, and natural resources; damage to underground oil, gas, and geothermal deposits; and damage to underground and surface waters suitable for irrigation or domestic purposes. In addition to the Division's authority to order work on wells pursuant to PRC §§ 3208.1 and 3224, it has authority to issue civil and criminal penalties under PRC §§ 3236, 3236.5, and 3359 for violations within the Division's jurisdictional authority. The Division does not regulate grading, excavations, or other land use issues.

If during development activities, any wells are encountered that were not part of this review, the property owner is expected to immediately notify the Division's construction site well review engineer in the Inland district office, and file for Division review an amended site plan with well casing diagrams. The District office will send a follow-up well evaluation letter to the property owner and local permitting agency.

Should you have any questions, please contact me at (661) 326-6016 or via email at Victor.Medrano@conservation.ca.gov

Sincerely,

Cameron Campbell
District Deputy

3-B

Response to Comment Letter 3: California Department of Conservation, Division of Geologic Energy Management (CalGEM) (January 9, 2020)

- 3-A:** This comment confirms CalGEM's receipt of the Draft EIR and notes the project site is outside of CalGEM's oil administrative boundaries. The comment states there are no known oil, gas, or geothermal wells located within the project boundary and, therefore, no further review is required by CalGEM. This comment has been noted for the record.
- 3-B:** The comment notes that if during development activities, any previously unknown wells are discovered, the project proponent shall immediately notify the CalGEM's Inland District office for consultation as remedial plugging and abandonment operations may be required. As stated in Section 4.12, *Mineral Resources*, page 4.12-4 of the draft EIR, the nearest land area designated as 8.4, Mineral and Petroleum, by the Kern County General Plan is located approximately 0.35 miles northeast of the project site. The nearest identified mineral resource deposit to the project site is located approximately 2 miles to the northeast. There are mineral resource zones located adjacent to the project site; however, these are not being actively explored, excavated, or extracted and the project site is not identified as a mineral resource zone. Furthermore, in the event any abandoned or unrecorded wells are uncovered, discovered, or damaged during excavation or grading activities, all work shall cease in the vicinity of the well, and CalGEM, shall be contacted for requirements and approval. The Lead Agency is proposing a conditional of approval for all of the Conditional Use Permit requests, requiring that if any previously unknown oil, gas or injection wells are discovered, work in the area of discovery shall be stopped and the Department of Conservation/CalGEM Bakersfield office contacted by the project proponent to obtain information on the requirements of, and approval to perform, remedial operations implemented prior to resumption of work in the area of discovery. This comment has been noted for the record.



Lahontan Regional Water Quality Control Board

January 9, 2020

File: Environmental Doc Review
Kern County

Randall Cates,
Kern County Planning Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301
CatesR@kerncounty.com

Comments on the Draft Environmental Impact Report for the AV Apollo Solar Project, Kern County, State Clearinghouse No. 2017081038

Lahontan Regional Water Quality Control Board (Water Board) staff received the Draft Environmental Impact Report (EIR) for the above-referenced Project (Project) on December 23, 2019. The EIR was prepared by the Kern County Planning Department (County) and submitted in compliance with provisions of the California Environmental Quality Act (CEQA). Water Board staff, acting as a responsible agency, is providing these comments to specify the scope and content of the environmental information germane to our statutory responsibilities pursuant to CEQA Guidelines, California Code of Regulations (CCR), title 14, section 15096. We thank the County for providing Water Board staff the opportunity to review and comment on the EIR. Based on our review, we recommend the following: (1) natural drainage channels and flow paths should be maintained through the Project site to ensure no net loss of function and value of waters of the state; (2) identify and list the proper location and beneficial uses of all water resources within the Project area; (3) address the fate of the abandoned wells found at the Project site; and (4) the Project map should accurately reflect current site conditions and proposed site conditions. Our comments are outlined below.

4-A

WATER BOARD'S AUTHORITY

All groundwater and surface waters are considered waters of the State. All waters of the State are protected under California law. State law assigns responsibility for the protection of water quality in the Lahontan Region to the Lahontan Water Board. Some waters of the State are also waters of the United States. The Federal Clean Water Act (CWA) provides additional protection for those waters of the State that are also waters of the United States.

4-B

The *Water Quality Control Plan for the Lahontan Region* (Basin Plan) contains policies that the Water Board uses with other laws and regulations to protect the quality of

PETER C. PUMPHREY, CHAIR | PATTY Z. KOUYOUNDJIAN, EXECUTIVE OFFICER

waters of the State within the Lahontan Region. The Basin Plan sets forth water quality standards for surface water and groundwater of the Region, which include designated beneficial uses as well as narrative and numerical objectives which must be maintained or attained to protect those uses. The Basin Plan can be accessed via the Water Board's web site at

http://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/references.shtml.

4-B

SPECIFIC COMMENTS

We recommend the following be considered in the environmental review.

1. In general, the installation of Photovoltaic (PV) grid systems for these types of projects has the potential to hydrologically modify natural drainage systems. Of particular concern is the collection of onsite storm water runoff and the concentrated discharge of that storm water to natural drainage channels. Design alternatives that are compatible with low impact development (LID) should be considered. LID components include: maintaining natural drainage paths and landscape features to slow and filter runoff and maximize groundwater recharge; managing runoff as close to the source as possible; and maintaining vegetated areas for storm water management and onsite infiltration. We recommend natural drainage channels and flow paths be maintained through the Project site to avoid no net loss of function and value of waters of the state as a result of Project implementation.
2. Section 4.10, the EIR incorrectly states that the Project site is located within the Fremont Valley Groundwater Basin. The Project is located within the Antelope Valley Hydrologic Unit (Hydrologic Unit No. 626.00) and overlies the Antelope Valley groundwater basin (Basin No. 6-44). The beneficial uses of these waters are listed either by watershed (for surface waters) and by groundwater basin (for groundwater) in Chapter 2 of the Basin Plan. The final EIR should identify and list the proper location and beneficial uses of all water resources within the Project area.
3. The EIR identifies two abandoned wells at the Project site but fails to address what will be done about the abandoned wells during Project buildout. Please include a discussion in the EIR regarding abandoned well disposition during construction.
4. Appendix A, Project Map, provided in the EIR is outdated and no longer reflects the actual location of the drainage that flows north to south along 95th Street West. This particular drainage is wider than the maps provided indicate and now flows on either side of 95th Street West. Impacts to waters may be influenced by this new flow path. The EIR should adequately describe current site conditions to establish the baseline environmental conditions upon which proposed Project impacts are evaluated against.

4-C

4-D

4-E

4-F

PERMITTING REQUIREMENTS FOR INDIVIDUAL PROJECTS

A number of activities associated with the proposed Project may have the potential to impact waters of the State and, therefore, may require permits issued by either the State Water Resources Control Board (State Water Board) or Lahontan Water Board. The required permits may include the following.

1. Land disturbance of more than 1 acre may require a CWA, section 402(p) storm water permit, including a *National Pollutant Discharge Elimination System (NPDES) General Construction Storm Water Permit*, Water Quality Order (WQO) 2009-0009-DWQ, obtained from the State Water Board, or individual storm water permit obtained from the Lahontan Water Board. 4-G
2. Streambed alteration and/or discharge of fill material to a surface water may require a CWA, section 401 water quality certification for impacts to federal waters (waters of the U.S.), or Dredge and Fill Waste Discharge Requirements (WDR) for impacts to non-federal waters, both issued by the Lahontan Water Board. 4-H

We request that the draft EIR recognize the potential permits that may be required for the Project, as outlined above and identify the specific activities that may trigger these permitting actions in the appropriate sections of the environmental document. Information regarding these permits, including application forms, can be downloaded from our website at <http://www.waterboards.ca.gov/lahontan/>. Early consultation with Water Board staff regarding potential permitting is recommended. 4-I

Thank you for the opportunity to comment on the EIR. If you have any questions regarding this letter, please contact me at (760) 241-7305, tiffany.steinert@waterboards.ca.gov or Jan Zimmerman, Senior Engineering Geologist, at (760) 241-7404, jan.zimmerman@waterboards.ca.gov. Please send all future correspondence regarding this Project to the Water Board's email address at Lahontan@waterboards.ca.gov and be sure to include the State Clearinghouse No. and Project name in the subject line.

Tiffany Steinert

Tiffany Steinert
Engineering Geologist

cc: California Department of Fish and Wildlife (Reg4Assistant@wildlife.ca.gov)
State Clearinghouse (state.clearinghouse@opr.ca.gov) SCH No. 2017081038

Response to Comment Letter 4: California Water Boards, Lahontan Regional Water Quality Control Board (January 9, 2020)

- 4-A:** Thank you for your comments. The participation of the Lahontan Regional Water Quality Control Board (LRWQB) in the public review of this document is appreciated. The comment states the Lahontan Regional Water Quality Control Board has reviewed the Draft EIR and provides several recommendations for the project related to drainage conditions and implementation of Best Management Practices (BMPs). The drainage recommendations are that natural drainage channels and flow paths should be maintained which is consistent with the Kern County Grading Ordinance 17.28, to which the project will conform. See Draft EIR, page 4.7-11. As far as implementing BMPs, Mitigation Measure MM 4.10-1 requires the proponent/operator to prepare and implement a hydrologic study and drainage plan which would be incorporated into design specifications and construction contracts, and Mitigation Measure MM 4.10-2 would require the proponent/operator to prepare and implement a stormwater pollution prevention plan, which would include various BMPs designed to prevent soil erosion and sedimentation. Regarding the beneficial uses of all water resources within the project area, please refer to page 4.10-2, as well as pages 4.17-1 through 4.17-3, of the DEIR. In compliance with this recommendation, the Draft EIR provides a list of all water resources that would be affected through project implementation, and identifies the proposed uses of these resources in relation to the project. Regarding the fate of the abandoned wells found on the project site, please see Response to Comment 4-E, below. Regarding a project map which accurately reflects proposed site conditions, please refer to MM 4.10-1, which requires the project proponent/operator shall submit a final hydrologic study and drainage plan for review and approval by the Kern County Public Works Department. Furthermore, Figure 3-2, *Project Site*, of the Draft EIR, depicts the existing project area, and Figure 3-6, *Overall Site Plan*, of the Draft EIR, depicts the proposed development on the project site. Thus, the proposed project would comply with these recommendations. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.
- 4-B:** The comment provides an overview of the Water Board's authority and the applicable laws and regulations which the Water Board enforces. The proposed project would abide by all Water Board requirements that are applicable to the proposed project. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record and revisions are not necessary.
- 4-C:** The comment elaborates on the earlier recommendation that natural drainage patterns remain and that low impact development (LID) design measures be considered. As discussed in Section 4.10, Hydrology and Water Quality, Mitigation Measure MM 4.10-1 and MM 4.10-2, on pages 4.10-16 and 4.10-17 the proposed project would be required to prepare and submit a final hydrologic study and drainage plan for review and approval by the Kern County Public Works Department, and to prepare and submit a Stormwater Pollution Prevention Plan for review and approval by the Regional Water Quality Control Board-Lahontan Region. The items required per MM 4.10-1 and MM 4.10-2 would be required to be prepared pursuant to the Kern County Grading Code, which would include any necessary stormwater management facilities to control runoff leaving the project site once the specific facility plans are drafted. These facilities can include filtration, runoff-minimizing landscape, energy dissipaters, inlet trash racks, and water quality inlets. These drainage features would qualify as LID design measures and would be consistent with the recommendations that the Water Board are making.
- 4-D:** The commenter states that the Draft EIR incorrectly describes the proposed project as being located within the Fremont Valley Groundwater Basin. The project is located within the Antelope Valley Hydrologic Unit that overlies the Antelope Valley Groundwater Basin. In response to this

comment, pages 4.10-4 through 4.10-6 in Section 4.10, Hydrology and Water Quality, of the Draft EIR have been revised to clarify the project's location within the Antelope Valley Groundwater Basin. Furthermore, as stated in Response to Comment 4-A, beneficial uses of all water resources within the project area are provided on page 4.10-2, as well as pages 4.17-1 through 4.17-3, of the DEIR.

4-E: The Draft EIR does not reference abandoned wells. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record and revisions are not necessary.

4-F: The commenter states that the Project Map provided in Appendix A of the EIR is outdated and no longer reflects the actual location of the drainage that flows north to south along 95th Street West. The commenter described that this particular drainage is wider than the maps provided indicate and may result in impacts to waters as a result of this flow path difference.

Consistent with CEQA, the environmental baseline in the Draft EIR depicts conditions at the time the NOP was published in 2017. The referenced project map properly reflects those conditions. To the extent drainages have since changed, the EIR's mitigation measures ensure that related impacts will still be less than significant. As discussed in Response to Comment 4-A, the project would implement Mitigation Measure MM 4.10-1, which would require the project proponent/operator to submit a final hydrologic study and drainage plan for review and approval by the Kern County Public Works Department, which will necessarily include a project map with updated drainage locations. See Draft EIR Figures 3-2 and 3-6 of the Draft EIR. Based on the findings of the hydrologic study, the drainage plan would recommend an onsite design that complies with all channel setback requirements and ensure facilities are located in such a way to lessen their impact on drainage areas. Therefore, the concurrent ground disturbance required for these facilities during construction would mostly avoid drainage areas. Therefore, project implementation would account for any variations in drainage flows over time, and therefore, would avoid impacts to waters. Thus, the proposed project would comply with this recommendation. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

4-G: The comment states the project may require a Clean Water Act (CWA) section 402(p) stormwater permit including NPDES General Construction Stormwater Permit. As described in Section 4.10, *Hydrology and Water Quality*, the construction activities for the proposed project exceed the one-acre threshold of ground disturbance and, thus, the project would be required to adhere to the Kern County National Pollutant Discharge Elimination System (NPDES) applicability requirements. This would be implemented through Mitigation Measure MM 4.10-2, which requires the implementation of a SWPPP that would include erosion control and sediment control BMPs designed to prevent soil erosion from occurring and would retain sediment onsite.

The project will adhere to all applicable permits required by the State Water Board and/or Lahontan Water Board. See generally Section 4.17, *Utilities and Service Systems*, of the Draft EIR (including a discussion on CWA Section 402(p)).

4-H: The comment states the potential for the project to adhere to CWA Section 401 water quality certification or dredge and fill waste discharge permit. The project will adhere to all applicable permits required by the State Water Board and/or Lahontan Water Board. Mitigation Measure MM 4.4-15 in Section 4.4, *Biological Resources*, of the Draft EIR, specifically provides that the project applicant shall obtain a CWA Section 401 permit if necessary.

- 4-I:** The comment requests the Draft EIR recognize the aforementioned potential permits and recommends early consultation with Water Board staff. As described in Chapter 3, *Project Description*, on page 3-25 of the Draft EIR, the project proponent recognizes that the project would have to comply with all applicable permits from the Lahontan Regional Water Quality Control Board, including any waste discharge requirements, in order to obtain the necessary discretionary approvals. See also Section 4.17, *Utilities and Service Systems*, of the Draft EIR (discussing permitting requirements).

Comment Letter No. 5: Department of Toxic Substances Control



Jared Blumenfeld
Secretary for
Environmental Protection

Department of Toxic Substances Control

Meredith Williams, Ph.D., Director
8800 Cal Center Drive
Sacramento, California 95826-3200



Gavin Newsom
Governor

January 3, 2020

Mr. Randall Cates
Kern County Planning
and Natural Resources Department
2700 "M" Street, Suite 100
Bakersfield, California 93301-2323

DRAFT ENVIRONMENTAL IMPACT REPORT FOR EIR 06-17; AV APOLLO SOLAR
PROJECT BY SUNBOW SOLAR I LLC, SYRACUSE SOLAR LLC AND TOURS
SOLAR LLC – DATED DECEMBER 2019
(STATE CLEARINGHOUSE NUMBER: 2017081038)

Dear Mr. Cates:

The Department of Toxic Substances Control (DTSC) received a Draft Environmental Impact Report (EIR) for EIR 06-17; AV Apollo Solar Project by Sunbow Solar I LLC, Syracuse Solar LLC and Tours Solar LLC.

The proposed project consists of the construction and operation of a 20-megawatt solar voltaic electrical generating facility in an A District. Depending upon market conditions, the project site may also include, or be developed with, up to 60 megawatts of advanced energy battery storage units; one Conditional Use Permit to allow for the construction and operation of a communication tower, and Amendment to the Circulation Element of the Kern County General Plan to eliminate future road reservation along the east-west mid-section line in Section 19, T10N/R13W SBB&M, in Zone Map 214 (General Plan Amendment 5, Map 214). The project's permanent facilities would include service roads, a communication tower, communication cables, overhead and underground transmission lines, an electrical switching station, project substations, operations and maintenance facilities and gen-tie lines.

DTSC recommends that the following issues be evaluated in the EIR, Hazards and Hazardous Materials section:

1. The EIR should acknowledge the potential for project site activities to result in the release of hazardous wastes/substances. In instances in which releases may occur, further studies should be carried out to delineate the nature and extent of the contamination, and the potential threat to public health and/or the environment should be evaluated. The EIR should also identify the mechanism(s)

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Comment Letter No. 5: Department of Toxic Substances Control

Mr. Randall Cates
January 3, 2020
Page 2

- to initiate any required investigation and/or remediation and the government agency who will be responsible for providing appropriate regulatory oversight.
2. If any sites within the project area or sites located within the vicinity of the project have been used or are suspected of having been used for mining activities, proper investigation for mine waste should be discussed in the EIR. DTSC recommends that any project sites with current and/or former mining operations onsite or in the project site area should be evaluated for mine waste according to DTSC's 1998 Abandoned Mine Land Mines Preliminary Assessment Handbook (https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/11/aml_handbook.pdf).
 3. If buildings or other structures are to be demolished on any project sites included in the proposed project, surveys should be conducted for the presence of lead-based paints or products, mercury, asbestos containing materials, and polychlorinated biphenyl caulk. Removal, demolition and disposal of any of the above-mentioned chemicals should be conducted in compliance with California environmental regulations and policies. In addition, sampling near current and/or former buildings should be conducted in accordance with DTSC's 2006 *Interim Guidance Evaluation of School Sites with Potential Contamination from Lead Based Paint, Termiticides, and Electrical Transformers* (https://dtsc.ca.gov/wpcontent/uploads/sites/31/2018/09/Guidance_Lead Contamination_050118.pdf).
 4. If any projects initiated as part of the proposed project require the importation of soil to backfill any excavated areas, proper sampling should be conducted to ensure that the imported soil is free of contamination. DTSC recommends the imported materials be characterized according to DTSC's 2001 *Information Advisory Clean Imported Fill Material* (https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/SMP_FS_Cleanfill-Schools.pdf).
 5. If any sites included as part of the proposed project have been used for agricultural, weed abatement or related activities, proper investigation for organochlorinated pesticides should be discussed in the EIR. DTSC recommends the current and former agricultural lands be evaluated in accordance with DTSC's 2008 *Interim Guidance for Sampling Agricultural Properties (Third Revision)* (<https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/Ag-Guidance-Rev-3-August-7-2008-2.pdf>).

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DTSC appreciates the opportunity to review the EIR. Should you need any assistance with an environmental investigation, please submit a request for Lead Agency Oversight Application, which can be found at: https://dtsc.ca.gov/wp-content/uploads/sites/31/2018/09/VCP_App-1460.doc. Additional information regarding voluntary agreements with DTSC can be found at: <https://dtsc.ca.gov/brownfields/>.

If you have any questions, please contact me at (916) 255-3710 or via email at Gavin.McCreary@dtsc.ca.gov.

Sincerely,



Gavin McCreary
Project Manager
Site Evaluation and Remediation Unit
Site Mitigation and Restoration Program
Department of Toxic Substances Control

cc: (via email)

Governor's Office of Planning and Research
State Clearinghouse
State.Clearinghouse@opr.ca.gov

Ms. Lora Jameson, Chief
Site Evaluation and Remediation Unit
Department of Toxic Substances Control
Lora.Jameson@dtsc.ca.gov

Mr. Dave Kereazis
Office of Planning & Environmental Analysis
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

Response to Comment Letter 5: California Department of Toxic Substances Control (January 3, 2020)

- 5-A** The comment states the California Department of Toxic Substances Control (DTSC) received a copy of the Draft EIR in its entirety, which included a Notice of Availability. The commenter provides a brief summary of the proposed project and the permanent facilities that would be installed with project implementation. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.
- 5-B** The comment recommends that the EIR consider the potential for project site activities to result in the release of hazardous waste/substances. As discussed in Section 4.9, *Hazards and Hazardous Materials*, of the Draft EIR, potential impacts that may result from construction and decommissioning of the project includes the accidental release of materials, such as cleaning fluids and petroleum products including lubricants, fuels, and solvents. Implementation of Mitigation Measure MM 4.9-1, which would provide methods to be used to avoid spills and minimize impacts in the event of a spill by providing procedures for handling and disposing hazardous materials as well as public and agency notification procedures for spills and other emergencies including fires, would reduce this impact to a less-than-significant level. Furthermore, operation of the project would produce no hazardous waste, and therefore, would not have potential to result in the release of hazardous waste/substances.
- 5-C** The comment recommends that the EIR consider the potential impact from mining activity in the vicinity of the project, and that the EIR consider any current or former mining operations within the project area that may present a hazard resulting from mine waste. As stated in Section 4.12, *Mineral Resources*, page 4.12-4 of the draft EIR, the nearest land area designated as 8.4, Mineral and Petroleum, by the Kern County General Plan is located approximately 0.35 miles northeast of the project site. The nearest identified mineral resource deposit to the project site is located approximately 2 miles to the northeast. There are mineral resource zones located adjacent to the project site; however, these are not being actively explored, excavated, or extracted and the project site is not identified as a mineral resource zone. Furthermore, there are no former or current mines located within the project area and therefore, there is no potential for impacts related to mine waste on the project site. The comment has been noted for the record and revisions are not necessary.
- 5-D** The comment recommends that the EIR consider the potential hazardous materials that might be released during demolition of onsite structures. The commenter states that removal, demolition, or disposal of lead-based paints, mercury, asbestos containing materials, and polychlorinated biphenyl caulk, should be conducted in compliance with California environmental regulations and policies. As discussed in Section 4.9, *Hazards and Hazardous Materials*, of the Draft EIR, Mitigation Measure MM 4.9-1 would be implemented and would require that procedures be adhered to, in the event of hazardous material encounters, to comply with California environmental regulations, and which would be approved by the Kern County Public Health Services Department. Therefore, the proposed project would comply with the commenters recommendation. The comment has been noted for the record revisions are not necessary.
- 5-E** The comment recommends that the EIR consider the impact of potentially contaminated soil to backfill any excavated areas. As discussed in Chapter 3, *Project Description*, of the Draft EIR, the proposed project would not require any import or export of soil to backfill excavated areas and thus, backfilling with contaminated soil would not pose a potential impact from implementation of the proposed project. The comment has been noted for the record revisions are not necessary.
- 5-F** The comment recommends that if any sites included as part of the proposed project have been used for agricultural, weed abatement, or other activities, proper investigation for organochlorinated

pesticides should be evaluated as part of the Draft EIR. As discussed in Chapter 3, *Project Description*, of the Draft EIR, the project area consists largely of undeveloped lands, sparse residential dwellings, and dirt roads. Although the project has been zoned for agricultural use the project site is not currently and has never been used for agricultural production. Furthermore, Mitigation Measure MM 4.9-2 would require compliance with regulations on pesticide and herbicide use and handling, including submission of a written record of all herbicide or pesticide applications on the site to the Kern County Planning and Natural Resources Department for review. Therefore, potential impacts from the former or current use of herbicides or pesticides would be reduced to a less-than-significant level. The comment has been noted for the record revisions are not necessary.

Comment Letter No. 6: California Department of Fish and Wildlife



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



March 13, 2020

Randall Cates, Planner III
Kern County Planning and Natural Resources Department
2700 M Street, Suite 100
Bakersfield, California 93301-2323

Subject: EIR 06-17; AV Apollo Solar (Project)
Draft Environmental Impact Report (DEIR)
SCH No. 2017081038

Dear Mr. Cates:

The California Department of Fish and Wildlife (CDFW) received a DEIR from the Kern County Planning and Natural Resources Department (County) for the above-referenced Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects on the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under Fish and Game Code. CDFW acknowledges that our comments are arriving past the comment period deadline. CDFW respectfully requests that our comments be reviewed and incorporated into the final Environmental Impact Report (EIR) as appropriate prior to the Project being heard for approval.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources, and holds those resources in trust by statute for all the people of the State (Fish and G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines, § 15386, subd.

¹ CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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(a)). CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), related authorization as provided by the Fish and Game Code will be required.

In this role, CDFW is responsible for providing, as available, biological expertise during public agency environmental review efforts (e.g., CEQA), focusing specifically on project activities that have the potential to adversely affect fish and wildlife resources. CDFW provides recommendations to identify potential impacts and possible measures to avoid or reduce those impacts.

Protected Furbearing Mammals: CDFW has jurisdiction over furbearing mammals pursuant to Title 14, California Code of Regulations, section 460. This section states, "Fisher, marten, river otter, desert kit fox and red fox may not be taken at any time"; therefore, CDFW cannot authorize their take.

PROJECT DESCRIPTION SUMMARY

Proponents: Sunbow Solar I LLC, Syracuse Solar LLC and Tours Solar LLC

Objective: The Project proponents are requesting the following: (a) three (3) Conditional Use Permits (CUPs), each to allow for the construction and operation of a 20 megawatt (MW) solar photovoltaic electrical generating facility (Site 1=Syracuse; Site 2=Tours; Site 3=Sunbow) for a total of 493.5 acres of undeveloped desert land. Depending upon market conditions, the Project may also include or be developed with up to 60 MWs of advanced energy battery storage units; (b) one CUP to allow for the construction and operation of a communication tower on the Syracuse Site (CUP 41, Map 214); and (c) an Amendment to the Circulation Element of the Kern County General Plan to eliminate future road reservation along the east-west mid-section line in Section 19, T10N/R13W SBB&M, in Zone Map 214 (General Plan Amendment 5, Map 214).

6-A
(cont.)

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The Project components would include PV panels, service roads, a communication tower, communication cables, overhead and underground transmission lines, an electrical switching station, up to 3 substations, up to 3 operations and maintenance facilities, and 125 feet of off-site generation tie-in (gen-tie) lines to connect to the existing Southern California Edison Antelope-Cal Cement-Rosamond 66-kilovolt overhead distribution lines that run parallel to Backus Road.

Location: The Project is located approximately 9 miles southwest of the unincorporated community of Mojave and approximately eight miles northwest of the unincorporated community of Rosamond, generally bound by Trotter Avenue to the North, the Golden Gate Avenue alignment to the south, Tehachapi Willow Springs Road to the east, and 100th Street West to the west. The Project is located in Sections 18 and 19, Township 10 North, Range 13 West, SBB&M, County of Kern, State of California.

Timeframe: Unspecified.

RECOMMENDATIONS

CDFW offers the following comments and recommendations to assist the County in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources.

I. Environmental Setting and Related Impact

Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or the United States Fish and Wildlife Service (USFWS)?

Review of the California Natural Diversity Database (CNDDB) reveals records for several special-status species within the vicinity of the Project area including, but not limited to, the State candidate-listed as endangered Crotch bumble bee (*Bombus crotchii*), the State and federally threatened desert tortoise (*Gopherus agassizii*); the State threatened Mohave ground squirrel (*Xerospermophilus mohavensis*); the State threatened Swainson's hawk (*Buteo swainsoni*); and the State protected furbearing mammal desert kit fox (*Vulpes macrotis* ssp. *macrotis*). Per the draft EIR and a review of aerial imagery, the Project site is vacant desert habitat. The Project therefore has the potential to impact biological resources. An analysis of potential impacts and recommended mitigation measures, summarized by species, follows below.

Comment 1: Crotch Bumble Bee (CBB)

6-A
(cont.)

6-B

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Issue: On June 28, 2019, the Fish and Game Commission published findings of its decision to advance CBB to candidacy as endangered. Pursuant to Fish and Game Code section 2074.6, CDFW has initiated a status review report to inform the Commission's decision on whether listing of CBB, pursuant to CESA, is warranted. During the candidacy period, consistent with CEQA Guidelines, section 15380, the status of the CBB as a candidate species under CESA (Fish & G. Code, § 2050 et seq.) qualifies it as an endangered, rare, or threatened species under CEQA. It is unlawful to import into California, export out of California or take, possess, purchase, or sell within California, CBB and any part or product thereof, or attempt any of those acts, except as authorized pursuant to CESA. Under Fish and Game Code section 86, take means to hunt, pursue, catch, capture, or kill, or to attempt to hunt pursue, catch, capture, or kill. Consequently, take of CBB during the status review period is prohibited unless authorization pursuant to CESA is obtained. The DEIR states on page 4.4-19 that impacts to individual CBB would not be significant; however, no information is provided to support the finding, nor does it include any avoidance, minimization or mitigation measures for the species. CDFW does not know how the threshold for significance was determined and cannot conclude the Project will avoid significant impacts to the species.

CBB are generalist foragers using a wide variety of flowering plants. Suitable CBB habitat includes areas of grasslands and upland scrub that contain requisite habitat elements, such as small mammal burrows. CBB primarily nest in late February through late October underground in abandoned small mammal burrows, but may also nest under perennial bunch grasses or thatched annual grasses, under brush piles, in old bird nests, and in dead trees or hollow logs (Williams et al. 2014; Hatfield et al. 2015). Overwintering sites utilized by CBB mated queens include soft, disturbed soil (Goulson 2010), or under leaf litter or other debris (Williams et al. 2014). Therefore, ground disturbance and vegetation removal associated with Project construction and maintenance has the potential to significantly impact local CBB populations.

Specific impact: Without appropriate avoidance and minimization measures for CBB, potentially significant impacts associated with ground- and vegetation-disturbing activities associated with construction of the Project include loss of foraging plants, changes in foraging behavior, burrow collapse, nest abandonment, reduced nest success, reduced health and vigor of eggs, young and/or queens, in addition to direct mortality by squashing or collisions with vehicles or equipment in violation of Fish and Game Code.

Evidence impact is potentially significant: CBB was once common throughout most of the central and southern California; however, it now appears to be absent from most of it, especially in the central portion of its historic range within California's Central Valley (Hatfield et al. 2014). Analyses by the Xerces Society et al. (2018) suggest there have been sharp declines in relative abundance by 98% and persistence by 80% over the last ten years.

6-B
(cont.)

Recommended Potentially Feasible Mitigation Measure(s)

To evaluate potential impacts to CBB associated with the Project, CDFW recommends incorporating the following mitigation measures into the EIR prepared for this Project and implementing the following mitigation measures as a condition of approval for the Project.

Recommended Mitigation Measure 1: CBB Surveys

CDFW recommends that a qualified biologist conduct focused surveys for CBB and their requisite habitat features to evaluate potential impacts resulting from ground- and vegetation-disturbance associated with Project ground-disturbing activities.

Recommended Mitigation Measure 2: CBB Take Avoidance

If surveys cannot be completed, CDFW recommends that all small mammal burrows and thatched/bunch grasses be avoided by a minimum of 50 feet to avoid take and potentially significant impacts. If ground-disturbing activities will occur during the overwintering period (October through February), consultation with CDFW is warranted to discuss how to implement Project activities and avoid take.

Recommended Mitigation Measure 3: CBB Take Authorization

If CBB is observed in the Project area, consultation with CDFW is warranted to determine if the Project can avoid take. If take cannot be avoided, take authorization prior to any ground-disturbing activities may be warranted. Take authorization would occur through issuance of an Incidental Take Permit (ITP) by CDFW, pursuant to Fish and Game Code section 2081(b).

COMMENT 2: Desert Tortoise

Issue: The Project site is within the range of desert tortoise and based on aerial imagery the site contains a desert wash and desert scrub habitat which is suitable habitat for desert tortoise (CDFW 2020a). Desert tortoise are most common in desert scrub, desert wash, and Joshua tree habitats (CDFW 2020b). The availability of habitat on the Project site demonstrates that desert tortoise may have the potential to be onsite and impacted by Project activities.

Specific impact: Potentially significant impacts that may result from Project-related activities include loss of foraging habitat, habitat degradation and fragmentation, burrow destruction, and direct mortality.

Evidence impact is potentially significant: Human impacts to desert tortoise include habitat conversion to agriculture and urban lands, degradation of habitat by off-highway vehicles (OHV), intentional killing of tortoises, and killing by cars and OHV (Doak et al. 1994). Project activities may result in the loss of potential desert

6-C

6-D

tortoise habitat through conversion, may increase habitat fragmentation, and expand urbanization into the area.

Recommended Potentially Feasible Mitigation Measure(s)

To evaluate potential Project-related impacts to desert tortoise, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the EIR prepared for this Project, and that these measures be made conditions of approval for the Project.

Recommended Mitigation Measure 4: Desert Tortoise Surveys

The DEIR states that protocol-level survey efforts conducted in 2016 found a potential desert tortoise burrow. Because the surveys were conducted approximately four years ago, there is the potential for desert tortoise to have moved onto the Project site. CDFW recommends that a qualified biologist conduct protocol-level surveys following the USFWS's "Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*)" (USFWS 2017). In addition, CDFW advises pre-construction surveys for desert tortoise be conducted within 10 days of Project implementation.

Recommended Mitigation Measure 5: Desert Tortoise Take Authorization

If desert tortoise are found within the Project area during protocol-level surveys, preconstruction surveys, or during construction activities, consultation with CDFW is advised to discuss how to implement the Project and avoid take; or if avoidance is not feasible, to acquire an ITP prior to any ground-disturbing activities, pursuant Fish and Game Code § 2081(b).

COMMENT 3: Mohave ground squirrel (MGS)

Issue: Based on aerial imagery, the Project site appears to contain suitable habitat for MGS and there is potential for MGS to occur on the Project site (CDFW 2020a).

Specific impact: Without appropriate avoidance and minimization measure for MGS, potential significant impacts associated with the Project's construction include burrow collapse, inadvertent entrapment, reduced reproductive success, and mortality of individuals.

Evidence impact is potentially significant: Major threats to the MGS are drought, habitat destruction, habitat fragmentation, and habitat degradation (Gustafson 1993). MGS is restricted to a small geographic range and the greatest habitat loss has occurred near desert towns including California City (Gustafson 1993). Natural cycling is anticipated in MGS populations, therefore, the true indicators of the status of the species are the quantity, pattern of distribution, and quality of habitat

6-D
(cont.)

6-E

(Gustafson 1993). Project activities may result in the loss of potential MGS habitat through conversion, may increase habitat fragmentation, and expand urbanization into the area.

Recommended Potentially Feasible Mitigation Measure(s)

To evaluate potential Project-related impacts to MGS, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the EIR prepared for this Project, and that these measures be made conditions of approval for the Project.

Recommended Mitigation Measure 6: Mohave ground squirrel surveys

CDFW recommends that a qualified permitted biologist conduct protocol surveys for MGS following the methods described in the "Mohave Ground Squirrel Survey Guidelines" (CDFG 2003) during the appropriate survey season prior to Project implementation, including any vegetation- or ground-disturbing activities. Results of the MGS surveys are advised to be submitted to the CDFW. Please note MGS surveys are valid for one year and CDFW recommends surveys be conducted within a year of the start of ground-disturbing activities.

Recommended Mitigation Measure 7: Mohave ground squirrel avoidance

If protocol surveys will not be conducted, in order to implement full avoidance for MGS, CDFW recommends a 50-foot no-disturbance buffer be employed around all burrows that could be used by MGS.

Recommended Mitigation Measure 8: Mohave ground squirrel Take Authorization

If MGS are found within the Project area during protocol surveys, preconstruction surveys, or construction activities, consultation with CDFW is recommended to discuss how to implement the Project and avoid take; or if avoidance is not feasible, to acquire an ITP prior to any ground-disturbing activities, pursuant Fish and Game Code section 2081(b). alternatively, the applicant can assume presence and acquire an ITP prior to initiating Project implementation.

COMMENT 4: Swainson's Hawk (SWHA)

Issue: SWHA have the potential to nest near the Project site, and forage within the Project site. The CNDDB has 3 SWHA records located less than 1 mile southwest from the Project site (CDFW 2020a).

6-E
(cont.)

6-F

Specific impacts: Without appropriate avoidance and minimization measures for SWHA, potential significant impacts that may result from Project activities include: nest abandonment, loss of nest trees, loss of foraging habitat that would reduce nesting success (loss or reduced health or vigor of eggs or young), and direct mortality. Any take of SWHA without appropriate incidental take authorization would be a violation of Fish and Game Code.

Evidence impact is potentially significant: SWHA exhibit high nest-site fidelity year after year. Approval of the Project may lead to subsequent ground-disturbing activities that involve noise, groundwork, and movement of workers that could affect nests and has the potential to result in nest abandonment and loss of foraging habitat, significantly impacting local nesting SWHA.

Recommended Potentially Feasible Mitigation Measure(s)

Because suitable foraging habitat for SWHA is present throughout the Project site, CDFW recommends conducting the following evaluation of the Project site, incorporating the following mitigation measures into the EIR prepared for this Project, and that these measures be made conditions of approval for the Project.

Recommended Mitigation Measure 9: SWHA No-disturbance Buffer

If ground-disturbing activities are to take place during the normal bird breeding season (March 1 through September 15), CDFW recommends that additional pre-activity surveys for active nests within a ½-mile of the Project be conducted by a qualified biologist in addition to the "Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California" (CEC & CDFG 2010) protocol surveys no more than 10 days prior to the start of Project implementation to ensure that SWHA have not moved into nesting habitat features between the end of protocol surveys and the start of Project Implementation. CDFW recommends a minimum no-disturbance buffer of ½-mile be delineated around active nests until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

Recommended Mitigation Measure 10: SWHA Take Authorization

In the event an active SWHA nest is detected and a ½-mile no-disturbance buffer is not feasible, consultation with CDFW is warranted to discuss how to implement the project and avoid take. If take cannot be avoided, take authorization through the issuance of an ITP, pursuant to Fish and Game Code section 2081(b) is necessary to comply with CESA.

Recommended Mitigation Measure 11: Loss of SWHA Foraging Habitat

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(cont.)

CDFW recommends compensation for the loss of SWHA foraging habitat as described in CDFW's "Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California" (CEC & CDFG 2010) to reduce impacts to foraging habitat to less than significant. The SWHA survey protocol recommends that plans for mitigating loss of SWHA foraging habitat be mitigated by providing HM lands within the Antelope Valley SWHA breeding range at a minimum 2:1 ratio for such habitat impacted within a five-mile radius of active SWHA nest(s). CDFW considers a nest active if it was used one or more times within the last 5 years

Recommended Mitigation Measure 12: SWHA Nest Trees

CDFW recommends that the removal of known raptor nest trees, even outside of the nesting season, be replaced with an appropriate native tree species planting at a ratio of 3:1 at or near the Project area or in another area that will be protected in perpetuity to reduce impacts resulting from the loss of nesting habitat.

II. Editorial Comments and/or Suggestions

Notification of Lake and Streambed Alteration: CDFW has regulatory authority with regard to activities occurring in streams and/or lakes that could adversely affect any fish or wildlife resource, pursuant to Fish and Game Code sections 1600 et seq. Fish and Game Code section 1602 requires an entity to notify CDFW prior to commencing any activity that may (a) substantially divert or obstruct the natural flow of any river, stream, or lake; (b) substantially change or use any material from the bed, bank, or channel of any river, stream, or lake; or (c) deposit debris, waste or other materials that could pass into any river, stream, or lake. "Any river, stream, or lake" includes those that are ephemeral or intermittent as well as those that are perennial in nature.

For additional information on notification requirements, please contact our staff in the Lake and Streambed Alteration Program at (559) 243-4593. It is important to note, CDFW is required to comply with CEQA, as a Responsible Agency, when issuing a Lake or Streambed Alteration Agreement (LSAA). If inadequate, or no environmental review, has occurred, for the Project activities that are subject to notification under Fish and Game Code section 1602, CDFW will not be able to issue the Final LSAA until CEQA analysis for the project is complete. This may lead to considerable Project delays.

Desert Kit Fox: The proposed Project site is within desert kit fox range and, as stated in the Biological Assessment, contains two potential desert kit fox dens. The desert kit fox is protected under Title 14, California Code of Regulations, Section 460, which prohibits take of the species at any time. CDFW recommends that the USFWS "Standardized recommendations for protection of the San Joaquin kit fox prior to or during ground disturbance" (2011) be followed and that surveys be conducted

6-F
(cont.)

6-G

6-H

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accordingly and prior to commencing any Project-related activities. Two potential desert kit fox dens have been observed in the Project area and consultation with CDFW would be warranted for guidance on take avoidance measures for the desert kit fox.

Nesting birds: CDFW has jurisdiction over actions with potential to result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Fish and Game Code sections that protect birds, their eggs and nests include sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

Habitat within the Project area likely provides nesting habitat for birds. For this reason, CDFW encourages Project implementation occur during the non-nesting bird season. However, if ground-disturbing activities must occur during the breeding season (February through mid-September), the Project applicant is responsible for ensuring that implementation of the Project does not result in violation of the Migratory Bird Treaty Act or relevant Fish and Game Codes as referenced above.

To evaluate Project-related impacts on nesting birds, CDFW recommends that a qualified wildlife biologist conduct pre-activity surveys for active nests no more than 10 days prior to the start of ground disturbance to maximize the probability that nests that could potentially be impacted are detected. CDFW also recommends that surveys cover a sufficient area around the work site to identify nests and determine their status. A sufficient area means any area potentially affected by a project. In addition to direct impacts (i.e. nest destruction), noise, vibration, odors, and movement of workers or equipment could also affect nests. Prior to initiation of construction activities, CDFW recommends a qualified biologist conduct a survey to establish a behavioral baseline of all identified nests. Once construction begins, CDFW recommends a qualified biologist continuously monitor nests to detect behavioral changes resulting from the project. If behavioral changes occur, CDFW recommends the work causing that change cease and CDFW consulted for additional avoidance and minimization measures.

If continuous monitoring of identified nests by a qualified wildlife biologist is not feasible, CDFW recommends a minimum no-disturbance buffer of 250 feet around active nests of non-listed bird species and a 500-foot no-disturbance buffer around active nests of non-listed raptors. These buffers are advised to remain in place until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival. Variance from these no-disturbance buffers is possible when there is compelling biological or ecological reason to do so, such as when the construction area would be concealed from a nest site by topography. CDFW recommends that a qualified wildlife biologist advise and support any variance from these buffers and notify CDFW in advance of implementing a variance.

ENVIRONMENTAL DATA

6-H
(cont.)

6-I

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special status-species and natural communities detected during Project surveys to CNDDDB. The CNDDDB field survey form can be found at the following link:

<https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data#44524420-pdf-field-survey-form>. The completed form can be mailed electronically to CNDDDB at the following email address: CNDDDB@wildlife.ca.gov. The types of information reported to CNDDDB can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>.

FILING FEES

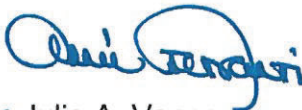
If it is determined that the Project has the potential to impact biological resources, an assessment of filing fees will be necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089).

CONCLUSION

CDFW appreciates the opportunity to comment on the Project to assist the County in identifying and mitigating the Project's impacts on biological resources.

If you have any questions, please contact Jim Vang, Environmental Scientist, at the address provided on this letterhead, by telephone at (559) 243-4014, extension 254, or by electronic mail at Jim.Vang@wildlife.ca.gov.

Sincerely,



 Julie A. Vance
Regional Manager

Attachment

6-J

6-K

6-L

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Literature Cited

CDFG, 2003. Mohave Ground Squirrel Survey Guidelines. California Department of Fish and Game, January 2003.

California Energy Commission and California Department of Fish and Game (CEC & CDFG). 2010. Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California. California Department of Fish and Game. 2 June 2010.

CDFW, 2020a. Biogeographic Information and Observation System (BIOS). <https://www.wildlife.ca.gov/Data/BIOS>. Accessed February 24, 2020.

CDFW, 2020b. California Wildlife Habitat Relationship System, Desert Tortoise. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=2659&inline=1>. Accessed February 24, 2020.

Doak, D., Kareiva, P. and Kleptka, B., 1994. Modeling Population Viability for the Desert Tortoise in the Western Mojave Desert. Ecological Applications, August 1994.

Goulson, D. 2010. Bumblebees: behaviour, ecology, and conservation. Oxford University Press, New York. 317pp.

Gustafson, J., 1993. Report to the Fish and Game Commission: A Status Review of the Mohave Ground Squirrel (*Spermophilus mohavensis*). California Department of Fish and Game, March 1993.

Hatfield, R, S. Colla, S. Jepsen, L. Richardson, R. Thorp, and S. Foltz Jordan. 2014. Draft IUCN Assessments for North American *Bombus* spp. for the North American IUCN Bumble Bee Specialist Group. The Xerces Society for Invertebrate Conservation, www.xerces.org, Portland, OR.

Hatfield, R., Jepsen, S., Thorp, R., Richardson, L. & Colla, S. 2015. *Bombus crotchii*. The IUCN Red List of Threatened Species. <http://dx.doi.org/10.2305/IUCN.UK.2015-2.RLTS.T44937582A46440211.en>. Accessed February 21, 2020.

USFWS, 2011. Standard Recommendations for the Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance. United States Fish and Wildlife Service, January 2011.

USFWS, 2017. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*). United States Fish and Wildlife Service, August 2017.

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Williams, P. H., R. W. Thorp, L. L. Richardson, and S. R. Colla. 2014. Bumble bees of North America: An Identification guide. Princeton University Press, Princeton, New Jersey. 208pp.

Xerces Society for Invertebrate Conservation, Defenders of Wildlife, and Center for Food Safety. 2018. A petition to the state of California fish and game commission to list the Crotch bumble bee (*Bombus crotchii*), Franklin's bumble bee (*Bombus franklini*), Suckley cuckoo bumble bee (*Bombus suckleyi*), and western bumble bee (*Bombus occidentalis occidentalis*) as Endangered under the California Endangered Species Act. October 2018.

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Attachment 1

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE RECOMMENDED MITIGATION MONITORING AND REPORTING PROGRAM (MMRP)

PROJECT: EIR 06-17; AV Apollo Solar Project

SCH No.: 2017081038

RECOMMENDED MITIGATION MEASURE	STATUS/DATE/INITIALS
<i>Before Disturbing Soil or Vegetation</i>	
Mitigation Measure 1: CBB Surveys	
Mitigation Measure 2: CBB Take Avoidance	
Mitigation Measure 3: CBB Take Authorization	
Mitigation Measure 4: Desert Tortoise Surveys	
Mitigation Measure 5: Desert Tortoise Take Authorization	
Mitigation Measure 6: Mohave ground squirrel surveys	
Mitigation Measure 7: Mohave ground squirrel avoidance	
Mitigation Measure 8: Mohave ground squirrel Take Authorization	
Mitigation Measure 9: SWHA No-disturbance Buffer	
Mitigation Measure 10: SWHA Take Authorization	
Mitigation Measure 11: Loss of SWHA Foraging Habitat	
Mitigation Measure 12: SWHA Nest Trees	
<i>During Construction</i>	
Mitigation Measure 2: CBB Take Avoidance	
Mitigation Measure 7: Mohave ground squirrel avoidance	
Mitigation Measure 9: SWHA No-disturbance Buffer	

Response to Comment Letter 6: California Department of Fish and Wildlife (CDFW) (March 13, 2020)

6-A: Thank you for your comments. As a Responsible Agency, participation of the California Department of Fish and Wildlife in the review of this Environmental Impact Report is appreciated. The commenter provides background information about CDFW's role as California's Trustee Agency for fish and wildlife resources and as a Responsible Agency under CEQA. The comment has been noted for the record and will be provided to the Kern County Planning Commission and Board of Supervisors for consideration.

6-B: The commenter asserts due to the June 28, 2019 Fish and Game Commission decision to advance the Crotch bumble bee (CBB) to candidate species as endangered, the project should treat the CBB as if it were a listed species and afford the protections henceforth. The commenter asserts that removal of vegetation and habitat may impact the local populations of this species.

The California Fish and Game Code Division 3, Chapter 1.5, Endangered Species [2050-2068] 2068; defines "candidate species" as a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as "rare" on or before January 1, 1985, is a "threatened species." By this definition, the CBB, as an arthropod, cannot be designated as a candidate species, nor can it be designated as a threatened or endangered species in accordance with the California Endangered Species Act. The California Office of the Attorney General Opinion No. 98-105 (dated 23 June 1998, available at https://www.courtlistener.com/pdf/1998/06/23/untitled_california_attorney_general_opinion.pdf) confirms that "[i]nsects are ineligible for listing as a threatened or endangered species under the California Endangered Species Act." Therefore, the County does not recognize the decision of the California Fish and Game Commission to accept the petition to list the CBB or to designate the CBB as a candidate species under the current California Fish and Game Code. To make such a designation would require that the code (e.g., legislation) be modified to include arthropods.

Furthermore, there are no known occurrences of the CBB on or near the Apollo project site. According to the most recent CNDDDB database search (4/3/2020) the nearest locations of CBB are near an area known as Neenach, approximately 20 miles to the southwest of the project (a 1976 record) and a 1971 record from approximately 18.5 miles southeast of the project within the Lancaster city limits. Both of these areas do not exhibit a Mojave Desert plant composition that reflects conditions present on the project site. CBB are most commonly found in areas of native grasslands in Central and Southern California, from the coast to the foothills. CBB are reliant on number of flowering plant species including *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*; species which are more common and flower for longer periods in areas that exhibit heavier rainfall and more mesic conditions than those present in Mojave Desert ecosystems. According to the CNDDDB search, there are few recent observations in the Mojave Desert and there were no sightings recorded during other recent solar projects in the vicinity, possibly due to a lack of prolonged presence of necessary food sources required to sustain the life cycle of CBB in the arid region of the project site. The range map for this species shown in the petition to list the species [A Petition to the State of California Fish and Game Commission to List the Crotch bumble bee (*Bombus crotchii*), Franklin's bumble bee (*Bombus franklini*), Suckly cuckoo bumble bee (*Bombus suckleyi*), and western bumble bee (*bombus occidentalis occidentalis* as

Endangered under the California Endangered Act, Xerces Society for Invertebrate Conservation, Defenders of Wildlife, Center for Food Safety, October 2018] extends the range to the east of the project site, thus incorporating the project site, by connecting known records. This may lead to a falsely interpreted distributional range by discounting areas of unsuitable habitat such as that which likely occurs on the Apollo project site. The County does not believe that there is a potential for this species to occur on the project site or to be impacted by the project. Accordingly, the County has determined that no mitigation is warranted for the CBB.

- 6-C:** The commenter recommends that the following mitigation measures be a condition of approval for the project; (Mitigation Measure 1) the commenter recommends that a qualified biologist conduct CBB surveys, (Mitigation Measure 2) the commenter recommends if surveys cannot be completed, all small mammal burrows be avoided by 50 feet to avoid potential take of the CBB, (Mitigation Measure 3) the commenter recommended that if CBB is observed in the project area and if take of CBB may occur, an ITP permit may be warranted.

See Response to Comment 6-B.

- 6-D:** The commenter asserts that the project site is within Desert Tortoise (DT) range based upon aerial imagery. The commenter suggests that since a potential burrow was observed in the 2016 survey, that protocol surveys be conducted prior to construction. If DT are found during surveys or construction activities, the CDFW will be consulted and an ITP will be required if take is unavoidable.

See the Response to Comment 13-B. As explained there, CEQA requires neither endless studies nor certainty about a project's impacts or existing environmental conditions. Here, the Draft EIR grounds its discussion of desert tortoise on a review of existing scientific literature as well as project-specific studies. For example, the Biological Analysis Report published with the Draft EIR describes the United States Fish and Wildlife Service protocol-level desert tortoise survey conducted at the project site in 2016, as well as desert tortoise surveys from the nearby Catalina Renewable Energy, SEPV Mojave West, and Valentine Solar projects. All of these studies support the conclusion that that desert tortoises are absent from or occur in extremely low densities in the project vicinity. Draft EIR Appendix E, pages 27, 41, 52. The Lead Agency therefore finds that additional desert tortoise surveys are not warranted for purposes of this EIR.

The commenter states that based upon aerial imagery, the project site is within DT habitat. As the Draft EIR explains, no desert tortoises have been found to occupy the project site and have a low probability of habitation on the site. *See* Draft EIR at 4.4-19, 33. Solar sites located in areas with less human disturbance (*i.e.*, east of SR 14 in the region; the project site is 7.3 miles *west* of SR 14) have a greater potential for desert tortoise habitation. The 1994 report (now 25 years old) indicates the project site to be in the low-quality habitat model and not within any planned conservation area.

Although very few if any desert tortoises are believed to inhabit the project area, the Draft EIR acknowledges that the project and similar solar facilities may adversely affect desert tortoise and proposes mitigation measures to avoid take of desert tortoises and reduce impacts to less than significant levels. *See* Draft EIR at 4.4-19, 33, 56. The Lead Agency notes that the study cited by the commenter is more than 25 years old, and necessarily does not address the improvements solar developers have made in the decades since its publication. For example, Mitigation Measure MM 4.4-7, in Section 4.4, *Biological Resources*, of this Draft EIR, requires pre-construction surveys for special-status species including desert tortoise and establishment of a suitable buffer by a qualified

biologist to avoid impacts to any special-status species observed during construction. Mitigation Measure MM 4.4-5 further requires construction monitoring by a qualified biologist that would ensure construction work halts to avoid impacts to any special-status species, including desert tortoise, and work resumes only after special-status species are no longer at risk. Other mitigation measures provide general avoidance and protective measures designed to avoid impacts to special-status wildlife, including desert tortoise.

- 6-E:** The commenter states that based upon aerial imagery, the project site contains suitable habitat for Mohave ground squirrel (MGS). As such, the commenter recommends MGS surveys according to *Mohave Ground Squirrel Survey Guidelines* (CDFG 2003) prior to construction, MGS avoidance of all small mammal burrows of 50 feet during construction, and recommends an ITP if MGS are found during surveys, preconstruction surveys and construction activities. In lieu of surveys, an ITP can be acquired if the assumption of presence of MGS on the project site.

The lead agency disagrees that MGS surveys, avoidance measures and acquisition of an ITP for this species is warranted. The Biological Analysis Report prepared for the DEIR states that “The project site is more than 10-miles outside of the known range of MGS (Figure 14). The species is considered extirpated west of SR 14 and south of SR 58 (County of Kern, 2016). Protocol surveys for the Mohave ground squirrel were conducted for the Catalina Renewable Energy (County of Kern, 2014a), the SEPV Mojave West Solar (County of Kern, 2014b) and Valentine Solar (County of Kern, 2016) projects. The surveys of these nearby solar projects resulted in no observations of Mohave ground squirrel, and no Mohave ground squirrels were trapped on those sites. Based on the results of previous surveys conducted in the area and the location of the AV Apollo project site relative to the accepted range of the Mohave ground squirrel, Mojave ground squirrels are likely absent from the project.

Regardless, the Draft EIR contains mitigation measures to survey for, and mitigate impacts to, special-status species including MGS. For example, Mitigation Measure MM 4.4-7, in Section 4.4, *Biological Resources*, of this Draft EIR, requires pre-construction surveys for special-status species including MGS and establishment of a suitable buffer by a qualified biologist to avoid impacts to any special-status species observed during construction. Mitigation Measure MM 4.4-5 further requires construction monitoring by a qualified biologist that would ensure construction work halts to avoid impacts to any special-status species, including MGS, and work resumes only after special-status species are no longer at risk. Other mitigation measures provide general avoidance and protective measures designed to avoid impacts to special-status wildlife, including MGS.

- 6-F:** The commenter states that the project site has the potential for nesting and foraging Swainson’s hawks (SWHA). They state that CNDDDB records locate 3 SWHA less than 1 mile southwest of the project site. They state that surveys for SWHA nests prior to construction activities should be conducted prior to construction activities. The commenter is concerned that impacts to nesting SWHA within 0.5 miles of the project site should have a No-disturbance buffer during construction. If this is not possible, the commenter recommends that a take authorization through the issuance of an ITP is necessary to comply with CESA. The commenter recommends compensation for the loss of SWHA foraging habitat at a minimum of 2:1 ratio for such habitat impacted within a five-mile radius of active SWHA nests. The commenter recommends that if nest trees are located within the project site, nest trees should be removed outside of nesting season and be replaced by native tree species at a ratio of 3:1 at or near the project area or in another area that will be protected in perpetuity.

Information that was provided by another commentator includes multiple sightings of Swainson's hawks in the project vicinity, and one active nest within 5 miles of the project. That active nest, identified as nest C, was located on Dawn Road approximately 2 miles from the project site, in a tamarisk windrow on the western edge of a large, circular agricultural field. Nest C was active in 2018. That nest (nest C) was examined during the biological surveys for project, and it was not active at the time of those surveys. Another commenter asserts that CDFW data show two additional active nests within five miles of the project, which is incorrect. The nest identified as Nest A in the BigBeau EIR is located approximately 6 miles to the southwest of the project and Nest B is located approximately 7 miles to the southwest of the project.

The presence of nest C, which is approximately 2-miles from the project site, does not invalidate the 2017 AV Apollo studies nor does it change the evaluation of the potential effects of the AV Apollo solar project on Swainson's hawks. As explained in the Draft EIR, the project will occupy only up to 493.5 acres of Mojave scrub habitat scattered with Joshua Trees. See Draft EIR pages 1-5, 4.1-3 to 4.1-4, 4.4-4. As discussed in the Response to Comment 6-D, the project site provides potential foraging habitat, but there is no evidence that Swainson's hawk actively use the project site for foraging. Swainson's hawks prefer to forage in grasslands, irrigated pasture, alfalfa, fallow fields, and row crops but may also forage in Joshua Tree Woodlands and other desert scrub habitats that support a suitable prey base (CDFW 2010). Although the project site contains potential foraging habitat there is more suitable foraging habitat in agricultural fields to the south, and there is no evidence of Swainson's hawks foraging on the project sites. Similarly, although there is potential nesting habitat (in Joshua Trees) occurring on the project site, there is more suitable nesting habitat occurring to the south of the site at locations where potential nest trees exist near agricultural fields. As explained in more detail in the Response to Comment 6-C, Swainson's hawk have tended to nest around agricultural areas in the Antelope Valley. Thus, although Swainson's hawks occur in the area and the project site may contain limited nesting habitat for Swainson's hawks in onsite Joshua trees, it is unlikely that this species would nest at or in the vicinity of the project site.

In any event, it is unlikely that a nesting pair occupying nest C, which is approximately 2-miles south of the project site, or another nest within five miles of the project site would be affected by construction activities. Potential impacts would be further reduced through implementation of Mitigation Measures MM 4.4-2 through MM 4.4-3, MM 4.4-5 through MM4.4-9, and MM 4.4-12 through 4.4-13. Since there are no known raptor nest trees, i.e., trees with active raptor nests, on the project site, the comment's recommended mitigation measure to remove and replace such trees does not apply.

The Final EIR will modify MM 4.4-12 to include a pre-construction survey for active Swainson's hawk nests within 0.5-miles of the project site. By implementing the modified mitigation measure, the project's impacts to Swainson's hawks nesting within 5-miles of the project site would be less than significant.

The commenter proposed mitigation measure of compensation for loss of foraging habitat. Given the lack of nesting substrate in proximity to the project site and the vast amount of desert still undeveloped in the Anelope Valley, any loss of foraging habitat caused by the project would be less than significant and therefore does not warrant compensatory mitigation.

The County disagrees with commenter's suggestion that nest abandonment and/or loss of foraging habitat would constitute incidental take under the California Endangered Species Act that would require an ITP. Rather, the California Court of Appeals has made clear that the concept of incidental take under CESA necessarily involves mortality rather than mere disturbance. See *Env'tl. Council of Sacramento v. City of Sacramento* (2006) 142 Cal.App.4th 1018, 1040 ("We reject any insinuation that the definition of 'take' under [CESA] encompasses the taking of habitat alone [P]roscribed taking involves mortality.").

- 6-G:** The commenter suggests that if any impacts to streams and/or lakes are impacted by construction activities, that the entity would require the CDFW be notified for a section 1602 of the Fish and Game Code.

The design of the proposed project was prepared to intentionally avoid all State and federal water. However, if the spatial footprint of these water changes prior to development, the project will be designed to avoid waters, or the project proponent will obtain the necessary permits. Those may include a Lake and Streambed Alteration Agreement from the CDFW, a Waters Quality Certification pursuant to Section 401 of the CWA from the RWQCB, and a CWA-404 permit from the USACE.

- 6-H:** The commenter notes the presence of two potential Desert kit fox dens observed during surveys and under protection by the California code of Regulations, Section 460 which prohibits take. The commenter recommends that the USFWS "*Standardized recommendations for the protection of the San Joaquin kit fox prior too or during ground disturbance*" (2011) be followed prior to construction activities.

The DEIR includes Mitigation Measures that outline pre-construction surveys and protection of Desert kit fox resources on the project site before and during construction activities. These Mitigation Measures for potential impacts to desert kit fox are outlined in the DEIR and include MM4.4-6, MM4.4-7 MM4.4-8, and MM 4.4-11. These measures are adopted from the standard recommendations cited by CDFW and provide adequate protections for the Desert kit fox.

- 6-I:** The commenter has jurisdiction over project actions that have the potential to result in the disturbance to or destruction of nesting bird sites, and which may result in the unauthorized take of birds. The commenter suggests that project activities occur during the non-nesting season. If this is not possible, then mitigation for nesting birds would need to be implemented. Biological monitoring and construction setbacks of nest sites during construction would be implemented to reduce the direct and indirect impacts to nesting birds.

As outlined in the DEIR Mitigation Measure MM 4.4-12, preconstruction surveys for nesting birds, measures to protect nesting sites during construction, and other measures to protect active bird nests and live birds will be implemented. That Mitigation Measure provides for a preconstruction avian nesting survey to be conducted closer to commencement of construction than recommended by the commenter (7 days rather than 10 days before ground disturbance). That Mitigation Measure also contains no-disturbance buffers around non-raptor and raptor species (300 feet and 500 feet, respectively) equal to or exceeding the recommendations in the comment (250 feet and 500 feet, respectively). Finally, that Mitigation Measure provides for consultation with CDFW or USFWS, as appropriate, if any active nest of a federal- or State-listed bird species is discovered at the project site.

- 6-J:** The comment notes that CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database that may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e)). Accordingly, please report any special-status species and natural communities detected during project surveys to the California Natural Diversity Database (CNDDDB). The CNDDDB field survey form can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Submitting-Data>. The completed form can be mailed electronically to CNDDDB at the following email address: CNDDDB@wildlife.ca.gov. The types of information reported to CNDDDB can be found at the following link: <https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>. The comment has been noted for the record and revisions to the Draft EIR are not necessary.
- 6-K:** The comment notes that CDFW has determined that the project will impact fish and/or wildlife; therefore, an assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.) The comment has been noted for the record and revisions to the Draft EIR are not necessary.
- 6-L:** The comment notes that CDFW appreciates the opportunity to comment on the project to assist the Kern County Planning Department in identifying and mitigating the project's impacts on biological resources. The County appreciates the CDFW's comprehensive review of the project and appreciates their recommendations to the County in thoroughly assessing the potential direct and indirect impacts on biological resources and mitigating these impacts to avoid take of protected species.



Eastern Kern

Air Pollution Control District

Glen E. Stephens, P.E.
Air Pollution Control Officer

January 30, 2020

Randall Cates, Planner III
Kern County Planning and Natural Resources Department
2700 "M" Street Suite 100
Bakersfield, CA 93301

SUBJECT: Comments for Draft Environmental Report for AV Solar Project by Sunbow Solar I LLC, Syracuse Solar LLC, and Tours Solar LLC (PP17144)

Dear Mr. Cates:

Eastern Kern Air Pollution Control District (District) is in receipt of the Draft Environmental Impact Report (EIR) for the project listed above.

The following District requirements were properly addressed in the Draft EIR and are summarized here for reference: commercial solar power generation facilities 10 acres and larger are required to submit a Fugitive Dust Emission Control Plan, Fugitive Dust Emission Monitoring Plan, and apply for an Authority to Construct Prior to commencing construction of solar facility. In addition to the requirements listed above, please note, stationary engines over 50 horsepower (i.e. generator sets, compressors, pumps, etc.) will require a permit to operate from the District prior to installation and operation.

7-A

Should you have any questions, please contact Miguel Sandoval at (661) 862-5250 or via email at sandovalm@kerncounty.com.

Sincerely,

A handwritten signature in blue ink, appearing to read "Glen Stephens".

Glen E. Stephens, P.E.
Air Pollution Control Officer

GES:MS:kl

RECEIVED

JAN 31 2020

**Kern County Planning &
Natural Resources Dept.**

Response to Comment Letter 7: Eastern Kern Air Pollution Control District (January 31, 2020)

- 7-A:** The commenter confirms EKAPCD's receipt of the Draft EIR and notes that solar facilities 10 acres and larger are required to submit a Fugitive Dust Emission Control Plan, Fugitive Dust Emission Monitoring Plan and apply for an Authority to Construct prior to commencing construction of the facility. Additionally, stationary equipment with engines over 50 horsepower that emits air pollutants may require a permit from the EKAPCD prior to installation and operation. As discussed in Section 4.3, *Air Quality*, of the EIR, construction and operation of the proposed project would be conducted in compliance with applicable rules and regulations set forth by the EKAPCD, including all necessary permits. Additionally, fugitive dust would be reduced through implementation of Mitigation Measures Mitigation Measures MM 4.3-1, MM 4.3-2, MM 4.3-4, MM 4.3-5, MM 4.3-6, and MM 4.3-8, which would be implemented in conformance with the applicable EKACPD plans and regulations and Kern County General Plan Policies 20 and 21. Specifically, Mitigation Measure MM 4.3-2 requires that prior to the issuance of grading or building permits, the project proponent shall provide a comprehensive Grading Plan for review by the Kern County Planning and Natural Resources Department to reduce fugitive dust emissions resulting from wind erosion at the site. As noted, the proposed project would be required to comply with applicable EKACPD plans and regulations and, as such, the project proponent would coordinate with the EKACPD as necessary. This comment has been noted for the record.

Office of the Fire Marshal Kern County Fire Department

Fire Prevention

2820 M St. • Bakersfield, CA 93301 • www.kerncountyfire.org

Telephone 661-391-3310 • FAX 661-636-0466/67 • TTY Relay 800-735-2929



February 11, 2020

Kern County Planning and Natural Resources Department
2800 M St., Bakersfield, CA 93301
Attn.: Randall Cates

Re: Kern County Fire Department Comments Regarding Planning Department Project

To Whom It May Concern,

The Kern County Fire Department (KCFD), as the local fire authority, has received a request for comments regarding the Draft EIR for the AV Apollo Solar Project. Upon initial review, it has been determined that the solar installation shall meet requirements set forth in KCFD standard 503-507. Additionally, the applicant shall submit plans and obtain a permit from KCFD for installation of Stationary Energy Storage Systems.

A more detailed review and project comments will be conducted when the building permit is pulled and plans are submitted to KCFD.

Please feel free to call our Fire Prevention Office at 661-391-3310 with any questions.

Sincerely,
Michael Nicholas
Assistant Fire Marshal
Kern County Fire Department

8-A

Standard No. 503-507		
<p>Kern County Fire Department</p> 	<p>Solar Panels (Ground Mounted) Fire Protection Requirements</p>	 <hr/> <p>Fire Marshal Date: December 15, 2015</p>

REFERENCE

This Standard is promulgated in accordance with the 2013 California Fire Code (CFC) and Kern County Ordinance and is an official interpretation of the Kern County Fire Marshal's office.

SYNOPSIS

This standard uses guidelines from several sources which outline solar panel installation requirements. This standard will be associated with the proper installation of photovoltaic ground mounted solar systems. It will be applied indefinitely and reviewed/revised as part of the new code adoption process or as otherwise necessary.

REQUIREMENTS

Water Supply

When required by the fire code official, fire protection water shall be provided for ground-mounted solar systems of one MW or larger. Structures, location in the wildland areas, and the size of the array will determine the need of fire protection water.

One 10,000 gallon tank with a 4" NSM (National Standard Male) connection provided for fire department use. A level indicator shall be attached to the water tank. Tank and outlet location shall be accessible to emergency vehicles, near the entrance, and approved by the Kern County Fire Department.

When a fire water source is available within a reasonable distance, the fire water tank requirement may be waived. This fire water source must have a 4" NSM (National Standard Male) connection. All water sources shall be approved by the Kern County Fire Department.

Fire Extinguisher

One 4A:60B:C fire extinguisher shall be placed in a fire extinguisher box located near entrance and within 30 feet of the emergency shutoff switch.

Access (All roads to support emergency vehicle loads)

1. A 20' minimum road is required around the perimeter of the entire project for the fire department and emergency vehicles.
2. All internal roads shall be a minimum of 20' wide.

Clearance/Combustibles


1. A minimum clearance of 10' is required for all weeds and combustibles around the project perimeter. All interior areas and areas under the array shall be free of vegetation at all times.
2. In SRA and Wildland areas 30' of clearance of all combustibles shall be maintained.

Response to Comment Letter 8: Kern County Fire Department (February 11, 2020)

- 8-A:** The commenter describes the Kern County Fire Department's local regulatory authority to enforce state and local codes related to fire protection and health and safety. The commenter states that the solar installation shall meet requirements set forth in KCFD standard 503-507 and shall be required to submit plans and obtain a permit from KCFD for installation of a Stationary Energy Storage System. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record and revisions are not necessary.

COUNTY OF KERN
PUBLIC WORKS DEPARTMENT
Office Memorandum

To: Lorelei Oviatt, Director
Planning and Natural Resources Department
Attn: Randall Cates, Planner III
January 27, 2020

From: Joshua Champlin, Supervising Engineer 
Administration and Engineering Division

Subject: 7-5.3 Draft Environmental Impact Report for AV Apollo Solar Project by
Sunbow Solar I, LLC, Syracuse Solar, LLC and Tours Solar, LLC
(PP17144).

This Department has reviewed the Draft Environmental Impact Report for the subject project and concurs with Mitigation Measures MM 4.15-1 and MM 4.15-2.

9-A

Thank you for the opportunity to comment on this project, if you have any questions or comments please contact Paul Candelaria of this department.

Response to Comment Letter 9: Kern County Public Works Department, Engineering Division (January 27, 2020)

- 9-A:** The commenter states concurrence with Mitigation Measures MM 4.15-1 and MM 4.15-2. MM 4.15-1 requires the proponent/operator to undertake steps related to traffic control and road maintenance, including obtaining all necessary encroachment permits for work within the road right-of-way and use of oversized/overweight vehicles on County-maintained roads. MM 4.15-2 requires the project to implement a plan to improve the AM peak-hour delay and PM peak-hour delay along State Route 14, Backus Road and Tehachapi Willow Springs Road to an acceptable Level of Service A or B. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record and revisions are not necessary.

Office Memorandum

KERN COUNTY

To: Planning and Natural Resources
Department
Randall Cates

Date: January 23, 2020

From: Public Works Department
Floodplain Management Section
Kevin Hamilton, by Brian Blase

Phone: (661) 862-5098
Email: BlaseB@kerncounty.com

Subject: Draft Environmental Impact Report
AV Apollo Solar Project

Our section has reviewed the attached subject documents and has the following comments:

The runoff of storm water from the site will be increased due to the increase in impervious surface generated by the proposed development.

The subject property is subject to flooding.

Therefore, this section recommends the following be included as Conditions of Approval for this project:

The applicant shall provide a plan for the disposal of drainage waters originating on site and from adjacent road right-of-ways (if required), subject to approval of the Engineering, Surveying and Permit Services Department, per the Kern County Development Standards.

Associated flood hazard requirements will need to be incorporated into the design of this project per the Kern County Floodplain Management Ordinance.

10-A

Response to Comment Letter 10: Kern County Public Works Department, Floodplain Management Section (January 23, 2020)

10-A: The commenter notes that the runoff of storm water from the site would increase due to the increase in impervious surface generated by the proposed project and requests that the following be included as Conditions of Approval for this project:

“The applicant shall provide a plan for the disposal of drainage waters originating on site and from adjacent road right-of-ways (if required), subject to approval of the Public Works Department, per the Kern County Development Standards.

Associated flood hazard requirements will need to be incorporated into the design of this project per the Kern County Floodplain Management Ordinance.

The Draft EIR identifies that the proposed project will result in an increase in impervious surfaces, which in turn, would result in an increase in stormwater runoff. Specifically, new impervious surfaces would be associated with the project’s substation(s), energy storage systems, and the operations and maintenance building. The vast majority of the project site would remain pervious and absorb most precipitation. Further, as described on Draft EIR page 4.10-12, the site engineering and design plans for the proposed project must comply with the requirements of the Kern County Code of Building Regulations, as well as with Kern County Development Standards and the Floodplain Management Ordinance.

Furthermore, Draft EIR page 4.10-12 indicates that all site drainage plans would be required to comply with Division Four of the Kern County Development Standards, which establish guidelines including, but not limited to, site development standards and mitigation, flood control requirements, erosion control, and on-site drainage flow requirements. Therefore, with adherence to all existing regulations regarding erosion and site drainage, the proposed project would neither alter the course of a stream or river nor result in substantial erosion onsite or offsite. Implementation of Mitigation Measures MM 4.10-1 and MM 4.10-2, as described in the Draft EIR and required to be implemented for the proposed project, would reduce impacts to less-than-significant levels. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record and revisions are not necessary.

Comment Letter No. 11: Kern County Superintendent of Schools



Office of Mary C. Barlow ...advocates for children

January 6, 2020

Kern County Planning Department
Attn: Randall Cates, Planner III
2700 M Street, Suite 100
Bakersfield, CA 93301

Our File No.: CO20-0006

RE: DEVELOPER FEES FOR: DRAFT EIR for AV Apollo Solar; Map No. 214-18 & 19
(Approx. 9 miles southwest of Mojave and approx.. 8 miles northwest of Rosamond,
Generally bounded y Trotter Ave to the north.)

Dear Mr. Cates,

This office represents the Southern Kern Unified School District with regard to the imposition of developer fees, and appreciates the opportunity to respond on behalf of the district regarding the proposed project. This letter is limited to addressing the possible effects which the project might have on school facilities created by students attributable to the project. It is not intended to address other possible environmental concerns which might be identified by the district after reviewing it.

11-A

It is our determination that implementation of this project requesting (a) Three Conditional Use Permit, each to allow for the construction and operation of a 20 megawatt solar photovoltaic electrical generating facility in an A District (b) one Conditional Use Permit to allow for the construction and operation of a communication tower on the Syracuse Site and (c) and Amendment to the Circulation Element of the Kern County General Plan to eliminate future road reservation along the east-west mid-section line in Section 19 in Zone Map 214. The projects permanent facilities would include service roads, a communication tower, communication cables, overhead and underground transmission lines, an electrical switching station, project substations, operations and maintenance facilities and gen-tie lines. Based on this, our office has determined this project will have no significant effects on either of these district's facilities so long as statutory school facilities fees, if any, are collected as required by law and that no further mitigation measures regarding school facilities are necessary. Currently, these fees are set at \$0.61 per square foot of covered and enclosed space for new commercial/industrial projects, an amount subject to COLA adjustment every even number of years.

11-B

Thank you for the opportunity to comment on the project. Should you have any questions, or if we can be of any further assistance in this matter, please contact me at 636-4599, or through e-mail at anwatson@kern.org.

Sincerely,

Mary C. Barlow
County Superintendent of Schools

A handwritten signature in blue ink that reads "awatson".

Andrea Watson, Specialist
School District Facility Services

ALW
cc: District(s)

Response to Comment Letter 11: Southern Kern Unified School District (January 6, 2020)

- 11-A:** The commenter expresses appreciation for the opportunity to respond on behalf of the district regarding the proposed project. This comment clarifies that the letter's contents are intended to address possible effects which the project may have on school facilities, and not to comment on any other environmental concerns.
- 11-B:** The commenter provides a brief overview of the entitlements being requested by the project and concludes that no significant effect on the district's facilities would occur with project implementation, given the appropriate fees and regulations are complied with. As discussed in Section 4.14, Public Services, of the Draft EIR, an average of 200 daily construction workers and a peak workforce of 300 workers could be required for development of the proposed project. It is expected most of these workers would live in the region and would commute to the project site from where their children are already enrolled in school. Even if workers came from out of the area, they would likely return to their out-of-town residences once the facilities were built and would not take their children out of their current schooling situation. Therefore, temporary increases in population are not expected to adversely affect local school populations. Additionally, operation of the project would not require any permanent employees to operate the O&M building. Maintenance personnel would be expected to visit the project site several times per year for routine maintenance. Employees would likely commute to the project from their existing permanent residences, however, even if the maintenance employees were hired from out of the area and had to relocate to eastern Kern County, the resulting addition of potential families to this area would not result in a substantial increase in the number of users at local schools. Therefore, impacts would be less than significant and no fees would be collected from the project proponent/operator as a result of project implementation.

Comment Letter No. 12: Kern Audubon Society

Kern Audubon Society
Attn: Franklin Bedard
P.O. Box 3581
Bakersfield, CA 93385
mbedard@bak.rr.com

February 4, 2020

Randall Cates
Kern County Planning and Natural Resources Department
2700 "M" Street, Suite 100
Bakersfield, CA 93301

**Subject: Draft Environmental Impact Report
AV Apollo Solar Project (Project)
SCH: 2017081038**

Dear Mr. Cates:

The Kern Audubon Society (KAS), an interested party, received a notice of availability of a Draft Environmental Impact Report (DEIR) from the Kern County Planning and Natural Resources Department (County) for the above referenced Project pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect the diverse California avian wildlife within the Project's footprint and its cumulative impacts in the region.

In a letter dated August 22, 2017, KAS provided comments on the Notice of Preparation for the Project. In this letter, KAS provided recommendations to survey the area for roosting birds in the Joshua trees, which are used by Swainson's hawk (SWHA) and other birds of prey for foraging platforms and nesting. Since birds of prey have a 5 mile radius, trees within the 5 mile radius must be identified and evaluated. KAS recommended the Project summarize data from another solar project of similar size regarding the potential operational impacts to biological resources in the area. KAS also recommended that any conservation easements be purchased within the Antelope Valley area to offset the loss of open space used for both foraging and nesting. KAS suggested the applicant address the need for a buffer zone between Project structures to provide sufficient space for ground species to migrate within their normal range for food and nesting. California Department of Fish and Wildlife (CDFW) should direct the width and location of these buffer zones.

12-A

Comments and Recommendations

KAS offers the following comments and recommendations to assist County in adequately mitigating the Project's significant, or potentially significant, direct and indirect impacts on biological resources.

Project Impacts. Section 4.4-1 (page 4.4-33): Burrowing Owl. One western burrowing owl (BUOW) was observed on the Syracuse site.

The BUOW is a California Species of Special Concern and is protected by California Fish and Game Code (FGC) Section 3503 *et seq.* and the federal Migratory Bird Treaty Act. BUOW and burrows with sign were recorded within the Project. The BUOW is a year-round resident throughout much of the state and is often considered a sedentary species (e.g., Thomsen 1971). A large proportion of adults show strong fidelity to their nest site from year to year. In California, nest site fidelity rates range from 32% to 50% in large grasslands (Catlin 2004, Catlin et al. 2005). The BUOW tend to nest in pairs. The potential for nesting at the site cannot be dismissed as small mammal burrows offer the opportunity for refuge and nesting burrows.

Direct impacts to BUOW could result from construction activities, including death or injury to individuals, displacement and loss of territory, disruption of breeding/nesting activities, crushing of burrows, viable eggs and chicks, and other impacts.

Indirect impacts could include reduced foraging areas, increased incidence of agitation, increase potential establishment of invasive species, and other impacts.

The Project requires the implementation of mitigation measures MM4.4-6 through MM4.4-10 to ensure that impacts to BUOW would be reduced to "less than significant" level. Mitigation measure MM4.4-10 requires a wide suite of mitigation measures specific to the presence of BUOW based on the CDFW 2012 Staff Report on Burrowing Owl Mitigation to ensure potential impacts will be avoided or minimized.

Current scientific literature supports the conclusion that mitigation for permanent habitat loss necessitates replacement with an equivalent of greater habitat area for breeding, foraging, wintering, dispersal, presence of burrows, burrow surrogates, presence of fossorial mammal dens, well drained soils, and abundant and available prey within close proximity to the burrow

Project Impacts. Section 4.4-1 (page 4.4-35): Prairie Falcon and other Foraging Raptors (e.g. Swainson's hawk). Swainson's hawks have a low potential to nest on the project site but could use the site for foraging.

The Swainson's hawk (SWHA) is a California Species of Special Concern and is protected by FGC Section 3503 *et seq.* and the federal Migratory Bird Treaty Act.

Direct impacts to SWHA could result from construction activities, including death or injury to individuals, displacement and loss of territory, and disruption of nesting activities. Operational impacts could include death or injury to individuals by electrocution if transmission lines are not sufficiently shielded.

12-B

12-C

Indirect impacts could include reduced foraging areas, increased incidence of agitation, increase potential establishment of invasive species, and other impacts.

The Project requires the implementation of mitigation measures MM4.4-6 through MM4.4-9 and MM4.4-12 to ensure that impacts to SWHA and other raptors would be reduced to "less than significant" level. Mitigation measure 4.4-7 includes the establishment of suitable buffer zones by a qualified biologist to avoid impacts to special-status species. Mitigation measure MM4.4-12 requires measures to avoid impacts to nesting birds and special-status birds including raptors, such as pre-construction survey, nesting surveys and avoidance of active nests.

12-C

Conclusion

Under CEQA, mitigation goals should consist of measures that would avoid, minimize and mitigate impacts to a less than significant level. Mitigation must be roughly proportional to the level of impacts, including cumulative impacts, in accordance with the provisions of CEQA (CEQA Guidelines, §§ 15126.4(a)(4)(B), 15064, 15065, and 16355). In order for mitigation measures to be effective, they must be specific, enforceable, and feasible actions that will improve environmental conditions. In addition, KAS notes that required mitigation should be established before the project specific impacts occur. Mitigation that is delayed or postponed until after impact occurrence is not effective and does not meet the mitigation goals consistent with CEQA.

12-D

KAS appreciates the opportunity to comment on the DEIR for the AV Apollo Solar Project (SCH: 2017081038) to assist the County in identifying and mitigating Project impacts on biological resources.

Sincerely,



Franklin Bedard
Conservation Chair
Kern Audubon Society

REFERENCES:

CDFG, 2012. Staff Report on Burrowing Owl Mitigation. California Department of Fish and Game, March 2012.

Catlin, D.H., 2004. Factors affecting within-season and between-season breeding dispersal of Burrowing Owls in California. M.S. thesis. Oregon State Univ., Corvallis.

Catlin, D.H., and Rosenberg, D.K. 2006. Nest destruction increases mortality and dispersal of Burrowing Owl in the Imperial Valley, California. Southwest Nat. 51:406-409.

Thomsen, L. 1971. Behavior and ecology of Burrowing Owl on the Oakland Municipal Airport. Condor 73:177-192.

Response to Comment Letter 12: Kern Audubon Society (February 4, 2020)

- 12-A:** Thank you for your comments. The participation of the Kern County Audubon Society in the public review of this document is appreciated.

The commenter provides background information about the commenter and notes that it provided comments on the project's Notice of Preparation. The comment has been noted for the record and will be provided to the Kern County Planning Commission and Board of Supervisors for consideration.

- 12-B:** The commenter reiterates information contained within the DEIR about the presence of burrowing owls on the project site, impacts to the burrowing owl, and mitigation measures to address impacts to the burrowing owl. The commenter then suggests that compensatory habitat be provided to mitigate for the permanent loss of habitat for this species.

The project will provide an area of 35 acres which will remain undeveloped and, if burrowing owls would need to be relocated, then no less than 160 acres of compensatory habitat would be provided (see DEIR MM 4.4-10). Additionally, see the Response to Comment 13-I. The commenter does not assert a deficiency in the Draft EIR or suggest that it be modified.

- 12-C:** The commenter reiterates mitigation measures outlined in the DEIR (MM 4.4-6 through Mm 4.4-9 and MM4.4-12).

Comment noted, no response necessary.

- 12-D:** Commenter states that required mitigation should be established before project- specific impacts occur, and that mitigation that is delayed or postponed until after impact occurrence is not effective and does not meet the mitigation goals consistent with CEQA.

The commenter does not assert that the Draft EIR impermissibly defers mitigation or otherwise does not comply with CEQA.

Law Offices of John A. Belcher

ATTORNEYS AT LAW
150 EAST COLORADO BOULEVARD, SUITE 215
PASADENA, CALIFORNIA 91105
TELEPHONE (626) 577-5771
FAX (626) 577-7769

February 5, 2020

Via Email

Randall Cates
Planning Department
Kern County
2700 M Street, Suite 100
Bakersfield, CA 93301-233
(661) 862-8612
CatesR@kerncounty.com

Re: Protest of the proposed AV Apollo Solar Project by Sunbow Solar I LLC,
Syracuse Solar LLC and Tours Solar LLC (PP17144)

Dear Mr. Cates:

This law firm represents Save Our Mojave, a 501(c)(3) non-profit organization working to raise public awareness about some of the most pressing issues facing California's deserts, including unchecked damage to the environment and wildlife.

Save Our Mojave has reviewed the Draft Environmental Impact Statement/Environmental Impact Report ("EIR") for the proposed AV Apollo Solar Project by Sunbow Solar I LLC, Syracuse Solar LLC and Tours Solar LLC (PP17144) (the "Project"). The Project calls for a Franchise Agreement with the County of Kern to facilitate the construction, and operation of a 60 MW solar facility located on 493.5 acres of privately-owned land in unincorporated Kern County. The project proponents are requesting:

(a) Three (3) Conditional Use Permits, each to allow for the construction and operation of a 20 megawatt solar photovoltaic electrical generating facility (Section 19.12.030.G) in an A District (CUP 37, Map 214; CUP 38, Map 214; CUP 39, Map 214). Depending upon market conditions, the project site may also include or be developed with up to 60 megawatts of advanced energy battery storage units;

(b) one Conditional Use Permit to allow for the construction and operation of a communication tower on the Syracuse Site (CUP 41, Map 214); and

13-A

Randall Cates
Planning Department
February 5, 2020
Page 2

(c) an Amendment to the Circulation Element of the Kern County General Plan to eliminate future road reservation along the east-west mid-section line in Section 19, T10N/R13W SBB&M, in Zone Map 214 (General Plan Amendment 5, Map 214).

The EIR further predicts that the Project's permanent facilities will disrupt the aesthetics of the desert with the Project's anticipated "service roads, communication tower, communication cables, overhead and underground transmission lines, an electrical switching station, project substations, operations and maintenance facilities, and gen-tie lines."

I. SIGNIFICANT AND UNAVOIDABLE PROJECT AND CUMULATIVE IMPACTS

Save Our Mojave is deeply troubled that the EIR found significant and unavoidable project and cumulative impacts to the following:

- Aesthetics, (project and cumulative)
- Biological Resources, (cumulative)
- Air Quality,
- Wildfires (cumulative)

EIR, 1-17. Save Our Mojave is concerned that the EIR concludes that proposed mitigation measures will reduce the harm to biological resources to "less-than-significant" levels. After investigation and after review of publicly available documents, Save Our Mojave believes that the Project does not adequately mitigate the impact of the Project on the environment and local wildlife, and neither does it adequately explore the cumulative impacts of this Project relative to others in the area.

"CEQA does not require technical perfection in an EIR, but rather adequacy, completeness, and a good-faith effort at full disclosure." CEQA Guidelines § 15003(I). Absent complete environmental impact analysis of the effect on the local environment and wildlife, the EIR is not a "good faith effort at full disclosure."

The EIR fails to set forth an accurate and adequate environmental baseline upon which to measure its impacts. The EIR's failure to adequately describe the existing setting contravenes the fundamental purpose of the environmental review process, which is to determine whether there is a potentially substantial, adverse change to the existing setting. CEQA requires that a lead agency include a description of the physical environment conditions in the vicinity of a project, as they exist at the time environmental review commences. Because the EIR did not perform adequate surveys of the biological resources on the site, the EIR fails to meet this

13-A

13-B

Randall Cates
Planning Department
February 5, 2020
Page 3

requirement. For instance, the EIR states in a broad manner that Joshua Trees density is moderate. EIR, 4.4-4.

↑ 13-B

A. Aesthetics

In particular with respect to aesthetics, the project will create a significant and unmitigable visual impact because it would create a dramatic change to the landscape by introducing structure contrast, industrial character, view blockage, and glare. The change in aesthetics of creating a solar field in open desert has been observed to have a negative impact on migratory birds.

The California desert is part of the Pacific Flyway, one of four major bird migration corridors in North America. Historically, lakes in arid and semi-arid parts of the west were important rest and refueling stops for long-distance migrants. In the last two centuries human activity has altered, displaced, or dried up many of the lakes and wetlands migrating birds once depended on as they traveled the Pacific Flyway, and remaining rest stops such as the Salton Sea, the Great Salt Lake, or even smaller sites like the artificial Lake Tamarisk in the western Chuckwalla Valley of Riverside County are crucial, widely separated oases in the desert section of the Flyway.

Photovoltaic arrays resemble lakes more closely than do mirrors, at least to the eyes of birds. Light reflecting off non-metallic surfaces tends to become polarized. Both water and the semiconducting surfaces of photovoltaic panels are non-metallic, which means the glare from one might well resemble the glare from the other if birds are sensitive to light polarization, which many are.

13-C

Migratory birds confuse the reflective areas of the solar fields that resemble water. Tired migrating birds try to come in for a water landing on fields of solar panels and mirrors. Until this phenomenon is adequately addressed with respect to the cumulative impact of solar fields coming online in the Pacific Flyway corridor, the EIR must be rewritten to address this impact. The impact of the introduction of solar panels into the desert landscape must be an issue discussed if the EIR is to provide a report of “good faith effort at full disclosure.” The PV solar facility would consist of approximately 258,000 crystalline-silicon modules or 490,000 thin-film modules arranged in a grid-pattern of solar arrays mounted on either fixed tilt racking or single axis tracking structures (or a combination thereof) mounted to vertical posts. This is potentially catastrophic for the sensitive plants and animals that live in this desert ecosystem.

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B. Biological Resources

Regardless of the mitigation measures recommended in the EIR, the EIR finds that the cumulative impacts of the to biological resources are significant and unavoidable. A wildlife survey identified that significant and unavoidable impacts will affect special status plants and wildlife. Special-status species are those animal and plant species that, in the judgment of the resource agencies, trustee agencies, and certain non-governmental organizations, warrant special consideration in the California Environmental Quality Act (CEQA) process. This includes the following:

- Officially designated “threatened,” “endangered,” or “candidate” species federally listed by the USFWS and protected under the Federal Endangered Species Act.
- Officially designated “rare,” “threatened,” “endangered,” or “candidate” species state-listed by the California Department of Fish and Wildlife (CDFW) and protected under the California Endangered Species Act. CDFW also maintains a list of “Fully Protected” species as well as “California Species of Special Concern” that are also generally treated as special-status species under CEQA.
- Species considered rare, threatened, or endangered under the conditions of Section 15380 of the CEQA Guidelines, such as plant species identified on lists 1A, 1B, and 2 in the CNPS Inventory of Rare and Endangered Vascular Plants of California, which may include species not found on either state or federal endangered species list.
- Other species considered sensitive, such as birds protected under the Migratory Bird Treaty Act (MBTA), which includes most native birds. A species may also be designated as special concern at the local level.

This solar project poses a direct threat to the species protected under this act, and development in the habitat of these species is against the goal of conservation. The fact that there are threatened and endangered species in the Project area should alone be enough to stop the Project from moving forward.

1. Special Status Plants Observed

Two special status plants were observed to occur on the Project site (EIR, Table 4.4-1):

13-D

13-E

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- Lemmon's jewelflower
- Clokey's cryptantha

While the EIR suggests that fencing will be installed around rare and endangered plants Lemmon's jewelflower and Clokey's cryptantha at the Sunbow and Syracuse sites, the EIR admits the project may not be able to avoid these rare specimens. EIR, 1-48. The operator is to collect seeds from plants to "be destroyed." Id. The EIR needs to go further estimating the number or area of plants that will be destroyed and not suggest a survey will be performed after the EIR is approved. Additionally, though not observed during the floristic survey, eighteen additional special status plants were identified as having the potential to occur on the Project site.

13-E

The Project indicates that construction requires the removal of Joshua Trees. However, no inventory of the number of trees was provided in the EIR prior to the approval of the Project. The mitigation measures in the EIR are improper because they permit surveys to be conducted after project approval, thereby deferring evaluation of the impacts until after project approval:

13-F

The EIR states that the biological resources of the Proposed Project will have "[d]irect and indirect impacts to special status plant species." One of the proposed alternatives is to have no action/no Project, which is the only alternative which will prevent damage to existing biological resources or distributed commercial and rooftop solar panels. Save Our Mojave encourages the Project to move forward with these alternatives as to prevent damage to existing biological resources, including the following sensitive plant species:

- Horn's milk-vetch
- Lancaster milk-vetch
- Round-leaved filaree
- Alkali mariposa-lily
- Lemmon's jewelflower
- Clokey's cryptantha
- Recurved larkspur
- Rosamond eriastrum
- Pale-yellow layia
- Sagebrush loeflingia

13-G

While revegetation plans are in place, they are not enough to ensure the protection of these sensitive plant species. The proposed alternatives to move the Project to an area that is already developed or to cease the Project entirely are the only reasonable solutions.

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2. Special Status Wildlife Observed

Observed at the project site were the following Special Status Wildlife species (EIR, Table 4.4-2):

- American Badger
- Desert Kit Fox
- Western Burrowing Owl
- Possible signs of Deseret Tortoise at Syracuse Site
- Loggerhead Shrike
- California Horned Lark

Twenty-nine special-status wildlife species were identified in the CNDDDB and USFWS database queries within the USGS 7.5-minute quadrangles that encompass the project. EIR, 4.4-13. Long-term studies would need to be conducted on the sensitive species in the area in order to determine both the impact that this Project could have, but also what the impact has already been of the numerous surrounding solar projects. The EIR fails to provide a sufficient description of the wildlife that may be impacted by Project's construction in combination with all other projects online and proposed. The EIR fails to address how the observed special status plant and wildlife species will cope with this loss of undisturbed native habitat that is present at the Project.

Though this letter only discussed a few of the animal species that will be impacted by the Project, there is a long list of animals impacted by the Project. The EIR outlines this list of animals, which includes:

- Desert tortoise
- Golden eagle
- Western Burrowing owl
- Ferruginous hawk
- Swainson's hawk
- Mountain plover
- Californuia Horned Lark
- Prairie falcon
- Peregrine Falcon
- California Condor
- Loggerhead shrike
- White-Faced Ibis
- Townsend's big-eared bat

13-H

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- Tehachapi pocket mouse
- American badger
- Desert kit fox
- Mojave ground squirrel

All of the animal species listed above are potentially found at the Project site and are considered Special Status Wildlife species.

13-H

Save Our Mojave is deeply concerned about the impact of the Project on the area's burrowing owl population found present at the site. Previous studies on the project site were contained within one year, so are relatively short-term, and preconstruction or construction surveys would not accurately represent any ongoing, continuous effects on the local population.

Western burrowing owls are at risk of going extinct in some areas of California, and habitat degradation and fragmentation are the most pressing issues facing the species. This project has a potentially significant impact. With respect to the Western Burrowing Owl, the U.S. Fish and Wildlife Service, Status Assessment and Conservation Plan for the Western Burrowing Owl in the United States § 24 (2003), stated:

Primary threats are habitat loss due to anthropogenic activities, reductions in abundances of burrowing mammals, and contaminants... Conservation efforts should focus on protection of suitable habitats in desert, grassland, and shrub-steppe environments.

As burrowing owls are ground nesting, there are almost no possible methods of mitigation, and any amount of disturbance in their direct habitat would eliminate them from that area. Attempts have been made to relocate burrowing owls in other areas of California, but the success rates have been inconsistent. Attempts have also been made to create imitation burrows to attract owls to a new area, but those have also been mostly unsuccessful. San Diego Zoo conservationists affirm that current mitigation strategies have no proven record of success and further research is required into the best methods of mitigation for this species.

13-I

Protection of the burrowing owls themselves is not the only relevant factor, as the owls rely heavily on ground squirrels as a primary source of prey, and on their burrows for nesting and protection. The Project could also potentially impact local ground squirrel populations, but this analysis is absent from the EIR, except to mention the possible impact. The Mojave ground squirrel found in this area is a species classified as near threatened. Further surveys need to be done in order to better understand the permanent direct and indirect impacts on the area ground

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squirrel population as “[t]he conservation of burrowing mammals is essential to improve the status of Burrowing Owls.” Id.

The Project does consider its impact on the burrowing owl population found at the site and offers solutions to mitigate any harm to their habitat. The form of relocation described in the EIR is passive relocation, as the EIR states the owls will only be moved if they want to go. According to a report from San Jose State University titled “Passive Relocation: A Method to Preserve Burrowing Owls on Disturbed Sites”, passive relocation in this instance is not adequate mitigation as it describes:

Although passive relocation appears to be a successful way to relocate birds, this method should be not used to compensate for lost burrows if the impact to nest burrows can otherwise be avoided. Nor is passive relocation an adequate mitigation if enough adjoining foraging habitat is not preserved.

J. Field Ormthol, 66(1):99-106. Passive relocation will not be enough to preserve the burrowing owls until the EIR is rewritten to identify the cumulative effects of all proposed projects in the adjoining foraging habitat.

We are also deeply concerned with the impact of the Project on the habitat of the desert tortoise, a reptile listed as threatened in 1990 [55 Federal Register (FR) 12178]. The desert tortoise spends much of its life in burrows, even during seasons of activity. The desert tortoise takes 12-20 years to reach sexual maturity, meaning that it will take decades for them to breed and recover population numbers.

The EIR makes specific mention of protections it will take for the desert tortoise, but because long-term surveying of the Project site has not been done, it is impossible to know whether the Project site is directly in the habitat of the desert tortoise. Historically, solar projects have been detrimental to the desert tortoise population.

The most apparent threats to the desert tortoise are those that result in mortality and permanent habitat loss across large areas, such as urbanization and **large-scale renewable energy projects**, and those that fragment and degrade habitats, such as proliferation of roads and highways, off-highway vehicle activity, and habitat invasion by non-native invasive plant species.

U.S. Fish and Wildlife Service, Status of the Desert Tortoise and Its Critical Habitat § 1 (1994). (Emphasis added.)

13-I

13-J

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In April 2011, the Ivanpah Solar Electric Generating System (Ivanpah SEGS) Project released a Revised Biological Assessment for the Bureau of Land Management regarding the desert tortoise. The Project had disrupted the habitat of the desert tortoise and was required to create a Proposed Action plan for protecting the desert tortoise. Such a plan exists within the EIR as well but without long-term surveying of the Project site in order to make sure no desert tortoises are present, the Project could disrupt the habitat of the desert tortoise as well.

The plan that the Project has developed to protect the desert tortoise is insufficient. Similar to the plan for burrowing owls, the plan for desert tortoises involves relocating them. However, the desert tortoise has proven to be difficult to relocate in the past. At the Ivanpah SEGS, desert tortoises that were relocated attempted to return to their old habitat, which was surrounded by a fence. We are also concerned about the hatchling desert tortoises, which have not developed a hard enough shell to protect them from predators. These hatchlings cannot be relocated immediately, and must be cared for by a biologist until they become old enough to survive on their own. There is no mention of measures to care for hatchling desert tortoises in the EIR.

13-J

Protections that the Project includes for the desert tortoise include a Worker Environmental Awareness Training and Education Program which describes “the legal protection status of the species, the definition of ‘take’ under the Federal Endangered Species Act, measures the project proponent is implementing to protect the species, reporting requirements, and specific measures that each worker shall employ to avoid take of wildlife species, and penalties for violation of the Federal Endangered Species Act.” However, the report does not outline what these specific measures will be, or for how long the workers will undergo training. Without these details, there is inadequate information to discern if the Project will mitigate the disruption of the desert tortoise’s habitat.

The mitigation measures which the EIR takes in case of encounters with the desert tortoise are insufficient and lacking. The wildlife survey found evidence of a desert tortoise burrow at the Syracuse site. EIR, 4.4-13.

The report also states that the Project will conduct surveys during nesting seasons to check for active nests. However, the pre-construction surveys that the Project will conduct need to be done far more in advance. As the EIR states,

During the avian breeding season (1 February – 31 August), a qualified biologist shall conduct a preconstruction avian nesting survey no more than 7 days prior to initial vegetation clearing. Surveys need not be conducted for the entire project site at one time; they may be phased so that surveys occur within 7 days prior to

13-K

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clearing of specific areas of the site. No pre-construction surveys are required outside of the avian breeding season.

↑ 13-K

EIR, Mitigation Measure 4.4-12.

Furthermore, if nesting materials are destroyed before nesting season, the birds will not be able to nest. Pre-construction surveys of the area are not enough to assure the protection of migratory birds. Long-term surveys must be done to assure that the Project is not disrupting migratory habitats, especially if the EIR adequately considered all of the proposed and online projects effects on migratory bird habitats. The Projects consists of undisturbed native habitat.

Not only would this Project destroy vegetation that is potentially viable nesting and foraging territory, but solar arrays have been shown to be incredibly dangerous for birds. The larger the solar field, the more likely for high amounts of avian fatality. Discussion of this aspect of heat and glare is completely absent from the EIR. Long-term surveys of these bird species in the area, including all surrounding operational projects, need to be conducted, and the element of heat and glare from the solar panels needs to be incorporated. For a large portion of migratory and nesting birds in California, there have been greatly reduced population numbers and range, especially due to habitat encroachment and fragmentation. Even small areas can be essential for nesting and foraging. Without updated surveys, this law firm cannot be certain of the level of impact that the Project would have on these species. According the to the U.S. Fish and Wildlife Service:

13-L

Millions of acres of bird habitat are lost or degraded every year due to development, agriculture, and forestry practices. These rapidly accelerating impacts can be mitigated only through habitat restoration and protection. In addition, millions of birds are directly killed by human-caused sources such as collisions with man-made structures... Natural and human-caused mortality impacts are exacerbated by the landscape alterations resulting from a changing climate. Birds in every habitat will be affected by natural and human-caused sources, so conserving migratory bird populations requires a multi-faceted, coordinated approach by governments, conservation organizations, industry, and the general public.

U.S. Fish and Wildlife Service, Threats to Birds § 1 (2018).

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C. Environmental Concerns

1. Noise

Noise pollution, like air pollution, has significant health implications. Construction and traffic noise are some of the largest producers of noise pollution. Prolonged exposure to noise pollution can lead to hypertension and heart disease, hearing loss and consequential sleep disturbances. Noise pollution does not only adversely affect human lives. Wildlife, especially birds, is heavily impacted by increased noise pollution. Communication, mating behavior, hunting and survival instincts of animals are altered by excessive noise.

13-M

According to the EIR, “[t] project would result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.” EIR, 4.13-19.

2. Air Pollution

The Project will also result in significantly compromised air quality in the area throughout the construction process, and potentially once the Project is completed. Removal of stabilized soils and biological soil crust creates a destructive cycle of airborne particulates and erosion. As more stabilized soils are removed, blowing particulates from recently eroded areas act as abrasive catalysts that erode the remaining crusts thus resulting in more airborne particulates.

13-N

The EIR needs to go farther in addressing the spike in greenhouse gas emissions during the construction, operation, and decommissioning periods. Due to the use of heavy construction equipment, unsafe levels of air pollutants would have an impact on the surrounding community and wildlife during that time. Simply ensuring that the construction equipment is in good working order does not seem like it will effectively mitigate the high levels of greenhouse gas emissions, especially if enforcement was to be at all substandard. The EIR indicates that several mitigation measures have been deemed necessary in order for the Project to avoid making a significant negative impact on the surrounding environment. The language employed in addressing these potential impacts misguides the reader and downplays the significant risks inherent in the implementation of this project. The requirement of so many mitigation measures indicates how damaging the project has the potential to be.

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II. THE EIR FAILS TO ADDRESS CUMULATIVE IMPACTS

The analysis failed to even address neighboring projects or the combined impact of the activities proposed in the region. The analysis cannot withstand scrutiny, because here the lead agency and developer made no attempt to accurately describe cumulative conditions despite the existence of relevant data. The failure is particularly pronounced because it is not possible to determine the significance of an impact without actual data. The data needs to include the ongoing impact and effects of the surrounding projects as that is the only way to determine the true cumulative impact.

13-O

The case law is in accord. In Kings County Farm Bureau v. City of Hanford, (1990) 221 Cal.App.3d 692, 729, 270 Cal.Rptr. 650 ("Kings County"), the Court of Appeals found the analysis of cumulative project impacts on water resources inadequate where it provided no information regarding the expected groundwater impacts of nearby energy projects except to say they "would impact regional water sources, but these impacts would be lessened by numerous programs and [conservation measures]."

13-P

The absence of data was fatal. The court held that "[a]bsent some data indicating the volume of ground water used by all such projects, it is impossible to evaluate whether the impacts associated with their use of ground water are significant and whether such impacts will indeed be mitigated by the water conservation efforts upon which the EIR relies." Id. at 729-730. See also Communities for a Better Environment v. California Resources Agency, (2002) 103 Cal.App.4th 98, 126 Cal.Rptr.2d 44.

In Kings County, the Court rejected the cumulative analysis prepared for a proposed coal-fired cogeneration plant in which the lead agency determined the project's impact on air quality was not cumulatively considerable because it would contribute less than one percent of area emissions for all criteria pollutants. Kings County at 718-719. The court criticized the focus on the ratio between the project's impacts and the overall environmental problem, rather than on the combined effect of the project in addition to already adverse conditions. Under this (impermissible) approach, which the court dubbed the "ratio theory," "the greater the overall problem, the less significance a project has in a cumulative impact analysis." [221 Cal.App.3d at 721.] Instead of trivializing a project's impacts by comparing them to the impacts of other past, present, and probable future projects, CEQA requires the lead agency to first combine the impacts. When this is done properly, the EIR may find that the scope of the environmental problem is so severe that even a minuscule incremental change would be cumulatively considerable and thus significant.

13-Q

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An adequate discussion of cumulative impacts must use one of the following methods, known respectively as the “list” approach and the “summary of projections” (or “plan”) approach: (1) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or (2) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect... [Guidelines § 15130(b)(1).] These represent two distinct ways of identifying the “other projects” that add to the proposed project's incremental impacts.

13-Q

The California Supreme Court has explained that the requirement to assess past projects “signifies an obligation to consider the present project in the context of a realistic historical account of relevant prior activities that have had significant environmental impacts.” Environmental Protection Information Center v. California Dept. of Forestry & Fire Protection, [(2008) 44 Cal.4th 459,524, 118 Cal.Rptr.3d 352. To do this effectively, an EIR “must reasonably include information about past projects to the extent such information is relevant to the understanding of the environmental impacts of the present project considered cumulatively with other pending and possible future projects.” Id. at 525.

13-R

As written, the EIR glosses over the aggregate environmental impacts of the Project and misleads the reader through words such as “may” and “potentially.” This Project cannot be viewed independently from other developing Projects in the region. The EIR needs to address the cumulative effects of the Project in relation to other nearby projects.

The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

13-S

CEQA Guidelines § 15355(b). Greenhouse gas emissions, noise and air pollution, and habitat fragmentation are aggregate and have cumulative effects. It would be a massive oversight for this Project to be allowed to move forward without fully analyzing its impact in relation to the overall impact of other projects in the region that are currently in development or in the planning stages.

The EIR lists mitigation measures but does not adequately inventory the resources present at the proposed Project with sufficiency to allow for an informed decision. The EIR must be rewritten with greater specifics. How many Joshua Trees will be affected? How many acres of rare and endangered plants are present. The requirements are CEQA require more detail:

13-T

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CEQA is a comprehensive scheme designed to provide long-term protection to the environment. In enacting CEQA, the Legislature declared its intention that all public agencies responsible for regulating activities affecting the environment give prime consideration to preventing environmental damage when carrying out their duties. CEQA is to be interpreted "to afford the fullest possible protection to the environment within the reasonable scope of the statutory language."

13-T

Mountain Lion Foundation v. Fish and Game Com., (1997) 16 Cal.4th 105, 112. The process compelled by CEQA "is a meticulous process designed to ensure that the environment is protected . . ." Planning and Conservation League v. Department of Water Resources (2000) 83 Cal.App.4th 892. "The integrity of the [CEQA] process is dependent on the adequacy of the EIR." Save Our Peninsula Committee v. Monterey County Board of Supervisors, (2001) 87 Cal.App.4th 99, 118-119. The EIR is "the heart of CEQA." Laurel Heights Improvement Ass'n v. Regents of the University of California, (Laurel Heights I) (1988) 47 Cal.3d 376, 392. The EIR must provide agencies and the public with "detailed information about the effect which a project is likely to have on the environment, . . . list ways in which the significant effects of such project might be minimized; and . . . indicate alternatives to such a project." Pub. Resources Code § 21061.

13-U

An EIR is an "environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return." The EIR is also intended "to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action."

Laurel Heights I, supra, 47 Cal.3d at 392. Here, the EIR must be rewritten to further signal to the community the significant and cumulative changes to their environment. The rewritten EIR must address the impact of this project in conjunction with all other project online or in the pipeline.

III. ALTERNATIVES

CEQA "prohibits approval of a plan that has mitigating features when a feasible plan with less environmental impact is available as an alternative." Citizens of Goleta Valley v. Board of Supervisors (Goleta I) (1988) 197 Cal.App.3d 1167, 1182; Sierra Club v. Gilroy (1990) 222 Cal.App.3d 30, 41; Pub. Resources Code §§ 21002, 21081; CEQA Guidelines, 14 Cal. Code Regs., §§ 15002, subd. (a)(3), 15021, subd. (a)(2), 15091, subd. (a). A project may not be approved if there are feasible and environmentally-superior alternatives, even if those alternatives would impede the attainment of project objectives to some degree. Pub. Resources Code § 21061.1; Guidelines, §§ 15126.6, subd. (b), 15364.

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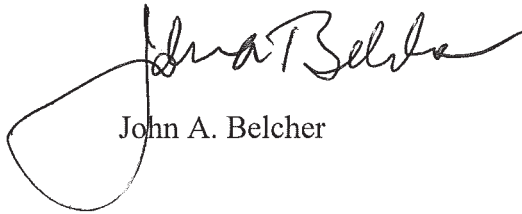
Alternative D, Distributed Commercial and Industrial Rooftop Solar “avoids significant and unavoidable impacts associated with aesthetics and biological resources, as well as reducing impacts to agricultural resources.” EIR, 1-24. Out of all the alternative considered by the EIR, Alternative D adequately meets the Project’s objectives. Save Our Mojave urges that the either Alternative A, No Action, or Alternative D, dispersed rooftop solar, be adopted by the planning commission.

13-W

For all the reasons stated above, we oppose the project as currently proposed. The current EIR misleads the reader as to the impact of the Project, and only a rewritten cumulative impacts analysis will allow the public to understand the true impact of the Project.

13-X

Sincerely,

A handwritten signature in black ink, appearing to read "John A. Belcher". The signature is fluid and cursive, with a large loop at the end of the last name.

John A. Belcher

Response to Comment Letter 13: Law Offices of John A. Belcher (February 5, 2020)

- 13-A:** Thank you for your comments. The participation of the Law Offices of John A. Belcher and Save Our Mojave in the public review of this document is appreciated.

The commenter provides background information about the commenter and a description of the project. The comment has been noted for the record and will be provided to the Kern County Planning Commission and Board of Supervisors for consideration.

- 13-B:** The commenter expresses concern that the DEIR found significant and unavoidable project and/or cumulative impacts regarding aesthetics, biological resources, air quality, and wildfire. The comment also states that the commenter is “concerned that the EIR concludes that proposed mitigation measures will reduce harm to biological resources to ‘less-than-significant’ levels,” but does not provide further detail.

The commenter does not indicate why it is concerned about the Draft EIR’s mitigation measures or which conclusions it is concerned with. Please refer to the Response to Comment 13-I for a discussion of CEQA standards for mitigation measure feasibility. The Lead Agency also refers commenter to the Responses to Comments 13-D through L.

The comment also provides a discussion of background CEQA law to which no response is required.

The comment asserts that the DEIR “fails to set forth an accurate and adequate environmental baseline upon which to measure its impacts,” insofar as it “did not perform adequate surveys of the biological resources on the site,” and therefore “fails to adequately describe the existing setting.” The only detail provided here by the commenter is that “the EIR states in a broad manner that Joshua Tree density is moderate.” Please refer to the Response to Comment 13-F for additional information regarding Joshua trees at the project site.

Pursuant to Section 15125 of the CEQA Guidelines, the baseline for analyzing environmental impacts should generally be physical environmental conditions as they exist at the time the notice of preparation is published, or at the time environmental analysis is commenced. The Draft EIR thus describes existing environmental conditions before analyzing each of the project’s anticipated impacts. *See* “Environmental Setting” sections throughout Draft EIR Ch. 4. The Draft EIR’s discussion of baseline biological resources conditions is particularly robust; it describes each of the plant and wildlife species known or suspected to be located at or near the project site with particular emphasis on special-status species. *See* Draft EIR at 4.4-1 to 4.4-23. As explained in the Draft EIR, this analysis was based on a review of existing and project-specific literature. *See* Draft EIR at 4.4-1, 10-4. These reports include the comprehensive, project-specific Biological Analysis Report, made available to the public in Appendix E of the Draft EIR. The commenter does not address any of these studies, nor does the commenter explain why they are inadequate.

Here and elsewhere, the commenter’s assertions imply that CEQA requires new studies until all uncertainty regarding existing environmental conditions or a project’s impacts thereon have been removed. This is incorrect. As the California Supreme Court has emphasized, an EIR need not achieve “technical perfection or scientific certainty.” *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 515. Instead, CEQA requires “adequacy, completeness, and a good-faith effort at full disclosure.” CEQA Guidelines § 15003(i). The appropriate degree of specificity and analysis a

given issue warrants depends on “the nature of the project and the rule of reason.” *North Coast Rivers Alliance v. Kawamura* (2015) 243 Cal.App.4th 647, 679; *see also* CEQA Guidelines Section 15151 (“An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.”).

- 13-C:** The commenter asserts that photovoltaic arrays resemble lakes, causing harm to migratory birds that confuse the arrays for water bodies. The commenter does not provide any evidentiary support for its assertions but claims that “the EIR must be rewritten to address this impact.”

The Draft EIR acknowledges that “fake lake effect” may impact avian species. See Draft EIR at 4.4-56, 6-2. The project’s Biological Analysis Report, Appendix E to the Draft EIR, provides additional detail. That discussion can be summarized as follows.

Solar panels have elements thought to mimic water or suitable related habitat, at least to the human eye. As a result, some have theorized that solar panels may attract species that mistake the panels for bodies of water, potentially leading to increased collision-related and other risks commonly referred to as the “fake lake effect.” It is thought the phenomenon could attract birds to solar project sites, thereby exposing the birds to greater risk of impacts such as potential collision with project infrastructure, the possibility of being stranded within site fencing once they land, or other forms of distress.

Importantly, as the Biological Analysis Report also explained, whether “fake lake effect” in fact results in avian impacts is currently speculation not supported by empirical research. Indeed, a recent report commissioned by the U.S. Department of Energy analyzed available avian mortality data from utility-scale solar energy facilities and concluded that, though it is apparent that solar energy facilities present a risk of fatality for birds, additional standardized and systematic fatality data would be needed to better understand and quantify the risks (County of Kern 2016). That report further noted that, based on available data, there was no consistent pattern to support or refute the hypothesis that water-dependent species were more susceptible to mortality at solar facilities.

The causes of avian injuries and fatalities at commercial-scale solar projects continue to be evaluated by the USFWS, CDFW, and others. Even with monitoring data from other PV projects in California, there remains a great deal of uncertainty regarding the extent to which birds might be impacted by the project because: 1) the mortality data from the other projects has been collected over a relatively short period of time and still is being evaluated; 2) in most cases, the cause of death is not clear; and 3) mortality information from one project location is not necessarily indicative of the mortality that might be found at another project location (County of Kern 2014b)

See the Response to Comment 13-B regarding the level of detail and study required by CEQA.

- 13-D:** The commenter asserts that special-status species warrant special consideration in the CEQA process. The commenter does not here assert that the DEIR fails adequately to consider impacts on such species. The commenter does however assert that “Development in the habitat of these species is against the goal of conservation,” and that “the fact that there are threatened and endangered species in the project area should alone be enough to stop the project from moving forward.”

The Draft EIR in fact does pay special attention to special-status species. See Draft EIR at 4.4-5 to 4.4-23, 4.4-32 to 4.4-52. As explained in the Draft EIR, no state or federal endangered or threatened plant species are believed to have the potential to occur on the project site. Draft EIR at 4.4-6 to 4.4-11. Similarly, no state or federal endangered or threatened wildlife species has more than a low

likelihood of occurring at the project site. Draft EIR at 4.4-12 to 4.4-18. The Lead Agency also notes that contrary to commenter's implication, CEQA does not prohibit development in areas that are home to threatened or endangered species.

- 13-E:** The comment notes that Lemmon's jewelflower and Clokey's cryptantha have been observed on the project site and states that "[t]he EIR needs to go further estimating the number or area of plants that will be destroyed and not suggest a survey will be performed after the EIR is approved." The commenter does not explain why it believes the Draft EIR's discussion of these species is inadequate or articulate what may be gained by requiring additional surveys prior to approving the EIR.

As explained in the Response to Comment 13-B, CEQA does not require exhaustive analysis, but instead an EIR should evaluate the effects of a proposed project in light of what is reasonably feasible. Nevertheless, the Draft EIR explains that a total of 47 Lemmon's jewelflower and two Clokey's cryptantha individuals were observed during a survey of the project site. Draft EIR at 4.4-7, 4.4-12. The Clokey's cryptantha individuals were located in an area that would not contain solar panels, and the Lemmon's jewelflower individuals were not located within areas proposed for development. Draft EIR at 4.4-32. Out of an abundance of caution, Mitigation Measure 4.4-1 would require surveying of the site for the precise locations of these species, fencing around them where feasible, and salvaging seeds in the event such plants are destroyed. This type of mitigation measure is often applied to development projects because plant species can shift location from year-to-year; conditions therefore should be reassessed close to construction. Draft EIR at 4.4-32. In addition, Mitigation Measure 4.4-4 would require measures to prevent the introduction of exotic plant species; Mitigation Measure 4.4-5 requires construction monitoring by a qualified biologist to ensure construction work halts to avoid impacts to any special-status species, including Lemmon's jewelflower or Clokey's cryptantha; and Mitigation Measure 4.4-6 requires workers to attend training on the identification of these species. Draft EIR at 4.4-32. As a result, it is not likely that any individuals of either species will be destroyed.

- 13-F:** The commenter asserts that no inventory of "the number of Joshua Trees" was provided in the EIR, and that the DEIR's mitigation measures are "improper because they permit surveys to be conducted after project approval, thereby deferring evaluation of the impacts until after project approval."

Please see the Responses to Comments 13-B and 13-E for a discussion of the level of specificity and analysis required by CEQA. The Draft EIR notes that reconnaissance-level and floristic surveys were conducted at the project site in 2016 and 2017. Draft EIR at 4.4-4. These studies showed that Joshua tree density at the project site "is moderate but not at a density that would justify designation of a Joshua tree woodland." *Id.* The project's Biological Analysis Report provides extensive detail regarding the presence of Joshua trees at the project site, including a map showing the location of each individual Joshua tree found at the project site. *See* Draft EIR, Appendix E, page 34.

Based on this information, the Draft EIR properly concluded that "Joshua trees would be directly impacted by clearing and grading required for solar panel installation," and prescribed several mitigation measures to reduce impacts on them, such as by avoiding Joshua trees "to the maximum extent practicable" and providing compensatory mitigation in the event that avoidance cannot be achieved. Draft EIR at 4.4-32. As part of these mitigation measures, the Draft EIR requires a qualified biologist "to document the location of all Joshua trees that would be impacted by

permanent disturbance,” a standard that the project’s Biological Analysis Report has already met. Draft EIR at 4.4-37. Thus, the Draft EIR properly evaluates the project’s impacts on Joshua trees, based in part on site-specific studies. The fact that the Draft EIR requires additional surveys to help ensure that impacts to Joshua trees are minimized to the maximum practicable extent does not mean the Draft EIR has deferred evaluation of the project’s impacts.

- 13-G:** The commenter encourages the Lead Agency to adopt the “No Project” alternative or an alternative consisting of distributed commercial or rooftop solar, so as to avoid impacts to special status plant species. The commenter also asserts, without explanation, that revegetation plans “are not enough to ensure the protection of these species.”

As explained in the Draft EIR, CEQA requires that an EIR describe a range of reasonable alternatives to the project or to the location of the project that could feasibly avoid or lessen any significant environmental impacts of the project while attaining most of the project’s basic objectives. Draft EIR at 6-1. “A lead agency may structure its EIR alternative analysis around a reasonable definition of underlying purpose and need not study alternatives that cannot achieve that basic goal.” *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1165. The project’s objectives include maximizing renewable energy production and economic viability through the installation of solar PV panels and energy storage facilities on private lands with high solar insolation values; locating the project on private lands with few landowners to minimize transaction costs; locating adjacent to uncongested transmission lines; and reducing environmental impacts by using contiguous lands located near existing solar projects. Draft EIR at 6-3.

As required by CEQA, the Draft EIR evaluated a “No-Project/No-Build Alternative.” This alternative, though, would not achieve any of the project’s objectives, including offsetting energy generated from fossil fuels or helping to achieve California’s renewable energy goals. Draft EIR at 6-15.

The Draft EIR also evaluated Alternative 4: No Ground-Mounted Utility-Solar Development Alternative—Distributed Commercial and Industrial Rooftop Solar Only (“Distributed Alternative”). As the Draft EIR found, however, there are a number of drawbacks to this alternative, including increased prohibitively high costs, delayed buildout, and the project operator’s lack of control of or access to suitable sites. Draft EIR at 6-31. Thus, while the Draft EIR finds that Alternative 4 is the environmentally superior action alternative under CEQA, it properly cautions that:

It is important to note that it is considered to be impracticable and infeasible to construct the Rooftop Solar Alternative within the same timeframe and/or with the same efficiency as the proposed project because the project proponent lacks control and access to the sites required to develop 60 MW of distributed solar generated electricity. In addition, Alternative 4 would not achieve the objective of assisting California load-serving entities in meeting their obligations under California’s RPS Program.

This comment states a preference on the part of the commenter but does not allege that the Draft EIR’s alternatives discussion is inadequate.

13-H: The commenter states that “long-term studies would need to be conducted on the sensitive species in the area in order to determine both the impact that this project could have, but also what the impact has already been of the numerous surrounding solar projects.”

See the Response to Comment 13-B for a discussion of the level of specificity and studies that CEQA requires, as well as an overview of the scientific literature and project-specific surveys that inform the Draft EIR. These reports, which study conditions at and around the project site, necessarily reflect the impacts of existing solar projects. To choose just one example, the Biological Analysis Report reviewed the desert tortoise surveys from the nearby Catalina Renewable Energy, SEPV Mojave West, and Valentine Solar projects to bolster its conclusion that desert tortoises are absent or occur in extremely low densities in the project vicinity. Draft EIR Appendix E, page 52. The commenter does not acknowledge any of these reports. Nor does the commenter explain why it believes the information on which the Draft EIR relies is inadequate, describe the additional studies it believes are warranted, or provide any suggestion as to what additional value such studies would provide.

The commenter also states that the Draft EIR “fails to provide a sufficient description of the wildlife that may be impacted by [the] Project’s construction in combination with all other projects online and proposed.” The commenter, however, does not provide any detail as to why it believes the Draft EIR’s discussion of cumulative impacts on wildlife to be inadequate, except to assert that “the EIR fails to address how the observed special status plant and wildlife species will cope with this loss of undisturbed native habitat that is present at the Project.” The Draft EIR considers dozens of cumulative projects, which it describes and maps on pages 3-26 to 3-36. The Draft EIR also provides a thorough description of potentially impacted plants and animals. Draft EIR at 4.4-1 to 4.4-31. As this discussion makes clear, the project site provides only limited habitat for special-status plant or wildlife species, and the presence of significant development in the vicinity has rendered the project site unlikely to serve as a wildlife corridor. *See* Draft EIR at 4.4-6 to 4.4-18, 4.4-22 to 4.4-23. The Draft EIR then considers the impacts of cumulative projects in combination with the project’s in its discussion of each of the project’s impacts, including impacts on biological resources. *See* Draft EIR at 4.4-32 to 4.4-57. The Draft EIR finds that even though the project’s own impacts on biological resources would be less than significant with mitigation, when considered in connection with other cumulative projects, the project would make a cumulatively considerable contribution to biological resources impacts in the form of, e.g., loss of foraging and nesting habitat for special-status species.

The commenter provides a list of animals that it claims “are potentially found at the project site and are considered Special Status Wildlife Species.” The commenter fails to note that many of these species are considered unlikely to occur at the project site. For example, while the commenter includes the Tehachapi pocket mouse in its list, the Draft EIR correctly notes that the project is outside the known range of this species. Draft EIR at 4.4-18. In fact, there are no reliable records of the Tehachapi pocket mouse in the vicinity of the project, and the most recent record of this species anywhere within its historic range is from 1983.

The commenter finally states that burrowing owl studies on the project site “were contained within one year, so are relatively short-term, and preconstruction or construction surveys would not accurately represent any ongoing, continuous effects on the local population.” As described above, the Draft EIR relied on a thorough literature review as well as project-specific studies, including focused burrowing owl surveys. Protocol surveys for burrowing surveys were conducted in accord

with CDFW's 2012 burrowing owl staff report during three seasons (spring, summer and fall) on each site. CDFW guidelines recommend surveys also be conducted during the winter. However, the completed surveys confirmed presence of burrowing owls on the sites, so additional surveys were not necessary. The Lead Agency believes that the Draft EIR appropriately describes existing conditions, project impacts, and cumulative impacts to burrowing owl. The commenter does not provide any evidence or explanation to the contrary.

The Lead Agency reminds the commenter that CEQA requires neither scientific certainty nor exhaustiveness but rather adequacy, completeness, and a good-faith effort at full disclosure in light of what is reasonably feasible. See, e.g., *Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 544 ("CEQA requires an EIR to reflect a good faith effort at full disclosure; it does not mandate perfection, nor does it require an analysis to be exhaustive.").

- 13-I:** The commenter expresses concerns about the project's impact on burrowing owls. The commenter asserts that attempts to relocate burrowing owls in California have been met with mixed success. The commenter offers the unsubstantiated claim that "San Diego Zoo conservationists affirm that current mitigation strategies have no proven record of success and further research is required into the best methods of mitigation for this species." The commenter also cites a 1995 report (Trulio (1995)) as supporting commenter's assertion that passive relocation will not be sufficient to "preserve the burrowing owls until the EIR is rewritten to identify the cumulative effects of all proposed projects in the adjoining foraging habitat." This is contrary to California Department of Fish and Wildlife's 2012 staff report on burrowing owl mitigation, which expressly provides how to conduct passive relocation. The commenter does not propose any additional or different mitigation measures.

Indeed, contrary to the commenter's assertion, the Tulio report (1995) indicates that passive relocation of burrowing owls does in fact work. Trulio states that the installation of artificial burrows and relocations have a high degree of success, but also concludes that passive relocation is not adequate if adjoining habitat is not preserved. For the AV Apollo solar project, there appears to be adequate habitat on the project site in areas that would be avoided by the project to support the number of burrowing owl pairs that may need to be relocated. In addition, there are thousands of acres of existing habitat adjacent to the Apollo Solar project that are also suitable habitat. Although these other areas are not protected in perpetuity, any other development on those lands would require additional evaluation for losses to burrowing owls.

Passive relocation of owls using artificial burrows, a method that has proven a reliable way to coax owls into taking up residence in new burrows, was first described in the literature by Collins and Landry (1977) who used the burrows to increase owl populations in areas disturbed by people. It has been shown that owls readily colonized the human-made burrows. However, the success of passive relocation is dependent on distance of the artificial dens, within 100 meters. The sites of the burrowing owls (as of 2017) are within areas that are either within no build areas or within areas that can be mitigated with artificial dens less than 100 meters away. The Final EIR has been updated to include this information. These changes add clarification and detail to the Final EIR, but do not reflect a new or substantially increased significant impact or otherwise trigger recirculation under CEQA Guidelines Section 15088.5.

Under CEQA, "[m]itigation measures need not include precise quantitative performance standards, but they must be at least partially effective, even if they cannot mitigate significant impacts to less

than significant levels.” *Sierra Club v. County of Fresno*, (2018) 6 Cal.5th 502, 523. Similarly, “concerns about whether a specific mitigation measure ‘will actually work as advertised,’ whether it ‘can ... be carried out,’ and whether its ‘success ... is uncertain’ go to the *feasibility* of the mitigation measure;” under CEQA a mitigation measure is feasible if it is “‘capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.’” *California Native Plant Society v. City of Rancho Cordova* (2009) 172 Cal.App.4th 603, 622 (quoting CEQA, § 21061.1)). The Draft EIR prescribes a suite of detailed mitigation measures to reduce impacts on burrowing owl to less than significant levels, ranging from worker training to avoidance to compensatory mitigation. See Draft EIR at 4.4-33 to 4.4-34, 4.4-39 to 4.4-48. Passive relocation, detailed in mitigation measure 4.4-10, is just one of many such measures. Where employed, passive relocation will be conducted under the supervision of a qualified biologist and in accordance with the 2012 CDFW Staff Report on Burrowing Owl Mitigation and the specific conditions outlined in mitigation measure 4.4-10. The commenter’s unsubstantiated claim that San Diego Zoo conservationists have stated that current mitigation strategies have no proven record of success does not change the Lead Agency’s analysis. The commenter does not, for example, explain when these unnamed conservationists made this statement, in what context it was made, or what mitigation strategies they considered.

As the commenter notes, Trulio (1995) states that:

Although passive relocation appears to be a successful way to relocate birds, this method should not be used to compensate for lost burrows if the impact to nest burrows can be avoided. Nor is passive relocation an adequate mitigation if enough adjoining habitat is not preserved.

The Draft EIR is consistent with this approach. Mitigation measure 4.4-10, in particular, makes clear that passive relocation will be employed only “if avoidance of active burrows is infeasible.” Draft EIR at 4.4-44 to 4.4-45. Similarly, where passive relocation is required, mitigation measure 4.4-10 requires compensatory mitigation, with such mitigation lands to be located on or in proximity to the impact site where feasible. Draft EIR at 4.4-47 to 4.4-48.

There is extensive suitable nesting, foraging, and there is passive relocation habitat present on no-build areas of the project site and adjacent to the project. There is extensive suitable habitat to the east, north, and south of the project site.

As also explained in the Response to Comment 13-B, CEQA does not require exhaustive analysis of a project’s every potential impact or scientific certainty. While it is possible that additional studies could shed additional light on the best mitigation strategies for burrowing owl, that is virtually always the case during an environmental impact review. The Draft EIR provides a thorough, well-supported picture of burrowing owl in the project vicinity and expected project and cumulative impacts on the species.

Finally, the commenter also states that the project could “potentially impact local ground squirrel populations, but this analysis is absent from the EIR, except to mention the possible impact.” The commenter asks that further surveys be performed “in order to better understand the permanent direct and indirect impacts on the area ground squirrel population as ‘the conservation of burrowing mammals is essential to improve the status of Burrowing Owls.’”

The Draft EIR explains that the project is expected to result in a loss of foraging habitat for species including burrowing owl. See Draft EIR at 4.4-33, 4.4-56. For this reason, the Draft EIR found that the project would make a cumulatively considerable contribution to a significant cumulative impact. Draft EIR at 4.4-56. However, the reduction or loss of foraging habitat caused by construction of the project would not amount to a significant impact on an existing important foraging area, particularly when considered with the available remaining foraging habitat surrounding the project site in agricultural fields, along drainages, and among foothills to the south. The Draft EIR so explained in its discussion of impacts to prairie falcon and other foraging raptors, and burrowing owls are foraging raptors. See Draft EIR at 4.4-35.

The commenter also expresses concern about the impacts to burrowing owl resulting from impacts to ground squirrels. Small mammal burrows were not prominent within the project site during biological surveys. There were, however, numerous white-tailed antelope squirrels present, which are common in the area. See Draft EIR, Appendix E, page 15. Most of the small mammal burrows identified during the biological studies were in the northeast no-build area of the project site. Suitable foraging habitat for burrowing owls is present surrounding the project site. Small mammals will likely repopulate the project site from surrounding undisturbed habitat after array construction and revegetation of the project site are completed. It was assumed that the project would temporarily reduce sufficient prey and remove foraging habitat. However, MM 4.1-2 requires a Landscape Revegetation Plan for the site and MM 4.3-1 (2)(b) also requires revegetation of the site. Because the burrowing owl is so widespread and because of the extensive foraging habitat remaining on and near the project site, the Draft EIR properly concludes that impacts to burrowing owls from this project (with mitigation implemented) are less than significant.

- 13-J:** The commenter states that “it is impossible to know whether the project site is directly in the habitat of the desert tortoise,” because “long-term surveying of the project site has not been done.”

See the Response to Comment 13-B. As explained there, CEQA requires neither endless studies nor certainty about a project’s impacts or existing environmental conditions. Here, the Draft EIR grounds its discussion of desert tortoise on a review of existing scientific literature as well as project-specific studies. For example, the Biological Analysis Report published with the Draft EIR describes the United States Fish and Wildlife Service protocol-level desert tortoise survey conducted at the project site in 2016, as well as desert tortoise surveys from the nearby Catalina Renewable Energy, SEPV Mojave West, and Valentine Solar projects. All of these studies support the conclusion that that desert tortoises are absent from or occur in extremely low densities in the project vicinity. Draft EIR Appendix E, pages 27, 41, 52. The Lead Agency therefore finds that additional desert tortoise surveys are not warranted for purposes of this EIR.

The commenter cites a 1994 USFWS report for the general proposition that solar projects historically have been detrimental to the desert tortoise population. The commenter also states that “the plan the project has developed to protect the desert tortoise is insufficient.” The commenter similarly asserts, without providing evidence, that “desert tortoise has proven to be difficult to relocate in the past.” The commenter also states that the EIR does not include measures to care for hatchling desert tortoise, which the commenter asserts cannot be relocated immediately but must instead be cared for by a biologist.

As the Draft EIR explains, no desert tortoises have been found to occupy the project site and have a low probability of habitation on the site. See Draft EIR at 4.4-19, 33. Solar sites located in areas

with less human disturbance (*i.e.*, east of SR 14 in the region; the project site is 7.3 miles *west* of SR 14) have a greater potential for desert tortoise habitation. The 1994 report (now 25 years old) indicates the project site to be in the low-quality habitat model and not within any planned conservation area.

Although very few if any desert tortoises are believed to inhabit the project area, the Draft EIR acknowledges that the project and similar solar facilities may adversely affect desert tortoise and proposes mitigation measures to reduce those impacts to less than significant levels. *See* Draft EIR at 4.4-19, 33, 56. The Lead Agency notes that the study cited by the commenter is more than 25 years old, and necessarily does not address the improvements solar developers have made in the decades since its publication.

It is not clear to which “plan” the commenter refers. Its statements regarding desert tortoise relocation are also misplaced: while the Draft EIR prescribes a number of mitigation measures that include features such as preconstruction surveys and avoidance measures, the Draft EIR does not call for the relocation of desert tortoises. *See* Draft EIR at 4.4-33, 4.4-39 through 4.4-44.

The commenter asserts that because the DEIR does not outline the specific measures that will be contained in the project’s Worker Environmental Awareness Training and Education Program (WEAP), nor how long such training will last, “there is inadequate information to discern if the project will mitigate the disruption of the desert tortoise’s habitat.”

An agency “can commit itself to eventually devising measures that will satisfy specific performance criteria articulated at the time of project approval.” *Sacramento Old City Ass’n v. City Council* (1991) 229 Cal.3d 1011, 1029. In other words, an EIR may defer finalizing the details of a specific mitigation measure as long as it commits to eventually designing it and specifies the performance standards pursuant to which it will be designed. For example, in *Endangered Habitats League, Inc. v. County of Orange*, the EIR in question stated that the project developer would prepare a water quality plan that would incorporate “best management practices.” (2005) 131 Cal.App.4th 777, 795-96. The court found that the design features to be incorporated into the water quality plan were adequate “since they require use of clearly identified standards in the form of the ‘best management practices.’” *Id. see also Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal.App.4th 214, 244-45.

Here, the WEAP contains very specific performance standards sufficient to ensure that the project’s impacts on protected wildlife will be mitigated and to inform the lead agency what it is to do and what it must accomplish. Draft EIR at 1-52 to 1-53. The program will be administered by an authorized biologist; be administered on an annual basis; include species-specific information; inform attendees about specific protection measures for each species; inform attendees about penalties for violations; require attendee signatures to be kept on file; and other similar performance standards to ensure the program’s effectiveness. *Id.* This level of detail is more than sufficient.

Finally, the commenter asserts that “the mitigation measures which the EIR takes in case of encounters with the desert tortoise are insufficient and lacking.”

The commenter does not explain which mitigation measures it finds insufficient, or why it deems them insufficient. Nor does the commenter suggest alternative or additional mitigation measures. The Lead Agency finds that the Draft EIR’s desert tortoise mitigation measures are more than adequate, particularly given the low likelihood that desert tortoise will be found at the project site.

- 13-K:** The commenter states, without providing evidence, that although the Draft EIR provides for avian nesting surveys during nesting seasons, “the pre-construction surveys that the project will conduct need to be done far more in advance.” The commenter then quotes from mitigation measure 4.4-12, which requires preconstruction surveys during the avian breeding season.

This comment is difficult to discern. It is unclear why the commenter believes pre-construction surveys must be conducted “far more in advance,” or how far in advance the commenter believes such studies should be performed. In any event, the commenter provides no evidence suggesting a modification to mitigation measure 4.4-12 is appropriate. As noted by commenter and explained in mitigation measure 4.4-12, the EIR requires preconstruction surveys no more than 7 days prior to initial vegetation clearing activities conducted during the avian breeding season. It is important that surveys be conducted within such a window in order to reduce the possibility that birds will have moved into areas to be disturbed between the survey and initiation of ground-clearing activities. Conducting studies “far more in advance” of this 7-day window would undermine the very purpose of these studies. The Lead Agency also notes that focused surveys were conducted at the project site for rare plants, desert tortoise, and Swainson’s hawk, and that these surveys provided adequate information for the evaluation of other species, such as burrowing owl. See Draft EIR Appendix E. at page 26. The commenter does not acknowledge these surveys.

- 13-L:** The commenter states that nesting birds will not nest if nesting materials are destroyed before the nesting season, and therefore “pre-construction surveys of the area are not enough to assure the protection of migratory birds.” The commenter asks that long-term surveys be done “to assure that the project is not disrupting migratory habitats, especially if the EIR adequately considered all of the proposed and online projects[’] effects on migratory bird habitats.” The commenter similarly claims that “without updated [long-term] surveys, this law firm cannot be certain of the level of impact that the project would have on” bird species in the area.

As explained in the Response to Comment 13-B, in stating that the Draft EIR does not “assure” the project does not adversely impact migratory birds and that the commenter “cannot be certain” of the project’s impacts, the commenter applies the incorrect standard under CEQA.

It is important to note that the entire Mohave desert provides similar habitat, and the project’s removal of such small acreages of habitat present a minimal impact to migratory bird species.

Please also see the Responses to Comments 13-H and 13-B through 13-D, which discuss project-specific and cumulative impacts related to habitat. The commenter also claims that the Draft EIR fails to consider the impacts of “heat and glare” on avian fatalities. The commenter states, without providing evidence, that “solar arrays have been shown to be incredibly dangerous for birds.”

The commenter here appears to reiterate the concerns expressed in Comment 13-C regarding “fake lake effect.” As explained in the response to that comment, far from showing that solar arrays are “incredibly dangerous for birds,” existing evidence has not confirmed that the “fake lake effect” theory in fact causes adverse impacts to birds. In any event, the commenter does not provide any evidence that heat or glare resulting from the project would negatively impact birds. Nor does the commenter provide any support for its assertion that the project, which would employ photovoltaic solar panels, would generate heat capable of harming birds.

Given the commenter’s reference elsewhere to the Ivanpah Solar Electric Generating system, it is possible that the commenter has conflated concentrated solar thermal technology (used in projects

such as Ivanpah) with the solar photovoltaic (“PV”) technology to be employed by the project. As explained in the Draft EIR, it is a common misconception that PV panels cause excessive glare. In contrast to concentrated solar technology, which uses mirrors to reflect sunlight to heat fluids, modern PV panels reflect as little as two percent of incoming sunlight—less than soil or wood shingles. Draft EIR at 4.1-4. Similarly, the amount of heat absorbed by a solar PV panel is similar to the amount of the sun’s heat absorbed by open land, and there is no indication that the project would increase ambient air temperatures at or around the project site. Draft EIR at 4.9-4.

Finally, the only support the commenter provides in this comment is a partial quotation from the “Threats to Birds, Migratory Bird Mortality – Questions and Answers” webpage maintained by USFWS, available at <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>. We note that the commenter omits the following statement from the passage it quotes: “Death from natural causes is also common sources of mortality.” In any event, this webpage provides only a high-level overview of the generic threat habitat loss presents to migratory birds across the nation. It does not present new information beyond that already analyzed in the Draft EIR.

13-M: The commenter makes general statements about harms generally associated with noise pollution, and notes that the Draft EIR finds that the project would result in some noise-related impacts. The commenter does not, however, suggest that the Draft EIR’s analysis of the project’s noise-related impacts is in any way deficient. As explained in the Draft EIR, noise-related impacts would range from no impact to less than significant with mitigation.

13-N: The commenter makes various assertions about the project’s alleged impacts on air quality. The commenter states that “the EIR needs to go farther in addressing the spike in greenhouse gas emissions during the construction, operation, and decommissioning periods.”

The commenter does not explain why it views the Draft EIR’s discussion of the project’s greenhouse gas impacts to be inadequate, nor does it provide any support for its claim that the project will result in a “spike” in such emissions. The Draft EIR thoroughly discusses the project’s greenhouse gas emissions. *See* Draft EIR Section 4.8. As explained therein, Eastern Kern Air Pollution Control District guidance considers a project to have a significant impact if it generates 25,000 metric tons or more of CO₂E per year. Draft EIR at 4.8-16. The project, though, will generate only 1,411 metric tons of CO₂E during construction, with total annualized emissions of just 54 metric tons of CO₂E per year. Draft EIR at 4.8-19. When accounting for the project’s clean energy generation, the project could displace 1,677,025 metric tons of CO₂E over its lifetime. Draft EIR at 4.8-19.

The commenter asserts, without providing evidence, that “simply ensuring that the construction equipment is in good working order does not seem like it will effectively mitigate the high levels of greenhouse gas emissions.”

Please see the Response to Comment 13-B for a discussion of CEQA’s standards for mitigation measure feasibility. Ensuring that construction equipment is in good working order will help ensure that the project’s actual greenhouse gas emissions are in line with the emissions modeling for the project. As explained above, these emissions are far below the threshold of significance. The commenter provides no evidence that this mitigation measure is not feasible.

The commenter finally asserts that the EIR’s discussion of air quality impacts misguides the reader and downplays the significant risks inherent in the implementation of this project,” without

explaining which language the commenter takes issue with, or which risks the commenter believes are “inherent” to the project. Without more detail from the commenter, the Lead Agency reiterates that the Draft EIR accurately and thoroughly discusses the project’s air quality impacts.

- 13-O:** The commenter states that the DEIR failed to address neighboring projects or the combined impact of the activities proposed in the region, and is therefore inadequate. The commenter similarly asserts that “the failure is particularly pronounced because it is not possible to determine the significance of an impact without actual data.” The commenter asserts that the data “needs to include the ongoing impact and effects of the surrounding projects as that is the only way to determine the true cumulative impact.”

See the Response to Comment 13-H for a discussion of the Draft EIR’s approach to cumulative impacts analysis. The commenter’s claim that the Draft EIR fails to present data for cumulative projects is incorrect. The Draft EIR lists each cumulative project in Table 3-4, along with a description of its size project location, and status. In Figures 3-7 and 3-8, the Draft EIR also includes maps showing the location of each cumulative project in relationship to the project. Where appropriate to inform the discussion of a specific impact, the Draft EIR presents additional information. For example, the Draft EIR provides construction and operations emissions data for the cumulative projects in order to evaluate cumulative air quality impacts. Draft EIR at 4.3-45 to 4.3-47. The Lead Agency also notes that CEQA does not require cumulative impacts to be quantified, or data to be presented in any particular format. *See Citizens for Open Government v. City of Lodi* (2012) 205 Cal.App.4th 296, 320 n.10 (upholding lead agency’s use of table listing cumulative projects and acreage of said projects, rejecting argument that CEQA required the table to specify the number of acres of farmland lost to development, and reiterating that “all that is required is adequacy, completeness, and a good faith effort at full disclosure”). Indeed, the CEQA Guidelines clarify that the discussion of cumulative impacts “need not provide as great detail as is provided for the effects attributable to the project alone,” and that “the discussion should be guided by the standards of practicality and reasonableness.” Guidelines § 15130.

- 13-P:** The commenter cites *Kings County Farm Bureau v. City of Hanford* and *Communities for a Better Environment v. California Resources Agency* for the proposition that cumulative impacts analysis cannot be sufficient without data.

The cases the commenter cites here are inapposite, and do not stand for this proposition. The EIR in *Kings County* contained no information whatsoever regarding the expected groundwater impacts of nearby energy projects. In fact, the EIR’s cumulative analysis in that case contained “no list of the projects considered, no information regarding their expected impacts on groundwater resources and no analysis of the cumulative impacts.” *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 729. Instead, the EIR in that case “merely assume[d] whatever impacts such [nearby] projects may have will be mitigated by existing and planned water conservation efforts of governmental agencies in the area.” *Id.* This wholesale lack of analysis was despite comments to the draft EIR seeking additional information on nearby projects. *Id.*

Here, unlike the EIR in *Kings County*, the Draft EIR does list nearby projects considered in the cumulative impacts analysis, does not assume that their impacts will simply be mitigated, and does consider their impacts cumulatively. The comment’s citation to *Kings County* is therefore inapposite.

The commenter's citation to *Communities for a Better Environment* appears only to present background CEQA law. In that case, the court upheld the validity of the CEQA Guidelines to the extent they require EIRs to contain cumulative impacts analyses generally. *Communities for a Better Environment v. California Resources Agency* (2002) 103 Cal.App.4th 98.

- 13-Q:** The commenter notes that the court in *Kings County* held that “ratio theory” method for analyzing the cumulative impacts of a project, which focuses on the ratio between a project's impacts to the overall cumulative problem, is not appropriate under CEQA, and that an EIR must consider the entire cumulative impact regardless of the project in question's relative contribution to those impacts. *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 718-21.

Here, the Draft EIR does not employ the “ratio theory” to avoid a proper cumulative impacts analysis, nor does the commenter make a showing as to where the Draft EIR employs the “ratio theory.” To the contrary, the Draft EIR analyzes the complete cumulative effects of the project and the cumulative projects, even though the project's own contribution may be minor. For example, the Draft EIR finds that even though the project would not itself cause significant impacts with respect to biological resources, the project would make a cumulatively considerable contribution to a significant cumulative impact with respect to loss of foraging and nesting habitat for special-status species. Draft EIR at 4.4-56.

The commenter also notes that under CEQA Guidelines § 15130(b)(1), an EIR must contain a list of cumulative projects or a summary of projections. The Lead Agency reiterates that the Draft EIR contains precisely this sort of list of cumulative projects in Table 3-4.

- 13-R:** The commenter cites *Environmental Protection Information Center v. California Department of Forestry & Fire Protection* for the proposition that CEQA requires consideration of the project “in the context of a realistic historical account of relevant prior activities that have had significant environmental impacts,” and that an EIR must therefore “reasonably include information about past projects to the extent such information is relevant to the understanding of the environmental impacts of the present project considered cumulatively with other pending and possible future projects.”

The commenter's citation to *Environmental Protection Information Center* merely states background CEQA law. As the commenter notes, the court in that case held that an EIR “must reasonably include information about past projects to the extent such information is relevant to the understanding of the environmental impacts of the present project considered cumulatively with other pending and possible future projects.” *Environmental Protection Information Center v. California Dept. of Forestry & Fire Protection* (2008) 44 Cal.4th 459, 525. This is consistent with the general principle that CEQA analysis is governed by “the rule of reason.” See, e.g., *A Local & Regional Monitor v. City of Los Angeles* (1993) 12 Cal.App.4th 1773, 1794 (“In reviewing the sufficiency of an EIR, the rule of reason applies.”). In any event, the commenter makes no assertion that the Draft EIR fails to account for past projects, and does not identify any additional past projects that should have been considered.

- 13-S:** The commenter states that “the EIR glosses over the aggregate environmental impacts of the project and misleads the reader through words such as “may” and “potentially.”

Because the commenter does not point even to examples of such language, the Lead Agency can only note that because CEQA does not require scientific certainty, it is generally appropriate to

discuss impacts that “may” or “potentially” will or will not occur. This is evidenced by Appendix G of the CEQA guidelines, which specifically calls the question of whether a given impact is “potentially” significant or not.

The commenter next recites background CEQA law, expresses a general concern about habitat fragmentation, and asserts that “it would be a massive oversight for this project to be allowed to move forward without fully analyzing its impact in relation to the overall impact of other projects in the region. . . .” but fails to specify where the Draft EIR is insufficient in this regard.

See the Responses to Comments 13-H, I, and O-R. As explained therein, the Draft EIR appropriately provides a detailed list of such cumulative projects, and appropriately considers their impacts in connection with those of the project to properly assess potential cumulative impacts.

With respect to habitat fragmentation and wildlife movement generally, the DEIR specifically addressed migratory pathways, wildlife corridors and wildlife connectivity (See Draft EIR pages 4.4-3, 4.4-21 to 4.4-23, 4.4-53 to 4.4-54, Figure 15 in Appendix E). The map included as Figure 15 in Appendix E to the Draft EIR was created in 2017 using data from the California Essential Habitat Connectivity project report that commenter cites (Spencer et al 2010). That information is routinely updated. In response to recent updates to this data, the Lead Agency has prepared a revised map of linkages and corridors near the project (see the updated Figure 15, above). There is a newly defined wildlife corridor that is represented by three specific lines running roughly north-south. This newly defined corridor is not based upon any specific wildlife species but instead has been added as an overall essential pathway to ensure connectivity throughout California. Species using this corridor would be expected to continue to use the project site because of the permeability of the perimeter fencing, and species would use other available extensive open space within the corridor. The corridor in its entirety is approximately 24 miles wide and connects the Tehachapi Mountains in the north to the San Gabriel Mountains to the south. The project lies within the easternmost portion of that corridor, impacting only a small fraction of it. The project would not significantly diminish the functions or values of that newly defined corridor and would not significantly interfere with wildlife connectivity through the area. Thus, while the updated map and corresponding modifications to the text of the EIR provide additional clarification, these are minor corrections that do not indicate a new or substantially increased impact. Recirculation is not required under CEQA Guidelines Section 15088.5.

- 13-T:** The commenter repeats its assertion that the Draft EIR should be revised to include greater specificity with respect to the number of Joshua Trees that will be affected, as well as the number of acres of rare and endangered plants that are “present.”

See the Response to Comments 13-E and 13-F. As explained there, a total of 47 Lemmon’s jewelflower and two Clokey’s cryptantha individuals were observed during a survey of the project site, though they are not located in areas expected to be impacted by the project. These are the only rare or endangered plant species “present” at the project site. The Draft EIR also depicts the location of each Joshua tree found at the project site.

Without acknowledging the amount of detail the Draft EIR provides regarding Joshua trees and endangered and rare plant species at the project site, the commenter next asserts that “The requirements are CEQA requires more detail.” The commenter cites several cases in support of this assertion, but none support it. In *Mountain Lion Foundation*, the California Supreme Court cited general principles of CEQA to hold that the California Fish and Game Commission was required

to perform a CEQA analysis before removing species from the California Endangered Species Act's threatened species list. As the commenter notes, the court there stated that CEQA should be interpreted "to afford the fullest possible protection to the environment *within the reasonable scope of the statutory language*." *Mountain Lion Foundation v. Fish and Game Comm'n* (1997) 16 Cal.4th 105, 112 (emphasis added). The language quoted by commenter confirms the reasonableness standard that governs CEQA review and does not call for an exhaustive or perfect analysis as commenter appears to suggest. *See, e.g., Sierra Club v. City of Orange* (2008) 163 Cal.App.4th 523, 544 ("CEQA requires an EIR to reflect a good faith effort at full disclosure; it does not mandate perfection, nor does it require an analysis to be exhaustive."); *Kings County*, 221 Cal.App.3d at 712 (same). For additional information regarding the amount of detail and specificity CEQA requires, see the Response to Comment 13-B.

- 13-U:** The commenter here cites additional cases in support of its assertion that the Draft EIR is insufficiently detailed.

See the Responses to Comments 13-B and 13-T. Here again, the cases cited by the commenter provide statements of background CEQA law, but do not indicate that the Draft EIR is insufficient. The commenter correctly notes that CEQA's purpose is to ensure that the environment is protected, and that the EIR is at the heart of the statute. However, these citations provide no specifics whatsoever regarding the adequacy of the Draft EIR, and do not contradict the foundational "rule of reason" that governs CEQA. *See, e.g., A Local & Regional Monitor*, 12 Cal.App.4th at 1794 ("In reviewing the sufficiency of an EIR, the rule of reason applies."); *Sierra Club*, 163 Cal.App.4th at 544 ("CEQA requires an EIR to reflect a good faith effort at full disclosure; it does not mandate perfection, nor does it require an analysis to be exhaustive."); *Chaparral Greens v. City of Chula Vista* (1996) 50 Cal.App.4th 1134, 1145 (same); *Kings County*, 221 Cal.App.3d at 712 (same).

- 13-V:** The commenter describes background law regarding CEQA's requirements for the consideration and adoption of project alternatives.

As the commenter notes, an EIR must consider feasible alternatives. However, California Supreme Court precedent is clear that "a lead agency may structure its EIR alternative analysis around a reasonable definition of underlying purpose and need not study alternatives that cannot achieve that basic goal." *In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1165.

- 13-W:** The commenter asserts that Alternative D, Distributed Commercial and Industrial Rooftop Solar, adequately meets the project's objectives. The commenter asserts that the Planning Commission adopt Alternative D or Alternative A, the no-action alternative.

See the Response to Comment 13-G. As explained there, Alternative D does not meet the project's objectives. The commenter does not provide any evidence or explanation to the contrary.

- 13-X:** The Commenter reiterates its objections to the project, and its belief that the DEIR is inadequate.

Please see the Responses to Comments 13-A to W.



February 6, 2020

Mr. Randall Cates, Planner III
Advanced Planning Division
Kern County Planning and Natural Resources Division
2700 "M" Street, Suite 100
Bakersfield, CA 93301-2323
Via email: CatesR@kerncounty.com

Re: **AV Apollo Solar Project (the Project) by Sunbow Solar, LLC, Syracuse Solar LLC and Tours Solar LLC (PP17144)**

Dear Mr Cates:

On behalf of National Audubon Society (Audubon) and Defenders of Wildlife (Defenders) and our combined 3 million members and supporters in the U.S., over 300,000 of those in California, we thank you for the opportunity to submit comments on the Draft Environmental Impact Report (DEIR) for the AV Apollo Solar Project (the Project) in the Antelope Valley of Kern County.

Kern County (Lead Agency) has prepared a Draft Environmental Impact Report (DEIR) for the above-noted land use applications to allow for the construction and operation of a solar photovoltaic power generating facility and associated facilities that would generate a combined total of approximately 60 megawatts (MW) of renewable electric energy and/or energy storage capacity on approximately 493.5 acres of privately-owned land in the Antelope Valley of unincorporated Kern County.

National Audubon Society has recognized Antelope Valley as a *Globally Important Bird Area*¹. 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. We prioritize our organization's engagement in our Important Bird Areas.

Audubon supports clean energy that is sited and operated properly to avoid, minimize and mitigate effectively for the impacts on birds, other wildlife and the places they need now and in the future. Working closely with industry, government agencies, partners and our Network,

¹ National Audubon Society. <https://www.audubon.org/important-bird-areas>

Comment Letter No. 14: National Audubon Society (2)

Audubon will work to support, expedite and expand the development of clean energy policies, planning and projects to achieve 100% clean energy

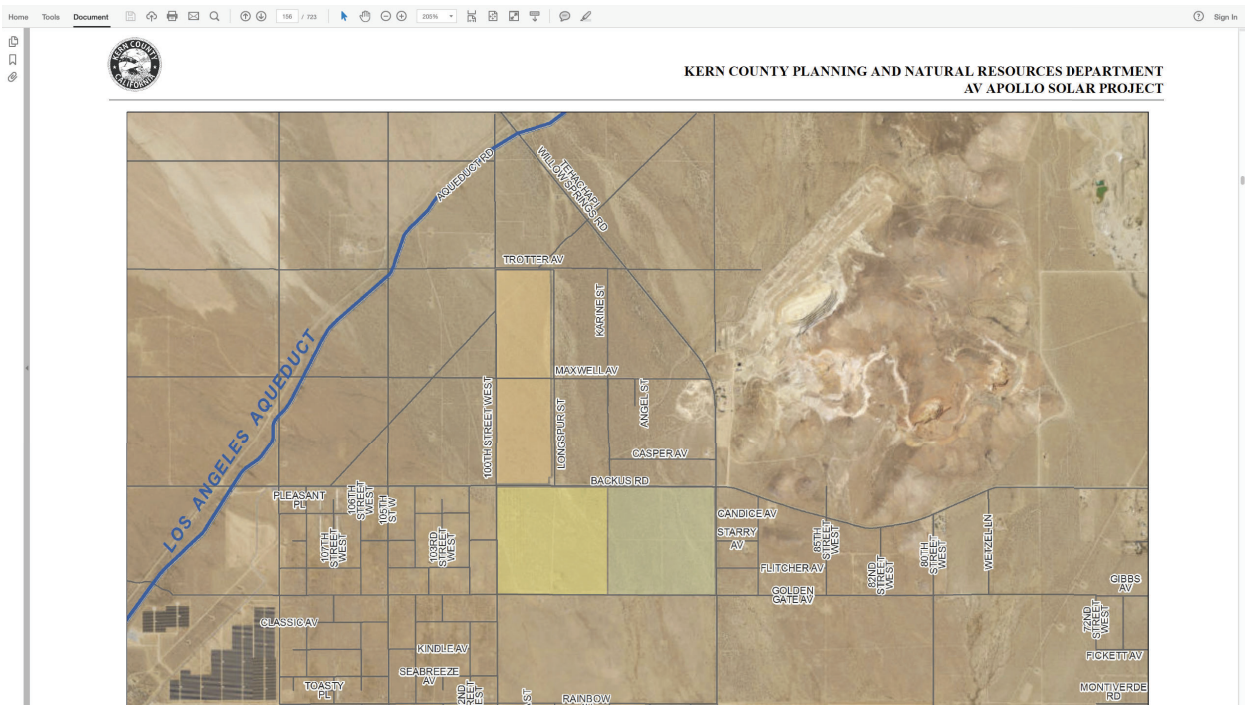
14-A

Unfortunately, the AV Apollo solar project does not meet this standard.

Our comments:

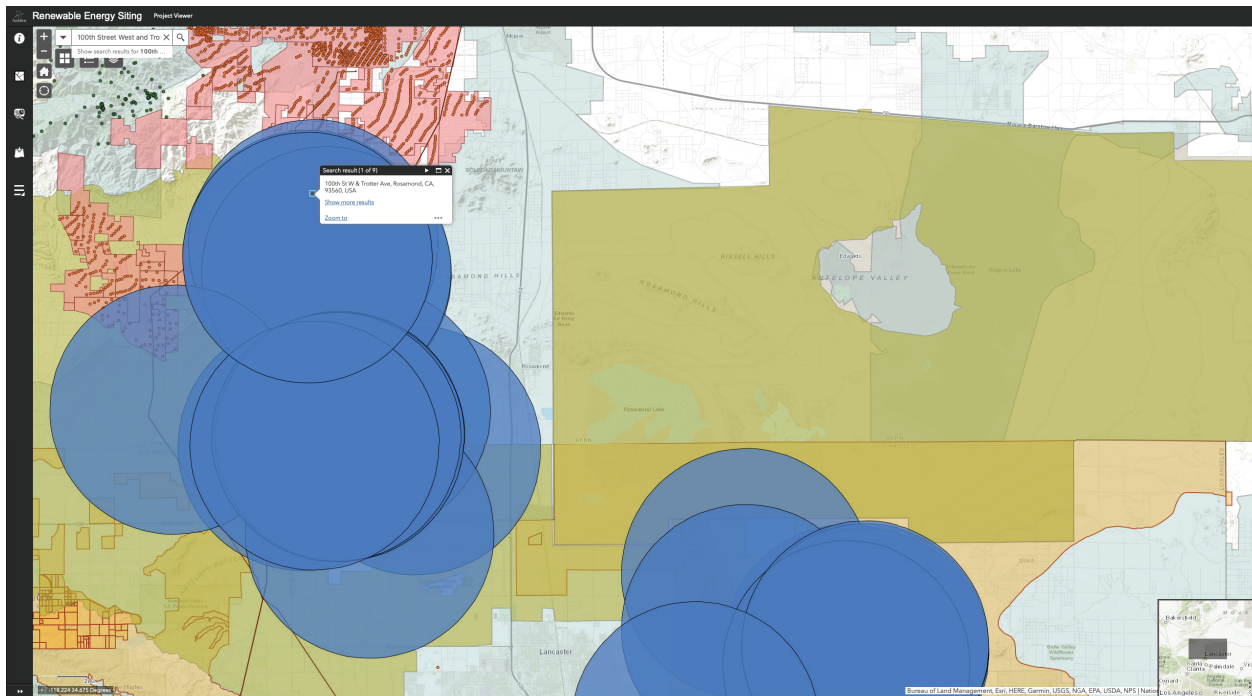
1. The DEIR is deficient as it provides inaccurate data and conclusions regarding the impact of the project on State-threatened Swainson's hawk (SWHA).
 - a. The data provided in the DEIR by Lead Agency in Table 4.4-2 (DEIR p. 4.4-15) conflicts with CDFW 2017 publicly available SWHA spatial nest data as well as data provided by a nearby project DEIR. The Explanation in Table 4.4-2 states: "No nesting Swainson's hawks were observed during pre-project surveys within 5 miles of the project. There were no Swainson's hawks known to occur within 5 miles of the project site within the past 5 years. Although the project site could serve as foraging habitat for Swainson's hawks, there is no evidence that Swainson's hawks are present within 5 miles of the project or use the project as nesting or foraging habitat."

The Map below shows the project site:



14-B

This Map was made from publicly available spatial data on SWHA nests from CDFW, 2017 which shows 5-mile radius in blue around 3 Swainson's hawk nests that are recorded as active – one in 2015 and two in 2016 – within 5 miles of the project site, which is marked.



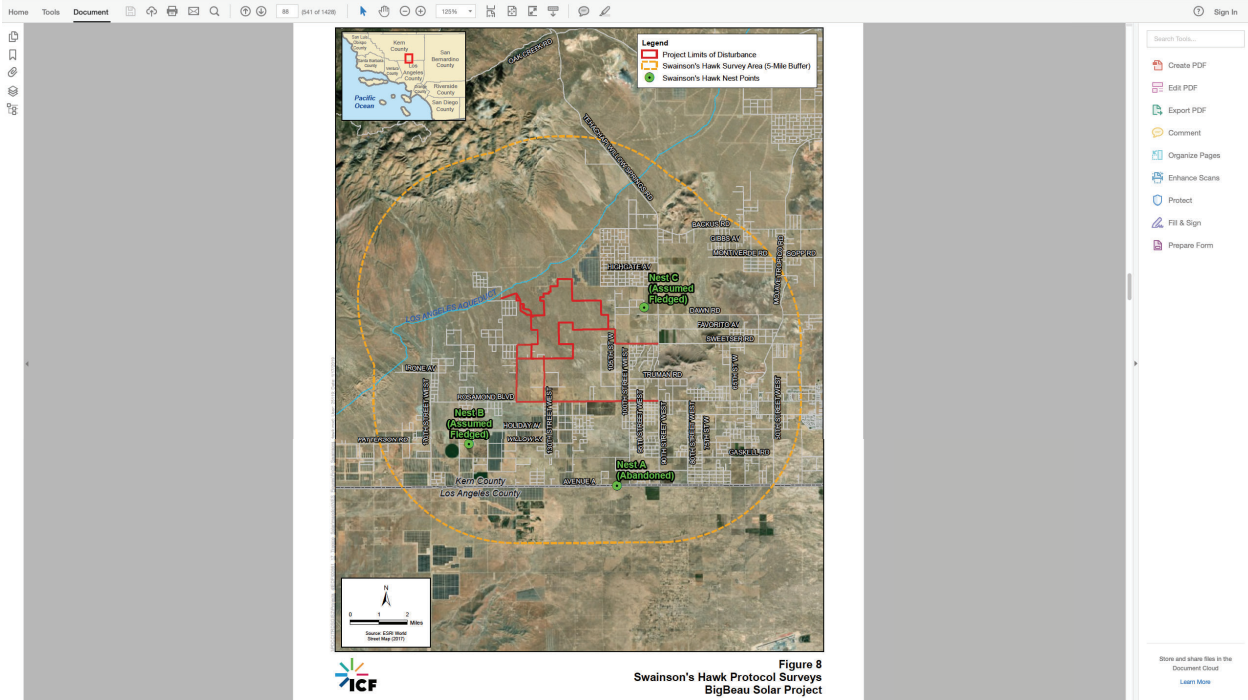
14-B

Additionally, the just released DEIR for Big Beau Solar Project documents three nests in the same area as the Apollo Solar project which Lead Agency also fails to report.

Based on the protocol surveys conducted within 5 miles of the project limits of disturbance, it was determined that Swainson's hawk made three nesting attempts in both 2018 and 2019 within the 5-mile survey area of the project site. All three of the nests were located in large trees adjacent to agricultural fields and were outside of the project limits of disturbance, ranging from 1.3 miles to 4.8 miles from the project site. The nests were located in a lone pine tree on the south side of Avenue A between 100th Street and 110th Street, in a row of Chinese elm trees on the northern edge of active agricultural field along Willow Avenue between 150th Street and 157th Street, and in a tamarisk windrow on the western edge of a large, circular agricultural field to the west of Tehachapi Willow Springs Road between McConnell Avenue and Dawn Road). In 2018, one of the attempts was in the same tree as an active common raven nest and was ultimately abandoned. Based on biologist's observations of the two remaining nests, it is assumed that both nests went to completion and that at least three young fledged from these nests. In 2019, construction of one of the nests was abandoned and one of the nests failed. Two to three young were observed in the third nest, and based on the biologist's observations, it is assumed that the nest went to completion and that the young successfully fledged. (County of Kern, Big Beau Solar Project DEIR, p. 4.4-9, 2020)

14-C

The Map included in the DEIR for Big Beau Solar, Appendices, ICF, Figure 8 p is below showing nests discovered by Protocol Level Surveys that may overlap with 5 mile boundary around Apollo Solar project:



2. The DEIR is deficient in analyzing the potentially significant impacts of loss of foraging habitat caused by the Project and fails to analyze the significant cumulative impacts of the loss of foraging habitat from the Project in addition to all of the current and future solar projects in the Antelope Valley.

Potentially significant impacts may result from activities that cause nest abandonment, loss of nest trees, loss of foraging habitat that would reduce nesting success (loss or reduced health or vigor of eggs or young), or direct mortality. Due to the Swainson's hawk's known preference for areas of low vegetation that support abundant prey, such as grasslands or alfalfa fields (Bechard 1982, Babcock 1995), the Department considers conversion of foraging areas to renewable energy power plant facility sites to be habitat loss. For example, solar panel arrays are expected to eliminate most or all foraging potential. Significant habitat loss may result from individual projects and cumulatively, from multiple projects. Each project which contributes to a significant cumulative effect must offset its contribution to that effect in order to determine that the cumulative impacts have been avoided. (Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California, State of California, California Energy Commission and Department of Fish and Game, June, 2010, p. 2 and attached herein)

The cumulative impacts on Swainson's hawk foraging habitat must be analyzed in the DEIR and disclosed for public comment. Because the DEIR does not include accurate or current or historic nesting data near the project (or within five miles of the project boundaries) and it does not

acknowledge or analyze the value of the site as foraging habitat, the cumulative impacts analysis is also substantially flawed and must be redone.

CEQA requires that an EIR evaluate a project's cumulative impacts. Cumulative impacts are the project's impacts combined with the impacts of other related past, present, and reasonably foreseeable future projects. As set forth in the *CEQA Guidelines*, the discussion of cumulative impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. As stated in CEQA, Title 14, Section 21083(b), "a project may have a significant effect on the environment if the possible effects of a project are individually limited but cumulatively considerable."

According to the *CEQA Guidelines*:

"Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable and which compound or increase other environmental impacts.

(a) The individual effects may be changes resulting from a single project or a number of separate projects.

(b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time" (California Code of Regulations [CCR], Title 14, Division 6, Chapter 3, Section 15355).

In addition, as stated in *CEQA Guidelines*, it should be noted that:

"The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the project's incremental effects are cumulatively considerable" (CCR, Title 14, Division 6, Chapter 3, Section 15064[h][5]).

Lead Agency must withdraw the deficient DEIR and prepare a new one for circulation to the public for comment that contains accurate data and analysis of the impacts of the project on Swainson's hawk, a California threatened species.

Sincerely,

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Jeff Aardahl
Defenders of Wildlife
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cc: Lisa Gymer, California Department of Fish & Wildlife
Annee Ferranti, California Department of Fish & Wildlife
Babak Naficy, Esq.

14-D

Response to Comment Letter 14: National Audubon Society and Defenders of Wildlife (February 6, 2020)

14-A: Thank you for your comments. The participation of the National Audubon Society and California Defenders of Wildlife in the public review of this document is appreciated.

The commenter provides background information about Audubon and Defenders of Wildlife and support for clean energy. The comment has been noted for the record and will be provided to the Kern County Planning Commission and Board of Supervisors for consideration.

14-B: The commenter asserts that the DEIR is deficient as it provides inaccurate data and conclusions regarding the impact of the project on the State-threatened Swainson's hawk. The commenter asserts that the data provided in the DEIR by the Lead Agency conflicts with the publicly available data. The commenter also provided information of active nests found near the project site that was not available at the time of the biological investigations for the project. The new information provided includes multiple sightings of Swainson's hawks in the project vicinity, and one active nest within 5 miles of the project. That active nest, identified as nest C, was located on Dawn Road approximately 2 miles from the project site, in a tamarisk windrow on the western edge of a large, circular agricultural field. Nest C was active in 2018. That nest (nest C) was examined during the biological surveys for the project, and it was not active at the time of those surveys. The commenter's assertion that CDFW data show two additional active nests within five miles of the project is incorrect. The nest identified as Nest A in the BigBeau EIR is located approximately 6 miles to the southwest of the project and Nest B is located approximately 7 miles to the southwest of the project.

The presence of nest C, which is approximately 2-miles from the project site, does not invalidate the 2017 AV Apollo studies nor does it change the evaluation of the potential effects of the AV Apollo solar project on Swainson's hawks. As explained in the Draft EIR, the project will occupy only up to 493.5 acres of Mojave scrub habitat scattered with Joshua Trees. See Draft EIR pages 1-5, 4.1-3 to 4.1-4, 4.4-4. As discussed in the Response to Comment 14-D, the project site provides potential foraging habitat, but there is no evidence that Swainson's hawk actively use the project site for foraging. Swainson's hawk. Swainson's hawks prefer to forage in grasslands, irrigated pasture, alfalfa, fallow fields, and row crops but may also forage in Joshua Tree Woodlands and other desert scrub habitats that support a suitable prey base (CDFW 2010). Although the AV Apollo project site contains potential foraging habitat there is more suitable foraging habitat in agricultural fields to the south, and there is no evidence of Swainson's hawks foraging on the AV Apollo project sites. Similarly, although there is potential nesting habitat (in Joshua Trees) occurring on the AV Apollo project site, there is more suitable nesting habitat occurring to the south of the site at locations where potential nest trees exist near agricultural fields. As explained in more detail in the Response to Comment 14-C, Swainson's hawk have tended to nest around agricultural areas in the Antelope Valley. Thus, although Swainson's hawks occur in the area and the project site may contain limited nesting habitat for Swainson's hawks in onsite Joshua trees, it is unlikely that this species would nest at or in the vicinity of the project site.

In any event, it is unlikely that a nesting pair occupying nest C, which is approximately 2-miles south of the project site, or another nest within five miles of the project site would be affected by construction activities. Potential impacts would be further reduced through implementation of

Mitigation Measures MM 4.4-2 through MM 4.4-3, MM 4.4-5 through MM4.4-9, and MM 4.4-12 through 4.4-13.

The Final EIR will modify MM 4.4-12 to include a pre-construction survey for active Swainson's hawk nests within 0.5-miles of the project site, as detailed, below. By implementing the modified mitigation measure, the project's impacts to Swainson's hawks nesting within 5-miles of the project site would be less than significant.

MM 4.4-12: To mitigate for potential impacts to nesting birds, special-status birds, and birds protected under the Migratory Bird Treaty Act and California Fish and Game Code during construction and decommissioning activities, the following measures shall be implemented as part of the approval for a grading or building permit.

5. During the avian nesting season (February 1 – August 31), a qualified biologist shall conduct a preconstruction avian nesting survey no more than 7 days prior to initial vegetation clearing. Surveys need not be conducted for the entire project site at one time; they may be phased so that surveys occur within 7 days prior to clearing or disturbance in specific areas of the site. The surveying biologist must be qualified to determine the species, status, and nesting stage without causing intrusive disturbance. At no time shall the biologist be allowed to handle the nest or its eggs. The survey shall cover all reasonably potential nesting locations on and within 500 feet of the project site (0.5 miles for Swainson's hawk), including ground nesting where species, such as California horned lark and killdeer might nest all shrubs that could support nests, and suitable raptor nest sites such as nearby trees, windrows and power poles. Swainson's hawk surveys will be conducted according to the Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California (CDFW, 2010). Access shall be granted on private offsite properties prior to conducting surveys on private land. If access is not obtainable, the biologist shall survey these areas from the nearest vantage point with use of spotting scopes or binoculars.
6. If construction is scheduled to occur during the non-nesting season (September 1 through February 1), no preconstruction surveys or additional measures are required for non-listed avian species.
7. If construction begins in the non-nesting season and proceeds continuously into the nesting season within any particular construction or decommissioning area, no surveys are required for non-listed avian species so long as all suitable nesting sites have been cleared from active construction/decommissioning areas.
8. If active nests are found, a 300-foot no-disturbance buffer shall be created around passerine species' nests unless adjusted by the qualified biologist based on the needs and sensitivities of individual

species, and a 500-foot no-disturbance buffer around raptor species' nests (or a suitable distance otherwise determined in conferral with California Department of Fish and Wildlife). Any nest of a federal- or State-listed bird species shall require consultation with the appropriate agency (U.S. Fish and Wildlife Service or the California Department of Fish and Wildlife) to determine the appropriate buffer distance surrounding the nest to provide adequate nest protection. These buffers shall remain in effect until a qualified wildlife biologist has determined that the birds have fledged or the proposed project component(s) have been redesigned to avoid the area. All no-disturbance buffers shall be delineated in the field with visible flagging or fencing material.

The Lead Agency also notes that the Draft EIR conservatively concludes that despite the project's minimal impacts on Swainson's hawk, it would nevertheless make a cumulatively considerable contribution to a significant cumulative impact with respect to loss of foraging and nesting habitat for special-status species, of which Swainson's hawk is one. Draft EIR page 4.4-56.

The Final EIR has been updated to clarify the project's impacts on Swainson's hawk in response to this comment. While these modifications add clarity to the EIR, they do not reflect a new or substantially increased significant impact or otherwise trigger recirculation under CEQA Guidelines Section 15088.5.

- 14-C:** The commenter claims that the recently released draft environmental impact report for the BigBeau Solar project and protocol-level studies referenced therein support the commenter's assertions with respect to Swainson's hawk nesting within 5 miles of the project site in Comment 14-B.

Please see the Response to Comment 14-B for a discussion of Swainson's hawk nesting near the project site. As the commenter notes, the BigBeau Draft EIR describes protocol-level studies prepared for that project. The BigBeau project is located approximately 3 miles southwest of the project site, and is situated on habitat similar to the project site. There were three nests identified within five miles of the BigBeau Solar project site. The BigBeau Draft EIR describes one active Swainson's hawk nest that is within approximately 2 miles of the AV Apollo project: There were 2 other nests (one active with fledged young and one abandoned) that occurred greater than 5 miles from the AV Apollo project site. One of these nests was in a lone pine tree on the south side of Avenue A between 100th Street and 110th Street; and the other nest was in a row of Chinese elm trees on the northern edge of active agricultural field along Willow Avenue between 150th Street and 157th Street. Only one nest was within five miles of the AV Apollo project site; it is discussed in the Response to Comment 14-B.

The BigBeau Draft EIR also explains that during 2018 field surveys for the BigBeau project, "a single Swainson's hawk was observed south of the project site on a fence of another solar project under construction on former agricultural fields. During the same time, other Swainson's hawks were detected foraging in nearby agricultural fields to the east of the project site where the land was being graded. In both instances, the Swainson's hawks appeared to be taking advantage of the displaced rodents from the ground disturbance. All observations were during the time when Swainson's hawk were moving through the area; no Swainson's hawk were observed near the project site in 2019."

In short, the BigBeau Draft EIR and the reports described therein underscore that to the extent this species can be found in the Antelope Valley at all, Swainson's hawks in this area prefer to nest near and forage in high quality foraging habitat such as open agricultural fields—not areas dominated by bush scrub. As a result, the BigBeau Draft EIR supports the project EIR's findings that Swainson's hawk are unlikely to use the project site for foraging or nesting. Thus, while the Final EIR has been updated to note the findings in the BigBeau Draft EIR, these modifications add clarity to the EIR but do not reflect a new or substantially increased significant impact or otherwise trigger recirculation under CEQA Guidelines Section 15088.5.

- 14-D:** The commenter asserts that the DEIR is deficient in analyzing the potentially significant impacts of loss of foraging habitat caused by the project and fails to analyze the significant cumulative impacts of the loss of foraging habitat from the project in addition to all current and future projects in the Antelope Valley. Specifically, the commenter claims that this analysis is deficient because the Draft EIR does not include current or historic nesting data for Swainson's hawks and does not acknowledge or analyze the value of the project site as foraging habitat.

See the Response to Comment 14-B. As discussed there, the Final EIR includes updated nesting data for Swainson's hawks that were not available at the time the Draft EIR was prepared. See also the Response to Comment 14-C, which discusses Swainson's hawk nesting and foraging near the project site.

With respect to the project site's value as foraging habitat, the Draft EIR makes clear that the project will occupy up to 493.5 acres of Mojave scrub habitat scattered with Joshua Trees. See Draft EIR p. 1-5, 4.1-3 to 4.1-4, 4.4-4. This habitat is less optimal for foraging SWHA's than nearby agricultural areas. The scrub bushes onsite are dense and Swainson's hawks in the Antelope Valley generally prefer to forage within open agricultural areas, which reduces the likelihood of Swainson's hawk foraging on the project site. There is no evidence that the site is actively used for foraging by that species, or that the loss of that potential habitat would result in nest abandonment, loss of nest trees, reduced nesting success, or result in direct mortality to individuals. There is no evidence that suggests that the loss of potential foraging habitat would result in a significant impact to any nesting Swainson's hawks that might be active near the project site. There have been no observations of Swainson's hawks overflying the project site. All observations of Swainson's hawks in the area were south and west of the project site, indicating that migratory corridors, nesting, and even foraging are not focused on the project site. Swainson's hawks are known to forage up to 10-miles from an active nest, encompassing an area of 201,056 acres. The loss of 493.5 acres of less than optimal habitat within this expansive area would not constitute a significant impact even if it was proven that the site is routinely used for foraging by Swainson's hawks. The Final EIR has been updated to clarify the project's impacts on Swainson's hawk in response to this comment. While these modifications add clarity to the EIR, they do not reflect a new or substantially increased significant impact or otherwise trigger recirculation under CEQA Guidelines Section 15088.5.

The Lead Agency also notes that the Draft EIR conservatively concludes that despite the project's minimal impacts on Swainson's hawk, it would nevertheless make a cumulatively considerable contribution to a significant cumulative impact with respect to loss of foraging and nesting habitat for special-status species. Draft EIR pages 4.4-55, 4.4-56.

Finally, the commenter states that the Lead Agency must prepare and recirculate a new Draft EIR. As explained in the Responses to Comments 14-A through C, where the Final EIR has been modified in response to comments, it has been only to make minor changes or to add clarification. Recirculation is not required under CEQA Guidelines Section 15088.5, which the commenter does not address.

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March 20, 2020

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Re: **Comments on AV Apollo Solar Project Draft Environmental
Impact Report (SCH No. 2017081038)**

Dear Ms. Oviatt, Mr. Murphy, and Mr. Cates:

We are writing on behalf of Citizens for Responsible Solar to provide comments on the Draft Environmental Impact Report ("DEIR") prepared by Kern County ("County") for the AV Apollo Solar Project ("Project"), State Clearinghouse Number 2017081038. The Project, proposed by Sunbow Solar I LLC, Syracuse Solar LLC, and Tours Solar LLC ("Applicant"), would include the construction and operation of a solar photovoltaic ("PV") power generating facility and associated facilities that would generate a combined total of approximately 60 megawatts ("MW") of renewable electrical energy and/or energy storage capacity on approximately 493.5 acres of private land in unincorporated Kern County. The Project site is located approximately nine miles southwest of the unincorporated community of Mojave and approximately eight miles northwest of the unincorporated community of Rosamond.

15-A

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The Applicant is seeking (a) three Conditional Use Permits to allow for the construction and operation of three 20 MW solar PV facilities; (b) one Conditional Use Permit to allow for the construction and operation of a communication tower on the Syracuse Site; and (c) an Amendment to the Circulation Element of the Kern County General Plan to eliminate future road reservation along the east-west mid-section line in Section 19 in Zone Map 214. The project's permanent facilities would include service roads, a communication tower, communication cables, overhead and underground transmission lines, an electrical switching station, project substations, operations and maintenance facilities, and gen-tie lines.

15-A

Based on our review of the DEIR, appendices, and other relevant records, we have determined that the DEIR fails to meet the requirements of the California Environmental Quality Act ("CEQA"). Specifically, the DEIR suffers from the following deficiencies:

- Failure to properly establish the environmental setting for and adequately disclose, analyze and mitigate the Project's impacts on biological resources;
- Failure to adequately disclose, analyze, and mitigate the Project's impacts on air quality and public health;
- Failure to disclose, analyze, and mitigate potentially significant impacts on climate change from greenhouse gas emissions; and
- Failure to adequately disclose, analyze, and mitigate impacts from Valley Fever on public health.

15-B

For each of these reasons, the County must revise and recirculate the DEIR in order to properly disclose, analyze, and mitigate the Project's significant impacts. The County cannot certify the EIR or approve the project until a revised draft EIR addresses these issues.

These comments were prepared with the assistance of conservation biologist Renee Owens and air quality experts Matt Hagemann and Paul E. Rosenfeld of Soil/Water/Air Protection Enterprise ("SWAPE"). Ms. Owens' comments and curricula vitae are attached to this letter as **Exhibit A**.¹ SWAPE's technical

15-C

¹ **Exhibit A** – Letter from Renee Owens regarding technical comments on the draft environmental impact report for the AV Apollo Solar Project, dated March 17, 2020 ("**Owens Comments**").
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comments and curriculum vitae are attached to this letter as **Exhibit B**.² Exhibits 1 and 2 are fully incorporated herein and submitted to the County herewith. Therefore, the County must separately respond to the technical comments of SWAPE and Ms. Owens in addition to our comments.

15-C

I. STATEMENT OF INTEREST

Citizens for Responsible Solar (“Citizens”) is an unincorporated association of individuals and labor organizations that may be adversely affected by the potential public and worker health and safety hazards and environmental and public service impacts of the Project. The association includes Rosamond residents Gaston Moore, Diego Rabago, Kevin Herrera and California Unions for Reliable Energy (“CURE”) and its member labor organizations, and their members and families, and other individuals that live and/or work in the unincorporated town of Rosamond and Kern County.

The individual members of Citizens and the members of the affiliated labor organizations live, work, recreate and raise their families in Kern County, including the community of Rosamond. They would be directly affected by the Project’s environmental and health and safety impacts. Individual members may also work constructing the Project itself. They will be first in line to be exposed to any health and safety hazards that may be present on the Project site. They each have a personal interest in protecting the Project area from unnecessary, adverse environmental and public health impacts.

15-D

The organizational members of the Citizens also have an interest in enforcing environmental laws that encourage sustainable development and ensure a safe working environment for the members that they represent. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for businesses to locate and people to live there. This, in turn, jeopardizes future development by causing construction moratoriums and otherwise reduces future employment opportunities for construction workers. The labor organization members of the Citizens therefore have a direct interest in enforcing environmental laws to minimize the adverse impacts of projects that would otherwise degrade the environment.

² **Exhibit B** – Letter from SWAPE regarding technical comments on the draft environmental impact report for the AV Apollo Solar Project, dated February 27, 2020 (“**SWAPE Comments**”).

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Finally, the organizational members of the Citizens are concerned about projects that risk serious environmental harm without providing countervailing economic benefits. CEQA provides a balancing process whereby economic benefits are weighed against significant impacts to the environment and it is in this spirit that we offer these comments.

15-D

II. LEGAL BACKGROUND

CEQA requires that an agency analyze the potential environmental impacts of its proposed actions in an EIR, except in limited circumstances.³ The EIR is the very heart of CEQA.⁴ “The foremost principle in interpreting CEQA is that the Legislature intended the act to be read so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language.”⁵

CEQA has two primary purposes. First, CEQA is designed to inform decisionmakers and the public about the potential, significant environmental effects of a project.^{6, 7} CEQA’s purpose is to inform the public and its responsible officials of the environmental consequences of their decisions before they are made. In this respect, an EIR “protects not only the environment but also informed self-government.”⁸ The EIR has been described as “an environmental ‘alarm bell’ whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return.”

15-E

To fulfill this function, the discussion of impacts in an EIR must be detailed, complete, and “reflect a good faith effort at full disclosure.”⁹ CEQA requires an EIR to disclose all potential direct and indirect, significant environmental impacts of a project.¹⁰ In addition, an adequate EIR must contain the facts and analysis necessary to support its conclusions.¹¹

³ See, e.g., Pub. Res. Code § 21100.

⁴ *Dunn-Edwards v. BAAQMD* (1992) 9 Cal.App.4th 644, 652.

⁵ *Communities for a Better Env’t v. Cal. Res. Agency* (2002) 103 Cal. App.4th 98, 109.

⁶ 14 Cal. Code Regs. (“**CEQA Guidelines**”), § 15002, subd. (a)(1).

⁷ See, e.g., Pub. Resources Code § 21100.

⁸ *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564.

⁹ CEQA Guidelines § 15151; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 721-722.

¹⁰ Pub. Resources Code § 21100, subd. (b)(1); CEQA Guidelines § 15126.2, subd. (a).

¹¹ See *Citizens of Goleta Valley* 52 Cal.3d at 568.

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The second purpose of CEQA is to require public agencies to avoid or reduce environmental damage when possible by requiring appropriate mitigation measures and through the consideration of environmentally superior alternatives.¹² The EIR serves to provide agencies and the public with information about the environmental impacts of a proposed project and to “identify ways that environmental damage can be avoided or significantly reduced.” To that end, if an EIR identifies significant impacts, it must then propose and evaluate mitigation measures to minimize these impacts.¹³ CEQA imposes an affirmative obligation on agencies to avoid or reduce environmental harm by adopting feasible project alternatives or mitigation measures.¹⁴ Without an adequate analysis and description of feasible mitigation measures, it would be impossible for agencies relying upon the EIR to meet this obligation.

15-F

While the courts review an EIR using an “abuse of discretion” standard, “the reviewing court is not to ‘uncritically rely on every study or analysis presented by a project proponent in support of its position. A clearly inadequate or unsupported study is entitled to no judicial deference.’”¹⁵ As the courts have explained, “a prejudicial abuse of discretion” occurs “if the failure to include relevant information precludes informed decision-making and informed public participation, thereby thwarting the statutory goals of the EIR process.”¹⁶

III. THE DEIR FAILS TO ADEQUATELY DISCLOSE, ANALYZE, AND MITIGATE SIGNIFICANT IMPACTS

An EIR must fully disclose all potentially significant impacts of a project. The lead agency’s significance determination with regard to each impact must be supported by accurate scientific and factual data.¹⁷ An agency cannot conclude that an impact is less than significant unless it produces rigorous analysis and

15-G

¹² CEQA Guidelines § 15002, subds. (a)(2)-(3); see also, *Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners* (2001) 91 Cal.App.4th 1344, 1354; *Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 564; *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 391, 400.

¹³ Pub. Res. Code §§ 21002.1, subd. (a), 21100, subd. (b)(3).

¹⁴ Pub. Res. Code §§ 21002-21002.1.

¹⁵ *Berkeley Jets*, 91 Cal. App. 4th 1344, 1355 (emphasis added), quoting, *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 391 409, fn. 12.

¹⁶ *Berkeley Jets*, 91 Cal.App.4th at 1355; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 722; *Galante Vineyards v. Monterey Peninsula Water Management Dist.* (1997) 60 Cal.App.4th 1109, 1117; *County of Amador v. El Dorado County Water Agency* (1999) 76 Cal.App.4th 931, 946.

¹⁷ CEQA Guidelines § 15064(b).

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substantial evidence justifying the finding.¹⁸ Finally, the agency cannot approve the project with significant impacts unless it has “eliminated or substantially lessened all significant effects on the environment where feasible.”¹⁹ As such, an EIR must identify and describe any feasible measures that can be implemented to reduce or avoid each potentially significant environmental effects of the project.

The DEIR does not comply with CEQA because it fails to consider all of the Project’s significant and foreseeable environmental impacts on biological resources, air quality, public health, and climate change. In some instances, the DEIR’s conclusions on the Project’s impacts are not supported by substantial evidence. The DEIR also fails to adequately mitigate significant impacts to less than significant. For these reasons, the County must revise the DEIR to remedy these deficiencies and recirculate the revised DEIR for public review and comment.

15-G

A. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Impacts on Biological Resources

According to the DEIR, the Project area is located in the western edge of the Antelope Valley in the Mojave Desert and consists largely of undeveloped lands, sparse residential dwellings, and dirt roads.²⁰ The Mojave Desert supports a variety of reptile, bird, and mammal species and vegetation in the Project region is influenced by climate, topography, and soils, as well as past land uses.²¹ The Project site consists mostly of native, undisturbed habitat.²² The DEIR also states that the overall minimal development in the western Mojave Desert allows opportunities for wildlife movement between the desert areas and the Sierra Nevada Mountains to the west. Consequently, the region facilitates wildlife movement, with the foothills and canyons surrounding the project area providing wildlife movement corridors for small to large mammal species and other terrestrial vertebrates.²³

15-H

Although the DEIR notes that the Project and surrounding region contain a diverse array of vegetation and wildlife, it fails to properly address impacts to these biological resources. As explained below, the DEIR violates CEQA because it: (1) fails to properly determine the presence of several special-status species and, thus, fails to accurately describe the environmental setting of the Project area; and (2)

¹⁸ *Kings Cty. Farm Bur. v. Hanford* (1990) 221 Cal.App.3d 692, 732.

¹⁹ CEQA Guidelines § 15092(b)(2)(A).

²⁰ DEIR, p. 3-5.

²¹ DEIR, p. 4-4.2

²² DEIR, p. 4-4.4.

²³ DEIR, p. 4-4.3

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fails to adequately disclose, analyze and mitigate the Project's impacts on numerous biological resources.²⁴ The DEIR must be revised to correct these deficiencies.

↑ 15-H

1. The DEIR Fails to Adequately Describe the Environmental Setting for Biological Resources

The existing environmental setting is the starting point from which the lead agency must measure whether a proposed Project may cause a significant environmental impact.²⁵ Describing the environmental setting accurately and completely for each environmental condition in the vicinity of the Project is critical to an accurate and meaningful evaluation of environmental impacts. The courts are clear that “[b]efore the impacts of a Project can be assessed, and mitigation measures considered, an [EIR] must describe the existing environment. It is only against this baseline that any significant environmental effects can be determined.”²⁶

An EIR must describe the existing environmental setting in sufficient detail to enable a proper analysis of project impacts.²⁷ The CEQA Guidelines provide that “[k]nowledge of the regional setting is critical to the assessment of environmental impacts.”²⁸ This level of detail is necessary to “permit the significant effects of the project to be considered in the full environmental context.”²⁹ The environmental setting is especially critical to forming the baseline conditions that inform the potential for significant impacts on biological resources.

15-I

The DEIR fails to properly describe the environmental setting for several special-status species in the vicinity of the Project. Specifically, the DEIR evaluated the likelihood of various species' presence onsite based simply upon database queries, various literature, and reconnaissance surveys. As Ms. Owens' comments explain, and as discussed in more detail below, the DEIR's reliance on these sources does not provide substantial evidence to support the DEIR's findings that these special-status species are “absent” or unlikely to occur in the vicinity of the Project site. In addition, substantial evidence exists to demonstrate that certain special-

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²⁴ See Owens Comments.

²⁵ See, e.g., *Communities for a Better Env't v. S. Coast Air Quality Mgmt. Dist.* (2010) 48 Cal.4th 310, 316; *Fat v. City of Sacramento* (2002) 97 Cal.App.4th 1270, 1278, citing Remy, et al.; Guide to the Calif. Environmental Quality Act (1999) p. 165.

²⁶ *City of Amador v. El Dorado City Water Agency* (1999) 76 Cal.App.4th 931, 952.

²⁷ CEQA Guidelines § 15125; *Galante Vineyards v. Monterey Peninsula Water Mgmt. Dist.* (1997) 60 Cal.App.4th 1109, 1121-22.

²⁸ CEQA Guidelines § 15125(c).

²⁹ *Id.*

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status species are present in the project vicinity and the DEIR must analyze and mitigate project impacts on these species.

Ms. Owens explains that, while databases and reports are standard for gathering information on a site, they cannot replace focused or protocol surveys to determine the presence, status, or scope of a particular species at a project site.³⁰ As explained below, the significance of utilizing a focused survey lies in its inherent practice of studying a specific species with the undivided attention it requires. For example, studies of Mojave Desert species show that the presence, abundance and density of species are highly variable year to year depending on drought, disturbances from other large scale projects, and related ecosystem functions, such as prey-predator cycles, gene flow, and response to herbivory.³¹ This underscores the importance of project-wide focused surveys, which can effectively evaluate these variables, and the limitations of databases and dated reports that do not provide actual and real observations for a particular Project site.

15-I

The DEIR makes little attempt to use focused surveys to determine the most current site-specific status of special-status species and instead relies on general habitat assessments and databases with limited information. For example, the DEIR relies on the California Natural Diversity Database (“CNDDDB”) to make impact determinations at the population level, but as Ms. Owens highlights, the CNDDDB is limited in its ability to predict species currently present at any given locale and reveals little detail related to populations as a whole.³² For example, the CNDDDB’s reported occurrences for most birds are associated with evidence of nesting and not from observations of flyovers or foraging.³³ Ms. Owens also explains that the CNDDDB is limited because it represents summaries of species occurrences rather than individual detections and the records are from voluntary reporting where some areas may have been surveyed at a greater extent than others.³⁴ Additionally, many species sightings are not actually reported on the public CNDDDB.³⁵ Similarly, the California Native Plant Society’s Inventory of Rare and Endangered Species (“CNPS”), which the DEIR also relies on, acknowledges that species not recorded in a given area may nonetheless be present, that species may be present in other areas where conditions are favorable, and that the data should

15-J

³⁰ Owens Comments, p. 8.

³¹ Owens Comments, p. 9.

³² Owens Comments, p. 10.

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

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not be substituted for pre-project review or for on-site surveys.³⁶ Ms. Owens further notes that databases such as the CNDDDB and CNPS, though important for determining the existence of habitats for species, cannot be used to determine how many, when, where, and in what density individuals of a species may be present, the status of breeding and nesting, life stages, and other details necessary for an accurate impact assessment.³⁷ Databases and historic records also cannot provide appropriate details, criteria, and performance standards for developing mitigation measures.³⁸

15-J

The DEIR also fails to consider widely accepted considerations for studying the presence of species. For example, the DEIR does not recognize that, while species may occur onsite to breed, forage, or roost due to appropriate habitat existing onsite, a species can also be present via migration through the Project area, which will not necessarily present itself through an existing habitat onsite.³⁹ Additionally, the DEIR fails to acknowledge that rare species that require more protection tend to occur in lower densities and lower occurrences on average and therefore make it more difficult to be observed onsite unless a focused or protocol survey specific to that species is conducted.⁴⁰ The DEIR cannot make determinations based on databases that do not account for these considerations. The DEIR must be revised to include focused and protocol surveys that properly reflect the existing setting of the Project's biological resources.

15-K

As described in more detail below, the DEIR incorrectly analyzes the presence of various potentially occurring special-status species by determining these species as absent or as having a low potential for occurrence on the Project site, concluding therefore that impacts would be less than significant. However, Ms. Owens' review of focused surveys from nearby projects, databases, and scientific literature reveals that these species are present in the Project vicinity. As such, substantial evidence exists to demonstrate that these species are present in the vicinity of the Project and the DEIR must adequately identify and analyze impacts to these species. At the very least, surveys must be properly conducted to determine the presence of the following species.

15-L

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ Owens Comments, p. 2.

⁴⁰ Owens Comments, p. 9.

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1) Tricolored blackbird

The DEIR incorrectly categorizes the tricolored blackbird's conservation status as a Species of Special Concern ("SSC"), rather than the correct status of Threatened under the California Endangered Species Act ("CESA").⁴¹ Unlike SSC status, a Threatened species under CESA is likely to become an Endangered species in the foreseeable future in the absence of special protection.⁴² The DEIR concludes that the habitat for this species is absent and therefore the species is unlikely to be present.⁴³ Ms. Owens determined that this conclusion is incorrect, especially since the CNDDb and the U.S. Fish and Wildlife Service ("USFWS"), have recognized this species as a year-round resident to the Project region.⁴⁴ Also, other sources have additionally confirmed this species' presence near the Project vicinity. First, the eBird database reported the presence of these birds at a birding hotspot 0.6 miles south of the Project site.⁴⁵ Second, the species was detected according to the EIR for the Catalina Renewable Energy Project's ("Catalina EIR"), which is only one mile west of the Project. Notably, the Catalina EIR determined the presence of the tricolored blackbird based on "literature review, agency coordination, consultation with experts, and detailed field surveys."⁴⁶

15-M

2) Golden Eagle

Although the DEIR admits to the existence of foraging habitat and that golden eagles could occur as a transient and/or forager onsite, the DEIR concludes that the golden eagle has a low likelihood to occur onsite.⁴⁷ As a result, the DEIR avoids analyzing impacts to or proposing mitigation measures for the golden eagle. Ms. Owens' review of the focused surveys conducted for the Catalina EIR and Manzana Wind Project EIR ("Manzana EIR"), both of which are in proximity to the Project site, revealed that golden eagles were detected and in fact present on those project sites.⁴⁸ The United States Geological Survey's ("USGS") research also observed a golden eagle 6.4 miles from the Project and potential nesting habitat less than half a mile away.⁴⁹ eBird observations from 2016 also reported four sightings of golden eagles 1.2 miles from the nearby USGS reported nest site.⁵⁰

15-N

⁴¹ Owens Comments, p. 11; 14 Cal. Code of Reg. § 670.5(b)(5)(H).

⁴² Fish & G. Code § 2067.

⁴³ DEIR, p. 4.4-14.

⁴⁴ Owens Comments, p. 11.

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ DEIR, p. 4.4-18.

⁴⁸ Owens Comments, pp. 14-15.

⁴⁹ Owens Comments, pp. 15.

⁵⁰ Owens Comments, pp. 16.

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Because of their presence in the Project vicinity, the DEIR must be revised to analyze the Project's impacts on the golden eagles and determine feasible mitigation measures to avoid or reduce those impacts. Impacts from solar projects, such as this one, are especially concerning for golden eagles. The scientific community has recognized the population decline and threat to the species, due in part to an increase in renewable energy development. The USGS has responded to this threat with a Golden Eagle Monitoring Plan, which evaluates the impacts of renewable energy development on Golden eagles in the Mojave desert, including loss of foraging habitat and mortality, and provides recommendations for avoiding and minimizing disturbance on golden eagle populations.⁵¹ The Golden Eagle Monitoring Plan notes that "infrastructure associated with wind and solar energy projects, especially roads and power lines, can be a **significant cause of mortality in golden eagles through collisions or electrocutions**."⁵² It goes on to say that solar development contributes to a decrease in available foraging habitat and prey abundance, increased fragmentation of foraging habitats, and a change in predator abundance.⁵³

15-O

The Golden Eagle Monitoring Plan also recommends protocols such as first assessing all existing recent and historical background data available on eagles (including nests, reproductive activity and chronologies, data from VHF and satellite telemetry, natal dispersal, migration corridors, and foraging habitats).⁵⁴ This data can alert project proponents and regulatory staff about data gaps and existing knowledge of golden eagles for the area.⁵⁵ The background data can also dictate the distance from a project boundary where the survey will occur.⁵⁶ Ms. Owens adds that even a cursory glance of eagle movements around nest sites reveal golden eagles repeatedly flying many miles (up to and beyond 30 miles from a nest site) to forage, necessitating focused surveys that can properly evaluate the foraging habits of golden eagles.⁵⁷

15-P

⁵¹ Owens Comments, pp. 15-16.

⁵² *Id.*

⁵³ *Id.*

⁵⁴ Owens Comments, p. 16.

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ *Id.*

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3) Ferruginous hawk

Although the DEIR did not conduct any raptor surveys and acknowledges that foraging habitat for the Ferruginous hawk exists on the Project site, the DEIR determined that the species would have a low likelihood to occur.⁵⁸ However, Ms. Owens notes that the species was determined to be present in the vicinity of the Project based on the eBird database and surveys conducted for projects near the Project site. First, the eBird database recorded the species within the Project site in 2010.⁵⁹ Second, the Manzana EIR's focused raptor survey reported the species 3 miles from the site.⁶⁰ The Catalina EIR conducted avian surveys over an area that was less than one mile from the Project site, and also detected the Ferruginous hawk as a common migrant.⁶¹ Additionally, the species was detected in surveys for the Willows Springs Solar Array Project ("Willows Springs EIR"), located within 5 miles of the Project.⁶²

15-Q

4) Mountain plover

The DEIR incorrectly concludes that habitat for the Mountain plover is absent onsite and therefore the species is unlikely to be present.⁶³ Ms. Owens states that the species has been known to use desert habitats to forage on and in proximity to agricultural pastures and xeric shrublands.⁶⁴ The mountain plover is also a winter resident in California and its special-status listing applies to birds on their wintering grounds.⁶⁵ As such, wintering mountain plovers frequently occur in fallow, grazed, burned, barren fields, and low density shrublands.⁶⁶ In fact, the Antelope Valley is one of four critical areas for wintering for these species in California.⁶⁷ Additionally, eBird records report that the species was noted less than six miles south of the Project.⁶⁸

15-R

⁵⁸ DEIR, p. 4.4-14.

⁵⁹ Owens Comments, p. 3.

⁶⁰ *Id.*

⁶¹ *Id.*

⁶² *Id.*

⁶³ DEIR, p. 4.4-15.

⁶⁴ Owens Comments, p. 3.

⁶⁵ *Id.*

⁶⁶ Owens Comments, pp. 3-4.

⁶⁷ Owens Comments, p. 4.

⁶⁸ *Id.*

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5) Merlin

The DEIR incorrectly concludes that the merlin has a low potential for occurring despite its acknowledgment that habitat and foraging for the species occurs near the Project site and the species could occur as a migrant or transient forager on the site.⁶⁹ Moreover, surveys conducted for the Catalina EIR detected the species perched on Joshua trees, confirming their presence as a common migrant to the area.⁷⁰ Ms. Owens also notes that the entire Project site has the potential of containing foraging habitat for the species.⁷¹

15-S

6) Peregrine falcon

The DEIR concludes that the Peregrine falcon has a low potential for occurring despite its acknowledgment that suitable habitat for foraging is present on the Project site.⁷² The DEIR makes a conclusory statement that it is uncommon for the species to breed or forage in the Project's area and prefer to do so where water is available. The DEIR provides no evidence or support for this assumption.

15-T

7) Mohave ground squirrel

The DEIR acknowledges that habitat and potential burrows for the Mohave ground squirrel exist onsite.⁷³ The DEIR concludes that no occurrences of the species have been reported within 10 miles of the Project site and that it was not directly observed during surveys. However, the DEIR provides no evidence of what surveys were conducted to determine these observations and did not conduct any focused surveys for rodents.

15-U

8) San Joaquin pocket mouse

The DEIR acknowledges that suitable habitat for the San Joaquin pocket mouse exist onsite but concludes no presence of the species.⁷⁴ The DEIR makes a bare statement that the species was not observed during surveys. However, the DEIR provides no evidence of *what* surveys were conducted to support these observations and in fact, no focused surveys for rodents were conducted.

15-V

⁶⁹ DEIR, p. 4.4-15.

⁷⁰ Owens Comments, p. 4.

⁷¹ *Id.*

⁷² DEIR, p. 4.4-16.

⁷³ DEIR, p. 4.4-18.

⁷⁴ DEIR, Appendix E, p. 11.

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Additionally, Ms. Owens notes that the Catalina EIR's surveys detected the species near the Project site.⁷⁵

↑ 15-V

9) Tehachapi (white-eared) pocket mouse

The DEIR acknowledges that suitable habitat for the Tehachapi pocket mouse exist onsite but states that the species was not observed during surveys and therefore has a low potential to occur onsite.⁷⁶ However, the DEIR provides no evidence of what surveys were conducted to support these observations and did not conduct any focused surveys for rodents. The DEIR's statement that the species has not been observed in more than 50 years only amplifies the special-status of the Tehachapi pocket mouse.

15-W

Ranked as a California Species of Special Concern, the Tehachapi pocket mouse's population is "imperiled" to "critically imperiled."⁷⁷ Ms. Owens notes that a critically imperiled population is one that is extremely rare (often 5 or fewer individuals) or has been affected by factors that make it especially vulnerable to extirpation from the State.⁷⁸ As such, although the species likely has a smaller population, its rarity should not be a determining factor of its presence. Indeed, Ms. Owens review of the CNDDB revealed that the species was detected at two locations approximately one mile northwest of the Project.⁷⁹ The Desert Renewable Conservation Plan ("DRECP") also shows that habitat for the species, characterized as desert scrub, creosote, and non-native grassland, includes areas one mile from the Project.⁸⁰

10) Tulare grasshopper mouse

The DEIR acknowledges that suitable habitat for the Tulare grasshopper mouse exist onsite but concludes the species is unlikely to occur without conducting any focused surveys for rodents.⁸¹ The DEIR notes that Project site is outside the distribution range for this species and, although the CNDDB recorded this mouse north of the Project, surmises that those records are likely for the more common southern grasshopper mouse.⁸²

15-X

⁷⁵ Owens Comments, p. 5.

⁷⁶ DEIR, p. 4.4-18.

⁷⁷ Owens Comments, p. 5.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.*

⁸¹ DEIR, p. 4.4-17.

⁸² *Id.*

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11) Townsend's big-eared bat

The DEIR acknowledges that the Project site can potentially provide foraging habitat for the Townsend's big-eared bat but concludes no presence of the species.⁸³ The DEIR again relies on a bare statement that the species was not observed during surveys. However, the DEIR provides no evidence of what surveys were conducted to support these observations and did not conduct any focused surveys for the entire taxon for the bat species.

15-Y

Ms. Owens notes that the DRECP identified this species, along with other bat species, as having a high likelihood to occur in and around the Project site according to distribution maps.⁸⁴ USGS bat biologists recognize that North American bats face unprecedented threats including habitat loss and fragmentation and that statistically robust and standardized bat monitoring programs can help estimate extinction risk, set conservation priorities and evaluate the effectiveness of those conservation actions.⁸⁵ Research has demonstrated that artificial light, electrical wires, noise, dust, barriers and other negative attractants can increase the risk of mortality and reduce foraging success of bats.⁸⁶ Given the potential for significant impacts specific to bats, the DEIR must conduct an adequate surveys and analysis for bat species' presence onsite, including the Townsend big-eared bat.

15-Z

12) Coast horned lizard

The DEIR claims that the Project site is outside the range of the Coast horned lizard and therefore the species is unlikely to occur onsite.⁸⁷ The DEIR provides no evidence on this bare assertion and failed to conduct any surveys specific to reptile species, aside from the desert tortoise. Moreover, contrary to the DEIR's conclusion, focused surveys from the Catalina EIR determined that the area is indeed within the range for this lizard.⁸⁸

15-A2

Ms. Owens explains that it is widely accepted by the scientific community that reptiles represent a key taxon in desert habitats and are highly sensitive to anthropogenic ground disturbances.⁸⁹ Many are nocturnal, fossorial, or crepuscular,

15-B2

⁸³ *Id.*

⁸⁴ Owens Comments, p. 30.

⁸⁵ *Id.*

⁸⁶ Owens Comments, p. 31.

⁸⁷ DEIR, p. 4.4-13.

⁸⁸ Owens Comments, p. 6.

⁸⁹ Owens Comments, p. 35.

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and often highly secretive, not lending themselves to daytime when non-species specific surveys are conducted.⁹⁰ Ms. Owens notes the countless species occurrences demonstrating that many species of reptiles, while having a habitat preference, are known to occur in a variety of habitats within their known range, including disturbed habitat in the western Mojave desert.⁹¹

In addition, Ms. Owens notes that reptile species can be specifically susceptible to certain characteristics of a solar development project that is distinguishable from other species and thus must be analyzed. For example, lizards are increasingly at risk of direct mortality by vehicles due to the construction of new roads and driveways for accessing solar development sites.⁹² Solar sites can also create fencing and other barriers that trap small species such as reptiles within a construction site and prevent them from accessing necessary shade.⁹³ Additionally, lizards have been observed to directly and immediately attract to roads on and around construction sites when trucks spray water to reduce airborne dust. This increase in moisture levels on the roads attracts lizards and increase their risk for injury and mortality from construction site traffic.⁹⁴ Given the potential for significant impacts specific to lizards and reptiles, the DEIR must conduct a focused survey on reptile presence onsite, including the Coast horned lizard.

15-B2

13) Swainson's hawk

Swainson's hawks are a State threatened species known to nest in Joshua tree woodlands, ornamental roadside trees, and windrow or perimeter trees in active and historical agricultural areas; foraging habitat includes dry land and irrigated pasture, alfalfa, fallow fields, low-growing row or field crops, new orchards, cereal grain crops; grasslands, Joshua tree woodlands and other desert scrub habitats that support a suitable prey base.⁹⁵ The DEIR acknowledges the species is rare in Antelope Valley, though not absent as 10 breeding pairs have been present in the area.⁹⁶ The California Department of Fish and Wildlife ("CDFW") considers conversion of forage areas to renewable energy power plant facility sites to be habitat loss because of the Swainson's hawk's preference for areas of low vegetation that support abundant prey, such as grasslands or alfalfa fields.⁹⁷ The

15-C2

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² Owens Comments, p. 36.

⁹³ *Id.*

⁹⁴ Owens Comments, p. 37.

⁹⁵ DEIR, Appendix E p. 27.

⁹⁶ DEIR, Appendix E pp. 27-28.

⁹⁷ Owens Comments, p. 12.

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CDFW states that solar panel arrays, specifically, are expected to eliminate most or all foraging potential.⁹⁸ Given the threat and decline on the species, Ms. Owens states that the loss of just one pair could significantly and negatively impact the region's population of Swainson's hawks.⁹⁹

15-C2

The DEIR determined that the Swainson's hawk was not present and the Project would have no impacts on this species.¹⁰⁰ The DEIR conducted focused surveys for Swainson hawks by reviewing nesting locations within a five-mile radius of the Project through visual and audible cues using a combination of binoculars and spotting scopes.¹⁰¹ The DEIR determined no hawks were observed and stick nests found on Site 3 and transmission line towers were reported to be used by common ravens.¹⁰² The DEIR relies on Swainson's Hawk Survey Protocols from the CDFW, which recommends driving surveys if and when adequate roadway is available through or around the project site and walking surveys when driving is not an option due to potential nesting sites not readily visible from a road.¹⁰³ Ms. Owens notes that aerial photos of the Project site reveal that not every potential nest area such as those in a Joshua tree would be visible from a drivable road.¹⁰⁴ Despite that fact, the DEIR relied solely on driving surveys, contrary to CDFW guidance. The DEIR also does not provide any information as to where, when and how the 5-mile radius survey was conducted and leaves the public to speculate on what was or was not performed in the survey. Ms. Owens states that, without evidence of the time of day or duration of the surveys, routes covered, or hours spent surveying, it is speculative to assume the surveys comprehensively evaluated the Project site.¹⁰⁵ The DEIR does not provide substantial evidence to support its determination that the Swainson's hawk is not present.

15-D2

Moreover, substantial evidence exists to support Swainson's hawk's use of the Project area for foraging, nesting, or stopovers onsite and within less than five miles of the site. Ms. Owens discusses several sources. First, comments from the Kern Audubon Society noted that the CDFW revealed that as many as five possible active Swainson's hawk nests were recorded between 2013 and 2017 within a five mile

15-E2

⁹⁸ Owens Comments, p. 13.

⁹⁹ *Id.*

¹⁰⁰ DEIR, p. 4.4-20.

¹⁰¹ DEIR, Appendix E pp. 27-28.

¹⁰² DEIR, Appendix E p. 41.

¹⁰³ Owens Comments, pp. 11-12.

¹⁰⁴ Owens Comments, p. 12.

¹⁰⁵ *Id.*

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radius of the Project site.¹⁰⁶ Second, a raptor survey conducted for the Rosamond Solar Project confirmed nesting approximately 5.7 miles from the Project in spring and summer of 2018.¹⁰⁷ Third, eBird database data noted one to four hawks were observed on the west side of the Project site in 2009, 2010 and one to three hawks in 2016 about 0.5 miles south of the Project site.¹⁰⁸ Finally, the Catalina EIR notes that the largest single flock of Swainson's hawk was reported at 50 birds in 2004 and 12 birds in 2005 at the adjacent Manzana project, and observed on the Catalina project property during the 2011 migration.¹⁰⁹ The Catalina EIR also notes that during summer avian surveys, an individual was observed flying over the project study area. The Manzana Wind EIR also conducted aerial and ground raptor surveys and found the Swainson's hawk present on site.¹¹⁰

15-E2

14) Desert Tortoise

The DEIR acknowledges a slight chance that the desert tortoise ("DT") could be encountered because of a protocol-level survey detecting a burrow.¹¹¹ However, the DEIR determined that the Project would result in no impacts to the DT based on surveys conducted for nearby projects which determined "very few desert tortoises inhabit the areas."¹¹² The DEIR makes a bare assumption that the lack of any other sign of the species onsite and the possibility that the burrow could be used by other wildlife supports its conclusion that the DT has a low likelihood of presence onsite.¹¹³

15-F2

Ms. Owens emphasizes that not observing DT during a survey is not indicative of its indefinite "absence" on the Project site.¹¹⁴ Ms. Owens also points out that the survey conducted for the Catalina EIR, which the DEIR refers to, reported that potentially suitable habitat for the species was present, that the species was detected nearby, and that DT burrow was found on adjacent property.¹¹⁵ The Catalina EIR concluded based on this evidence that the DT was assumed present.¹¹⁶

¹⁰⁶ Owens Comments, p. 13.

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ Owens Comments, pp. 13-14.

¹¹⁰ Owens Comments, p. 14.

¹¹¹ DEIR, p. 4.4-19.

¹¹² *Id.*

¹¹³ DEIR, p. 4.4.-33.

¹¹⁴ Owens Comments, p. 32.

¹¹⁵ *Id.*

¹¹⁶ Owens Comments, pp. 32-33.

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Although the Project's consultants determined a low chance of DT to be present onsite, it proposed implementation of measures to ensure that the Project would avoid significant impacts specifically to DT and not result in a take of an individual tortoise.¹¹⁷ While some measures are applied generally special status species including DT, the consultants recommended additional nuanced measures for DT including a qualified biologist to survey tortoises prior to all vegetation removal, grubbing, and fence installation activities; surveying by the qualified biologist for tortoises and DT burrows immediately in front of each motor vehicle and site where vegetation would be removed; halting work if DT or burrows are discovered within a 500-ft radius of the DT or burrow until USFWS and CDFW concurrence, or if an injured or dead DT is encountered during construction and disposition of the injured DT; and installation of temporary tortoise-proof fencing.¹¹⁸ However, the DEIR ultimately incorporates measures (Mitigation Measures 4.4-6 through 4.4-9) that apply to special-status species, generally.¹¹⁹ The DEIR provides no reason why it declines to incorporate the DT-specific measures recommended by the Project's consultants.

15-F2

Furthermore, the DEIR's proposed mitigation measures fail to provide any specific detail on how, when, and where observations for the DT will be conducted by an onsite biologist. Ms. Owens notes that DT surveys must be conducted daily and an on-call biologist would unreasonably require reliance on construction employees with limited to no biological knowledge or experience to contact a biologist.¹²⁰ From a practical perspective, the Project site's remote location and the limited number of biologists with DT expertise would make it infeasible to find an on-call biologist to respond to immediate needs if DT or burrows are encountered.¹²¹ Most importantly, if DT or a burrow is discovered during construction or operations, the DEIR does not specify what actual measures would be implemented, or the performance standards that define the efficacy of the measure, before resuming construction. The mitigation measures proposed for DT are thus vague and infeasible, and do not result in avoidance or reduction of impacts on DT and their habitat.

15-G2

¹¹⁷ DEIR, Appendix E pp. 52-54.

¹¹⁸ DEIR, Appendix E pp. 52-54.

¹¹⁹ DEIR, p. 4.4-33.

¹²⁰ Owens Comments, pp. 33-34.

¹²¹ Owens Comments, p. 34.

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15) Omitted Special-Status Species

The DEIR completely omits certain special-status species that previous surveys conducted for nearby projects determined were present. The DEIR fails to identify or evaluate the potential of occurrence for the following species: *Southern grasshopper mouse*, *Northern harrier*, *Long-eared owl*, *Vaux's swift*, and *LeConte's thrasher*.¹²² Ms. Owens notes that these species were found present, based on surveys conducted for the Catalina EIR and Manzana EIR, either within a mile or less, or within 3 1/2 miles or less (depending on the project and species) from the Project site.¹²³ The Catalina and Manzana surveys also found foraging and potential roosting habitat for: *the Pallid bat*, *Fringed myotis*, *Western small-footed myotis*, *Long-eared myotis*, and *Yuma myotis*.¹²⁴ Since these projects are in close proximity to and host similar habitats as the Project site, the DEIR should have identified and evaluated the presence of these species. Despite the existing data that demonstrate the species' likelihood of occurrence near the Project's vicinity, the DEIR fails to identify and assess their likelihood of occurrence in its evaluation of the environmental setting.

15-H2

16) Special-Status Plant Species

The DEIR relies on "floristic" surveys conducted between June 2016 and June 2017.¹²⁵ Ms. Owens states that rare plant surveys must be conducted on a much broader time period, specifically to include non-drought years.¹²⁶ Because the DEIR only conducted surveys during drought years and in the spring and summer seasons, it did not detect plant species that would not have emerged until after a wet year or season.¹²⁷ Restricting the survey to a few months of a drought year limits the survey to an accounting of plants that have already emerged and overlooks the plants that have not. A limited survey results in an incomplete description of the Project's botanical environmental setting as it does not account for plants that have yet to emerge.¹²⁸

15-I2

Indeed, CEQA requires that, "[w]here existing conditions change or fluctuate over time, and where necessary to provide the *most accurate picture practically possible* of the project's impacts, a lead agency may define existing conditions by

15-J2

¹²² Owens Comments, pp. 6-8.

¹²³ Owens Comments, p. 6.

¹²⁴ Owens Comments, p. 8.

¹²⁵ DEIR, Appendix E, pp. 26-27.

¹²⁶ Owens Comments, p. 38.

¹²⁷ *Id.*

¹²⁸ *Id.*

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referencing historic conditions or conditions expected when the project becomes operational, or both, that are supported by substantial evidence.”¹²⁹ The DEIR however makes a cursory statement that “surveys were conducted at appropriate seasonal times when the potentially-occurring special-status plant species were in bloom, evident and identifiable.”¹³⁰ But the DEIR provides no evidence to support its decision to only conduct surveys in the spring and summer months. For example, in 2016, the DEIR only conducted surveys in Sites 1 and 2, one day in June and one day in August.¹³¹ For 2017, surveys were conducted on various days between April and June.¹³² Despite the fact that the Project’s construction and operations are expected to occur year-round, the DEIR does not explain why surveys were not also conducted during the winter and fall months for 2016 and 2017, or why it failed to conduct surveys during or after a wet year such as 2019.

15-J2

The DEIR’s botanical survey is also inconsistent with what the CDFW and leading experts require for the adequate evaluation of the occurrence of plant species. For example, per CDFW protocols, surveyors must space survey visits throughout the growing season to accurately determine what plants exist in the project area and capture the floristic diversity at a level necessary to determine if special status plants are present.¹³³ Similarly, the CNPS lists certain requirements for effective botanical surveys, such as conducting a sufficient number of visits spaced throughout the growing season to prepare an accurate inventory of all plants that exist on site.¹³⁴ The CNPS also requires that EIRs must discuss, among other things, factors that may have affected the results of the surveys (e.g. drought, human disturbance recent fire).¹³⁵

15-K2

Additionally, the CDFW protocols state that surveyors visit and observe reference sites, which are nearby areas where a special species status plant is known to occur.¹³⁶ Visiting and observing reference sites can confirm that the target special-status species is evident and identifiable at the time the survey is conducted and provides a visual image of the plant, its habitat and associated natural communities.¹³⁷ Since the DEIR makes no mention that surveyors visited nearby

15-L2

¹²⁹ CEQA Guidelines § 15125(a)(1) (emphasis added).

¹³⁰ DEIR, Appendix E, p. 27 and Table 3, p. 29.

¹³¹ DEIR, Appendix E, Table 3, p. 29.

¹³² DEIR, Appendix E, Table 3, p. 29.

¹³³ Owens Comments, p. 40.

¹³⁴ Owens Comments, p. 39.

¹³⁵ Owens Comments, p. 40.

¹³⁶ Owens Comments, p. 38.

¹³⁷ Owens Comments, p. 40.

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reference sites, it is likely that the survey did not thoroughly evaluate for all potentially occurring species. Indeed, Ms. Owens discovered that there were at least 4 records of the special-status plant species, Robbins' nemacladus, occurring within 1.5 miles southwest of the Project.¹³⁸ However, the DEIR does not include this species in its evaluation of potentially occurring plants.

15-L2

In order to provide an adequate and complete environmental setting for the presence of plant species occurring in the Project site, which is necessary to enable an analysis of the Project's potentially significant impacts to plant species, the DEIR must conduct a thorough botanical survey that accounts for the weather and seasonal variations that impact the emergence of various plant species and observe nearby reference sites to confirm which plant species has a potential for occurring within the Project vicinity.

15-M2

2. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Impacts on Migratory Birds, Burrowing Owl, American Badger and Desert Kit Fox

The DEIR fails to adequately disclose and analyze impacts on several special-status species and proposes mitigation measures that do not effectively reduce the Project's significant impacts for biological resources. As such, the DEIR fails to demonstrate with substantial evidence that impacts to these species will be less than significant, as required by CEQA. The DEIR must be revised to correct these deficiencies.

15-N2

a. Migratory Birds

The DEIR states that, although the Project could result in avian mortality and injury due to collisions between flying birds and Project facilities and equipment, it needs additional information to determine whether the bird mortalities are significant.¹³⁹ The DEIR's analysis then concludes that Project impacts to nesting birds and raptors would be mitigated to less than significant impacts, but Project impacts to bird mortality due to collisions with solar panels are expected to be less than significant.¹⁴⁰ Ms. Owens' review of the Project's impacts from collisions with solar panels reveal that this analysis is not supported by substantial evidence and substantial evidence exists to support the contrary conclusion.

15-O2

¹³⁸ Owens Comments, p. 39.

¹³⁹ DEIR, Appendix E p. 57.

¹⁴⁰ DEIR, Appendix E p. 58.
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First, Ms. Owens states that the DEIR contradicts itself by stating that the Project site is an area of “relatively low use by avian species” and “is not within a known migratory route,”¹⁴¹ while also recognizing that the Project site is within the vicinity of the Pacific Flyway, a significant avian migration route, and that the presence of migratory bird species within the vicinity of the Project is partially related to the proximity to the Pacific Flyway.¹⁴² This contradiction makes it impossible to sufficiently analyze the impacts on migratory birds since the DEIR concludes that migratory birds do not take route over the Project area but also identifies a migratory route where migratory birds would be present. In fact, the Project is indeed in direct line of the Pacific Flyway, a major flyway that includes a stopover to the Salton Sea for millions of birds.¹⁴³

Second, Ms. Owens presents extensive data from avian mortality reports demonstrating that solar panels, although an attractant to water loving birds especially, do cause injury and death to birds of many other species. These include protected bird species (e.g., Swainson’s hawk, burrowing owl, and tricolored blackbird) where loss of even a few breeding adults can significantly alter their regional population status.¹⁴⁴ Table 1 to Ms. Owens’ letter provides a partial summary of protected bird species that have been killed by collision deaths with Southern California desert solar facilities, including burrowing owls, loggerhead shrikes, red-tailed hawks, horned larks, Say’s phoebe, long-eared owl, American white pelican, western tanager, and prairie falcon, all of which were identified near the Project site, between 0.6 to 2 ½ miles.¹⁴⁵ This data provides undeniable evidence that solar facilities specifically attract and kill birds across many groups including migrants. In fact, protected, endemic, and unusual desert migrants of all sizes succumb, including birds native to marine and freshwater habitats that mistakenly spot vast solar arrays as wetlands stopovers.¹⁴⁶

Agencies involved with the protection of wildlife consistently acknowledge the significance of solar project impacts on avian species. For example, the U.S. Department of Energy (“DOE”) and the Bureau of Land Management (“BLM”) have concluded, since birds are prone to collisions with reflective surfaces, it is expected that a utility-scale solar energy project could cause **significant bird mortality**.¹⁴⁷

¹⁴¹ *Id.*

¹⁴² DEIR, Appendix E p. 45.

¹⁴³ Owens Comments, p. 18.

¹⁴⁴ Owens Comments, p. 17; p. 52, Table 1 – Avian Mortality Summary.

¹⁴⁵ Owens Comments, p. 18; p. 52, Table 1 – Avian Mortality Summary.

¹⁴⁶ Owens Comments, p. 19.

¹⁴⁷ Owens Comments, p. 21.

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15-O2

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The USFWS also confirmed, in comments to a solar project's EIR in Riverside County, the growing evidence of impacts from the lake effect, especially for water-associated birds and other species seeking migratory stopover habitat.¹⁴⁸ The USFWS concluded that the cumulative impacts to birds could be significant and would warrant project-specific systematic monitoring and mitigation with a bird and bat conservation plan.¹⁴⁹ Finally, a multi-agency working group – consisting of the Arizona Game & Fish Department, Bureau of Indian Affairs, BLM, CDFW, California Energy Commission, California Public Utilities Commission, National Park Service, Nevada Department of Wildlife, DOE, U.S. Department of Defense, U.S. Department of the Interior, Solicitor's Office, USFWS, and U.S. Geological Survey – has drafted a plan that includes justification and details on reducing impacts caused by bird strikes to solar panels.¹⁵⁰

The DEIR found impacts less than significant for migratory bird collisions claiming lack of information. Contrary to this false conclusion, evidence presented by Ms. Owens demonstrates there is an abundant and sufficient amount of information available for analyzing and mitigating the Project's impacts on bird mortality from collision with solar panels. Numerous oversight agencies have agreed that the impacts of solar panels on migratory birds are significant. The DEIR disregards this extensive and relevant information and, as a result, understates the significance of impacts on migratory birds. The DEIR does not provide substantial evidence to support its finding that the Projects impacts to bird mortality from collision to solar panels are less than significant.

Finally, the DEIR's determination of significant cumulative impacts on migratory birds does not comply with CEQA. CEQA requires that an EIR disclose the *severity* of an impact and provide mitigation to reduce the cumulatively considerable impacts.¹⁵¹ The DEIR determined that the Project would result in significant, cumulative impacts from: (1) the loss of foraging and nesting habitat for several special-status birds, including the burrowing owl, Swainson's hawk, and raptors; and (2) from population-level mortality of migratory birds due to collisions with solar panels of present and future development projects in the Western Antelope Valley.¹⁵² However, the DEIR provides no analysis as to the extent and

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

¹⁵⁰ Owens Comments, p. 23.

¹⁵¹ Pub. Res. Code § 21083(b)(2); CEQA Guidelines §§ 15130(b) and (b)5); *Friends of Oroville v. City of Oroville* (2013) 219 Cal. App. 4th 832, 841-42; *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App. 3d 692, 721.

¹⁵² DEIR, pp. 4.4-55/56.
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severity of these significant cumulative impacts. For example, Ms. Owens notes that the DEIR provides an inadequate analysis on the cumulative impacts to birds by way of strikes and electrocutions despite the extremely high abundance of renewable energy projects in the area and the associated transmission lines.¹⁵³ Ms. Owens prepared a 20-mile radius map where migratory birds will travel through the Antelope Valley revealing the extensive coverage of wind turbines, major transmission lines, and reflective solar facilities that are primary sources for avian strikes and electrocution.¹⁵⁴ The DEIR's finding that cumulative impacts will be significant is therefore not supported by substantial evidence.

15-P2

Additionally, the DEIR concludes that the proposed project-level mitigation measures would not effectively reduce significant cumulative impacts and is therefore unavoidable.¹⁵⁵ However, the DEIR provides no explanation as to how it reached this conclusion. The DEIR must fully analyze the effectiveness of proposed mitigation measures in reducing significant cumulative impacts before discounting them. If the mitigation measures cannot reduce the cumulative impacts to less than significant, the DEIR must consider other feasible mitigation that could reduce the cumulative impacts to the greatest extent feasible. Moreover, unless the DEIR discloses and analyzes the severity of the cumulative impacts, the DEIR cannot make any determination as to the feasibility of a mitigation measure. As such the DEIR fails to demonstrate with substantial evidence that cumulative impacts on migratory birds will be significant and avoidable.

15-Q2

b. Burrowing Owl

The DEIR fails to provide an adequate analysis of impacts on the burrowing owl. The DEIR states that western burrowing owls and burrows were recorded in the Project site, with one observed on the Syracuse site.¹⁵⁶ The DEIR acknowledges that direct impacts from construction activities could include death or injury to individuals, displacement of birds and loss of territory, disruption of breeding activities, and crushing of burrows and viable eggs.¹⁵⁷ Indirect impacts from construction could include reducing foraging opportunities and increasing incidences of agitation.¹⁵⁸ However, the DEIR limits its discussion to construction

15-R2

¹⁵³ Owens Comments, p. 24.

¹⁵⁴ Owens Comments, p. 24; p. 59, Figure 1 – Cumulative Impacts: Existing Renewable Energy Projects Within a 20-mile radius.

¹⁵⁵ DEIR, p. 4.4-56.

¹⁵⁶ DEIR, p. 4.4-33.

¹⁵⁷ DEIR, p. 4.4-33.

¹⁵⁸ *Id.*

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impacts and provides no analysis on impacts from operational activities despite the potential for facility strikes of burrowing owls. As Ms. Owens points out in her summary of avian mortality incidences, there have been one to several owl deaths per year from solar facility strikes.¹⁵⁹ Ms. Owens explains that the use of protocol surveys are an essential component in establishing the abundance and distribution of burrowing owls throughout and in proximity to the Project site and effectively evaluating both construction and operational impacts to the overall burrowing owl population.¹⁶⁰

15-R2

Indeed, the CDFW and the California Burrowing Owl Consortium (“CBOC”) have stressed that “adequate information about burrowing owls present in and adjacent to an area that will be disturbed by a project or activity will enable the Department, reviewing agencies, and the public to effectively assess potential impacts,” and “detailed information, such as approximate home ranges of each individual or of family units, as well as foraging areas as related to the proposed project, will be important for [...] planning avoidance measure implementation and for mitigation measure performance monitoring.”¹⁶¹ The CBOS guidelines also note that, without implementing standardized field survey methods, adequate and consistent impact assessment during regulatory review processes can be impaired, which in turn reduces the possibility of effective mitigation.¹⁶²

15-S2

Finally, the DEIR attempts to minimize impacts from construction activities by proposing MM 4.4-10 which, in part, incorporates CDFW-identified restrictions for activity based on times of the year, setback distances, and levels of disturbance.¹⁶³ However, the effectiveness of these proposed criteria for restricting activity are unsupported.¹⁶⁴ Ms. Owens states that the DEIR provides neither an explanation as to how the certain times of the year and setback distances would avoid disturbances to burrowing owls nor specific descriptions of the activities to be restricted.¹⁶⁵ In fact, Ms. Owens has observed disturbances up to 500 feet or more from construction causing abandonment of burrows during breeding season.¹⁶⁶

15-T2

¹⁵⁹ Owens Comments, p. 52, Table 1 – Avian Mortality Summary.

¹⁶⁰ Owens Comments, p. 24.

¹⁶¹ Owens Comments, p. 25.

¹⁶² *Id.*

¹⁶³ DEIR, p. 4.4-44 (MM 4.4-10(2); Table 4.4-3 – *Burrowing Owl Restricted Activity Dates and Setback Distances*); DEIR, Appendix E, p. 55.

¹⁶⁴ DEIR, Appendix E, p. 55.

¹⁶⁵ Owens Comments, p. 26.

¹⁶⁶ *Id.*

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Ms. Owens further notes that the levels of disturbance – low, medium, and high – are not defined. Mitigation measures that are vague or so undefined that it is impossible to evaluate their effectiveness are legally inadequate.¹⁶⁷ The DEIR provides no definition or criteria in determining what constitutes the levels of disturbance (*i.e.*, duration, frequency level, power or level of decibels, proximity and size of vehicles, degree of excavation or grading, etc.).¹⁶⁸ In addition, while MM 4.4-10 allows passively relocation for owls when avoidance of burrows during breeding season is infeasible, it does not define “infeasible.”¹⁶⁹ “Infeasible” could mean that the burrow cannot be avoided without harming the species, or it could mean that the burrow cannot be avoided due to cost to the Applicant or the Project’s construction deadlines. The levels of disturbance and terms such as feasibility are crucial in determining the mitigation measure’s effectiveness in minimizing significant impacts from construction. The DEIR must revise its proposed mitigation measures and provide substantial evidence to demonstrate that the measures will effectively avoid or reduce impacts on the burrowing owl to less than significant.

15-U2

c. American Badger and Desert Kit Fox

The DEIR determined that the Project would result in significant unmitigated impacts to the American badger and desert kit fox.¹⁷⁰ The DEIR’s analysis found that direct impacts to these species could result from adults or young being crushed in dens, or from vehicle collisions.¹⁷¹ However, the DEIR’s analysis is inadequate because it fails to identify or address impacts on potentially hundreds of acres of breeding and foraging habitat relied upon by these denning species.

15-V2

Ms. Owens presents evidence demonstrating that breeding and foraging habitat loss has played a major role in the decline of populations for denning species such as the American badger and desert kit fox.¹⁷² For example, a detailed CDFW report revealed that desert kit fox in the Mojave and Colorado deserts are increasingly at risk and impacted by renewable energy projects due to “habitat loss, degradation, fragmentation, and loss of connectivity.”¹⁷³ These types of projects also

15-W2

¹⁶⁷ *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61,79.

¹⁶⁸ Owens Comments, p. 27.

¹⁶⁹ DEIR, p. 4.4-45 (MM 4.4-10(3)).

¹⁷⁰ DEIR, p. 4.4-34.

¹⁷¹ *Id.*

¹⁷² Owens Comments, p. 28.

¹⁷³ *Id.*

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produce indirect results such as reduced ability for movement, increased competition and depredation, increased non-native cover, mortality from roads, and displacement of foxes from den sites.¹⁷⁴ Rather than evaluating these impacts through focused surveys specific to the badger and kit fox, the DEIR inappropriately evaluated impacts on those species through desert tortoise surveys.¹⁷⁵

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As discussed previously, data from focused protocol detection surveys are crucial to fully assess existing conditions, analyze impacts, and formulate appropriate mitigation for each species.¹⁷⁶ Ms. Owens explains that focused surveys for the badger and kit fox can provide details specific to the species, such as density, breeding status, foraging habitat use, and other aspects of their ecology.¹⁷⁷ There are also species-specific variables related to habitat use, weather, time of day, time of year, and other data points intended to be maximized by methodologies of species-specific surveys.¹⁷⁸ One study found that standard daytime surveys using scat as a primary indicator for desert kit foxes resulted in an underestimation of numbers and use of sites and dens by the species.¹⁷⁹ In fact, the USFWS has explicitly stated that other surveys may not be conducted concurrently with desert tortoise focused surveys.¹⁸⁰ The DEIR's reliance on surveys specific to the desert tortoise based on "incidental observations of other wildlife" is insufficient and would not provide a full and accurate measure of the Project's impacts on different species.¹⁸¹ The DEIR must conduct focused surveys for the American badger and Desert kit fox to fully address the Project's potential impacts on these specific species.

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The DEIR concludes that its proposed mitigation measures will result in less than significant impacts to the American badger and desert kit fox. However, some of these mitigation measures do not comply with CEQA. First, the DEIR proposes MM 4.4-6, requiring construction workers to attend an Environmental Awareness Training and Education Program that presents information on the life history and identification of special-status species.¹⁸² While MM 4.4-6's training and awareness

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¹⁷⁴ *Id.*

¹⁷⁵ DEIR, Appendix E p. 26-28.

¹⁷⁶ Owens Comments, pp. 26-27.

¹⁷⁷ Owens Comments, p. 27.

¹⁷⁸ *Id.*

¹⁷⁹ *Id.*

¹⁸⁰ Owens Comments, p. 28.

¹⁸¹ DEIR, Appendix E p. 27.

¹⁸² DEIR, p. 4.4-34. MM 4.4-6 is also applied to reduce significant impacts to the Clokey's cryptantha, Lemmon's jewelflower, Joshua tree, and burrowing owl.

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program may enhance workers' ecological knowledge of certain species, it is impossible to measure how such awareness or training will reduce the Project's impacts on wildlife.¹⁸³ CEQA prohibits a public agency from relying on mitigation measures of uncertain efficacy or feasibility.¹⁸⁴ Ms. Owens notes that no empirical evidence exists demonstrating training programs measurably or reliably reduce impacts, nor does the DEIR provide analysis on the effectiveness of an awareness and training program.¹⁸⁵ Ms. Owens suggests that workers be required to take specific actions directly related to job responsibilities in order to reduce impacts, such as maintaining speed limits when operating or driving vehicles or construction equipment, hazardous spill containment, fire prevention measures, or covering potential animal pitfalls.¹⁸⁶ As written, a mere sticker placed on hard hats is the only outcome certain that results from this mitigation measure. MM 4.4-6's effectiveness in reducing impacts to less than significant is uncertain and therefore does not comply with CEQA .

15-Y2

Second, the DEIR proposes specific buffer distances for active or potential kit fox or badger dens, depending on whether it is breeding or nonbreeding season.¹⁸⁷ For example, if potentially active kit fox or badger dens are observed during breeding season, a qualified biologist shall create a no-disturbance buffer of 200 feet.¹⁸⁸ If it is nonbreeding season, the biologist must create a 100 foot buffer for the kit fox den or must block the entrances for badger dens.¹⁸⁹ The effectiveness of these mitigation measures, however, is unsubstantiated. First, the DEIR provides no evidence or analysis explaining how these distinct distances would effectively avoid harassment or disturbance to either species during construction.¹⁹⁰ Without understanding the relevance of these measures to the impacts it aims to reduce or avoid, it is impossible to know if the measures are effective. Second, Ms. Owens explains that the buffer distances do not address indirect impacts from construction such as disturbances that affect breeding success, foraging, and fecundity, and increase risk of predation and competition.¹⁹¹ Moreover, a kit fox or badger can be impacted by activities common to construction of a solar industrial site regardless of

15-Z2

¹⁸³ Owens Comments, pp. 42-43.

¹⁸⁴ *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 727.

¹⁸⁵ Owens Comments, p. 43.

¹⁸⁶ *Id.*

¹⁸⁷ DEIR, p. 4.4-48 (See MM 4.4-11).

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

¹⁹⁰ DEIR, p. 4.4.-48 (e.g., "If the active dense are observed and avoidance of den disturbance is feasible...")

¹⁹¹ Owens Comments, p. 29.

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the distance of the buffers, including noise from vehicles, disruption from teams of construction workers entering and exiting the construction site, and ongoing disturbances from bulldozers, scrapers, and water trucks.¹⁹²

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The DEIR must conduct an adequate analysis of impacts on the American badger and desert kit fox using focused surveys and develop adequate mitigation measures that will avoid or reduce those to less than significant.

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15-A3
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3. The DEIR Fails to Evaluate the Project's Decommissioning Impacts on Biological Resources

The DEIR anticipates that the Project site would be recolonized by certain special-status species upon decommissioning of the Project and determined that decommissioning would result in potential impacts to those species.¹⁹³ Without providing further detail on the extent of these impacts, the DEIR simply extends the same mitigation measures (MM 4.4-1 through MM 4.4-13) that it proposes to reduce construction and operational impacts to decommissioning impacts.¹⁹⁴ The DEIR seems to imply that decommissioning activities would be the same as construction or operational activities and therefore the same mitigation measures would apply to reduce those impacts. However, without any analysis on the specific impacts of decommissioning activities on biological resources, it is impossible to know the feasibility or effectiveness of these mitigation measures.

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15-B3
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Ms. Owens explains that the DEIR fails to acknowledge and provide adequate detail as to how hazardous and other toxic substances from decommissioning activities will impact wildlife and habitats at the Project site and disposal sites.¹⁹⁵ Toxic materials from the PV materials can contaminate groundwater and air quality, impacting rare and vulnerable populations of species. For example, Ms. Owens states that several studies demonstrate that even low levels of exposure to contaminants, such as cadmium, can compromise a species' immune function, fecundity, migratory behavior, environmental fitness, and reproductive success.¹⁹⁶ Although the DEIR proposes a decommissioning plan through MM 4.11-1, the plan does not include discussion of scope, extent, methods, goals, objectives or any performance criteria for hazardous wastes disposal and how

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15-C3
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¹⁹² Owens Comments, p. 29.

¹⁹³ DEIR, p. 4.4-36.

¹⁹⁴ *Id.*

¹⁹⁵ Owens Comments, pp. 46-49.

¹⁹⁶ Owens Comments, p. 48.

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they will reduce significant impacts specific to biological resources.¹⁹⁷ The DEIR must be revised to address the impacts from decommissioning activities.

↑ 15-C3

B. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Impacts on Air Quality and Public Health

The DEIR fails to adequately disclose, analyze, and mitigate impacts from the Project's construction and operational emissions. As demonstrated by SWAPE and explained below, the DEIR's analysis is flawed and its finding that impacts from air emissions will be less than significant is not supported by substantial evidence.

15-D3

First, the DEIR relies on inadequate and unsubstantiated construction and operational emission values. Second, the DEIR improperly concludes that the Project's health risk impacts from construction and operational emissions would be less than significant without conducting a quantified health risk analysis. Moreover, SWAPE's analysis of the Project's construction emissions determined the Project may result in significant health risk impacts not previously identified by the DEIR.

15-E3

The DEIR provides no substantial evidence to demonstrate that the Project's construction and operational emissions will result in less than significant impacts. As such, the DEIR fails to adequately disclose, analyze, and mitigate impacts on air quality and public health. The DEIR must be revised to address these deficiencies and the revised DEIR must be recirculated for public review and comment.

1. The DEIR Did Not Adequately Evaluate All Emissions from the Project's Operational Activities.

The DEIR states that "operational emissions would be limited to sporadic maintenance activities and vehicle travel by offsite employees to the project site."¹⁹⁸ As such the DEIR only considered mobile-source emissions in its evaluation of impacts from the Project's operational activities.¹⁹⁹ According to the CalEEMod User's Guide, evaluation of a project's operational emissions involves many sources, including, but not limited to, fugitive dust associated with roads, off-road equipment, electricity usage for buildings, parking lots and lighting, solid waste

15-F3

¹⁹⁷ DEIR, p. 4.11-19/20.

¹⁹⁸ DEIR, p. 4.3-31.

¹⁹⁹ DEIR, pp. 4.3-31 to 32.
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disposal, and water usage.²⁰⁰ These are all emission sources expected from the Project given that the DEIR's description of operation and maintenance activities include the use of onsite O&M buildings, equipment repairs, disposal of solid wastes from infrastructure maintenance and employees, use of hazardous materials for maintenance of transformers and batteries, and energy and water usage for panel washing.²⁰¹ As such, evaluating only mobile-source emissions results in an underestimation of operational emissions. The DEIR therefore fails to provide substantial evidence that supports a finding of less than significant air quality impacts from the Project's *entire* operational emissions.

15-F3

2. The DEIR's Air Quality Modeling Inputs are Unsubstantiated.

The DEIR relies upon emission modeling through the California Emissions Estimator Model ("CalEEMod") to support its findings that the Project would have less than significant air quality impacts.²⁰² However, SWAPE's review of the air modeling inputs determined that certain inputs were not justified while some inputs were not incorporated at all into the calculation.

15-G3

First, while CalEEMod recommends default values for various parameters for construction and operational emissions, the DEIR's output files reveal that the usage hours for numerous off-road construction equipment were artificially changed.²⁰³ The DEIR provides no explanation for the modifications and therefore SWAPE was unable to verify the inputs used and determine the accuracy of the air model.

15-H3

Second, the DEIR fails to input all operational emission values associated with proposed land uses and activities for the Project. As SWAPE points out, the Project proposes to construct three onsite solar substations, including 6-acres of battery energy storage facilities, 1,875 square feet of) of O&M buildings (625 square feet on each site), 1,800 square feet of communication buildings (600 square feet on each site), and 6,000 square feet of parking (2,000 square feet of parking on each site).²⁰⁴ However, the Project's CalEEMod output files reveal that none of these

15-I3

²⁰⁰ SWAPE Comments, p. 2.

²⁰¹ DEIR, pp. 3-23 to 24.

²⁰² DEIR, p. 4.3-25.

²⁰³ SWAPE Comments, p. 3.

²⁰⁴ DEIR, pp. 1-5, 3-17.

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land uses were incorporated and, instead, an input value of “zero square feet of ‘User Defined Industrial’” was included in the model without any justification.²⁰⁵

↑ 15-I3

Unless the DEIR acknowledges and incorporates **all emissions** related to the Project’s construction and operational activities, the air model results in an underestimation of emissions and should not be relied upon to determine Project significance. As it is, the DEIR does not have substantial evidence to support its findings of less than significant air quality emissions. The DEIR must be revised to include an accurate and adequate air quality analysis.

15-J3

3. The DEIR Did Not Evaluate Emissions from Decommissioning Activities.

An EIR must describe the project as a whole and the project’s “reasonably foreseeable” impacts on the environment.²⁰⁶ Here, this means analyzing the Project’s decommissioning impacts as well as its construction and operation impacts. The DEIR recognized that when the facility is decommissioned, “equipment operation and site restoration activities would result in impacts to air quality.”²⁰⁷ However, the DEIR fails to provide any quantification of air emissions for the decommissioning of the Project after its 30 to 35-year lifespan. Moreover, SWAPE points out that the solar panels and associated structures will need to be removed, impacted soils will need to be restored, and debris will need to be hauled off-site.²⁰⁸ Thus, emissions from these activities associated with decommissioning should have been evaluated as part of the DEIR’s analysis of the Project’s impacts to air quality.

15-K3

Until an adequate analysis is conducted that incorporates emissions related to decommissioning activities, the DEIR’s analysis results in an underestimation of emissions and should not be relied upon to determine Project significance. As such the DEIR does not have substantial evidence to support its finding of less than significant air quality emissions. The DEIR must be revised to include an accurate and adequate air quality analysis.

15-L3

²⁰⁵ SWAPE Comments, p. 3.

²⁰⁶ Pub. Res. Code § 20165; CEQA Guidelines §§ 15064(d), 15378(a).

²⁰⁷ DEIR, p. 4.3-33.

²⁰⁸ SWAPE Comments, p. 4.
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4. The DEIR Did Not Adequately Analyze the Project's Cancer Risk from Construction and Operational Emissions and Substantial Evidence Demonstrates that Construction Emissions Results in Significant Impacts to Public Health

One of the primary emissions of concern regarding health effects for land development projects is diesel particulate matter (“DPM”), which can be released during Project construction and operation. DPM consists of fine particles with a diameter less than 2.5 micrometer (“ μm ”) including a subgroup of ultrafine particles (which have a diameter less than 0.1 μm). Diesel exhaust also contains a variety of harmful gases and cancer-causing substances. As the DEIR recognizes, exposure to DPM is a recognized health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems.²⁰⁹ The DEIR also notes that DPM exposure may lead to the serious adverse health effects including aggravated chronic respiratory symptoms, increase in frequency and intensity of asthma attacks, increased hospitalizations, lung cancer and more.²¹⁰

The DEIR concludes that the Project would have a less than significant health risk impact without adequately evaluating adverse health impacts resulting from exposure to toxic air contaminants (“TACs”).²¹¹ Specifically, the DEIR fails to include a health risk assessment to disclose the increased cancer risk that will be caused by exposure to TACs, such as DPM, from the Project’s construction and operational emissions. By omitting a health risk assessment, the DEIR fails to disclose and mitigate the potentially significant cancer risk posed to nearby residents and children from TACs. Moreover, because the DEIR offers no adequate support for its conclusion that the Project’s health risk impacts will be less than significant, the DEIR’s conclusion is not supported by substantial evidence.

CEQA expressly requires that an EIR discuss, inter alia, “health and safety problems caused by the physical changes” resulting from the project.²¹² When a project results in exposure to toxic contaminants, this analysis requires a “human health risk assessment.”²¹³

15-M3

²⁰⁹ DEIR, p. 4.3-15.

²¹⁰ DEIR, p. 4.3-15.

²¹¹ DEIR, p. 4.3-39.

²¹² 14 CCR § 15126.2(a).

²¹³ *Berkeley Jets*, at 1369; *Bakersfield Citizens for Local Control v. City of Bakersfield* (2004) 124 Cal.App.4th 1184, 1219–1220 (CEQA requires that there must be some analysis of the correlation between the project's emissions and human health impacts).
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a. The DEIR's Finding that the Project's Health Risk Impacts Will Be Less-Than-Significant Health Risk Impact Is Not Supported by Substantial Evidence

Although the DEIR acknowledges that the greatest potential for TAC emissions would be related to DPM emissions from heavy-duty equipment during construction, the DEIR simply concludes that the Project's cancer risk from exposure to DPM would be less than significant without any quantitative analysis.²¹⁴ Relying on non-quantitative analysis and unsupported assumptions to determine that a health risk assessment is not necessary results in a premature and improper finding that TAC impacts would be less than significant.²¹⁵ For the reasons discussed below, the DEIR's finding that the Project's health risk impacts will be less than significant is not supported by substantial evidence.

15-N3

First, as discussed above, the DEIR's analysis relies upon a flawed air modeling analysis with inputs that have not been justified and emission values that were not incorporated (*e.g.*, emissions from all operational and decommissioning activities). As a result, the DEIR's conclusion that DPM emissions would not exceed the significant cancer threshold is unsupported because the emission inputs relied upon are inaccurate and incomplete.²¹⁶

15-O3

Second, the DEIR cannot conclude a less than significant finding for health risk impacts of DPM based on the assumption that a health risk assessment is not required. More importantly, a less than significant finding for cancer risk is determined by a numeric threshold (*i.e.*, 1 in one million) and therefore a quantitative analysis is necessary.²¹⁷ Without a quantitative analysis of the Project's TACs emissions, the DEIR's less than significant finding lacks substantial evidence.

15-P3

Finally, SWAPE points that the omission of a quantified health risk assessment is inconsistent with recent guidance published by the Office of Environmental Health Hazard Assessment ("OEHHHA"), which recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.²¹⁸ This document was also adopted by the EKAPCD in

15-Q3

²¹⁴ DEIR, p. 281

²¹⁵ DEIR, page IV.B-47-48.

²¹⁶ SWAPE Comments, p. 5.

²¹⁷ SWAPE Comments, p. 5.

²¹⁸ SWAPE Comments, p. 5.

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2017, the air pollution and control district for the region of the Project.²¹⁹ OEHHA's guidance document also recommends that exposure from projects lasting more than 6 months should be evaluated for the duration of the project, and a 30-year exposure duration should be used to estimate individual cancer risk for the maximally exposed individual resident ("MEIR").²²⁰ Because the Project's construction will last at least 9 months, and the Project's operational timeline is approximately 30 to 35 years, the County is required to conduct an assessment of public health risks, supported by substantial evidence, as recommended by EKAPCD and OEHHA and as required by CEQA. By failing to prepare a health risk assessment, the DEIR's conclusions of less than significant impacts to public health is unsupported.

15-Q3

b. Substantial Evidence Exists to Support a Finding of Significance as to Public Health Impacts from Construction Emissions

To demonstrate the potential risk to nearby receptors from Project construction, SWAPE performed a screening-level health risk assessment of the Project's construction DPM emissions using the AERSCREEN model.²²¹ Because the DEIR did not disclose a value for DPM and PM₁₀ exhaust for operational emissions, SWAPE's assessment included only the Project's construction emissions.²²²

15-R3

SWAPE determined that unmitigated DPM emissions released during Project construction would result in an excess cancer risk to the 3rd trimester of pregnancy and infants to the MEIR located approximately 25 meters away, of 0.27 and 1.7 in one million, respectively.²²³ This results in an excess cancer risk over the course of the Project construction at the MEIR at approximately **1.9 in one million**.²²⁴ These risk values exceed EKAPCD's threshold of 1 in one million, and therefore demonstrate that just the Project's construction emissions alone will result in a significant impact requiring mitigation.²²⁵ Additionally, because the DEIR failed to

²¹⁹ SWAPE Comments, p. 5.

²²⁰ SWAPE Comments, pp. 5.

²²¹ SWAPE Comments, p. 6; AERSCREEN is considered an appropriate air dispersion model for Level 2 health risk screening assessments by the OEHHA and California Air Pollution Control Officers Associated ("CAPCOA").

²²² SWAPE Comments, p. 6-8 (describing SWAPE's methodology and inputs used in evaluating construction emissions' potential health risks to nearby sensitive receptors.).

²²³ SWAPE Comments, p. 7.

²²⁴ *Id.*

²²⁵ SWAPE Comments, p. 9.

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include all emissions related to operational activities and decommissioning, the health risk from both construction and operational emissions would likely result in a health risk impact that further exceeds the EKAPCD threshold of 1 in one million.²²⁶

SWAPE's analysis represents the link between the proposed Project's construction emissions and the potentially significant health risk impacts when correct exposure assumptions and current agency guidance are applied. As the analysis is based on a preliminary screening-level health risk assessment, the County must make a reasonable effort to conduct a more refined and thorough health risk assessment to determine the significant health risk impacts and provide adequate mitigation measures to reduce those impacts to less than significant. The results of this new information and analysis should be presented in a revised DEIR and recirculated for further public review and comment.²²⁷

15-R3

C. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Impacts on Climate Change from Greenhouse Gas ("GHG") Emissions

CEQA requires agencies to "make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project."²²⁸ A lead agency can determine the significance of a project's GHG emissions by (1) quantifying GHG emissions resulting from the project; and/or (2) relying on a qualitative analysis or performance based standards.²²⁹ The "agency's analysis also must reasonably reflect evolving scientific knowledge and state regulatory schemes."²³⁰ Finally, as with the analysis of all impact areas, the agency must employ all feasible mitigation measures to reduce or eliminate impacts.

15-S3

Here, the DEIR fails to adequately disclose, analyze, and mitigate GHG impacts on climate change from the Project's construction and operational activities for several reasons. As SWAPE discusses in its technical comments, the DEIR's finding of no significant GHG impacts is incorrect because: (1) the GHG analysis relies upon an incorrect and unsubstantiated air model and analysis; and (2) the GHG threshold applied is not applicable to this Project and cannot be relied upon to

²²⁶ SWAPE Comments, p. 9.

²²⁷ See CEQA Guidelines, § 15088.5(a)(1).

²²⁸ CEQA Guidelines, § 15064.4 (a).

²²⁹ CEQA Guidelines, § 15064.4 (a)(1) and (a)(2)

²³⁰ CEQA Guidelines, § 15064.4 (b).

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determine significance of the Project's GHG emissions. Additionally, the DEIR fails to demonstrate with substantial evidence that the Project is consistent with goals, plans, policies or regulations adopted for the purpose of reducing the emissions of GHG.

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15-S3

As such the DEIR improperly concludes that the Project's GHG impacts would be less than significant. The County must make a reasonable effort to conduct a complete and thorough GHG analysis to determine the significant impacts on climate change and propose adequate mitigation measures, based on substantial evidence, that reduces those impacts to less than significant.

1. The DEIR's GHG Analysis Relies Upon an Incorrect and Unsubstantiated Air Model

The DEIR concludes that the Project would result in GHG emissions of 54 MT CO₂e/yr based upon its CalEEMod modeling.²³¹ However, as SWAPE notes and as discussed above, the DEIR's CalEEMod modeling is flawed because of the unsubstantiated inputs for construction emissions, the evaluation of mobile-source emissions only for operational emissions, and the lack of evaluation for emissions associated with decommissioning. Because of this, SWAPE states that the DEIR's CalEEMod modeling of construction and operational emissions are likely underestimated. Therefore, the DEIR cannot rely upon its CalEEMod modeling to determine whether the Project's GHG emissions will be significant

15-T3

2. The DEIR Improperly Applies EKAPCD's GHG Threshold to Determine that GHG Impacts Are Less-Than-Significant

An agency must consider "[w]hether the project emissions exceed a threshold of significance that the lead agency determines applies to the project."²³² Particularly for GHG emissions analysis, while the lead agency has discretion to choose a modeling system and methodology, the selection of the methodology and its application must be supported by substantial evidence.²³³ Here, the DEIR applies a significance threshold for GHG analysis that does not apply to this Project and provides no substantial evidence to support its selection of this particular methodology.

15-U3

²³¹ DEIR, p. 4.8-19.

²³² CEQA Guidelines, § 15064.4 (b)(2).

²³³ CEQA Guidelines, § 15064.4 (c); see also *Center for Biological Diversity v. Dept. of Fish & Wildlife* ("Newhall Ranch") (2015) 62 Cal.4th 204.

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The DEIR relies upon the EKAPCD's adopted threshold of 25,000 MT CO₂e/yr to determine whether the Project will result in significant GHG emissions.²³⁴ Notwithstanding that the DEIR relies on a flawed air model that resulted in a calculation of 54 MT CO₂e/yr, the DEIR provides limited justification in its decision to apply this threshold as the appropriate measure of GHG significance. The DEIR cites to a 2015 California Supreme Court case (*Newhall Ranch*) where the court ruled that lead agencies could determine significance of impacts from GHG emissions by applying specific numerical thresholds.²³⁵ The DEIR reasons: "According to the Court's ruling, this numerical threshold can be used to demonstrate compliance."²³⁶ However, while this case, and the subsequent adoption of this rule into the CEQA Guidelines, *generally* permits an agency to apply a numeric threshold, relying on this rule does not justify why this *particular* threshold from the EKAPCD was applied to this solar project. The CEQA Guidelines is explicit in requiring an agency to "support its selection of a model or methodology with substantial evidence."²³⁷

On the contrary, the EKAPCD's threshold clearly does not apply to this Project. The DEIR cites to the EKAPCD's adopted 2012 Addendum to its CEQA Guidelines on GHG impacts, which adopts quantitative thresholds when EKAPCD is the CEQA lead agency.²³⁸ As SWAPE notes, in adopting the Addendum, EKAPCD staff anticipated the applicable projects to be "large industrial projects or modifications to existing industrial projects that do not require conditional use permits from a land-use agency or a permit from the California Energy Commission."²³⁹ This Project is not a large industrial project which requires EKAPCD to be the lead agency and in fact is a project that does require conditional use permits from Kern County as the lead land-use agency.

Notably, the EKAPCD states that the 25,000 tons per year (tpy) limit is appropriate for determining significance, in part because "ARB and EPA determined that this threshold would be appropriate for facilities whose GHG

15-V3

²³⁴ DEIR, Appendix D, p. 12.

²³⁵ *Newhall Ranch*, 62 Cal4th 204.

²³⁶ DEIR, Appendix D, p. 24.

²³⁷ CEQA Guidelines, § 15064.4 (c).

²³⁸ DEIR, p. 4.8-15 to 16. *See also*, "Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving as Lead CEQA Agency." EKAPCD, March 8, 2012, ("Addendum"), *available at*: <http://www.kernair.org/Documents/CEQA/EKAPCD%20CEQA%20GHG%20Policy%20Adopted%203-8-12.pdf>.

²³⁹ SWAPE Comments, p. 10.
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emissions may be subject to regulation” and then cites to the federal EPA’s Final Rule for Mandatory Reporting of Greenhouse Gases (“EPA GHG Reporting Rule”).^{240, 241} SWAPE notes that the types of facilities applicable to this EPA regulation, such as stationary fuel combustion sources, fossil-fueled generating units, vehicle manufacturing, and manufacturing of products and chemicals, do not apply to this Project, as a solar project.²⁴² Moreover, these facilities are subject to the EPA GHG Reporting Rule precisely because they are expected to emit above 25,000 tpy of GHGs.²⁴³ Indeed, the *Newhall Ranch* court acknowledged that different land uses are expected to affect GHG emissions in different ways.²⁴⁴ It would be illogical then to apply to this particular Project a threshold applied to land uses that *inherently* emit large quantities of GHG. Instead, the DEIR must analyze the significance of impact specific to this Project’s land use as a solar facility.

15-V3

In addition, according to the Federal Register explaining the development of this particular GHG regulation, the 25,000 tpy threshold was a figure adopted to determine applicability of a facility to the GHG *reporting regulation*:

“From these analyses, we concluded that a 25,000 metric ton threshold suited the needs of the reporting program by providing comprehensive coverage of emissions with a reasonable number of reporters, thereby creating the robust data set necessary for the quantitative analyses of the range of likely GHG policies, programs and regulations.”²⁴⁵

15-W3

The adopted 25,000 tpy threshold is therefore not determinative of the significance of the impacts of a source’s GHG emissions. Rather the threshold was intended to determine whether a stationary source would be subject (or applicable) to the GHG reporting requirements.

In sum, the Project does not constitute the types of facilities intended by the EKAPCD and the threshold of 25,000 tpy is not applicable to determine the

²⁴⁰ Addendum, p. 4.

²⁴¹ 74 Fed. Reg. 56260, 56273 (Oct. 30, 2009), *Mandatory Reporting of Greenhouse Gases; Final Rule* (“2009 Federal Register”), available at: <https://www.govinfo.gov/content/pkg/FR-2009-10-30/pdf/E9-23315.pdf>.

²⁴² SWAPE Comments, p. 10.

²⁴³ 2009 Federal Register, p. 56260.

²⁴⁴ *Newhall Ranch*, 62 Cal4th 204, 229 (“That a project is designed to meet high building efficiency and conservation standards, for example, does not establish that its greenhouse gas emissions from transportation activities lack significant impacts.”).

²⁴⁵ 2009 Federal Register, p. 56272 (emphasis added).

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significance of the Project's GHG impacts. Moreover, the DEIR fails to provide substantial evidence to support its application of this threshold. The 25,000 MT CO₂e/yr threshold, therefore, does not apply and should not be used in determining the Project's GHG significant impacts.

15-W3

3. The DEIR Fails to Provide Substantial Evidence Demonstrating the Project is Consistent with Applicable Plans, Policies or Regulations to Determine that GHG Impacts Are Less-Than-Significant

In determining the significance of impacts, the lead agency may consider a project's consistency with the State's long-term climate goals or strategies, provided that substantial evidence supports the agency's analysis of how those goals or strategies address the project's incremental contribution to climate change and its conclusion that the project's incremental contribution is not cumulatively considerable.²⁴⁶

15-X3

The DEIR purportedly analyzed impacts from GHG based on "whether the project would be consistent with the State's applicable GHG reduction goals, plans, policies and regulatory requirements."²⁴⁷ The DEIR attempts to discuss the Project's consistency with the CARB Scoping Plan ("Scoping Plan"), Senate Bill 1368, Senate Bill 351, and the Kern County General Plan, and concludes that impacts would therefore be less than significant.²⁴⁸ However, the DER fails to provide substantial evidence to support this determination as required by CEQA for the following reasons.

CARB Scoping Plan – Actions E-3, E-4, and CR-1

The DEIR analyzes the Project's consistency with three actions in the Scoping Plan, and summarily concludes that there are no conflicts with the Climate Plan. The DEIR identifies these actions as applicable to the project: E-3 (Renewables Portfolio Standard), E-4 (Million Solar Roofs), and CR-1 (Energy Efficiency).²⁴⁹ However, the DEIR inappropriately applies these measures to the Project.

15-Y3

²⁴⁶ CEQA Guidelines, § 15064.4 (b)(3).

²⁴⁷ DEIR, p. 4.8-16.

²⁴⁸ DEIR, p. 4.8-25.

²⁴⁹ Table 4.8-5, *Applicable Scoping Plan Strategies for Proposed Project*, DEIR, p. 4.8-23. 3680-019acp

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Action E-3 pertains to the State’s Renewables Portfolio Standard (“RPS”), which subjects utilities, energy service providers and community choice aggregators, to a percentage target for *procuring* renewable resources.²⁵⁰ The DEIR improperly evaluates the Project’s consistency with this measure based upon the fact that this Project is a “solar array with an electric generating capacity of approximately 60 MW.”²⁵¹ This measure does not apply to this Project, however, because it pertains to actions that must be taken by entities *procuring* energy for the State and subject to the RPS. The DEIR seems to imply that, because the Project would assist these entities to meet their RPS targets, this measure applies to the Project. As the Attorney General recently noted, “compliance with ‘regulations or requirements adopted to implement a statewide, regional, or local plan’ can factor into the assessment of GHG significance, but only when *the project complies* with those regulations or requirements.”²⁵² Here, the Project is not required to comply with the RPS measure.

For Action E-4, the DEIR concludes that the Project is consistent with its goal to install 3,000 MW of solar energy capacity on utility consumer’s roofs, under the Million Solar Roofs Program.²⁵³ Aside from the fact that this Project has nothing to do with rooftop solar, the DEIR inexplicably determined this Project does not conflict with Action E-4 because the Action requires greater energy efficiency for projects that seek solar incentives thereby reducing the State’s electricity and natural gas needs and associated GHG emissions. This is clearly wrong because Action E-4 is meant to incentivize consumers, building owners, and developers to increase energy efficiency in homes and buildings while reducing demand on the electrical grid from rooftop solar. In other words, the existence of this Project is irrelevant to the goals and objectives of Action E-4. This measure therefore does not apply to this Project and the DEIR provides no justification on how consistency with Action E-4 addresses the Project’s incremental contribution to climate change.

Similarly, the DEIR concludes that the Project is consistent with Action CR-1, which relates to energy demand reductions in commercial and residential buildings.²⁵⁴ The DEIR reasons that the Project is consistent with this Action as it would provide renewable energy to utilities which in turn would be consumed by

15-Y3

²⁵⁰ CARB Scoping Plan Appendices, Volume 1: Supporting Documents and Measure Detail, December 2008 (“Scoping Plan Appendix”), p. C-126.

²⁵¹ DEIR, 4.8-23; Scoping Plan Appendix, p. C-120.

²⁵² <https://oag.ca.gov/system/files/attachments/press-docs/WLC%20-%20Amicus.pdf>, p. 25.

²⁵³ DEIR, 4.8-23.

²⁵⁴ DEIR, 4.8-23; Scoping Plan Appendix, p. C-120.

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commercial and residential buildings.²⁵⁵ However, Action CR-1 does not relate to the source of energy but is focused on reducing demand, or, in other words, energy efficiency, consumed within the State.²⁵⁶ Furthermore, the DEIR again provides no explanation on how consistency with E-4 or CR-1 address the Project's contribution to climate change. The DEIR therefore fails to demonstrate with substantial evidence that the Project is consistent with CARB's Scoping Plan.

15-Y3

Senate Bill (SB) 1368, SB 351, and Kern County General Plan

The DEIR also evaluates project consistency with SB 1368, SB 351 and the County's Air Quality Element from its General Plan.²⁵⁷ For all three, the DEIR does not provide a meaningful analysis consistent with CEQA's informational and procedural requirements.

First, the DEIR states that the Project is consistent with SB 1368 as a renewable energy generation facility but provides no information as to what this means in the context of SB 1368.²⁵⁸ SB 1368 establishes baseload generation standard for publicly owned or leased facilities generating electricity at a certain GHG Emissions Performance Standard of 1,100 pounds of CO_{2e} per megawatt hour.²⁵⁹ However, the DEIR provides no other information on how the goals or requirements of SB 1368 apply to the Project, which is necessary to determine how the Project's consistency with it addresses the Project's contribution to climate change.

15-Z3

Second, the DEIR states that the Project is indirectly consistent with SB 351 because the energy produced by the Project would enable a utility buying the project's generation to comply with this legislation.²⁶⁰ Again, the DEIR provides no other information on how the goals or requirements of SB 351 apply to the Project.

Finally, the DEIR states that the Project is consistent with the Air Quality Element of Kern County's General Plan because the mitigation measures would ensure that the Project is consistent with the Element's policies, goals and implementation measures "that will indirectly reduce GHG emissions by reducing

²⁵⁵ DEIR, 4.8-23.

²⁵⁶ Scoping Plan Appendix, pp. C-99/100.

²⁵⁷ DEIR, 4.8-24.

²⁵⁸ DEIR, 4.8-24.

²⁵⁹ DEIR, 4.8-11.

²⁶⁰ DEIR, 4.8-24.

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fossil fuel combustion.”²⁶¹ However, the DEIR does not discuss which policies, goals or measures in Air Quality Element are applicable and how the Project is consistent with them.

The DEIR offers bare conclusions in its determination that the Project does not conflict with these policies. These conclusory statements do not contain sufficient detail to allow those who did not participate in the EIR’s preparation to understand and meaningfully consider the issues raised by the Project.²⁶² As such, the DEIR lacks substantial evidence to demonstrate that the Project’s consistency with these policies results in less-than-significant impacts from GHG emissions.

15-Z3

For the above-stated reasons, the DEIR ultimately fails to adequately disclose, analyze, and mitigate the Project’s impacts from GHG emissions. The DEIR must correct these deficiencies in a revised and recirculated EIR.

D. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Impacts of Valley Fever on Public Health

The DEIR does not fully consider the potential for the Project’s construction to increase the incidence of Valley Fever. CEQA requires that an EIR be prepared with a “sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences.”²⁶³ The DEIR provides only a cursory discussion of the Project’s impacts on public health from Valley Fever and provides no substantial evidence to demonstrate the proposed mitigation measures will result in less than significant impacts.

15-A4

As discussed in greater detail in SWAPE’s comments, Valley Fever, also known as coccidioidomycosis, is an infectious disease caused by inhaling the spores of the soil dwelling fungus, *Coccidioides immitis* (CI).²⁶⁴ The CI spores become airborne when infected soils are disturbed during construction activities, agricultural operations, dust storms, or during earthquakes.²⁶⁵ The disease is

15-B4

²⁶¹ DEIR, 4.8-24.

²⁶² E.g. *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 515 (“The ultimate inquiry, as case law and the CEQA guidelines make clear, is whether the EIR includes enough detail ‘to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project.’”)

²⁶³ CEQA Guidelines, § 15151.

²⁶⁴ SWAPE Comments, p. 11.

²⁶⁵ SWAPE Comments, p. 11.

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debilitating and prevents those who have contracted Valley Fever from working.²⁶⁶ A 2012 study revealed that, between 1990 and 2008, half of the 3,000 people who died from Valley Fever in the United States were in California.²⁶⁷ Kern County Public Health Services Department has recognized that CI spores have been found in the County with increasing incidence.²⁶⁸ No known cure exists for the disease and there is no vaccine.²⁶⁹

Notably, another study documented the impact of Valley Fever on workers constructing large, industrial-scale projects during the period of October 2011 through April 2014 and found 44 California solar construction workers diagnosed with symptom onset.²⁷⁰ Project construction and operation will generate dust which is one of the primary routes of exposure for contracting Valley Fever.²⁷¹ Thus, construction workers are one of the most at-risk populations and exposure is much larger for workers on or adjacent to the project site, according to SWAPE's research.²⁷² Furthermore, the dust generated from Project construction carries very small spores – 0.002-0.005 millimeters in diameter – into other areas, potentially exposing large segments of the public.²⁷³

The DEIR acknowledges that construction workers and other people who work outdoors and who are exposed to wind and dust are more likely to contract Valley Fever.²⁷⁴ The DEIR also acknowledges that the Project has the potential to generate fugitive dust and suspend Valley Fever spores with the dust and that onsite workers could be exposed to it during construction.²⁷⁵ However, as SWAPE notes, the DEIR makes no mention of how soil-disturbing activity specifically conducted by Project construction might increase incidence of the disease in workers and the public, despite the extensive information available on Valley Fever.²⁷⁶ The DEIR fails as an informational document in this respect because the public is unable to determine the degree of exposure on workers and the public caused by the Project's construction and operational activities which are all done outdoors.

²⁶⁶ SWAPE Comments, p. 12.

²⁶⁷ SWAPE Comments, p. 11.

²⁶⁸ SWAPE Comments, p. 11.

²⁶⁹ SWAPE Comments, p. 12.

²⁷⁰ SWAPE Comments, p. 11.

²⁷¹ SWAPE Comments, p. 12.

²⁷² SWAPE Comments, p. 12.

²⁷³ SWAPE Comments, p. 12.

²⁷⁴ DEIR, 4.3-16.

²⁷⁵ DEIR, p. 4.3-39.

²⁷⁶ SWAPE Comments, p. 11.

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The DEIR then concludes that exposure to Valley Fever would be minimized after it implements Mitigation Measure (“MM”) 4.3-9, which would provide training and personal protective respiratory equipment to construction workers and provide information about Valley Fever to construction personnel and visitors.²⁷⁷ Without providing any further information, the DEIR concludes that dust from construction would not add significantly to the existing exposure level of people to this fungus, including construction workers, and impacts would therefore be reduced to less-than-significant levels.²⁷⁸ The DEIR provides no other information as to how MM 4.3-9 would feasibly reduce those impacts to less than significant and as such fails to support its proposed mitigation measure with substantial evidence. Proposing a mitigation measure to address a significant impact does not relieve the agency of its duty to analyze the impact in the EIR.²⁷⁹ Without knowing what the extent of the impacts of Valley Fever will be, it is impossible for the public to know whether the mitigation measures the DEIR proposes will be effective.

15-D4

Finally, SWAPE notes that the DEIR fails to incorporate additional mitigation measures recommended by the California Departments of Public Health and Industrial Relations.²⁸⁰ Specifically, the State health departments recommend that the Project require powered air-purifying respirators or NIOSH-approved full-face or half-mask respirators with particulate filters.²⁸¹ SWAPE provides further evidence on why these types of protection can reduce exposure by 90%.²⁸² Additionally, SWAPE cites to other sources that identify additional measures that should be incorporated into the DEIR, such as pretesting soils, enforcement of respiratory use during manual digging, testing of employees for immunity, hiring resident labor when possible, and establishing a medical program.²⁸³ CEQA requires that, where several measures are available to mitigate an impact, each measure should be discussed and the basis for selecting a particular measure should be identified.²⁸⁴ These mitigation measures are feasible and would significantly reduce public health impacts.

15-E4

²⁷⁷ DEIR, p. 4.3-39.

²⁷⁸ DEIR, p. 4.3-40.

²⁷⁹ See *Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova* (2007) 40 Cal.4th 412.

²⁸⁰ SWAPE Comments, p. 13.

²⁸¹ SWAPE Comments, p. 13.

²⁸² SWAPE Comments, p. 13.

²⁸³ SWAPE Comments, p. 14.

²⁸⁴ CEQA Guidelines, § 15126.4(1)(B).

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The DEIR must be revised to adequately analyze the Project's impacts of Valley Fever on public health and should fully evaluate and propose a wider range of mitigation measures to reduce those impacts.

↑
15-E4

IV. CONCLUSION

The DEIR fails as an informational document and lacks substantial evidence to support its analysis and conclusions in violation of CEQA. The DEIR failed to properly establish the environmental setting for biological resources, adequately disclose and analyze the Project's impacts on biological resources, air quality, public health, and climate change, and adequately mitigate those impacts.

15-F4

The County must revise the DEIR to cure these deficiencies and must circulate the revised DEIR for public review and comment. We respectfully urge the County to do so prior to any further consideration of the Project.

Sincerely,



Camille Stough

CGS:acp

Attachments

EXHIBIT A

Comment Letter No. 15: Adams, Broadwell, Joseph, and Cardozo

Renee Owens, M.S. - Biologist and Independent Environmental Consultant

March 17, 2020

Camille Stough
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080
(650) 589-1660

Subject: Comments on the Draft Environmental Impact Report for Apollo Solar State Clearinghouse No. 2017081038.

Dear Ms. Stough,

This letter contains my comments on the Draft Environmental Impact Report (DEIR) that was prepared for the AV Apollo Solar Project (Project) by Sunbow Solar I LLC, Syracuse Solar LLC, and Tours Solar LLC (Applicant). The Applicant proposes to construct, operate, maintain, and decommission an “up to” 60 megawatts (MW) electricity and energy storage system from photovoltaic (PV) solar facilities in unincorporated Kern County on approximately 494 acres. The project Applicant is requesting approval of General Plan Amendments (GPA) to the Circulation Element of the Kern County General Plan and four Conditional Use Permits (CUP) from Kern County to authorize the construction and operation of the solar facility and the associated installation of an onsite energy storage system, the installation of a communication tower, and the use of a temporary concrete batch plant. The project may also require a Franchise Agreement for the distribution line and an encroachment permit to connect the proposed SCE switching station to the existing 66 kV transmission line.

I. THE DEIR FAILS TO ADEQUATELY DESCRIBE, ANALYZE, AND MITIGATE SIGNIFICANT IMPACTS TO SPECIAL-STATUS SPECIES

A. The DEIR Presents an Incomplete Biological Baseline

The DEIR omits or incorrectly analyzes numerous special-status species resulting in an incomplete baseline and inadequate mitigation. The DEIR makes numerous references to potentially occurring special-status species being “absent” from the Project site (e.g. Table 4.4-1, 4.4-2). In stating a species is “absent” the DEIR inherently misleads the public and decision makers into believing the species would not be impacted by the Project. It is widely accepted by the scientific community that for most wildlife and many plant species it is almost impossible to prove absence overall,¹ especially within a relatively

15-G4

¹ MacKenzie D.I. 2005. What are the issues with presence-absence data for wildlife managers? *Journal of*

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large area such as an almost 500-acre site as this Project is. Consequently, the DEIR should be revised to eliminate reference to species being absent, and instead reference those species as ones that were “not detected.”

The DEIR presents, in Appendix A of the biological report, special status animal species denoted as “absent” or with a “low” potential to occur. In addition to reasons stated above, these conclusions are lacking in scientific rigor and substantial evidence, specifically where species may occur to breed, forage, roost, etc. due to appropriate habitat existing onsite. Even if foraging habitat does not exist, species can migrate through, using the area as a corridor or stopover. Nevertheless, various species, listed below, were noted as having a low likelihood to occur, or “absent”, simply because they were not observed onsite. The Applicant did not conduct focused surveys for these species, nor did they conduct surveys for some entire taxa that these species would fall under (i.e. migratory or nesting birds, raptor surveys, reptiles, rodents, bats). As such the DEIR provides little evidence that these species have a low chance to occur, and thus have presented a flawed and incorrect baseline. Specifically, the DEIR’s analysis is misleading, incomplete, or simply incorrect in respect to its analysis of these species listed as Low Potential, or Absent from the site. Omissions and inaccuracies regarding several special status species, namely the Swainson’s hawk, burrowing owl, American badger, kit fox, golden eagle, tricolored blackbird, desert tortoise, and several botanical species are discussed in greater detail further below.

15-G4

All bird species listed are protected under the Migratory Bird Treaty Act. Note that species with “*” are listed in the CNDDDB for the quadrangle where this Project is located. The species listed below are Federally Threatened (FT), State Threatened (ST), Federally Protected (FP), California Species of Special Concern (SSC), California Watch List (WL), BLM sensitive species (BLM), or Western Mojave Plan protected species (WMP) as indicated.

15-H4

1. Tricolored blackbird (*Agelaius tricolor*) ST

This California Endangered Species Act (ESA) listed species was detected within 0.6 miles of the Project. See detailed discussion below.

2. Golden eagle (*Aquila chrysaetos*) * FP

Eagles were detected during focused surveys for both the nearby Catalina Renewable and Manzanita Wind energy projects.^{2,3} See detailed discussion below.

Wildlife Management 69(3):849-860. <https://wildlife.onlinelibrary.wiley.com/doi/10.2193/0022-541X%282005%29069%5B0849%3AWATIWP%5D2.0.CO%3B2>

² County of Kern. 2011. Catalina Renewable Energy Draft Environmental Impact Report. Kern County Planning and Community Development Department.

https://www.kerncounty.com/planning/pdfs/eirs/catalina/catalina_deir_vol1.pdf

³ County of Kern. 2007. PdV Wind Energy Project DEIR. Kern County Planning and Community Development Department. https://www.kerncounty.com/planning/pdfs/eirs/PdV/PdV_TOC.pdf

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3. Ferruginous hawk (*Buteo regalis*)* WL

The DEIR acknowledges there is foraging habitat onsite yet determines, without conducting any raptor surveys, that they have a “low” likelihood to occur. This species was recorded in the eBird database within the Project site in 2010, more recently by Bloom Biological approximately 3 miles from the site during the Manzana Wind Energy FEIR project’s focused raptor surveys,⁴ and considered a “common migrant” detected during Catalina Renewable Energy DEIR surveys.⁵ It is important to note that the area for Catalina DEIR avian surveys, among others for the project, begin less than one mile from this Project site.⁶ Additionally the ferruginous hawk was detected on the project site when surveys were conducted for the nearby Willow Springs Solar Array project (located within 5 miles of this Project).⁷ The eBird database also has numerous records of ferruginous hawks occurring at the Willow Springs project site, including 6 observed and photographed on January 18, 2020 in a birding Hotspot less than 6 miles south of this Project.⁸ Many of the database records are of multiple hawks (up to 25) occurring together as a group. This is relatively unusual because ferruginous hawks are usually solitary and apparently widely spaced during foraging as they tend to defend their winter territory.⁹ However, there are published records of the species using communal roosts in areas of abundant food supply (but not necessarily limited roost sites).¹⁰

15-I4

4. Mountain plover (*Charadrius montanus*) SSC

The DEIR incorrectly states habitat to support this species is absent onsite. The species has been known to use desert habitats to forage on and in proximity to agricultural pastures and xeric shrublands.¹¹ The mountain plover is a federal and state listed Species of Special Concern that has previously been considered for listing under the federal Endangered Species Act. The mountain plover is a winter resident in California, primarily from September to mid-March, with peak numbers from December through February. The special-status listing associated with mountain plovers in California applies to birds on their wintering grounds. Wintering mountain plovers frequently occur in fallow, grazed, burned,

15-J4

⁴ County of Kern. 2007. PdV Wind (or “Manzana Wind”) Energy Project DEIR. Kern County Planning and Community Development Department. https://www.kerncounty.com/planning/pdfs/eirs/PdV/PdV_TOC.pdf

⁵ County of Kern. 2011. Catalina Renewable Energy Draft Environmental Impact Report. Kern County Planning and Community Development Department.

https://www.kerncounty.com/planning/pdfs/eirs/catalina/catalina_deir_vol1.pdf

⁶ *Ibid.*

⁷ County of Kern. 2015. Willow Springs Solar Array Project Draft Environmental Impact Report. Kern County Planning and Community Development Department.

https://www.kerncounty.com/planning/pdfs/eirs/willow_springs/willow_springs_solar_deir_vol2.pdf

⁸ [https://ebird.org/map/ferhaw?neg=true&env.minX=-](https://ebird.org/map/ferhaw?neg=true&env.minX=-119.74763715388497&env.minY=34.06295740298857&env.maxX=-117.06477585928758&env.maxY=35.42738717579163&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2020)

[119.74763715388497&env.minY=34.06295740298857&env.maxX=-](https://ebird.org/map/ferhaw?neg=true&env.minX=-119.74763715388497&env.minY=34.06295740298857&env.maxX=-117.06477585928758&env.maxY=35.42738717579163&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2020)

[117.06477585928758&env.maxY=35.42738717579163&zh=true&gp=false&ev=Z&mr=1-](https://ebird.org/map/ferhaw?neg=true&env.minX=-119.74763715388497&env.minY=34.06295740298857&env.maxX=-117.06477585928758&env.maxY=35.42738717579163&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2020)

[12&bmo=1&emo=12&yr=all&byr=1900&eyr=2020](https://ebird.org/map/ferhaw?neg=true&env.minX=-119.74763715388497&env.minY=34.06295740298857&env.maxX=-117.06477585928758&env.maxY=35.42738717579163&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2020)

⁹ Hunting K. 2000. Ferruginous Hawk (*Buteo regalis*). In: The draft grassland bird conservation plan: a strategy for protecting and managing grassland habitats and associated birds in California. *Point Blue Conservation Science*, Petaluma (CA). <http://www.prbo.org/calpif/htmldocs/species/grassland/fehaacct.html>

¹⁰ *Ibid.*

¹¹ <https://cpw.state.co.us/Documents/WildlifeSpecies/Grasslands/appendixC.pdf>

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barren fields, and low density shrublands.¹² The Antelope Valley is one of four critical wintering areas for mountain plovers in California.¹³ In early spring I observed this species foraging next to a large solar facility near Ocotillo in the middle of the Sonoran Desert. eBird observations note the species less than 6 miles south of the Project.¹⁴

↑
15-J4
↓

5. Merlin (*Falco columbarius*) * WL

This species was detected perched in Joshua trees on the site during Catalina Renewable Energy Project DEIR surveys and described as a “common overwintering migrant” in the area.¹⁵ This entire Project could contain foraging habitat for this species that is described as a winter visitor in appropriate habitat throughout Antelope Valley and eastern Kern County.^{16, 17}

↑
15-K4
↓

6. Peregrine falcon (*Falco peregrinus*)

The DEIR acknowledges habitat exists but claims low potential simply due to lack of observations, and despite not conducting general, comprehensive raptor surveys.

↑
15-L4
↓

7. Prairie falcon (*Falco mexicanus*) WL

The resident prairie falcon is a common raptor species of interest in California, and has been observed as a resident in open arid habitats in the interior of Southern California, including the Antelope Valley and eastern Kern County.¹⁸ The DEIR acknowledges foraging habitat exists onsite, but not suitable nesting habitat. Prairie falcons are associated with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas, and are known to use widely used open terrain for foraging. The DEIR fails to mention the fact that suitable nesting habit exists less than a quarter mile to the northeast in the rocky cliffs of the neighboring hillsides,¹⁹ significantly increasing the likelihood and

↑
15-M4
↓

¹² Hunting KW, S Fitton, L Edson. 2001. Distribution and Habitat Associations of the Mountain Plover (*Charadrius montanus*) in California. *Trans. West. Sect. Wildl. Soc.* 37: 37-42. See also Wunder MB, FL Knopf. 2003. The Imperial Valley of California is critical to wintering Mountain Plovers. *J. Field Ornithol.* 74:74-80. See also California Wildlife Habitat Relationships System. 2005. California Department of Fish and Game. California Interagency Wildlife Task Group. CWHR version 8.1 personal computer program. Sacramento (CA).

¹³ Audubon California. 2012. 2012 Mountain Plover Winter Survey. Report to the U.S. Fish and Wildlife Service Region 8-Migratory Bird Program. Audubon California, Sacramento (CA).
https://ca.audubon.org/sites/default/files/documents/mountain_plover_ca_final_report_dec_2012.pdf

¹⁴ <https://ebird.org/map/mouplo?neg=true&env.minX=-118.65913743010628&env.minY=34.73704032224569&env.maxX=-117.98842210645694&env.maxY=35.077491862355735&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2020>

¹⁵ County of Kern. 2011. Catalina Renewable Energy Project Draft Environmental Impact Report. Kern County Planning and Community Development Department.

https://www.kerncounty.com/planning/pdfs/eirs/catalina/catalina_deir_vol1.pdf

¹⁶ Garrett, K., and J. Dunn. 1981. *Birds of Southern California: Status and Distribution*. Los Angeles, CA: Los Angeles Audubon Society, p.408.

¹⁷ Heindel, M.T. 2000. *Birds of Eastern Kern County*. Available at: <http://fog.ccsf.cc.ca.us/~jmorlan/>

¹⁸ *Ibid.*

¹⁹ https://www.allaboutbirds.org/guide/Prairie_Falcon/lifehistory

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frequency of breeding pair(s) relying on foraging habitat onsite during breeding season. Several eBird accounts for this species exist on, and near (less than one mile) from the Project site.²⁰ This species was also detected during surveys for both the nearby Catalina Renewable Energy project and the Manzana Wind Energy project.^{21, 22}

15-M4

8. Mohave ground squirrel (*Xerospermophilus mohavensis*) ST
The DEIR acknowledges that habitat, and potential burrows for the species, exist onsite. More importantly, the Applicant conducted no surveys for any rodents, including this species. Therefore, to claim they are not present because they were not observed during non-specific surveys is scientifically flawed and unsupported by the evidence.

15-N4

9. San Joaquin pocket mouse (*Perognathus inornatus*) BLM
No focused surveys were conducted for this species for which onsite habitat exists, therefore to consider it absent is scientifically unsupported. This species was detected near this Project site in the Catalina Renewable Energy Project DEIR surveys (Figure 6).

15-O4

10. Tehachapi (white-eared) pocket mouse (*Perognathus alticolus inexpectatus*) * SSC, BLM, WMP
No focused surveys were conducted for this species for which onsite habitat exists, therefore to consider it "absent" is scientifically unsupported. The Tehachapi pocket mouse has the potential to occur on the Project site. The species is listed as California Species of Special Concern and it has a State rank of S1S2, which indicates its population is "imperiled" to "critically imperiled."²³ A critically imperiled population is defined as one that is extremely rare (often 5 or fewer) or has been affected by factors such as very steep declines making it especially vulnerable to extirpation from the state.²⁴ In 2011 the species was detected at two locations approximately one mile northwest of the Project site,²⁵ and the Desert Renewable Conservation Plan (DRECP) shows the distribution model for the species includes habitat approximately one mile northwest of the Project. Habitat at these locations was described as "desert scrub, creosote, and non-native grassland."²⁶

15-P4

²⁰ <https://ebird.org/map/prafal?neg=true&env.minX=-118.46690756491734&env.minY=34.80170989406144&env.maxX=-118.13154990309266&env.maxY=34.97197836212495&zh=true&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2020>

²¹ County of Kern. 2011. Catalina Renewable Energy Draft Environmental Impact Report. Kern County Planning and Community Development Department.

https://www.kerncounty.com/planning/pdfs/eirs/catalina/catalina_deir_vol1.pdf

²² County of Kern. 2007. PdV (Manzana) Wind Energy Project DEIR. Kern County Planning and Community Development Department. https://www.kerncounty.com/planning/pdfs/eirs/PdV/PdV_TOC.pdf

²³ CDFW, California Natural Diversity Database. Special Animals

<https://nrm.dfg.ca.gov/FileHandler.ashx%3FDocumentID%3D109406+&cd=3&hl=en&ct=clnk&gl=us&client=firefox-b-1-ab>

²⁴ *Ibid.*

²⁵ California Natural Diversity Database. 2015 Sep 1. RareFind 5. CDFW.

²⁶ <https://drecp.databasin.org/maps/new#datasets=9428df4c441c4fee95d148caca450b99>

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11. Tulare grasshopper mouse (*Onychomys torridus tularensis*) SSC, BLM

No focused surveys were conducted for this species for which onsite habitat may exist, therefore to consider it “absent” is scientifically unsupported.

15-Q4

12. Townsend’s big-eared bat (*Corynorhinus townsendii*) SSC, BLM

No bat surveys of any kind were conducted for this site, though foraging habitat exists onsite.

15-R4

13. Coast horned lizard (*Phrynosoma coronatum*) SSC, BLM

The DEIR claims the Project is not within the range of this species, however this Project borders the range for this species, and the nearby Catalina Renewable Energy Project detected both the Coast (San Diego) horned lizard (*Phrynosoma coronatum blainvillii*) and the Coast (California) horned lizard (*Phrynosoma coronatum frontale*) during focused surveys.

15-S4

14. Swainson’s hawk (*Buteo swainsoni*) ST

Foraging and breeding habitat exist onsite, and this species has been observed nesting in proximity to the Project. See detailed discussion below.

15-T4

15. Desert tortoise (*Gopherus agassizii*) FT, ST

A desert tortoise burrow was detected onsite by the Project biologists. In surveys for a nearby renewable energy project, 24 burrows and 4 scat were discovered between 0.6 and 5.1 miles northeast of the project boundary, and two live desert tortoises were observed 4.3 miles to the northeast. Claiming that the Project has “low potential” for tortoises is not supported by the positive detection of a tortoise burrow, or the abundance of research on habitat use, core areas, home range, and burrow utilization by desert tortoises. See detailed discussion below.

15-U4

It is also important to identify the special status species detected during focused surveys for the Catalina Renewable Energy DEIR, and the Manzanita Wind Energy DEIR, which was not mentioned in this DEIR, especially in light of the fact that the surveys for these projects were conducted in such close proximity to this Project (the former within a mile or less, the latter 3.5 miles or less depending on the species), and hosts similar habitats as the Project site.^{27, 28, 29} The species listed below are California Species of Special Concern (SSC), BLM sensitive species (BLM), or Western Mojave Plan protected species (WMP) as indicated.

15-V4

1. Southern grasshopper mouse (*Onychomys torridus*) SSC.

This species is not mentioned at all in the DEIR and yet habitat exists onsite. This species was detected near this Project site in the Catalina Renewable Energy DEIR surveys (Figure 6).

15-W4

²⁷ <https://drecp.databasin.org/maps/new#datasets=9428df4c441c4fee95d148caca450b99>

²⁸ County of Kern. 2007. PdV (Manzanita) Wind Energy Project DEIR. Kern County Planning and Community Development Department. https://www.kerncounty.com/planning/pdfs/eirs/PdV/PdV_TOC.pdf

²⁹ County of Kern. 2011. Catalina Renewable Energy Draft Environmental Impact Report. Kern County Planning and Community Development Department. https://www.kerncounty.com/planning/pdfs/eirs/catalina/catalina_deir_vol1.pdf

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2. Northern harrier (*Circus hudsonius*)* SSC, WMP.

National Audubon and Defenders of Wildlife comments presented within this DEIR³⁰ make special mention of the likelihood of this species being present throughout the Antelope Valley. This species is also present in various nearby eBird observations, including on the western edge of the project site. Northern Harriers breed and forage in a variety of open habitats that provide adequate cover for prey, an abundance of suitable prey, and scattered hunting, plucking, and lookout perches such as shrubs, low tree branches (like Joshua trees) or fence posts.³¹ In California, such habitats include grasslands, weed fields, some croplands, sagebrush flats, and desert sinks.³² According to the biological resources consultants for the Antelope Valley Solar Project (located south of this Project site), the northern harrier “has a high potential to nest in the tall vegetation in fallow agricultural areas.”³³ As such the species could be using areas, including the Project site, for foraging during breeding season.

3. Long-eared owl (*Asio otus*) * SSC, WMP.

This species was detected in eBird observations 0.6 miles to the south of the Project.³⁴ It was observed during avian surveys for the Catalina Renewable Energy DEIR, including an active nest in 2011. It was reported that a raven from a nearby nest killed one of the fledged long-eared owls, underscoring the need for raven management as part of potential mitigation that should be described, and not deferred to the future, in this DEIR.

4. Vaux’s swift (*Chaetura vauxi*) SSC, WMP.

This species is also present in eBird observations 0.6 miles to the south of the Project.³⁵ The species may fly over and forage throughout all of the Project.

5. LeConte’s thrasher (*Toxostoma lecontei*) * SSC, WMP, BLM.

Le Conte’s thrashers are generally uncommon and local residents in low desert scrub of the American Southwest, but they have declined in abundance in Southern California due to loss of open and semi-open habitats, particularly the population in the San Joaquin Valley.³⁶

15-W4

³⁰ DEIR Vol. 2 p. 88

³¹ Shuford WD, T Gardali, 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 1*. Western Field Ornithologists, Camarillo, CA, and California Department of Fish and Game

³² *Ibid.*

³³ Kern County. 2012. Addendum to the Environmental Impact Report for the Antelope Valley Solar Project, Appendix A, p. 30.

³⁴ <https://ebird.org/hotspot/L762373>

³⁵ *Ibid.*

³⁶ Shuford, W.D., and T. Gardali, eds. 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 1*. Western Field Ornithologists, Camarillo, CA, and California Department of Fish and Game

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6. Pallid bat (*Antrozous pallidus*) SSC, BLM.

The Project site has foraging and potential roosting habitat onsite.

7. Fringed myotis (*Myotis thysanodes*) BLM.

The Project site has foraging and potential roosting habitat onsite.

8. Western small-footed myotis (*Myotis ciliolabrum*) BLM.

The Project has potential foraging and roosting habitat onsite.

9. Long-eared myotis (*Myotis evotis*) BLM.

The Project site has foraging and potential roosting habitat onsite.

10. Yuma myotis (*Myotis yumanensis*) BLM.

The Project has potential roosting and foraging habitat onsite.

15-W4

B. PROTOCOL AND FOCUSED SURVEYS ARE NECESSARY TO ESTABLISH AN ACCURATE BIOLOGICAL BASELINE

While databases and reports are a standard part of the process for gathering information on a site, they cannot replace focused or protocol surveys when it comes to determining the presence, status, or scope of a particular species at a project site. The special-status species that could be expected to occur onsite for this Project include over two dozen species from various taxa. Some of these species (i.e. burrowing owl, raptors, eagles, MBTA nesting birds, SSC reptiles and mammals) should be surveyed by conducting entirely separate, focused surveys. A review of any technical report analyzing biological resource impacts will show that focused surveys are conducted literally as such, where the biologist ‘focuses’ on the species for which the protocol has been designated. A focused survey avoids splitting the biologist’s time attempting a protocol, habitat, or reconnaissance survey, while attempting to observe the ground, vegetation, underground (denning and burrowing species) and skies all at once for any vertebrate, invertebrate, and plant species that may also be present at any given time on and near the site. The demonstrated need for species-intensive focus is why agencies require protocol surveys to be conducted for one focal species at a time.³⁷ By definition, a focused protocol survey serves the purpose of detecting elusive rare or endangered species and requires a particular degree of intensive “focus” and species-specific search methodology by the surveying biologist. Not only is the search intensive, but concurrent reporting is also required for certain species (like the desert tortoise) while in the field. Concurrent reporting is equally time-intensive and precludes adequate attention necessary for thorough detection of other animals at the same time.³⁸

15-X4

³⁷ USFWS. 2017. Preparing for Any Action That May Occur Within the Range of The Mojave Desert Tortoise (*Gopherus agassizii*).

https://www.fws.gov/nevada/desert_tortoise/documents/manuals/Mojave%20Desert%20Tortoise_Pre-project%20Survey%20Protocol_2017.pdf

³⁸ *Ibid.*

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It is widely accepted that it is the rare species that are more sensitive, require greater protection, and thus most important to detect. By definition rare species occur in lower densities, and/or have lower occurrences on average for any given occupied territory, and thus require even greater attention, focus, and time dedicated to accurate observation data. By conducting concurrent surveys for almost all species with the potential to occur onsite, it is only logical to conclude that the likelihood that biologists miss key individuals of sensitive species significantly increases. It is especially likely that species that may be flying overhead will be missed, while the biologist is busy scouring the ground for DT or a tiny rare plant. Finally, it is basic common sense that nocturnal, crepuscular, and fossorial species (i.e. bats, foxes, lizards, rodents) will not be detected when the appropriate methodology is not applied to observe them. To conclude certain are not present, or have a low potential to occur, without conducting focused surveys, is scientifically unfounded.

Studies of Mojave Desert species show that not only the presence but abundance and density of species can be highly variable from year to year based upon factors such as drought, disturbance from large scale renewable energy projects, and related ecosystem functions, including prey-predator cycles, gene flow, and responses to herbivory, to name a few.^{39, 40, 41} This underscores the importance of project-wide focused surveys, which predict presence/absence of sensitive wildlife species, as well as the degree to which such a predicted species' status may be mitigated when Project impacts to the species are deemed significant. Conversely, relying purely on databases and old reports result in limited predictions not supported by actual, ground-truthed observations and therefore are inadequate for thorough mitigation analyses.

Protocol surveys are also conducted to collect data on other important variables regarding subpopulations assessments, including species richness, density, behavioral factors, breeding status, corridor use, etc. Experienced biologists with survey permits not only have the responsibility of formally reporting all such observations to USFWS, but also to ensure harassment of species during surveys is minimized by default of their specialized knowledge and training.

The DEIR made little attempt to use focused surveys to determine the most current site-specific status for most wildlife species on or near the site. It instead referred to habitat assessments and limited databases to make protected species status determinations – and resultant outlines of mitigation measures. This is a clear oversight in the DEIR. Focused ground-truthing is not a backup required only for ESA or CESA species. It is warranted to determine essential details required for adequate mitigation analyses, such as current species density, nesting or breeding status, species richness, and other such ecological variables that cannot be completely derived from any given database or combination thereof.

Using databases is an important part of gathering site-specific data, but they cannot replace focused or protocol surveys in terms of specificity or accuracy. For example, the DEIR relies upon the CNDDDB to

³⁹ Reynolds, J. F., Kemp, P. R., Ogle, K., & Fernández, R. J. 2004. Modifying the “pulse-reserve” paradigm for deserts of North America: precipitation pulses, soil water, and plant responses. *Oecologia*, 141(2), 194–210. <http://proxy.greenmtn.edu:2048/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=15042457&site=eds-live>

⁴⁰ Charles C. Peterson. 1996. Ecological Energetics of the Desert Tortoise (*Gopherus agassizii*): Effects of Rainfall and Drought. *Ecology*, (6), 1831. <https://doi.org/10.2307/2265787>

⁴¹ Bare, L., Bernhardt, T., Chu, T., Noddings, C., Gomez, M., Viljoen, M. 2009. Cumulative Impacts of Large-scale Renewable Energy Development in the West Mojave: effects on habitat quality, physical movement of species, and gene flow. *Group Project Brief*, Donald Bren School of Environmental Science and Management. UCSB.

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make impact determinations at the population level. However, the CNDDDB is limited in its ability to predict species currently present at any given locale; instead, it presents at best a conservative description of what may or may not be present onsite, and thus reveals little about details related to populations as a whole. Many species sightings are not actually reported on the public CNDDDB. For instance, according to CDFW's CNDDDB coordinator, for most birds the CNDDDB maps only those occurrences that can be associated with "evidence of nesting." Observations of flyovers or foraging are generally not mapped into CNDDDB as an "Element Occurrence," the standard mapping unit based on NatureServe natural heritage program methodology.⁴² CNDDDB biologists also state that the database represents summaries of species occurrences; not individual detections. "Given limited resources to map submissions, the CNDDDB tries at best to map occurrences that relate to an important aspect of life history." (*pers. comm*, P. McIntyre, CDFW, June 6, 2015).

As importantly, CNDDDB records are voluntarily reported and only exist for locations that have been surveyed to a greater extent than others. As a result, the lack of CNDDDB records, or records from any other database does not mean a species is absent. To reinforce this fact the CDFW posts a disclaimer on its CNDDDB website: "We work very hard to keep the CNDDDB [...] as current and up-to-date as possible given our capabilities and resources. However, we cannot and do not portray the CNDDDB as an exhaustive and comprehensive inventory of all rare species and natural communities statewide. **Field verification for the presence or absence of sensitive species will always be an important obligation of our customers.**"⁴³

Similarly, the California Native Plant Society's Inventory of Rare and Endangered Species states the following for species accounts, "A reminder: Species not recorded for a given area may nonetheless be present, especially where favorable conditions occur" and "Species may be present in other areas where conditions are favorable. **This data should NOT be substituted for pre-project review or for on-site surveys**" (emphasis added).⁴⁴

As noted, databases and historic records are an important part of determining whether or not the habitat for special status species exists on site. However, they do not, and cannot, determine how many, when, where, and in what density individuals of a species may be present, the status of breeding and nesting, life stage (i.e. larvae, juvenile, breeding adult), and other important details necessary for developing an accurate impact assessment. Databases and historic records also cannot provide appropriate details, criteria, and performance standards for developing mitigation measures, including the type, size, and location of compensatory mitigation to offset habitat and direct, indirect, and cumulative impacts, to species at the individual or population level.

In light of the paucity of evidence and resultant lack of appropriate or accurate analysis for these species that all have potential to occur onsite, the DEIR must revisit its baseline presentation for these special status species and conduct appropriate focused surveys for the species and/or their representative taxa (i.e. bats, reptiles, small mammals, raptors, nesting/migratory birds).

⁴² <http://www.natureserve.org/conservation-tools/standards-methods>.

⁴³ <https://www.wildlife.ca.gov/Data/CNDDDB/About> (emphasis added).

⁴⁴ For example see <http://www.rareplants.cnps.org/detail/619.html> and <http://www.rareplants.cnps.org/detail/1640.html>

15-X4

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C. BIRDS

1. The DEIR Fails to Adequately Disclose and Analyze Impacts to the Tricolored Blackbird

The DEIR incorrectly categorizes the tricolored blackbird's conservation status. The tricolored blackbird (*Agelaius tricolor*) is protected as Threatened⁴⁵ under the CESA, not a Species of Special Concern as the DEIR states.⁴⁶ Studies demonstrate that tricolors have undergone a long-term population decline due to losses of breeding and foraging habitats to urban, agricultural, and other land conversions. According to the CNDDDB and U.S. Fish and Wildlife Service (USFWS),⁴⁷ this species is a year-round resident to the Project region. The DEIR also incorrectly states that habitat to support this species is absent from the Project site. In 2016, eBird ornithologists reported tricolored blackbirds present at a birding hotspot 0.6 miles south of the Project site.⁴⁸ According to the Catalina Renewable Energy Project – a facility located just one mile west of the Project – the tricolored blackbird was determined to be present within the proposed project property according to “literature review, agency coordination, consultation with experts, and detailed field surveys.”⁴⁹ The DEIR must rectify these oversights and address potential impacts to habitat and necessary mitigation to reduce impacts to individuals and the regional population.

15-Y4

2. The DEIR Fails to Adequately Describe and Analyze Impacts to the Swainson's Hawk

The DEIR's baseline analysis and impact mitigation to the CESA-threatened Swainson's Hawk (SWHA) are incomplete and inadequate. The DEIR states, “based upon current and available information, the Project would have no impacts to the Mohave ground squirrel or Swainson's hawk. Measures for the protection of those species are not warranted.”⁵⁰ The DEIR does not come close to providing substantial evidence supporting the statement that SWHAs will not be impacted from Project construction or operation.

The DEIR summarizes methods for their 5-mile radius surveys as follows: “Swainson's hawk windshield surveys were conducted in April, May, June, and July of 2017 (Table 2). The Project and surrounding habitat was evaluated for the presence of SWHA using standard methods described in the Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California (CEC and CDFW 2010).”⁵¹ First, the 2010 CEC/CDFW protocol states that driving surveys are appropriate if and when an adequate roadway is available through or around the project site, whereas walking surveys are appropriate when driving is

15-Z4

⁴⁵ CDFW. 2019. State and Federally Listed Endangered And Threatened Animals of California. CNDDDB. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109405&inline>

⁴⁶ DEIR p. 4.4-14

⁴⁷ <https://www.fws.gov/migratorybirds/pdf/management/focal-species/TricoloredBlackbird.pdf>

⁴⁸ <https://ebird.org/hotspot/L762373?yr=all&m=&rank=hc>

⁴⁹ County of Kern. 2011. Catalina Renewable Energy Draft Environmental Impact Report. Kern County Planning and Community Development Department.

https://www.kerncounty.com/planning/pdfs/eirs/catalina/catalina_deir_vol1.pdf

⁵⁰ DEIR Vol 2 p. 52

⁵¹ DEIR Vol 2 p. 28

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not an option due to potential nesting sites not readily visible from a road.⁵² As can be seen from any aerial photo of the site and its surroundings, not every potential nest area (e.g. Joshua tree) is visible from a drivable road within 5 miles of the Project, leaving overlooked potential nesting habitat.

Second, the exact delineation of what comprises a 5-mile radius from the Project is subjective, therefore a map of the survey area should have been presented. The DEIR provided neither the times of day nor duration of the surveys conducted. Without evidence of the exact area, the number of hours spent surveying each project site, or the routes covered by biologists, it is speculative to assume sufficient surveys were performed simply because surveys were conducted on multiple days. With specific survey data unreported, it is not clear that comprehensive surveys for SWHA were conducted.

Further, by referring to the CDFW (2010) comment about low SWHA population in the Antelope Valley,⁵³ the DEIR attempts to mislead the reviewer with a determination of no project impacts to SWHAs. But what the DEIR fails to reveal are the conclusions the CDFW makes in respect to the low population numbers in the region, namely,

“The small number of breeding Swainson’s hawks in the Antelope Valley and the potential isolation from other Swainson’s hawk populations makes the Antelope Valley population particularly susceptible to extirpation. Swainson’s hawks have high nest site fidelity, meaning they return to the same site year after year (Estep 1989, Woodbridge et al. 1995) This may limit exchange of individual birds between distant breeding groups (Hull et al. 2007). Hull et al. (2007) found evidence suggesting that the Central Valley population has had little recent genetic exchange with other populations east of the Sierra Nevada. Due to the geographical isolation of the Antelope Valley Swainson’s hawk population from other breeding populations, together with the species’ high site fidelity, it is reasonable to infer that rapid re-colonization of the Antelope Valley would be unlikely if nesting pairs were lost. Given these facts, the California Department of Fish and Game (Department) would consider impacts to breeding pairs to be potentially significant because they may cause the population to become less than self-sustaining.”

The CDFW continues by stating that,

“a reduction in numbers or habitat of a rare, threatened, or endangered species would be considered a significant impact under CEQA. Potentially significant impacts may result from activities that cause nest abandonment, loss of nest trees, loss of foraging habitat that would reduce nesting success (loss or reduced health or vigor of eggs or young), or direct mortality. **Due to the Swainson’s hawk’s known preference for areas of low vegetation that support abundant prey, such as grasslands or alfalfa fields (Bechard 1982, Babcock 1995), the Department considers conversion of foraging areas to renewable energy power plant facility**

⁵² <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83991&inline>

⁵³ DEIR Vol 2 p. 28

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sites to be habitat loss. For example, solar panel arrays are expected to eliminate most or all foraging potential. Significant habitat loss may result from individual projects and cumulatively, from multiple projects. Each project which contributes to a significant cumulative effect must offset its contribution to that effect in order to determine that the cumulative impacts have been avoided.” (emphasis added.)⁵⁴

In short, even the loss of one pair could significantly and negatively impact the region’s population.

The high likelihood that SWHAs may use the Project site for foraging, nesting, or a stopover is also supported by the evidence available from recent historical sightings of SWHAs within several miles of the Project area:

1. In the DEIR, comments from the Kern Audubon Society state, “Spatial data from the California Department of Fish & Wildlife reveals as many as five possible active Swainson’s hawk nests recorded from 2013-2017 within a five mile radius of the Project site.”⁵⁵ Appropriately, the Audubon Society recommends “a Conservation Plan for Swainson’s Hawk in the Antelope Valley should be prepared by a qualified biologist and reviewed by California Department of Fish & Wildlife to identify a conservation strategy for Swainson’s Hawk in the Antelope Valley.”⁵⁶
2. A raptor biologist conducting surveys for the Rosamond Solar Project confirmed nesting SWHA approximately 5.7 miles from the Project in spring and summer of 2018.⁵⁷
3. eBird observations note one to four SWHAs observed on the west side of the Project site in 2009 and 2010.⁵⁸ Four eBird observations in 2016 report one to three Swainson’s hawks observed just 0.5 miles south of the Project.⁵⁹
4. The DEIR for the Catalina Renewable Energy Project, which is located just one mile southwest of the Project, states: “The entire 6,739-acre proposed project property constitutes suitable habitat for Swainson’s hawk. Swainson’s hawks may occur over all habitats throughout the proposed project property, but if foraging, Swainson’s hawk would be expected most frequently over open habitats such as scrub and native grassland.” The DEIR goes on to say: “The largest single flock of Swainson’s hawk was reported at 50 birds in spring 2004 and 12 birds were observed during spring 2005 at the adjacent approved Manzana (formerly PdV) Wind Energy Project property. Swainson’s hawks were observed at the proposed project property during the

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⁵⁴ <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83991&inline> (p. 2)

⁵⁵ DEIR Vol 2 p. 89

⁵⁶ *Ibid.*

⁵⁷ <https://ebird.org/checklist/S46328272>

⁵⁸ <https://ebird.org/checklist/S6297981>

⁵⁹ <https://ebird.org/map/swahaw?env.minX=-163.830324878759&env.minY=-42.0682205340751&env.maxX=-41.6594462385038&env.maxY=71.9081724700314>

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spring 2011 migration. During summer avian surveys, one adult light-phase bird was observed flying over the project study area near the junction of the Tehachapi-Willow Springs Highway and Aqueduct Road on July 8, 2009, at 200 feet above ground.”⁶⁰

5. The Manzanita Wind project mentioned above lies approximately 5.8 miles southwest of this Project. However, aerial and ground raptor surveys were conducted within a survey area that came within 2.7 miles of this Project (e.g. FEIR Fig 4.4.4.2-3). Surveys were carried out by Bloom Biological, owned by Dr. Peer Bloom, experienced raptor biologist and subcontractor for the U.S. Geological Survey (USGS). According to their findings in the Manzanita FEIR, **“Surveys were performed in the proposed project area during fall, winter, and spring migrations to determine baseline conditions for avian species within the proposed project area. One state-listed species, Swainson’s hawk (*Buteo swainsoni*), and six federal and/or state sensitive species, golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), northern goshawk (*Accipiter gentilis*), Cooper’s hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), and prairie falcon (*Falco mexicanus*), were found on the site (emphasis added).”**⁶¹
6. The DataBasin’s (Conservation Biology Institute) Swainson’s hawk nesting and foraging use distribution model shows that close to half of the Project site has high potential habitat (Fig. 8).

According to this recent history of sightings of SWHA onsite, and within less than five miles of the site, and the conclusions stated in the DCFW report, the DEIR does not accurately describe and analyze the impacts to the SWHA. The Applicant must conduct thorough surveys with all methodology and survey data mapped and reported, revise the impact analysis, and respond with appropriately detailed construction *and* operational mitigation recommendations for the SWHA. The Swainson’s hawk should garner all necessary protections as a species listed as Threatened under the California Endangered Species Act.

3. The DEIR Fails to Adequately Describe, Analyze, and Mitigate Impacts to the Golden Eagle

The DEIR claims there is “low” potential for the federally protected golden eagle to occur onsite, while at the same time admitting the site hosts foraging habitat. This is despite the fact that both the nearby Catalina Renewable Project DEIR,⁶² and Manzanita Wind Project FEIR⁶³ detected golden eagles during

⁶⁰ County of Kern. 2011. Catalina Renewable Energy Draft Environmental Impact Report. Kern County Planning and Community Development Department.

https://www.kerncounty.com/planning/pdfs/eirs/catalina/catalina_deir_vol1.pdf

⁶¹ County of Kern. 2007. PdV (Manzanita) Wind Energy Project DEIR. Kern County Planning and Community Development Department. https://www.kerncounty.com/planning/pdfs/eirs/PdV/PdV_TOC.pdf Biological Technical Report p. 648, 653.

⁶² County of Kern. 2011. Catalina Renewable Energy Draft Environmental Impact Report. Kern County Planning and Community Development Department.

https://www.kerncounty.com/planning/pdfs/eirs/catalina/catalina_deir_vol1.pdf

⁶³ County of Kern. 2007. PdV (Manzanita) Wind Energy Project DEIR. Kern County Planning and Community Development Department. https://www.kerncounty.com/planning/pdfs/eirs/PdV/PdV_TOC.pdf

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focused surveys. As a result, the DEIR proposes no mitigation of direct or indirect impacts to eagles or the loss of eagle foraging habitat.

The scientific community recognizes the population decline and continued threats to golden eagles in California (including foraging habitat loss, pesticides, lead shot, electrocution, and an increase in renewable energy development),^{64, 65} so much so that the Desert Renewable Energy Conservation Plan (DRECP) includes a Golden Eagle Monitoring Plan.⁶⁶ Additionally, USGS recognizes impacts to eagles may be both overt and more difficult to observe, stating “Golden eagles visibly display behavior that signifies disturbance when they are stressed by anthropogenic activities; whether it is a lone hiker walking 1000 meters or more from a nest, or extended **construction** or recreation activities 2000 – 5000 meters from a territory (emphasis added),” while also noting other impacts are less obvious, including changes in foraging behavior that result in reduced fecundity and nesting success.⁶⁷

The USGS’s Golden Eagle Monitoring Plan specifically addresses the impacts of renewable energy development to eagles in the Mojave desert as follows:

“The golden eagle is a species targeted for conservation under the DRECP that may be sensitive to environmental changes associated with development of wind and solar energy projects (CEC 2014)...Potential risks from solar developments are likely to be indirect, occurring through loss of foraging habitat and prey availability (Holroyd et al. 2010), although solar concentrating facilities may cause direct mortality via collisions with structures or from heat-related burns (Kagan et al. 2014, Walston et al. 2016).

Infrastructure associated with wind and solar energy projects, especially roads and power lines, can be a significant cause of mortality in golden eagles through collisions or electrocutions (Lehman et al. 2010, Hunt et al. 2017)(emphasis added).”⁶⁸

The Plan’s analysis goes on to state that solar energy facility development contributes to a decrease in available foraging habitat and prey abundance, increased fragmentation of foraging habitats, and a change in predator abundance. Notably, it also highlights research indicating that “the population rate of change in golden eagles in the DRECP area (and elsewhere) is strongly influenced by relatively small changes in adult survival.”⁶⁹

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⁶⁴ <https://www.eagles.org/what-we-do/educate/learn-about-eagles/golden-eagles-dangers/>

⁶⁵ <https://abcbirds.org/bird/golden-eagle/>

⁶⁶ USGS. 2018. Golden Eagle Monitoring Plan for the Desert Renewable Energy Conservation Plan. Energy Research and Development Division Final Project Report. <https://ww2.energy.ca.gov/2018publications/CEC-500-2018-008/CEC-500-2018-008.pdf>

⁶⁷ *Ibid.*

⁶⁸ USGS. 2018. Golden Eagle Monitoring Plan for the Desert Renewable Energy Conservation Plan. Energy Research and Development Division Final Project

Report. <https://ww2.energy.ca.gov/2018publications/CEC-500-2018-008/CEC-500-2018-008.pdf> p. 5

⁶⁹ *Ibid.* p. 53

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The USFWS Golden Eagle Monitoring Protocols⁷⁰ state that “for developments land management agencies and/or proponents of land use activities should first assess all existing recent and historical data available on eagles, including their nests, reproductive activity and chronologies, natal dispersal, pertinent data from VHF and satellite telemetry, winter roosts, migration corridors, and foraging habitats contained by and 4 - 10 + miles of areas slated for development or authorizations for increased human activity. This background search of available information may yield few data, but is necessary to alert project proponents and regulatory staff about data gaps, and existing knowledge of Golden Eagles for that area.” In respect to environmental impact analyses, the USFWS states that “for permitting purposes and to determine the likelihood and magnitude of take, as well as effectiveness of mitigation, monitoring will need to yield productivity information....Inventories for Golden Eagles should occur if nesting, roosting, and foraging habitat are contained within the project boundary and exist within 10 miles of the project boundary. Local and regional Golden Eagle habitat variability will dictate the distance from the project boundary where surveys will occur; distances will be greater in xeric or other habitats where local prey may not be abundant.”

In fact, eagle research for the DRECP by USGS shows a golden eagle nest was observed 6.4 miles from the Project, and identifies potential nesting habitat less than a half mile away (Figure 7). eBird observations from 2016 show four sightings of golden eagles 1.2 miles from the nearby USGS reported nest site, 5.2 miles east of the Project.⁷¹ Even a cursory glance at eagle movements (e.g. USGS biotelemetry data for nesting eagles in southern California)⁷² around nest sites reveal they repeatedly fly many miles (i.e. up to and beyond 30 miles from a nest site) to forage, necessitating impact analysis far beyond whether or not eagles are observed during a non-focused site assessment, as presented by the DEIR.

A report to the Bureau of Land Management (BLM) on Golden Eagle Home Range, Habitat Use, Demography and Renewable Energy Development In The California Desert confirms that, “More recently, growth of the solar energy industry presents additional indirect risk to birds, primarily through habitat conversion and loss (Fernandes et al 2010). Both solar and wind industry businesses are submitting large numbers of applications for energy projects on federal lands in California (Fernandes et. al. 2010), thus the environmental impacts of these programs are expected to grow with time.”⁷³

⁷⁰ Pagel, J.E., D.M. Whittington, and G.T. Allen. 2010. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Bird Management, U.S. Fish and Wildlife Service.

https://www.fws.gov/southwest/es/oklahoma/documents/te_species/wind%20power/usfws_interim_goea_monitoring_protocol_10march2010.pdf

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<https://ebird.org/map/goleag?neg=true&env.minX=&env.minY=&env.maxX=&env.maxY=&zh=false&gp=false&ev=Z&mr=1-12&bmo=1&emo=12&yr=all&byr=1900&eyr=2020>

⁷² Tracey, J.A., Madden, M.C., Sebes, J.B., Bloom, P.H., Katzner, T.E., and Fisher, R.N. 2017. Biotelemetry data for golden eagles (*Aquila chrysaetos*) captured in coastal southern California, February 2016–February 2017: U.S. Geological Survey Data Series 1051, 35 p., <https://doi.org/10.3133/ds1051>.

⁷³ Katzner et. al. 2012. Golden Eagle Home Range, Habitat Use, Demography And Renewable Energy Development In The California Desert. BLM Interim Report. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83964>

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With the exception of burrowing owls, the DEIR defers any details of mitigation to the future, stating “the Project operator should construct all power transmission lines to the 2006 Avian Power Line Interaction Committee (APLIC) Guidelines and recommendations. Prior to issuance of a grading or building permit, appropriate notes regarding these specifications should be included on any grading permit, building permit or final map.”⁷⁴ This is inadequate. First, without any further details or definitions, and in light of the DEIR’s lack of definitive descriptions of scope of Project facilities to be constructed, the phrase “appropriate notes” is meaningless. Second, the Project will incur impacts to golden eagles via loss of foraging habitat, potential alteration in foraging behavior, and increased potential for electrocution. Despite the existence of APLIC’s (15 years old, as cited) standards for power line construction, it has been repeatedly observed that mitigation and retrofitting of electrical poles and related infrastructure have demonstrated limited mitigation success.⁷⁵

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The DEIR fails to provide support for its determination of low potential to occur and to definitively describe the scope of new facilities that will be constructed for the Project. As such, the Applicant must go back and conduct appropriate eagle (and other raptor) surveys, concurrent with a *detailed* discussion of compensatory mitigation impacts to eagles and other raptors that may forage onsite and nest nearby – including the Swainson’s hawk and other special-status raptors - that have been detected, and may be detected, within and up to 10 miles of the Project.

4. The DEIR Fails to Adequately Describe and Analyze Impacts to Resident and Migratory Birds

The DEIR correctly states, “The Project site is within the vicinity of the Pacific Flyway, a significant avian migration route. The presence of migratory bird species within the vicinity of the Project site is partially related to the proximity to the Pacific Flyway.”⁷⁶ It also states: “The Project could also result in avian mortality and injury due to collisions between flying birds and Project facilities and equipment. There has been some preliminary evidence that suggests that bird collisions with solar PV panels might be a bird mortality issue, but additional information is needed to determine whether the incidence of bird mortalities are significant.” First, the evidence (Table 1) on the significance of bird strikes to solar panels is more than preliminary, and demonstrates that panels, although an attractant to water loving birds especially, can cause injury and death to birds of many species, including protected ones (e.g. Swainson’s hawk, burrowing owl, tricolored blackbird) where loss of even a few breeding adults can significantly alter their regional population status. However, the DEIR states that “additional information” is needed. This is indeed true, namely, information on what birds are residents, nesting, and migrating in the area, and not collected via any focused bird surveys (excepting vaguely described surveys of the Swainson’s hawk) for analysis for this Project.

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⁷⁴ DEIR Vol 2 p. 59

⁷⁵ Wiley. 2018. Mitigation techniques fall short of preventing electrocution of golden eagles on power poles. *ScienceDaily*.

www.sciencedaily.com/releases/2018/01/180124085606.htm<https://www.sciencedaily.com/releases/2018/01/180124085606.htm>

⁷⁶ DEIR Vol 2 p. 45

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The DEIR is also deliberately misleading in its attempt to minimize impacts to birds by strikes to solar panels, and other infrastructure, by using incorrect terms such as “cause of death not clear,” “great deal of uncertainty”, and most erroneously, “The Project site is located in an area of relatively low use by avian species, is not within known migratory routes.” The DEIR presents virtually no evidence to support the latter claim, which is also in direct contradiction to their statement that the Project is within the Pacific Flyway migration route. Indeed, the project is in direct line of a major flyway that includes a stopover for millions of birds, namely the Salton Sea. Additionally, the DEIR contradicts itself by stating that cumulative impacts to biological resources will be “significant and unavoidable,” while concurrently attempting to downplay such impacts to potentially hundreds of species of migratory birds that use the Pacific Flyway. eBird observations throughout the past decade show 50 species at a Hotspot just 0.6 miles south of the Project,⁷⁷ including repeat species observations such as the Swainson’s hawk (State ESA Threatened), tricolored blackbird (state ESA Threatened), Willow flycatcher (Federal ESA Endangered, observation by ecologist consultant), Vaux’s swift (California Species of Special Concern (SSC)), loggerhead shrike (SSC), Long-eared owl (SSC), Cactus wren, Wilson’s phalarope, among others. It should be noted several of these species were listed as observed *incidentally* on the Project site.⁷⁸ These observations are particularly important in light of the existing evidence that demonstrates how the significant impacts of solar panels and associated facility infrastructure with respect to bird strikes are not preliminary, but instead certain and demonstrable by way of solar projects’ mortality reports.

The DEIR’s oversight of Project impacts by way of bird strikes throughout the life of the project is fatally flawed in its omission due to the plethora of evidence that such strikes knowingly contribute to bird deaths and injuries on every industrial-scale solar facility. The following is a compilation of evidence supporting the fact that the project may result in potentially significant direct, indirect, and cumulative impacts to migratory and resident birds, breeding and non-breeding, and the DEIR does not come close to adequately describing or mitigating such impacts:

1. Table 1 summarizes a partial review of avian mortality reports for solar desert facilities submitted to the state and federal Fish and Wildlife agencies between 2011 and 2016, (depending on the report). Table 1 shows just a partial summary that lists species that are protected under the Federal ESA, California ESA, California Species of Special Concern, and Migratory Bird Treaty Act, and have been killed by collision deaths at Southern California desert solar facilities, including burrowing owls, loggerhead shrikes, red-tailed hawk, horned lark, Say’s phoebe, long-eared owl, American white pelican, prairie falcon, all of which were identified on or near (from 0.6 to 2.5 miles) of the Project site. The data therein demonstrate not only the importance of appropriately scripted scientific, methodical data collection to determine direct and cumulative impacts via strike mortality, but it also provides undeniable evidence that solar facilities specifically attract and kill birds across many groups including migrants; resident birds are not the only ones affected. In short,

⁷⁷ <https://ebird.org/hotspot/L762373>

⁷⁸ DEIR Vol 2 p. 17

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these structures are not discriminatory in attracting only common desert residents. Table 1 shows that protected, endemic, and unusual desert migrants of all sizes succumb; including marine and freshwater species such as the blue-footed booby, surf scoter, Virginia rail, common gallinule, common loon, pelicans, a jaeger, various ducks, grebes, a surf scoter, and other birds native to marine and freshwater habitats that utilize wetland stopovers – or what may appear to be wetlands but are vast solar arrays with similar reflective appearances to water - while migrating through desert regions (Photo 2).

The California Valley Solar Ranch Project (CVSRP) is located in the California desert region primarily on land designated largely as formerly ‘disturbed’ habitat and thus arguably of lower overall quality habitat than this Project site. The CVSRP development footprint that contains the PV solar arrays and operating facilities is approximately 1,475 acres.⁷⁹ Despite what was deemed lower quality habitat, 703 bird mortalities were reported at CVSRP over the course of just two years, including three burrowing owls and despite burrowing owl mitigation measures in place. This predicts a mortality of 10,545 birds for the life of a 30-year facility, including 45 burrowing owls. One can extrapolate the impact of a project from acreage alone for an area slightly more than one third the size of CVSRP’s footprint (as this Project is) to begin to estimate bird mortality from strikes to solar arrays and associated infrastructure. Throughout the life of this Project strikes could thus total a minimum of 3,515 birds, including an unknown number of rare, SSC, and ESA listed species, and would thus pose a high risk of significantly impacting an entire population or a resident or migratory species that uses this site for nesting, foraging, or a migratory flyway.

2. In a peer reviewed study McCrary et al. reported, “We studied avian mortality at an operating solar central receiver power plant in the Mojave Desert of southern California. During 40 weeks of study we documented the deaths of 70 birds (26 species). The estimated mortality rate was 1.9-2.2 birds per week. 81% of birds of 20 species died from collisions with Solar One structures, mainly the mirrored surfaces of heliostats.”⁸⁰ The study goes on to further distinguish collision deaths with reflective panels as separate from other collision deaths, “Avian Collisions are an inevitable by-product of almost all man-made structures (see Avery et al., FWS/OBS-80/54, 1980). Reflective surfaces are especially prone to collisions (Klem, Ph.D. thesis, Southern Illinois Univ., Carbondale, 1979), and it is not surprising that collisions with mirrored heliostats occur on a somewhat regular basis considering the reflective surface area of Solar One.”⁸¹
3. Research on solar array and power line collisions demonstrates that impacts can be influenced by many variables, including proximity to developed areas and wetlands, degree

⁷⁹ H.T. Harvey and Associates. 2010. Biological Assessment for the California Valley Solar Ranch Project https://www.energy.gov/sites/prod/files/2014/04/f14/CVSR_BA_11_08_10_Final.pdf

⁸⁰ McCrary, M. Mckernan, Schreiber, R., Wagner, W., and Sciarrotta, T. 1986. Avian Mortality at A Solar Energy Power Plant. *J. Field Ornithology*, 57(2), 135-141.

<https://sora.unm.edu/sites/default/files/journals/jfo/v057n02/p0135-p0141.pdf>

⁸¹ *Ibid.*

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of fencing, proximity to roads or roosts, wind conditions, and migration micro-pathways.⁸² USGS biologists point out that numerous animal species use polarized light for orientation and navigation purposes (Horváth and Varjú 2004). As such, the potential exists for polarized light pollution (PLP) to disrupt the orientation and migration abilities of desert wildlife, including those of sensitive species. In the review by Horváth and colleagues (2009), they highlighted the fact that anthropogenic structures that produce PLP “can appear to be water bodies to wildlife and can become ecological traps for avian species. **Therefore, utility-scale solar energy facilities at which photovoltaic technology is used in the desert Southwest could have profound effects on the ecological community surrounding the solar facility.**” (Emphasis added.)⁸³

4. In their preliminary assessment of avian mortality at utility-scale solar energy facilities in the United States, Walston et. al.⁸⁴ summarize their findings on impacts to birds as follows, “Utility-scale solar energy facilities in the United States require large spatial footprints (between 1.4 and 6.2 ha of land per MW of electric production) **and are projected to require a total of 370,000 - 1,100,000 ha of land by 2030, mostly in the arid regions of the southwestern states** [11]...Recent studies have suggested that utility-scale solar developments may represent a source of mortality for wildlife such as birds [12]. There are currently 2 known types of direct solar energy-related bird mortality [9,12,13]: 1. Collision-related mortality - mortality resulting from the direct contact of the bird with a solar project structure(s). This type of mortality has been documented at solar projects of all technology types...different solar technologies and project designs may influence avian mortality risk. For example, project designs that utilize solar collectors that reflect polarized sunlight in such a way to be perceived as waterbodies, may attract birds and their prey (e.g., insects), thereby increasing the risk of bird collisions with project structures [10,12,14,20](Emphasis added).”

This summary underscores the cumulative impacts that current and proposed desert solar projects will have on birds in the California desert southwest. Using Fesnock et al.’s conservative findings on bird deaths per acre at California desert solar facilities,⁸⁵ and the projected acreage slated for development by 2030, bird deaths would number between 548,000 and over 4,347,000. A fraction of these deaths within one species could incur

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⁸² Brown, W. M., & Drewien, R. C. 1995. Evaluation of Two Power Line Markers to Reduce Crane and Waterfowl Collision Mortality. *Wildlife Society Bulletin* (1973-2006). 23(2): 217–227.

<https://pdfs.semanticscholar.org/323a/fc509a4f1605c5ebf32c60c593204e31c02c.pdf>

⁸³ Lovich, J. E., & Ennen, J. R. 2011. Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States. *Bioscience*, 61(12): 982–992. <https://academic.oup.com/bioscience/article/61/12/982/392612>

⁸⁴ Walston, L. et. al. 2016. A preliminary assessment of avian mortality at utility-scale solar energy facilities in the United States. *Renewable Energy*. 92: 404-414. doi:10.1016/j.renene.2016.02.041

⁸⁵ Fesnock, A., Huso, M., and Allison, L. (2016). Background Avian Mortality across the California Desert Region: A Pilot Study. *BLM Avian Solar Symposium*, August 2017. http://blmsolar.anl.gov/program/avian-solar/symposium/doc/Fesnock_Background_Mortality.pdf

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significant impact on an entire population, especially of species already rare or declining, such as the regional Swainson's hawk, tricolored blackbird, and burrowing owl populations.

The report also makes recommendations to better assess avian impacts caused by industrial solar sites: "There is a need for more standardized, consistent, and science based avian monitoring protocols ... Standardized monitoring methodologies will improve the scientific certainty of conclusions about avian mortality. As efforts get underway to improve the quality of avian mortality data collected from USSE facilities, researchers should focus on development of more effective inventory and monitoring techniques."⁸⁶

As such all industrial solar facilities, this Project included, should be required to adopt a bird mortality and monitoring program scripted and detailed within the DEIR, including performance and success criteria, and should be part of the final impact assessment available for public review. Such a plan should include scientific data collection of avian injury and mortality for the life of the project, not only to assess long term and cumulative impacts, but to contribute to a much-needed database to enhance future mitigation strategies.

5. The U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy and the U.S. Department of the Interior's Bureau of Land Management published their Solar Energy Development Programmatic EIS PEIS, which concluded that **"Since birds are prone to collisions with reflective surfaces, it would be expected that a utility-scale solar energy project could cause significant bird mortality. Glare could possibly disorientate a bird in flight and cause it to collide with solar energy project facilities or other objects."**⁸⁷ This conclusion by the federal government agencies responsible for overseeing wildlife impact mitigation on public lands further exemplifies the accepted reality that significant bird collision risks are created and enhanced by the presence of reflective solar arrays at solar industrial projects, regardless of differences in design of the panels between projects, and locations of these industrial sites.
6. In their comments to the Palo Verde Solar DEIR, the USFWS confirms that there is growing evidence of the impacts from what is known as the "lake effect," especially for water-associated birds and other species seeking migratory stopover habitat, and that projects in proximity to this project's site are among those reporting the highest mortality of water-associated birds.⁸⁸ They conclude that cumulative impacts to birds could be significant for various species and would warrant project-specific systematic monitoring and mitigation via a bird and bat conservation plan. They suggest some strategies that should be incorporated into such a plan, while emphasizing that any such Plan should provide enough detail to

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⁸⁶ *Ibid.*

⁸⁷ DOE, DOI. Final Solar Programmatic Environmental Impact Statement. 2012. <http://solareis.anl.gov/index.cfm> pp. 5- 82.

⁸⁸ County of Riverside. 2017. Palo Verde Solar Project FEIR. p. 2-66
<https://planning.rctma.org/Portals/14/Postings/CUP3684EIR532/Volume%201%20-%202%20Response%20to%20Comments.pdf?ver=2017-08-18-095828-407>

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demonstrate standard scientific rigor, appropriate methodology, and consistency with other similarly approved plans.

7. In the 2015 National Renewable Energy Laboratory's review of avian monitoring and mitigation information at existing utility-scale solar facilities, the report summarized their findings of 7 solar sites by stating, "One commonality among utility-scale solar facilities of all technology types is that they occupy relatively large spatial footprints to capture the sun's energy. The development of utility-scale solar facilities, therefore, represents a large human land use in the environment, which has the potential to affect birds and bird communities in a number of ways and during all project phases (construction, operations, and decommissioning). The range of potential impacts from utility-scale solar projects on birds and other wildlife has been evaluated in the literature (e.g., Lovich and Ennen 2011; Hernandez et. al. 2014) and in the *Final Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States* (BLM and DOE 2012). Like all industrial activities, utility-scale solar energy development has the potential to directly and indirectly impact birds and bird communities in a number of ways. This report summarizes existing information of direct avian fatality at utility-scale solar facilities, which represents one of several impact factors. There are currently two known types of direct solar-related bird fatalities (McCrary et. al. 1986; Hernandez et al. 2014; Kagan et al. 2014): 1. Collision-related fatality—fatality resulting from the direct contact of the bird with a project structure(s). This type of fatality has been documented at solar projects of all technology types."⁸⁹

The review further summarizes, "Collisions may occur at any facility (solar or otherwise) with aboveground structures. In the case of solar plants these may include transmission lines, cooling towers, PV panels and poles, trough systems, heliostats, fencing, and buildings. At PV and CSP facilities, collision hazards to birds are greatest among the solar field arrays...PV facilities may attract some species of birds through what has been called the "lake effect" (Kagan et al. 2014), whereby migrating birds perceive the reflective surfaces of PV panels as bodies of water and collide with project structures as they attempt to land on the panels." (Emphasis added).⁹⁰

The Laboratory report's data collected from monitoring seven solar sites reveal 1,384 bird mortality detections over the course of 6 months to three years, depending on the individual project report, with 11.2% of those being water-dependent birds, and the majority reported as collision-related. All project sites were characterized by presence of various types of desert scrub habitats native to California desert systems in the Mojave and Sonoran deserts.

8. A California Department of Fish and Wildlife (CDFW) grant proposal, written in cooperation by the USFWS and USGS, determined that "Utility-scale solar projects, totaling many tens of

⁸⁹ Walston, L., Rollins, K., Smith, K., LaGory, K. 2015. Review of Avian Monitoring and Mitigation Information at Existing Utility-Scale Solar Facilities. http://www.evs.anl.gov/downloads/ANL-EVS_15-2.pdf p. 10

⁹⁰ *Ibid.* p.30

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thousands of acres, have been approved and are currently proposed within the range of Yuma Clapper Rail. Photovoltaic, solar thermal trough, and solar thermal power tower technologies reflect ambient light during the day and night, producing a “lake effect” that attracts numerous water-associated birds, including numerous rails... Since no water-associated birds were reported in pre-project avian surveys in desert scrub habitat on these project sites, and suitable habitats were not present, we conclude these solar technologies pose an “attractive nuisance” to which rails and other water-associated birds are particularly vulnerable. In addition to collision with solar panels, rails and other water-associated birds have died by collisions with fences and transmission lines, and entanglement in netting over water evaporation ponds. As such, existing and proposed utility-scale solar projects and their associated infrastructure introduce new sources of mortality to dispersing rails [and other water-associated birds], which cumulatively could be significant enough to function as population sinks for the life of these projects”.⁹¹ This statement reinforces the fact that bird collisions to the facility may not only cause significant impacts to birds of many types (sensitive and endangered species, residents, migrants, passerines, water-dependent birds, etc.), but could significantly impact birds at the population level.

9. Fourteen wildlife and other governmental state and federal agencies are coordinating to address what they consider to be emerging issues related to potential avian-solar impacts under the umbrella of the Multi-agency Avian-Solar Collaborative Working Group⁹². In doing so the agencies involved have produced a draft Plan⁹³ that includes justification and details regarding reduction of impacts caused by bird strikes to solar panels. One part of this justification is in response to the bird mortality reports outlined in Table 1, among others. The complete list of agencies in this Working Group include: Arizona Game & Fish Department, Bureau of Indian Affairs, Bureau of Land Management, California Department of Fish & Wildlife, California Energy Commission, California Public Utilities Commission, National Park Service, Nevada Department of Wildlife, U.S. Department of Energy, U.S. Department of Defense, U.S. Department of the Interior, Solicitor’s Office, U.S. Fish & Wildlife Service, U.S. Geological Survey.

The evidence discussed above clearly demonstrates that the risks of PV panel avian collisions are considerable, recognized by oversight agencies, observed by scientific methodologies incorporated into bird monitoring protocols, and quantifiable to the extent required for estimating compensatory mitigation needs. Thus in light of the DEIR’s misleading statements, and lack of surveys of avian species,

⁹¹ CDFW. (2016). Demographic tool for assessing the impact of increased mortality rates on Yuma Clapper Rail (*Rallus longirostris yumanensis*) and California Clapper Rail (*R. l. obsoletus*) populations. Unpub. ESA Section 6 Grant. See also Marty, J. and Unnasch, B. 2015. Yuma Clapper Rail (*Rallus longirostris yumanensis*) (CLRA) Basic Conceptual Ecological Model for the Lower Colorado River. Lower Colorado River Multi-species Conservation Program. pp. 89. doi:10.13140/RG.2.2.34990.51528
https://www.researchgate.net/publication/307965556_Yuma_Clapper_Rail_Rallus_longirostris_yumanensis_Dickey_CLRA_Basic_Conceptual_Ecological_Model_for_the_Lower_Colorado_River

⁹² See http://blmsolar.anl.gov/program/avian-solar/docs/Draft_Avian-Solar_Science_Plan.pdf

⁹³ *Ibid.*

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the DEIR fails to provide a comprehensive baseline of avian species that may use the facility for breeding, foraging, or as a stopover, and has failed to provide substantial evidence that impacts to birds from operation of the Project for up to 3 decades will be adequately mitigated.

15-B5

5. The DEIR Fails to Adequately Describe, Analyze, and Mitigate Cumulative Impacts to Birds

The DEIR determined that cumulative impacts would be significant and unavoidable to several special-status birds, including the burrowing owl, Swainson's hawk, and raptors, based on cumulative loss of foraging and nesting habitat.⁹⁴ The DEIR also concluded that the Project along with other projects would result in cumulatively significant impacts on migratory birds due from collisions with solar panels.⁹⁵ However the DEIR provides no analysis regarding cumulative impacts to birds by way of strikes and electrocution, specifically, should also be analyzed and mitigated in light of the extremely high abundance of other renewable energy projects - with associated transmission lines – in proximity to the Project. To emphasize this reality, I have created a map (Figure 1) that emphasizes the closest existing industrial renewable facilities within a 20-mile radius to the Project, including some of the major transmission lines. Though not comprehensive, Figure 1 clearly demonstrates that any bird migrating over the Antelope Valley (where the Project lies) and searching for stopovers between Important Bird Areas and Hotspots, e.g. the Salton Sea and Central Valley, will be exposed to an obstacle course of wind turbines, major transmission lines, and reflective solar facilities, all primary sources of avian strikes and electrocution. This, in concert with the discussion in #4, further demonstrates that impacts to birds by this Project have been underestimated, resulting in significant impacts unmitigated.

15-C5

6. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Impacts to Burrowing Owls

The DEIR mentions that burrowing owls were observed on the Project site. However, the biologists did not conduct protocol surveys for the species. Additionally the DEIR fails to disclose the status and demography of the local and regional burrowing owl populations (e.g., Antelope Valley population). This information is an essential component of the DEIR because it enables the public and decisionmakers to evaluate the relative significance of impacts to the overall burrowing owl population. QK Consultants did not conduct the surveys needed to establish the abundance and distribution of burrowing owls throughout, and in proximity to, the Project site. As mentioned above, data from focused protocol detection surveys are required to fully assess existing conditions, analyze Project impacts, and formulate appropriate mitigation. Pre-construction avoidance surveys like those proposed in the DEIR, are not an accepted substitute for the detection surveys.⁹⁶ Moreover, deferring the surveys until after completion of the CEQA review process prevents full disclosure of Project impacts. This precludes the public, resource agencies, and scientific community from being able to submit informed comments pertaining to Project impacts, and from having those comments vetted during the environmental review process. CDFW, California Burrowing Owl Consortium, (CBOC), and others have stressed the need for protocol

15-D5

⁹⁴ DEIR Vol 1 p. 4.4-55/56.

⁹⁵ DEIR Vol 1 p. 4.4-56.

⁹⁶ See definitions in: California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. Available at: <<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>>. Appendix D.

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surveys during the CEQA review process. CDFW's Staff Report on Burrowing Owl Mitigation (Staff Report) states,

"The following three progressive steps are effective in evaluating whether projects will result in impacts to burrowing owls. The information gained from these steps will inform any subsequent avoidance, minimization and mitigation measures. The steps for project impact evaluations are: 1) habitat assessment, 2) surveys, and 3) impact assessment....Adequate information about burrowing owls present in and adjacent to an area that will be disturbed by a project or activity will enable the Department, reviewing agencies and the public to effectively assess potential impacts and will guide the development of avoidance, minimization, and mitigation measures...Detailed information, such as approximate home ranges of each individual or of family units, as well as foraging areas as related to the proposed project, will be important to document for evaluating impacts, planning avoidance measure implementation and for mitigation measure performance monitoring."⁹⁷

Similarly, the CBOC mitigation guidelines state:

"There is often inadequate information about the presence of owls on a project site until ground disturbance is imminent. When this occurs there is usually insufficient time to evaluate impacts to owls and their habitat. The absence of standardized field survey **methods impairs adequate and consistent impact assessment during regulatory review processes, which in turn reduces the possibility of effective mitigation** (emphasis added)."⁹⁸

As a biological consultant I have conducted many burrowing owl surveys and have observed numerous times how CBOC's assertions are true when it comes to mitigation actions on the ground at renewable energy construction sites. It is extremely rare that construction is stopped or delayed despite a burrowing owl detection, and when they are detected it is often too late to avoid indirect and sometimes direct impacts due to the nature of site leadership, limited real-world authority given to biologists, and construction deadline prioritization over species protection. This underscores the need for scripted focused surveys and detailed mitigation plans before permits are approved.

Because the DEIR's consultant failed to implement the CDFW survey protocol, the County lacks the information needed to fully disclose and evaluate Project impacts to burrowing owls, and more

⁹⁷ CDFG. 2012. Staff Report on Burrowing Owl Mitigation.

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>, pp. 5, 6 and 29.

⁹⁸ See p. i In: The California Burrowing Owl Consortium. 1993. Burrowing Owl Survey Protocol and Mitigation Guidelines.

<https://webcache.googleusercontent.com/search?q=cache:c29R1xBcQHcJ:https://nrm.dfg.ca.gov/FileHandler.ashx%3FDocumentID%3D83842+&cd=1&hl=en&ct=clnk&gl=us&client=firefox-b-1-ab>

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importantly, to ensure effective mitigation. As a result, the County must conduct the protocol surveys described in CDFW's 2012 Staff Report,⁹⁹ and the results of those surveys need to be released in a revised CEQA document so that they can be thoroughly vetted by the public, resource agencies, and decision makers during the CEQA review process.

For reasons iterated immediately above and the discussion on operational impacts to birds overall, the DEIR also fails to mitigate impacts to burrowing owls during the entire scope of Project operations. In light of the fact that some solar sites have resulted in one to several Burrowing owl deaths per year via facility strikes (Table 1), this Project's lack of analysis for operational injuries and deaths leaves burrowing owl impacts potentially significant and unmitigated.

The DEIR proposes mitigation for construction impacts as follows: "If burrowing owls are detected on-site, no ground-disturbing activities, such as vegetation clearance or grading, should be permitted within a buffer of no fewer than 100 meters (330 feet) from an occupied burrow during the breeding season (February 1 to August 31), unless otherwise authorized by CDFW. During the non-breeding season (September 1 to January 31), ground-disturbing work may proceed near active burrows as long as the work occurs no closer than 50 meters (165 feet) from the burrow. Depending on the level of disturbance, a smaller buffer may be established in consultation with CDFW.... If it is not feasible to avoid occupied burrowing owl burrows during the non-breeding season or during the breeding season (February 1 through August 31) after a qualified biologist has confirmed that the resident owls have not yet begun egg laying or incubation, or where the juveniles are foraging independently and capable of independent survival, a qualified biologist will implement a passive relocation program."¹⁰⁰

First, the DEIR provides no evidence that these buffer distances will result in lack of harassment or avoidance of disturbance of the burrowing owls. Further, in my extensive experience surveying this species in desert habitats and in proximity to solar industrial facilities, I have not observed that such distances result in a lack of harassment by construction activities. To the contrary, I have observed abandonment of breeding season burrows when prolonged anthropogenic disturbances continue within up to 500 feet or more, depending on different variables like noise, burrow status, and vehicle traffic (see Photo 3). Second, the DEIR says if it is "not feasible" to avoid occupied burrows during breeding season, owls will be passively relocated. Without any further explanation of what "feasible" means, this phrase is meaningless and thus unenforceable. Will feasibility be decided by a construction company's timeline, or contractual deadlines, by factors to minimize costs of project completion, or by whether or not the Applicant deems oversight of owl disturbance to be enforceable or not? Will a biologist be present all day, throughout construction phase, or simply "on-call" as iterated elsewhere in the DEIR's mitigation measures? If so, what will trigger the biologist being called to the site, by whom, and who will enforce such a notification? Third, in Table 4.4-3, Burrowing Owl Restricted Activity Dates and Setback

15-D5

⁹⁹ CDFG. 2012. Staff Report on Burrowing Owl Mitigation.

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>, pp. 5, 6 and 29.

¹⁰⁰ DEIR Vol 2 p. 55

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Distances,¹⁰¹ different setbacks are designated based on time of year and level of disturbance (low, medium, high) but provide no definitions of how such designations are determined; based upon what criteria (i.e. duration, frequency level, power or dB level of sound, proximity and size of vehicles, degree of dust generated, degree of human activity, degree of excavation or grading, for what duration, etc.). Without any such clarifications these measures are scientifically meaningless based upon their complete subjectivity.

In my years as a consultant on renewable energy sites, I have witnessed all of these considerations to play key roles in decision-making about importance, or more specifically lack thereof, of biological resource impact mitigation. It is unrealistic for the DEIR to claim mitigation will be carried out by a biologist hired by the Applicant, who indeed may only be on-call. Finally, to relocate owls – especially during breeding season – regardless of the methodology, is harassment, not mitigation. The only reliable mitigation for animals who are using breeding burrows onsite is to avoid construction until breeding season is complete, or exclude them before construction begins, prior to the onset of breeding season. The DEIR must revisit its baseline analysis and mitigation measures to reflect the requirements discussed above.

15-D5

D. MAMMALS

1. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Impacts to the American Badger and Kit Fox

The DEIR's baseline for the American badger and kit fox is incomplete and leaves project impacts unmitigated. The DEIR acknowledges both badgers and kit fox dens (burrows) were observed throughout the site. The DEIR states that desert tortoise surveys "provided adequate information for the evaluation of other species such as the desert kit fox and western burrowing owl so specific focused surveys for all potentially occurring species were not warranted."¹⁰² This statement is lacking in scientific rigor. First, the DEIR is disingenuous in inferring that "all potentially occurring species" and the kit fox, American badger, and burrowing owl are the same thing. The latter three should have undergone focused, protocol surveys to determine details not collected during focused desert tortoise surveys, including but not limited to density, breeding status, foraging habitat use, and other aspects of these species' ecology and baseline existing conditions necessary for determining the impacts of a development. There is a reason why focused surveys involve specific protocols scripted by species experts. If such specificity of methodology was not necessary, surely the resource agencies would state that focused surveys for "all potentially occurring species" (or, as inferred, for all burrowing species) could be conducted while looking for tortoises. They do not, however, since variables like habitat use, time of day, weather, time of year, all impact the type of data that are intended to be maximized by methodologies of species-specific surveys. For example, one study of desert kit foxes found that standard daytime surveys using scat as a primary indicator resulted in underestimating numbers and use

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¹⁰¹ DEIR Vol 1 p. 4.4-45

¹⁰² DEIR Vol 2 p. 26

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of sites and dens by kit fox.¹⁰³ Additionally, the USFWS protocol for desert tortoise (DT) focused surveys specifically states that other surveys may not be conducted concurrently with DT surveys.¹⁰⁴

The DEIR fails to mention that the Project could result in loss of potentially hundreds of acres of breeding and foraging habitat for these denning species. There is abundant evidence that habitat loss has played a major role in the decline of their populations. For instance, a detailed report prepared for the California Fish and Game Commission on the ecology of the desert kit fox in the Mojave and Colorado deserts revealed that the species is increasingly at risk and impacted by renewable energy projects in these deserts. Scientists state that even 7 years ago (January 2013) close to 1 million acres of desert kit fox habitat were under environmental review or application for large-scale industrial solar and wind development. Demonstrated threats to the species from these developments include:

“habitat loss, degradation, fragmentation, and loss of connectivity, as well as direct and indirect impacts resulting from reduced ability for movement, increased competition and depredation, increased in non-native cover, mortality from roads, and displacement of foxes from den sites. In addition, an outbreak of canine distemper centered at a large-scale solar project site in the southern California desert highlights growing anthropogenic disease risks for the desert kit fox associated with habitat loss and development. The direct and indirect impacts highlighted in environmental assessments for individual large-scale solar projects include habitat loss and degradation, displacement, disturbance to pup-rearing, increased mortality, injury, and harassment, reduced ability for movement, increased risk of predation, and habitat alteration.”¹⁰⁵

Kit fox ecologists agree that, despite these ongoing and increasing threats, that

“industrial-scale energy development projects approved to date have not properly considered the impacts and risks to the desert kit fox and the need to avoid, minimize and mitigate those impacts and risks to protect the species’ long-term survival.”¹⁰⁶

The report points to “large-scale, solar energy developments, and their associated transmission lines” as posing major direct and indirect threats to the desert kit fox and their prey species, “especially in case of multiple projects in proximity to each other.”¹⁰⁷ Figure 1 of cumulative impacts from nearby solar facilities exemplifies how this Project fits such a description. According to the Solar Program Final

¹⁰³ Dempsey SJ, Gese EM, Kluever BM. 2014. Finding a Fox: An Evaluation of Survey Methods to Estimate Abundance of a Small Desert Carnivore. *PLoS ONE* 9(8): e105873. doi:10.1371/journal.pone.0105873

¹⁰⁴ <https://www.fws.gov/carlsbad/PalmSprings/DesertTortoise.html>

¹⁰⁵ Kadaba, Dipika, Ileene Anderson, Curt Bradley and Shaye Wolf 2013. A Petition to List the Desert Kit Fox (*Vulpes macrotis arsipus*) as Threatened under the California Endangered Species Act. Submitted to the California Department of Fish and Wildlife – March 2013

¹⁰⁶ *Ibid.* p. 4 https://www.biologicaldiversity.org/species/mammals/desert_kit_fox/pdfs/Desert-kit-fox-CESA-petition-3-10-13.pdf

¹⁰⁷ *Ibid.* p. 23

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Environmental Impact Statement (FPEIS), the kit fox and other species “would be adversely affected by loss of habitat, disturbance, loss of food and prey species, loss of breeding areas, effects on movement and migration, introduction of new species, habitat fragmentation, and changes in water availability. Impacts potentially could be dispersed across the 19 million acres of variance areas.”¹⁰⁸

Additionally, an in-depth study of kit foxes in the Mojave desert concluded that large scale solar energy projects in the region “including associated transmission lines and roads, have a range of direct and indirect impacts on the desert kit fox, and do not properly consider or mitigate for impacts on the desert kit fox. Key threats from large-scale industrial solar development to the desert kit fox include habitat loss, degradation, fragmentation, and loss of connectivity, as well as direct and indirect impacts resulting from reduced ability for movement, increased competition and depredation, increased in non-native cover, mortality from roads, and displacement of foxes from den sites.”¹⁰⁹ As such the DEIR must address the impact of loss of denning and foraging habitat, especially considering the Project appears to be removing breeding (pupping) den sites.

The DEIR’s attempt to mitigate impacts to denning badgers and kit foxes is summarized as follows, “If potential dens are observed and avoidance is feasible, the following buffer distances should be established prior to construction activities:

- i. Desert kit fox or American badger potential den: 30 feet.
- ii. Desert kit fox active den: 100 feet.
- iii. Desert kit fox natal den: 500 feet. If an active den cannot be avoided, then the occupying animal should be removed using passive relocation consisting of installing one-way doors at the den entrance.”¹¹⁰

As with the burrowing owl, the DEIR provides vague terminology and a paucity of substantial evidence in its mitigation prescriptions for kit fox and badger denning onsite. First, the DEIR provides no evidence supporting how these buffer distances proposed will satisfactorily avoid harassment or disturbance of either species during construction activities; disturbances that may result in a host of impacts including reduced breeding success, increased risk of predation, reduced foraging, reduced fecundity, increased competition, and among many other potential negative impacts that cannot be assessed from simple behavioral observations. Indeed, the idea that a 30- foot buffer will reduce impacts to most any native, wild mammal species is specious and unsupported. Even a non-biologist unaware of the many factors that can cause indirect but significant impacts to a species may be hard-pressed to imagine a kit fox, badger, or owl just 30, 100, or even 500 feet using a den, undisturbed, for sleeping, metabolic maintenance, giving birth, feeding chicks, etc. surrounded by noisy vehicles, teams of construction workers, bulldozers, scrapers (some used in site grading average 44 feet long), back-up alarms, water

¹⁰⁸ BLM and DOE. 2012. Final Programmatic Environmental Impact Statement (PEIS) for Solar Energy Development in Six Southwestern States. FES 12-24. DOE/EIS-0403. July 2012. Bureau of Land Management and US Department of Energy. <http://solareis.anl.gov/>.

¹⁰⁹ https://dukespace.lib.duke.edu/dspace/bitstream/handle/10161/8549/Kadaba_MP.pdf?sequence=1 p. 8

¹¹⁰ DEIR vol 2 p. 56

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trucks, and other associated anthropogenic constructs typical of a solar industrial development site (see Photo 3).

Again, the terms “feasible” and “cannot be avoided” are vague, without definition in respect to relevant construction activities and parameters, and thus meaningless. Such terminology for mitigation protocols that are ill-defined and without any descriptive criteria, standards, or anything similar to delineate enforcement and success criteria cannot be considered valid mitigation measures that can be relied upon to reduce impacts below significant. Also, as with owls, relocation of foxes and badgers away from dens is not impact mitigation, it is harassment, as it may result in increased risk of injury, mortality or other negative impacts of losing a den site and being forced to relocate. The DEIR needs to reconsider impacts to these species from both construction and loss of habitat and propose appropriate compensatory mitigation, with details regarding timing, performance and success criteria, and exactly how measures will compensate for the disturbance to the individuals that may use the site.

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2. The DEIR Fails to Disclose and Analyze Impacts to Bats

The DEIR fails to assess or discuss an entire taxon of species, namely bats, in its analysis of impacts. This is despite the fact that the DRECP identifies two bat species, the Pallid bat (*Antrozous pallidus*) and Townsend’s big-eared bat (*Corynorhinus townsendii*), on its list of primary conservation “covered species,”¹¹¹ both of which are demonstrated to have a high likelihood to occur in and around the Project site according to the DRECP distribution maps.^{112, 113} Five other bat species are also considered as focal conservation targets, namely the California leaf-nosed bat (*Macrotus californicus*), Western mastiff bat (*Eumops perotis californicus*), Western red bat (*Lasiurus blossevillei*), Hoary bat (*Lasiurus cinereus*), and Cave myotis (*Myotis velifer*).¹¹⁴ It is important to note that although the DEIR states that the DRECP “does not apply”¹¹⁵ to the Project, the report’s findings, based on accumulation of years of data collection and analysis by numerous academicians, consultants, agencies (BLM, CDFW, CEC, and USFWS), and other biologists, are very relevant given they cover this region and its special status species.

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The fact that the DRECP focuses on bats as part of their priority species is hardly surprising; according to USGS bat biologists, “North American bats face unprecedented threats including habitat loss and fragmentation, white-nose syndrome, wind energy development, and climate change.”¹¹⁶ They also state that “a statistically robust and standardized bat monitoring program across North America would help managers estimate extinction risk, set conservation priorities and evaluate the effectiveness of conservation actions.”¹¹⁷ Indeed, if project biological consultants including those who prepared this DEIR

¹¹¹ https://www.drecp.org/factsheets/archive/Conservation_Strategy.pdf

¹¹² <http://drecp.consbio.webfactional.com/survey#>

¹¹³ <https://databasin.org/maps/new#datasets=5189141d1abc43c884e400649599126f>

¹¹⁴ https://www.drecp.org/documents/docs/DRECP_Draft_CSL_Memo_Methods_and_List_June_17_2013.pdf

¹¹⁵ DEIR Vol 4.4-26

¹¹⁶ <https://databasin.org/maps/new#datasets=8b0329ff5e6c4fd18863656e8edb47a5>

¹¹⁷ https://www.usgs.gov/ecosystems/status-and-trends-program/science/bats?qt-science_center_objects=0#qt-science_center_objects

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would embrace the scientific reality that bats are an essential component of ecosystem biodiversity and viability by conducting the necessary surveys for CEQA and similar analyses - which they could then contribute to CNDDDB and elsewhere – databases would be more complete, allowing for more efficacious conservation planning as development increases and spreads throughout the desert southwest. USGS bar researchers confirm that standardized monitoring and reporting is necessary, but lacking, in renewable industrial energy projects, asserting that post-construction monitoring for wildlife fatalities and habitat use was standard practice, yet only 22% of the 203 facilities queried provided data from both pre- and post- construction. They also documented that study design components such as control-impact or before-after designs are rarely used. The lack of comparable biological data makes it difficult to evaluate effects on wildlife across construction periods and among facilities. Researchers recommend best practices that may allow wildlife managers and the energy industry to more accurately and cost effectively anticipate effects of renewable energy to wildlife.¹¹⁸

Research has demonstrated that artificial light and noise can increase the risk of mortality and reduce foraging success by bats in both urban and rural settings.^{119,120} Table 1 shows that two species of bats, the California myotis and Mexican free-tailed bat, have been recorded as being killed from striking solar facility infrastructure. As such, bats could be impacted by the presence of electrical wires, artificial lighting by the Project, throughout the life of the Project, as well as by its other various anthropogenic disturbances in the form of noise, light, dust, barriers, negative attractants, etc. Additionally, the Project may host roosting and foraging habitat for various bat species, potential impacts that are also completely unaddressed by the DEIR.

Adequate baseline data for impact analysis goes well beyond simple presence or absence determinations, and should include a minimum of three principal ecological factors: magnitude and duration of the impact; rarity and context of the affected resource; and susceptibility of the affected resource to disturbance. The evaluation of significance must also consider the interrelationship of these three factors. For example, a relatively small-magnitude impact on a state or federally listed species could be considered significant if the species is rare and highly susceptible to disturbance. This is true not only for determining significance of impact, but degree of significance in respect to what mitigation measures would be adequate. One cannot determine factors such as context and susceptibility of an entire population from a project's impacts if one does not know whether there may be one, ten, or one hundred or more individuals of a special status species present. It is therefore impossible to determine, without such data, if any given mitigation measure – during construction impact reduction protocol,

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¹¹⁸ Conkling, T.J., Loss, S.R., Diffendorfer, J.E., Duerr, A.E., Katzner, T.E., 2020. Limitations, lack of standardization, and recommended best practices in studies of renewable energy effects on birds and bats. *Conservation Biology*, <https://doi.org/10.1111/cobi.13457>

¹¹⁹ Warner, K. A. 2016. *Investigating the effects of noise pollution from energy development on the bat community in the Piceance basin* (Order No. 10149854). Available from ProQuest Central; ProQuest Dissertations & Theses Global. (1815584239).

¹²⁰ Cravens, Z. M., Brown, V. A., Divoll, T. J., & Boyles, J. G. 2018. Illuminating prey selection in an insectivorous bat community exposed to artificial light at night. *The Journal of Applied Ecology*, 55(2), 705-713. <https://besjournals.onlinelibrary.wiley.com/doi/pdf/10.1111/1365-2664.13036>

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restoration, relocation, or compensatory mitigation will reduce the Project impacts to below significant. Given all of these factors, and the complete lack of any discussion regarding presence, surveys, or impacts to bats, and the fact that the nearby Catalina Renewable Project DEIR surveys detected two special status species of bats (see above),¹²¹ the DEIR has completely failed to describe how and to what extent bats may likely be impacted by the Project. As it stands any impacts to bats remain significant and unmitigated.

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E. REPTILES

1. The DEIR Fails to Adequately Disclose, Analyze, and Mitigate Impacts to the Desert Tortoise

The DEIR states that “it is anticipated that the Project would result in no impacts to the desert tortoise, however, there is a slight chance that the desert tortoise could be encountered on the Project during construction”. Not only is this statement in and of itself contradictory, the DEIR fails to provide substantial evidence supporting its claim of no impact. The DEIR biologists’ focused surveys for the desert tortoise (DT) resulted in a positive detection of a burrow. The DEIR attempts to downplay the significance of this finding by stating that the burrow could be used by other wildlife. This is a specious statement in part due to its irrelevance. Tortoises utilize many burrows across their territory, the fact that a burrow was detected indicates DT use for the site, simply put. The DEIR further attempts to mislead the reviewer into concluding “no impact” to DT by stating “the negative results of the surveys conducted for this Project...and the lack of observations during construction of nearby solar Projects including Catalina Renewable Energy, SEPV Mojave West and Valentine Solar (County of Kern 2014a, 2014b and 20116, respectively), strongly suggest that desert tortoises are absent, or at best occur in extremely low densities in the Project vicinity.”

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First, as discussed above, detecting a DT burrow is a positive result for DT. For reasons iterated above, not observing a DT during a survey does not indicate it is, and will be, “absent” for perpetuity. It means the animal was not detected at the time the survey was conducted. Second, it is interesting that the DEIR references the Catalina Renewable Energy Project (CREP) DEIR’s findings, since their biological report states that, in respect to their focused DT surveys conducted in close proximity to this Project, “it was determined that 5,180 acres of potentially suitable habitat for desert tortoise are present at the proposed project site.”¹²² The CREP biologists also concluded that “although no desert tortoises were observed within the proposed project property, a desert tortoise was observed approximately 24 feet east of the proposed project property. In addition, one desert tortoise burrow was recorded on a parcel adjacent to and surrounded by the proposed project property.” As a result, the CREP DEIR determined

¹²¹ County of Kern. 2011. Catalina Renewable Energy Draft Environmental Impact Report. Kern County Planning and Community Development Department.

https://www.kerncounty.com/planning/pdfs/eirs/catalina/catalina_deir_vol1.pdf

¹²² County of Kern. 2011. Catalina Renewable Energy Draft Environmental Impact Report. Kern County Planning and Community Development Department.

https://www.kerncounty.com/planning/pdfs/eirs/catalina/catalina_deir_vol1.pdf

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the DT to be “assumed present.”¹²³ The DEIR also mapped both DT burrows (Figure 2) and DT detections (Figure 3). As the maps illustrate, a DT was observed one mile west of this Project. DT burrows were detected within 0.1 mile of the Project, and another 4 detected between 0.5 and 1 mile of the Project. As summarized by the CREP report, “Additional indications of desert tortoise, specifically 24 burrows and 4 scat, were discovered between 0.6 and 5.1 miles northeast of the project boundary, and two live desert tortoises were observed 4.3 miles to the northeast,” where the Project is located. As such, one can conclude that contrary to the DEIR’s conclusions, this site has a high potential for DT to occur. This is reinforced by the USGS map of predicted occupied habitat (“distribution”) for the DT on and bordering the Project site (Figure 5).

The DEIR contradicts itself by ignoring the consultant’s specific recommendations for minimization of impacts to the DT (see DEIR Vol 2, Appendix E). Although better than nothing, the consultant’s recommended mitigation measures are flawed and need revisions, see below. Worse, the DEIR (Vol 1) posits mitigation of DT via non-specific, generalized construction measures. For reasons discussed elsewhere in this letter, these measures are inadequate, in addition to the fact that they do not describe the necessary species-specific measures that would serve to minimize direct impacts to the DT, indirect impacts, and cumulative impacts from loss of habitat and loss of wildlife corridors. As the discussion on cumulative impacts herein iterates, DT moving through this region of the Antelope Valley will be forced to maneuver an obstacle course of industrial energy sites that have severely fragmented and disrupted access between subpopulations, serving to increase risk of impacts to the population overall.

The DEIR must revisit its mitigation analysis for the DT. If the Applicant chooses to follow the recommendations of the consultant, they must address these problems with the mitigation measures as written in Appendix E of the DEIR:

The Applicant’s consultant proposes to mitigate impacts to DT with an onsite biologist, though it does not indicate that focused, deliberate pre-construction surveys will be regularly conducted on a daily basis. Instead it simply states a biologist “should” be onsite, and that “if tortoises or burrows are discovered,” construction work will be stopped until agency concurrence occurs that “*may* include development of a desert tortoise mitigation and monitoring plan.”¹²⁴ The DEIR then states that a biologist “should” be “on-call” and conduct “monthly” site inspections for DT.¹²⁵

This mitigation measure is flawed. First, the use of the term “should” is vague; either a biologist will, or will not, be designated to be onsite. Second, DT surveys must be conducted every day; conducting monthly surveys is completely inadequate given the fact that DT may enter the Project on any given day (or night), not conveniently once a month or less on the day the Applicant decides their biologist “should” show up. Third, having a biologist “on-call” requires reliance of construction employees to observe, identify, and call the biologist in the middle of their construction activities. However,

¹²³ *Ibid* p. 5-13

¹²⁴ DEIR Vol 2 p. 53

¹²⁵ *Ibid*.

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construction employees, whether engineers, drivers, maintenance crew, etc., are not biologists and are not trained or tasked with looking for tortoises regardless of what sort of environmental training they are given. Even the most astute biologist can and does miss detecting tortoises present (I have witnessed this first-hand during workshops with a class of experienced biologists getting certification to survey DT), especially when there are juvenile tortoises, or tortoises that may have taken up residence in a burrow, or underneath vegetation or a structure. Additionally the employee cannot be held responsible, per their standard contractual responsibilities, for stopping work for all employees involved and to contact and wait for an on-call biologist to arrive, especially given the remote location of the Project and the low likelihood that an “on-call” biologist will be available and arrive in a timely manner. This is reinforced by the fact that very few biologists hold DT handling permits and, as a result, these biologists are in high demand for other types of DT work (focused surveys, relocation projects, etc.). (The DEIR infers that tortoises will be handled. This is impractical criteria since the Project’s construction site is within DT range.) Fourth, the idea that upon detection of a DT, all construction work will be stopped while the agency(ies) takes the time to develop – maybe - a mitigation and monitoring plan is equally specious.

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The DEIR must acknowledge that direct impacts to DT may occur onsite, that indirect impacts will be caused via loss of foraging and denning habitat, and loss of a wildlife corridor, the latter especially in light of the cumulative impacts of the Project. As such, the DEIR should outline a realistic and detailed mitigation and monitoring plan prior to permitting, one that contains adequate detail to assess its efficacy and success, and that includes mitigation for loss of habitat for the next 25-30 years. Finally, any relocation aspect of a Plan must address the difficulties and failures of tortoise relocation plans, taking into consideration that time of year, tortoise age and condition, weather conditions, and other factors have direct effects on success and mortality of tortoise translocations.^{126, 127, 128, 129}

2. The DEIR Fails to Adequately Describe and Analyze Impacts to Lizards

As with the entire taxon of bats, the DEIR fails to conduct surveys for any reptile species – aside from the desert tortoise - on or around the Project site. In part for reasons iterated above, lack of focused surveys results in an inadequately presented baseline and unmitigated impacts.

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Despite this DEIR claiming the project is not within range of the coast horned lizard, the CREP surveys for the DEIR confirmed two species of horned lizard were present onsite, the Coast (San Diego) horned

¹²⁶ Brand, L., et. al. 2016. Mitigation-driven translocation effects on temperature, condition, growth, and mortality of Mojave desert tortoise (*Gopherus agassizii*) in the face of solar energy development. *Biological Conservation*. 200. 104-111. 10.1016/j.biocon.2016.05.032.

¹²⁷ Hinderle, D. et. al. 2015. The Effects of Homing and Movement Behaviors on Translocation: Desert Tortoises in the Western Mojave Desert. *The Journal of Wildlife Management*. 79. 10.1002/jwmg.823. https://www.researchgate.net/publication/269418837_The_Effects_of_Homing_and_Movement_Behaviors_on_Translocation_Desert_Tortoises_in_the_Western_Mojave_Desert

¹²⁸ Nafus, M. 2017. Habitat drives dispersal and survival of translocated juvenile desert tortoises. *Journal of Applied Ecology*. 54: 430–438 <https://doi.org/10.1111/1365-2664.12774>

¹²⁹ https://www.biologicaldiversity.org/news/press_releases/2016/desert-tortoise-03-08-2016.html

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lizard (*Phrynosoma coronatum blainvillii*), and the Coast (California) horned lizard (*Phrynosoma coronatum frontale*).¹³⁰ The Catalina DEIR also states that, “as a result of coordination with experts, plant community mapping, habitat assessment, and detailed field surveys, 10 commonly occurring species of herpetofauna were identified within the proposed project property, including long-nosed leopard lizard (*Gambelia wislizenii*), zebra-tailed lizard (*Callisaurus draconoides*), desert horned lizard (*Phrynosoma platyrhinos*), desert spiny lizard (*Sceloporus magister*), common side-blotched lizard (*Uta stansburiana*), desert night lizard (*Xantusia vigilis vigilis*), and Western whiptail (*Aspidoscelis tigris*).¹³¹ And yet there was no attempt to conduct any sort of focused surveys for any reptiles by way of observations, scat, tracks, trapping, day or nighttime surveys; all means by which reptiles are observed in a given location.

It is widely accepted in the scientific community that reptiles represent a key taxon in desert habitats and are highly sensitive to anthropogenic ground disturbances.¹³² Many are nocturnal, fossorial, or crepuscular, and often highly secretive; most desert reptile species do not lend themselves to daytime, incidental observations as the DEIR loosely infers by not providing a thorough survey for onsite species. Neither can habitat type alone be a reliable source of potential for species to occur. Countless records of species occurrences demonstrate that many species of reptiles, while having a habitat preference, are known to occur in a variety of habitats within their known range, including disturbed habitat in the western Mojave desert.^{133, 134, 135}

The USGS recently completed a detailed study of reptile species found in alluvial sand habitat, in a 500-acre area similar in size as this Project footprint, that they characterized as “highly disturbed” due to the predominance of non-native, invasive plant species and disturbed scrub habitats. In fact, the USGS study site in an arid ecosystem in eastern San Diego county was almost entirely comprised of disturbed or ruderal habitat. And yet the study findings resulted in 1,208 total captures, revealing a “high species

¹³⁰ County of Kern. 2011. Catalina Renewable Energy Draft Environmental Impact Report. Kern County Planning and Community Development Department.

https://www.kerncounty.com/planning/pdfs/eirs/catalina/catalina_deir_vol1.pdf p. 5075

¹³¹ *Ibid.*

¹³² Vandergast, A.G.; Bohonak, A.J.; Hathaway, S.A.; Boys, J.; Fisher, R.N. 2008. Are hotspots of evolutionary potential adequately protected in southern California? *Biol. Conserv.* 141:1648–1664.

<https://pubs.er.usgs.gov/publication/70033696>

¹³³ Vera, P., Sasa, M., Encabo, S. I., Barba, E., Belda, E. J., & Monrós, J. S. 2011. Land use and biodiversity congruences at local scale: applications to conservation strategies. *Biodiversity & Conservation*, 20(6), 1287–1317. <https://doi.org/10.1007/s10531-011-0028-x>

¹³⁴ Dutcher, K. E. 2009. *Microhabitat patch use and movement patterns in Uta stansburiana populations fragmented by a 2005 wildfire in the Mojave national preserve, California* (Order No. 1466162). Available from ProQuest Dissertations & Theses Global. (305177324). Retrieved from <http://jerome.stjohns.edu:81/login?url=https://search-proquest-com.jerome.stjohns.edu/docview/305177324?accountid=14068>

¹³⁵ Heaton, J. S. 2002. *The LizLand model: Geomorphic landform and surface composition analysis of lizard habitat in the California mojave desert* (Order No. 3029564). Available from ProQuest Dissertations & Theses Global. (305504439). <http://jerome.stjohns.edu:81/login?url=https://search-proquest-com.jerome.stjohns.edu/docview/305504439?accountid=14068>

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richness and diversity” and “despite the relatively limited 12-month sampling period, a longstanding drought, and severe habitat disturbance, our study demonstrates that [this area] harbors a rich herpetofauna that includes many sensitive species.”¹³⁶ When asked, one of the research herpetologists said that their results were “completely unexpected” and revealed an abundance and diversity “beyond what we ever would have imagined based on the habitat alone” (C. Rochester, *pers. comm.*, Dec 2016). These results underscore the need for focused, scientific surveys to truly establish the necessary faunal data to create an accurate impact assessment. Due to their cryptic nature and difficulty to detect, many species of reptiles are historically underserved in conservation management plans, including those dependent on environmental impact analyses.^{137, 138, 139, 140}

New roads and access driveways constructed to create access to solar development sites increase the risk of direct mortality of lizards and snakes by vehicles, cause habitat fragmentation and potential barriers to gene flow, and make previously inaccessible areas available to vehicles including off-road vehicles. Solar sites are inevitably surrounded by fencing of various kinds during and post-construction, which may serve to exclude some individual animals, but also serves to trap or funnel other small species - including reptiles seeking shade - within a construction site. Additionally, industrial scale solar projects are known to alter the microclimate of a region, where herpetologists conducting analyses of solar facilities in desert habitats in Southern California concluded, “it has been estimated that a concentrating solar facility can increase the albedo of a desert environment by 30%–56%, which could influence local temperature and precipitation patterns through changes in wind speed and evapotranspiration. Depending on their design, large concentrating solar facilities may also have the ability to produce significant amounts of unused heat that could be carried downwind into adjacent wildlife habitat with the potential to create localized drought conditions.”¹⁴¹

In addition to the DEIR’s lack of qualitative or quantitative surveys and resultant lack of analysis of direct, indirect, and cumulative impacts to reptiles that may occur onsite, there is a phenomenon that occurs on desert development sites not addressed by the DEIR, detailed below, one that has been demonstrated to increase the mortality of horned lizards, among other species:

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¹³⁶ Richmond, J. Q., Rochester, C. J., Smith, N. W., Nordland, J. A., & Fisher, R. N. 2016. Rare Alluvial Sands Of El Monte Valley, California Support High Herpetofaunal Species Richness and Diversity, Despite Severe Habitat Disturbance. *The Southwestern Naturalist*, 61(4), 294-306. <https://pubs.er.usgs.gov/publication/70185229>

¹³⁷ Gerson, M. M. 2004. Aspects of the ecology of a desert lizard, *Callisaurus draconoides* (blainville 1835), in Joshua Tree National Park with an emphasis on home range and diet (Order No. 3146172).

¹³⁸ Heaton, J. S. 2002. The LizLand model: Geomorphic landform and surface composition analysis of lizard habitat in the California Mojave desert (Order No. 3029564).

¹³⁹ Williams, A. K. 2004. The influence of probability of detection when modeling species occurrence using GIS and survey data (Order No. 3123715).

¹⁴⁰ Rosen, P. C. 2000. A monitoring study of vertebrate community ecology in the northern Sonoran desert, Arizona (Order No. 9965915).

¹⁴¹ Rosen, P. C. 2000. A monitoring study of vertebrate community ecology in the northern Sonoran desert, Arizona (Order No. 9965915). p. 98.

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I and my biologist colleagues working in the desert have witnessed an important phenomenon on solar and wind energy project construction sites in the Sonoran and Mojave desert regions where lizard species are present. We first noticed this phenomenon due to pre-construction surveys required for animals along roads and within construction zones. Specifically, we have observed that lizards are directly and immediately attracted to roads on and around construction sites where trucks spraying water (and other erosion control liquids) are used to reduce airborne dust, as is the case with every desert development project's dust minimization protocols. This practice, however, attracts lizards of a variety of species to higher moisture levels on the roads, resulting in increased mortality and injury from construction site traffic on the roads subsequent to the water trucks passing.

This phenomenon was reported on one solar construction site in the Sonoran desert during the summer of 2014. Within the course of one month, there was mortality of over 20 flat-tailed horned lizards (*Phrynosoma mcallii*) (a special status species) (FTHL) and over an additional 100 FTHLs were relocated to avoid mortality from vehicle impacts during several weeks of the construction phase.¹⁴² During the construction of the Sunrise Powerlink gen-tie line in the Sonoran Desert, from just April to November, 25 mortalities were recorded and 103 flat-tailed horned lizards were relocated.¹⁴³ It is key to note that these solar industrial projects failed to anticipate these significant impacts to lizards due to this phenomenon, and as a result one facility had to completely stop work for at least a week. One independent contractor reported his company losing over \$146,000 a week due to the unexpected delay, partly due to the developer's resistance to hiring the requisite number of additional biologists needed to detect and relocate lizards at risk of mortality.¹⁴⁴ Additionally, because the relocation measure was an emergency response to an unexpected impact, relocation protocols or results were not tested, measured, or evaluated for survival success. Therefore the efficacy of these last minute mitigation measures remains unknown.

In summary, observations during the construction phase of a solar industrial site facility in Southern California desert revealed that lizards of varying species and sizes appear to be opportunistically attracted to the added moisture on the roads from water trucks. Such behavior was not restricted to any lizard species in particular. However, clearly the reason for under-reporting is that these development sites rarely have biologists deliberately searching project sites and roads for lizards when the impact analyses, mitigation measures, or resulting permits do not require such an effort. When this phenomenon was officially noted as impacting sensitive species, additional on-site biologists and mitigation management practices were necessary to ensure complete coverage of all construction roadways and other areas where lizards were prone to death and injury from vehicle impacts.¹⁴⁵ It must

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¹⁴² Wilton, Ben. Tenaska, Personal communication, March 19, 2015; Hord, P. pers. comm., Aug 27, 2017.

¹⁴³ Flat-tailed Horned Lizard Interagency Coordinating Committee. 2011. Annual Progress Report: Implementation of the Flat-tailed Horned Lizard Rangelwide Management Strategy, January 1, 2010 to December 31, 2010. Report prepared by the Flat-tailed Horned Lizard Interagency Coordinating Committee.

¹⁴⁴ Clarke, C. March 2015. Work on Solar Project Halted to Protect Lizard. KCET: <http://www.kcet.org/news/define/rewire/solar/work-on-solar-project-halted-to-protect-lizard.html>

¹⁴⁵ P. Hord, pers. comm., Sage Wildlife Biology. Aug 27, 2017.

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be noted that mortalities from even one Project such as this could have a population level effect, especially if a species sub-population is isolated or part of a Distinct Population Segment.¹⁴⁶

In order to adequately mitigate for such high potential impacts to the horned and other lizards, the Applicant must take into consideration the risks iterated above, and that onsite reptiles will be impacted by loss of foraging and breeding habitat and directly from Project construction. As such the DEIR should not only conduct appropriate surveys for reptiles, but also propose detailed mitigation measures to reduce resultant impacts, including additional biologists present onsite during all hours of construction, enhanced traffic restrictions, and a reptile relocation Plan and Monitoring Strategy during the construction phase.

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F. PLANTS

1. The DEIR Fails to Adequately Describe and Analyze Impacts to Plant Species

The DEIR's botanical baseline is incomplete and, therefore, results in a misleading analysis. According to the DEIR, "floristic" surveys were conducted onsite in 2016 on one day in June, and one day in August, excluding one third of the Project ("site 3"). In 2017, surveys for "site 1" were conducted on one day in May, and one day in June; surveys for "site 2" were conducted one day in May, one in June, and on "site 3" one day in April and one in June.

For rare plant surveys to be complete, the time period for surveys by necessity should be broader, i.e., every month between April and June for the entire project, during a wet year when such occurs. To do so was entirely feasible as 2019 was a particularly wet year following many years of severe drought. Given the end of year timing of the release of this DEIR, conducting spring and summer surveys in 2019 was not only feasible, but necessary to ensure coverage of rare plants that may have been difficult to detect, or non-emergent, in especially dry years. Also, the surveyors make no mention of reference populations, another standard part of botanical surveys for rare plants.

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This minimal level of effort is incapable of inferring absence of special-status species, especially because some of the species that could occur at the site are extremely diminutive and some emergent only during wetter years. Because plant surveys were limited to a restricted window of time in drought years, they were incapable of capturing the appropriate phenological stage of all potentially occurring rare plant species. This issue is confounded because, contrary to CDFW guidance, biologists did not report visiting reference sites to confirm that the target special-status species were evident and identifiable at the time of the botanical surveys, as is typical of thorough rare plant survey methodology.¹⁴⁷ Because

¹⁴⁶ Murphy, R., Trepanier, T., Morafka, D. Conservation genetics, evolution and distinct population segments of the Mojave fringe-toed lizard, *Uma scoparia*. *Journal of Arid Environments*. Volume 67, Supplement, 2006, pp 226-247. <https://doi.org/10.1016/j.jaridenv.2006.09.023>

¹⁴⁷ CDFG. 2009. Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. http://www.dfg.ca.gov/wildlife/nongame/survey_monitor.html#Plants

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biologists made no mention of visiting reference populations, they would have had no idea whether all potentially occurring species were evident and identifiable at the time of its surveys.

For example, Calfora has at least 4 records of Robbins' nemacladus (*Nemacladus secundiflorus* var. *robbinsii*), a CNPS 1B.2 listed species (rare, threatened, or endangered in California and elsewhere), and noted in the CNDDDB for this quadrangle, occurring within less than 1.5 miles southwest of the Project.¹⁴⁸ The DEIR makes no mention of this species. For this species, and other special status botanical species that are known to occur in this region, to be considered "absent" or with "low" potential to occur, is therefore misleading and not definitive of potential to occur, for reasons discussed here and above. The Applicant should revisit the site and conduct complete, rare plants surveys for the entire site at different times of year, and while concurrently visiting reference populations to determine which species are emergent at the time of surveys, especially considering 2019 was a wet year and thus more revelatory for a broader variety of annual and perennial species.

The California Native Plant Society Botanical Survey Guidelines lists certain requirements for thorough botanical surveys to be "consistent with the California Native Plant Society's goal of preserving plant biodiversity on a regional and local scale, and with California Environmental Quality Act environmental impact assessment criteria¹⁴⁹," including the following,

"...A sufficient number of visits spaced throughout the growing season is necessary to prepare an accurate inventory of all plants that exist on the site.

... All habitats within the project site must be surveyed thoroughly in order to properly inventory and document the plants present.

... Population boundaries should be mapped as accurately as possible. The number of individuals in each population should be counted or estimated, as appropriate.

Complete reports of botanical surveys shall be included with all environmental assessment documents, including Negative Declarations and Mitigated Negative Declarations, Timber Harvesting Plans, Environmental Impact Reports, and Environmental Impact Statements. Survey reports shall contain the following information:

b. Methods, including:

- 1) Survey methods for each of the habitats present, and rationale for the methods used.
- 2) Description of reference site(s) visited and phenological development of the target special status plants, with an assessment of any conditions differing from the project site that may affect their identification.

¹⁴⁸

<https://www.calflora.org/entry/observ.html?track=m#srch=t&cols=0,3,61,35,37,13,54,32,41&lpcli=t&taxon=Nemacladus+secundiflorus+var.+robbinsii&chk=t&cch=t&inat=r&cc=KRN>

¹⁴⁹ California Environmental Quality Act Guidelines, §15065 and §15380.

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3) Dates of surveys and rationale for timing and intervals; names of personnel conducting the surveys; and total hours spent in the field for each surveyor on each date (*emphasis added*)....

d. Discussion, including:

- 1) Any factors that may have affected the results of the surveys (*e.g.*, drought, human disturbance, recent fire).
- 2) Discussion of any special local or range-wide significance of any plant population or community on the site.
- 3) An assessment of potential impacts. This shall include a map showing the distribution of special status and locally significant plants and communities on the site in relation to the proposed activities. Direct, indirect, and cumulative impacts to the plants and communities shall be discussed.
- 4) Recommended measures to avoid and/or minimize direct, indirect, and cumulative impacts.”¹⁵⁰

The California Department of Fish and Wildlife’s (CDFW) Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities states that the extent of botanical field surveys should include, “traversing the entire project area to ensure thorough coverage, documenting all plant taxa observed. Parallel survey transects may be necessary to ensure thorough survey coverage in some habitats. The level of effort should be sufficient to provide comprehensive reporting. Additional time should be allocated for plant identification in the field.” And surveyors should “space botanical field survey visits throughout the growing season to accurately determine what plants exist in the project area. This usually involves multiple visits to the project area (*e.g.* in early, mid, and late-season) to capture the floristic diversity at a level necessary to determine if special status plants are present.”^{151, 152}

CDFW also states that, “When special status plants are known to occur in the type(s) of habitat present in a project area, observe reference sites (nearby accessible occurrences of the plants) to determine whether those special status plants are identifiable at the times of year the botanical field surveys take place and to obtain a visual image of the special status plants, associated habitat, and associated natural communities,” and “To further substantiate negative findings for a known occurrence, a visit to a nearby reference site may help ensure that the timing of botanical field surveys was appropriate.”¹⁵³

Upon review of the DEIR it is clear the Applicant did not meet these requirements that would ensure adequate description of rare plants for the Project area.

¹⁵⁰ CNPS Botanical Survey Guidelines. (2001). https://cnps.org/wp-content/uploads/2018/03/cnps_survey_guidelines.pdf

¹⁵¹ U.S. Fish and Wildlife Service Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants available at: <https://www.fws.gov/sacramento/es/Survey-Protocols-Guidelines/>

¹⁵² CDFW. (2018). Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>

¹⁵³ *Ibid.*

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2. The DEIR Fails to Adequately Describe and Analyze Impacts to Joshua Trees

The DEIR provides an incomplete analysis and misleading mitigation for Joshua tree habitat. Although key details on these surveys are lacking (i.e. time, duration, weather, humidity, etc.), it appears that biologists also conducted surveys, measurements, and GIS data collection of all Joshua trees onsite while concurrently attempting to observe all botanical species during times when rare plants may or may not be emergent, during drought years. Also, the DEIR is disingenuous in its descriptions of Joshua tree habitat onsite by declaring they do not comprise a “Joshua tree woodland” habitat. One section of the DEIR repeatedly describes the site as “currently covered with vegetation consisting of native grass, desert brush plants and a few scattered Joshua trees,”¹⁵⁴ while elsewhere repeatedly describing the Joshua tree habitat as “scattered” or “scattered small areas.”¹⁵⁵ However, upon reviewing the Figure 9 map of sensitive plant species, it is obvious that Joshua trees are abundant and spread evenly throughout the site. A quick count of locations in just the northern third of the site amounts to approximately 330 or more Joshua trees across 170 acres, clearly more than “a few scattered trees.” Indeed, the DEIR later contradicts itself by describing the habitat as having a moderate density of Joshua trees. CDFW defines Joshua tree habitat as “characterized as open woodlands of widely scattered Joshua trees (Miller and Stebbins 1964, Cheatham and Haller 1975, Küchler 1977) with a low to more or less dense community of broad-leaved evergreen and deciduous shrubs (Küchler 1977) found in Desert Scrub habitats (Vasek and Barbour 1977). Joshua Tree habitats generally include little herbaceous understory (Cheatham and Haller 1975).”¹⁵⁶

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For the DEIR to imply that this site is not a “woodland” due to low density of the species is deliberately misleading in an attempt to minimize the potential impacts to the species. Clearly the habitat is dominated in part by Joshua trees, and will incur significant impacts when the entire Project site is graded and cleared of all vegetation, regardless of whether or not it is officially deemed woodland. The Joshua tree is protected by the California Desert Native Plant Protection Act. It should also be noted that the species, *Yucca brevifolia*, has been petitioned for Threatened status under the CESA; a determination by the Fish and Game Commission for its candidacy is due in early 2020.

According to the petition, “In addition to urban growth, various other forms of development threaten Joshua tree habitat in California, including roads, highways, transmission lines, industrial facilities and large and small-scale renewable energy projects. While many of these impacts have been poorly quantified to date, according to USFWS (2018), renewable energy development has already resulted in the loss of 1.2% of mapped *Y. brevifolia* habitat, equating to about 68,000 acres. However, given USFWS included Nevada habitat in this calculation, while virtually all of the large-scale renewable energy development in the range of the species is in the YUBR South area, the actual total in California is likely closer to 2% of habitat lost to date. Under the DRECP amendments to the California Desert Conservation Area (CDCA) Plan, **of the 388,000 acres of development focus areas on BLM land subject to a**

¹⁵⁴ DEIR Vol 2 p. 724, 725, 910, 911, 1082, 1083

¹⁵⁵ *Ibid.* p. 24, 57, 466

¹⁵⁶ <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=67358&inline> p. 1

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streamlined review process to facilitate renewable energy development, approximately 50,000 acres fall within the mapped distribution for *Y. brevifolia* (USFWS 2018).¹⁵⁷ According to the USFWS, “Contributors to large-scale habitat loss across the range of *Y. brevifolia* may include urban expansion and development, military installation expansion and training activities, **renewable energy development**, grazing, and off-highway vehicle (OHV) use (emphasis added).”¹⁵⁸ Figure 4 shows the USFWS 2018 Joshua tree projected habitat loss due to a combination of urban growth and large-scale energy projects. Based on this prediction, the Antelope Valley could lose the vast majority of its Joshua tree habitat due to residential and industrial development.

Joshua trees are habitat for a wide variety of nesting birds, including the CESA Threatened Swainson’s hawk, as well as potential roosting sites for bats. To emphasize that several hundred trees are not deemed a “woodland” is not highly relevant to the need for impact reduction in the form of compensatory mitigation to replace the habitat loss, especially in light of the cumulative impacts to this habitat in the Antelope Valley due to the high rate of development for renewable energy projects (Figure 1). Given its misleading language, the DEIR should revisit its descriptions of Joshua tree habitat onsite so that mitigation details alluded to in 4.4-3 not only comply with the California Desert Plant Protection Act, but truly serve to mitigate this rare habitat in appropriate scope and degree that it will be destroyed and thus impacted.¹⁵⁹

II. VARIOUS MITIGATION MEASURES FAIL TO ADEQUATELY REDUCE PROJECT IMPACTS TO LESS THAN SIGNIFICANT

A. Worker Training Program Success at Mitigation is Unsupported by Evidence

Mitigation measure BIO-6 in the DEIR proposes a standard working training program. The Construction Personnel Environmental Awareness Training and Education Program (EATP) provides workers with a sticker upon completion. The following discussion applies to mitigation of any and all special status species (and habitats) in respect to BIO-6:

Providing such training is common and may enhance some ecological knowledge of some species for some workers. As an environmental consultant I have personally observed and implemented these trainings dozens of times for various development projects in a variety of locations and working environments, including energy projects in desert, forested, and shrubland habitats in California. However, throughout my decades of consulting I have not observed these presentations for enhanced worker awareness or training about wildlife translate into measurable actions that have been determined to significantly reduce Project impacts to wildlife.

¹⁵⁷ <https://www.biologicaldiversity.org/species/plants/pdfs/CESA-petition-Western-Joshua-Tree-10-15-19.pdf> p.46

¹⁵⁸ U.S. Fish and Wildlife Service. 2018. Joshua Tree Species Status Assessment. Dated July 20, 2018. 113 pp. + Appendices A–C.

https://www.researchgate.net/publication/335600680_Joshua_Tree_Species_Status_Assessment

¹⁵⁹ DEIR Vol 2 p. 52

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Workers cannot be expected to become naturalists after a lecture, no matter how astute the Project's instructors or training may be. Moreover, there is no structured way to enforce or guarantee any learning, or resultant responsible action taken, to an educational program where learning and retention by definition are subjective, and workers' defined roles per their employment contracts do not include such required actions based upon education about biology. Not only is retention and subsequent action difficult to measure, its efficacy of mitigation is never measured for construction projects. For instance, if upon completion of training, a worker fails a mitigation action due to being unable to recall key wildlife regulations, or remains unable to distinguish a protected species from others, how will such a shortfall be tested, remedied, or enforced to meet mitigation criteria?

There is no empirical evidence that demonstrate that these "awareness" trainings about wildlife measurably or reliably reduce significant impacts to wildlife species to less than significant. Additionally, many measures described by a biological training program rely on the absolute authority of onsite biologists who are (a) hired by the project applicant, (b) thus not independent and are invariably required to sign highly restrictive nondisclosure agreements of questionable legality for employment that preclude most kinds of problem reporting or whistleblowing if rules are not followed by any parties involved, and (c) often not given the necessary on-the-ground authority to oversee enforcement, including stopping work or removing a worker who may be deemed non-compliant.^{160, 161} Indeed, I have observed many construction workers with an abundance of training stickers on their hard hats, yet they did not take action to address biological resource protection onsite when such a scenario was presented.

If the Applicant requires the workers take specific actions to reduce potential construction impacts that relate directly to their job responsibilities (i.e. maintaining a speed limit, hazardous spill containment, fire prevention measures, maintaining garbage-free working spaces, or keeping potential animal pitfalls covered), each such action should be identified as a construction regulation necessary for safety or reducing overall impacts to the environment – where description and enforcement are clearly defined and straightforward – and presented in the DEIR so that the public can subsequently comment on their potential efficacy. Beyond that, no evidence exists to support the presumption that providing information to workers about the species, habitats, or protective laws will translate into actual, enforceable impact mitigation. Since the DEIR posits that such a training contributes to mitigation of impacts to the Project for a host of sensitive species with potential to occur onsite, it should provide some empirical evidence demonstrating as such for similar Project types (i.e. solar developments) with similar workforce scenarios. Otherwise, it is impossible to quantify the degree of mitigation, if any, such program contributes to reduce impacts to below significant, and thus BIO-6 fails in its intent.

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¹⁶⁰ Clarke, C. Feb 8, 2013. Ocotillo Wind Employee Arrested After Alleged Threat. *KECT Rewire*.
<https://www.kcet.org/redefine/ocotillo-wind-employee-arrested-after-alleged-threat>

¹⁶¹ Raftery, M. April 6, 2011. SDG&E Removes Pilot for Flying Too Close to Eagle Nests. *East County Magazine*.
<https://www.eastcountymagazine.org/sdge-removes-pilot-flying-too-close-eagle-nests>

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B. Mitigation Measures Deferred to the Future Fail to Meet the Requirements Necessary for Review

The DEIR proposes the possible creation of - or participation in - plans and strategies to minimize significant impacts to different resources (i.e. MM 4.4-3 a Habitat Management Plan, 4.4-9 regional comprehensive raven management plan, MM 4.4-10 a mitigation land management plan). Although the DEIR offers some generalized guidelines that allude to the types of methods that *may* be in these measures, much of the description of what these plans and strategies entail is deferred to the future, and thus cannot be reviewed at present for efficacy, accuracy, or ability to actually mitigate impacts to below significant, not to mention be enforced *and by whom*. Brief summaries fall short of what is required for satisfactory review or analysis of the efficacy of unscripted plans presented as evidence to mitigate significant impacts to species, and are not adequately expository. For mitigation actions to be successful the devil is in the details, additionally without such there can be no thorough or informative review of their potential for success.

As an environmental consultant I have observed many times the failure of many mitigation measures, when applied due to the **lack of appropriate performance and success criteria**, which are not implemented, defined, or otherwise analyzed prior to project approval, followed by failures of mitigation success and enforcement. When details are almost entirely deferred to the future, as they are here, mitigation actions become highly indeterminate and unspecified. Again, this is inadequate for the reviewing public to determine efficacy of the mitigation, thus denying one of the primary purposes of CEQA review. Further, stating that a plan intends to follow guidelines or agency recommendations does not reveal or address the specific and sometimes unprecedented requirements for mitigation for a specific location, including the unique characteristics of a specific project and its impact on a specific sensitive, rare, or otherwise at-risk population, including the long term, indirect, and cumulative impacts unique to every development.

Details are essential to understand and address the characteristics of a site and its unique species cohort and their relevant ecological status, and should include necessary distinctions in compensatory mitigation; i.e. revegetation or restoration that must rely on factors including types of habitat not just onsite but nearby, as well as other variables like population densities located on and near the site, and cumulative impacts to the Project.^{162, 163} Additionally, if history repeats itself and sensitive species are killed or injured by the facility during operation, what measures will the Applicant be willing to take to mitigate for such? Data collection is important, but it is not mitigation and cannot replace dead animals. And will they be adequate, especially considering mitigation comes with economic and other perceived burdens that most developers seek to minimize at any given moment, especially when enforcement is

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¹⁶² Keeley, J., Baer-Keeley, M. C.J. Fotheringham (eds). (2000). 2nd Interface Between Ecology and Land Development in California U.S. Geological Survey Open_file Report00-62. <https://pubs.usgs.gov/of/2000/of00-062/>
¹⁶³ Newton, G. and Claassen, V. (2003). Rehabilitation of Disturbed Lands In California: A Manual For Decision-Making. *California Geological Survey*.
<https://www.conservation.ca.gov/dmr/SMARA%20Mines/Documents/sp123.pdf>

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minimal and oversight at remote locations lacking? These questions beg answers that the public cannot assess when no detail is offered.

Deferring mitigation plans to a future date is also inadequate because the unscripted details are based largely upon anticipation of a future direction by various unnamed and presumed experts – or administrators – yet to be determined. This has two inherent problems: (a) It disallows reviewers to adequately analyze efficacy of mitigation measures as required by CEQA, and (b) It leaves the process vulnerable to the whims, bias, political digressions, employee changes, financial shortfalls, and conflicts of the Applicant as well as to litigation and other interruptions that are known to lead to mitigation failure and overall disruptions post-project approval. Resource experts on measuring effectiveness of mitigation measures, especially ones regarding compensatory tradeoffs as pivotal to mitigation success (as is likely the case with this Project), state that, **“Public choice theory profoundly suggests officials and traders have more incentive to facilitate barter than to ensure biodiversity protection.** Thus, given the option of saying to developers “yes, with conditions” or “no,” officials will prefer “yes, with conditions” — particularly when compliance with conditions cannot be credibly measured and officials can avoid accountability for outcomes. Legitimized bartering can thus create a policy situation “obscure enough to please all parties and so ill-defined that failures will be difficult to detect not to mention rarely measured (emphasis added).”¹⁶⁴ When asked about the success of compensatory mitigation for wetland restoration, Dr. Joy Zedler, chair of the 2001 NRC Compensatory Mitigation Study Committee, said, “It could be the best of all worlds...or it could be the same old same old . . . It’s all in the implementation.”¹⁶⁵

These statements underscore why so many mitigation plans, like those scripted in this DEIR, fail to reduce impacts to below significant for projects over the years and is something I have observed repeatedly as an environmental consultant working in the public and private energy, residential, and transportation development sectors. If the permitting authorities and enforcement agencies are truly concerned with their role in ensuring adequate mitigation of all of the significant impacts imposed by this development – to both resident and migratory species - they will require detailed descriptions allowing for review and discussion of the adequacy of mitigation plans by independent experts for each protected species and habitat in question, prior to issuance of a development permit, and not leave most such prescriptions indeterminate, i.e. deferred to the future, upon Project approval. Finally, courts have determined that deferring mitigation to the future is an inadequate action under CEQA, as they did so in *Preserve Wild Santee V. City Of Santee*, when mitigation for an endangered species and wetland habitats was deferred to a future plan instead of addressed appropriately in the EIR.¹⁶⁶

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¹⁶⁴ Walker, S.; Brower, A.; Stephens, R.T.; and Lee, W. 2009. Why Bartering Biodiversity Fails. *Conservation Letters* 2:149–157. http://www.azoresbioportal.angra.uac.pt/files/publicacoes_Walker%20et%20al%202009.pdf

¹⁶⁵ Alice Kenny, April 27, 2008. *Environmentalists Sound Off on EPA Wetland Regs*, Ecosystem Marketplace. <http://staging.ecosystemmarketplace.com/articles/environmentalists-sound-off-on-epa-wetland-regs/>.

¹⁶⁶ <https://caselaw.findlaw.com/ca-court-of-appeal/1614349.html>

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As such, the DEIR should revisit its mitigation measures and provide definitive, detailed descriptions that include success criteria, performance standards and timelines that follow the best available science, and specifics on enforcement, cost, and related funding source for each plan.

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III. IMPACTS TO BIOLOGICAL RESOURCES FROM DECOMMISSIONING ARE NOT ANALYZED

In respect to indirect and cumulative impact analysis, it is relevant to place this Project in context of its regional environmental scope and impact from toxins released as by-product from decommissioning: Aside from providing energy for nearby communities, and a profit for the Applicant, one of the primary objectives of this Project is to provide an alternative to fossil fuel energy production and thus contribute to reducing greenhouse gas emissions. A primary reason for slowing anthropogenic climate change is to reduce its damaging and disruptive effects on wildlife and their habitats, including the many ecosystem services these habitats provide when intact, including carbon sequestration, water filtration, nutrient dispersal and cycling, erosion control, soil deposition, waste decomposition and detoxification, pollinator maintenance, and natural pest (i.e. invasive species) and disease control, to name a few. By way of mitigating the climate crisis we seek to reduce impacts particularly on already vulnerable species approaching extinction,¹⁶⁷ and at-risk habitats concurrently degraded by the cumulative impacts of pollution, overharvesting, fragmentation, and human-induced non-native species invasions. The globally cited Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services 2019 Report has drawn a host of conclusions via analysis of over 15,000 scientific publications in addition to a “substantive body of indigenous and local knowledge.”¹⁶⁸ According to the IPBES report, the main direct drivers of species extinction are (in descending order): (1) changes in land and sea use, (2) direct exploitation of organisms (including hunting, fishing and logging), (3) climate change, (4) pollution, and (5) invasive alien species. The report summary concludes that loss and degradation of habitat is more responsible for extinctions than climate change. Though both factors obviously pose serious global threats to species, this reality of cumulative impacts should be included in any real world analyses of proposed developments where large scale elimination of native habitats – as posed by this Project - is considered a justifiable sacrifice for industrial-scale energy project development.

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As such renewable energy developments, this one included, should not be viewed as a panacea to the greenhouse gas reduction when production of that energy significantly impacts those very same habitats and species we are seeking to protect by way of reducing global warming. As University of Berkeley renewable energy professor Zehner states, “The presumed carbon benefits of a [renewable energy facility] if thoughtlessly situated, could be entirely wiped out by the destructive impact on the wildlife surrounding it - a humbling reminder that the technologies we create are only as durable as the contexts we create for them.”¹⁶⁹

¹⁶⁷ IPBES (2019). Press Release: Nature’s Dangerous Decline ‘Unprecedented’ Species Extinction Rates ‘Accelerating’. <https://www.ipbes.net/news/Media-Release-Global-Assessment>

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https://ipbes.net/sites/default/files/inline/files/ipbes_global_assessment_report_summary_for_policymakers.pdf

¹⁶⁹ Zehner, O. (2012). Green Illusions: The Dirty secrets of Clean Energy and the Future of Environmentalism. Lincoln University of Nebraska Press. p.40.

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The exigencies and resultant significant potential impacts of production and decommissioning of this industrial PV facility - to be constructed in a remote, natural environment far from any standard contaminant measuring and oversight that may otherwise be present in urban or suburban environments - are not addressed in the DEIR. The Silicon Valley Toxics Coalition states that as the solar photovoltaic industry expands, "little attention is being paid to the potential and environmental costs of that rapid expansion. The most widely used solar PV panels have the potential to create a huge new wave of electronic e-waste at the end of their useful lives, estimated to be 20 to 25 years. Many of these [new solar PV technologies] use extremely toxic materials or materials of unknown health and environmental risks."¹⁷⁰ Compound used in the materials to construct this Project will invariably leach into the air and water as part of the decommissioning process, and can impact wildlife as well as humans in a wide variety of ways.

The DEIR provides wholly inadequate detail on the scope of decommissioning impacts, including aspects of recycling and hazardous waste disposal, despite it being accepted fact that hazardous wastes can and do affect species across a broad spectrum of taxa. The DEIR defers any key details regarding how they will estimate cost or guarantee payment for comprehensive decommissioning impact mitigation, or how and where recycled materials and hazardous waste will be disposed of in ways that not only meet general disposal regulations adopted by local landfill regulatory agencies, but also minimize risks to the habitats and species overall. Solar decommissioning is an inexact science at best, and an increasingly risky financial and environmental endeavor at worst. Reports show several major hurdles accompany decommissioning of solar industrial sites, namely that (1) monetary costs for decommissioning are exceeding original estimates by millions of dollars,¹⁷¹ (2) environmental costs are often underestimated and overlooked,^{172, 173} and (3) companies to conduct the decommissioning are few.¹⁷⁴ One such decommissioning group, SolUnesco, states, "A great deal of variability can come into play when calculating decommissioning costs. For example, an estimate of decommissioning of the 80 MWac Water Strider project came in just over \$2 million, while the 50 MWac Sunnybrook project—two-thirds the size of Water Strider—had estimated decommissioning costs 50% higher—over \$3 million. These variances are created because of the methodology used by different parties, the requirements imposed by counties, and the lack of calculation standards. We feel that this extreme divergence in cost estimates has resulted in a loss of credibility in the industry."¹⁷⁵ The DEIR does not provide adequate detail as to how hazardous and other toxic wastes will be disposed of in ways that do not impact wildlife

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<https://citeseerx.ist.psu.edu/viewdoc/download;jsessionid=9ED1EF059222E244A69ED8F51DEDACF6?doi=10.1.1.548.9949&rep=rep1&type=pdf>

¹⁷¹ <https://www.greentechmedia.com/articles/read/First-Solars-Stewardship-of-Recycled-CdTe-Modules-in-Question>

¹⁷² National Renewable Energy Laboratory (NREL). 2012. Renewable Electricity Futures Study. Hand, M.M.; Baldwin, S.; DeMeo, E.; Reilly, J.M.; Mai, T.; Arent, D.; Porro, G.; Meshek, M.; Sandor, D. eds. 4 vols. NREL/TP-6A20-52409. Golden, CO: National Renewable Energy Laboratory.

¹⁷³ <https://www.ucsusa.org/resources/environmental-impacts-solar-power>

¹⁷⁴ <https://www.solarpowerworldonline.com/2019/03/how-to-decommission-a-solar-array-and-why-its-important-to-plan-ahead/>

¹⁷⁵ <https://www.solunesco.com/2018/09/10/decommissioning-of-solar-sites-a-key-consideration-of-the-project/>

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and habitats at the site and near the disposal site (i.e. landfill), and who specifically will bear the burden of costs if they prove significantly more than whatever estimates (as of yet unknown) are created at the time of project permit approval.

Thin-film solar cell technologies employ various toxic substances including cadmium, categorized as an extreme toxin by the U.S. EPA and a Group 1 carcinogen by the International Agency for Research on Cancer (Photo 1). Cadmium leached into soils from industrial waste has been demonstrated to be absorbed by plants and made more bioavailable to wildlife species, and can persist for many years in the soil.^{176, 177} Toxic materials disposed in a landfill or elsewhere may contaminate groundwater, contaminate air from secondary leaching, off-gassing and when burned,¹⁷⁸ and as a result impact a host of species in proximity to the disposal site(s), including rare and highly vulnerable populations.¹⁷⁹ A plethora of studies on marine, terrestrial, and freshwater vertebrates and invertebrates demonstrate that low level exposure to contaminants, including cadmium, may compromise immune function, and effect fecundity, migratory behavior, environmental fitness, and reproductive success of a host of species.^{180, 181, 182, 183, 184} One such study found that cadmium, above all the other metals measured, impacted rodents and owl fecundity and long term population viability.¹⁸⁵ Researchers analyzing the bioaccumulation of cadmium across trophic levels in 32 species concluded that “cadmium

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¹⁷⁶ Pain, D. J., Meharg, A., Sinclair, G., Powell, N., Finnie, J., Williams, R., & Hilton, G. (2003). Levels of cadmium and zinc in soil and plants following the toxic spill from a pyrite mine, Aznalcollar, Spain. *Ambio*, 32(1), 52–57.

¹⁷⁷ Camizuli, E., Scheifler, R., Garnier, S., Monna, F., Losno, R., Gourault, C., Hamm, G., Lachiche, C., Delivet, G., Chateau, C., & Alibert, P. (2018). Trace metals from historical mining sites and past metallurgical activity remain bioavailable to wildlife today. *Scientific Reports*, 8(1), 3436. <https://doi.org/10.1038/s41598-018-20983-0>

¹⁷⁸ Langlois, C., & Langis, R. (1995). Presence of airborne contaminants in the wildlife of northern Québec. *The Science Of The Total Environment*, 160–161, 391–402.

¹⁷⁹ Marquardt, S. R., Annis, M., Drum, R. G., Hummel, S. L., Mosby, D. E., & Smith, T. (2018). On the Cutting Edge of Research to Conserve At-Risk Species: Maximizing Impact through Partnerships. *Integrative And Comparative Biology*, 58(1), 140–149. <https://doi.org/10.1093/icb/icy009>

¹⁸⁰ Veldhoen, N., Stevenson, M. R., Skirrow, R. C., Rieberger, K. J., van Aggelen, G., Meays, C. L., & Helbing, C. C. (2013). Minimally invasive transcriptome profiling in salmon: detection of biological response in rainbow trout caudal fin following exposure to environmental chemical contaminants. *Aquatic Toxicology (Amsterdam, Netherlands)*, 142–143, 239–247. <https://doi.org/10.1016/j.aquatox.2013.08.016>

¹⁸¹ Zukal, J., Pikula, J., & Bandouchova, H. (2015). Bats as bioindicators of heavy metal pollution: history and prospect. *Mammalian Biology*, 80(3), 220–227. <https://doi.org/10.1016/j.mambio.2015.01.001>

¹⁸² Fisk, A. T., de Wit, C. A., Wayland, M., Kuzyk, Z. Z., Burgess, N., Letcher, R., Braune, B., Norstrom, R., Blum, S. P., Sandau, C., Lie, E., Larsen, H. J. S., Skaare, J. U., & Muir, D. C. G. (2005). An assessment of the toxicological significance of anthropogenic contaminants in Canadian arctic wildlife. *Science of the Total Environment*, 351–352, 57–93. <https://doi.org/10.1016/j.scitotenv.2005.01.051>

¹⁸³ Hutton, M. (1982). The role of wildlife species in the assessment of biological impact from chronic exposure to persistent chemicals. *Ecotoxicology And Environmental Safety*, 6(5), 471–478.

¹⁸⁴ Bichet, C., Scheifler, R., Cœurdassier, M., Julliard, R., Sorci, G., & Loiseau, C. (2013). Urbanization, Trace Metal Pollution, and Malaria Prevalence in the House Sparrow. *PLoS ONE*, 8(1), 1–10. <https://doi.org/10.1371/journal.pone.0053866>

¹⁸⁵ Loos, M., Ragas, A. M. J., Plasmeijer, R., Schipper, A. M., & Hendriks, A. J. (2010). Eco-SpaCE: An object-oriented, spatially explicit model to assess the risk of multiple environmental stressors on terrestrial vertebrate populations. *Science of the Total Environment*, 408(18), 3908–3917. <https://doi.org/10.1016/j.scitotenv.2009.11.045>

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contamination is a great concern because this non-essential metal presents risks both for wildlife and human health.”¹⁸⁶

The DEIR states that a “Decommissioning Plan” (MM 4.11-1)¹⁸⁷ will be created and reviewed, but offers no discussion or analysis of scope, extent, methods, goals, objectives, or any performance criteria for how hazardous wastes will be safely disposed of such that they do not cause significant or unmitigable contamination to biological resources. The environmental impacts of decommissioning must be discussed, not simply deferred to the future in hopes that any scripted plan will address all the environmental impacts, especially as scientists learn more each year about the degree and extent of such impacts, and what is necessary to avoid and mitigate them. Indeed, researchers studying the impacts to wildlife of a host of pollutants including cadmium, selenium, copper, and zinc concluded that species across food webs were adversely affected by persistent “low to medium toxicity” compounds that leached into ecosystems, and could persist in the soil and be made bioavailable to species for a minimum of decades. The researchers concluded that “The vulnerability of a species is a combination of its potential exposure, sensitivity to the type of pollutant, and recovery capacity.”¹⁸⁸ The DEIR makes no attempt to analyze any such impacts to wildlife and habitats to any degree.

The DEIR fails to analyze the impact of any hazardous or other waste that will inevitably be a byproduct of decommissioning. The biological resource mitigation measures that mention decommissioning (i.e. MM 4.4-6, 4.4-8 through 4.4-13) treat the action of decommissioning as if it were equivalent to Project construction activities, a completely unscientific categorization that ignores the short and long term exigencies of decommissioning. Any analysis of decommissioning should at a minimum address the realities of toxins and their potential for habitat disruption and species bioaccumulation as an inherent part of impacts caused by industrial scale PV solar development. Without such, the long-term impacts of toxic waste disposal remain completely unmitigated.

IV. CONCLUSION

For the reasons outlined above, the Project DEIR fails to meet the requirements of impact analysis and mitigation under the California Environmental Quality Act (CEQA). Based on my responses in this letter, and my extensive experience as a biologist and environmental consultant, it is my professional opinion that the DEIR has not met the obligations of CEQA and that the Project would result in significant and unmitigated impacts to several sensitive biological resources. The DEIR must be revised and resubmitted to disclose, adequately analyze, and mitigate the significant impacts. If the impacts cannot be reduced to less than significant, they are unavoidable. No further consideration should be given to the proposed

¹⁸⁶ Espejo, W., Padilha, J. de A., Kidd, K. A., Dorneles, P. R., Barra, R., Malm, O., Chiang, G., & Celis, J. E. (2018). Trophic transfer of cadmium in marine food webs from Western Chilean Patagonia and Antarctica. *Marine Pollution Bulletin*, 137, 246–251. <https://doi.org/10.1016/j.marpolbul.2018.10.022> p. 246

¹⁸⁷ DEIR p. 1-95

¹⁸⁸ De Lange, H. J., Lahr, J., Van der Pol, J. J. C., Wessels, Y., & Faber, J. H. (2009). Ecological vulnerability in wildlife: an expert judgment and multicriteria analysis tool using ecological traits to assess relative impact of pollutants. *Environmental Toxicology and Chemistry*, 28(10), 2233–2240. <https://doi.org/10.1897/08-626.1>

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Project until a complete DEIR is prepared and circulated that addresses the omissions and errors discussed herein.

Sincerely,



Renée Owens
Conservation Ecologist
M.S. Ecology, M.S. Environmental Science

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Professional Background

I am a conservation biologist and environmental consultant with over 27 years of professional experience in wildlife ecology and natural resource management. I hold a M.S. in Environmental Science and another M.S. in Ecology; my teaching experience includes college instruction since 1991 at various colleges and Universities. I taught field courses in Tropical Ecology in Ecuador and the Galapagos for Boston University, and was a Visiting Full Time Professor in Environmental Science and Biology at Imperial Valley College.

I have managed an independent environmental consultancy I founded in 1993, contracted for work in the U.S. and Latin America, including in California, Tennessee, Oregon, New York, and Massachusetts. Since 1994 have and currently maintain U.S. Fish and Wildlife (FWS) Recovery permits for listed species under the federal Endangered Species Act (ESA). I hold several state and federal certifications for surveys and monitoring of protected and special status species. I have extensive experience monitoring and studying many species across several taxa, including herpetofauna, terrestrial invertebrates, passerines and raptors, and marine and terrestrial mammals. I have served as a biological resource expert on over 150 projects involving pipelines, water, urban and rural residential developments, mines, and industrial scale energy projects; on private, public, and military lands. I have experience observing the species and habitats discussed in the DEIR.

The scope of work I have conducted as an independent environmental contractor, supervisor, and employee has included assisting clients to evaluate and achieve environmental compliance, restoration, mitigation, and research as related to biological resources; as well as submitting analytical reports and comments for such work to oversight agencies. This work includes analyzing actions pursuant to the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), the Endangered Species Act, the Clean Water Act (CWA), the Migratory Bird Treaty Act (MBTA), and other regulations, along with surveying for and preparing Biological Technical Reports and Assessments. I have been contracted as an environmental consultant by the FWS, the USDA Forest Service, Ultrasystems, ICF, Helix Environmental, URS, AECOM, AMEC, GeomorphIS, Dudek, ESA, Tetra Tech, Bridgenet, among

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others. I am a member of the National Sierra Club's Marine Advisory Committee, and a Board Member of the Backcountry Land Trust.

My conservation and natural history research on endangered species in Latin America has received awards including the National Geographic Research and Exploration Award and the National Commission for Scientific and Technological Research Award. My research has been featured on National Geographic Television and Discovery Channel documentaries, and I have served as technical consultant for wildlife documentaries filmed by National Geographic Television, Discovery Channel, BBC, and Animal Planet. In 2017 I received a Special Commendation for contributions to environmental conservation from the City of San Diego.

I have gained particular knowledge of the biological resource issues associated with the Project through my extensive work on numerous research and consulting projects throughout California. My comments are based upon first-hand observations, review of the environmental documents prepared for the Project, review of scientific literature pertaining to biological resources known to occur in and near the Project area, consultation with other biological resource experts, and the knowledge and experience I have acquired throughout my almost 30 years of working in the field of natural resources research and management.

Table 1**Avian Mortality Summary**

This table provides a partial summary of avian mortalities documented at select solar facilities in desert regions of California between January 2012 and March 2016. This summary is not comprehensive for any category, is limited to projects that have provided mortality data, and is from data provided by the CDFW and USFWS in July 2016 in response to a Freedom of Information Act request. Blank cells indicate a lack of data provided in the report.

<u>Doc No.</u>	<u>Monitoring Dates</u>	<u>Facility</u>	<u>Developer</u>	<u>MW / Type (PV or Solar thermal)</u>	<u>Location</u>	<u>Lead Agency</u>	<u>Deaths</u>	<u>Species</u>
2H	4/21/2014 - 9/10/2014	Stateline Solar Project	First Solar	300 / PV	San Bernardino County	BLM	13	Rock Pigeon Orange-crowned Warbler Yellow-rumped Warbler Brewer's Blackbird Black-throated Sparrow Orange-crowned Warbler Wilson's Warbler Red-tailed Hawk California Myotis Sora Western Tanager Lesser Nighthawk
1Q	Q4 2013 10/2013 – 12/2013	Campo Verde Solar	First Solar	123-139 / PV	Imperial County	Imperial County	36	Specific species not identified
1A	Q1 2014 01/2014 – 03/2014	Campo Verde Solar	First Solar	123-139 / PV	Imperial County	Imperial County	17	Mourning Dove Sora American Kestrel Snowy egret Indian peafowl American Coot Red-tailed Hawk Burrowing Owl
1O	Q2 2014 04/2014 – 06/2014	Campo Verde Solar	First Solar	123-139 / PV	Imperial County	Imperial County	10	Mourning Dove Sora Lesser Nighthawk Dove sp. Unknown
1P	Q3 2014 07/2014 – 09/2014	Campo Verde Solar	First Solar	123-139 / PV	Imperial County	Imperial County	30	Mourning Dove Sora Lesser Nighthawk Dove sp. American Coot Burrowing Owl Eurasian Collared Dove Common Ground Dove

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								Unknown
1RA 1RB 1RC	Q4 2014 10/2014 – 12/2014	Campo Verde Solar	First Solar	123-139 / PV	Imperial County	Imperial County	34	Sora American Kestrel Mourning Dove Dove sp. Eurasian Collared Dove American Coot White-winged Dove Savannah Sparrow Common Gallinule Rock Dove Unknown
1SA 1SB 1SC	Q1 2015 01/2015 – 03/2015	Campo Verde Solar	First Solar	123-139 / PV	Imperial County	Imperial County	24	Eurasian Collared Dove American Coot Burrowing Owl (2) Horned Lark <i>Icteridae</i> sp. Mourning Dove Cattle Egret Sora Unknown bird
1TA 1TB 1TC	Q2 2015 04/2015 – 06/2015	Campo Verde Solar	First Solar	123-139 / PV	Imperial County	Imperial County	22	Virginia Rail White-crowned Sparrow Western Meadowlark Common Gallinule Sora Eurasian Collared Dove American Coot <i>Parulidae</i> sp. Common Grackle Cliff Swallow <i>Trochilidae</i> sp. Lesser Nighthawk Pacific Loon Mourning Dove Say's Phoebe Unknown bird
1UA Missi ng Augu st 1UC	Q3 2015 07/2015 – 09/2015	Campo Verde Solar	First Solar	123-139 / PV	Imperial County	Imperial County	45+ missi ng Augus t data	Lesser Nighthawk Horned Lark Mourning Dove Western Grebe Eurasian Collared Dove Mexican Free-tailed Bat Sora <i>Columbidae</i> sp. Common Gallinule California Towhee
1VA 1VB 1VC	Q4 2015 10/2015 – 12/2015	Campo Verde Solar	First Solar	123-139 / PV	Imperial County	Imperial County	69	Sora <i>Columbidae</i> sp. Eurasian Collared Dove Common Gallinule White-winged Dove Virginia Rail <i>Ardeidae</i> sp.

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								American Coot Western Meadowlark Mourning Dove Black Phoebe Say's Phoebe Burrowing Owl (3) Greater Roadrunner Mallard Vesper Sparrow Blue-footed Booby European Starling Unknown bird
1WA 1WB 1WC	Q1 2016 01/2016 – 03/2016	Campo Verde Solar	First Solar	123-139 / PV	Imperial County	Imperial County	35	Mourning Dove Sora Dove Sp. Western Meadowlark Black Phoebe Rock Pigeon American Coot Red-tailed Hawk <i>Emberizidae</i> sp. Eurasian Collared Dove White-faced Ibis Savannah Sparrow Surf Scoter Barn Owl Le Conte's thrasher
1J	Quarterly Report 07/2013 – 09/2013	Topaz Solar Farm	First Solar	550 / PV	San Luis Obispo County	San Luis Obispo County	6	
1K	Quarterly Report 01/2014 – 03/2014	Topaz Solar Farm	First Solar	550 / PV	San Luis Obispo County	San Luis Obispo County	11	
1L	Quarterly Report 04/2014 – 06/2014	Topaz Solar Farm	First Solar	550 / PV	San Luis Obispo County	San Luis Obispo County	5	
1M	Quarterly Report 07/2014 – 09/2014	Topaz Solar Farm	First Solar	550 / PV	San Luis Obispo County	San Luis Obispo County	8	
1N	Quarterly Report 01/2015 – 03/2014	Topaz Solar Farm	First Solar	550 / PV	San Luis Obispo County	San Luis Obispo County	5	

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1B	1st Quarterly Post- Constructio n Report 08/2012 – 11/2012	California Valley Solar Ranch Project	SunPower	250 / PV	San Luis Obispo County	San Luis Obispo County	53	Short-eared Owl (2) Burrowing Owl (3) Blackbird sp. Savannah Sparrow Western Meadowlark Red-tailed Hawk Mourning Dove Fox Sparrow Common Raven CA Horned Lark Northern Flicker Lincoln's Sparrow Long-eared Owl American Crow
1C	2 nd Quarterly Post- Constructio n Report 11/2012 – 02/2013	California Valley Solar Ranch Project	SunPower	250 / PV	San Luis Obispo County	San Luis Obispo County	144	
1D	3 rd Quarterly Post- Constructio n Report 02/2013 – 05/2013	California Valley Solar Ranch Project	SunPower	250 / PV	San Luis Obispo County	San Luis Obispo County	84	
1E	4 th Quarterly Post- Constructio n Report 05/2013 – 08/2013	California Valley Solar Ranch Project	SunPower	250 / PV	San Luis Obispo County	San Luis Obispo County	89	
1F	5 th Quarterly Post- Constructio n Report 08/2013 – 11/2013	California Valley Solar Ranch Project	SunPower	250 / PV	San Luis Obispo County	San Luis Obispo County	103	
1G	6 th Quarterly Post- Constructio n Report	California Valley Solar Ranch Project	SunPower	250 / PV	San Luis Obispo County	San Luis Obispo County	152	

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	11/2013 – 02/2014							
1H	7 th Quarterly Post-Construction Report 02/2014 – 05/2014	California Valley Solar Ranch Project	SunPower	250 / PV	San Luis Obispo County	San Luis Obispo County	54	
1I	8 th Quarterly Post-Construction Report 05/2014 – 08/2014	California Valley Solar Ranch Project	SunPower	250 / PV	San Luis Obispo County	San Luis Obispo County	24	
1X	08/2011 – 12/2011	Desert Sunlight	NextEra	550 / PV	Riverside County	Bureau of Land Management (BLM)	8	Burrowing Owl Western Grebe Eared Grebe American Coot American Avocet Loggerhead Shrike (6) Mourning Dove Common Loon (5) Sora Wilson's Warbler Brown Pelican Common Raven Double-crested Cormorant Great-Tailed Grackle Ruddy Duck Ash-throated Flycatcher Brown-headed Cowbird Common Poorwill Horned Lark Sagebrush Sparrow Townsend's Warbler Western Tanager White Crowned Sparrow Yellow Headed Blackbird Black Headed Grosbeak Brewer's Blackbird Common Yellowthroat Costa's Hummingbird House Finch Lesser Nighthawk Pied-billed Grebe Say's Phoebe Sparrow Sp. Virginia Rail Yellow-rumped Warbler American Kestrel
1X	Q1 2012 01/2012 – 03/2012	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	3	
1X	Q2 2012 04/2012 – 06/2012	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	3	
1X	Q3 2012 07/2012 – 09/2012	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	10	
1X	Q4 2012 10/2012 – 12/2012	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	10	
1X	Q1 2013 01/2013 – 03/2013	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	3	
1X	Q2 2013 04/2013 – 06/2013	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	20	
1X	Q3 2013 07/2013 – 09/2013	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	25	
1X	Q4 2013 10/2013 – 12/2013	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	26	

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1X	Q1 2014 01/2014 – 03/2014	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	4	American White Pelican (1) Barn Owl Black-crowned Night-Heron Black-tailed Gnatcatcher
1X	Q2 2014 04/2014 – 06/2014	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	18	Blue-winged Teal Clapper Rail Common Merganser Great Egret
1X	Q3 2014 07/2014 – 09/2014	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	15	Lesser Scaup Long-eared Owl Mallard Northern Mockingbird
1X	Q4 2014 10/2014 – 12/2014	Desert Sunlight	NextEra	550 / PV	Riverside County	BLM	10	Prairie Falcon Red-breasted Merganser Redhead Red-necked Phalarope Red-winged Blackbird Savannah Sparrow Surf Scoter Tree Swallow Blackbird sp. Duck sp. Empidonax Flycatcher sp. Hummingbird sp. Jaeger sp. Verdin Western Meadowlark White-faced Ibis White-winged Dove Wilson's Snipe Yellow Warbler
2A	1 st Quarterly Report 08/2014 – 10/2014	Centinela Solar		170 / PV	Imperial County	Imperial County / BLM	21	American Coot Mallard Buteo Sp. American Kestrel Heron/Egret Sp. Tern Sp. Savannah Sparrow Dove Sp. Unknown bird
1Y	2 nd Quarterly Report 11/2014 – 01/2015	Centinela Solar		170 / PV	Imperial County	Imperial County / BLM	27	Burrowing Owl (5) American Coot Mourning Dove Eurasian Collared Dove White-winged Dove Rock Pigeon Dove Sp. Heron/Egret Sp. Greater Roadrunner Dove Sp.
1Z	3 rd Quarterly Report	Centinela Solar		170 / PV	Imperial County	Imperial County / BLM	13	Lesser Nighthawk Common Gallinule Mourning Dove White-winged Dove

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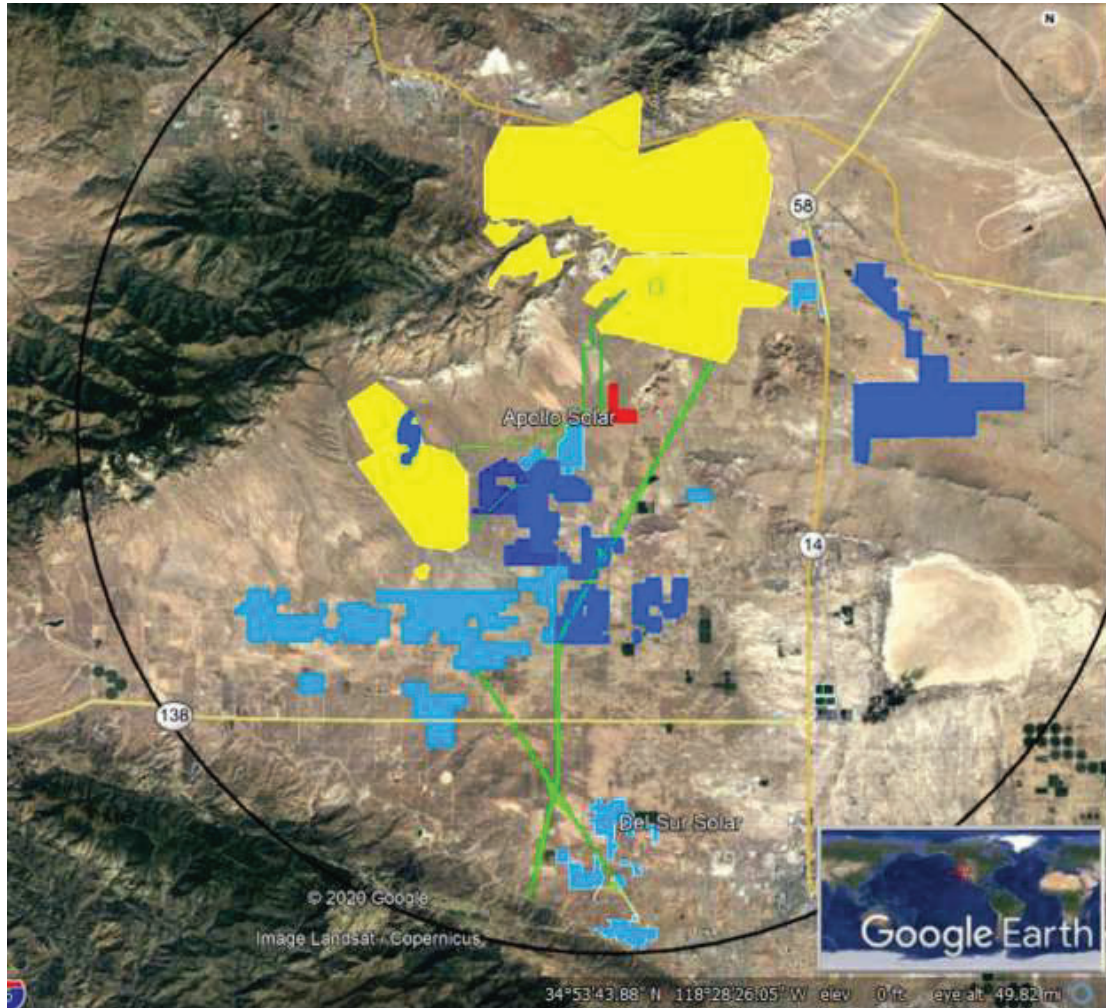
	02/2015 – 04/2015							Rock Pigeon Mallard Black-crowned Night Heron Unknown
2BA 2BB 2BC	4 th Quarterly Report 05/2015 – 07/2015	Centinela Solar		170 / PV	Imperial County	Imperial County / BLM	9	Brant (1) Mourning Dove <i>Columbidae</i> sp. Eurasian Collared Dove Black-crowned Night-heron American Kestrel Unknown
2CA 2CB	11/2013 - 12/2013	Imperial Solar Energy Center South	Tenaska	130 / PV	Imperial County	Imperial County	5	American Coot
2DA 2DB 2DC	01/2014 – 03/2014	Imperial Solar Energy Center South	Tenaska	130 / PV	Imperial County	Imperial County	5	Mourning Dove Cattle Egrets Sora
2EA 2EB 2EC	07/2015 – 09/2015	McCoy	NextEra	750 / PV	Riverside County	BLM	29	
2FA 2FB 2FC	10/2015 – 12/2015	McCoy	NextEra	750 / PV	Riverside County	BLM	91	
2G	01/01/16	McCoy	NextEra	750 / PV	Riverside County	BLM	10	

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Figure 1

Cumulative Impacts: Existing Renewable Energy Projects Within a 20-mile radius (black border)



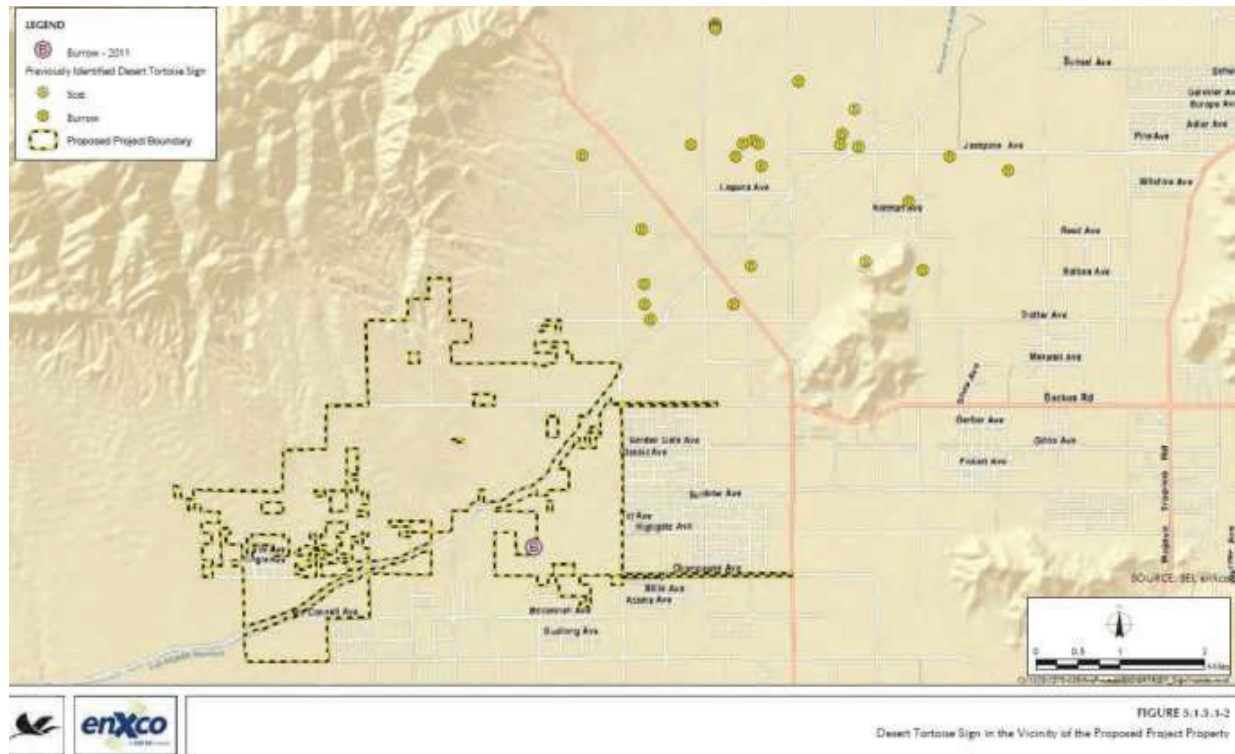
Apollo Project = red Wind Projects = yellow Existing solar projects = light blue
In process solar projects = dark blue Major transmission lines = green

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Figure 2

Catalina Renewable Energy Project Desert Tortoise Burrows

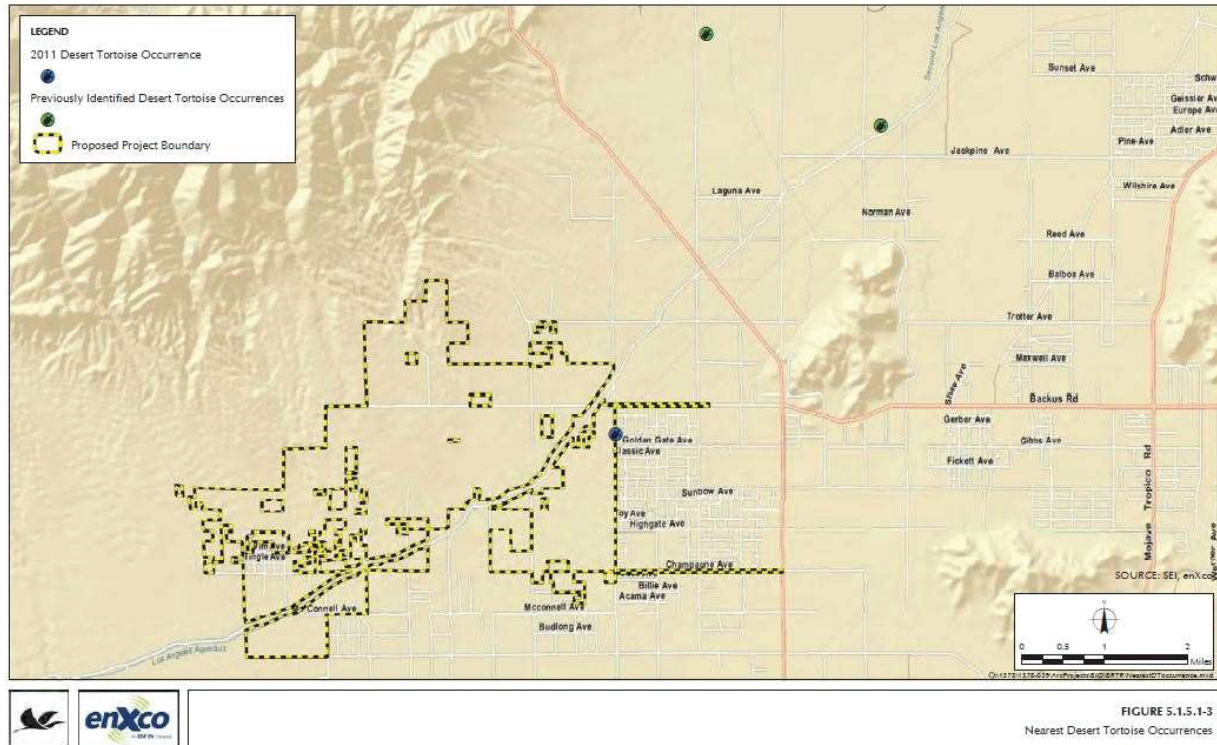


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Figure 3

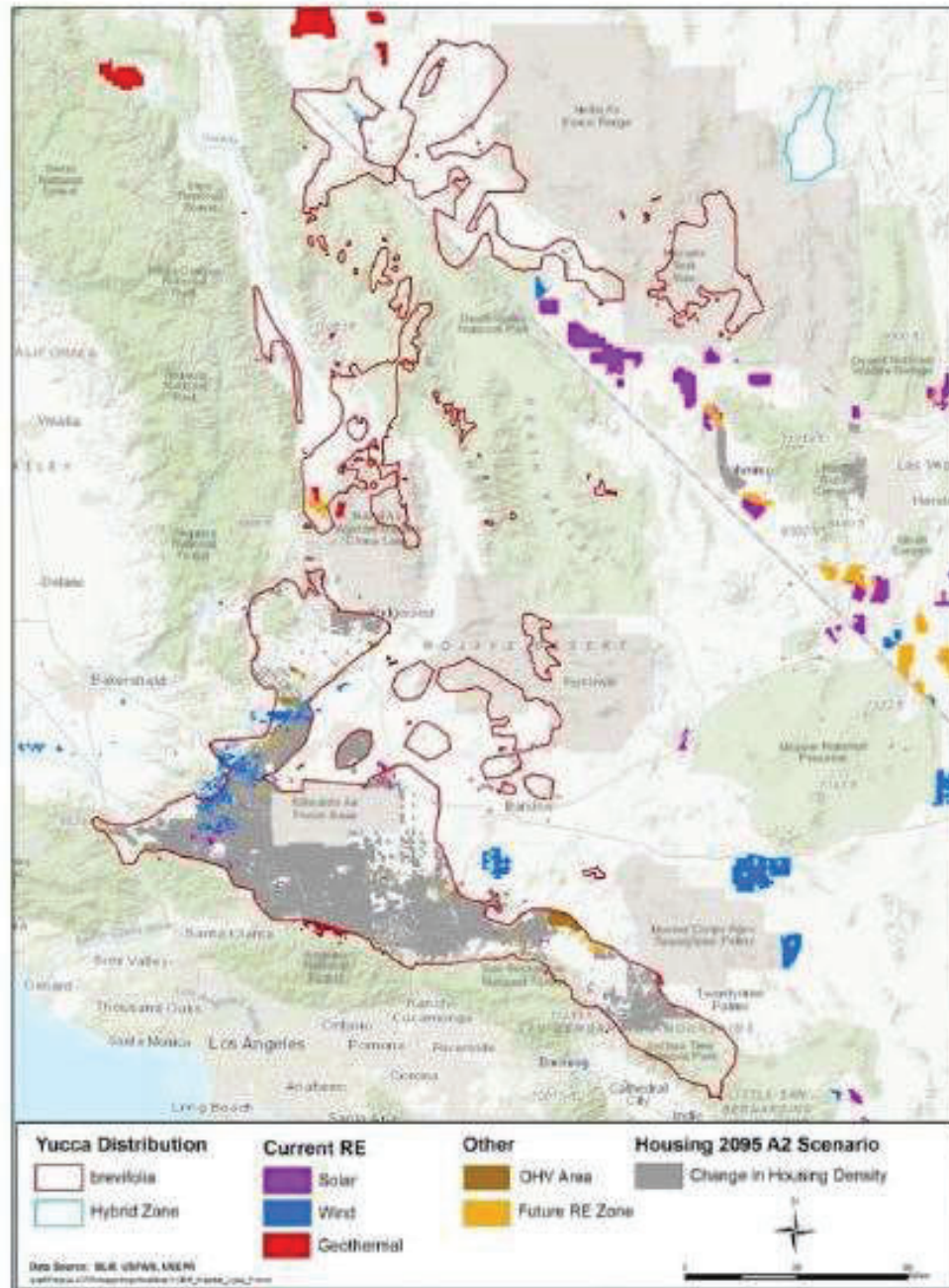
Catalina Renewable Energy Project Desert Tortoise Detections



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Figure 4
Projected Joshua Tree Loss (USFWS 2018)

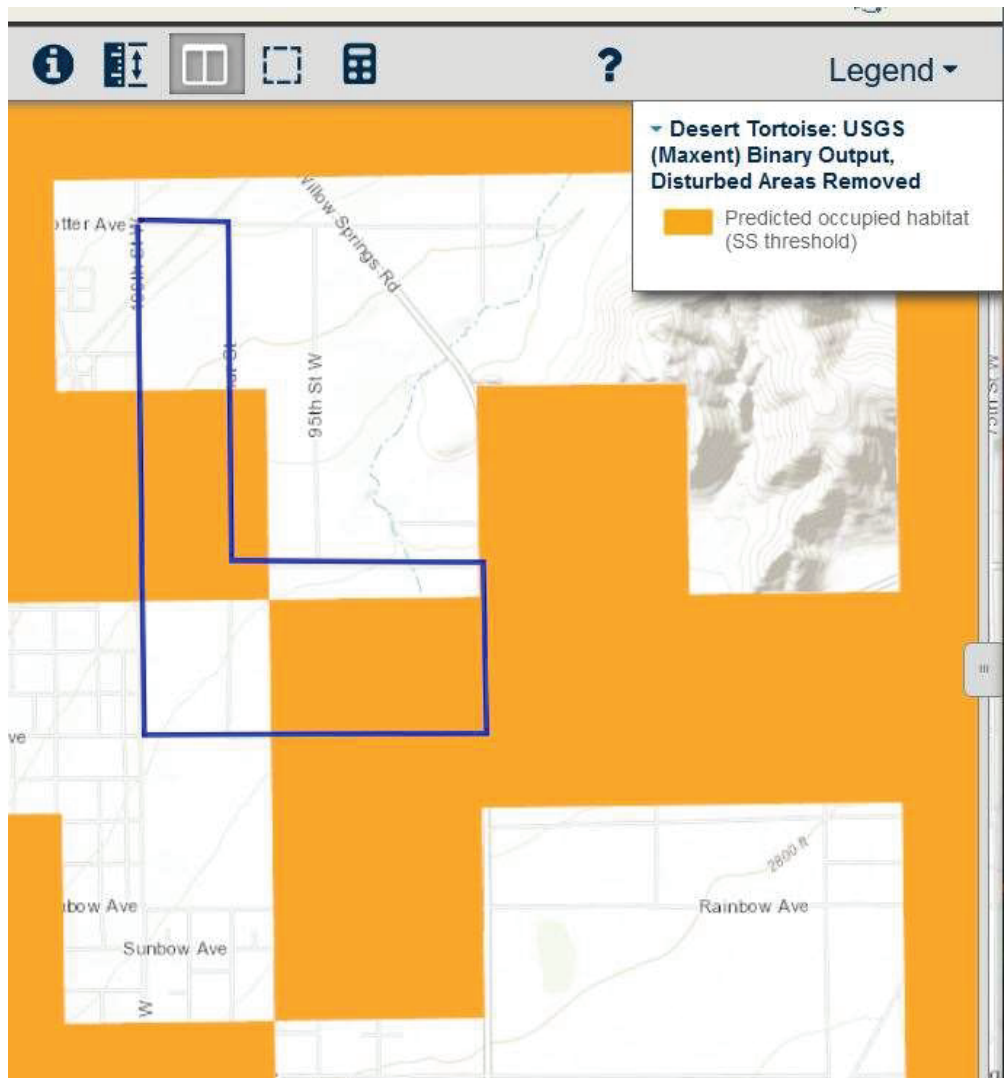


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Figure 5

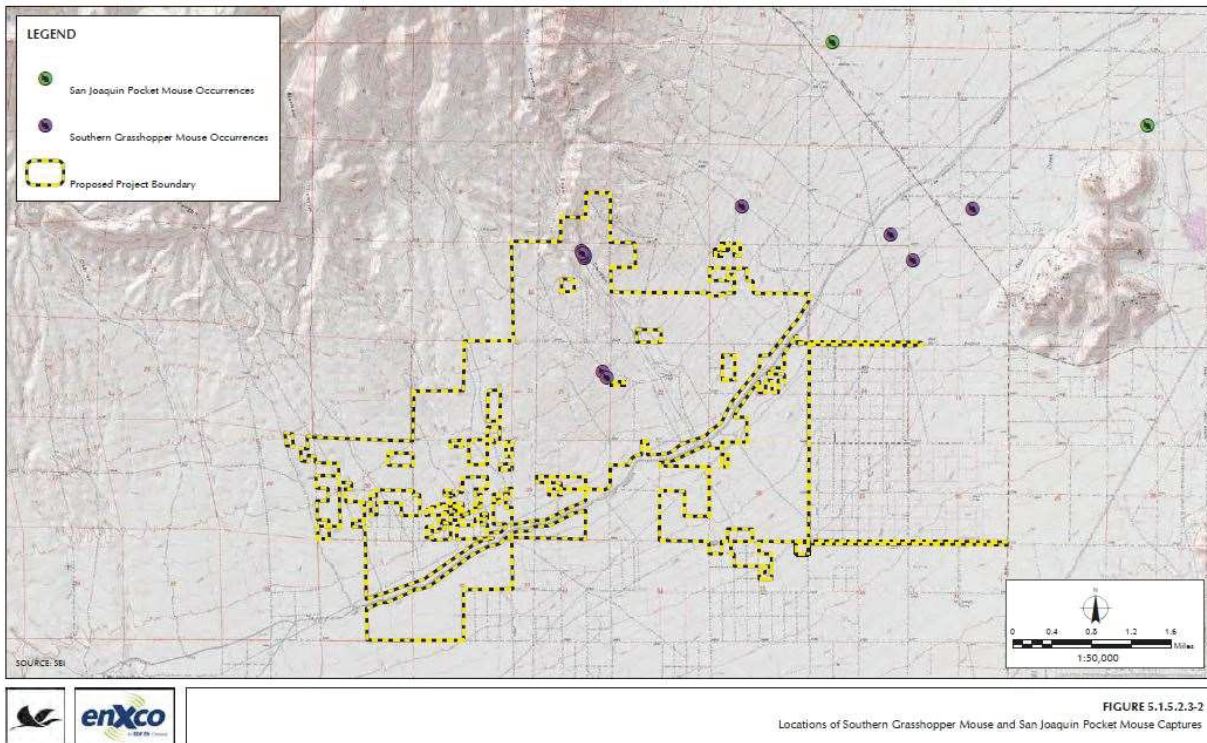
USGS (DataBasin) Desert Tortoise Species Distribution Map
Project = blue line



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Figure 6

**Catalina Renewable Energy Project DEIR
San Joaquin Pocket Mouse and Southern Grasshopper Mouse Occurrences**



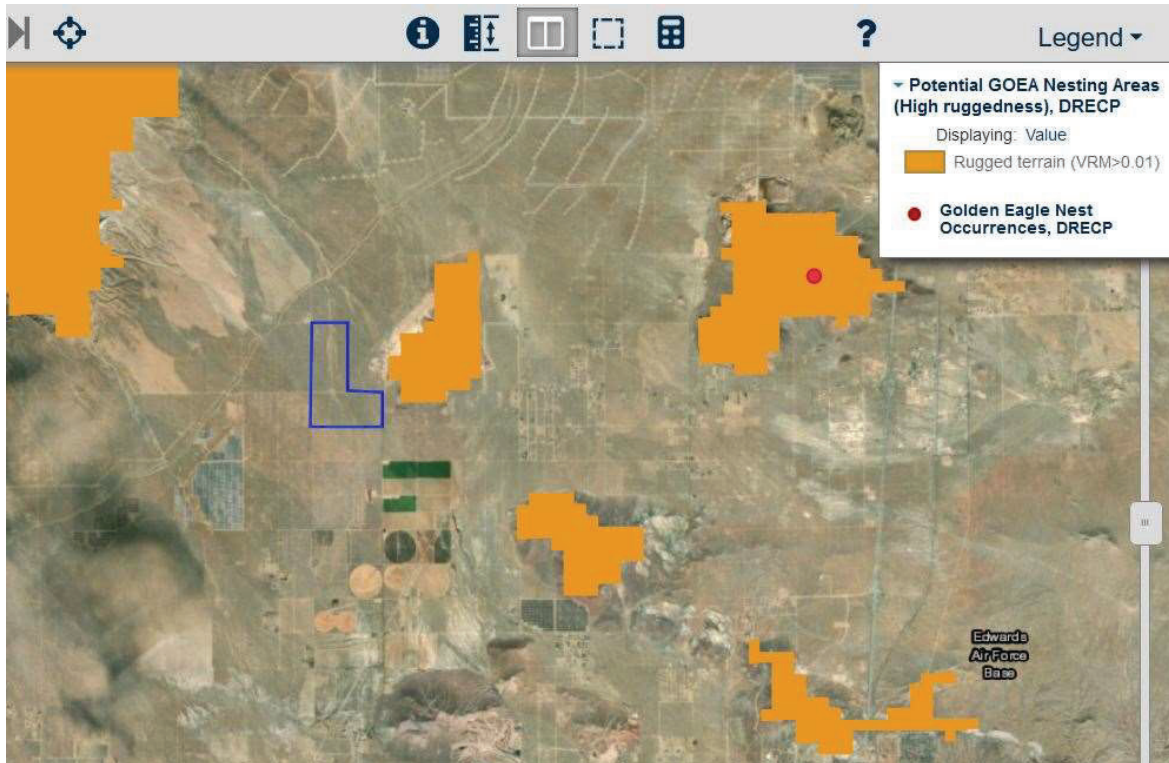
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Figure 7

USGS Golden Eagle Nest Occurrence and Nesting habitat (DataBasin / DRECP)

Blue = Project site



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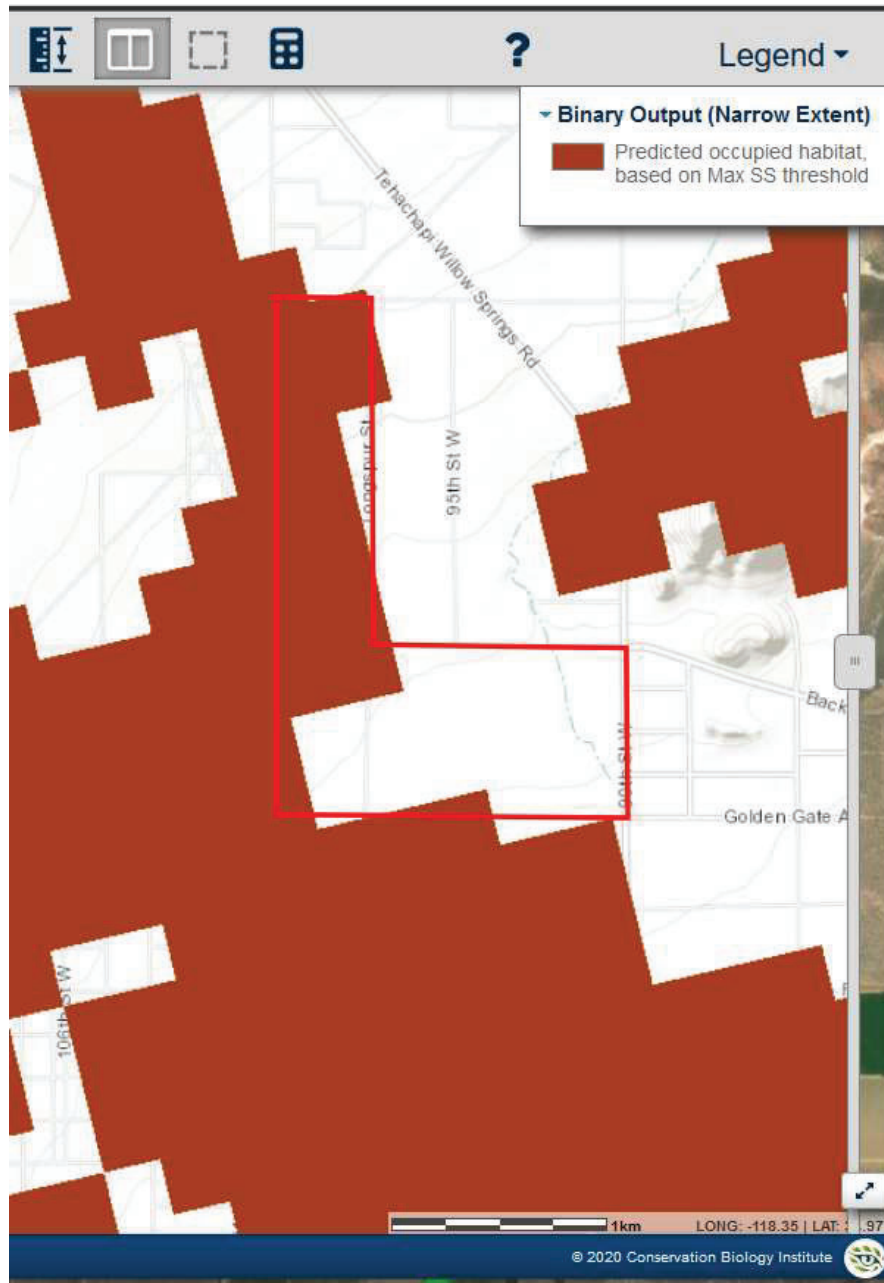
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Figure 8

Swainson's Hawk Distribution model (Source: UCSB, DataBasin)

Red line = Project site

<https://databasin.org/datasets/addeef3693ef43328697572f663ef587>



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Photo 1

Fist Solar PV Solar Industrial site - Sonoran Desert, California
(photo Patrick Hord))



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Photo 2

Fatal Bird Strike on PV solar panel – Western grebe – Sonoran Desert
(photo Patrick Hord)



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Photo 3

Burrowing Owl breeding burrow located in the middle of an ongoing industrial solar construction site



Although this burrow was roped off with an approved “buffer” of several hundred feet, the pair abandoned its breeding burrow once machinery (background) arrived. *(photo Renée Owens)*

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Comment Letter No. 16: Adams, Broadwell, Joseph, and Cardozo

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RENÉE OWENS

Curriculum Vitae

- College Instruction in Biology and Environmental Science; Boston U, SDSU, Palomar College, Imperial Valley College
- Non-profit management
- National Geographic Research and Exploration Award
- Wildlife Conservation Society International Research Grant
- Endangered species Federal Recovery permits
- ESA, CEQA, NEPA, MMPA impact analyses
- Mitigation, Restoration, Project monitoring, HCP planning / implementation
- San Diego City, County, USFWS, BLM approved biologist
- U.S. National Championships Olympic Distance Triathlon
- Special Commendation for Contributions to Environmental Conservation, City of San Diego

Ms. Owens has been a college instructor, environmental consultant and biologist, non-profit manager, writer, and public speaker for over 30 years. Her experience includes work and research in the United States, Venezuela, Ecuador, Belize, Panama, and Honduras.

College Instruction of various courses includes teaching in the broad fields of Environmental Science and Biology at Boston University, Palomar College, Imperial Valley College, and San Diego State University. She has certification in Community College Instruction from the University of California San Diego.

Award winning conservation research by Ms. Owens has been featured by National Geographic, Discovery, BBC, Dateline NBC, Animal Planet, Sierra, and TIME magazine.

Sage Wildlife Biology consultancy co-founded by Ms. Owens in 1993 has provided services for projects involving endangered species, ethology, ecology, and conservation research; mitigation management, impact analysis, Habitat Conservation Plan design and implementation, and analytical reporting. Projects incorporate monitoring and regulatory compliance from the local to federal level with clients in the private, public, and government sectors, and include energy, housing, transportation projects. Contracts encompass many species, including but not limited to carnivores, passerines, raptors, shorebirds, herpetofauna, cetaceans, butterflies, and pinnipeds, and their associated habitats. She is an approved biologist for San Diego City and County, USFWS, and BLM.

The Wild Zone Conservation League is a wildlife conservation, education, and research non-profit. As Executive Director Ms. Owens applies her non-profit experience acquired over 30 years of volunteering to management of citizen science, environmental education, wildlife rescue, and advocacy training to promote conservation, stewardship, and land preserve acquisition.

Ms. Owens gives lectures enhanced by her nature photography and international experiences on endangered species conservation, advocacy, predator co-existence, animal behavior, ornithology, and the cognitive science of environmental leadership and communication.

EDUCATION

- MS Environmental Science, Concentration in Education. Green Mountain College, Poulsbo, VT.
- Community College Instruction Certification. University of California San Diego, La Jolla, CA.
- Graduate coursework in Advanced Statistical Programming, Applied Ecology. U of Tennessee, Knoxville, TN.

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Renee Owens, M.S. - Biologist and Independent Environmental Consultant

- MS Biology (Ecology and Evolution ABD). SDSU, San Diego, CA.
- BS Biology (Minor in Environmental Studies). State University of New York, Geneseo, NY.

LANGUAGE SKILLS Native English speaker, fluent in Spanish

WORK EXPERIENCE

TEACHING

Adjunct Professor, Instructor in Environmental Science, Biology. Department of Math, Science, and Engineering, Imperial Valley College, Imperial, CA. 2012 – 2018.

Director/Instructor, Wildlife Conservationist Certification Training Program, created by Ms. Owens with a San Diego Foundation Environmental Vision Fund grant. Provided education and training of adult volunteers for naturalist interpretive and conservation organizations. Wild Zone Conservation League, San Diego, CA. 2009-2011.

Visiting Assistant Professor, Department of Math, Science, and Engineering. Lecture, laboratory, and field trip instruction in Biology, Environmental Science, Botany. Imperial Valley College, Imperial, CA. 2008-2009.

Environmental Education Instructor, Outdoor instructor for educational youth program “Outdoor Explore” investigating Nearby Nature, grades k – 12. San Diego Audubon Society, CA. 2009 - 2010.

Teaching Fellow, Tropical Ecology Program, based at Universidad de San Francisco, Ecuador. Lecture and field instruction in advanced coursework on tropical habitats included cloud and mangrove forest, Pacific intertidal zones, inland rainforest, Galapagos Islands, and high elevation paramo. Boston University. 1999 –2000.

Adjunct, Instructor in General Biology lecture and laboratory. Palomar College, San Marcos, CA. 1994 - 1996.

Teaching Assistant, Instruction for laboratories in General Biology, Zoology, and Invertebrate Biology included creation of additions and updates to General Biology laboratory (with live marine specimens), adopted by the Biology Department for all General Biology laboratories. San Diego State University, San Diego, CA. 1990 – 1992.

Instructional Tutor, for classes in psychology, biology, ecology, anthropology, oceanography, and human fertility. SUNY Geneseo, Geneseo, NY. 1983 – 1987.

PROFESSIONAL CONSULTING

Co-Founder, Sage Wildlife Biology LLC. Biological consultant for over 200 hundred projects, specializing in wildlife biology of for environmental compliance, impact analysis, research, and conservation in California and South America. 1993 – present.

Representative Projects:

Wind Turbine System Research. Created and implemented a Bird and Bat Monitoring program and analysis for patent-pending turbine system, Primo Wind renewable energy design. San Diego Naval Base, CA. 2016-2017.

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Endangered Species. Protocol surveys, monitoring, and reporting for federally threatened and endangered species, HELIX Environmental Planning Inc., San Diego, CA.

CEQA/NEPA/ESA Consultant. Provide expert biological testimony regarding impact analyses (i.e. MND/EIR/EIS) on conventional energy, renewable energy, residential development, and coastal development projects in California.

Satellite Communications System LA-RICS. Los Angeles Regional Interoperable Communications System county-wide project, federally funded to create broadband wireless network using Long-Term Evolution (LTE) technology while minimizing impacts to native habitats and ecosystems. Contributed to Biological Assessment for PEIR/ PEIS, 218-site project with coastal, mountain, and desert habitats. Management recommendations included maximizing use of existing structures while avoiding impacts to watersheds and other sensitive biological resources. Los Angeles County, CA.

Habitat Conservation Planning. Included federally permitted surveys and reporting for various endangered species; Migratory Bird Treaty Act nesting bird surveys; herptile surveys; population assessments; and concurrent development of Critical Habitat components of Habitat Conservation Plans including the San Diego Multiple Species Conservation Plan. San Diego, Los Angeles, Riverside, San Bernardino Counties, CA.

Mitigation and Restoration. Principal biologist, prepared biological Assessment plus mitigation and monitoring plan for Black Mountain Open Space Park development project; supervised biological components of mitigation management, including coordination with the City of San Diego to implement restoration efforts within the MHCP. San Diego, CA.

Wildfire Habitat Management. Principal investigator for California Fire Safe Council responsible for habitat management projects in areas adjacent to U.S. Forest Service land. Included habitat mapping, sensitive species surveys, GIS, management of work teams (5 to 50 individuals), and preparation of the Biological Assessment for the Bureau of Land Management. Project development included consultation and coordination with private landowners, scientists, San Diego County Fire Authority, Home Owners Associations, USDA Forest Service and BLM. San Diego County, CA.

Wind Energy Project. Year-round monitoring and research contributed to Biological and Environmental Assessments, incorporating focused wildlife surveys throughout 15,000 acres of Bureau of Land Management land in Imperial County. Provided management recommendations for avoidance of impacts to sensitive habitats and species including golden eagles, Peninsular bighorn sheep, burrowing owls, and flat-tailed horned lizards; and post-construction monitoring and mortality surveys. Ocotillo, CA.

Mitigation Land Trust Management. Lead biologist for two Perpetual Land Management Habitat Conservation Plans managed by The Escondido Creek Land Conservancy. The Preserves incorporate 110 acres of riparian wetland, oak woodland, coastal sage scrub, and chaparral habitats; created in compliance with California Environmental Quality Act and Multiple Habitat Conservation Plan requirements, coordinated with third party trustees U.S. Fish & Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW). Escondido and San Marcos, CA.

California Wild Heritage Campaign. Wilderness Society contracted biologist and campaign organizer included biological surveys and mapping of proposed wilderness as well as coordination of volunteers, educational materials, and outreach with National Forest stakeholders. San Diego County, CA.

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Endangered Species Biologist. Principal biologist, participated in a long-term research of the California gnatcatcher for Camp Pendleton Marine Base, including monitoring and Critical Habitat Assessment for USFWS and data collection for 40 + pairs spanning several thousand acres of habitat. Prepared reports on habitat suitability and contributed to critical habitat assessments and recovery planning. Oceanside, CA.

Least Bell's Vireo Endangered Species Recovery Plan. Conducted breeding season nest monitoring and invasive species management as part of the USFWS Species Recovery Plan for the Least Bell's Vireo; included monitoring, banding, and reporting monthly on 30 - 70 nesting pairs while providing reports for Critical Habitat evaluation and population recovery analysis. San Diego County, CA.

Biologist, HELIX Environmental Planning Inc., San Diego, CA. Responsible for terrestrial and aquatic fauna and flora surveys, monitoring, reporting, and research; Habitat Conservation Plans for private and government entities, mitigation and restoration implementation. 2000-2001.

Biologist, Sweetwater Biological, San Diego, CA. Conducted mammalian, ornithological, and herptile surveys and monitoring; mitigation and restoration monitoring, reporting, and management; included contributions to Habitat Conservation Plans for private and government entities. 1994-1996.

RESEARCH

Representative Projects:

Pinniped Natural History, breeding research and impact analysis of human interaction on Harbor seal and sea lion rookeries in San Diego, CA. 2010 – present.

Endangered Species Conservation, South American project funded by the National Geographic Research Foundation, CITES, Wildlife Conservation Society, The Venezuelan National Council for Scientific and Technological Research (CONICIT), and PROFUNA of Venezuela; co-lead in multi-year study of the green anaconda; the first of its kind in the wild. Research incorporated radio telemetry, mark and recapture, natural history, and mating system analysis; findings contributed to various documentaries and a conservation and ecotourism program for 175,000 acres of Llanos in Apure State, Venezuela. 1996 – 2002.

Avian Breeding System and Conservation, research included manakin lekking behavior (Tiputini Tropical Research Station, Ecuador), California gnatcatcher, least Bells' vireo nesting success, cowbird parasitism (San Diego county), passerine and *Polybia* nesting associations in flooded wetlands, resource partitioning in shorebird species (Apure State, Venezuela). 1994 – 1997, 2000 – 2007.

Predator Conservation and Ethology, natural history and conservation research for the jaguar, mountain lion, endangered giant otter, included recommendations for management and co-existence on cattle ranches in the Llanos and Orinoco tributaries. Included observations of genetically distinct giant otter population where previously considered extinct. Apure State, Venezuela. 1996-1997.

Endangered Species Reintroduction Programs, of the Orinoco crocodile, Arrau turtle, Red-footed tortoise, funded by Wildlife conservation society, Venezuelan Profuna. Research in highly remote regions to assess long term species survival post-reintroduction and related influence of local indigenous tribes. 1996 – 1998.

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Cetacean Bioacoustics, research of the Commerson's dolphin included audiogram data collection on hearing thresholds and related recommendations for conservation management of this species and related genera. SDSU/ Hubbs Research Institute, San Diego, CA. 1991 – 1992.

Primate Research, Study of social and mating behavior dynamics of Pygmy chimpanzees (Bonobos). 1990-1991.

Avian Research Internship, research of waterbird and passerine nesting predation and parasitism; included monitoring, banding, and mapping 250 nest boxes. Genesee Country Nature Center, Mumford, NY. 1987.

Independent Study, conducted undergraduate research on navigation and orientation of long distance avian migrant passerines using a planetarium equipped with an adjustable magnetic field. Principal investigator Dr. Robert Beason. SUNY Geneseo, Geneseo, NY. 1985-1987

NON-PROFIT MANAGEMENT

Executive Director, Wild Zone Conservation League. International wildlife non-profit focused on citizen science, education, research, and community collaboration for wildlife conservation. Long term mission of land acquisition in the U.S. and Central America for preservation and educational field study programs. 2015 - present.

Latin America Assistant Director, World Society for the Protection of Animals. Responsible for project development and campaign coordination for human-wildlife interface campaigns in Latin America. Included creation and implementation of training workshops, direction of campaigns for species in biodiversity hotspots including watersheds, coral reef, Pacific coastal rainforest and coasts. Coordinated emergency disaster relief with veterinary triage, organizational and material support, rescue training and oiled network response. Boston, MA. 1998-1999.

LABORATORY

Laboratory Technician, Palomar College, San Marcos, CA. Responsible for provisioning, preparation, and maintenance of biology and chemistry laboratories and equipment. 1994.

Laboratory Assistant, Toxicology and Physiology Departments. Included research in environmental toxicology, Muscular Sclerosis, Parkinson's disease. University of Rochester Medical Center, Rochester, NY. 1988 – 1990.

AWARDS / HONORS

- San Diego Sierra Club Silver Cup Conservation Award for Lifetime Achievement, 2017.
- Special Commendation for Contributions to Environmental Conservation, City of San Diego, 2017.
- San Diego County Democrats for Environmental Action Volunteer of the Year, 2017.
- Photo display, San Diego Museum of Natural History's "Best of Nature" Exhibit, 2016.
- San Diego Foundation Vision Fund Environmental Education and Conservation Grant, 2010.
- NOAA Environmental Hero Award, 2000.
- Photo, "TIME Great Images of the 20th Century", TIME Magazine Publications, 2000.
- CONICIT Award for the Novel Researcher, 1998.
- CITES and Profauna Joint Research Grant, 1996.

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- National Geographic Film and Research Grant, 1996.
- National Geographic Research and Exploration Award, 1996.
- Wildlife Conservation Society Research Grant, 1996.
- Sierra Club Emily Durbin Leadership in Conservation Award, 1995.
- SDSU Harry Hamber Academic Graduate Scholarship, 1991.
- U.S. National Triathlon Championships, 1989.
- New York State Regents Academic Scholarship, 1983.

CERTIFICATIONS

- U.S. Fish and Wildlife Recovery Permit for the endangered Coastal California gnatcatcher, Least Bell's Vireo, Quino checkerspot butterfly. 1994 – present.
- Acoustic Monitoring of Bats, Field Techniques. Sonobat Workshop, Wildlife Society, 2012.
- Desert Tortoise Council, Survey Techniques Workshop, Certificate of Completion November, 2010.
- Flat-tailed Horned Lizard BLM Survey Techniques Workshop, Certificate of Completion, 2010.
- Desert Tortoise Council, Survey Techniques Workshop, Certificate of Completion, 2006.
- USFWS Arroyo Toad Workshop, Certificate of Completion, Camp Pendleton Marine Base, 1999.
- Willow Flycatcher Workshop, SD Natural History Museum, Certificate of Completion, 1995.

VOLUNTEERING

- National Sierra Club Marine Team Committee, 2013- present.
- National Sierra Club Wildlife and Endangered Species Committee, 2010 – present.
- San Diego Audubon Society Conservation Committee, 2010 – 2014.
- San Diego Sierra Club (SDSC) Executive Committee, 2008 – 2010.
- SDSC Conservation Committee, 2007 – 2010; 2014 – 2018.
- SDSC Wildlife Committee Chair 2001 – 2008, 2015 – 2018.
- Wildlife Research Institute Scientific Advisory Committee, 2005 – 2008.
- Lakeside Emergency Wildlife Rehabilitation Center, 2000 – 2005.

SOCIETY CONFERENCE PRESENTATIONS

- “From Education to Stewardship: the Cognitive Science of Environmental Communication”, Environmental Summit, San Diego, 2019.
- “The Cost of Mismanagement at a Pinniped Rookery and Coastal Urban Wildlife Interface”, International Urban Wildlife Conference, San Diego, CA. June 2017.
- “Consorting with Coastal Wildlife: Conservation and Advocacy in the Real World”, West Coast Ocean Forum, La Jolla, CA. 2016.
- “Conservation of the Green Anaconda in Venezuela”, Annual Conference of the Society for the Study of Ichthyology and Herpetology, La Paz, Baja California, Mexico, 2000.
- “Trends in the International Reptile Pet Trade”, Annual Conference for the Humane Society International, Boston, MA, 1998.
- “Bioacoustics and Conservation Implications for the Commerson’s Dolphin”, Biennial Conference for the Society for Marine Mammalogy, Orlando, FL, 1995.

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Renee Owens, M.S. - Biologist and Independent Environmental Consultant

- “Navigation and Orientation of Long Distance Migrants: How Bobolinks use Stellar and Magnetic Cues for Migration”, Annual Conference for the Society of Behavioral Ecology, Albany, NY, 1987.

WORKSHOPS

- Organized CEQA and NEPA Training Workshops, San Diego, CA. Presented instructional seminar regarding biological impact assessments. 2000, 2007, 2010, 2017.
- Organized the first annual West Coast Marine Environmental Forum, La Jolla. Held seminars on the National Ocean Policy, Ecosystem Based Management, critically endangered cetacean conservation, sustainable fishery science, and coastal wildlife conservation advocacy. 2017.

PROFESSIONAL AFFILIATIONS

- Association of Field Ornithologists
- Citizen Science League
- Marine Mammal Society
- National Association of Biology Teachers
- Society for the Study of Amphibians and Reptiles
- Wildlife Society
- Wildlife and Habitat Conservation Coalition

SELECT PUBLICATIONS

- Owens, R. Y. The Unpleasant Secrets of Clean Solar Energy: The Impacts to Wildlife in the Desert. *The Desert Report*, Dec 2016: pp 1, 8-9.
- Owens, R. Y. 2014. The USDA's Dirty Secret: A Century-Old Wildlife Killing Machine, *The EcoReport* (January). <http://www.theecoreport.com/green-blogs/sustainability/conservation/wildzone/the-usdas-dirty-secret-a-century-old-wildlife-killing-machine/>
- Owens, R. Y. and Hord, P. L. In revision. *Conservation Biology*. Economic and costs and ecological implications of “joint use” policy management of a Harbor seal rookery in an urban wildlife interface.
- Owens, R. Y. In revision. *Journal of Field Ornithology*. Nesting associations between wasps of the genus *Polybia* and passerine birds of the Venezuelan Llanos.
- Owens, R. Y. 2012. Rebirth of Green: Resolution for 2013. *San Diego Loves Green: The Wild Zone* (December).
- Owens, R. Y. 2012. Coyotes: The Media's Modern Bogeyman. *San Diego Loves Green: The Wild Zone* (October).
- Rivas, J.A. and Owens, R.Y. 1999. Teaching conservation effectively: a lesson from life history strategies. *Conservation Biology*, 13 (2): 453-454.
- Rivas, J.A. and Owens, R.Y. 2002. Orinoco crocodile (*Crocodylus intermedius*): Age at First Reproduction. *Herpetological Review*. 33 (3): 203.
- Rivas, J. A., R. Y. and S. A. Aktay, 2001. *Paleosuchus trigonatus* (Schneider's Smooth fronted Caiman): Nesting and hatching. *Herpetological Review*. 32: 251.
- Rivas, J. A., Owens R. Y. and Calle, P.P. 2001. *Eunectes murinus*: Juvenile predation. *Herpetological Review*. 32 (2): 107-108.
- Rivas, J. A. and R. Y. Owens. 2000. *Eunectes murinus* (green anaconda): cannibalism. *Herpetological Review*. 31(1):44-45

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Renee Owens, M.S. - Biologist and Independent Environmental Consultant

- Rivas, J. A., Thorbjarnarson, J. B., Owens, R. Y and M. C, Muñoz, 1999. *Eunectes murinus*: caiman predation. *Herpetological Review*. 30 (2): 101
- Owens, R.Y. Informe técnico al Servicio de Fauna de Venezuela: Regional population assessment of the endangered giant otter (*Pteronura brasiliensis*) in Apure State, Venezuela, and conservation recommendations for a highly endangered species. Dec 1997.
- Unpublished Master's Thesis, "Bioacoustics of the Commerson's Dolphin (*Cephalorhynchus commersonii*) with Recommendations for Applied Conservation" 1993.

EXHIBIT B

Comment Letter No. 15: Adams, Broadwell, Joseph, and Cardozo



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February 27, 2020

Camille Stough
Adams Broadwell Joseph & Cardozo
601 Gateway Boulevard, Suite 1000
South San Francisco, CA 94080

Subject: Comments on the AV Apollo Solar Project

Dear Ms. Stough,

We have reviewed the December 2019 Draft Environmental Impact Report ("DEIR") for the AV Apollo Solar Project ("Project") located in Kern County ("County"). The Project proposes to construct up to 490,000 individual solar panels as well as three onsite solar substations, including 6-acres of battery energy storage facilities, 1,875 square feet of Operations & Maintenance buildings, 1,800 square feet of communication buildings, and 6,000 square feet of parking, on the 493.5-acre site.

Our review concludes that the DEIR fails to adequately evaluate the Project's Air Quality, Health Risk, and Greenhouse Gas impacts. As a result, emissions and health risk impacts associated with construction and operation of the proposed Project are underestimated and inadequately addressed. An updated EIR should be prepared to adequately assess and mitigate the potential air quality and health risk impacts that the project may have on the surrounding environment.

Air Quality

Failure to Adequately Evaluate Operational Air Quality Impacts

The DEIR concludes that the proposed Project would have a less than significant air quality impact. However, while the DEIR evaluates the Project's operational emissions, it only considers mobile-source emissions, and as a result, emissions are underestimated. Specifically, according to the DEIR,

"The proposed Project would result in long-term air quality impacts due to operational-related mobile source emissions" (Appendix D, pp. 35).

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Thus, while the DEIR did calculate the Project's operational mobile-source emissions, the DEIR failed to calculate the Project's *entire* operational emissions. According to the CalEEMod User's Guide, a Project's operational emissions include the following sources: on-road mobile vehicle traffic, fugitive dust associated with roads, architectural coating activities, off-road equipment used during operation, landscaping equipment, emergency generators, fire pumps, process boilers, consumer products, parking lot degreasers, fertilizers/pesticides, cleaning supplies, wood stoves and hearth usage, electricity usage in buildings, electricity usage from lighting in parking lots and lighting, ventilation and elevators for parking, water usage, and solid waste disposal.¹ By only conducting an air quality analysis for the Project's *mobile-source* emissions, the DEIR underestimates the Project's operational emissions. Thus, the DEIR cannot conclude less than significant air quality impacts without quantifying emissions from the Project's *entire* operational emissions.

15-P5

Unsubstantiated Input Parameters Used to Estimate Project Emissions

The DEIR's air quality analysis relies on emissions calculated with CalEEMod.2016.3.2.² CalEEMod provides recommended default values based on site-specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but the California Environmental Quality Act (CEQA) requires that such changes be justified by substantial evidence.³ Once all of the values are inputted into the model, the Project's construction and operational emissions are calculated, and "output files" are generated. These output files disclose to the reader what parameters were utilized in calculating the Project's air pollutant emissions and make known which default values were changed as well as provide justification for the values selected.⁴

Review of the Project's air modeling demonstrates that the DEIR underestimates emissions associated with Project activities. As previously stated, the DEIR's air quality analysis relies on air pollutant emissions calculated using CalEEMod. When reviewing the Project's CalEEMod output files, provided as Attachment D to the DEIR, we found that several of the values inputted into the model were not consistent with information disclosed in the DEIR. As a result, the Project's construction and operational emissions are underestimated. An updated EIR should be prepared to include an updated air quality analysis that adequately evaluates the impacts that construction and operation of the Project will have on local and regional air quality.

15-Q5

¹ "CalEEMod User's Guide." CAPCOA, November 2017, available at: <http://www.caleemod.com/>, p. 2.

² CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4.

³ CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 1, 9.

⁴ CAPCOA (November 2017) CalEEMod User's Guide, http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, fn 1, p. 11, 12 – 13. A key feature of the CalEEMod program is the "remarks" feature, where the user explains why a default setting was replaced by a "user defined" value. These remarks are included in the report.

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Failure to Model All Proposed Land Uses

According to the DEIR, the Project proposes to construct three onsite solar substations, including 6-acres of battery energy storage facilities, 1,875 square feet of Operations & Maintenance buildings (625 square feet on each site), 1,800 square feet of communication buildings (600 square feet on each site), and 6,000 square feet of parking (2,000 square feet of parking on each site) (p. 1-5, 3-17). However, review of the Project's CalEEMod output files demonstrates that none of these land uses were included in the model, as zero square feet of "User Defined Industrial" was included in the model (see excerpt below) (Appendix D, pp. 60).

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	492.00	0.00	0

As shown in the excerpt above, the solar substations, including the operation and maintenance facilities, communication buildings, battery energy storage facilities, and parking areas were not included in the model. This presents an issue, as the land use type and size features are used throughout CalEEMod to determine default variable and emission factors that go into the model's calculations.⁵ Furthermore, the square footage of a land use is used for certain calculations such as determining the wall space to be painted (i.e., VOC emissions from architectural coatings) and volume that is heated or cooled (i.e., energy impacts). Thus, the model underestimates the Project's construction emissions and should not be relied upon to determine Project significance.

Unsubstantiated Changes to Usage Hours

Review of the Project's CalEEMod output files demonstrates that several of the construction equipment usage hours were manually altered without sufficient justification. As a result, the model may underestimate the Project's construction-related emissions.

The DEIR's CalEEMod output files reveal that numerous construction equipment usage hours for several pieces of construction equipment were artificially changed (see excerpt below) (Appendix D, pp. 63).

15-Q5

⁵ "CalEEMod User's Guide." CAPCOA, November 2017, available at: http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4, p. 18.

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Table Name	Column Name	Default Value	New Value
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00

As shown in the excerpt above, several of the construction equipment usage hours were artificially changed. As previously stated, the CalEEMod User's Guide requires that any non-default values inputted into the model must be justified.⁶ However, according to the "User Entered Comments & Non-Default Data" table, the justification provided is: "Project Description" (Appendix D, pp. 61). As a result, we are unable to verify the usage hours for off-road construction equipment. Thus, as the DEIR fails to provide an adequate justification for the artificially changed values, the air model may underestimate the Project's construction emissions.

Failure to Evaluate Emissions from Decommissioning

According to the DEIR, the Project would have a 30 to 35-year lifespan (p. 4.3-33). Therefore, 30 to 35 years after operation commences, the solar panels and associated structures will need to be removed, impacted soils will need to be restored, and debris will need to be hauled off-site. As a result, the DEIR should have evaluated the potential emissions associated with the decommissioning of the Project and compared those emissions to applicable thresholds.

While the DEIR states, "[a]t such time as the facility is decommissioned, equipment operation and site restoration activities would result in impacts to air quality," the DEIR fails to quantify the air pollutant emissions that will occur during the decommissioning of the Project (p. 4.3-33). Thus, the emissions associated with these activities should be quantified and compared to applicable thresholds prior to Project approval. Until an adequate analysis is conducted that quantifies these impacts, the emissions generated by decommissioning activities remain unknown. As such, there is a large gap in the DEIR's analysis of the Project's impacts on regional air quality. Prior to Project Approval an updated EIR should evaluate the emissions associated with decommissioning activities.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The DEIR concludes that the proposed Project would have a less than significant health risk impact without conducting a quantified health risk analysis (HRA) for Project construction and operation. Specifically, the DEIR states:

"Given the low DPM emissions expected from this project (0.02 lbs/year), the project risk threshold would not exceed the significant risk thresholds of 1 in a million for cancer risk and 0.2 HIC for acute and chronic non-cancer risk; therefore, an HRA is not warranted and the project's associated health risk impacts would be considered less than significant" (Vol1, pp. 281).

⁶ CalEEMod User Guide, p. 7, p. 13, available at: http://www.aqmd.gov/docs/default-source/caleemod/01_user-39-s-guide2016-3-2_15november2017.pdf?sfvrsn=4 (A key feature of the CalEEMod program is the "remarks" feature, where the user explains why a default setting was replaced by a "user defined" value. These remarks are included in the report.)

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However, this justification and subsequent less than significant impact finding is incorrect for several reasons.

First, the DEIR's analysis relies upon a flawed CalEEMod model to estimate Project construction DPM emissions, and an incomplete quantification of operational emissions, as discussed above. This is incorrect, as a flawed model may underestimate the Project's DPM emissions. As a result, the DEIR's conclusion that the low DPM emissions would not exceed the significant cancer threshold of 1 in one million is incorrect and unsubstantiated.

Second, the DEIR cannot conclude that the Project's health risk impact would be less than 1 in one million without conducting a quantified HRA for Project construction and operation. Without any sort of quantified analysis of the Project's health risk impact, we cannot verify that the Project's increased cancer risk would be less than 1 in one million, as asserted by the DEIR. Thus, the DEIR's less than significant impact conclusion should not be relied upon.

Third, the omission of a quantified HRA is inconsistent with the most recent guidance published by the Office of Environmental Health Hazard Assessment (OEHHA), the organization referred to in the DEIR regarding health risk analysis (p. 4.3-15). In February of 2015, OEHHA released its most recent *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments*, which was formally adopted in March of 2015.⁷ This document was also adopted by the EKAPCD in 2017, the air pollution control agency with local jurisdiction over this Project.⁸ Construction of the Project will produce emissions of DPM, a human carcinogen, through the exhaust stacks of construction equipment over a construction period of approximately 279-days (Appendix D, pp. 67). The OEHHA document recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors.⁹ Therefore, per OEHHA guidelines, health risk impacts from Project construction and operation should have been evaluated by the DEIR. Furthermore, once construction of the Project is complete, the Project will operate for a long period of time, generating vehicle trips which will generate additional exhaust emissions and continue to expose nearby sensitive receptors to DPM emissions. The OEHHA document recommends that exposure from projects lasting more than 6 months be evaluated for the duration of the project, and recommends that an exposure duration of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident (MEIR).¹⁰ As indicated in the DEIR, the Project is anticipated to have a lifespan of approximately 30 to 35 years (Appendix D, p. 4.3-33). Therefore, health risks from Project operation should have also been evaluated by the DEIR, as a 30- or 35-year exposure duration vastly exceeds the 2-month and 6-month

⁷ "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: http://oehha.ca.gov/air/hot_spots/hotspots2015.html

⁸ "Regulation II – Permits List and Criteria and Rule 208.2 Criteria for Finding of No Significant Environmental Impact (California Environmental Quality Act)." EKAPCD, October 2017, available at: http://www.kernair.org/Documents/Rules/Rules_Nov_2017/L&C_and_Rule%20208_2%20Staff_Report_10-2-17.pdf.

⁹ "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-18

¹⁰ "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-6, 8-15

15-R5

requirements set forth by OEHHA. These recommendations reflect the most recent health risk policy, and as such, an updated assessment of health risks to nearby sensitive receptors from Project construction and operation should be included in a revised CEQA evaluation for the Project.

15-R5

Screening-Level Assessment Indicates Significant Impact

In an effort to demonstrate the potential risk posed by Project construction to nearby sensitive receptors, we prepared a simple screening-level HRA based on the updated SWAPE CalEEMod. Our assessment does not include operational emissions, as the DEIR relied upon its own emissions calculations, as opposed to CalEEMod, and did not disclose a value for DPM or PM₁₀ exhaust. Thus, our assessment includes only the Project's construction emissions and as a result, our cancer risk estimate may be significantly lower than the Project's actual increased cancer risk. Notwithstanding this limitation, the results of our assessment, as described below, provide substantial evidence that the Project's construction DPM emissions may result in a potentially significant health risk impact not previously identified by the DEIR.

In order to conduct our screening level risk assessment, we relied upon AERSCREEN, which is a screening level air quality dispersion model.¹¹ The model replaced SCREEN3, and AERSCREEN is included in the OEHHA¹² and the California Air Pollution Control Officers Associated (CAPCOA)¹³ guidance as the appropriate air dispersion model for Level 2 health risk screening assessments ("HRSAs"). A Level 2 HRSA utilizes a limited amount of site-specific information to generate maximum reasonable downwind concentrations of air contaminants to which nearby sensitive receptors may be exposed. If an unacceptable air quality hazard is determined to be possible using AERSCREEN, a more refined modeling approach is required prior to approval of the Project.

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We prepared a preliminary HRA of the Project's construction-related health risk impact to residential sensitive receptors using the annual PM₁₀ exhaust estimates from the SWAPE annual CalEEMod output files. According to the DEIR, the nearest sensitive receptor is located approximately 89 feet, or approximately 27 meters, south of the Project site (p. 4.13-7, Table 4.13-2). Consistent with recommendations set forth by OEHHA, we assumed residential exposure begins during the third trimester stage of life. The Project's construction CalEEMod output files indicate that construction activities will generate approximately 402 pounds of diesel particulate matter (DPM). The AERSCREEN model relies on a continuous average emission rate to simulate maximum downward concentrations from point, area, and volume emission sources. To account for the variability in equipment usage and truck trips over Project construction, we calculated an average DPM emission rate by the following equation:

¹¹ "AERSCREEN Released as the EPA Recommended Screening Model," USEPA, April 11, 2011, *available at*: http://www.epa.gov/ttn/scram/guidance/clarification/20110411_AERSCREEN_Release_Memo.pdf

¹² "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at*: <https://oehha.ca.gov/media/downloads/crn/2015guidancemanual.pdf>

¹³ "Health Risk Assessments for Proposed Land Use Projects," CAPCOA, July 2009, *available at*: http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf

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$$\text{Emission Rate } \left(\frac{\text{grams}}{\text{second}} \right) = \frac{402 \text{ lbs}}{279 \text{ days}} \times \frac{453.6 \text{ grams}}{\text{lbs}} \times \frac{1 \text{ day}}{24 \text{ hours}} \times \frac{1 \text{ hour}}{3,600 \text{ seconds}} = 0.007565 \text{ g/s}$$

Using this equation, we estimated a construction emission rate of 0.007565 grams per second (g/s). Construction activity was simulated as a 493.5-acre rectangular area source in AERSCREEN with dimensions of 1,650 meters by 1,210.4 meters. A release height of three meters was selected to represent the height of exhaust stacks on operational equipment and other heavy-duty vehicles, and an initial vertical dimension of one and a half meters was used to simulate instantaneous plume dispersion upon release. An urban meteorological setting was selected with model-default inputs for wind speed and direction distribution.

The AERSCREEN model generates maximum reasonable estimates of single-hour DPM concentrations from the Project site. EPA guidance suggests that in screening procedures, the annualized average concentration of an air pollutant be estimated by multiplying the single-hour concentration by 10%.¹⁴ As previously stated, the closest residential sensitive receptors are located approximately 25 meters from the Project site. The single-hour concentration estimated by AERSCREEN for Project construction is approximately 0.2315 µg/m³ DPM at the maximally exposed sensitive receptor, located approximately 25 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.02315 µg/m³ for Project construction at the maximally exposed sensitive receptor.

We calculated the excess cancer risk to the residential receptors both maximally exposed and located closest to the Project site using applicable HRA methodologies prescribed by OEHHA, as referenced by the DEIR. Consistent with the construction schedule proposed by the DEIR, the annualized average concentration for construction was used for the entire third trimester of pregnancy (0.25 years) and for 0.51 years of the infantile stage of life (0 – 2 years). The annualized average concentration for operation would be used for the remainder of the 30-year exposure period, including the remaining infantile stage of life, child stage of life (2 – 16 years), and adult stage of life (16 – 30 years).

Consistent with the most recent OEHHA guidance, as adopted by the EKAPCD, we used Age Sensitivity Factors (ASFs) to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution.^{15, 16} According to the most updated guidance, quantified cancer risk should be multiplied by a factor of ten during the third trimester of pregnancy and during the first two years of life (infant) and should be multiplied by a factor of three during the child stage of life (2 to 16 years). Furthermore, in accordance with the OEHHA and EKAPCD guidance, we used the 95th percentile breathing rates for

¹⁴ "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised." EPA, 1992, available at: http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf; see also "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>, p. 4-36

¹⁵ "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>.

¹⁶ "Regulation II – Permits List and Criteria and Rule 208.2 Criteria for Finding of No Significant Environmental Impact (California Environmental Quality Act)." EKAPCD, October 2017, available at: http://www.kernair.org/Documents/Rules/Rules_Nov_2017/L&C_and_Rule%20208_2%20Staff_Report_10-2-17.pdf.

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infants.¹⁷ We used a cancer potency factor of $1.1 \text{ (mg/kg-day)}^{-1}$ and an averaging time of 25,550 days. OEHHA and EKAPCD recommend that a 30-year exposure duration be used as the basis for estimating cancer risk at the MEIR.¹⁸ Also consistent with OEHHA and EKAPCD guidance, exposure to the MEIR was assumed to begin in the third trimester to provide the most conservative estimate of air quality hazards. Finally, according to EKAPCD guidance, we used a Fraction of Time At Home (FAH) Value of 0.85 for the 3rd trimester and infant receptors and 0.73 for adult receptors.¹⁹ The results of our calculations are shown below.

The Closest Exposed Individual at an Existing Residential Receptor					
Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	ASF	Cancer Risk
Construction	0.25	0.02315	361	10	2.7E-07
3rd Trimester Duration	0.25			3rd Trimester Exposure	2.7E-07
Construction	0.51	0.02315	1090	10	1.7E-06
Infant Duration	0.51			Infant Exposure	1.7E-06
Lifetime Exposure Duration	0.76			Lifetime Exposure	1.9E-06

As indicated in the table above, the excess cancer risk posed to infants and during the third trimester of pregnancy at the maximally exposed sensitive receptor, located approximately 25 meters away, over the course of Project construction are approximately 1.7 and 0.27 in one million, respectively. In accordance with the most recent OEHHA guidance, the City should have calculated and summed the cancer risk posed to all exposed sensitive receptors during the 279-day construction duration, which includes both 3rd trimester gestation and infant receptors.²⁰ The excess cancer risk over the course of Project construction at the nearest sensitive receptor is therefore approximately 1.9 in one million.

¹⁷ "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act," June 5, 2015, available at: <http://www.agmd.gov/docs/default-source/planning/risk-assessment/ab2588-risk-assessment-guidelines.pdf?sfvrsn=6>, p. 19.

"Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, available at: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>

¹⁸ "Risk Assessment Guidelines Guidance Manual for preparation of Health Risk Assessments." OEHHA, February 2015, available at: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>, p. 8-6.

¹⁹ "Regulation II – Permits List and Criteria and Rule 208.2 Criteria for Finding of No Significant Environmental Impact (California Environmental Quality Act)." EKAPCD, October 2017, available at: http://www.kernair.org/Documents/Rules/Rules_Nov_2017/L&C_and_Rule%20208_2%20Staff_Report_10-2-17.pdf.

²⁰ "Risk Assessment Guidelines Guidance Manual for preparation of Health Risk Assessments." OEHHA, February 2015, available at: <https://oehha.ca.gov/media/downloads/cnr/2015guidancemanual.pdf>, p. 8-4.

The third trimester, infant, and lifetime cancer risks over the span of Project construction exceed the EKAPCD threshold of 1 in one million, thus resulting in a potentially significant health risk impact not previously identified or addressed by the DEIR. It is important to note that this analysis is only for Project construction and does not include operation. Thus, the addition of the Project's operational DPM emissions would likely result in a health risk impact that further exceeds the EKAPCD threshold of one in one million, as indicated by the DEIR. An updated EIR should be prepared to assess the Project's health risk impact, including both construction and operation, and implement mitigation where applicable.

15-T5

Greenhouse Gas

The DEIR concludes that the Project's greenhouse gas (GHG) impacts would be less than significant based on estimated emissions from its flawed CalEEMod model, incomplete operational emission quantification, and the EKAPCD threshold of 25,000 MT CO₂e/year (MT CO₂e/yr) (see excerpt below) (p. 4.8-19).

TABLE 4.8-2: ESTIMATED PROJECT GREENHOUSE GAS EMISSIONS

Phase	GHG Emissions CO ₂ e (metric tons)
Construction (14 months)	
Total Emissions	1,411
Annualized Emissions ¹	47
Operation (assumes a 35-year project lifetime)	7
Total Emissions	54
EKAPCD Threshold	25,000
Exceed Threshold?	No

15-U5

As shown in the excerpt above, the DEIR concludes that the Project's annualized construction and operational emissions would be 54 MT CO₂e/yr, which would be less than the EKAPCD threshold of 25,000 MT CO₂e/yr. Furthermore, the DEIR concludes that the Project's GHG impact would be less than significant based on consistency with the CARB Scoping Plan, SB 1368, SB 351, and the Kern County General Plan (p. 4.8-23, 4.8-24, 4.8-25).

However, this analysis and subsequent less than significant impact conclusion is incorrect because:

- 1) The DEIR's GHG analysis relies upon an incorrect and unsubstantiated air model and analysis; and
- 2) The EKAPCD threshold of 25,000 MT CO₂e/yr is not applicable and cannot be relied upon to determine the significance of the Project's GHG emissions.

(1) The DEIR's GHG Analysis Relies Upon an Incorrect and Unsubstantiated Air Model

As discussed above, the DEIR concludes that the Project would result in GHG emissions of 54 MT CO₂e/yr, which would be less than the EKAPCD threshold. However, the DEIR's GHG analysis relies upon a flawed CalEEMod model to estimate the Project's construction emissions, as discussed in the air



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quality section of this letter. In addition, while the DEIR quantifies the Project's mobile-source operational emissions, it fails to include the Project's *entire* operational emissions. This is incorrect, as the DEIR's CalEEMod model and air quality analysis underestimate emissions. An updated GHG analysis should be prepared with a model that uses correct, site-specific input parameters in order to accurately evaluate the Project's *entire* GHG emissions.

(2) The EKAPCD threshold of 25,000 MT CO₂e/yr is not applicable and cannot be relied upon to determine the significance of the Project's GHG emissions.

As noted above, the DEIR relies upon the EKAPCD's adopted threshold of 25,000 MT CO₂e/yr to determine significance of GHG emissions from the Project (Appendix D, p. 12). The DEIR cites to the EKAPCD's adopted 2012 Addendum to its CEQA Guidelines ("Addendum") addressing GHG impacts, including quantitative thresholds when EKAPCD is the CEQA lead agency (pp. 4.8-15/16).²¹ However, as explained below, the EKAPCD threshold does not apply to this Project.

First, in adopting the Addendum, EKAPCD staff anticipated the applicable projects to be "large industrial projects or modifications to existing industrial projects that do not require conditional use permits from a land-use agency or a permit from the California Energy Commission."²² This Project is not a large industrial project which requires EKAPCD to be the lead agency and, in fact, requires conditional use permits from Kern County as the land-use lead agency.

Second, the Addendum notes that the 25,000 tons per year (tpy) limit is appropriate for determining significance, in part because "ARB and EPA determined that this threshold would be appropriate for facilities whose GHG emissions may be subject to regulation."²³ It cites to the EPA's Final Rule for Mandatory Reporting of Greenhouse Gases for certain types of facilities.²⁴ According to the Final Rule, the types of regulated categories and entities include "general stationary fuel combustion sources," "fossil-fuel fired electric generating units," manufacturing of "mobile sources," and facilities that manufacture, process, refine or supply a variety of products and chemicals.²⁵ The Project does not fit into any of these categories.

In sum, EKAPCD's threshold was developed for specific categories of projects which do not include the proposed Project. As such, EKAPCD's quantitative threshold of 25,000 tpy does not apply and should not be used in determining the Project's GHG significant impacts.

²¹ "Addendum to CEQA Guidelines Addressing GHG Emission Impacts for Stationary Source Projects When Serving as Lead CEQA Agency." EKAPCD, March 8, 2012, ("Addendum") *available at*:

<http://www.kernair.org/Documents/CEQA/EKAPCD%20CEQA%20GHG%20Policy%20Adopted%203-8-12.pdf>

²² Addendum, p. 3.

²³ Addendum, p. 4.

²⁴ 74 Fed. Reg. 56260, 56273 (Oct. 30, 2009), Mandatory Reporting of Greenhouse Gases; Final Rule ("2009 Federal Register"), *available at*: <https://www.govinfo.gov/content/pkg/FR-2009-10-30/pdf/E9-23315.pdf>

²⁵ 2009 Federal Register, p. 56260-56261.

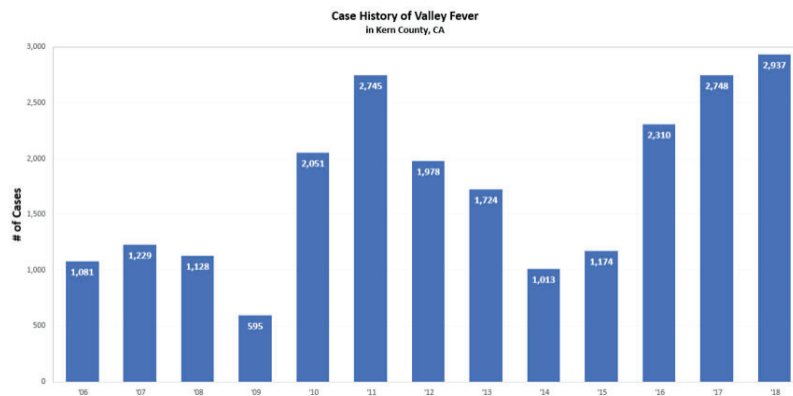


Hazards and Hazardous Waste

Valley Fever Potential has not been Evaluated

The DEIR does not fully consider the potential for Project construction to increase the incidence of Valley Fever, a disease that can be caused by inhalation of spores of a soil-dwelling fungus. The impact of Valley Fever on workers constructing large, industrial-scale projects was documented in a study examining the October 2011–April 2014 timeframe, a period where 44 California solar construction workers were diagnosed with symptom onset.²⁶ A DEIR must be revised to evaluate Valley Fever impacts resulting from Project construction and to include additional mitigation.

According to the Kern County Public Health Services Department, the fungus that causes Valley Fever has been found in Kern County with increasing incidence.²⁷



The Kern County Public Health Services Department calls the current incidence rate of Valley Fever to be “the second Great Epidemic” that “began in 2010 and is still continuing.”²⁸

Despite the availability of this information, the Applicant makes no mention of how soil-disturbing activity conducted during Project construction might increase the incidence of Valley Fever in workers and the public.

Valley Fever is caused by inhaling the spores of a soil-dwelling fungus, *Coccidioides immitis*.²⁹ The spores become airborne when infected soils are disturbed during construction activities, agricultural operations, dust storms, or during earthquakes. A 2012 study documented that between 1990 and

²⁶ Coccidioidomycosis among Workers Constructing Solar Power Farms, California, USA, 2011–2014, http://wwwnc.cdc.gov/eid/article/21/11/15-0129_article

²⁷ <http://kerncountyvalleyfever.com/>

²⁸ <http://kerncountyvalleyfever.com/history-of-valley-fever/>

²⁹ <http://www.cdc.gov/fungal/diseases/coccidioidomycosis/definition.html>

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2008, more than 3,000 people died in the United States from Valley Fever with about half in California.³⁰ In recent years, reported Valley Fever cases in southwestern United States have increased dramatically.³¹

No known cure exists for the disease and there is no vaccine.³² Common symptoms of Valley Fever include fatigue, fever, cough, headaches, breathing difficulties, rash, muscle aches, and joint pain. Advanced symptoms are marked by chronic pneumonia, meningitis, skin lesions and bone or joint infections. Pneumonia stemming from Valley Fever becomes evident 13 weeks after infection.³³ Project construction and operation will generate dust which is one of the primary routes of exposure for contracting Valley Fever.³⁴ Construction workers are susceptible to contracting Valley Fever and are one of the most at-risk populations.³⁵

The disease is debilitating and prevents those who have contracted Valley Fever from working.³⁶ The longest period of disability from occupational exposure in California is to construction workers, with 62% of the reported cases resulting in over 60 days of lost work.³⁷ Another study estimated the average hospital stay for each (non-construction work) case of coccidioidomycosis at 35 days.³⁸

The potentially exposed population is much larger than construction workers on or adjacent to the Project site because dust generated during Project construction will carry the very small spores – 0.002-0.005 millimeters in diameter – into other areas, potentially exposing large segments of the public.^{39,40}

³⁰ Jennifer Y. Huang, Benjamin Bristow, Shira Shafir, and Frank Sorvillo, Coccidioidomycosis-associated Deaths, United States, 1990–2008; <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3559166/>

³¹ Center for Disease Control; Fungal Pneumonia: A Silent Epidemic, Coccidioidomycosis (Valley Fever); <http://www.cdc.gov/fungal/pdf/cocci-fact-sheet-sw-us-508c.pdf>

³² <http://www.cdc.gov/fungal/diseases/coccidioidomycosis/risk-prevention.html>.

³³ See, e.g., Lisa Valdivia, David Nix, Mark Wright, Elizabeth Lindberg, Timothy Fagan, Donald Lieberman, Prien Stoffer, Neil M. Ampel, and John N. Galgiani, Coccidioidomycosis as a Common Cause of Community-acquired Pneumonia, *Emerging Infectious Diseases*, v. 12, no. 6, June 2006; <http://europemc.org/articles/PMC3373055>.

³⁴ Rafael Laniado-Laborin, Expanding Understanding of Epidemiology of Coccidioidomycosis in the Western Hemisphere, *Ann. N.Y. Acad. Sci.*, v. 111, 2007, pp. 20-22; Frederick S. Fisher, Mark W. Bultman, Suzanne M. Johnson, Demosthenes Pappagianis, and Erik Zaborsky, Coccidioides Niches and Habitat Parameters in the Southwestern United States, a Matter of Scale, *Ann. N.Y. Acad. Sci.*, No. 1111, 2007, pp. 47-72 (“All of the examined soil locations are noteworthy as generally 50% of the individuals who were exposed to the dust or were excavating dirt at the sites were infected.”)

³⁵ Lawrence L. Schmelzer and R. Tabershaw, Exposure Factors in Occupational Coccidioidomycosis, *Am. J. Public Health Nations Health*, v. 58, no. 1, 1968, pp. 107-113, Table 3; <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1228046/?page=1>

³⁶ Frank E. Swatek, Ecology of *Coccidioides Immitis*, *Mycopathologia et Mycologia Applicata*, V. 40, Nos. 1-2, pp. 3-12, 1970.

³⁷ Schmelzer and Tabershaw, 1968, Table 4.

³⁸ Demosthenes Pappagianis and Hans Einstein, Tempest from Tehachapi Takes Toll on Coccidioides Conveyed Aloft and Afar, *West J. Med.*, v. 129, Dec. 1978, pp. 527-530; <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1238466/pdf/westjmed00256-0079.pdf>.

³⁹ Schmelzer and Tabershaw, 1968, p. 110; Pappagianis and Einstein, 1978.

⁴⁰ Pappagianis and Einstein, 1978, p. 527 (“The northern areas were not directly affected by the ground level windstorm that had struck Kern County but the dust was lifted to several thousand feet elevation and, borne on high currents, the soil and arthrospores along with some moisture were gently deposited on sidewalks and automobiles as “a mud storm” that vexed the residents of much of California.” The storm originating in Kern County, for example, had major impacts in the San Francisco Bay Area and Sacramento).

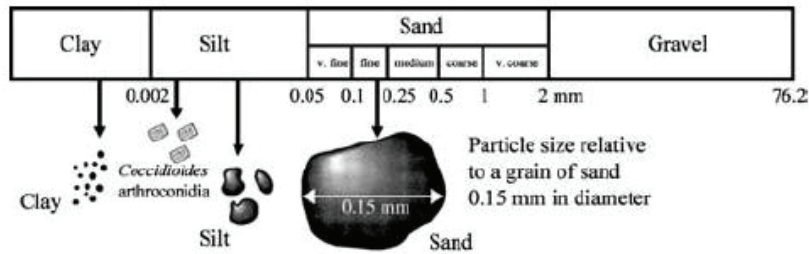


Figure 4: Size of cocci spores compared to soil particles (in mm)
(from: Fisher et al., 2007, Fig. 3)

Valley Fever spores have been documented to travel as much as 500 miles⁴¹ and dust raised during construction could potentially expose a large number of people located miles away.


The DEIR does not propose the following mitigation measures that would be specific to Valley Fever. A DEIR should be prepared to incorporate additional Valley Fever-specific mitigation measures such as the following as recommended by the California Departments of Public Health and Industrial Relations:⁴²

1. Require NIOSH-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or HEPA. Household materials such as washcloths, bandanas, and handkerchiefs do not protect workers from breathing in dust and spores. Respirators for employees must be used within a Cal/OSHA compliant respiratory protection program that covers all respirator wearers and includes medical clearance to wear a respirator, fit testing, training, and procedures for cleaning and maintaining respirators. Different classes of respirators provide different levels of protection according to their Assigned Protection Factor (see table below). Powered air-purifying respirators have a battery-powered blower that pulls air in through filters to clean it before delivering it to the wearer's breathing zone. PAPRs will provide a high level of worker protection, with an APF of 25 or 1000 depending on the model. When PAPRs are not available, provide a well-fitted NIOSH-approved full-face or half-mask respirator with particulate filters.

Fit-tested half-mask or filtering face-piece respirators are expected to reduce exposure by 90%; however, allowing about 10% face-seal leakage can result in an unacceptable risk of infection when digging where Valley Fever spores are present.

⁴¹ David Filip and Sharon Filip, Valley Fever Epidemic, Golden Phoenix Books, 2008, p. 24.

⁴² California Department of Public Health and California Department of Industrial Relations, Hazard Evaluation System & Information Service, Preventing Work-Related Coccidioidomycosis (Valley Fever), June 2013; available at <https://www.cdph.ca.gov/Programs/CCDPHP/DEODC/OHB/Pages/Cocci.aspx>

Respiratory Protection for Reducing Dust and Spore Exposure		
Respirator Type (worn with particulate filters)	Assigned Protection Factor (APF)	Expected Reduction of Exposure to Dust and Spores (%)
No respirator	None	0
<div>Increasing Protection</div> 	Half-mask respirator (elastomeric or filtering facepiece)	10
	Powered air-purifying respirator with loose-fitting face covering	25
	Full-face respirator	50
	Some powered air-purifying respirators are designed to offer higher protection (check with manufacturer)	1000
		99.9

Other studies have developed additional recommendations to minimize the incidence of Valley Fever. The U.S. Geological Survey (USGS) has developed recommendations to protect geological field workers in endemic areas.⁴³ An occupational study of Valley Fever in California workers also developed recommendations to protect those working and living in endemic areas.⁴⁴ These two sources identified the following measures that should be incorporated into a DEIR:

1. Pretest soils to determine if each work location is within an endemic area.
2. Implement a vigorous program of medical surveillance.
3. Implement aggressive enforcement of respiratory use where exposures from manual digging are involved.
4. Test all potential employees for previous infection to identify the immune population and assign immune workers to operations involving known heavy exposures.
5. Hire resident labor whenever available, particularly for heavy dust exposure work.
6. Establish a medical program, including skin tests on all new employees, retesting of susceptible employees, prompt treatment of respiratory illness in susceptible employees; periodic medical examination or interview to discover a history of low grade or subclinical infection, including repeated skin testing of susceptible employees.

Implementation of these mitigation measures is feasible and would significantly reduce public health impacts. The DEIR must be revised to acknowledge the potential impact of an increase in the incidence in Valley Fever caused by Project construction. The revised DEIR should fully evaluate this potentially significant impact and include a wider range of mitigation measures to reduce the incidence of Valley Fever in workers and nearby residents, some as close as 175 feet away (DEIR, p. 4.13-7).

SWAPE has received limited discovery regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of

⁴³ Fisher et al. 2000.

⁴⁴ Schmelzer and Tabershaw, 1968, pp. 111 - 113.

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care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,

A handwritten signature in blue ink, appearing to read "M Hagemann".

Matt Hagemann, P.G., C.Hg.

A handwritten signature in blue ink, appearing to read "Paul Rosenfeld".

Paul E. Rosenfeld, Ph.D.

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	492.00	0.00	0
User Defined Industrial	1.00	User Defined Unit	0.00	3,675.00	0
Parking Lot	6.00	1000sqft	0.14	6,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

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Project Characteristics -

Land Use - Consistent with DEIR's model. See SWAPE comment about additional proposed land uses.

Construction Phase - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about horsepower, load factors, and usage hour values.

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about horsepower, load factors, and usage hour values.

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about load factor, horsepower, and usage hour values.

Off-road Equipment -

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about horsepower, load factors, and usage hour values.

Trips and VMT - Consistent with DEIR's model.

Grading - Consistent with DEIR's model.

Area Coating - Consistent with DEIR's model.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	7,750.00	132.00
tblConstructionPhase	NumDays	775.00	22.00
tblConstructionPhase	NumDays	550.00	22.00
tblConstructionPhase	NumDays	300.00	22.00
tblGrading	AcresOfGrading	165.00	344.00
tblGrading	AcresOfGrading	33.00	148.00
tblLandUse	LandUseSquareFeet	0.00	3,675.00
tblLandUse	LotAcreage	0.00	492.00
tblOffRoadEquipment	HorsePower	231.00	250.00
tblOffRoadEquipment	HorsePower	158.00	168.00

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tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	247.00	357.00
tblOffRoadEquipment	HorsePower	367.00	313.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	221.00	291.00
tblOffRoadEquipment	HorsePower	9.00	300.00
tblOffRoadEquipment	HorsePower	212.00	147.00
tblOffRoadEquipment	HorsePower	212.00	147.00
tblOffRoadEquipment	HorsePower	158.00	168.00
tblOffRoadEquipment	HorsePower	402.00	189.00
tblOffRoadEquipment	HorsePower	402.00	189.00
tblOffRoadEquipment	HorsePower	100.00	93.00
tblOffRoadEquipment	LoadFactor	0.50	0.74
tblOffRoadEquipment	LoadFactor	0.56	0.20
tblOffRoadEquipment	LoadFactor	0.43	0.42
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.40	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName		Panel Assembly
tblOffRoadEquipment	PhaseName		Panel Assembly
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblOffRoadEquipment	PhaseName		Gavel Road
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	4.00	200.00

2.0 Emissions Summary

[illegible]

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Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2019	4-1-2019	2.7399	2.7399
2	4-2-2019	7-1-2019	1.3012	1.3012
3	7-2-2019	9-30-2019	1.1684	1.1684
		Highest	2.7399	2.7399

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0148	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.6691	0.6691	3.0000e-005	1.0000e-005	0.6715
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0148	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6692	0.6692	3.0000e-005	1.0000e-005	0.6717

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2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0148	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.6691	0.6691	3.0000e-005	1.0000e-005	0.6715
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0148	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.6692	0.6692	3.0000e-005	1.0000e-005	0.6717

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Trenching and Electrical	Site Preparation	1/2/2019	1/31/2019	5	22	
2	Grading	Grading	2/5/2019	3/6/2019	5	22	
3	Panel Assembly	Building Construction	3/8/2019	9/9/2019	5	132	
4	Gavel Road	Paving	9/7/2019	10/8/2019	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 344

Acres of Paving: 0.14

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Trenching and Electrical	Crawler Tractors	3	8.00	147	0.43
Trenching and Electrical	Excavators	3	8.00	168	0.40
Trenching and Electrical	Off-Highway Trucks	3	4.00	189	0.38
Trenching and Electrical	Rough Terrain Forklifts	3	8.00	93	0.37
Grading	Excavators	3	8.00	168	0.38
Grading	Graders	3	8.00	174	0.41
Grading	Off-Highway Trucks	3	4.00	189	0.38
Grading	Rubber Tired Dozers	3	8.00	357	0.40
Grading	Scrapers	6	8.00	313	0.48
Grading	Tractors/Loaders/Backhoes	6	8.00	108	0.37
Panel Assembly	Bore/Drill Rigs	3	8.00	291	0.74
Panel Assembly	Cement and Mortar Mixers	3	8.00	300	0.20
Panel Assembly	Cranes	3	7.00	250	0.29
Gavel Road	Crawler Tractors	3	8.00	147	0.42

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Trenching and Electrical	19	48.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	24	60.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Panel Assembly	17	200.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Gavel Road	9	23.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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3.2 Trenching and Electrical - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2772	0.0000	0.2772	0.1177	0.0000	0.1177	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0391	0.4120	0.3406	5.7000e-004		0.0206	0.0206		0.0190	0.0190	0.0000	51.0858	51.0858	0.0162	0.0000	51.4898
Total	0.0391	0.4120	0.3406	5.7000e-004	0.2772	0.0206	0.2978	0.1177	0.0190	0.1367	0.0000	51.0858	51.0858	0.0162	0.0000	51.4898

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1300e-003	2.3200e-003	0.0222	7.0000e-005	6.6200e-003	5.0000e-005	6.6600e-003	1.7600e-003	4.0000e-005	1.8000e-003	0.0000	6.2069	6.2069	1.7000e-004	0.0000	6.2112
Total	3.1300e-003	2.3200e-003	0.0222	7.0000e-005	6.6200e-003	5.0000e-005	6.6600e-003	1.7600e-003	4.0000e-005	1.8000e-003	0.0000	6.2069	6.2069	1.7000e-004	0.0000	6.2112

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3.2 Trenching and Electrical - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2772	0.0000	0.2772	0.1177	0.0000	0.1177	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0391	0.4120	0.3406	5.7000e-004		0.0206	0.0206		0.0190	0.0190	0.0000	51.0857	51.0857	0.0162	0.0000	51.4898
Total	0.0391	0.4120	0.3406	5.7000e-004	0.2772	0.0206	0.2978	0.1177	0.0190	0.1367	0.0000	51.0857	51.0857	0.0162	0.0000	51.4898

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1300e-003	2.3200e-003	0.0222	7.0000e-005	6.6200e-003	5.0000e-005	6.6600e-003	1.7600e-003	4.0000e-005	1.8000e-003	0.0000	6.2069	6.2069	1.7000e-004	0.0000	6.2112
Total	3.1300e-003	2.3200e-003	0.0222	7.0000e-005	6.6200e-003	5.0000e-005	6.6600e-003	1.7600e-003	4.0000e-005	1.8000e-003	0.0000	6.2069	6.2069	1.7000e-004	0.0000	6.2112

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3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3811	0.0000	0.3811	0.1289	0.0000	0.1289	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1655	1.8154	1.3140	1.9800e-003		0.0845	0.0845		0.0777	0.0777	0.0000	177.8585	177.8585	0.0563	0.0000	179.2653
Total	0.1655	1.8154	1.3140	1.9800e-003	0.3811	0.0845	0.4656	0.1289	0.0777	0.2066	0.0000	177.8585	177.8585	0.0563	0.0000	179.2653

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9100e-003	2.9000e-003	0.0278	9.0000e-005	8.2700e-003	6.0000e-005	8.3300e-003	2.2000e-003	5.0000e-005	2.2500e-003	0.0000	7.7587	7.7587	2.1000e-004	0.0000	7.7640
Total	3.9100e-003	2.9000e-003	0.0278	9.0000e-005	8.2700e-003	6.0000e-005	8.3300e-003	2.2000e-003	5.0000e-005	2.2500e-003	0.0000	7.7587	7.7587	2.1000e-004	0.0000	7.7640

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3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3811	0.0000	0.3811	0.1289	0.0000	0.1289	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1655	1.8154	1.3140	1.9800e-003		0.0845	0.0845		0.0777	0.0777	0.0000	177.8583	177.8583	0.0563	0.0000	179.2651
Total	0.1655	1.8154	1.3140	1.9800e-003	0.3811	0.0845	0.4656	0.1289	0.0777	0.2066	0.0000	177.8583	177.8583	0.0563	0.0000	179.2651

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9100e-003	2.9000e-003	0.0278	9.0000e-005	8.2700e-003	6.0000e-005	8.3300e-003	2.2000e-003	5.0000e-005	2.2500e-003	0.0000	7.7587	7.7587	2.1000e-004	0.0000	7.7640
Total	3.9100e-003	2.9000e-003	0.0278	9.0000e-005	8.2700e-003	6.0000e-005	8.3300e-003	2.2000e-003	5.0000e-005	2.2500e-003	0.0000	7.7587	7.7587	2.1000e-004	0.0000	7.7640

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3.4 Panel Assembly - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1917	2.2926	1.2079	4.7100e-003		0.0838	0.0838		0.0771	0.0771	0.0000	422.6008	422.6008	0.1337	0.0000	425.9435
Total	0.1917	2.2926	1.2079	4.7100e-003		0.0838	0.0838		0.0771	0.0771	0.0000	422.6008	422.6008	0.1337	0.0000	425.9435

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1000e-004	0.0169	3.4000e-003	4.0000e-005	8.0000e-004	1.2000e-004	9.2000e-004	2.3000e-004	1.2000e-004	3.5000e-004	0.0000	3.4056	3.4056	3.1000e-004	0.0000	3.4134
Worker	0.0781	0.0580	0.5559	1.7200e-003	0.1654	1.1500e-003	0.1665	0.0439	1.0600e-003	0.0450	0.0000	155.1730	155.1730	4.3000e-003	0.0000	155.2804
Total	0.0788	0.0749	0.5593	1.7600e-003	0.1662	1.2700e-003	0.1675	0.0442	1.1800e-003	0.0453	0.0000	158.5786	158.5786	4.6100e-003	0.0000	158.6938

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3.4 Panel Assembly - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1917	2.2926	1.2079	4.7100e-003		0.0838	0.0838		0.0771	0.0771	0.0000	422.6003	422.6003	0.1337	0.0000	425.9430
Total	0.1917	2.2926	1.2079	4.7100e-003		0.0838	0.0838		0.0771	0.0771	0.0000	422.6003	422.6003	0.1337	0.0000	425.9430

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1000e-004	0.0169	3.4000e-003	4.0000e-005	8.0000e-004	1.2000e-004	9.2000e-004	2.3000e-004	1.2000e-004	3.5000e-004	0.0000	3.4056	3.4056	3.1000e-004	0.0000	3.4134
Worker	0.0781	0.0580	0.5559	1.7200e-003	0.1654	1.1500e-003	0.1665	0.0439	1.0600e-003	0.0450	0.0000	155.1730	155.1730	4.3000e-003	0.0000	155.2804
Total	0.0788	0.0749	0.5593	1.7600e-003	0.1662	1.2700e-003	0.1675	0.0442	1.1800e-003	0.0453	0.0000	158.5786	158.5786	4.6100e-003	0.0000	158.6938

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3.5 Gavel Road - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0186	0.1934	0.1214	1.7000e-004		0.0108	0.0108		9.9000e-003	9.9000e-003	0.0000	15.7003	15.7003	4.9700e-003	0.0000	15.8245
Paving	1.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0188	0.1934	0.1214	1.7000e-004		0.0108	0.0108		9.9000e-003	9.9000e-003	0.0000	15.7003	15.7003	4.9700e-003	0.0000	15.8245

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-003	1.1100e-003	0.0107	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.9742	2.9742	8.0000e-005	0.0000	2.9762
Total	1.5000e-003	1.1100e-003	0.0107	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.9742	2.9742	8.0000e-005	0.0000	2.9762

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3.5 Gavel Road - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0186	0.1934	0.1214	1.7000e-004		0.0108	0.0108		9.9000e-003	9.9000e-003	0.0000	15.7003	15.7003	4.9700e-003	0.0000	15.8244
Paving	1.8000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0188	0.1934	0.1214	1.7000e-004		0.0108	0.0108		9.9000e-003	9.9000e-003	0.0000	15.7003	15.7003	4.9700e-003	0.0000	15.8244

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.5000e-003	1.1100e-003	0.0107	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.9742	2.9742	8.0000e-005	0.0000	2.9762
Total	1.5000e-003	1.1100e-003	0.0107	3.0000e-005	3.1700e-003	2.0000e-005	3.1900e-003	8.4000e-004	2.0000e-005	8.6000e-004	0.0000	2.9742	2.9742	8.0000e-005	0.0000	2.9762

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
User Defined Industrial	0.00	0.00	0.00		
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.466291	0.031960	0.164877	0.131500	0.023119	0.007290	0.020969	0.142348	0.001645	0.001858	0.006120	0.000997	0.001026
User Defined Industrial	0.466291	0.031960	0.164877	0.131500	0.023119	0.007290	0.020969	0.142348	0.001645	0.001858	0.006120	0.000997	0.001026

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

[illegible]

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5.2 Energy by Land Use - NaturalGas

Unmitigated

[illegible]

Mitigated

[illegible]

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	2100	0.6691	3.0000e-005	1.0000e-005	0.6715
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.6691	3.0000e-005	1.0000e-005	0.6715

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	2100	0.6691	3.0000e-005	1.0000e-005	0.6715
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.6691	3.0000e-005	1.0000e-005	0.6715

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0148	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Unmitigated	0.0148	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0147					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Total	0.0148	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Annual

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0147					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004
Total	0.0148	0.0000	7.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.4000e-004	1.4000e-004	0.0000	0.0000	1.5000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

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	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

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7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

Apollo 60 MW Solar Construction
Kern-Mojave Desert County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	492.00	0.00	0
User Defined Industrial	1.00	User Defined Unit	0.00	3,675.00	0
Parking Lot	6.00	1000sqft	0.14	6,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	702.44	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

Project Characteristics -

Land Use - Consistent with DEIR's model. See SWAPE comment about additional proposed land uses.

Construction Phase - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about horsepower, load factors, and usage hour values.

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about horsepower, load factors, and usage hour values.

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about load factor, horsepower, and usage hour values.

Off-road Equipment -

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about horsepower, load factors, and usage hour values.

Trips and VMT - Consistent with DEIR's model.

Grading - Consistent with DEIR's model.

Area Coating - Consistent with DEIR's model.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	7,750.00	132.00
tblConstructionPhase	NumDays	775.00	22.00
tblConstructionPhase	NumDays	550.00	22.00
tblConstructionPhase	NumDays	300.00	22.00
tblGrading	AcresOfGrading	165.00	344.00
tblGrading	AcresOfGrading	33.00	148.00
tblLandUse	LandUseSquareFeet	0.00	3,675.00
tblLandUse	LotAcreage	0.00	492.00
tblOffRoadEquipment	HorsePower	231.00	250.00
tblOffRoadEquipment	HorsePower	158.00	168.00

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	247.00	357.00
tblOffRoadEquipment	HorsePower	367.00	313.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	221.00	291.00
tblOffRoadEquipment	HorsePower	9.00	300.00
tblOffRoadEquipment	HorsePower	212.00	147.00
tblOffRoadEquipment	HorsePower	212.00	147.00
tblOffRoadEquipment	HorsePower	158.00	168.00
tblOffRoadEquipment	HorsePower	402.00	189.00
tblOffRoadEquipment	HorsePower	402.00	189.00
tblOffRoadEquipment	HorsePower	100.00	93.00
tblOffRoadEquipment	LoadFactor	0.50	0.74
tblOffRoadEquipment	LoadFactor	0.56	0.20
tblOffRoadEquipment	LoadFactor	0.43	0.42
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.40	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName		Panel Assembly
tblOffRoadEquipment	PhaseName		Panel Assembly
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblOffRoadEquipment	PhaseName		Gavel Road
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	4.00	200.00

2.0 Emissions Summary

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	15.4282	165.3202	121.8772	0.1874	35.4150	7.6826	43.0976	11.9244	7.0680	18.9924	0.0000	18,569.93 15	18,569.93 15	5.6598	0.0000	18,711.42 61
Maximum	15.4282	165.3202	121.8772	0.1874	35.4150	7.6826	43.0976	11.9244	7.0680	18.9924	0.0000	18,569.93 15	18,569.93 15	5.6598	0.0000	18,711.42 61

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	15.4282	165.3202	121.8772	0.1874	35.4150	7.6826	43.0976	11.9244	7.0680	18.9924	0.0000	18,569.93 15	18,569.93 15	5.6598	0.0000	18,711.426 1
Maximum	15.4282	165.3202	121.8772	0.1874	35.4150	7.6826	43.0976	11.9244	7.0680	18.9924	0.0000	18,569.93 15	18,569.93 15	5.6598	0.0000	18,711.42 61

[illegible]

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0809	1.0000e-005	8.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000	0.0000	1.8700e-003

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0809	1.0000e-005	8.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000	0.0000	1.8700e-003

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Trenching and Electrical	Site Preparation	1/2/2019	1/31/2019	5	22	
2	Grading	Grading	2/5/2019	3/6/2019	5	22	
3	Panel Assembly	Building Construction	3/8/2019	9/9/2019	5	132	
4	Gavel Road	Paving	9/7/2019	10/8/2019	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 344

Acres of Paving: 0.14

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Trenching and Electrical	Crawler Tractors	3	8.00	147	0.43
Trenching and Electrical	Excavators	3	8.00	168	0.40
Trenching and Electrical	Off-Highway Trucks	3	4.00	189	0.38
Trenching and Electrical	Rough Terrain Forklifts	3	8.00	93	0.37
Grading	Excavators	3	8.00	168	0.38
Grading	Graders	3	8.00	174	0.41
Grading	Off-Highway Trucks	3	4.00	189	0.38
Grading	Rubber Tired Dozers	3	8.00	357	0.40
Grading	Scrapers	6	8.00	313	0.48
Grading	Tractors/Loaders/Backhoes	6	8.00	108	0.37
Panel Assembly	Bore/Drill Rigs	3	8.00	291	0.74
Panel Assembly	Cement and Mortar Mixers	3	8.00	300	0.20
Panel Assembly	Cranes	3	7.00	250	0.29
Gavel Road	Crawler Tractors	3	8.00	147	0.42

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Trenching and Electrical	19	48.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	24	60.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Panel Assembly	17	200.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Gavel Road	9	23.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

3.2 Trenching and Electrical - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					25.2005	0.0000	25.2005	10.7010	0.0000	10.7010			0.0000			0.0000
Off-Road	3.5552	37.4503	30.9658	0.0517		1.8751	1.8751		1.7250	1.7250		5,119.3091	5,119.3091	1.6197		5,159.8015
Total	3.5552	37.4503	30.9658	0.0517	25.2005	1.8751	27.0756	10.7010	1.7250	12.4261		5,119.3091	5,119.3091	1.6197		5,159.8015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3089	0.2248	1.9368	5.9900e-003	0.6131	4.1900e-003	0.6173	0.1626	3.8600e-003	0.1665		597.3694	597.3694	0.0166		597.7836
Total	0.3089	0.2248	1.9368	5.9900e-003	0.6131	4.1900e-003	0.6173	0.1626	3.8600e-003	0.1665		597.3694	597.3694	0.0166		597.7836

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3.2 Trenching and Electrical - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					25.2005	0.0000	25.2005	10.7010	0.0000	10.7010			0.0000			0.0000
Off-Road	3.5552	37.4503	30.9658	0.0517		1.8751	1.8751		1.7250	1.7250	0.0000	5,119.3091	5,119.3091	1.6197		5,159.8015
Total	3.5552	37.4503	30.9658	0.0517	25.2005	1.8751	27.0756	10.7010	1.7250	12.4261	0.0000	5,119.3091	5,119.3091	1.6197		5,159.8015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3089	0.2248	1.9368	5.9900e-003	0.6131	4.1900e-003	0.6173	0.1626	3.8600e-003	0.1665		597.3694	597.3694	0.0166		597.7836
Total	0.3089	0.2248	1.9368	5.9900e-003	0.6131	4.1900e-003	0.6173	0.1626	3.8600e-003	0.1665		597.3694	597.3694	0.0166		597.7836

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					34.6486	0.0000	34.6486	11.7212	0.0000	11.7212			0.0000			0.0000
Off-Road	15.0421	165.0392	119.4562	0.1799		7.6773	7.6773		7.0631	7.0631		17,823.21 97	17,823.21 97	5.6391		17,964.19 67
Total	15.0421	165.0392	119.4562	0.1799	34.6486	7.6773	42.3260	11.7212	7.0631	18.7843		17,823.21 97	17,823.21 97	5.6391		17,964.19 67

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3861	0.2810	2.4210	7.4900e-003	0.7664	5.2400e-003	0.7716	0.2032	4.8300e-003	0.2081		746.7118	746.7118	0.0207		747.2294
Total	0.3861	0.2810	2.4210	7.4900e-003	0.7664	5.2400e-003	0.7716	0.2032	4.8300e-003	0.2081		746.7118	746.7118	0.0207		747.2294

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					34.6486	0.0000	34.6486	11.7212	0.0000	11.7212			0.0000			0.0000
Off-Road	15.0421	165.0392	119.4562	0.1799		7.6773	7.6773		7.0631	7.0631	0.0000	17,823.21 97	17,823.21 97	5.6391		17,964.19 67
Total	15.0421	165.0392	119.4562	0.1799	34.6486	7.6773	42.3260	11.7212	7.0631	18.7843	0.0000	17,823.21 97	17,823.21 97	5.6391		17,964.19 67

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3861	0.2810	2.4210	7.4900e-003	0.7664	5.2400e-003	0.7716	0.2032	4.8300e-003	0.2081		746.7118	746.7118	0.0207		747.2294
Total	0.3861	0.2810	2.4210	7.4900e-003	0.7664	5.2400e-003	0.7716	0.2032	4.8300e-003	0.2081		746.7118	746.7118	0.0207		747.2294

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

3.4 Panel Assembly - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9037	34.7370	18.3012	0.0713		1.2691	1.2691		1.1676	1.1676		7,058.1460	7,058.1460	2.2331		7,113.9741
Total	2.9037	34.7370	18.3012	0.0713		1.2691	1.2691		1.1676	1.1676		7,058.1460	7,058.1460	2.2331		7,113.9741

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.4800e-003	0.2551	0.0564	5.3000e-004	0.0123	1.8500e-003	0.0141	3.5300e-003	1.7700e-003	5.3000e-003		55.6518	55.6518	5.5300e-003		55.7901
Worker	1.2870	0.9365	8.0701	0.0250	2.5546	0.0175	2.5721	0.6775	0.0161	0.6936		2,489.0393	2,489.0393	0.0690		2,490.7648
Total	1.2965	1.1916	8.1265	0.0255	2.5669	0.0193	2.5862	0.6810	0.0179	0.6989		2,544.6911	2,544.6911	0.0746		2,546.5549

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

3.4 Panel Assembly - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9037	34.7370	18.3012	0.0713		1.2691	1.2691		1.1676	1.1676	0.0000	7,058.1460	7,058.1460	2.2331		7,113.9741
Total	2.9037	34.7370	18.3012	0.0713		1.2691	1.2691		1.1676	1.1676	0.0000	7,058.1460	7,058.1460	2.2331		7,113.9741

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.4800e-003	0.2551	0.0564	5.3000e-004	0.0123	1.8500e-003	0.0141	3.5300e-003	1.7700e-003	5.3000e-003		55.6518	55.6518	5.5300e-003		55.7901
Worker	1.2870	0.9365	8.0701	0.0250	2.5546	0.0175	2.5721	0.6775	0.0161	0.6936		2,489.0393	2,489.0393	0.0690		2,490.7648
Total	1.2965	1.1916	8.1265	0.0255	2.5669	0.0193	2.5862	0.6810	0.0179	0.6989		2,544.6911	2,544.6911	0.0746		2,546.5549

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

3.5 Gavel Road - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6886	17.5812	11.0378	0.0159		0.9787	0.9787		0.9004	0.9004		1,573.3256	1,573.3256	0.4978		1,585.7702
Paving	0.0167					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.7053	17.5812	11.0378	0.0159		0.9787	0.9787		0.9004	0.9004		1,573.3256	1,573.3256	0.4978		1,585.7702

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1480	0.1077	0.9281	2.8700e-003	0.2938	2.0100e-003	0.2958	0.0779	1.8500e-003	0.0798		286.2395	286.2395	7.9400e-003		286.4380
Total	0.1480	0.1077	0.9281	2.8700e-003	0.2938	2.0100e-003	0.2958	0.0779	1.8500e-003	0.0798		286.2395	286.2395	7.9400e-003		286.4380

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

3.5 Gavel Road - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6886	17.5812	11.0378	0.0159		0.9787	0.9787		0.9004	0.9004	0.0000	1,573.3256	1,573.3256	0.4978		1,585.7702
Paving	0.0167					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.7053	17.5812	11.0378	0.0159		0.9787	0.9787		0.9004	0.9004	0.0000	1,573.3256	1,573.3256	0.4978		1,585.7702

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1480	0.1077	0.9281	2.8700e-003	0.2938	2.0100e-003	0.2958	0.0779	1.8500e-003	0.0798		286.2395	286.2395	7.9400e-003		286.4380
Total	0.1480	0.1077	0.9281	2.8700e-003	0.2938	2.0100e-003	0.2958	0.0779	1.8500e-003	0.0798		286.2395	286.2395	7.9400e-003		286.4380

4.0 Operational Detail - Mobile

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
User Defined Industrial	0.00	0.00	0.00		
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.466291	0.031960	0.164877	0.131500	0.023119	0.007290	0.020969	0.142348	0.001645	0.001858	0.006120	0.000997	0.001026
User Defined Industrial	0.466291	0.031960	0.164877	0.131500	0.023119	0.007290	0.020969	0.142348	0.001645	0.001858	0.006120	0.000997	0.001026

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003
Unmitigated	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0808					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-005	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003
Total	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0808					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-005	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003
Total	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Winter

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	------------	-------------	-------------	-----------

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

Apollo 60 MW Solar Construction
Kern-Mojave Desert County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	492.00	0.00	0
User Defined Industrial	1.00	User Defined Unit	0.00	3,675.00	0
Parking Lot	6.00	1000sqft	0.14	6,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	702.44	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

Project Characteristics -

Land Use - Consistent with DEIR's model. See SWAPE comment about additional proposed land uses.

Construction Phase - Consistent with DEIR's model.

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about horsepower, load factors, and usage hour values.

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about horsepower, load factors, and usage hour values.

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about load factor, horsepower, and usage hour values.

Off-road Equipment -

Off-road Equipment - Consistent with DEIR's model. See SWAPE comment about horsepower, load factors, and usage hour values.

Trips and VMT - Consistent with DEIR's model.

Grading - Consistent with DEIR's model.

Area Coating - Consistent with DEIR's model.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	7,750.00	132.00
tblConstructionPhase	NumDays	775.00	22.00
tblConstructionPhase	NumDays	550.00	22.00
tblConstructionPhase	NumDays	300.00	22.00
tblGrading	AcresOfGrading	165.00	344.00
tblGrading	AcresOfGrading	33.00	148.00
tblLandUse	LandUseSquareFeet	0.00	3,675.00
tblLandUse	LotAcreage	0.00	492.00
tblOffRoadEquipment	HorsePower	231.00	250.00
tblOffRoadEquipment	HorsePower	158.00	168.00

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

tblOffRoadEquipment	HorsePower	187.00	174.00
tblOffRoadEquipment	HorsePower	247.00	357.00
tblOffRoadEquipment	HorsePower	367.00	313.00
tblOffRoadEquipment	HorsePower	97.00	108.00
tblOffRoadEquipment	HorsePower	221.00	291.00
tblOffRoadEquipment	HorsePower	9.00	300.00
tblOffRoadEquipment	HorsePower	212.00	147.00
tblOffRoadEquipment	HorsePower	212.00	147.00
tblOffRoadEquipment	HorsePower	158.00	168.00
tblOffRoadEquipment	HorsePower	402.00	189.00
tblOffRoadEquipment	HorsePower	402.00	189.00
tblOffRoadEquipment	HorsePower	100.00	93.00
tblOffRoadEquipment	LoadFactor	0.50	0.74
tblOffRoadEquipment	LoadFactor	0.56	0.20
tblOffRoadEquipment	LoadFactor	0.43	0.42
tblOffRoadEquipment	LoadFactor	0.38	0.40
tblOffRoadEquipment	LoadFactor	0.40	0.37
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName		Panel Assembly
tblOffRoadEquipment	PhaseName		Panel Assembly
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblOffRoadEquipment	PhaseName		Gavel Road
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Trenching and Electrical
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	WorkerTripNumber	4.00	200.00

2.0 Emissions Summary

[illegible]

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2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0809	1.0000e-005	8.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000	0.0000	1.8700e-003

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	0.0809	1.0000e-005	8.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000	0.0000	1.8700e-003

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Trenching and Electrical	Site Preparation	1/2/2019	1/31/2019	5	22	
2	Grading	Grading	2/5/2019	3/6/2019	5	22	
3	Panel Assembly	Building Construction	3/8/2019	9/9/2019	5	132	
4	Gavel Road	Paving	9/7/2019	10/8/2019	5	22	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 344

Acres of Paving: 0.14

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Trenching and Electrical	Crawler Tractors	3	8.00	147	0.43
Trenching and Electrical	Excavators	3	8.00	168	0.40
Trenching and Electrical	Off-Highway Trucks	3	4.00	189	0.38
Trenching and Electrical	Rough Terrain Forklifts	3	8.00	93	0.37
Grading	Excavators	3	8.00	168	0.38
Grading	Graders	3	8.00	174	0.41
Grading	Off-Highway Trucks	3	4.00	189	0.38
Grading	Rubber Tired Dozers	3	8.00	357	0.40
Grading	Scrapers	6	8.00	313	0.48
Grading	Tractors/Loaders/Backhoes	6	8.00	108	0.37
Panel Assembly	Bore/Drill Rigs	3	8.00	291	0.74
Panel Assembly	Cement and Mortar Mixers	3	8.00	300	0.20
Panel Assembly	Cranes	3	7.00	250	0.29
Gavel Road	Crawler Tractors	3	8.00	147	0.42

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Trenching and Electrical	19	48.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Grading	24	60.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Panel Assembly	17	200.00	2.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Gavel Road	9	23.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

3.2 Trenching and Electrical - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					25.2005	0.0000	25.2005	10.7010	0.0000	10.7010			0.0000			0.0000
Off-Road	3.5552	37.4503	30.9658	0.0517		1.8751	1.8751		1.7250	1.7250		5,119.3091	5,119.3091	1.6197		5,159.8015
Total	3.5552	37.4503	30.9658	0.0517	25.2005	1.8751	27.0756	10.7010	1.7250	12.4261		5,119.3091	5,119.3091	1.6197		5,159.8015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3165	0.1962	2.4208	6.9000e-003	0.6131	4.1900e-003	0.6173	0.1626	3.8600e-003	0.1665		687.4560	687.4560	0.0196		687.9447
Total	0.3165	0.1962	2.4208	6.9000e-003	0.6131	4.1900e-003	0.6173	0.1626	3.8600e-003	0.1665		687.4560	687.4560	0.0196		687.9447

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

3.2 Trenching and Electrical - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					25.2005	0.0000	25.2005	10.7010	0.0000	10.7010			0.0000			0.0000
Off-Road	3.5552	37.4503	30.9658	0.0517		1.8751	1.8751		1.7250	1.7250	0.0000	5,119.3091	5,119.3091	1.6197		5,159.8015
Total	3.5552	37.4503	30.9658	0.0517	25.2005	1.8751	27.0756	10.7010	1.7250	12.4261	0.0000	5,119.3091	5,119.3091	1.6197		5,159.8015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3165	0.1962	2.4208	6.9000e-003	0.6131	4.1900e-003	0.6173	0.1626	3.8600e-003	0.1665		687.4560	687.4560	0.0196		687.9447
Total	0.3165	0.1962	2.4208	6.9000e-003	0.6131	4.1900e-003	0.6173	0.1626	3.8600e-003	0.1665		687.4560	687.4560	0.0196		687.9447

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					34.6486	0.0000	34.6486	11.7212	0.0000	11.7212			0.0000			0.0000
Off-Road	15.0421	165.0392	119.4562	0.1799		7.6773	7.6773		7.0631	7.0631		17,823.21 97	17,823.21 97	5.6391		17,964.19 67
Total	15.0421	165.0392	119.4562	0.1799	34.6486	7.6773	42.3260	11.7212	7.0631	18.7843		17,823.21 97	17,823.21 97	5.6391		17,964.19 67

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3956	0.2452	3.0260	8.6300e-003	0.7664	5.2400e-003	0.7716	0.2032	4.8300e-003	0.2081		859.3200	859.3200	0.0244		859.9309
Total	0.3956	0.2452	3.0260	8.6300e-003	0.7664	5.2400e-003	0.7716	0.2032	4.8300e-003	0.2081		859.3200	859.3200	0.0244		859.9309

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

3.3 Grading - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					34.6486	0.0000	34.6486	11.7212	0.0000	11.7212			0.0000			0.0000
Off-Road	15.0421	165.0392	119.4562	0.1799		7.6773	7.6773		7.0631	7.0631	0.0000	17,823.21 97	17,823.21 97	5.6391		17,964.19 67
Total	15.0421	165.0392	119.4562	0.1799	34.6486	7.6773	42.3260	11.7212	7.0631	18.7843	0.0000	17,823.21 97	17,823.21 97	5.6391		17,964.19 67

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3956	0.2452	3.0260	8.6300e-003	0.7664	5.2400e-003	0.7716	0.2032	4.8300e-003	0.2081		859.3200	859.3200	0.0244		859.9309
Total	0.3956	0.2452	3.0260	8.6300e-003	0.7664	5.2400e-003	0.7716	0.2032	4.8300e-003	0.2081		859.3200	859.3200	0.0244		859.9309

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

3.4 Panel Assembly - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9037	34.7370	18.3012	0.0713		1.2691	1.2691		1.1676	1.1676		7,058.1460	7,058.1460	2.2331		7,113.9741
Total	2.9037	34.7370	18.3012	0.0713		1.2691	1.2691		1.1676	1.1676		7,058.1460	7,058.1460	2.2331		7,113.9741

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.0800e-003	0.2522	0.0479	5.5000e-004	0.0123	1.8200e-003	0.0141	3.5300e-003	1.7400e-003	5.2700e-003		57.7696	57.7696	4.9100e-003		57.8925
Worker	1.3188	0.8173	10.0866	0.0288	2.5546	0.0175	2.5721	0.6775	0.0161	0.6936		2,864.4001	2,864.4001	0.0815		2,866.4363
Total	1.3279	1.0696	10.1345	0.0293	2.5669	0.0193	2.5862	0.6810	0.0178	0.6988		2,922.1698	2,922.1698	0.0864		2,924.3288

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

3.4 Panel Assembly - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.9037	34.7370	18.3012	0.0713		1.2691	1.2691		1.1676	1.1676	0.0000	7,058.1460	7,058.1460	2.2331		7,113.9741
Total	2.9037	34.7370	18.3012	0.0713		1.2691	1.2691		1.1676	1.1676	0.0000	7,058.1460	7,058.1460	2.2331		7,113.9741

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	9.0800e-003	0.2522	0.0479	5.5000e-004	0.0123	1.8200e-003	0.0141	3.5300e-003	1.7400e-003	5.2700e-003		57.7696	57.7696	4.9100e-003		57.8925
Worker	1.3188	0.8173	10.0866	0.0288	2.5546	0.0175	2.5721	0.6775	0.0161	0.6936		2,864.4001	2,864.4001	0.0815		2,866.4363
Total	1.3279	1.0696	10.1345	0.0293	2.5669	0.0193	2.5862	0.6810	0.0178	0.6988		2,922.1698	2,922.1698	0.0864		2,924.3288

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Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

3.5 Gavel Road - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6886	17.5812	11.0378	0.0159		0.9787	0.9787		0.9004	0.9004		1,573.3256	1,573.3256	0.4978		1,585.7702
Paving	0.0167					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.7053	17.5812	11.0378	0.0159		0.9787	0.9787		0.9004	0.9004		1,573.3256	1,573.3256	0.4978		1,585.7702

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1517	0.0940	1.1600	3.3100e-003	0.2938	2.0100e-003	0.2958	0.0779	1.8500e-003	0.0798		329.4060	329.4060	9.3700e-003		329.6402
Total	0.1517	0.0940	1.1600	3.3100e-003	0.2938	2.0100e-003	0.2958	0.0779	1.8500e-003	0.0798		329.4060	329.4060	9.3700e-003		329.6402

Apollo 60 MW Solar Construction - Kern-Mojave Desert County, Summer

3.5 Gavel Road - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6886	17.5812	11.0378	0.0159		0.9787	0.9787		0.9004	0.9004	0.0000	1,573.3256	1,573.3256	0.4978		1,585.7702
Paving	0.0167					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.7053	17.5812	11.0378	0.0159		0.9787	0.9787		0.9004	0.9004	0.0000	1,573.3256	1,573.3256	0.4978		1,585.7702

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1517	0.0940	1.1600	3.3100e-003	0.2938	2.0100e-003	0.2958	0.0779	1.8500e-003	0.0798		329.4060	329.4060	9.3700e-003		329.6402
Total	0.1517	0.0940	1.1600	3.3100e-003	0.2938	2.0100e-003	0.2958	0.0779	1.8500e-003	0.0798		329.4060	329.4060	9.3700e-003		329.6402

4.0 Operational Detail - Mobile

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4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
User Defined Industrial	0.00	0.00	0.00		
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.466291	0.031960	0.164877	0.131500	0.023119	0.007290	0.020969	0.142348	0.001645	0.001858	0.006120	0.000997	0.001026
User Defined Industrial	0.466291	0.031960	0.164877	0.131500	0.023119	0.007290	0.020969	0.142348	0.001645	0.001858	0.006120	0.000997	0.001026

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003
Unmitigated	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0808					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-005	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003
Total	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003

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6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0808					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.0000e-005	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003
Total	0.0809	1.0000e-005	8.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.7500e-003	1.7500e-003	0.0000		1.8700e-003

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

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AERSCREEN 16216 / AERMOD 19191

02/05/20

11:35:23

TITLE: Apollo_Construction_SWAPE

***** AREA PARAMETERS *****

SOURCE EMISSION RATE:	0.757E-02 g/s	0.600E-01 lb/hr
AREA EMISSION RATE:	0.379E-08 g/(s-m2)	0.301E-07 lb/(hr-m2)
AREA HEIGHT:	3.00 meters	9.84 feet
AREA SOURCE LONG SIDE:	1650.00 meters	5413.39 feet
AREA SOURCE SHORT SIDE:	1210.40 meters	3971.13 feet
INITIAL VERTICAL DIMENSION:	1.50 meters	4.92 feet
RURAL OR URBAN:	URBAN	
POPULATION:	893119	
INITIAL PROBE DISTANCE =	5000. meters	16404. feet

***** BUILDING DOWNWASH PARAMETERS *****

BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES

***** FLOW SECTOR ANALYSIS *****

25 meter receptor spacing: 1. meters - 5000. meters

MAXIMUM IMPACT RECEPTOR

Zo SECTOR	SURFACE ROUGHNESS	1-HR CONC (ug/m3)	RADIAL (deg)	DIST (m)	TEMPORAL PERIOD
1*	1.000	0.2963	35	1000.0	WIN

* = worst case diagonal

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***** MAKEMET METEOROLOGY PARAMETERS *****

MIN/MAX TEMPERATURE: 250.0 / 310.0 (K)

MINIMUM WIND SPEED: 0.5 m/s

ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

DOMINANT SURFACE PROFILE: Urban

DOMINANT CLIMATE TYPE: Average Moisture

DOMINANT SEASON: Winter

ALBEDO: 0.35

BOWEN RATIO: 1.50

ROUGHNESS LENGTH: 1.000 (meters)

SURFACE FRICTION VELOCITY (U*) NOT ADJUSTED

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

YR MO DY JDY HR

-- -- -- -- --

10 01 10 10 01

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50		

HT	REF	TA	HT
10.0	310.0	2.0	

***** AERSCREEN AUTOMATED DISTANCES *****
OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	DIST (m)	MAXIMUM 1-HR CONC (ug/m3)
1.00	0.2293	2525.00	0.8029E-01

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25.00	0.2315	2550.00	0.7950E-01
50.00	0.2337	2575.00	0.7871E-01
75.00	0.2359	2600.00	0.7795E-01
100.00	0.2382	2625.00	0.7723E-01
125.00	0.2405	2650.00	0.7653E-01
150.00	0.2429	2675.00	0.7584E-01
175.00	0.2451	2700.00	0.7516E-01
200.00	0.2474	2725.00	0.7448E-01
225.00	0.2506	2750.00	0.7381E-01
250.00	0.2528	2775.00	0.7316E-01
275.00	0.2549	2800.00	0.7252E-01
300.00	0.2570	2825.00	0.7189E-01
325.00	0.2602	2850.00	0.7129E-01
350.00	0.2634	2875.00	0.7073E-01
375.00	0.2657	2900.00	0.7016E-01
400.00	0.2676	2925.00	0.6960E-01
425.00	0.2694	2950.00	0.6905E-01
450.00	0.2712	2975.00	0.6851E-01
475.00	0.2729	3000.00	0.6798E-01
500.00	0.2747	3025.00	0.6746E-01
525.00	0.2764	3050.00	0.6695E-01
550.00	0.2781	3075.00	0.6644E-01
575.00	0.2798	3100.00	0.6593E-01
600.00	0.2815	3125.00	0.6544E-01
625.00	0.2831	3150.00	0.6495E-01
650.00	0.2847	3175.00	0.6446E-01
675.00	0.2863	3200.00	0.6398E-01
700.00	0.2879	3225.00	0.6350E-01
725.00	0.2884	3250.00	0.6303E-01
750.00	0.2864	3275.00	0.6258E-01
775.00	0.2879	3300.00	0.6211E-01
800.00	0.2894	3325.00	0.6166E-01
825.00	0.2909	3350.00	0.6121E-01
850.00	0.2896	3375.00	0.6076E-01
875.00	0.2911	3400.00	0.6033E-01
900.00	0.2933	3425.00	0.5990E-01
925.00	0.2947	3450.00	0.5948E-01
950.00	0.2961	3475.00	0.5906E-01
975.00	0.2959	3500.00	0.5865E-01
1000.00	0.2963	3525.00	0.5825E-01
1025.00	0.2763	3550.00	0.5784E-01
1050.00	0.2469	3575.00	0.5743E-01
1075.00	0.2310	3600.00	0.5703E-01
1100.00	0.2173	3625.00	0.5663E-01
1125.00	0.2066	3650.00	0.5624E-01
1149.99	0.1977	3675.00	0.5586E-01
1175.00	0.1901	3700.00	0.5548E-01
1200.00	0.1834	3725.00	0.5511E-01
1225.00	0.1814	3750.00	0.5474E-01
1250.00	0.1761	3775.00	0.5438E-01

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1275.00	0.1712	3800.00	0.5402E-01
1300.00	0.1668	3825.00	0.5365E-01
1325.00	0.1626	3850.00	0.5330E-01
1350.00	0.1587	3875.00	0.5295E-01
1375.00	0.1551	3900.00	0.5260E-01
1400.00	0.1517	3925.00	0.5226E-01
1425.00	0.1485	3950.00	0.5192E-01
1450.00	0.1455	3975.00	0.5159E-01
1475.00	0.1426	4000.00	0.5125E-01
1500.00	0.1398	4025.00	0.5092E-01
1525.00	0.1371	4050.00	0.5060E-01
1550.00	0.1345	4075.00	0.5028E-01
1574.99	0.1321	4100.00	0.4996E-01
1600.00	0.1297	4125.00	0.4964E-01
1625.00	0.1274	4150.00	0.4933E-01
1650.00	0.1252	4175.00	0.4901E-01
1675.00	0.1231	4200.00	0.4870E-01
1700.00	0.1211	4225.00	0.4840E-01
1725.00	0.1192	4250.00	0.4810E-01
1750.00	0.1173	4275.00	0.4780E-01
1775.00	0.1155	4300.00	0.4751E-01
1800.00	0.1137	4325.00	0.4722E-01
1825.00	0.1120	4350.00	0.4693E-01
1850.00	0.1104	4375.00	0.4665E-01
1875.00	0.1088	4400.00	0.4637E-01
1900.00	0.1073	4425.00	0.4609E-01
1925.00	0.1058	4450.00	0.4582E-01
1950.00	0.1044	4475.00	0.4555E-01
1975.00	0.1030	4500.00	0.4529E-01
2000.00	0.1017	4525.00	0.4502E-01
2025.00	0.1004	4550.00	0.4474E-01
2050.00	0.9919E-01	4575.00	0.4448E-01
2075.00	0.9800E-01	4600.00	0.4421E-01
2100.00	0.9682E-01	4625.00	0.4395E-01
2125.00	0.9568E-01	4650.00	0.4369E-01
2150.00	0.9455E-01	4675.00	0.4344E-01
2175.00	0.9344E-01	4700.00	0.4319E-01
2200.00	0.9235E-01	4725.00	0.4294E-01
2225.00	0.9130E-01	4750.00	0.4269E-01
2250.00	0.9027E-01	4775.00	0.4245E-01
2275.00	0.8925E-01	4800.00	0.4221E-01
2300.00	0.8827E-01	4825.00	0.4197E-01
2325.00	0.8730E-01	4850.00	0.4174E-01
2350.00	0.8636E-01	4875.00	0.4151E-01
2375.00	0.8544E-01	4900.00	0.4128E-01
2400.00	0.8454E-01	4925.00	0.4105E-01
2425.00	0.8366E-01	4950.00	0.4082E-01
2450.00	0.8279E-01	4975.00	0.4059E-01
2475.00	0.8194E-01	5000.00	0.4037E-01
2500.00	0.8111E-01		

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***** AERSCREEN MAXIMUM IMPACT SUMMARY *****

3-hour, 8-hour, and 24-hour scaled
concentrations are equal to the 1-hour concentration as referenced in
SCREENING PROCEDURES FOR ESTIMATING THE AIR QUALITY
IMPACT OF STATIONARY SOURCES, REVISED (Section 4.5.4)
Report number EPA-454/R-92-019
http://www.epa.gov/scram001/guidance_permit.htm
under Screening Guidance

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	0.3016	0.3016	0.3016	0.3016	N/A
DISTANCE FROM SOURCE	1010.00 meters				
IMPACT AT THE AMBIENT BOUNDARY	0.2293	0.2293	0.2293	0.2293	N/A
DISTANCE FROM SOURCE	1.00 meters				

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Concentration			Distance		Elevation	Diag	Season/Month		Zo sector		Date	
H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O	LEN	Z0	BOWEN	ALBEDO	REF	WS
REF	TA	HT										HT
	0.22930E+00		1.00	0.00	25.0			Winter		0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.23149E+00		25.00	0.00	25.0			Winter		0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.23372E+00		50.00	0.00	25.0			Winter		0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.23592E+00		75.00	0.00	25.0			Winter		0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.23817E+00		100.00	0.00	10.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.24053E+00		125.00	0.00	10.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.24285E+00		150.00	0.00	10.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.24514E+00		175.00	0.00	10.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.24739E+00		200.00	0.00	10.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.25060E+00		225.00	0.00	15.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.25276E+00		250.00	0.00	15.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.25488E+00		275.00	0.00	15.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.25697E+00		300.00	0.00	15.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.26023E+00		325.00	0.00	20.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.26335E+00		350.00	0.00	25.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.26572E+00		375.00	0.00	30.0			Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0

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310.0	2.0											
	0.26756E+00	400.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.26937E+00	425.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.27116E+00	450.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.27294E+00	475.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.27468E+00	500.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.27640E+00	525.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.27810E+00	550.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.27979E+00	575.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28145E+00	600.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28310E+00	625.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28472E+00	650.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28633E+00	675.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28789E+00	700.00	0.00	25.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28840E+00	725.00	0.00	15.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28641E+00	750.00	0.00	0.0		Winter	0-360	10011101				
-1.30	0.043	-9.000	0.020	-999.	104.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28791E+00	775.00	0.00	0.0		Winter	0-360	10011101				
-1.30	0.043	-9.000	0.020	-999.	104.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.28939E+00	800.00	0.00	0.0		Winter	0-360	10011101				

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-1.30	0.043	-9.000	0.020	-999.	104.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.29085E+00		825.00		0.00	0.0		Winter	0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.28962E+00		850.00		0.00	35.0		Winter	0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.29106E+00		875.00		0.00	35.0		Winter	0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.29334E+00		900.00		0.00	30.0		Winter	0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.29473E+00		925.00		0.00	30.0		Winter	0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.29609E+00		950.00		0.00	30.0		Winter	0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.29589E+00		975.00		0.00	35.0		Winter	0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.29628E+00		1000.00		0.00	35.0		Winter	0-360	10011101	
-1.30	0.043	-9.000	0.020	-999.	104.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
*	0.30159E+00		1010.00		0.00	35.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.27629E+00		1025.00		0.00	35.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.24689E+00		1050.00		0.00	35.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.23096E+00		1075.00		0.00	35.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.21727E+00		1100.00		0.00	35.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.20656E+00		1125.00		0.00	35.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.19767E+00		1149.99		0.00	35.0		Winter	0-360	10011001	

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0.18341E+00	1200.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.18145E+00	1225.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.17614E+00	1250.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.17125E+00	1275.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.16676E+00	1300.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.16261E+00	1325.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.15873E+00	1350.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.15511E+00	1375.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.15171E+00	1400.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.14851E+00	1425.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.14548E+00	1450.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.14260E+00	1475.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.13982E+00	1500.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.13713E+00	1525.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.13454E+00	1550.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.13206E+00	1574.99	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.12970E+00	1600.00	0.00	35.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		

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310.0	2.0											
	0.12743E+00	1625.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.12524E+00	1650.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.12315E+00	1675.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.12112E+00	1700.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.11917E+00	1725.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.11729E+00	1750.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.11548E+00	1775.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.11374E+00	1800.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.11205E+00	1825.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.11041E+00	1850.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.10882E+00	1875.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.10729E+00	1900.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.10581E+00	1925.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.10436E+00	1950.00	0.00	35.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.10298E+00	1975.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.10168E+00	2000.00	0.00	30.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.10042E+00	2025.00	0.00	30.0		Winter	0-360	10011001				

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-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.99189E-01		2050.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.97995E-01		2075.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.96823E-01		2100.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.95681E-01		2125.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.94550E-01		2150.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.93436E-01		2175.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.92352E-01		2200.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.91298E-01		2225.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.90268E-01		2250.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.89253E-01		2275.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.88265E-01		2300.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.87301E-01		2325.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.86357E-01		2350.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.85435E-01		2375.00		0.00	30.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.84537E-01		2400.00		0.00	30.0		Winter	0-360	10011001	

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0.82789E-01	2450.00	0.00	30.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.81938E-01	2475.00	0.00	30.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.81105E-01	2500.00	0.00	30.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.80292E-01	2525.00	0.00	30.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.79495E-01	2550.00	0.00	30.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.78714E-01	2575.00	0.00	30.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.77951E-01	2600.00	0.00	30.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.77231E-01	2625.00	0.00	25.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.76527E-01	2650.00	0.00	25.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.75838E-01	2675.00	0.00	25.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.75161E-01	2700.00	0.00	25.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.74483E-01	2725.00	0.00	25.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.73815E-01	2750.00	0.00	25.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.73160E-01	2775.00	0.00	25.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.72518E-01	2800.00	0.00	25.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.71890E-01	2825.00	0.00	25.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.71292E-01	2850.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		

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310.0	2.0											
	0.70726E-01	2875.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.70162E-01	2900.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.69602E-01	2925.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.69052E-01	2950.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.68512E-01	2975.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.67981E-01	3000.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.67460E-01	3025.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.66948E-01	3050.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.66441E-01	3075.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.65935E-01	3100.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.65436E-01	3125.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.64947E-01	3150.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.64459E-01	3175.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.63976E-01	3200.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.63501E-01	3225.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.63035E-01	3250.00	0.00	0.0		Winter	0-360	10011001				
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0	
310.0	2.0											
	0.62576E-01	3275.00	0.00	0.0		Winter	0-360	10011001				

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-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.62112E-01		3300.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.61655E-01		3325.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.61206E-01		3350.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.60764E-01		3375.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.60328E-01		3400.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.59900E-01		3425.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.59478E-01		3450.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.59063E-01		3475.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.58654E-01		3500.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.58248E-01		3525.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.57836E-01		3550.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.57428E-01		3575.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.57027E-01		3600.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.56631E-01		3625.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.56241E-01		3650.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0										

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0.55479E-01	3700.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.55106E-01	3725.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.54739E-01	3750.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.54377E-01	3775.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.54016E-01	3800.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.53654E-01	3825.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.53297E-01	3850.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.52946E-01	3875.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.52599E-01	3900.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.52257E-01	3925.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.51920E-01	3950.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.51587E-01	3975.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.51254E-01	4000.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.50924E-01	4025.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.50599E-01	4050.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.50278E-01	4075.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.49961E-01	4100.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		

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310.0	2.0											
	0.49643E-01		4125.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.49326E-01		4150.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.49012E-01		4175.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.48703E-01		4200.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.48398E-01		4225.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.48097E-01		4250.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.47800E-01		4275.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.47506E-01		4300.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.47217E-01		4325.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.46931E-01		4350.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.46649E-01		4375.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.46370E-01		4400.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.46095E-01		4425.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.45823E-01		4450.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.45554E-01		4475.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.45285E-01		4500.00		0.00	0.0		Winter		0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.		6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0											
	0.45015E-01		4525.00		0.00	0.0		Winter		0-360	10011001	

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-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.44744E-01		4550.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.44477E-01		4575.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.44213E-01		4600.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.43952E-01		4625.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.43694E-01		4650.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.43439E-01		4675.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.43187E-01		4700.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.42938E-01		4725.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.42693E-01		4750.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.42450E-01		4775.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.42209E-01		4800.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.41972E-01		4825.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.41737E-01		4850.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.41505E-01		4875.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0.043	-9.000	0.020	-999.	21.	6.0	1.000	1.50	0.35	0.50	10.0
310.0	2.0										
	0.41276E-01		4900.00		0.00	0.0		Winter	0-360	10011001	
-1.30	0										

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0.40821E-01	4950.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.40593E-01	4975.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						
0.40367E-01	5000.00	0.00	0.0	Winter	0-360	10011001
-1.30 0.043 -9.000 0.020 -999. 21.	6.0 1.000 1.50	0.35	0.50	10.0		
310.0 2.0						

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**Geologic and Hydrogeologic Characterization
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
Industrial Stormwater Compliance
CEQA Review**

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.

B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist

California Certified Hydrogeologist

Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 30 years of experience in environmental policy, contaminant assessment and remediation, stormwater compliance, and CEQA review. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) and directed efforts to improve hydrogeologic characterization and water quality monitoring. For the past 15 years, as a founding partner with SWAPE, Matt has developed extensive client relationships and has managed complex projects that include consultation as an expert witness and a regulatory specialist, and a manager of projects ranging from industrial stormwater compliance to CEQA review of impacts from hazardous waste, air quality and greenhouse gas emissions.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2014, 2017;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

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- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 300 environmental impact reports and negative declarations since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at more than 100 industrial facilities.
- Expert witness on numerous cases including, for example, perfluorooctanoic acid (PFOA) contamination of groundwater, MTBE litigation, air toxins at hazards at a school, CERCLA compliance in assessment and remediation, and industrial stormwater contamination.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

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- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.
- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted

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public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9.

Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, *Oxygenates in Water: Critical Information and Research Needs*.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific

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principles into the policy-making process.

- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt is currently a part time geology instructor at Golden West College in Huntington Beach, California where he taught from 2010 to 2014 and in 2017.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Colorado.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

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Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal representatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

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Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F.** 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

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Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examinations, 2009-2011.

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Fax: (310) 452-5550
Email: prosenfeld@swape.com

Paul Rosenfeld, Ph.D.

Principal Environmental Chemist

Chemical Fate and Transport & Air Dispersion Modeling

Risk Assessment & Remediation Specialist

Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling operations, oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, and many other industrial and agricultural sources. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at dozens of sites and has testified as an expert witness on more than ten cases involving exposure to air contaminants from industrial sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H₂O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

Publications:

Remy, L.L., Clay T., Byers, V., **Rosenfeld P. E.** (2019) Hospital, Health, and Community Burden After Oil Refinery Fires, Richmond, California 2007 and 2012. *Environmental Health*. 18:48

Simons, R.A., Seo, Y. **Rosenfeld, P.**, (2015) Modeling the Effect of Refinery Emission On Residential Property Value. *Journal of Real Estate Research*. 27(3):321-342

Chen, J. A., Zapata A. R., Sutherland A. J., Molmen, D.R., Chow, B. S., Wu, L. E., **Rosenfeld, P. E.**, Hesse, R. C., (2012) Sulfur Dioxide and Volatile Organic Compound Exposure To A Community In Texas City Texas Evaluated Using Aermol and Empirical Data. *American Journal of Environmental Science*, 8(6), 622-632.

Rosenfeld, P.E. & Feng, L. (2011). *The Risks of Hazardous Waste*. Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2011). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Agrochemical Industry*, Amsterdam: Elsevier Publishing.

Gonzalez, J., Feng, L., Sutherland, A., Waller, C., Sok, H., Hesse, R., **Rosenfeld, P.** (2010). PCBs and Dioxins/Furans in Attic Dust Collected Near Former PCB Production and Secondary Copper Facilities in Sauget, IL. *Procedia Environmental Sciences*. 113–125.

Feng, L., Wu, C., Tam, L., Sutherland, A.J., Clark, J.J., **Rosenfeld, P.E.** (2010). Dioxin and Furan Blood Lipid and Attic Dust Concentrations in Populations Living Near Four Wood Treatment Facilities in the United States. *Journal of Environmental Health*. 73(6), 34-46.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2010). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Wood and Paper Industries*. Amsterdam: Elsevier Publishing.

Cheremisinoff, N.P., & **Rosenfeld, P.E.** (2009). *Handbook of Pollution Prevention and Cleaner Production: Best Practices in the Petroleum Industry*. Amsterdam: Elsevier Publishing.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P.** (2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. *WIT Transactions on Ecology and the Environment, Air Pollution*, 123 (17), 319-327.

Tam L. K., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). A Statistical Analysis Of Attic Dust And Blood Lipid Concentrations Of Tetrachloro-p-Dibenzodioxin (TCDD) Toxicity Equivalency Quotients (TEQ) In Two Populations Near Wood Treatment Facilities. *Organohalogen Compounds*, 70, 002252-002255.

Tam L. K., Wu C. D., Clark J. J. and **Rosenfeld, P.E.** (2008). Methods For Collect Samples For Assessing Dioxins And Other Environmental Contaminants In Attic Dust: A Review. *Organohalogen Compounds*, 70, 000527-000530.

Hensley, A.R. A. Scott, J. J. J. Clark, **Rosenfeld, P.E.** (2007). Attic Dust and Human Blood Samples Collected near a Former Wood Treatment Facility. *Environmental Research*. 105, 194-197.

Rosenfeld, P.E., J. J. J. Clark, A. R. Hensley, M. Suffet. (2007). The Use of an Odor Wheel Classification for Evaluation of Human Health Risk Criteria for Compost Facilities. *Water Science & Technology* 55(5), 345-357.

Rosenfeld, P. E., M. Suffet. (2007). The Anatomy Of Odour Wheels For Odours Of Drinking Water, Wastewater, Compost And The Urban Environment. *Water Science & Technology* 55(5), 335-344.

Sullivan, P. J. Clark, J.J.J., Agardy, F. J., **Rosenfeld, P.E.** (2007). *Toxic Legacy, Synthetic Toxins in the Food, Water, and Air in American Cities*. Boston Massachusetts: Elsevier Publishing

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash. *Water Science and Technology*. 49(9),171-178.

Rosenfeld P. E., J.J. Clark, I.H. (Mel) Suffet (2004). The Value of An Odor-Quality-Wheel Classification Scheme For The Urban Environment. *Water Environment Federation's Technical Exhibition and Conference (WEFTEC) 2004*. New Orleans, October 2-6, 2004.

Rosenfeld, P.E., and Suffet, I.H. (2004). Understanding Odorants Associated With Compost, Biomass Facilities, and the Land Application of Biosolids. *Water Science and Technology*. 49(9), 193-199.

Rosenfeld, P.E., and Suffet I.H. (2004). Control of Compost Odor Using High Carbon Wood Ash, *Water Science and Technology*, 49(9), 171-178.

Rosenfeld, P. E., Grey, M. A., Sellew, P. (2004). Measurement of Biosolids Odor and Odorant Emissions from Windrows, Static Pile and Biofilter. *Water Environment Research*. 76(4), 310-315.

Rosenfeld, P.E., Grey, M and Suffet, M. (2002). Compost Demonstration Project, Sacramento California Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Integrated Waste Management Board Public Affairs Office*, Publications Clearinghouse (MS-6), Sacramento, CA Publication #442-02-008.

Rosenfeld, P.E., and C.L. Henry. (2001). Characterization of odor emissions from three different biosolids. *Water Soil and Air Pollution*. 127(1-4), 173-191.

Rosenfeld, P.E., and Henry C. L., (2000). Wood ash control of odor emissions from biosolids application. *Journal of Environmental Quality*. 29, 1662-1668.

Rosenfeld, P.E., C.L. Henry and D. Bennett. (2001). Wastewater dewatering polymer affect on biosolids odor emissions and microbial activity. *Water Environment Research*. 73(4), 363-367.

Rosenfeld, P.E., and C.L. Henry. (2001). Activated Carbon and Wood Ash Sorption of Wastewater, Compost, and Biosolids Odorants. *Water Environment Research*, 73, 388-393.

Rosenfeld, P.E., and Henry C. L., (2001). High carbon wood ash effect on biosolids microbial activity and odor. *Water Environment Research*. 131(1-4), 247-262.

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Chollack, T. and P. Rosenfeld. (1998). Compost Amendment Handbook For Landscaping. Prepared for and distributed by the City of Redmond, Washington State.

Rosenfeld, P. E. (1992). The Mount Liamuiga Crater Trail. *Heritage Magazine of St. Kitts*, 3(2).

Rosenfeld, P. E. (1993). High School Biogas Project to Prevent Deforestation On St. Kitts. *Biomass Users Network*, 7(1).

Rosenfeld, P. E. (1998). Characterization, Quantification, and Control of Odor Emissions From Biosolids Application To Forest Soil. Doctoral Thesis. University of Washington College of Forest Resources.

Rosenfeld, P. E. (1994). Potential Utilization of Small Diameter Trees on Sierra County Public Land. Masters thesis reprinted by the Sierra County Economic Council. Sierra County, California.

Rosenfeld, P. E. (1991). How to Build a Small Rural Anaerobic Digester & Uses Of Biogas In The First And Third World. Bachelors Thesis. University of California.

Presentations:

Rosenfeld, P.E., Sutherland, A; Hesse, R.; Zapata, A. (October 3-6, 2013). Air dispersion modeling of volatile organic emissions from multiple natural gas wells in Decatur, TX. *44th Western Regional Meeting, American Chemical Society*. Lecture conducted from Santa Clara, CA.

Sok, H.L.; Waller, C.C.; Feng, L.; Gonzalez, J.; Sutherland, A.J.; Wisdom-Stack, T.; Sahai, R.K.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Atrazine: A Persistent Pesticide in Urban Drinking Water. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Feng, L.; Gonzalez, J.; Sok, H.L.; Sutherland, A.J.; Waller, C.C.; Wisdom-Stack, T.; Sahai, R.K.; La, M.; Hesse, R.C.; **Rosenfeld, P.E.** (June 20-23, 2010). Bringing Environmental Justice to East St. Louis, Illinois. *Urban Environmental Pollution*. Lecture conducted from Boston, MA.

Rosenfeld, P.E. (April 19-23, 2009). Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*, Lecture conducted from Tuscon, AZ.

Rosenfeld, P.E. (April 19-23, 2009). Cost to Filter Atrazine Contamination from Drinking Water in the United States” Contamination in Drinking Water From the Use of Aqueous Film Forming Foams (AFFF) at Airports in the United States. *2009 Ground Water Summit and 2009 Ground Water Protection Council Spring Meeting*. Lecture conducted from Tuscon, AZ.

Wu, C., Tam, L., Clark, J., **Rosenfeld, P.** (20-22 July, 2009). Dioxin and furan blood lipid concentrations in populations living near four wood treatment facilities in the United States. Brebbia, C.A. and Popov, V., eds., *Air Pollution XVII: Proceedings of the Seventeenth International Conference on Modeling, Monitoring and Management of Air Pollution*. Lecture conducted from Tallinn, Estonia.

Rosenfeld, P. E. (October 15-18, 2007). Moss Point Community Exposure To Contaminants From A Releasing Facility. *The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld, P. E. (October 15-18, 2007). The Repeated Trespass of Tritium-Contaminated Water Into A Surrounding Community Form Repeated Waste Spills From A Nuclear Power Plant. *The 23rd Annual International Conferences on Soils Sediment and Water*. Platform lecture conducted from University of Massachusetts, Amherst MA.

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Rosenfeld, P. E. (October 15-18, 2007). Somerville Community Exposure To Contaminants From Wood Treatment Facility Emissions. The 23rd Annual International Conferences on Soils Sediment and Water. Lecture conducted from University of Massachusetts, Amherst MA.

Rosenfeld P. E. (March 2007). Production, Chemical Properties, Toxicology, & Treatment Case Studies of 1,2,3-Trichloropropane (TCP). *The Association for Environmental Health and Sciences (AEHS) Annual Meeting*. Lecture conducted from San Diego, CA.

Rosenfeld P. E. (March 2007). Blood and Attic Sampling for Dioxin/Furan, PAH, and Metal Exposure in Florala, Alabama. *The AEHS Annual Meeting*. Lecture conducted from San Diego, CA.

Hensley A.R., Scott, A., **Rosenfeld P.E.**, Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.**, Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition*. Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference*. Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference*. Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

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Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants..* Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conference*. Lecture conducted from Indianapolis, Maryland.

Rosenfeld, P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation*. Lecture conducted from Anaheim California.

Rosenfeld, P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest*. Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell*. Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest*. Lecture conducted from Lake Chelan, Washington.

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Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. \$41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: \$10,000 grant awarded to San Diego State University. Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. \$100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. \$20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: \$10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: \$15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. \$500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

**Comment Letter No. 15: Adams, Broadwell, Joseph, and Cardozo
Deposition and/or Trial Testimony:**

In the Circuit Court of Jackson County, Missouri

Christopher Blaine King, *Plaintiffs*, vs. Holiday Sand & Gravel Co, LLC, *Defendant*.

Case No.: 1716-CV10006

Rosenfeld Deposition. 8-30-2019

In the United States District Court For The District of New Jersey

Duarte et al, *Plaintiffs*, vs. United States Metals Refining Company et. al. *Defendant*.

Case No.: 2:17-cv-01624-ES-SCM

Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division

M/T Carla Maersk, *Plaintiffs*, vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS “Conti Perdido”
Defendant.

Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237

Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica

Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants

Case No.: No. BC615636

Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica

The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants

Case No.: No. BC646857

Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado

Bells et al. Plaintiff vs. The 3M Company et al., Defendants

Case: No 1:16-cv-02531-RBJ

Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District

Phillip Bales et al., Plaintiff vs. Dow Agrosiences, LLC, et al., Defendants

Cause No 1923

Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa

Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants

Cause No C12-01481

Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois

Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants

Case No.: No. 0i9-L-2295

Rosenfeld Deposition, 8-23-2017

In The Superior Court of the State of California, For The County of Los Angeles

Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC

Case No.: LC102019 (c/w BC582154)

Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

Comment Letter No. 15: Adams, Broadwell, Joseph, and Cardozo

In the Northern District Court of Mississippi, Greenville Division

Brenda J. Cooper, et al., *Plaintiffs*, vs. Meritor Inc., et al., *Defendants*

Case Number: 4:16-cv-52-DMB-JVM

Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish

Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants

Case No.: No. 13-2-03987-5

Rosenfeld Deposition, February 2017

Trial, March 2017

In The Superior Court of the State of California, County of Alameda

Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants

Case No.: RG14711115

Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County

Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants

Case No.: LALA002187

Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County

Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants

Law No.: LALA105144 - Division A

Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County

Doug Pauls, et al., et al., Plaintiffs vs. Richard Warren, et al., Defendants

Law No.: LALA105144 - Division A

Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia

Robert Andrews, et al. v. Antero, et al.

Civil Action N0. 14-C-30000

Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico

Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward

DeRuyter, Defendants

Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County

Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant

Case No 4980

Rosenfeld Deposition: May 2015

In the Circuit Court of the 17th Judicial Circuit, in and For Broward County, Florida

Walter Hinton, et. al. Plaintiff, vs. City of Fort Lauderdale, Florida, a Municipality, Defendant.

Case Number CACE07030358 (26)

Rosenfeld Deposition: December 2014

In the United States District Court Western District of Oklahoma

Tommy McCarty, et al., Plaintiffs, v. Oklahoma City Landfill, LLC d/b/a Southeast Oklahoma City Landfill, et al. Defendants.

Case No. 5:12-cv-01152-C

Rosenfeld Deposition: July 2014

Comment Letter No. 15: Adams, Broadwell, Joseph, and Cardozo

In the County Court of Dallas County Texas

Lisa Parr et al, *Plaintiff*, vs. Aruba et al, *Defendant*.

Case Number cc-11-01650-E

Rosenfeld Deposition: March and September 2013

Rosenfeld Trial: April 2014

In the Court of Common Pleas of Tuscarawas County Ohio

John Michael Abicht, et al., *Plaintiffs*, vs. Republic Services, Inc., et al., *Defendants*

Case Number: 2008 CT 10 0741 (Cons. w/ 2009 CV 10 0987)

Rosenfeld Deposition: October 2012

In the United States District Court of Southern District of Texas Galveston Division

Kyle Cannon, Eugene Donovan, Genaro Ramirez, Carol Sassler, and Harvey Walton, each Individually and on behalf of those similarly situated, *Plaintiffs*, vs. BP Products North America, Inc., *Defendant*.

Case 3:10-cv-00622

Rosenfeld Deposition: February 2012

Rosenfeld Trial: April 2013

In the Circuit Court of Baltimore County Maryland

Philip E. Cvach, II et al., *Plaintiffs* vs. Two Farms, Inc. d/b/a Royal Farms, Defendants

Case Number: 03-C-12-012487 OT

Rosenfeld Deposition: September 2013

Response to Comment Letter 15: Adams, Broadwell, Joseph & Cardozo (March 20, 2020)

- 15-A:** The commenter states they are writing on behalf of Citizens for Responsible Solar to provide comments on the Draft EIR. The commenter provides a brief summary of the proposed project and the permanent facilities that would be installed with project implementation. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.
- 15-B:** The commenter provides a summary of the comments discussed in the letter and lists the four reasons why it believes the Draft EIR is deficient: the Draft EIR fails to properly establish the environmental setting for and adequately disclose analyze and mitigate the project's impacts on biological resources; the Draft EIR fails to adequately disclose, analyze, and mitigate the project's impacts on air quality and public health; the Draft EIR fails to disclose, analyze, and mitigate potentially significant impacts on climate change from greenhouse gas emissions, and; the Draft EIR fails to adequately disclose, analyze, and mitigate impacts from Valley Fever on public health. These issues are responded to in Response to Comments 15-G through 15-E4, below. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.
- 15-C:** The commenter notes that the provided comments were prepared with the assistance of Renee Owens (Exhibit A of Comment Letter 15) and Soil/Water/Air Protection Enterprise (SWAPE; Exhibit B of Comment Letter 15). The commenter paraphrases these comments. Therefore, responses to the comments noted in Exhibit A and Exhibit B is included in this document.
- 15-D:** The comment further describes the individuals and labor organizations which are represented by the commenter and that they have an interest in enforcing environmental laws that encourage sustainable development, ensure a safe working environment, as well as pursuing projects without providing countervailing economic benefits. Comment noted. This comment does not raise an issue related to the adequacy of the Draft EIR; therefore, no further response is necessary.
- 15-E:** The comment summarizes some of the legal background and requirements for CEQA. Comment noted. This comment does not raise an issue related to the adequacy of the Draft EIR; therefore, no further response is necessary.
- 15-F:** The comment summarizes some additional information regarding the legal background and requirements for CEQA. Comment noted. This comment does not raise an issue related to the adequacy of the Draft EIR; therefore, no further response is necessary.
- 15-G:** This comment states that the Draft EIR fails to properly disclose, analyze, and mitigate the project's significant impacts on biological resources, air quality, public health, and climate change. The comment also states that some of the proposed mitigation measures fail to mitigate the impact to a less than significant level or to the degree purported by the Draft EIR, and that some mitigation measures are missing.
- This comment is a summary of the commenter's claims that the Draft EIR fails to disclose, analyze, and mitigate the project's significant impacts. Comments specific to each topic are addressed in Response to Comments 15-H through 15-E4, below. The comment has been noted for the record and revisions to the Draft EIR are not necessary.
- 15-H:** The commenter states that the Draft EIR fails to determine the presence of several special-status species, fails to properly describe the environmental setting, and fails to adequately disclose, analyze and mitigate the project's impacts on numerous biological resources. This comment is an

introduction to Comments 15-I through 15-M2. Respectively, responses to these specific comments are provided in Response to Comment 15-I through 15-M2, below. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

- 15-I:** The commenter states that the Draft EIR fails to properly describe the environmental setting for the likelihood of several special-status species to occur due to the use of database queries, literature review, and reconnaissance surveys and lack of focused or protocol surveys. This comment is an introduction to Comments 15-M through 15-M2. Respectively, responses to these specific comments are provided in Response to Comment 15-M through 15-M2, below. This comment does not otherwise raise a substantive issue on the content of the EIR.

The commenter states that “some species (i.e. burrowing owl, raptor, eagles, MBTA nesting birds, SSC reptiles and mammals) should be surveyed by conducting entirely separate, focused surveys” and “A focused survey avoids splitting the biologist’s time attempting a protocol , habitat, or reconnaissance survey, while attempting to observe the ground, vegetation, underground (denning and burrowing species) and skies all at once for any vertebrate, invertebrate, and plant species that may also be present at any given time on and near the site.”

“CEQA does not require a lead agency to conduct every recommended test and perform all recommended research to evaluate the impacts of a proposed project. The fact that additional studies might be helpful does not mean that they are required.” *Ass’n of Irrigated Residents v. Cty. of Madera*, (2003) 107 Cal. App. 4th 1383, 1396, 133 Cal. Rptr. 2d 718. Consequently, CEQA does not contain a blanket requirement that agencies conduct focused, protocol-level surveys. *Id.*

Here, focused protocol surveys were conducted for desert tortoise, vegetation including Joshua trees, and rare plant species. The commenter implies that biological observations during any site visit activities are not warranted or cannot be observed or used for presence or absence of a species. For example, certainly burrowing owl burrows, desert kit fox and badger dens can be discovered while on a protocol level desert tortoise survey (see comment 15-J). Focused eagle surveys are not warranted for this project (see response 15-N). Focused surveys for nesting Swainson’s hawk have been included to the EIR (see response Letter 13, comment C), and addresses the impacts to foraging migratory birds, including raptors (see response 15-J and 15-S). Focused nesting bird surveys will occur prior to construction stages in areas for immediate development and are included in the Mitigation Measures within the DEIR (See response Letter 13, comment F).

The comment has been noted for the record.

- 15-J:** The commenter states that the Draft EIR makes little attempt to use focused surveys to determine current site-specific status of special-status species instead relying on general habitat assessments and databases, as well as reconnaissance surveys.

Here and elsewhere, the commenter’s assertions imply that CEQA requires new studies until all uncertainty regarding existing environmental conditions or a project’s impacts thereon have been removed. This is incorrect. As the California Supreme Court has emphasized, an EIR need not achieve “technical perfection or scientific certainty.” *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 515. Instead, CEQA requires “adequacy, completeness, and a good-faith effort at full disclosure.” CEQA Guidelines § 15003(i). The appropriate degree of specificity and analysis a given issue warrants depends on “the nature of the project and the rule of reason.” *North Coast Rivers Alliance v. Kawamura* (2015) 243 Cal.App.4th 647, 679; *see also* CEQA Guidelines Section 15151 (“An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.”).

“CEQA does not require a lead agency to conduct every recommended test and perform all recommended research to evaluate the impacts of a proposed project. The fact that additional studies might be helpful does not mean that they are required.” *Ass'n of Irrigated Residents v. Cty. of Madera*, (2003) 107 Cal. App. 4th 1383, 1396, 133 Cal. Rptr. 2d 718. Consequently, CEQA does not contain a blanket requirement that agencies conduct focused or protocol-level surveys. *See Id.* In addition, see the Response to Comment 15-I for a discussion of surveys conducted at the project site, as well as the Response to Comment 13-B.

In addition to database searches, including CNDDDB and CNPS, and reconnaissance-level biological surveys, where appropriate, focused surveys were conducted for rare plants, desert tortoise and Swainson's hawk (as detailed in Section 4.3 of the Biological Technical Report, Appendix E of the Draft EIR). It is not reasonably feasible to conduct focused surveys for every special-status species that could conceivably be found at the project site. The comment has been noted for the record and revisions to the Draft EIR are not necessary.

- 15-K:** The commenter states that the Draft EIR does not consider widely accepted considerations for studying the presence of species such as migrating species. The comment also states that the Draft EIR fails to acknowledge that rare species tend to occur in lower densities and occurrences on average making them more difficult to observe in the absence of focused or protocol surveys, and asserts that the DEIR cannot make determinations based on databases that do not account for these considerations.

The Draft EIR utilized a combination of widely accepted sources for determining the presence of species including database searches, literature review, reconnaissance surveys and focused surveys as described in Section 4.4 of the Draft EIR. This analysis addresses the extent to which species may migrate through the project site. *See* Draft EIR p. 4.4-21, 4.4-23, 4.4-53 to 4.4-54. With respect to the commenter's assertion that the DEIR must be revised to include focused and protocol surveys that properly reflect the existing setting, please see the Response to Comment 15-J. The comment has been noted for the record and revisions to the Draft EIR are not necessary.

- 15-L:** The commenter states that the Draft EIR incorrectly analyzes the presence of various potentially occurring special-status species by determining them as absent or having low potential to occur and therefore concluding that impacts would be less than significant. The comment also states that substantial evidence exists to demonstrate that these species are present in the vicinity of the project and the Draft EIR must adequately identify and analyze impacts to these species. This comment is an introduction to Comments 15-M through 15-M2. Respectively, responses to these specific comments are provided in Response to Comment 15-M through 15-M2, below. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

- 15-M:** This comment addresses tricolored blackbird and states that the Draft EIR does not adequately disclose or analyze impacts to this species. The commenter cites the Catalina EIR: “According to the Catalina Renewable Energy Project – a facility located just one mile west of the Project -the tricolored blackbird was determined to be present within the proposed project property...” The approximately 6,000 acres Catalina project site has different habitats than that of the AV Apollo project. Catalina has land in the foothills that are at higher elevations and includes nearby active irrigated agricultural lands, more suitable habitat for the tricolored blackbird. AV Apollo has neither type of habitat and therefore, is not anticipated to have the same types of species, including the tricolored blackbird.

The CESA status of tricolored blackbird was changed during the preparation of the Draft. CEQA caselaw holds that a change in the listing status of a species is irrelevant if effects on the species are properly analyzed. *Chaparral Greens v. City of Chula Vista* (1996) 50 Cal. App. 4th 1134, 1149.

The Final EIR will be revised to reflect its listing as state threatened as shown below in its entry in Table 4.4-2. Information gathered after 2015, including CNDDDB records, eBird records, and information in the Catalina EIR, all report sightings of tricolored blackbirds approximately one to six miles south of the project site, in an area where there are wetland resources. No such resources occur on the project site, but flyovers of this species could occur. Nonetheless and as the Draft EIR states, no suitable habitat for this species occurs on site. Therefore, no impacts to tricolored blackbird will occur as a result of the proposed project. The comment has been noted for the record and further revisions to the Draft EIR are not necessary.

<i>Agelaius tricolor</i>	tricolored blackbird	None	<u>SSCST</u> ¹	Requires open water, protected nesting substrate and foraging area with insect prey within a few kilometers of the colony.	Unlikely. Habitat to support this species is absent from the project site. This species was not observed during the project surveys.
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15-N: The comment addresses golden eagles and states that the Draft EIR does not adequately disclose or analyze impacts to this species. There are no known or recorded golden eagle nest sites within 5-miles in the CNDDDB data base search. The most recorded sightings of golden eagles were recorded in 2010 approximately 5-miles to the south. There are recorded nest sites approximately 10 miles northwest of the project site but have not been updated since 2013. While the DEIR acknowledges that raptors, including golden eagles, may conduct some foraging on or migrate through the project site, there is no evidence that if converted to a solar facility, impacts on golden eagles would be significant due to the fact that golden eagles have not been seen foraging onsite, are not using the project site for foraging, and the golden eagle foraging habitat on the project site is of low quality. While availability of potential foraging habitat would be reduced or lost during construction, this reduction would not be a significant impact on an existing important foraging area, particularly when considered with the available remaining foraging habitat surrounding the project site in agricultural fields, along drainages, desert scrub habitat to the east, and among the foothills to the north and south.

15-O: The commenter states that the Draft EIR must be revised to analyze the impacts on golden eagles due to their presence in the project vicinity and determine feasible mitigation measures to avoid or reduce impacts. The USGS Golden Eagle Monitoring Plan is provided as evidence that solar energy projects can be a significant cause of mortality in golden eagles through collisions or electrocutions. The USGS Golden Eagle Monitoring Plan cited by the commenter states that solar and wind projects create additional collision and electrocution threats to golden eagles. However, the project will not require any new power lines (the cause of electrocution threats), and will not include any structures comparable to wind turbines. In addition, please see the Response to Comment 15-N.

15-P: The commenter includes additional information regarding the Golden Eagle Monitoring Plan including recommended protocols such as assessing all existing recent and historical background data on eagles. The comment also provides information regarding eagle flight distances from nests to foraging habitats of up to and beyond 30 miles which it asserts necessitate focused surveys that can properly evaluate their foraging habitat. See the Response to Comments 15-J and 15-N. Because there are no known golden eagle nests within ten miles of the Project site, the project site provides low quality foraging habitat, and there is no evidence of golden eagles foraging on the project site, exhaustive studies are not warranted for this project.

15-Q: The comment addresses ferruginous hawks and states that the Draft EIR does not adequately disclose or analyze impacts to this species. The Draft EIR addresses ‘prairie falcon and other

foraging raptors' which includes ferruginous hawks, stating while availability of potential foraging habitat would be reduced or lost during construction, this reduction would not be a significant impact on an existing important foraging area, particularly when considered with the available remaining foraging habitat surrounding the project site in agricultural fields, along drainages, and among the foothills to the north and south.

The commenter cites three individual ferruginous hawk flying over the Catalina project site in 2011 as proof that the AV Apollo project site contains suitable winter foraging habitat. However, this is untrue. The habitats differ between the two projects: Catalina habitat includes the foothill habitat from the Tehachapi mountains where the AV Apollo project does not. To the extent the project site may contain suitable foraging habitat for wintering ferruginous hawk, the overall habitat loss is less than significant, particularly in context of the surrounding habitat as a whole. Therefore, less than significant impacts to ferruginous hawks will occur as a result of the proposed project. The comment has been noted for the record and revisions to the Draft EIR are not necessary.

- 15-R:** The comment addresses mountain plover and states that the Draft EIR does not adequately disclose or analyze impacts to this species. The comment states the species, when wintering in California, occurs in "fallow, grazed, burned, barren fields, and low density shrublands," and is known to forage on and in proximity to agricultural pastures and xeric shrublands. The vegetation communities on site would not constitute wintering habitat as the comment describes. Therefore, no habitat is present for this species other than, perhaps, transient individuals migrating through the area. The commenter states that eBird sightings note that this species has been present approximately six miles south of the project site. However, that area contains agricultural lands and other land uses that provide suitable habitat, whereas the Project site does not contain habitat suitable to support large flocks of wintering mountain plovers. A sighting of mountain plovers several miles from the project site is consistent with the Lead Agency's finding that the project site may be used infrequently by transient individuals migrating through the area. Again, there is no suitable wintering habitat on the project, and there is no evidence to support the claim that the project site would be considered an important wintering habitat for mountain plover.

The comment has been noted for the record and revisions to the Draft EIR are not necessary.

- 15-S:** The comment addresses merlins and states that the Draft EIR does not adequately disclose or analyze impacts to this species. The Draft EIR addresses 'prairie falcon and other foraging raptors' which includes merlin, stating while availability of potential foraging habitat would be reduced or lost during construction, this reduction would not be a significant impact on an existing important foraging area, particularly when considered with the available remaining foraging habitat surrounding the project site in agricultural fields, along drainages, and among the foothills to the north and south.

The commenter cites individuals flying over the Catalina project site in 2010 as proof that the AV Apollo project site contains suitable winter foraging habitat. The habitats differ between the two projects, Catalina habitat also includes the foothill and drainage habitat, better suited foraging habitat for foraging merlin. The AV Apollo project does not contain these habitats. Though the Apollo site may contain suitable foraging habitat for wintering merlin, any overall habitat loss is less than significant compared to the surrounding habitat as a whole.

Therefore, less-than-significant impacts to merlins will occur as a result of the proposed project. The comment has been noted for the record and revisions to the Draft EIR are not necessary.

- 15-T:** The comment addresses peregrine falcon and states that the Draft EIR does not adequately disclose or analyze impacts to this species. Peregrin falcons breed in nests on cliff faces in California, and their breeding habitat is limited to coastal areas (Cornell Lab). There is some potential for the

species to forage in the Antelope Valley as a migrant but no suitable nesting habitat exists in the project vicinity.

The Draft EIR accurately addresses ‘prairie falcon and other foraging raptors’ that includes peregrine falcons, stating while availability of potential foraging habitat would be reduced or lost during construction, this reduction would not be a significant impact on an existing important foraging area, particularly when considered with the available remaining foraging habitat surrounding the project site in agricultural fields, along drainages, and among the foothills to the north and south. Therefore, no significant impacts to peregrine falcons will occur as a result of the proposed project. The comment has been noted for the record and revisions to the Draft EIR are not necessary.

- 15-U:** The commenter states that the Draft EIR provides no evidence of what surveys were conducted to determine the lack of Mohave ground squirrel observations noted and that focused rodent surveys were not conducted. The potential to occur for Mohave ground squirrel was found to be unlikely due to the species being considered extirpated from the project site and vicinity and absence of reported occurrences within 10 miles of the project site (Table 4.4-2 of the Draft EIR). Table 4.4-2 of the Draft EIR has been revised to note the lack of positive results for focused surveys conducted on adjacent solar developments. As such, focused surveys for the species were not warranted or conducted. For a discussion of CEQA’s requirements with respect to surveys, see the Response to Comment 15-J. The comment has been noted for the record and further revisions to the Draft EIR are not necessary.

<i>Xerospermophilus mohavensis</i>	Mohave ground squirrel	None	ST ²	Inhabits open desert scrub, alkali scrub, and Joshua tree woodland; feeds in annual grassland; restricted to Mojave Desert. Prefers sandy to gravelly soils. Species nests in burrows.	Unlikely. Potentially suitable habitat exists within the project site; however, the species is considered extirpated west of SR 14 and south of SR 58. No occurrences of this species have been reported within 10 miles of the project site, <u>and focused survey results for several adjacent solar developments were all negative.</u>
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- 15-V:** The commenter states that the Draft EIR provides no evidence of what surveys were conducted to support the lack of San Joaquin pocket mouse observations stated and that focused rodent surveys were not conducted. The Draft EIR does not mention or include analysis of San Joaquin pocket mouse. The San Joaquin pocket mouse is endemic the San Joaquin Valley of California and it is not a resident of the Mojave desert. CNDDDB records are not verified or vetted in any way so it is an easy matter for erroneous records or misidentification to be included in the CNDDDB. In addition, the habitat present at the Catalina project differs substantially from the habitat present at the project site. Please also see the Response to Comment 15-J. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

- 15-W:** The commenter states that the Draft EIR provides no evidence of what surveys were conducted to support the lack of Tehachapi pocket mouse observations stated and that focused rodent surveys were not conducted. The comment also states that CNDDDB records occur at two locations

approximately one mile from the project. The potential to occur for Tehachapi pocket mouse was found to be unlikely due to the species not being observed in more than 50 years (Table 4.4-2 of the Draft EIR). Table 4.4-2 of the Draft EIR has been revised to upgrade the potential to occur from unlikely to low and also notes the two nearby CNDDDB occurrences and typical elevation range of the species which is greater than the elevation of the project site. In fact, there are no reliable records of the Tehachapi pocket mouse in the vicinity of the Project and the most recent record of this species within its historic range is from 1983. As such, focused surveys for the species were not warranted or conducted. For a discussion of CEQA's requirements with respect to surveys, see the Response to Comment 15-J. The comment has been noted for the record and further revisions to the Draft EIR are not necessary.

- 15-X:** The commenter states that the Draft EIR inaccurately concludes the Tulare grasshopper mouse as unlikely to occur without conducting focused rodent surveys. The comment states that the Draft EIR notes that the project site is outside the range of the species but CNDDDB records for the species occur north of the project. The comment also states that the Draft EIR surmises that the CNDDDB records for the species are likely for the more common southern grasshopper mouse.

For a discussion of CEQA's requirements with respect to surveys, see the Response to Comment 15-J. The Tulare grasshopper mouse and San Joaquin pocket mouse are endemic to the Central Valley portion of the State, not the high desert. Additionally, as noted in *Terrestrial Mammal Species of Special Concern in California*, the project site is outside the known range of these species (Bolster, B.C., 1998). Therefore, it is highly unlikely this species will occur on site. The project site is noted as being located outside the species range (Table 4.4-2 of the Draft EIR). As such, focused surveys for the species were not warranted or conducted. The comment has been noted for the record and no revisions to the Draft EIR are necessary.

- 15-Y:** The commenter states that the Draft EIR provides no evidence of what surveys were conducted to support the lack of observations of the species as focused bat surveys were not conducted. The commenter also states that the Draft EIR fails to assess or discuss impacts to bats. The commenter provides general information about bats and various anthropogenic impacts on them, as well as generalized statements about how properly to evaluate impacts. The commenter states that the Draft EIR erred in particular by not discussing the presence, surveys or impacts to bats because the Catalina Renewable Project Draft EIR surveys detected two special-status bat species.

As explained in the Draft EIR, impacts with respect to bats would be significant if the project had a substantial adverse effect on any bat species identified as candidate, sensitive, or special-status in local or regional plans, policies, or regulations, or by CDFW or the USFWS. See Draft EIR at 4.4-31. There is no suitable roosting sites on the project site and there is no evidence that such bat species are likely to be present at the project site with the exception of the Townsend's big ear bat. There is no roosting habitat for this species, but suitable foraging habitat exist. Impacts to this species are expected to be less than significant.

The Draft EIR concludes that there is a lack of suitable roosting habitat for Townsend's big-eared bat and that it was not observed during the time of the reconnaissance survey, protocol level desert tortoise surveys, and subsequent floristics surveys as well as the delineation surveys conducted for the project. Other special status bat species were not analyzed in the EIR. Focused bat surveys were not warranted or conducted. For a discussion of CEQA's requirements with respect to surveys, see the Response to Comment 15-J. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

- 15-Z:** The commenter states that the DRECP identified Townsend's big-eared bat as having a high likelihood to occur in and around the project site and that research has demonstrated that artificial light, electrical wires, noise, dust, barriers and other negative attractants can increase the risk of

mortality and reduce foraging success of bats. The comment also states that the DEIR must conduct adequate surveys and analysis for bat species present onsite, including Townsend's big-eared bat.

Response to comment 15-Y also provides the response to this comment. With respect to the DREC maps referenced by commenter, these maps provide high-level, general information, but yield to project-specific information. As explained in the Response to Comment 15-Y, the Draft EIR's conclusion that there is a lack of suitable roosting habitat for Townsend's big-eared bat is based on multiple project-specific surveys. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

- 15-A2:** The commenter states that the Draft EIR states the project is outside the range of the coast horned lizard and therefore the species is unlikely to occur but does not provide evidence and failed to conduct reptile surveys, aside from those for desert tortoise. The comment also states that the Catalina EIR determined that the area is within the range for coast horned lizard.

The Draft EIR concludes that the project is outside the species' range but within the range of the southern desert horned lizard. *California Habitat Relations System* identifies the species inhabiting the western side of the Sierras, and its range is in the Central Valley, not the high desert east of the Sierra foothills. The species does not occur in creosote scrubland, which is predominant on the project site. The project site is outside the specie range and does not include suitable habitat to support the species on site (CDFW, 2000). Consequently, the surveys referenced by the commenter appear to have been in error. Therefore, focused surveys for coast horned lizard were not conducted. It should be noted that coast horned lizard does not have an approved survey protocol issued by USFWS or CDFW. For a discussion of CEQA's requirements with respect to surveys, see the Response to Comment 15-J. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

- 15-B2:** The commenter states that reptile species are susceptible to solar development projects, provides examples of potential impacts to reptiles and therefore must be analyzed in the Draft EIR. The comment also states that the Draft EIR must conduct a focused reptile survey given the potential for significant impacts to specific lizards and reptiles including the coast horned lizard.

For a discussion of CEQA's requirements with respect to surveys, see the Response to Comment 15-J. The Draft EIR analyzes three reptile species including silvery legless lizard, desert tortoise and coast horned lizard. Silvery legless lizard is considered unlikely to occur as suitable habitat was absent on the project site. The project site was determined to be outside the range of coast horned lizard as noted to in Response to Comment 15-A2. No further analysis of or surveys for silvery legless lizard and coast horned lizard is warranted. Desert tortoise is considered to have a low potential to occur and protocol surveys for the species was conducted. As such, desert tortoise is fully analyzed in the Draft EIR including mitigation measures to avoid impacts to the species as described under Response to Comments 15-AF and 15-G2. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

The commenter cites a number of studies on the effects of solar projects to lizard species. The studies focused on effects by vegetation characteristics, disturbed vs. native habitat use and others. Most of the studies focused primarily on non-listed species. None of these studies change the impact analysis of the EIR.

- 15-C2:** The commenter states the biology of Swainson's hawk and within the Draft EIR and indicates that CDFW considers conversion of foraging areas to renewable energy power plant facility sites to be habitat loss. The commenter also states that the loss of one pair would be considered significant and have a negative impact to the region's Swainson's hawk population. See comment Letter 14, Responses B-D and comment Letter 6, Response F.

15-D2: The commenter states that the Draft EIR relied solely on driving surveys during focused surveys for Swainson's hawk, contrary to CDFW guidance. The comment also states that the Draft EIR does not provide any information on the specifics of the Swainson's hawk surveys (where, when and how) and does not provide substantial evidence to support its determination that the Swainson's hawk is not present. The Biological Analysis Report prepared for the DEIR does specify dates and times of the survey periods for Swainson's hawk surveys. Though a majority of surveys were conducted by windshield search, all suitable nesting locations were observed utilizing this method given the topography and vegetative environment of the project site. The methods used were fully compatible with established survey protocols. Please also see comment Letter 14, Responses B-D, and comment Letter 6, Response F. For a discussion of CEQA's requirements with respect to surveys, please also see the Response to Comment 15-J.

15-E2: The commenter states the Draft EIR does not take into account substantial evidence to support Swainson's hawk use of the project area for foraging, nesting, or stopovers onsite and within less than five miles of the site. The commenter provides several sources of Swainson's hawk information including those from the Kern Audubon Society, Rosamond Solar Project, eBird database data, Catalina EIR and Manzana Wind EIR. The Swainson's hawk section of the DEIR has been clarified to include current nesting data, data that was unavailable at the time when the biological surveys were conducted. See comment Letter 14, Responses B-D and comment Letter 6, Response F. As explained therein, while these modifications add clarity to the EIR, they do not reflect a new or substantially increased significant impact or otherwise trigger recirculation under CEQA Guidelines Section 15088.5. The species is known to be in the area. The sources cited by the commenter merely note observations of individual hawks and nests. This does not change what was observed and noted in the DEIR, nor does it refute the DEIR's determinations. The commenter does not present any new evidence to show that with implementation of the required mitigation measures the project would impact nesting Swainson's hawk.

15-F2: The commenter states that the Draft EIR acknowledges a slight chance that desert tortoise could be encountered because of a single burrow detection during a protocol-level survey. The comment also states that the Draft EIR inaccurately determined that the project would result in no impacts to desert tortoise based on surveys conducted for nearby projects which determined very few desert tortoises inhabit the areas. The comment states that not observing desert tortoise during a survey is not indicative of its absence on the project and pointed out that the survey conducted for the Catalina EIR, which the Draft EIR refers to, reported potentially suitable habitat for the species, that the species was detected nearby and that a desert tortoise burrow was found on an adjacent property. The comment states that the Catalina EIR concluded that desert tortoise was assumed present. The comment finally states that the Project's consultant recommended mitigation measures specific to desert tortoise and that the Draft EIR provides no reason why it declines to incorporate the desert tortoise-specific measures recommended by the project's consultant.

See Comment Letter 13-Response 13-J.

The Catalina EIR noted that there was suitable habitat for DT, as does the project DEIR. The DEIR is consistent with the analysis in the Catalina EIR, and includes appropriate mitigation measures to reduce impact to DT to less than significant levels. The measures included in this DEIR already reduce impacts to DT impacts to less than significant levels, and further mitigation would not further substantially lessen impacts to DT. Because the DEIR's mitigation measures are sufficient to reduce impacts to DT to less than significant levels, no further mitigation is required.

The Draft EIR states that protocol-level surveys were conducted on the project site and resulted in the observation of a single Class 4 burrow which is characterized as good condition, possibly tortoise by USFWS. Desert tortoise or their sign, besides the Class 4 burrow, were not observed. Habitat was found to exist within the vicinity of the project and based on extensive desert tortoise

surveys conducted for nearby solar facility projects, concluded that very few desert tortoises inhabit the areas. The impact analysis for desert tortoise thus correctly determined that the species has a low potential to occur and that there is a slight chance that desert tortoise could be encountered on the project site during construction. For these reasons, the Draft EIR includes the following measures to avoid potential impacts to desert tortoise: MM 4.4-5 through MM 4.4-9. MM 4.4-5 requires construction monitoring by a qualified biologist. MM 4.4-6 requires all construction workers to attend an Environmental Awareness Training and Education Program. MM 4.4-7 requires pre-construction special-status species surveys and establishment of buffers. MM 4.4-8 details general avoidance and protective measures designed to avoid impacts to special status wildlife which include pre-construction surveys by a qualified biologist or biological monitor that has been approved by a biological monitor; staking and flagging of proposed impact areas prior to construction; and the installation and maintenance of temporary exclusion fencing to be constructed around the project site to prevent wildlife from entering the project site. MM 4.4-9 requires development of a Raven Management Plan to reduce attraction of ravens to the project site and their potential predation on desert tortoise. Mitigation Measure MM 4.4-6 through MM 4.4-9 will ensure that no impacts to desert tortoise will occur. The comment has been noted for the record and revisions to the Draft EIR are not necessary.

- 15-G2:** The commenter states that the Draft EIR's proposed mitigation measures fail to provide any specific detail on how, when and where observations for desert tortoise will be conducted by a biologist. The comment also states that desert tortoise surveys must be conducted daily and an on-call biologist would unreasonably require reliance on construction employees with limited to no biological knowledge or experience to contact a biologist. The comment states that it would be infeasible to find an on-call biologist to respond to immediate needs if desert tortoise or their burrow is discovered during construction or operations and that the Draft EIR does not specific the actual measures that would be implemented or performance standards that define the efficacy of the measure, before resuming construction. The comment states that mitigation measures proposed for desert tortoise are vague, infeasible and do no result in avoidance or reduction of impacts on desert tortoise and their habitat.

The commenter appears to misread the Draft EIR. The Draft EIR states that pre-construction surveys for desert tortoise will be conducted within 14 days of the portion of the project site that will be disturbed according to USFWS and/or CDFW preconstruction survey guidelines and that a suitable buffer shall be established by a qualified biologist that results in sufficient avoidance (MM 4.4-7). Pre-construction surveys for special-status species, including desert tortoise, will be conducted immediately prior to conducted construction or decommissioning activities by a qualified biologist or biological monitor that has been approved by a qualified biologist which shall also monitor all initial construction and decommissioning ground disturbance activities (MM 4.4-8). In addition, a qualified biologist shall monitor all initial ground-disturbance activities and remain on-call throughout construction in the event a desert tortoise wanders into the project site (MM 4.4-5). These measures, along with those identified in Response to Comment 15-F2, will ensure that impacts to desert tortoise will be less than significant. The comment has been noted for the record and revisions to the Draft EIR are not necessary.

- 15-H2:** The commenter states that the Draft EIR omits certain special-status species that nearby projects determined were present including southern grasshopper mouse, northern harrier, long-eared owl, Vaux's swift and LeConte's thrasher that were found to be present as concluded in the Catalina EIR and Manzanita EIR. The comment also states that these two EIRs also found foraging and potential roosting habitat for pallid bat, fringed myotis, western small-footed myotis, long-eared myotis, and Yuma myotis and since these projects are in close proximity to and host similar habitats, the Draft EIR should have identified and evaluated the presence of these species. The comment states that the Draft EIR fails to identify and assesses these species likelihood of occurrence near the project's vicinity and fails to identify and assess their likelihood of occurrence.

The Catalina project is a 5,000+ acre project that goes up into the foothills to the west of the project. The habitat at the Catalina project site differs from the habitat at the project site.

Northern harrier was not discussed separately in the Draft EIR's analysis because there is no suitable nesting habitat on the project site and the project is outside of the non-breeding habitat (Cornell Lab)., There is suitable foraging habitat on site but this species prefers to forage in more optimal habitats consisting of low growing vegetation such as that present in agricultural lands and grasslands, and marshes, which are not present on the project site. This species was not detected during surveys of the project site. As a result, project impacts to this species are expected to be less than significant. See Draft EIR Appendix E, p. 41 (this species not among those for which project has potential to cause significant issues). In response to this comment, the EIR has been clarified to specifically discuss this species. Nevertheless, the Draft EIR's discussion of impacts to migratory birds and raptors as well as prairie falcon and other foraging raptors necessarily encompasses northern harrier, as the northern harrier is a foraging raptor. See Draft EIR p. 4.4-35 to 4.4-36. While impacts to this species would be less than significant even without mitigation, the EIR nevertheless requires several mitigation measures designed to protect special-status species including northern harrier.

LeConte's thrasher is noted as having moderate potential to be on site. As the Biological Analysis Report for the project states, however, this species was not observed during project surveys. In response to this comment, the EIR has been clarified to specifically discuss this species. The Draft EIR's discussion of impacts to migratory birds and raptors necessarily encompasses LeConte's thrasher, a bird listed under the Migratory Bird Treaty Act. The EIR requires several mitigation measures designed to protect special status species including LeConte's thrasher. Mitigation Measure MM 4.4-7 requires a preconstruction survey for special status species including migratory birds prior to ground disturbance. Mitigation Measure MM 4.4-7 applies setback from active bird nests to protect breeding migratory birds. These measures are sufficient to protect the species and reduce impacts to less than significant levels.

As for the long eared owl, the project is not in the breeding range of this species (https://www.allaboutbirds.org/guide/Long-eared_Owl/lifehistory#). The project site does not provide suitable nesting habitat and is outside the species' breeding range. E-bird has no sightings from the project site – a sighting in another area nearby has no bearing on this project. This species needs trees – the project site has none. As a result, this species is unlikely to occur at the project site.

The project is outside the known breeding range of Vaux's swift but within its migratory pathway (https://www.allaboutbirds.org/guide/Vauxs_Swift). The species could be present as a transient during the migration season, but because the project has no suitable breeding habitat, it is unlikely to inhabit on the site.

The southern grasshopper mouse is classified a State species of concern. The species has a wide range and could inhabit the site, though it is unlikely to do so. There are no CNDDDB recordings of this species within 10 miles of the project site at the time of the project surveys. The project has 35 acres of land that will remain undisturbed. Although it is possible this species could occur at the project site, At the population level, the project would not have a substantial adverse effect on this species because of its wide ranging but uncommon presence throughout the Mojave desert. Therefore the project will not significantly impact the overall local population of the species and no additional mitigation is required.

The commenter cites wildlife observed on nearby projects including bird species. The Biological Analysis Report prepared for the DEIR did not observe the species cited by the commenter at the time of the surveys. Habitat conditions among these sites are similar, but substantially different in

important ways. The Catalina site is closer to agricultural lands and the foothills, where these species will be more common. Results from one project do not necessarily apply to another project, as indicated by the need to evaluate each project independently under CEQA. The Catalina site studies also included winter months where migrating species were observed and then the commenter inferred that the AV Apollo site must also contain these species during migration periods. Again, the habitat of Catalina is different to that of AV Apollo. Although migrating species may use the project site to forage, it would be for a brief period of time, since there is no suitable nesting habitat. In any event, the Draft EIR contains numerous mitigation measures to ensure that, in the event special-status species do occur at or around the project site, the project's impacts will be less than significant. The commenter cites potential roosting and foraging habitat for bat species including also states that these two EIRs also found foraging and potential roosting habitat for Townsend's bat, pallid bat, fringed myotis, western small-footed myotis, long-eared myotis, and Yuma myotis from nearby projects. The project site does not have potential roosting habitat for bats. No cliffs, trees, caves, structures or other suitable day or night roosting habitat exist on the project site (California Wildlife Habitat Relationship System (CDFW, nd). Additionally, the fringed myotis, western small-footed myotis, long-eared myotis, and Yuma myotis are not listed or special status species. Therefore, it is not necessary to provide an analysis of these species.

The DEIR identifies the potential for Townsend's big eared bat to occur on the site as low. There is no suitable roosting habitat on site, although it acknowledges the potential for the species to use the site for foraging. The project site provides little suitable bat foraging habitat, but the project may have minor temporary effects on foraging bats. The temporary loss of habitat is expected to be insignificant due to the huge expanse of similar and better quality foraging habitat surrounding the project site that includes desert scrub and agricultural fields to the north, south and east.

Regarding Pallid bat, as noted above, there is no suitable roosting habitat such as cliffs, trees, caves, structures or other suitable day or night roosting habitat, only foraging habitat exists on site. The likelihood for this species to inhabit the project is considered low.

<u>Onychomys torridus</u>	<u>Southern grasshopper mouse</u>	<u>None</u>	<u>ST²</u>	<u>Inhabits open desert scrub, alkali scrub, and Joshua tree woodland; feeds in annual grassland; restricted to Mojave Desert. Prefers sandy to gravelly soils. Species nests in burrows.</u>	<u>Unlikely. Potentially suitable habitat exists within the project site; however, the species is considered extirpated west of SR 14 and south of SR 58. No occurrences of this species have been reported within 10 miles of the project site, and focused survey results for several adjacent solar developments were all negative.</u>
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<u>Circus hudsonius</u>	<u>Northern harrier</u>	<u>None</u>	<u>SCS</u>	<u>Widely distributed; occurs in grasslands, lodgepole pine and alpine meadows, open rangelands, desert sinks, fresh and saltwater emergent wetlands, and coastal beach scrub/dune habitats; typically nests on the ground in dense vegetation, often on edges of marshes; feeds on small mammals, birds, frogs and other species; hunts on the wing by flying low over the ground, so open habitat is a requirement</u>	<u>Low.</u> <u>No suitable nesting habitat exists on the project site. Suitable foraging habitat exists on and near the project site, especially in the irrigated agricultural fields southeast of the project site.</u>
<u>Asio otus</u>	<u>Long-eared owl</u>		<u>SCS</u>	<u>This species roosts in dense vegetation and forage in open grasslands, shrublands, coniferous forests, and deciduous woodlands. They can nest in willows, cottonwoods, and junipers, as well as brushy vegetation adjacent to open habitat.</u>	<u>Absent.</u> <u>No suitable roosting or nesting habitat exists on the project site.</u>
<u>Chaetura vauxi</u>	<u>Vaux's swift</u>	<u>None</u>	<u>SCS</u>	<u>Nests in mature and old-growth coniferous and mixed forests especially those with plenty of hollow trees, forests with coastal redwood, grand fir, ponderosa pine, western hemlock, Douglas-fir, and western redcedar.</u>	<u>Low.</u> <u>This species may occur as a transient forager between wintering and nesting grounds.</u>
<u>Antrozous pallidus</u>	<u>Pallid bat</u>	<u>None</u>	<u>SCS</u>	<u>Occurs throughout California in wide variety of habitats: grasslands, shrublands, woodlands, forests up through mixed conifer; most common in open, dry habitats with rocky areas for roosting; yearlong resident; feeds mainly on insects and arachnids on the ground or by gleaning; day roosts in caves, crevices, mines, and occasionally hollow trees and buildings, including bridges; night roosts in more open sites.</u>	<u>Low.</u> <u>No suitable roosting habitat exists on the project site, though suitable foraging habitat does exist on the project site.</u>

<u><i>Toxostoma lecontei</i></u>	<u>Le Conte's thrasher</u>	<u>None</u>	<u>SCS</u>	<u>This species occurs in desert flats with sparse vegetation and sandy soils. It nests in tall, robust saltbushes that can support a nest approximately 26-38 inches above the ground</u>	<u>Moderate. (Sites 1, 2, and 3). Suitable habitat for nesting and foraging is present on the Project site. This species was not observed during the Project surveys.</u>
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15-I2: The commenter states that the Draft EIR relies on floristic surveys for special-status plant species conducted between June 2016 and June 2017 which were drought years. The comment also states that special-status plant surveys must be conducted on a much broader time period to include non-drought years and that the surveys conducted for special-status plant species in the spring and summer did not detect plant species that would not have emerged until after a wet year or season. The comment concludes that the project's botanical environmental setting is incomplete as it does not account for plants that have yet to emerge.

The Draft EIR lists the blooming periods for all special-status plant species analyzed with the exception of three species which will be revised as follows (Table 4-4-1). All species analyzed bloom in the spring, summer or both seasons. As such, special-status plant surveys were limited to the spring and summer when all the analyzed special-status plant species bloom. Surveys were also conducted in consecutive years. Botanical surveys were conducted over the course of two blooming seasons; early June 2016 to late June 2017 and were conducted according to CNPS *Botanical Survey Guidelines* (CNPS 2001) and CDFW protocols. CEQA does not demand exhaustive surveys or demand that environmental conditions must be optimal for analysis. For a discussion of CEQA's requirements with respect to surveys, see the Response to Comment 15-J. The comment has been noted for the record and revisions to the Draft EIR are not necessary.

<i>Allium howellii</i> var. <i>clokeyi</i>	Mt. Pinos onion	None	None	1B.3	Restricted to a narrow range of coastal sage scrub habitat in the Transverse Range, in the foothills around Mount Pinos, which is west of the project site. <u>Blooms from April to June.</u>	Unlikely. The known range of this species is West of project and thus does not occur on site. Additionally, the project site does not provide suitable coastal sage scrub habitat. This species was not observed during floristic surveys.
<i>California macrophylla</i>	round-leaved filaree	None	None	1B.2	Occurs in valley grassland or oak woodland habitat, mostly in the foothills of the Central Valley of California but also recorded in the Antelope Valley. <u>Blooms from March to May.</u>	Unlikely. Habitat suitable to support this species is absent from the project site and its vicinity, and is outside the known range. This species was not observed during floristic surveys.

<i>Calochortus palmeri</i> var. <i>palmeri</i>	Palmer's mariposa lily	None	None	-- / -- / 1B.2	Mostly occurs in wetland habitat, though also occurs in yellow pine forest or chaparral at low-elevations in the foothills of the Sierra Nevada and Transverse Ranges. <u>Blooms from April to July.</u>	Unlikely. Ephemeral wetland habitat suitable to support this species is present on the project site in Oak Creek, but it is outside the known range. This species was not observed during floristic surveys.
<u><i>Nemacladus secundiflorus</i> var. <i>robbinsii</i></u>	<u>Robbins' nemacladus</u>			1B.2	<u>sandy gravelly soil; creosote bush scrub</u>	Moderate: <u>Suitable habitat found on the project. This species was not observed during floristic surveys</u>

15-J2: The commenter states that the Draft EIR provides no evidence to support its decision to only conduct surveys in the spring and summer months for special-status plants. The comment also states that the Draft EIR does not explain why surveys were not also conducted during the winter and fall months for 2016 and 2017 or why it failed to conduct surveys during or after a wet year such as 2019.

The comment states that the Draft EIR fails to identify and assesses these species likelihood of occurrence near the project's vicinity and fails to identify and assess their likelihood of occurrence.

The commenter's statements are incorrect. Botanical surveys were conducted over the course of two blooming seasons; early June 2016 to late June 2017 and were conducted according to CNPS *Botanical Survey Guidelines* (CNPS 2001). As indicated, CNPS produces only "guidelines". CEQA does not demand exhaustive surveys or demand that environmental conditions must be optimal for analysis. See the Response to Comment 15-J for a discussion of applicable CEQA requirements.

15-K2: The commenter states that the Draft EIR's botanical survey is not consistent with what CDFW and leading experts require for adequate evaluation of the occurrence of plant species. The comment includes examples from CDFW protocols in which surveyors must space survey visits throughout the growing season and from CNPS protocols such as conducting sufficient number of visits spaced throughout the growing season. The comment also states that CNPS requires that EIRs must discuss factors that may have affected the results of the surveys such as drought and human disturbance, and recent fire.

See Response 15-I2. The commenter's statements are incorrect. Botanical surveys were conducted over the course of two blooming seasons; early June 2016 to late June 2017 and were conducted according to CNPS *Botanical Survey Guidelines* (CNPS 2001). As indicated, CNPS produces only "guidelines". CNPS is not a regulatory body and cannot "require" that an EIR conduct analyses that are beyond the statutory requirements of CEQA. CEQA does not demand exhaustive surveys or demand that environmental conditions must be optimal for analysis. See the Response to Comment 15-J for a discussion of applicable CEQA requirements.

15-L2: The commenter states that the Draft EIR makes no mention of visits to nearby reference sites as stated in CDFW protocols. The comment also states the Draft EIR fails to include and evaluate the

potential to occur of Robbins' nemacladus that the commenter stated as having 4 records within 1.5 miles southwest of the project. The Robbins' nemacladus was not a targeted plant species during the BAR survey because the nearest recorded occurrences in the CNDDDB database search for Robbins' nemacladus was over 40 miles to the southeast and 35 miles to the southwest. Both locations are in the mountains or foothills where the preferred dry, gravely sloped foothill or grassland habitat exist. This habitat is not found on the project site. As previously demonstrated, survey guidelines for plant surveys are just that – guidelines. They are not required to adequately evaluate potential project impacts as is required by CEQA.

As noted in Response 15-I2, studies do not have to be exhaustive to comply with CEQA. The required studies were completed, and at that time CNDDDB did not indicate Robbins' nemacladus was sighted within 10 miles of the project. The records cited by the commenter were noted in Calflora but not in CNDDDB. The individual plants are located approximately 2.1 miles (3.4 km) from the project. The Draft EIR has been clarified to reflect these records. This species was not detected during the botanical surveys and would have been noted if so. The records of citations by Calflora occurred in 2016, also a drought year. If this plant is discovered during preconstruction surveys, existing mitigation measures MM 4.4-4 through 4.4-7 will ensure that impacts to this species are less than significant.

15-M2: The commenter states that the Draft EIR must conduct a thorough botanical survey that accounts for weather and seasonal variations that impact the emergence of various plant species and observe nearby reference site to confirm which plant species has a potential for occurring within the project vicinity.

This comment is a summary of Comments 15-I2 through 15-L2. Respectively, responses to these specific comments are provided in Response to Comment 15-I2 through 15-L2, above. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

15-N2: The commenter states that the Draft EIR does not sufficiently analyze or disclose impacts on several special-status species and that it does not propose mitigation adequate to reduce the project's potentially significant impacts on biological resources. This comment is an introduction to Comments 15-O2 through 15-A3. Respectively, responses to these specific comments are provided in Response to Comment 15-O2 through 15-A3, below. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

15-O2: The commenter states that the Draft EIR fails to disclose, analyze, and mitigate potentially significant direct and indirect impacts to migratory birds. There is not a lot of scientifically rigorous research currently available investigating the cumulative impacts of solar facility-related strikes on bird populations to help make this determination. Current Migratory Bird Treaty Act and California Fish and Game Code regulations also do not protect non-nesting, non-sensitive bird species. Table 1, *Avian Mortality Summary*, is informative, but also lacks data for Kern County.

See Comment letter 13, Response 13- B and C.

The commenter and the associated letter from Renee Owens do not provide reliable evidence or widely available, peer reviewed scientific journal articles that analyze the potential impacts of PV solar installations to bird populations due to bird strike. As noted in by researchers at the Manchester Metropolitan University published in the Journal Natural England, as of March 2017, there have been no experimental studies in the peer reviewed scientific literature that attempt to quantify the impact of PV solar farms on birds purely from an ecological perspective (Natural England 2017). Thus, as explained above and in the responses to Comments 13-B and 13-C, based on the best available evidence and taking into account required avoidance and minimization

measures, the project's impacts to migratory birds would be less than significant. Nevertheless, accounting for the impacts of other projects in the area and acknowledging that some uncertainty remains, the cumulative impact determination in the Draft EIR was conservatively identified as significant and unavoidable. See Draft EIR Appendix E, p. 62.

The commenter cites a BLM programmatic EIR that offers data on eagles that are not near the project site but concludes that home ranges for desert eagles are rather large and that foraging eagles may not be near the nest site. This report does not conclude effects by solar energy projects but concentrates on wind energy and power line strikes. As mentioned in previous responses, the AV Apollo project will connect to the recently constructed and existing power line structures already analyzed in previous permitting documents.

With respect to the commenter's statement that the project is within the Pacific Flyway, the Pacific Flyway is a continent-scale corridor that covers much of the western United States. The project's presence in this vast area therefore has no real bearing on the project's actual impacts on migratory birds. For further discussion of migratory corridors, see the Response to Comment 13-S.

The comment has been noted for the record and revisions to the Draft EIR are not necessary.

15-P2: This comment states that the Draft EIR fails to fully analyze cumulative project impacts on migratory birds, and that therefore its cumulative impacts conclusion is not supported by substantial evidence. While the DEIR accounts for the existence existing transmission lines of these features, their existence does not change the fact that there is insufficient data to provide more detailed analysis of cumulative impacts. See Response to Comment 15-O2 above and Comment 15-Q2 below and See Comment Letter 13, Response 13- B and C.

15-Q2: The commenter states that the Draft EIR concludes that the proposed project-level mitigation measures would not effectively reduce significant cumulative impacts and is therefore unavoidable. The comment also states that the Draft EIR provides no explanation as to how it reached this conclusion and must fully analyze the effectiveness of proposed mitigation measures in reducing significant cumulative impacts to less than significant. The comment states that if the mitigation measures cannot reduce cumulative impacts to less than significant, the Draft EIR must consider other feasible mitigation that could reduce the cumulative impacts to the greatest extent feasible. The comment concludes that the Draft EIR fails to demonstrate with substantial evidence that cumulative impacts on migratory birds will be significant and unavoidable as it fails to disclose and analyze the severity of cumulative impacts.

See Response to Comment 15-O2 and 15-P2, above as well as Comment Letter 13, Response 13-B and C.

The DEIR includes adequate mitigation for cumulative impacts to biological resources. Those measures include MM 4.1-2, MM 4.1-4 MM 4.4-1 through MM 4.4-13, MM 4.9-1 and MM 4.9-2. The County concluded that a significant cumulative biological impact remains caused by the loss of habitat for primarily transient species. Cumulative habitat loss resulting from the large number of other alternative energy projects proposed for the County will occur. The impacts to sensitive species for this project are relatively small and the amount of habitat being removed by the project is also relatively small. CEQA requires that the project be adequately analyzed and that its environmental and health impacts are mitigated to the fullest extent feasible. The proposed mitigation measures satisfy CEQA, and also satisfy the Kern County General Plan Policy 9 by providing mitigation for the cumulative impacts to biological resources. The county is not aware of any other feasible measures that would substantially lessen significant impacts to biological resources, and the commenter does not suggest any other measures that could be implemented.

15-R2: This comment states that the Draft EIR fails to analyze impacts from operational activities to burrowing owl. The greatest potential for impacts to burrowing owls would be during ground disturbance activities and installation of the solar arrays. Once constructed, there will be minimal personnel on site, as the facility will be monitored remotely. Potential impacts would be less likely during the operational phase, and limited to the routine cleaning of solar panels and necessary repairs. As explained in the responses to Comments 13-C and 15-O2, after taking into account the sources the commenter cites, the best available science still does not support the commenter's claim that collisions with project infrastructure such as solar panels present a significant cause of burrowing owl or other avian mortality. Avoidance measures that apply during the construction phase also apply during the operational phase and would reduce potential impact to below significant levels.

As noted in the Biological Assessment Report (BAR) included as DEIR Appendix E, 20 surveys of the project were conducted over a 2 year period. These surveys provided myriad opportunity to detect the presence of listed special status species on the site or within the buffer area. These surveys were not single species surveys to the exclusion of other species. Every survey provides the biologists an opportunity to make incidental sightings for potential sensitive species. As explained in the Response to Comment 15-J, CEQA does not require protocol level surveys and or methodologies suggested by resource agencies as long as substantial evidence supports the lead agency's chosen methodology, as it does here. The focused surveys that were conducted for the project that included, desert tortoise, focused rare plant, Joshua tree surveys, a reconnaissance survey and delineation surveys provided substantial evidence for the presence of burrowing owls, desert kit fox and American badger on the project. The comment has been noted for the record and revisions to the Draft are not necessary.

15-S2: The commenter outlines information contained within the California Burrowing Owl Consortium regarding potential impacts and providing detailed information on burrowing owl presence, implementing standardized field surveys, and identifying impact assessment.

CEQA does not require protocol level surveys and or methodologies suggested by resource agencies as long as substantial evidence supports the lead agency's chosen methodology. Here numerous surveys were conducted at the project site that enabled biologists to record observations of burrowing owls and burrows on the project site. This provides ample information for assessing the project's impacts on the species, and additional surveys are not warranted. See Response 15-R2, above.

This comment does not otherwise raise a substantive issue on the content of the Draft EIR. The comment has been noted for the record and revisions to the Draft are not necessary.

15-T2: The commenter states that the Draft EIR fails to mitigationmitigate impacts from construction activities as outlined in MM 4.4-10. The mitigation measures outlined in MM 4.4 are standard measures to protect burrowing owls and would reduce impacts to less than significant levels and are, as the commenter notes, based on CDFW guidelines. Owens claims that based on personal observations, disturbances of 500 feet or more from construction may cause abandonment. These mitigation guidelines are standard and accepted by CDFW acceptable as sufficient to protect nesting burrowing owls from abandonment. The commenter does not provide reliable evidence to support an alternative assessment. The comment has been noted for the record and revisions to the Draft are not necessary.

The commenter claims that the DEIR fails to disclose status and demography of local and regional burrowing owl populations. Historical observations of burrowing owl observations in the region are sparse and scattered due to available prey base and other factors. It is out of the scope of the EIR to analyze the regional affects on burrowing owls. The goal is to The Draft EIR properly

analyzes and mitigates impacts to burrowing owls inhabiting the disturbance footprint, in part by directing them to preferably nearby locations suitable for habitation and away from any harm caused by the project. MM 4.4-10 adequately mitigate impacts for the burrowing owl that may inhabit the project site, and ensures that impacts to this species will be less than significant.

15-U2: The comment states that the levels of disturbance (low, medium, high) are not defined as well as what is classified as infeasible during passive relocation activities within MM 4.4-10. The levels of disturbance (low, medium and high) are based on language directly extracted from the Burrowing Owl Survey Protocol and Mitigation Guidelines (April 1993) and are not defined in the document. These terms have been used routinely since 1993 and have been approved by regulatory agencies. While subjective, determinations are made by qualified biologists with experience and knowledge of the species. The comment has been noted for the record and revisions to the Draft are not necessary.

15-V2: The commenter states that the Draft EIR's impact analysis on American badger and desert kit fox is inadequate because it fails to identify or address impacts on potentially hundreds of acres of breeding and foraging habitat relied upon by these denning species. The monitoring and blocking of unused den sites or blocking dens for non-breeding pairs of these species does not constitute take as defined by CESA nor do these actions result in significant impacts to these species. The on-site evaluation of the presence of dens or burrows that could be suitable for these species was determined during the desert tortoise burrow survey. Only a single potential den was discovered. There was no evidence of resident foxes or badgers identified during any of the multitude of surveys conducted. The absence of on-site resident foxes or badgers reduces the potential for the site to be used for foraging. There is an abundance of suitable denning and foraging habitat adjacent to the project site in all directions. The project has the potential to temporarily impact breeding and foraging habitat for denning species, but avoidance measures are included in the EIR to ensure less than significant impacts if these species are found during preconstruction surveys. Repopulation of these species is expected to eventually return after the construction of solar arrays and habitat restoration suitable for prey species under the solar arrays is complete.

15-W2: This comment discusses potential types of indirect project related impacts to American badger and desert kit fox and questions the appropriateness of basing such evaluations on desert tortoise surveys. Desert tortoise surveys require that the entire site be examined at 100 percent visual coverage and that transects also be walked at great intensity around the edges of the project site. Not only was the evaluation based upon the desert tortoise surveys, but searches for dens and other diagnostic signs of the presence of these species was conducted at all times during all other site visits. The lack of evidence gathered during those multiple survey efforts provided an adequate basis for evaluating direct and indirect impacts to kit foxes and American badgers. See the Response to Comment 15-J for a discussion of CEQA's survey requirements.

15-X2: This comment states that focused protocol surveys for American badger and desert kit fox are warranted and how incidental observations of other wildlife during protocol desert tortoise surveys are not adequate. CEQA does not require protocol level surveys and or methodologies suggested by resource agencies as long as substantial evidence supports the lead agency's chosen methodology, as it does here by searching for evidence of the species during onsite field surveys. See responses to Comments 15-W2 and 15-J above.

The DEIR did not find positive evidence of habitation of either desert kit fox or American badger on the project site. There was no evidence of resident foxes or badgers identified during any of the multitude of surveys conducted. The absence of on-site resident foxes or badgers reduces the potential for the site to be used for foraging. There is an abundance of suitable denning and foraging habitat adjacent to the project site in all directions. Any loss of denning and foraging habitat would occur during the construction phase of the project. Revegetation of the site after construction will

provide habitat for species that and provide foraging and denning habitat for these species. The commenter implies the project the project will remove den sites and did not provide evidence as such. Owens cites a number of studies that will not change the analysis in the DEIR. For example, Owens cites the BLM 2012 PEIS which does not include the western Mojave region. It can be inferred that habitat loss, fragmentation, direct impacts by vehicular strikes and other impacts will occur with the construction of any solar project for these species, however, the AV Apollo project will not substantially add to those effects to these species.

15-Y2: This comment states that mitigation measure 4.4-6 for American badger and desert kit fox is not adequate, does not comply with CEQA, and does not reduce the impacts to these species to less than significant. The avoidance measures provided in MM4.4-6 are standard measures that have been routinely adopted and approved by the regulatory agencies and are appropriate measures for the protection of desert kit fox and American badgers. Moreover, they are not the only measures imposed on the project to reduce these impacts to less than significant levels. See also Response to Comment 13-J.

15-Z2: This comment states that the proposed species specific buffers for American badger and desert kit fox is not substantiated and does not address indirect impacts related to construction. The buffer distances provided by mitigation measure 4.4-6 are standard mitigation measures that provide buffer distances for the American badger and desert kit fox, which are adopted from standard measures to protect the endangered San Joaquin kit fox, a species that has a greater level of protection than either the desert kit fox or American badger, yet with similar ecological needs and behaviors. These standard buffer distances have been accepted by the regulatory agencies as adequate to protect American badgers and desert kit fox from direct and indirect impacts from construction activities. The commenter does not present reliable evidence that these measures are ineffective.

15-A3: This comment states an adequate analysis of impacts for American badger and desert kit fox is required by completing species specific surveys and developing adequate mitigation measures to reduce impacts to less than significant. See Response to Comment 15-V2 through Comment 15-Z2 above.

15-B3: This comment states that without providing further details regarding decommissioning impacts, the same mitigation measures implemented during construction and operation and maintenance activities would not apply as it is impossible to know the feasibility of effectiveness of these mitigation measures. Evaluation of decommissioning activities is included throughout the Draft EIR and is described in Chapter 3, Project Description, on page 3-24 of the Draft EIR, under Section 3.6. Section 4.4, Biological Resources, evaluates the environmental effects of decommissioning on biological resources on page 4.4-36 and includes Mitigation Measures MM 4.4-1 through MM 4.4-13 which will apply through the life of the project including construction, operations and maintenance, and decommissioning. Decommissioning activities will entail similar activities to construction activities but will result in less vehicle traffic, noise, dust emissions, human presence and other potentially harmful effects. Decommissioning activities will be similar to construction, but will be less intensive; there will be no grading involved. Impacts from decommissioning are anticipated to be less than construction activities because there will be less suitable habitat for sensitive biological resources at the time of decommissioning compared to the construction phase. The measures implemented during decommissioning will ensure construction workers employed during decommissioning activities are trained and aware of the measures for avoidance and protection of biological resources. The County finds that with the implementation of mitigation, the project effects on biological resources from decommissioning would be less than significant and no further revisions are necessary. The comment does not identify any new significant impacts that require additional mitigation that have not already been addressed in the Draft EIR, and no

changes to the Draft EIR are warranted. The comment has been noted for the record and revisions to the Draft EIR are not necessary.

- 15-C3:** The commenter states that the Draft EIR fails to adequately address hazardous and other toxic substances from decommissioning activities and the impacts on biological resources.

The DEIR goes into detail outlining impacts with respect to hazardous substances and the implementation of measures required related to hazardous waste during construction and operations including MM 4.9-1 and MM 4.9-2. This analysis and these mitigation measures will apply with equal force during project decommissioning.

As noted in the DEIR (page 4.9-3), several peer-reviewed studies have evaluated the environmental, health, and safety aspects of CdTe PV modules. These studies have consistently concluded that during normal operations, CdTe PV modules do not present an environmental risk. CdTe releases are also unlikely to occur during accidental breakage or fire due to the high chemical and thermal stability of CdTe. Disposal risks of end-of-life CdTe PV modules are minimized because of the low solubility of CdTe and because the modules can be effectively recycled at the end of their approximately 30-year life. The PV module manufacturer provides CdTe module collection and recycling services. Since 2005, the end-of-life CdTe PV modules are currently characterized as federal non-hazardous waste, and as a California-only hazardous waste. Solar equipment and infrastructure would be recycled as practical or disposed of in compliance with applicable laws. CdTe PV modules are an article of commerce and are not classified as a hazardous material for shipping purposes under either federal and/or State law. Decommissioning activities to remove the panels does not present a serious issue related to exposure to hazardous materials.

Therefore, it is reasonable to conclude that hazardous wastes and toxic substances would not be problematic during solar facility decommissioning, which includes similar activities to those during construction. Solar panels would remain intact, poles and pipes would not be broken and would not be considered toxic, and wiring and other components would not be considered a contaminant. The level of exposure should be similar to that encountered during the construction phase.

- 15-D3:** The commenter states that the Draft EIR does not sufficiently disclose, analyze, or mitigate impacts from the project's construction and operational emissions. Furthermore, the Draft EIR's finding that impacts from air emissions would be less than significant is not supported by substantial evidence. This comment is an introduction to Comments 15-E3 through 15-R3. Respectively, responses to these specific comments are provided in Response to Comment 15-E3 through 15-R3, below. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

- 15-E3:** The comment provides a brief summary stating that the air quality analysis in the Draft EIR lacks substantial evidence to support its significance findings. Specifically, the comment claims that the Draft EIR relies on inadequate and unsubstantiated construction and operational emissions and that health risk assessment (HRA) analysis should have been conducted to address the Project's health risk impacts from construction and operational emissions. These general statements are specifically detailed in Response to Comments 15-F3 through 15-R3 below. As such, please see responses to those comments below.

- 15-F3:** The comment states that operational emissions did not consider all emission sources expected from the proposed project. While the analysis of the operational emissions in the Draft EIR focused on mobile sources from water trucks, maintenance trucks, and employee vehicles, the reasoning for this was that although the proposed project proposes the development of three O&M buildings, these building are will be unmanned. As it relates to fugitive dust, the proposed project did account for these emissions in the analysis of the maintenance trucks as the movement of these trucks is a source

of PM10 emissions. With regard to electricity, the O&M buildings would be powered by the electricity generated on the project site, and even if they weren't, would be so *de minimis* that any source of off-site power generation feeding them would be too attenuated (not proximate) to register a potential effect. In addition, the proposed project is projected to produce small amounts of waste associated with O&M activities. Water required for panel washing is expected to come from a local purveyor and the water trucks are accounted for this analysis. Thus, the discussion in the Draft EIR for project operations does not need to be revised, nor recirculated.

15-G3: The commenter states that the Draft EIR relies upon unjustified and unincorporated inputs in the emissions modelling, to support a finding of less than significant air quality impacts. This comment is an introduction to Comments 15-H3 through 15-J3. Respectively, responses to these specific comments are provided in Response to Comment 15-H3 through 15-J3, below. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

15-H3: The commenter states that usage hours for numerous off-road construction equipment were inputted into the emissions model (CalEEMod), rather than using the default values provided in the model. According to the CalEEMod User's Guide, "CalEEMod was designed with default assumptions supported by substantial evidence to the extent available at the time of programming. The functionality and content of CalEEMod is based on fully adopted methods and data. However, CalEEMod was also designed to allow the user to change the defaults to reflect site- or project-specific information, when available, provided that the information is supported by substantial evidence as required by CEQA. If the user chooses to modify any defaults, an explanation will be required in the Remarks box found at the bottom of the screen to justify and support the modification before the user will be able to proceed to the next screen. Modifications to defaults and the explanations are noted in the output report. Comments in the Remarks box are also included in the report and alert reviewers of modifications to the defaults. Comments are important because they show the user's justification for the modifications, which allows the reviewers the ability to determine whether or not the modifications are appropriate and sufficiently justified." Appendix D of the Draft EIR includes the project's Air Quality Impact Analysis Report (Insight, 2017). Within Appendix D, the commenter is referred to Attachment E, Project Emissions Calculations, CalEEMod Outputs, under Section 1.3 User Entered Comments & Non-Default Data, which provides the non-default values and the reasons for the non-default values. Thus, the Draft EIR provided appropriate documentation and explanations for the Project-specific modeling inputs in CalEEMod and SWAPE should have reasonably been able to verify inputs used to determine the accuracy of the air model.

15-I3: The commenter states that the project's CalEEMod output files for operational emissions reveal that an input value of "zero square feet of 'User Defined Industrial'" was included in the model without any justification. The commenter states that the project proposes to construct three onsite solar substations, including 6-acres of battery energy storage facilities, 1,875 square feet of O&M buildings (625 square feet on each site), 1,800 square feet of communication buildings (600 square feet on each site), and 6,000 square feet of parking (2,000 square feet of parking on each site). As discussed in the Draft EIR, Section 4.3, Air Quality, page 4.3-31, "Operational emissions would be limited to sporadic maintenance activities and vehicle travel by offsite employees to the project site. The facility will be monitored remotely and no full-time staff would monitor the site. Periodically, up to four times a year, staff would conduct routine maintenance that would include panel washing." As discussed in the project's Air Quality Impact Analysis Report (Insight, 2017) located in Appendix D of the Draft EIR, on page 14 of the Report states that "Long-term emissions are caused by operational mobile sources from periodic maintenance and cleaning of the solar panels. There were three categories of mobile sources generating long-term emissions: water trucks, maintenance trucks and employee vehicles." Further, "the emission calculations based on

the emission factors from EMFAC2014 and AP-42 are available in Attachment E.” From the Report’s Attachment E, Project Emissions Calculations EMFAC2014 and AP-42, the project’s operational emissions calculations and inputs are provided after the CalEEMod output files in Attachment E of the Air Quality Impact Analysis Report. All of the project facilities were accounted for and modeled in the CalEEMod outputs for operation, as labeled on the title of the CalEEMod outputs. Thus, project operational emissions are appropriately accounted for in the calculations provided for operational emissions in Appendix D of the Draft EIR. The commenter is incorrect that the project operational CalEEMod runs included a land use type of “User Defined Industrial” with zero square feet. As indicated in Attachment E to Appendix D of the Draft EIR, the project construction modeling runs entered into the CalEEMod file a land use type of “User Defined Industrial” with zero square feet as a land use type placeholder. The “User Defined Industrial” land use type with zero square feet does not result in an underestimation of construction emissions for the project. On the contrary, it allows the model to be successfully run and avoid a model run error. The project construction equipment and vehicle trips were appropriately included in the construction modeling runs to appropriately estimate the project’s construction emissions. Thus, project construction emissions are appropriately accounted for in the calculations provided for operational emissions in Appendix D of the Draft EIR.

15-J3: The commenter states that the the air emissions model results in an underestimation of emissions and should not be relied upon to determine project significance. This comment is in summary of Comments 15-G3 through 15-I3. Responses to these specific comments are provided in Response to Comment 15-H3 through 15-I3. As explained in Response to Comments 15-H3 through 15-I3, the air emissions model results does not underestimate the emissions and are appropriately estimated and relied upon to determine project significance under CEQA. Thus, the Draft EIR air quality analysis does not need to be revised, nor recirculated.

15-K3: The commenter states that the Draft EIR fails to provide any quantification for the air emissions for the decommissioning of the project. As stated in the Draft EIR, given the fact that much of the construction equipment necessary to construct the project would also be required to decommission the site, it is reasonable to assume that decommissioning activities would be similar in nature to activities associated with construction of the project. As such, emissions for project construction are treated as the emissions for project decommissioning. Impacts during commissioning would be similar and even less than those of the construction as no grading would occur. Similar mitigation would be applied during decommissioning as well. Thus, the discussion in the Draft EIR for project decommissioning does not need to be revised, nor recirculated.

15-L3: The commenter restates comment 15-J3 that the air emissions model results in an underestimation of emissions and should not be relied upon to determine Project significance. This comment, as is comment 15-J3, is a summary of Comments 15-G3 through 15-I3. Responses to these specific comments are provided in Response to Comment 15-H3 through 15-I3. As explained in Response to Comments 15-H3 through 15-I3, the air emissions model results does not underestimate the emissions and are appropriately estimated and relied upon to determine project significance under CEQA. Thus, the Draft EIR air quality analysis does not need to be revised, nor recirculated.

15-M3: The commenter states that the Draft EIR concludes that the project would have a less than significant health risk impact without adequately evaluating adverse health impacts resulting from exposure to toxic air contaminants (TACs) because it did not include a health risk assessment and therefore, it failed to disclose and mitigate the potentially significant cancer risk posed to nearby residents and children from TACs.

This commenter is incorrect. A Health Risk Assessment was included as part of the Air Quality Impact Analysis (AQIA) prepared for project (see Appendix D of the EIR). As noted in the AQIA, The proposed Project is a photovoltaic solar generation facility and is not anticipated to generate

any additional sources of toxic air contaminants with the exception of increased diesel particulate matter (DPM) from construction, facility maintenance and solar panel cleaning activities. However, despite being estimated conservatively, the quantity of increased on-site DPM from the Project is well below any typical screening levels for air toxics. Therefore, the project would not be expected to generate a health risk impact due to its activity and size. Its potential health risk impacts would therefore be considered less than significant and no further health risk assessment is required.

The use of DPM and its health effects are discussed in depth on page 4.3-15 of the Draft EIR. As discussed on page 4.3-3 of the Draft EIR, existing development in the project vicinity includes rural access roads, scattered rural residences, and wind and solar energy. There are no identified non-residential sensitive receptors located within approximately 2 miles of the project site. The nearest residential receptor is located 200 feet from the project site (Draft EIR page 1-11). Regarding an HRA for construction, heavy-duty vehicle operations and construction equipment would primarily occur during the grading and pile driving phases and be temporary and sporadic in nature, equipment would run on and off throughout the day (not the full 8 hours a day), would not be concentrated in a single area but rather would be used over a relatively large and dispersed area, and would be used for a relatively short duration (9 months). Additionally, the project would be consistent with strategies intended to reduce emissions from construction equipment, which include the use of cleaner construction equipment. The Project would comply with regulatory mandates including the CARB Air Toxic Control Measure that limits idling to no more than five minutes at a location, and the CARB In-Use Off-Road Diesel Vehicle Regulation for the use of newer construction equipment with “cleaner” exhaust emissions. Consistent with and supportive of the goals of these regulatory mandates to minimize emissions and exposure to emissions, the Project would include emissions controls agreed upon by the County and the Applicant that will be full enforceable by the County, as per MM 4.3-3 (pages 4.3-34 of the Draft EIR). Furthermore, according to the Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* (2003), health effects from TACs for sensitive residential receptors are described in terms of individual cancer risk based on a long-term resident exposure duration (i.e., resident lifetime or 30-year). Given the temporary and short-term construction schedule (9 months), the Project would not result in a long-term (i.e., residency time of 30-year) exposure as a result of Project construction. Compliance with these standards would substantially minimize emissions of TACs during construction. Construction DPM emissions associated with the project would primarily result from trucks transporting panels to the site. Therefore, the Draft EIR correctly concludes that based on the temporary and short-term construction schedule of only 9 months, the incorporation of required and fully enforceable emissions control features in MM 4.3-3, and the fact that construction equipment and DPM emissions would not be concentrated in a single area but dispersed over a large area minimizing DPM concentrations at any one specific location, construction impacts would be less than significant. For these reasons, construction generated DPM would not be anticipated to exceed applicable thresholds (i.e. incremental increase in cancer risk of 1 in one million and 0.2 chronic hazard index (HIC) for acute and chronic non-cancer risk) and a construction HRA is not required.

With respect to operations, the Project would comply with applicable regulations including the CARB Air Toxic Control Measure that limits truck idling to no more than five minutes at a location, the CARB Truck and Bus regulation that minimizes PM and NO_x emissions from existing diesel trucks, and all applicable East Kern Air Pollution Control District rules and regulations. As stated on page 4.3-27 of the Draft EIR, as the potential for health risks could occur due to onsite DPM emissions from the construction and operation phases of the project, health risk impacts were qualitatively analyzed at sensitive receptor locations near the project site. As evidenced on page 4.3-39, DPM estimated to occur from the project operations is well below any typical EKAPCD screening levels for air toxics. Given the low DPM emissions expected from this project (0.02

lbs/year as shown), the project risk threshold would not exceed the significant risk thresholds of 1 in a million for cancer risk and 0.2 HIC for acute and chronic non-cancer risk; therefore, an HRA is not warranted and the project's associated health risk impacts would be considered less than significant. Additionally, project operations would not generate substantial amounts of TAC emissions and potential long-term operational impacts associated with the release of TACs would be minimal, regulated, and controlled and HRA is no warranted. As evidenced, the Draft EIR did disclose and correctly conclude the less than significant cancer risk and non-cancer risk to nearby sensitive receptors from construction and operation of the project. Since health risk impacts were less than significant, no mitigation measures were required.

Commenter incorrectly cites Berkeley Keep Jets Over the Bay Comm. v. Bd. of Port Comm'rs, 91 Cal. App. 4th 1344, for the proposition that when a project results in any level of exposure to toxic contaminants, an HRA is required. The court did not hold that the agency was required to conduct its own HRA, as commenter erroneously suggests, but rather that the agency "must meaningfully attempt to quantify the amount of mobile-source emissions that would be emitted" as a result of the project. *Id.* at 1371. Here, far from evading an air quality analysis by claiming that there is no adequate methodology, the Draft EIR includes sufficient emissions data and discussion to enable the public to understand and consider meaningfully the air quality health impacts of the proposed project. *See Sierra Club v. Cty. of Fresno*, 6 Cal. 5th 502, 520-21. As discussed above and in Responses to Comments 15-P3 and 15-Q3, this standard does not require an HRA here.

15-N3: The commenter states that the Draft EIR concludes that the project's cancer risks from exposure to diesel particulate matter (DPM) would be less than significant without quantitative analysis. The commenter asserts that relying on non-quantitative analysis to determine that a health risk assessment is not necessary, results in an improper finding that toxic air contaminant (TAC) impacts would be less than significant. This comment is an introduction to Comments 15-O3 through 15-Q3. Respectively, responses to these specific comments are provided in Response to Comment 15-O3 through 15-Q3, below. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

15-O3: The commenter asserts that the inputs to CalEEMod for the emissions calculations are flawed because the inputs have not been justified. As stated above in Response to Comment 15-H3, above, Appendix D of the Draft EIR includes the Project Emissions Calculation worksheets (Appendix E of the Air Quality Report) and under Section 1.3 User Entered Comments & Non-Default Data of the CalEEMod Outputs, the non-default values and the reasons for them are provided. Thus, the conclusion that DPM emissions would not exceed the significant cancer threshold is supported because the emission inputs are accurate and complete.

15-P3: The commenter states that the Draft EIR cannot conclude a less than significance finding for health risk impacts of DPM because it is based on a numeric threshold and therefore requires a quantitative analysis. This is not an accurate statement. As stated on page 16 of Appendix D of the Draft EIR, Air Quality Impact Analysis Report (Insight, 2017), projects are considered potential health risks wherein a new or modified source of hazardous air pollutants (HAPS), which are known as toxic air contaminants (TACs) in California, is proposed for a location near an existing residential area or other sensitive receptor. The proposed project is not anticipated to generate additional sources of TACs with the exception of DPM during short term construction activities, occasional facility maintenance and solar panel cleaning activities. However, despite emissions being estimated conservatively, the quantity of increased on-site DPM from the project would be well below any typical screening levels for air toxics that would reasonably require a quantitative HRA. As discussed in Response to Comment 15-M3, construction heavy-duty equipment and vehicle use would primarily occur during the grading and pile driving phases and be temporary and sporadic in nature, equipment would run on and off throughout the day (not the full 8 hours a day) and would not be concentrated in a single area but rather would be used over a relatively large and dispersed

area, which would minimize pollutant concentrations in any one specific area. Furthermore, construction would be relatively short-term (9 months), which is much less than the standard long-term residency time of a 30-year exposure for residential cancer risk assessment. Therefore, the project would not be expected to generate a health risk impact due to its activity and size. Its potential health risk impacts would therefore be considered less than significant, and no further health risk assessment is required. A quantitative analysis is not necessary if the project was adequately assessed at a qualitative level and that there would be a negligible impact even if a quantitative analysis were to be conducted. As discussed above in Response to Comment 15-M3, and for the reasons discussed herein, a quantitative health risk assessment is not warranted for the project.

15-Q3: The commenter states that the health risk assessment is inconsistent with Office of Environmental Health Hazard Assessment (OEHHA) Guidelines which recommends that all short-term projects lasting at least two months be evaluated for cancer risks to nearby sensitive receptors. Unlike previous versions, OEHHA's revised health risk assessment guidelines provide considerations for short-term emissions, such as construction activities, while clarifying that, "[t]here is considerable uncertainty in trying to evaluate the cancer risk from projects that will only last a small fraction of a lifetime." The OEHHA Guidelines, Section 8.2.10 Cancer Risk Evaluation of Short Term Projects, states "the local air pollution control districts sometimes use the risk assessment guidelines for the Hot Spots program in permitting decisions for short-term projects such as construction or waste site remediation." The key term here is "sometimes". The OEHHA Guidelines is not a requirement that the local air pollution control district adopts the risk assessment guidelines for every project. Although project construction will last longer than two months, that two-month suggestion in the OEHHA Guidelines is a recommendation, not a requirement, and may only be used "sometimes" for short-term projects. Thus, the project is not inconsistent with OEHHA Guidelines as health risk assessments are not required for all short-term construction projects; they are recommendations and not requirements. As discussed in Response to Comment 15-M3 and 15-P3, construction heavy-duty equipment and vehicle use would primarily occur during the grading and pile driving phases and be temporary and sporadic in nature, equipment would run on and off throughout the day (not the full 8 hours a day) and would not be concentrated in a single area but rather would be used over a relatively large and dispersed area, which would minimize pollutant concentrations in any one specific area. Furthermore, construction would be relatively short-term (9 months), which is much less than the standard long-term residency time of a 30-year exposure for residential cancer risk assessment. Therefore, the project would not be expected to generate a health risk impact due to its activity and size. Thus, although an HRA was included as part of the AQIA, it was concluded that an additional quantitative health risk assessment is not reasonably warranted. As far as operations over 30 years, the project does not introduce a new TAC source onsite nor will it have over 100 trucks per day visiting the site. The site will only be periodically visited by trucks for maintenance. As discussed above in Response to Comment 15-M3 and 15-P3, a quantitative health risk assessment is not warranted for the project.

15-R3: The commenter states that they performed a screening-level health risk assessment for the project's construction DPM emissions using the AERSCREEN model and that the cancer risk they achieved was greater than the significance threshold. The commenter also states that they could not perform a screening level assessment for operational emissions because the Draft EIR did not disclose a value for DPM and PM10 exhaust for operational emissions. The commenter asserts that the Draft EIR's conclusion that the project's health risks are less than significant is factually inaccurate based on SWAPES quantified analysis. The intent of this OEHHA Guidelines is for compliance with California's Air Toxics "Hot Spots" Information and Assessment Act (Health and Safety Code Section 44300 et seq.), and for corresponding use in the Air Toxics Hot Spots Program for the permitting of existing, new, or modified stationary sources. The Air Toxics Hot Spots Program and

related permitting apply to facilities which manufacture, formulate, use, or release certain potentially harmful substances (e.g., industrial emitters). The project does not fall under the Air Toxics Hot Spots program. Therefore, the use of the OEHHA Guidelines is not a regulatory requirement for the Project.

As stated in the Draft EIR, Project Description, page 1-11, the nearest residential structures to the project site are located within 200 feet south of Golden Gate Avenue, east of Tehachapi Willow Springs Road, and northwest of the intersection of Trotter Avenue and 100th Street West, not 89 feet that SWAPE used in their analysis. Thus, impacts would be less than those reported by SWAPE at the nearest sensitive receptor based on the farther distance away from the site. Additionally, given the temporary and short-term construction schedule (9 months), the Project would not result in a long-term (i.e., resident lifetime or 30-year) exposure as a result of Project construction. As provided in Appendix D, Air Quality Impact Analysis Report, Attachment E, on-site construction off-road equipment exhaust emissions of PM₁₀, which are correlated to DPM emissions, would be an average of approximately 1.87 pounds per day over an approximately 200 construction workday schedule.¹ However, SWAPE vastly overestimates the PM₁₀ emissions from project construction at 2.01 lbs per day over an incorrect and overestimate number of construction workdays (279 construction workdays). As shown on page 9 of 27 in the SWAPE CalEEMod output, they state the scrapers and tractors/loaders/backhoes would operate for 8 hours per day, whereas the project output shows it operating for 4 hours per day for both. Moreover, the SWAPE CalEEMod model vastly overstates the number of construction equipment with 19 pieces of off-road construction equipment for the trenching and electrical phase, 9 pieces of off-road equipment for the gravel road phase, and 17 pieces of off-road equipment for the panel assembly phase (page 9 of 27), whereas the project would have 12 pieces of equipment for the trenching and electrical phase, 3 pieces of equipment for the gravel road phase, and 9 pieces of equipment for the panel assembly phase. SWAPE also changed the worker trip numbers from those in the project. SWAPE has 48 worker trips for the trenching and electrical phase, 23 worker trips for the gravel road phase, and 200 worker trips and 2 vendor trips for the panel assembly phase. The project would have 30 worker trips for trenching and electrical phase, 8 worker trips for the gravel road phase and just 200 worker trips for the panel assembly phase, no vendor trips. Therefore, SWAPE's CalEEMod model results in a vast overestimation of emissions, which would vastly overstate the health risk impacts. The result of these errors is that the commenter's CalEEMod files do not use the same construction equipment input parameters as are used in the Draft EIR and, consequently, the commenter has artificially inflated the emissions for all modeled pollutants (VOC, NO_x, CO, SO_x, PM₁₀, and PM_{2.5}). As such, SWAPE's diesel equipment exhaust emissions, which are reported by CalEEMod as exhaust PM₁₀ and PM_{2.5} from heavy-duty off-road equipment, are also overestimated. Thus, the DPM emissions used by SWAPE to estimate cancer risk in their AERSCREEN model are artificially inflated over those of the actual project and cannot be relied upon to give an accurate representation of the project. The AERSCREEN screening model is designed to overpredict pollutant concentrations because it does not take into account actual conditions at the project site such as nearby meteorological data. As wind patterns vary by time of day and season, use of real-world meteorological data would be more representative of site conditions. As discussed above in Response to Comment 15-M3, a HRA was included as part of the AQIA prepared for the project. The results of this analysis determined the project's potential health risk impacts would be considered less than significant and no further health risk assessment was required.

The commenter states that the DEIR failed to include all emissions related to operational activities and decommissioning. This is untrue, operational emissions can be found on Table 4.3-5 of the

¹ Draft EIR, Appendix D, Attachment E: Sum of the off-road PM₁₀ exhaust emissions from Trenching and Electrical (0.0206 tons per year [tpy]), Grading (0.0645 tpy), Panel Assembly (0.0906 tpy), Gravel Road (0.0108 tpy), and Water Trucks (1.12E-05 tpy), and converted to pounds per day with 200 construction workdays.

Draft EIR, page 4.3-32. Emissions from decommissioning are discussed on page 4.3-33 of the Draft EIR and would be similar to construction emissions but less since grading would not occur. As discussed in above, and in Response to Comment 15-M3, an HRA is not warranted as construction impacts would not result in a cancer risk above significance thresholds due to the reasons outlined therein. As stated in Response to Comment 15-M3, operation of the project would not generate substantial amounts of TAC emissions and potential long-term operational impacts associated with the release of TACs would be minimal, regulated, and controlled and HRA is not warranted. As the SWAPE analysis utilized overinflated emissions and used a screening-level health risk assessment, which also overestimates cancer risk, a more refined HRA does not need to be conducted for the reasons outlined above and in Response to Comment 15-M3. Since the risk is less than significant, mitigation is not required. The Draft EIR does not need to be revised or recirculated for further public review and comment.

- 15-S3:** The comment asserts that the Draft EIR's greenhouse gas (GHG) analysis fails to adequately disclose, analyze, and mitigate GHG impacts on climate change from the Project's construction and operational activities because the GHG analysis relies on incorrect and unsubstantiated air model and analysis and because the GHG threshold applied is not applicable to this project.

With respect to the first assertion, the comment suggests that the Draft EIR's estimated GHG emissions for the project cannot be relied upon because the Draft EIR's analysis of operational emissions did not include all emission sources and because the air quality modeling inputs are unsubstantiated. As noted in the responses to comments 15-G3 through 15-J3 above, the operational air pollutant emissions were appropriately analyzed in the Project's emissions modeling in the Project's Air Quality Impact Analysis Report (Insight, 2017) located in Appendix D of the Draft EIR. As stated in Section 4.8 Greenhouse Gas Emissions of the Draft EIR, "Information in this section is based primarily on the GHG section of the project's Air Quality Impact Analysis Report (Insight, 2017) located in Appendix D of this EIR." The GHG emissions estimates are based on the same emissions model, calculations, and Project inputs used for estimating air pollutant emissions for Section 4.3 Air Quality, as the model also estimates GHG emissions. As such, the GHG emissions for the project presented in the Draft EIR was not calculated with an unsubstantiated air model.

The comment's second assertion that the GHG threshold applied is not applicable to this project is addressed below in Response to Comments 15-V3 through 15-W3. The comment has been noted for the record and revisions to the Draft EIR are not necessary.

- 15-T3:** The commenter states, as for air quality, summarized in Comment 15-J3, that the DEIR's CalEEMod modeling is flawed because of the unsubstantiated inputs for construction emissions, the evaluation of mobile-source emissions only for operational emissions, and the lack of evaluation for emissions associated with decommissioning. Because of this, SWAPE states that the DEIR's CalEEMod modeling of construction and operational emissions are likely underestimated. Therefore, the DEIR cannot rely upon its CalEEMod modeling to determine whether the Project's GHG emissions will be significant. This comment is similar to Comment 15-J3 for air quality emissions, as a summary of Comments 15-G3 through 15-I3. Respectively, responses to these specific comments on air emissions, provided in Response to Comments 15-H3 through 15-I3, are also applicable for this comment 15-T3 for GHG emissions, as the same emissions model, calculations, and Project inputs were used for estimating Project GHG emissions. Thus, the Draft EIR GHG analysis does not need to be revised, nor recirculated.

- 15-U3:** The commenter states that the Draft EIR applies a GHG emissions threshold for analysis that does not apply to the project and provides no substantial evidence to support the thresholds' selection. This comment is an introduction to Comments 15-V3 through 15-W3. Respectively, responses to these specific comments are provided in Response to Comment 15-V3 through 15-W3, below. This

comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

15-V3: The comment states that the Draft EIR's reliance on EKAPCD's adopted significance thresholds for GHGs is not appropriate because the project is not a "large industrial project... that do[es] not require conditional use permits from a land-use agency." As indicated under the Methodology section on page 4.8-15 of the Draft EIR, Kern County has not developed a quantified threshold of significance for GHG emissions, but a project found to contribute to a net decrease in GHG emissions and found to be consistent with the adopted implementation of the CARB Climate Change Scoping Plan is presumed to have less-than-significant GHG impacts. This is the threshold that is applied by the County in significance determination for the project. The EKAPCD's 25,000 MT CO₂e/year threshold is included in the Draft EIR to disclose the quantitative GHG threshold that has been established for use by the local air district. In the impact analysis, a comparison of the project's total annual GHG emissions to EKAPCD's threshold is presented in Table 4.8-2 to provide context showing the relatively low emission levels of the project. The project's significance determination is primarily based on the net decrease in CO₂e emissions that would result from its implementation. As shown in Table 4.3-3, the project is estimated to displace approximately 47,915 MTCO₂e of emissions annually on average and a total of approximately 1,677,025 MTCO₂e over its 35-year lifespan, which would assist in the attainment of the State's goal to reduce GHG emissions. As concluded on page 4.8-2 of the Draft EIR, considering the project's minimal annual emissions and anticipated reduction in overall GHG emissions, the project is not expected to significantly contribute to global warming or climate change.

15-W3: The commenter states, in addition to Comment 15-V3, according to the Federal Register, "the adopted 25,000 tpy threshold is therefore not determinative of the significance of the impacts of a source's GHG emissions. Rather the threshold was intended to determine whether a stationary source would be subject (or applicable) to the GHG reporting requirements. This comment is in summary of the issues of Comment 15-V3 and 15-W3 that the Project does not constitute the types of facilities intended by the EKAPCD and the threshold of 25,000 tpy is not applicable to determine the significance of the Project's GHG impacts. Moreover, the DEIR fails to provide substantial evidence to support its application of this threshold. Respectively, responses to these specific comments are provided in Response to Comment 15-V3.

15-X3: The commenter states that the Draft EIR failed to provide substantial evidence demonstrating that the project is consistent with applicable plans, policies, or regulations to determine that GHG emissions are less than significant. This comment is an introduction to Comments 15-Y3 and 15-Z3. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

15-Y3: The commenter states that the Draft EIR inappropriately applies the three energy action measures from the CARB Scoping Plan to the project; Action E-3, Action E-4, and Action CR-1 and fails to demonstrate consistency with CARB's Scoping Plan. The Draft EIR provides a discussion, on page 4.8-32, which states that, of the 39 measures identified in the CARB Scoping Plan to help obtain AB 32 goals, those that would be considered to be applicable to the project are shown in Table 4.8-5, Applicable Scoping Plan Strategies for Proposed Project; Action E-3, Action E-4, and Action CR-1. These measures would primarily be those actions related to energy efficiency. The EIR provides a discussion of each applicable measure, how the measure relates to the project, and whether the project is consistent with or would conflict with the Scoping Plan action measure. For Action E-3, the commenter asserts that the project is not required to comply with the renewable portfolio standard (RPS). The lead agency agrees that the project is not required to comply with the RPS as it is not a California Investor-Owned utility. However, the Draft EIR does not state that it is required to comply or that it complies with the RPS. Page 4.8-23 of the Draft EIR discusses

the RPS and its targets and the proposed project. As the project is a solar array with an electric generating capacity of approximately 60 MW, it would be consistent with helping to achieve the goals of Action E-3 as it would help provide renewable energy to suppliers that need to meet the goal of 33 percent renewable energy by 2020. For Action E-4, the commenter states that the Draft EIR concludes that the project is consistent with Action E-4, but that is not what the Draft EIR states. On page 4.8-23, the Draft EIR discusses the Million Solar Roofs Program and says the project would not conflict with Action E-4. Action E-4 aims at reducing GHG emissions through solar energy. As the project is a solar array, it will also reduce GHG emissions and therefore would not conflict with objectives of Action E-4. The commenter states that the Draft EIR indicates the project is consistent with Action CR-1 because it would provide renewable energy to utilities, which would then be consumed by commercial and residential buildings. On page 4.8-23, the Draft EIR states that Action CR-1 relates to energy efficiency in commercial and residential buildings and the need for more aggressive utility programs to achieve long-term savings. The project would provide renewable energy to California Investor-Owned utilities, which in turn would be used by commercial and residential buildings. Therefore, the project would not obstruct Action CR-1. Thus, the Draft EIR does not fail to demonstrate with substantial evidence that the Project would not conflict with CARB's Scoping Plan. All the goals Action measures that pertain to energy and applicable to the project were reviewed with respect to the project and the project was either consistent with or would not conflict with those applicable Actions. Therefore, the project would not conflict with CARB's Scoping Plan. Additionally, with respect to SB 1368, SB 351, and the County's Air Quality Element, Table 4.8-6 on page 4.8-24 of the Draft EIR provides a discussion of project consistency with an applicable plan, policy, or regulation for GHG emissions. As a renewable energy project, the project would be exempt from State annual GHG reporting requirements and would be considered consistent with California's Emission Performance Standard and RPS requirements. SB 1368 is the Emission Performance Standard and the project, as a renewable energy facility, is determined by rule to comply with the GHG Emission Performance Standard requirements of SB 1368. Therefore, the project is consistent with SB 1368. SB 351 is the RPS and the project is indirectly consistent because the regulation applies to utilities, not generating facilities. However, the energy from this project would help enable the utility buying the project's generation to comply with the legislation. The policies, goals and measures of the Kern County General Plan Element are outlined on pages 4.8-13 and 4.8-14 of the Draft EIR. Thus, the projects air quality mitigation measures would ensure that the project is consistent with the Kern County General Plan Air Quality Element Policies, Goals, and Implementation Measures that will indirectly reduce GHG emissions by reducing fossil fuel combustion. As the project's consistency with these plans was identified and analyzed, the Draft EIR provided substantial evidence to demonstrate the project's consistency with these policies. The Draft EIR adequately disclosed, analyzed, and mitigated the projects impacts from GHG emissions, see pages 4.8-18 through 4.8-25, and does not need to revise to correct deficiencies or recirculate the Draft EIR

- 15-Z3:** The commenter states that the Draft EIR does not provide a meaningful analysis of project consistency with SB 1368, SB 351, and the County's Air Quality Element. Table 4.8-6 on page 4.8-24 of the Draft EIR provides a discussion of project consistency with an applicable plan, policy, or regulation for GHG emissions. As a renewable energy project, the project would be exempt from State annual GHG reporting requirements and would be considered consistent with California's Emission Performance Standard and RPS requirements. SB 1368 is the Emission Performance Standard and the project, as a renewable energy facility, is determined by rule to comply with the GHG Emission Performance Standard requirements of SB 1368. Therefore, the project is consistent with SB 1368. SB 351 is the RPS and the project is indirectly consistent because the regulation applies to utilities, not generating facilities. However, the energy from this project would help enable the utility buying the project's generation to comply with the legislation. The policies, goals and measures of the Kern County General Plan Element are outlined on pages

4.8-13 and 4.8-14 of the Draft EIR. Thus, the projects air quality mitigation measures would ensure that the project is consistent with the Kern County General Plan Air Quality Element Policies, Goals, and Implementation Measures that will indirectly reduce GHG emissions by reducing fossil fuel combustion. As the project's consistency with these plans was identified and analyzed, the Draft EIR provided substantial evidence to demonstrate the project's consistency with these policies. The Draft EIR adequately disclosed, analyzed, and mitigated the projects impacts from GHG emissions, see pages 4.8-18 through 4.8-25, and does not need to revise to correct deficiencies or recirculate the Draft EIR

15-A4: The commenter states that the Draft EIR does not completely consider the potential for project construction to increase incidence of Valley Fever and only provides a brief discussion of the project's impacts on public health. Furthermore, the comment asserts that the Draft EIR does not sufficiently support the conclusion of less than significant impacts with implementation of Mitigation Measure MM 4.3-9. This comment is an introduction to Comments 15-B4 through 15-E4. Respectively, Response to Comment 15-B4 through 15-E4, below. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

15-B4: The commenter provides a summary of Valley Fever and notable studies regarding Valley Fever. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

15-C4: The commenter states that the Draft EIR makes no mention of how soil-disturbing activity specifically conducted by Project construction might increase incidence of the disease in workers and the public, despite the extensive information available on Valley Fever. The commenter states that the DEIR fails as an informational document in this respect because the public is unable to determine the degree of exposure on workers and the public caused by the Project's construction and operational activities which are all done outdoors. Section 4.3 Air Quality of the Draft EIR, provides a background on Valley Fever for the purposes of this air quality analysis. The Draft EIR states the CI spores are found in the top few inches of soil, and that Project construction ground-disturbing activities would occur from site preparation, grading, trenching as well as system installation, and testing, commissioning, cleanup and restoration. The proposed project has the potential to generate fugitive dust and suspend Valley Fever spores with the dust that could then reach nearby sensitive receptors. The Draft EIR states that it is possible that onsite workers could be exposed to valley fever as fugitive dust is generated during construction. Implementation of mitigation measure MM 4.3-9 would provide training and personal protective respiratory equipment to construction workers and provide information to all construction personnel and visitors about Valley Fever. Therefore, the exposure to Valley Fever would be minimized. With the implementation of the mitigation measures, dust from the construction of the proposed project would not add significantly to the existing exposure level of people to this fungus, including construction workers, and impacts would be reduced to less-than-significant levels.

15-D4: The commenter states that the DEIR provides no other information as to how MM 4.3-9 would feasibly reduce those impacts to less than significant and as such fails to support its proposed mitigation measure with substantial evidence. The commenter states that proposing a mitigation measure to address a significant impact does not relieve the agency of its duty to analyze the impact in the EIR. The commenter also states that without knowing what the extent of the impacts of Valley Fever will be, it is impossible for the public to know whether the mitigation measures the DEIR proposes will be effective. The Draft EIR, Mitigation Measure MM 4.3.9 provides that prior to ground disturbance activities, the project proponent/operator shall provide evidence to the Kern County Planning and Natural Resources Department that the project proponent and/or construction manager has developed a "Valley Fever Training Handout" and schedule of sessions for education

to be provided to all construction personnel. All construction personnel shall be provided training prior to beginning work. The Kern County Planning and Natural Resources Department recognizes that while there is no vaccine to prevent Valley Fever, the following steps are important to take in order to limit risk: Determine if your worksite is in an endemic area. Adopt site plans and work practices that reduce workers' exposure, which may include: Minimize the area of soil disturbed, Use water, appropriate soil stabilizers, and/or re-vegetation to reduce airborne dust. Stabilize all spoils piles by tarping or other methods. Provide air conditioned cabs for vehicles that generate heavy dust and make sure workers keep windows and vents closed. Suspend work during heavy winds. Onsite sleeping quarters, if provided, should be placed away from sources of dust. When exposure to dust is unavoidable, provide NIOSH-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or HEPA. Employers must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144). Take measures to reduce transporting spores offsite, such as: Clean tools, equipment, and vehicles before transporting offsite. If workers' clothing is likely to be heavily contaminated with dust, provide coveralls and change rooms, and showers where possible. Identify a health care provider for occupational injuries and illnesses who is knowledgeable about the diagnosis and treatment of Valley Fever. Train workers and supervisors about the risk of Valley Fever, the work activities that may increase the risk, and the measures used onsite to reduce exposure. Also train on how to recognize Valley Fever symptoms. Encourage workers to report Valley Fever symptoms promptly to a supervisor. Not associating these symptoms with workplace exposures can lead to a delay in appropriate diagnosis and treatment.

As explained in the Draft EIR (see p. 4.3-15 to 4.3-17), exposure to Valley Fever is associated with exposure to dusty conditions and soil disturbance. The measures listed above will limit soil disturbance and dust exposure at the project site. It is reasonable to conclude that these measures will therefore reduce risks associated with it. For example, the respiratory protection devices required by MM 4.3-9 must meet regulatory standards to ensure they effectively filter out harmful particles. Given that inhaling spores in dusty conditions is a key pathway for valley fever exposure, it is reasonable to conclude that wearing these masks will significantly reduce risks. In addition, the California Departments of Public Health and Industrial Relations(CDPH/IR) has routinely recommended these types of trainings since at least 2013, as well as the other actions listed in MM 4.3-9 as a method to prevent workers from contracting the disease. This further underscores their effectiveness.

15-E4: See Response 15-D4, above.

The commenter states that the DEIR fails to incorporate additional mitigation measures recommended by the California Departments of Public Health and Industrial Relations. Specifically, commenter states that the State health departments recommend that the Project require powered air-purifying respirators or NIOSH-approved full-face or half-mask respirators with particulate filters. Additionally, the commenter identifies additional measures that it states should be incorporated into the DEIR, such as pretesting soils, enforcement of respiratory use during manual digging, testing of employees for immunity, hiring resident labor when possible, and establishing a medical program. The commenter states that CEQA requires that, where several measures are available to mitigate an impact, each measure should be discussed and the basis for selecting a particular measure should be identified. The commenter states that these mitigation measures are feasible and would significantly reduce public health impacts.

As stated in Response to Comment 15-D4, MM 4.3-9 provides that “when exposure to dust is unavoidable, provide NIOSH-approved respiratory protection with particulate filters rated as N95, N99, N100, P100, or HEPA; and employers must develop and implement a respiratory protection program in accordance with Cal/OSHA's Respiratory Protection standard (8 CCR 5144). These

are feasible and effective, as they are recommended by CDPH/IR as acceptable actions to protect workers from contracting Valley Fever at the work place. Because these measures will ensure that impacts related to Valley Fever are less than significant, no further mitigation is required. In any event, given the Draft EIR's existing requirements, there is insufficient evidence that the measures suggested by the commenter would further substantially lessen impacts related to Valley Fever.

15-F4: The comment summarizes the provided comments and concludes the comment letter. Detailed responses to the comments are provided, above. This comment does not otherwise raise a substantive issue on the content of the EIR. The comment has been noted for the record.

[Response to Comment Letter 15, Exhibit A: Renee Owens (March 17, 2020)]

Exhibit A, Comment 15-G4: The commenter summarizes the project background. The commenter states that the Draft EIR incorrectly describes certain species as “absent” and should instead describe them as “not detected.” Responses to this comment are provided in the responses to Comments 15-I through 15-L.

Exhibit A, Comment 15-H4: This comment is an introduction to comments on pages 2 to 8. Please see the corresponding responses below.

Exhibit A, Comment 15-I4: The commenter discusses reports and sightings related to ferruginous hawk in the vicinity of the project, suggesting that the Draft EIR incorrectly concludes that there is a low likelihood of this species occurring at the project site. See Response in Comment 15-Q.

Exhibit A, Comment 15-J4: The commenter states that the Draft EIR incorrectly states that habitat for mountain plover is absent from the project site. Responses to this comment are provided in the Response to Comment 15-R. With respect to the commenter's statement that the commenter observed this species foraging next to a large solar facility near Ocotillo in the middle of the Sonoran Desert, the comment is noted. As explained in the Response to Comment 15-R, no habitat is present for this species other than, perhaps, transient individuals migrating through the area.

Exhibit A, Comment 15-K4: The commenter suggests that the Draft EIR improperly classifies the likelihood that merlin will occur at the project site. Responses to this comment are provided in the Response to Comment 15-S.

Exhibit A, Comment 15-L4: The commenter suggests that the Draft EIR improperly classifies the likelihood that peregrine falcon will occur at the project site. Responses to this comment are provided in the Response to Comment 15-T.

Exhibit A, Comment 15-M4: The commenter suggests that the Draft EIR improperly classifies the likelihood that prairie falcon will occur at the project site as “absent” or “low.” The commenter also states that although the Draft EIR acknowledges that foraging habitat exists onsite, suitable nesting habitat does not. The commenter states that, according to www.allaboutbirds.org, suitable nesting habitat exists less than a quarter mile to the northeast in rocky cliffs of neighboring hillsides, which increases the likelihood that this species will forage on the project site. The commenter states that there are several eBird accounts for this species on and with one mile of the Project site, and that it was detected during surveys for the Catalina and Manzana projects. Responses to this comment are provided in the Response to Comment 15-T.

Contrary to the commenter's assertion, the Draft EIR in fact states that this species has a moderate potential to occur on the project site because the project site contains suitable foraging habitat. The Draft EIR further notes that while the species was not observed during project surveys, it is a common inhabitant of the desert ecosystem and could be present as a forager. The information cited by the commenter, assuming it is accurate, is consistent with these findings. Consequently, the

Draft EIR properly evaluates impacts on this species and prescribes appropriate mitigation measures to protect it.

Exhibit A, Comment 15-N4: The commenter suggests that the Draft EIR's conclusion that Mohave ground squirrel are "not present" is unsupported by the evidence because focused surveys were not conducted for this species. The commenter is incorrect. The Draft EIR states that this species is unlikely to occur because, even though potentially suitable habitat exists on the project site, this species is considered extirpated west of SR 14 and south of SR 58. For further explanation of why focused surveys were not appropriate for this species, please see the Response to Comment 15-U.

Exhibit A, Comment 15-O4: The commenter suggests that the Draft EIR's conclusion that San Joaquin pocket mouse is "absent" is unsupported by the evidence because focused surveys were not conducted for this species. Responses to this comment are provided in the Response to Comment 15-V.

Exhibit A, Comment 15-P4: The commenter suggests that the Draft EIR's conclusion that Tehachapi pocket mouse are "absent" is unsupported by the evidence because focused surveys were not conducted for this species, and states that the species has been detected within one mile of the project site. Responses to this comment are provided in the Response to Comment 15-W. As explained there, the most recent reliable record of this species anywhere within its historic range is from 1983, and the CNDBB reports of the species approximately one mile northwest of the Catalina project site were at elevation ranges greater than the elevation of the project site. Thus, even assuming the commenter is correct that suitable habitat for this species exists one mile northwest of the project site, this species still has a low potential to occur at the project site.

Exhibit A, Comment 15-Q4: The commenter suggests that the Draft EIR's conclusion that Tulare grasshopper mouse are "absent" is unsupported by the evidence because focused surveys were not conducted for this species. In fact, the Draft EIR states that this species is "unlikely" to occur at the project site. Further responses to this comment are provided in the Response to Comment 15-X.

Exhibit A, Comment 15-R4: The commenter states that the Draft EIR improperly classifies Townsend's big-eared bat as "absent" from the project site because bat surveys were not conducted. Responses to this comment are provided in the responses to Comments 15-Y and 15-Z.

Exhibit A, Comment 15-S4: The commenter states that the Draft EIR improperly describes the range of the Coast horned lizard. Responses to this comment are provided in the responses to Comments 15-A2, 15-B2, and 15 Exhibit A, p. 30-32.

Exhibit A, Comment 15-T4: The commenter suggests that the Draft EIR improperly classifies the likelihood that Swainson's hawk will occur at the project site as "absent" or "low." This comment is an introduction to comments on pages 11-14. Responses are provided in the responses to those Comments 15-C2, 15-D2, and 15-E2.

Exhibit A, Comment 15-U4: The commenter states that the Draft EIR improperly classifies the likelihood that desert tortoise will occur at the project site as "low." This comment is an introduction to comments on pages 32-34. Responses are provided in the responses to those Comments 15-F2, and 15-G2.

Exhibit A, Comment 15-V4: The commenter states that the Draft EIR impermissibly fails to discuss certain species that were detected (or potential habitat for which was detected) on or near the project site. Responses to this comment are provided in the Response to Comment 15-H2.

Exhibit A, Comment 15-W4: The commenter states that the Draft EIR is inadequate because it did not sufficiently rely on focused surveys to describe baseline environmental conditions, and criticizes

the Draft EIR's use of surveys for multiple species and its use of reports and databases such as the California Natural Diversity Database. Responses to this comment are provided in the responses to Comments 15-I through 15-L.

Exhibit A, Comment 15-X4: The commenter states that the Draft EIR is inadequate because it did not sufficiently rely on focused surveys to describe baseline environmental conditions, and criticizes the Draft EIR's use of surveys for multiple species and its use of reports and databases such as the California Natural Diversity Database. Responses to this comment are provided in the responses to Comments 15-I through 15-L.

Exhibit A, Comment 15-Y4: The commenter states that the Draft EIR fails adequately to disclose and analyze impacts to the tricolored blackbird. See also Response to Comment 15-M.

Exhibit A, Comment 15-Z4: The commenter states that the Draft EIR fails adequately to describe and analyze impacts to the Swainson's hawk. Responses to this comment are provided in the responses to Comments 15-C2 through 15-E2, Comments 14-B through 14-E, and Comment 6-F. As explained in those responses, the EIR thoroughly considers impacts to Swainson's hawk. After taking into account all evidence presented to the Lead Agency, the most reliable evidence, including project-specific studies, shows that this species is unlikely to use the project site and impacts to this species would be less than significant. Although the project site contains potential foraging habitat there is more suitable foraging habitat in agricultural fields to the south, and there is no evidence of Swainson's hawks foraging on the project sites. Similarly, although there is, theoretically at least, potential nesting habitat (in Joshua Trees) occurring on the project site these trees are typically too short and lacking in foliage cover to provide adequate nesting substrate for the species. There is more suitable nesting habitat occurring approximately 1 mile to the south of the site at locations where potential nest trees exist near agricultural fields. Given the lack of nesting substrate in proximity to the project site and the vast amount of desert still undeveloped in the Antelope Valley, any loss of foraging habitat caused by the project would be less than significant and therefore does not warrant compensatory mitigation.

Exhibit A, Comment 15-A5: The commenter states that the Draft EIR fails adequately to describe, analyze, and mitigate impacts to golden eagle. Responses to this comment are provided in the responses to Comments 15-N through 15-P. The commenter also states that the Draft EIR impermissibly defers mitigation to the future, and argues that power pole design and retrofitting is not effective at reducing impacts to golden eagles, including impacts related to a loss of foraging habitat. Contrary to the commenter's assertion, mitigation measures applicable to golden eagles do not impermissibly defer mitigation. Instead, they impose appropriate performance standards, such as requiring transmission lines to be constructed in accordance with the 2006 Avian Power Line Interaction Committee Guidelines. Notwithstanding the single study cited by the commenter, designing and retrofitting power lines remains a proven method of mitigating impacts to golden eagles, and is preferred by expert agencies such as USFWS. With respect to the BLM report cited by the commenter, this report offers data on golden eagles that are not located near the project site, and addresses wind energy facilities (that pose a far greater collision risk to golden eagles) instead of solar projects.

For further discussion of mitigation relevant to migratory birds such as golden eagle, see the Response to Comment 15-O2.

Exhibit A, Comment 15-B5: The commenter states that the Draft EIR fails adequately to describe and analyze impacts to resident and migratory birds. Responses to this comment are provided in the responses to Comments 15-O2 through 15-Q2.

Exhibit A, Comment 15-C5: The commenter states that the Draft EIR fails adequately to describe, analyze, and mitigate cumulative impacts to birds. Responses to this comment are provided in the responses to Comments 15-O2 through 15-Q2.

Exhibit A, Comment 15-D5: The commenter states that the Draft EIR fails adequately to disclose, analyze, and mitigate impacts to burrowing owls. Responses to this comment are provided in the responses to Comments 15-R2 through 15-U2,

Exhibit A, Comment 15-E5: The commenter states that the Draft EIR fails adequately to disclose, analyze, and mitigate impacts to American badger and desert kit fox..

Responses to this comment are provided in the responses to Comments 15-V2 through 15-A3.

Exhibit A, Comment 15-F5: The commenter states that the Draft EIR fails to assess or discuss impacts to bats. The commenter also provides general information about bats and various anthropogenic impacts on them, as well as generalized statements about how properly to evaluate impacts. The commenter states that the Draft EIR erred in particular by not discussing the presence, surveys or impacts to bats because the Catalina Renewable Project Draft EIR surveys detected two special-status bat species. See also Responses are also provided in the responses to Comments 15-Y, 15-Z, and 15-H2.

Exhibit A, Comment 15-G5: The commenter states that the Draft EIR fails to adequately disclose, analyze, and mitigate impacts to desert tortoise. Responses to this comment are provided in the responses to Comments 15-F2 and 15-G2. With respect to the commenter's assertion that alleged problems with proposed mitigation measures listed in Appendix E of the Draft EIR, as explained in the Response to Comment 15-F2, the existing mitigation measures in the Draft EIR already reduce impacts to desert tortoise to less-than-significant levels, rendering the proposed measures listed in Appendix E unnecessary and unwarranted under CEQA. With respect to the commenter's assertion that the Draft EIR must acknowledge that direct impacts to desert tortoise may occur onsite, the Draft EIR does so. See Draft EIR pages 4.4-33. Responses are also provided in the responses to Comments 15-F2, 15-G2, and 13-J, which also address the commenter's statements with respect to indirect impacts to desert tortoise. With regard to the commenter's statements regarding wildlife corridors, the response is provided in the Response to Comment 13-S. With regard to the commenter's statements regarding desert tortoise translocation plans, the Draft EIR does not rely on such plans as a form of mitigation because the potential incidence of desert tortoise at the project site is not high enough to warrant one.

Exhibit A, Comment 15-H5: The commenter states that the Draft EIR fails adequately to describe and analyze impacts to lizards. Responses are provided in the responses to Comments 15-A2 and 15-B2. With regard to the commenter's claims regarding "commonly occurring" lizards such as desert horned lizard, these species are not species of special concern, and hence the commenter does not raise a significant environmental issue. The commenter also argues that large, concentrating solar facilities may have the ability to produce heat with a potential to create localized drought conditions. The project does not propose to use concentrating solar technology.

Exhibit A, Comment 15-I5: The commenter states that the Draft EIR fails adequately to describe and analyze impacts to plant species. Responses are provided in the responses to Comments 15-I2 through 15-M2.

Exhibit A, Comment 15-J5: The commenter states that the Draft EIR fails adequately to describe and analyze impacts to Joshua trees. In particular, the commenter asserts that the Draft EIR improperly fails to classify the project site as a Joshua tree woodland in an attempt to downplay the project's potential impacts to Joshua tree. The commenter also states that Joshua trees are habitat for nesting birds such as Swainson's hawk. The commenter states that the Draft EIR should revise its

descriptions of Joshua tree habitat on the project site and ensure that mitigation for Joshua tree impacts comply with the California Native Desert Plant Protection Act and truly serve to mitigate this habitat in appropriate scope and degree.

The Draft EIR addresses whether the project site contains Joshua trees at a sufficient density to qualify as a Joshua tree woodland because Joshua tree woodland is a sensitive natural community. The Draft EIR notes that reconnaissance-level and floristic surveys were conducted at the project site in 2016 and 2017. Draft EIR at 4.4-4. These studies showed that Joshua tree density at the project site “is moderate but not at a density that would justify designation of a Joshua tree woodland.” *Id.* The project’s Biological Analysis Report provides extensive detail regarding the presence of Joshua trees at the project site, including a map showing the location of each individual Joshua tree found at the project site. See Draft EIR, Appendix E, page 34. Although the Draft EIR correctly concludes that the project site does not contain Joshua tree woodland, it acknowledges that individual Joshua trees are protected under the California Desert Native Plant Protection Act, evaluates impacts of the project on the species, and prescribes extensive mitigation measures to ensure impacts to Joshua trees are less than significant. See Draft EIR at 4.4-4, 4.4-32, 4.4-37 to 4.4-38. The commenter does not provide any evidence or argument that these mitigation measures are infeasible or ineffective, nor does the commenter suggest feasible alternative or additional mitigation measures. With respect to the California Desert Native Plant Protection Act, the Draft EIR correctly explains that this act makes the harvest, transport, sale or possession of species such as Joshua tree unlawful without a permit. There is no evidence that the project will not comply with this statute, and the commenter does not provide any. The Draft EIR also accounts for the habitat that Joshua trees provide for special-status species, such as Swainson’s hawk. See Draft EIR at 4.4-20, 4.4-23. With respect to the commenter’s assertion that Joshua tree has been petitioned for listing as threatened under the CESA, the comment is noted. As explained above, however, the Draft EIR already thoroughly analyzes impacts to this species and prescribes ample mitigation to reduce those impacts to less-than-significant levels.

This comment is further addressed in the responses to Comments 6-F, 13-B, 13-F, 13-T, 14-B, 15-S, 15-C2, and 15-D2.

Exhibit A, Comment 15-K5: The commenter asserts that there is no empirical evidence demonstrating that measure “BIO-6” will be effective, and provides personal anecdotes suggesting that worker environmental education programs do not significantly reduce projects’ impacts to wildlife. Responses to this comment are provided in the responses to Comments 15-Y2 and 13-J. The commenter also asserts that where the applicant requires workers to take specific actions, such as maintaining speed limits, hazardous spill containment, fire prevention measures, maintaining garbage-free working spaces, or keeping potential animal pitfalls covered, each action should be identified as a “construction regulation” and presented in the Draft EIR. Contrary to the commenter’s suggestion, the Draft EIR already requires such measures. See Draft EIR at 4.4-42 (MM 4.4-8 requires speed limit of 10mph); 4.4-52 to 53 (MM 4.4-14 contains requirements for hazardous materials spills); 4.9-121 (MM 4.9-1 requires preparation of Hazardous Materials Business Plan); 4.14-13 (MM 4.14-1 requires Fire Safety Plan); 4.1-36 (MM 4.1-1 requires Maintenance and Trash Abatement/Pest Management Program); 4.4-42 (MM 4.4-8 requires excavated steep-walled holes or trenches more than 2 feet deep to be covered or provided with escape ramps).

Exhibit A, Comment 15-L5: The commenter cites the background CEQA principal that the formulation of mitigation may not be impermissibly deferred to the future, provides general information regarding deferred mitigation, and states that the Draft EIR impermissibly defers mitigation by failing to provide adequate performance standards. Please see the Response to Comment 13-J for a discussion of applicable CEQA rules regarding deferral of mitigation. Because the commenter does

not specify which mitigation measures it believes improperly defer mitigation, the Lead Agency reiterates that the Draft EIR's mitigation measures contain appropriate performance standards to the extent they provide for certain details to be finalized at a later date. For example, MM 4.4-3 requires a Joshua Tree Preservation Plan, and specifies a number of requirements the plan must meet, such as requiring surveys prior to ground-disturbing activities. Similarly, MM 4.4-9 requires a Raven Management Plan and lists the minimum requirements for such a plan, including identification of nests and weekly inspections. And MM 4.4-10 provides a detailed list of measures that must be implemented to mitigate impacts to burrowing owls.

Exhibit A, Comment 15-M5: The commenter states that the Draft EIR does not analyze the project's impacts to biological resources from decommissioning, focusing on the disposal of hazardous substances during decommissioning. The commenter states that cadmium, used in some solar PV technologies, is particularly harmful to biological resources. Responses to this comment are provided in the responses to Comments 15-B3 and 15-C3.

The commenter also states that "the exigencies and resultant significant potential impacts of production and decommissioning of this industrial PV facility . . . are not addressed in the DEIR." This is incorrect. The Draft EIR thoroughly addresses the project's impacts, as well as its consistency with California's aggressive greenhouse gas reduction efforts.

The commenter asserts that MM 4.11-1, which requires a decommissioning plan, does not include discussion of scope, extent, methods, goals, objectives, or performance criteria for how hazardous wastes will be safely disposed of. The commenter is correct that MM 4.11-1 does not expressly address hazardous waste. However, as explained in the Response to Comment 15-C3, the Draft EIR goes into detail outlining impacts with respect to hazardous substances (including explaining why CdTe PV modules, if used, would not present an environmental risk) and related mitigation measures. This analysis, and these mitigation measures, will apply with equal force during project decommissioning.

With respect to the commenter's claims that the Draft EIR defers details regarding how decommissioning costs will be estimated or their payment guaranteed, as explained in the responses to comments 13-I and 13-J, CEQA does not require that mitigation measures include precise quantitative performance standards. Here, mitigation measure MM 4.11-1 requires that the project operator provide the County with a detailed decommissioning plan for review and approval prior to the issuance of any building permits. Pursuant to MM 4.11-1, this plan must include the cost to remove solar panels and replace disturbed soil, and must conservatively assume that the County must hire an independent contractor to perform decommissioning work. This mitigation measure also contains detailed financial assurance requirements, such as the posting of a surety bond, which will ensure there are sufficient funds to decommission the project. This is more than adequate to ensure that the project is properly decommissioned. The commenter attempts to cast doubt on this by asserting that estimates for decommissioning solar projects can vary and that it is possible for costs to be underestimated, but this is true of any project that will be decommissioned decades from now.

Exhibit A, Comment 15-N5: The commenter summarizes arguments regarding the Draft EIR raised previously in the commenter's comment letter. The responses to this comment are provided above.

Response to Comment Letter 15, Exhibit B: SWAPE (February 27, 2020)

Exhibit B, Comment 15-O5: The commenter describes the project background and its conclusions. To the extent they are required, responses to this comment are provided below.

Exhibit B, Comment 15-P5: The commenter asserts that the Draft EIR fails adequately to evaluate operational air quality impacts because it considers only mobile-source emissions. Responses to this comment are provided in the Response to Comment 15-F3.

Exhibit B, Comment 15-Q5: The commenter asserts that the Draft EIR's air quality analysis underestimates emissions because it is based on modeling that uses incorrect or unsubstantiated inputs. Responses to this comment are provided in the responses to Comments 15-G3 through 15-J3.

Exhibit B, Comment 15-R5: The commenter asserts that the Draft EIR fails adequately to evaluate operational air quality impacts because it did not evaluate emissions from decommissioning. Responses to this comment are provided in the responses to Comments 15-K3 and 15-L3.

Exhibit B, Comment 15-S5: The commenter asserts that the Draft EIR fails adequately to evaluate health risks associated with diesel particulate matter and should have conducted a health risk assessment. Responses to this comment are provided in the responses to Comments 15-M3 through 15-Q3.

Exhibit B, Comment 15-T5: The commenter states that it prepared a screening-level HRA that demonstrates the project's construction emissions will have a significant impact on public health. Responses to this comment are provided in the Response to Comment 15-R3.

Exhibit B, Comment 15-U5: The commenter states that the Draft EIR's discussion of greenhouse gas emissions is inadequate because it relies on an incorrect and unsubstantiated air model and applies an inapplicable threshold of significance. Responses to this comment are provided in the responses to Comments 15-S3 through 15-W3.

Exhibit B, Comment 15-V5: The commenter states that the Draft EIR does not fully consider the potential for project construction to increase the incidence of Valley Fever. The commenter provides information on Valley Fever, and states that despite the availability of this information the Draft EIR does not mention how soil-disturbing activity during project construction might increase the incidence of Valley Fever in workers and the public. The commenter also states that the Draft EIR should be revised to include certain mitigation measures. Responses to this comment are provided in the responses to Comments 15-A4 through 15-E4.