

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov



July 10, 2013

Mr. Scott Galati
Galati/Blek, LLP
455 Capitol Mall, Suite 350
Sacramento, CA 95814

California Energy Commission

DOCKETED
09-AFC-7C

TN 71543

JUL 10 2013

RE: PALEN SOLAR PROJECT AMENDMENT (09-AFC-7C)
DATA REQUEST SET 4 (Nos. 73-89)

Dear Mr. Galati,

The California Energy Commission (Energy Commission) staff (staff) has reviewed the Petition for Amendment for the Palen Solar Electric Generating System (PSEGS) and requires additional information to supplement the environmental analysis pursuant to Title 20, California Code of Regulations, section 1769(a)(1)(E). The Energy Commission staff seeks the information specified in the enclosed Data Requests. The information requested is necessary to: 1) more fully understand the project; 2) assess whether the facility will be constructed and operated in compliance with applicable regulations; 3) assess whether the project will result in significant environmental impacts; 4) assess whether the facilities will be constructed and operated in a safe, efficient, and reliable manner; and 5) assess potential mitigation measures.

This set of Data Requests (Nos. 73-89) is being made in the areas of: Biology (73-75) Paleontological Resources (76-77), Public Health (78-81), Socioeconomics (82-83), and Worker Health and Safety (84-89).

Staff requests that written responses to the enclosed Data Requests be provided on or before August 9, 2013. Staff encourages the Applicant to submit responses sooner if possible in order to facilitate the schedule.

Staff has also included the list of outstanding informational needs at the end of this data request. This was provided in the Preliminary Staff Assessment (PSA). Staff will not be able to complete the Final Staff Assessment (FSA) until all information is provided by the project owner.

If you are unable to provide the information requested, need additional time, or object to providing the requested information, please send a written notice to both the Committee and me within 20 days of receipt of this information request. The notification should contain the reasons for not providing the information and the grounds for any objections.

If you have any questions, please call me at (916) 654-4745, or email me at christine.stora@energy.ca.gov.

Sincerely,

Christine Stora

Christine Stora,
Compliance Project Manager

Enclosure:
Data Requests

**PALEN SOLAR ELECTRIC GENERATING SYSTEM (09-AFC-7C)
DATA REQUESTS – SET 4**

Technical Area: Biological Resources
Author: Carol Watson

BACKGROUND: AVIAN MITIGATION

In the Preliminary Staff Assessment (PSA)(CEC 2013), staff has presented Condition of Certification **BIO-16a**, Avian Enhancement and Conservation Plan. This is adapted, in part, from the project owner's Condition of Certification **BIO-B (b)**(Palen 2013a). This condition would require the project owner to annually fund conservation activities to benefit avian (as well as bat and insect) species potentially adversely impacted by collisions with project features, and would also mitigate for death or injury of wildlife from exposure to concentrated solar flux over the heliostat fields. This would be accomplished through funding an interest-bearing account. At the project's conclusion, the remaining balance would be returned to the project owner.

Staff has conferred with Renewable Energy Action Team (REAT) agencies' biologists to determine where conservation opportunities may exist, and have presented a preliminary shortlist of six entities typically performing habitat restoration and enhancement and other actions considered beneficial to species potentially impacted by the proposed project. These six opportunities are:

1. California Wildlife Conservation Board: funding toward the Riparian Habitat Conservation Program;
2. U. S. Bureau of Land Management: funding toward implementation of strategic plan goals within migratory bird conservation Emphasis Area: 3: Habitat Management Maintenance, Enhancement, and Restoration;
3. California Migratory Bird Conservation Partnership;
4. U.S. Fish and Wildlife Service Joint Venture;
5. Ash Meadows National Wildlife Refuge: funding in support of Habitat Management Goal 2: funding for one Integrated Pest Management Coordinator/Botanist, biological technician, or part-time GIS specialist; and
6. Neotropical Migratory Bird Conservation Act. The projected annual annuity of \$50,000 in funds could facilitate a grant of \$200,000. In accordance with this act, for every federal dollar spent, three non-federal dollars are required in matching contributions.

The project owner also identified the Migratory Bird Conservation Fund, under the control of the Migratory Bird Conservation Commission, as a likely funding recipient (Palen 2013a). Staff plans to discuss this mitigation approach with the project owner and public at forthcoming workshops; however, in the interests of further refining and determining the specific approach, and presenting specifics for evaluation pursuant to the California Environmental Quality Act, staff requests the following:

**PALEN SOLAR ELECTRIC GENERATING SYSTEM (09-AFC-7C)
DATA REQUESTS – SET 4**

DATA REQUEST

73. Please provide staff with a draft avian enhancement and conservation plan, based on the mitigation options presented in the PSA section, titled “Impacts to Flighted Species”, and condition BIO-16a #2. Consult with at least one of the aforementioned six entities to determine which effort(s) to fund, and provide a draft avian enhancement and conservation plan. This draft plan should describe which entity the project owner has chosen to fund, and a list of preliminary list of conservation actions anticipated to occur during the first 5 years of project operation (commercial operation). The avian habitat enhancement and conservation actions should be clearly designed to benefit the species likely to occur at the site, including migrants that may utilize the site on a brief, seasonal basis; and the draft plan must clearly articulate how the mitigation would benefit species (birds and bats) likely to occur at the site. Please consider the uniquely high value of riparian habitat to all species—habitat improvement efforts in riparian habitat would be likely to be considered valuable to both rare migrants as well as year-round residents.
74. Please also provide contact information for a representative from the project owner’s chosen funding recipient. Staff anticipates Palen Solar would have until start of commercial operations to either finalize the plan, or provide a concrete framework for how to choose a funding recipient for the remainder of the project’s lifespan, based on results of operational monitoring.

BACKGROUND: SPECIAL STATUS PLANT IMPACTS

As part of *Responses to CEC Information Requests for Reconfigured Alternatives 2 and 3 (TN 58106)* for the approved Palen Solar Power Project (PSPP), staff was provided with occurrence details for special status plant species documented within the PSPP project disturbance area and buffer area. Please refer to Table 3 of the Palen Solar Power Project Biological Resources Data Package Addendum (TN 58106). In order to determine how impacts to special-status plants would be different for the Palen Solar Electric Generating System (PSEGS), staff requires the revised occurrence details for the PSEGS project footprint and buffer area (1 mile around project site and 1,000 feet along linear features) for all special status plant species detected to date. For ribbed cryptantha, it is not clear to staff how impacts would be different for the PSEGS. Impacts on ribbed cryptantha for the PSPP were estimated in terms of area (acres based on subsampling data from within the ribbed cryptantha population (calculated density of 2.2 plants per square meter, or 8,903 plants per acre).

DATA REQUEST

75. Please provide staff with occurrence details for all special status plant species documented for the proposed modified PSEGS project disturbance area and buffer area. This include providing detailed calculations of all special status plant species observations detected in 2009-2010 and 2013, including but not limited to Harwood’s milkvetch (*Astragalus insularis* var. *harwoodii*), Harwood’s woollystar (*Eriastrum harwoodii*), ribbed cryptantha (*Cryptantha costata*), California ditaxis (*Ditaxis californica*), California barrel cactus (*Ferocactus cylindraceus*), cottontop cactus (*Echinocactus polycephalus*), hedgehog cactus (*Echinocereus engelmannii*), that occur within the revised PSEGS project disturbance area and buffer area.

**PALEN SOLAR ELECTRIC GENERATING SYSTEM (09-AFC-7C)
DATA REQUESTS – SET 4**

Please provide impacts to ribbed cryptantha expressed in terms of estimated area (acres). Please provide maps and the electronic files (raw GIS data and metadata) for all special status plants mapped and include the boundary of the buffer area. All GIS data should include the scientific name for each species mapped.

**PALEN SOLAR ELECTRIC GENERATING SYSTEM (09-AFC-7C)
DATA REQUESTS – SET 4**

REFERENCES

CEC 2013 – California Energy Commission(CEC). Preliminary Staff Assessment for the Palen Solar Electric Generating System, Amendment to the Palen Solar Power Project. Posted June 28, 2013.

Palen 2013a – Galati Blek/Scott A. Galati (TN 69471). 2013. Supplement No. 1 to Support Palen Solar Holdings, LLC's Petition for Amendment, dated February 8, 2013. Submitted to CEC/C. Stora on February 14, 2013.

**PALEN SOLAR ELECTRIC GENERATING SYSTEM (09-AFC-7C)
DATA REQUESTS – SET 4**

Technical Area: Paleontological Resources
Author: Casey Weaver, CEG

BACKGROUND

Paleontological resources have been documented within Pleistocene age sediments in the site vicinity. Similar sediments underlie the project site at an undetermined but potentially shallow depth. Existing studies indicate the sediments beneath the solar field are likely to contain Pleistocene age vertebrate fossils. As stated by the Society of Vertebrate Paleontology, "vertebrate fossils are significant nonrenewable paleontological resources that are afforded protection by federal, state and local environmental laws and guidelines".

Construction of the Approved Project was to be completed with extensive site grading and substantial excavations. It was noted in the Final Decision that soils classified as having a high sensitivity of containing significant fossils would be monitored and any fossils encountered would be collected and curated. This collection and curation of discovered fossils would further contribute to the scientific understanding of the paleo environment of the area.

The Final Decision of the Approved Project provided mitigation measures related to the discovery of fossils during traditional construction excavations, and acknowledged the loss of fossils in areas where drilled shaft foundations were proposed. This loss due to drilled shaft foundations was considered acceptable because it was thought the excavations and extensive site grading originally proposed would discover an abundance of paleontological resources that would otherwise not be discovered, and the overall number of drilled shaft foundations was relatively small compared to the area proposed for excavation. That logic does not apply to the currently proposed project.

The Modified Project proposes to vibro-insert approximately one hundred seventy thousand heliostat pedestals to support the mirrors with negligible opportunities to observe, identify, recover or collect encountered fossils beneath the extensive solar field. Based on the information staff currently has, the project would create an immitigable significant impact. Staff requests project owner provide further information to determine the extent of paleontological resources at the site.

DATA REQUESTS

76. Please provide any additional information supplemental to the original AFC and the December 2012 Petition to Amend pertaining to the characterization of the paleontological resources, such as published reports and studies documenting the likelihood of existence, type and significance of the paleontological resources.
77. Please provide a plan that would adequately characterize the paleontological resources beneath the site. A draft plan should be made available for staff's review prior to completion of the FSA. The final plan would have to be submitted to the Compliance Project Manager for review and approval at least 30 days prior to initiating any fieldwork. The characterization should be planned and conducted under the direction of a qualified paleontologist who is familiar with the site region

**PALEN SOLAR ELECTRIC GENERATING SYSTEM (09-AFC-7C)
DATA REQUESTS – SET 4**

and in accordance with the BLM's Potential Fossil Yield Classification (PFYC) system. At a minimum, the plan shall include the following:

- a. A description of the methodology used to determine the statistically significant number of excavations (both normal construction and test excavations) required to adequately characterize the sites subsurface within the area where heliostat pylons are proposed.
- b. The proposed depth of excavation.
- c. A map that shows the locations of the proposed excavations. In order to minimize site disturbance and potentially expedite site construction, staff requests that applicant incorporate the locations of excavations required for site improvements (Utility poles, trenches, various foundation elements), and incorporate those locations into the site delineation plan
- d. The methodology proposed to excavate.
- e. The methodology proposed to log the excavations.
- f. The methodology proposed to collect fossil specimens.
- g. The methodology proposed to identify fossil specimens.
- h. The methodology proposed to curate fossil specimens.
- i. The methodology proposed to age date the fossil bearing stratigraphic units.
- j. The methodology proposed to identify fossil specimens.
- k. The methodology proposed to identify the elevation of the top of the excavation.
- l. The methodology proposed to plot the locations of the excavations on a site map.
- m. The methodology proposed to determine the density of fossils throughout the paleontological resource.
- n. The methodology proposed to determine the sensitivity of the macrovertebrate fossils discovered.
- o. The methodology proposed to determine the sensitivity of the microvertebrate fossils discovered.
- p. The contents of a report capable of presenting the interpretation of the collected information that also provides conclusions and recommendations that will reduce the potential significant impacts to paleontological resources caused by heliostat pylon installation.

**PALEN SOLAR ELECTRIC GENERATING SYSTEM (09-AFC-7C)
DATA REQUESTS – SET 4**

Technical Area: Public Health
Author: Dr. Huei-An (Ann) Chu

BACKGROUND: HEALTH RISKS FROM MIRROR WASHING MACHINES, VEHICLE SYSTEMS OF MIRROR WASHING EQUIPMENT AND SITE SUPPORT VEHICLES

In applicant's health risk assessment (HRA) for facility operations, a total of 18 emitting units were modeled by the applicant for facility operations, including 2 auxiliary boilers, 2 night preservation boilers, 8 wet surface air condensers (WSAC) units, 3 emergency electric generator systems and 3 emergency fire pump systems. However, emissions of diesel particulate matter (DPM) from mirror washing activities and onsite operations support vehicles were not included in HRA, and these sources are listed with zero risk.

DATA REQUEST

78. Please revise HRA for facility operations by including DPM from mobile sources (i.e. vehicle systems of mirror washing equipment and site support vehicles).

BACKGROUND: WET SURFACE AIR CONDENSER (WSAC)

Eight wet surface air condenser (WSAC) units would be used for auxiliary equipment cooling. If the PSEGS project intends to use groundwater for cooling, there might be trace amounts of emissions of toxic metals or volatile organic compounds through mist or drift.

In the 2009 Application for Certification (AFC) of 2009 for the approved Palen Solar Project Energy, the only toxic air contaminants (TAC) listed as being emitted from cooling tower was Chloroform. In applicant's response to Data Request 178 in January 6th, 2010, the applicant reported the results of water sampling and analysis conducted on the on-site well water and reported that it contained volatile organic compounds (VOCs), petroleum hydrocarbons, pesticides, herbicides, minerals, metals, and other chemicals of concern. The results were presented in Table DR-PH-178-1, showing that four metals considered as TACs are present in the well water (arsenic, hexavalent chromium, manganese, and zinc). However, in Supplement No. 2 to the 2013 Petition to Amend, the only TACs emitted from the wet surface air cooler are listed as Beryllium and Copper. Staff assumes the water sources are the same and is wondering why the emitted TACs are totally different.

DATA REQUEST

79. Please verify that the water source of WSAC for the currently-proposed project is the same groundwater. If not, please describe the new source of water and how and when it was tested for TACs.

80. If groundwater is the same water source for WSAC as the approved project, please provide groundwater concentrations and emission rates for metals and other chemicals present in groundwater from the WSAC and conduct a revised health risk assessment including all metals and other chemicals detected in the groundwater samples.

81. Please verify that Chloroform is not included in the HRA and provide the reason.

**PALEN SOLAR ELECTRIC GENERATING SYSTEM (09-AFC-7C)
DATA REQUESTS – SET 4**

Technical Area: Socioeconomics
Author: Lisa Worrall

BACKGROUND: CONSTRUCTION WORKFORCE

Appendix 2-C in the December 2012 Petition to Amend identifies the number of construction workers needed for the project. **Appendix 2-C** subheading “**non-craft workers**” identifies subcontractors; owners & others (non-manual), startup labor (non-manual), compliance support, transmission line, gas line, linear compliance support workers; the subheading “**off-site linear**” identifies transmission line, gas line, and compliance support workers.

Staff would like to know whether workers identified in the subheadings listed above correspond to occupational classifications from Employment Development Department (EDD) employment projections so staff can determine whether there is sufficient labor supply within the Riverside/San Bernardino/Ontario metropolitan statistical area (MSA) to meet the project’s construction labor needs.

DATA REQUEST

82. Please provide a list of **non-craft** and **off-site linear** construction workers needed for the PSEGS that is consistent with the U.S. Bureau of Labor Statistics Standard Occupational Classification (SOC) system that the Employment Development Department (EDD) uses in their employment projections by MSA, similar to what was provided in **Appendix 2-C** under subheading **Project Site Construction Craft Day Shift**.

BACKGROUND: OPERATIONS WORKFORCE

The December 2012 Petition to Amend identifies the number of operations workforce that would be employed on the PSEGS, but no list of the types of workers was provided.

Staff would like to know the types of occupations needed for the project’s operations workforce to correspond to occupational classifications from EDD employment projections so staff can determine whether there is sufficient labor supply within the Riverside/San Bernardino/Ontario MSA to meet the project’s operational labor needs.

DATA REQUEST

83. Please provide a list of the types of occupations needed for the project’s operational workforce that is consistent with the U.S. Bureau of Labor Statistics Standard Occupational Classification (SOC) system that the Employment Development Department uses in their employment projections by MSA, similar to what was provided for the construction workforce in **Appendix 2-C** under subheading **Project Site Construction Craft Day Shift**.

**PALEN SOLAR ELECTRIC GENERATING SYSTEM (09-AFC-7C)
DATA REQUESTS – SET 4**

Technical Area: Worker Safety/Fire Prevention
Author: Dr. Alvin Greenberg

BACKGROUND

Recent incidences at a solar tower power plant in California have raised concerns about operating procedures within the tower, worker conditions, and emergency response to incidences in the solar power tower. Staff needs further information and clarification regarding how the project owner proposes to operate the two proposed Palen Solar Electric Generating System (PSEGS) towers in order to properly assess worker safety and fire protection at the proposed Modified Project.

DATA REQUESTS

84. Please describe the means of access to the top of the inside of the tower by workers during construction and operations. Provide either design drawings or a schematic drawing of the inside of the tower that shows the elevator and/or stairs or ladder.
85. Please provide the following information about the tower elevators:
 - a) capacity in number of people and pounds
 - b) type of elevator (cage, enclosed, man-lift, etc.)
 - c) the dimensions of the elevator cage or enclosed structure
 - d) primary and secondary (emergency) power supply
 - e) emergency elevator recall system (manual on-site activation, remote from the control room, wired or wireless)
86. Describe fire detection and suppression systems (fixed and portable) within the tower and in the room at the top of tower behind the boiler.
87. Provide a diagram that describes and shows the room at the top of the tower, the boilers, and the materials that would be used to insulate the room at the top of the tower from solar flux.
88. Please state your intent to station workers in the room at the top of the tower during periods when the tower will be exposed to solar flux, the tasks they will perform, the equipment that will be present, and the expected durations and frequency of this need to have workers at the top of a tower.
89. Please provide a specific Emergency Response Plan that includes a fire suppression plan to respond to emergencies in the tower. Include the type of Personal Protective equipment (PPE) that would be available and required for workers both in a tower and those responding to an emergency in a tower to use in the event of a fire or smoke incidence.



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

**PALEN SOLAR ELECTRIC
 GENERATING SYSTEM AMENDMENT**

**Docket No. 09-AFC-07C
 PROOF OF SERVICE
 (Revised 07/09/2013)**

SERVICE LIST:

APPLICANT

Palen Solar Holdings, LLC
 Clay Jensen
 Charlie Turlinski
 Amanda McCoy
 1999 Harrison Street, Suite 2150
 Oakland, CA 94612
 cjensen@brightsourceenergy.com
 cturlinski@brightsourceenergy.com
 amccoy@brightsourceenergy.com

APPLICANT'S CONSULTANT

Centerline
 Andrea Grenier
 1420 E. Roseville Parkway
 Suite 140-377
 Roseville, CA 95661
 andrea@agrenier.com

APPLICANT'S COUNSEL

Scott Galati, Esq.
 Marie Fleming
 Galati/Blek, LLP
 455 Capitol Mall, Suite 350
 Sacramento, CA 95814
 sgalati@gb-llp.com
 mflaming@gb-llp.com

INTERESTED AGENCY

California ISO
 e-recipient@caiso.com
 County of Riverside
 Office of Riverside County Counsel
 Tiffany North
 3960 Orange Street, Suite 500
 Riverside, CA 92501
 tnorth@co.riverside.ca.us

South Coast Air Quality
 Management District
 Mohsen Nazemi
 21865 Copley Drive
 Diamond Bar, CA 91765-4178
 mnazemi1@aqmd.gov

INTERVENORS

Center for Biological Diversity
 Lisa T. Belenky, Senior Attorney
 351 California St., Suite 600
 San Francisco, CA 94104
 lbelenky@biologicaldiversity.org

Center for Biological Diversity
 Ileene Anderson
 Public Lands Desert Director
 PMB 447, 8033 Sunset Boulevard
 Los Angeles, CA 90046
 ianderson@biologicaldiversity.org

Basin and Range Watch
 Kevin Emmerich
 Laura Cunningham
 P.O. Box 153
 Baker, CA 92309
 atomictoadranch@netzero.net
 bluerockiguana@hughes.net

Californians for Renewable Energy
 Alfredo Acosta Figueroa
 424 North Carlton Avenue
 Blythe, CA 92225
 lacunadeaztlan@aol.com

California Unions for Reliable Energy
 Tanya A. Gulesserian
 Elizabeth Klebaner
 Adams Broadwell Joseph & Cardoza
 601 Gateway Boulevard, Suite 1000
 South San Francisco, CA 94080
 tgulesserian@adamsbroadwell.com
 eklebaner@adamsbroadwell.com

Hildeberto Sanchez, Eddie Simmons,
 and Laborers' International Union of
 North America, Local Union No. 1184
 c/o Richard T. Drury
 Christina M. Caro
 Lozeau|Drury LLP
 410 12th Street, Suite 250
 Oakland, CA 94607
 richard@lozeaudrury.com
 christina@lozeaudrury.com

ENERGY COMMISSION STAFF

Christine Stora
 Project Manager
 Siting, Transmission and
 Environmental Protection Division
 1516 Ninth Street, MS-2000
 Sacramento, CA 95814-5512
 christine.stora@energy.ca.gov

Jennifer Martin-Gallardo
 Staff Counsel
 Office of the Chief Counsel
 1516 Ninth Street, MS-14
 Sacramento, CA 95814-5512
 jennifer.martin-gallardo@energy.ca.gov

*Indicates change

**ENERGY COMMISSION –
PUBLIC ADVISER**

*Alana Mathews
Public Adviser
1516 Ninth Street, MS-12
Sacramento, CA 95814-5512
publicadviser@energy.ca.gov

COMMISSION DOCKET UNIT

California Energy Commission
Docket Unit
Attn: Docket No. 09-AFC-07C
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.ca.gov

**OTHER ENERGY COMMISSION
PARTICIPANTS (LISTED FOR
CONVENIENCE ONLY):**

***After docketing, the Docket Unit will provide a copy to
the persons listed below. Do not send copies of
documents to these persons unless specifically
directed to do so.***

KAREN DOUGLAS
Commissioner and Presiding Member

DAVID HOCHSCHILD
Commissioner and Associate Member

Kenneth Celli
Hearing Adviser

Galen Lemei
Adviser to Presiding Member

Jennifer Nelson
Adviser to Presiding Member

Gabriel D. Taylor
Adviser to Associate Member

Eileen Allen
Commissioners' Technical
Adviser for Facility Siting

DECLARATION OF SERVICE

I, Christine Stora, declare that on July 10, 2013, I served and filed copies of the attached **Palen Solar Project Amendment (09-AFC-7C) – Data Request Set 4 (Nos. 73-89)**, dated July 10, 2013. This document is accompanied by the most recent Proof of Service, which I copied from the web page for this project at: <http://www.energy.ca.gov/sitingcases/palen/compliance/>.

The document has been sent to the other persons on the Service List above in the following manner:

(Check one)

For service to all other parties and filing with the Docket Unit at the Energy Commission:

I e-mailed the document to all e-mail addresses on the Service List above and personally delivered it or deposited it in the U.S. mail with first class postage to those parties noted above as "hard copy required";
OR

Instead of e-mailing the document, I personally delivered it or deposited it in the U.S. mail with first class postage to all of the persons on the Service List for whom a mailing address is given.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that I am over the age of 18 years.

Dated: July 10, 2013

Originally Signed By: Christine Stora
Christine Stora, Project Manager
Siting, Transmission and
Environmental Protection Division