

## DOCKETED

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*Comment Received From: Jody Fraser*

*Submitted On: 11/14/2013*

*Docket Number: 09-AFC-07C*

**U.S. Fish and Wildlife Service comments on CEC FSA for Proposed PSEGS**

*Additional submitted attachment is included below.*



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Ecological Services  
Palm Springs Fish and Wildlife Office  
777 East Tahquitz Canyon Way, Suite 208  
Palm Springs, California 92262

In Reply Refer To:  
FWS-ERIV-09B0187-14CPA0004

Ms. Christine Stora  
Compliance Project Manager  
California Energy Commission  
1516 Ninth Street  
Sacramento, California 95814

NOV 14 2013

Subject: Comments on the California Energy Commission's Final Staff Assessment for the Proposed Palen Solar Electric Generating Facility (09-AFC-07C)

Dear Ms. Stora:

The U.S. Fish and Wildlife Service (Service) has reviewed the California Energy Commission's (CEC) Final Staff Assessment (FSA) Part A, dated September 10, 2013, and participated in the October 29, 2013, evidentiary hearings for the proposed Palen Solar Holdings, LLC (PSH; an indirect subsidiary of BrightSource Energy, Inc.) Palen Solar Electric Generating System (PSEGS) project. The Palen Solar Power Project (PSPP), a solar trough facility originally planned for the PSEGS site, was licensed by the CEC in 2010. In June 2012, PSH bought the assets of the PSPP in bankruptcy court and filed a Petition to Amend with the CEC for the PSEGS project in December 2012. These proceedings are part of the process to analyze the changes to the proposed project and amend the PSPP license.

The proposed modifications to the project include replacing the parabolic trough solar collection system and associated heat transfer fluid with BrightSource's solar power tower technology. Heliostats, which are elevated mirrors guided by a tracking system mounted on pylons, focus the sun's rays on a solar receiver steam generator located atop a 750-foot tower near the center of each solar field to create steam to drive a turbine that generates electricity. The PSEGS project would be comprised of two adjacent solar fields and associated facilities that would be developed in two operational phases. Each phase would consist of one solar field and power block with approximately 250 MW of generation capacity. Each solar field would have an array of approximately 85,000 heliostats for a total of 170,000 heliostats for the project. Each phase would also share common facilities, including an administration building, warehouse, evaporation ponds, maintenance complex with a meter/valve station for incoming natural gas service to the site, an on-site switchyard, and a single-circuit 230-kV generation tie-line to deliver power to the electricity grid. Other on-site facilities would include access and maintenance roads (either dirt, gravel, or paved), perimeter fencing, tortoise fencing, and other ancillary security facilities.

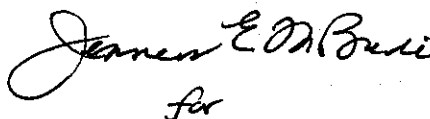
The primary concern and mandate of the Service is the protection of fish and wildlife resources and their habitats. The Service has legal responsibility for the welfare of migratory birds, anadromous fish, and threatened and endangered animals and plants occurring in the United States. As such, we are responsible for administering the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.); the Bald and Golden Eagle Protection Act, as amended (16 U.S.C. 668); and the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712). We recognize the need for development of renewable energy and the challenge of balancing solar energy development with conservation of natural resources in the southwest. We are working with local, State, and Federal agencies involved in desert-wide regional planning to help achieve the various State and Federal renewable energy goals and policies guiding renewable energy programs in a manner consistent with the Service's mission.

After reviewing the FSA, the Service is submitting for the public record our comments on this proposed project (Enclosure 1). In addition, we are enclosing a copy of a letter the Service provided PSH on July 19, 2013, regarding our concerns and recommendations relative to migratory birds and golden eagles (*Aquila chrysaetos*) (Enclosure 2). Incorporated within our comments are responses to the CEC "Memorandum from the Committee suggesting issues to be briefed by the parties" on migratory bird issues.

We concur with CEC staff and the FSA that the proposed PSEGS project would have significant impacts to biological resources. We are concerned with the suite of direct, indirect, and cumulative loss of abundance, distribution, and habitat function for a diversity of desert dependent species and avian species (e.g., resident, winter visitors, and migrants). The Service is also concerned with the multiple effects, as disclosed by the CEC, of the heliostats (e.g., impact mortality and habitat loss) and flux related effects (e.g., burning and blinding) on avian species.

We appreciate the opportunity to participate in the amendment proceedings for this proposed project. We will continue to work with PSH, CEC, and other permitting agencies in addressing outstanding resources issues. If you have any questions regarding these comments or our recommendations, please contact Thomas Dietsch in our Division of Migratory Birds (thomas\_dietsch@fws.gov or 760-431-9440, ext. 214) or Jody Fraser in Ecological Services (jody\_fraser@fws.gov or 760-322-2070 ext. 207).

Sincerely,



Kennon A. Corey  
Assistant Field Supervisor

Enclosures

Ms. Christine Stora (FWS-ERIV-09B0187-14CPA0004)

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cc:

Magdalena Rodriguez, California Department of Fish and Wildlife, Ontario, California

Tom Pogacnik, Bureau of Land Management, California State Office, Sacramento, California

Greg Miller, Bureau of Land Management, California Desert District Office, Moreno Valley,  
California

Andrea Compton, Joshua Tree National Park, Headquarters, Twentynine Palms, California

## Enclosure 1

November 13, 2013

### **U.S. Fish and Wildlife Service, Pacific Southwest Region, Comments on California Energy Commission Final Staff Assessment for the Proposed Palen Solar Energy Generating System Project**

#### **Solar Flux**

The Service is concerned about the potential effects of exposure to elevated levels of solar flux on birds at an individual, local, and population level. The Service agrees with the conclusion stated in the Palen FSA that the use of power tower technology creates a new impact that could result in the injury and death of migratory birds (CEC 2013a). Bird injury and mortality documented at the Ivanpah Solar Energy Generating System (ISEGS) (CEC 2013b) corroborates the findings of McCrary et al. (1986) that elevated levels of solar flux produced by heliostats burn and damage exposed skin and feathers of a variety of avian species. At ISEGS, mortalities from nine species have been reported after suffering injuries consistent with exposure to elevated levels of solar flux, including a range of species from smaller warblers, sparrows, and other passerines to a peregrine falcon (*Falco peregrinus*), a Service Bird of Conservation Concern and a California State fully-protected species (CEC 2013b). While there is a lack of research regarding the level of elevated solar flux that can cause damage, these mortalities reinforce Service concerns that solar flux levels will be high enough during operations to present a significant risk to birds, as well as insects and bats, flying through the flux field.

In addition, the Service is concerned solar flux may injure birds directly by blinding. Degradation of eyesight could result in additional injury and mortality through collisions with objects in the environment (including the towers and heliostats), or preventing the ability to perform normal life functions, including feeding, territorial maintenance, migration, or evading predators.

At this time, the Service acknowledges that limited information is available or has been proffered by the applicant to fully evaluate direct, indirect, and cumulative impacts (blinding and burning) of flux to avian species. We recommend that third-party scientific studies be conducted at all power tower projects during both construction and operation, including Palen and ISEGS, to correct the insufficient baseline information by testing hypotheses regarding the direct and indirect effects of avian exposure to elevated solar flux (above 4 kW/m<sup>2</sup>). In this way, the CEC, Service, and other permitting agencies may make more fully informed decisions and better provide guidance on project siting, operation, and post-construction monitoring.

#### **Collisions with Heliostats**

Results from one solar facility study indicate collisions with mirrored heliostats and other project structures are known to cause significantly higher levels of injury and mortality (81 percent) than flux-related injury/mortality from burning or singing (19 percent) (McCrary et al. 1986). Thirty-seven percent of these birds were birds associated with aquatic and wetland habitats. This level

of mortality to water-associated bird species is similar to the percentage of water bird injuries and mortalities documented at other solar facilities in the region. This suggests that heliostats may have a similar "lake/pond effect" on water birds as photovoltaic arrays. The cumulative effects from the projects proposed and under construction along the I-10 corridor may result in the region becoming a mortality sink for many of the resident and migratory species that utilize this area.

### **Golden Eagles (*Aquila chrysaetos*)**

Golden eagles are protected under the Bald and Golden Eagle Protection Act (Eagle Act). The mountainous topography surrounding the Palen project site supports territorial adults, as well as subadults and non-breeding adult floaters. Surveys conducted by PSH to assess use of the project site by golden eagles were conducted too late in the breeding season to ascertain with certainty the nesting status in 2013. For example, the first golden eagle observations began on April 8, 2013; a timing far later than recommended by the Service (Pagel et al. 2010). Palen Solar Holdings has characterized the use of the site by golden eagles as "low," notwithstanding documentation of nesting territories in Joshua Tree National Park, adjacent BLM-managed lands, and incidental observations of golden eagles proximal to the project footprint. Some of these nests were active as recently as 2010 (CEC 2010). Furthermore, a golden eagle observation on the Palen site on May 20, 2013, was reported in field notes submitted to BLM and the Service, although the final spring survey report has not yet been submitted.

Without adequate, robust surveys of eagle use at the project site, risks to eagles will be difficult to evaluate due to the large size of the project footprint, vast distances golden eagles travel in xeric habitat during daily foraging and territorial defense activities, and potential for seasonal and annual variation in the number of breeders, floaters, subadults, and migrants that may use the project footprint and surrounding habitat during breeding and non-breeding movements. Upon review of the limited data collected by the applicant and docketed by the CEC, the data provided to date are insufficient to document eagle use of the area through the annual cycle. The Service is concerned that the project proponent will be unable to present a robust risk characterization of direct, indirect, and cumulative effects to golden eagles unless adequate data are collected as recommended in our July 19, 2013, letter to the project proponent (Enclosure 2). As noted, golden eagles do not nest on the project footprint; however, the habitat immediately adjacent to the proposed project site supports several known nests. Last winter the Bloom Biological, Inc. documented at least one subadult golden eagle using areas near the project site during project-specific carcass surveys (CEC 2013c).

Based on a review of the project-specific data, our knowledge of the site in a regional context, and the life history of the species, we conclude that the proposed project has the potential to impact golden eagles through a) the loss of foraging habitat; b) the risk of direct take of eagles through injury or mortality caused by exposure to elevated levels of solar flux and collision with heliostats; and c) will negatively contribute to cumulative losses of habitat used by juvenile, subadult, floater, and resident golden eagles. For these reasons, we met with PSH in July 2013 regarding the preparation of an Eagle Conservation Plan (ECP) to quantify, evaluate, and address

potential threats to eagles, and describe the measures that would be implemented to avoid, minimize, rectify, reduce or eliminate, and mitigate those threats over the life of the proposed project. Palen Solar Holdings committed to submitting a Bird and Bat Conservation Strategy (BBCS) and an ECP that will be thoroughly reviewed in coordination with the Service before the Notice to Proceed is issued by the BLM should the project be permitted.

The BBCS and ECP are planning documents that provide tools for assessing risk from the project to eagles and other birds, in addition to describing a robust monitoring component that would provide the basis for the adaptive management framework presented in the documents. If, following robust analysis of available data, unintentional take is deemed to be likely, or at a level of 0.03 eagles per year (Service 2009), we recommend that PSH seek a programmatic take permit and use the ECP as the basis for their permit application. Without an eagle take permit, take of eagles would be a violation of the Eagle Act. Consequently, we concur with the CEC Condition of Certification (COC) BIO-16B recommending an "Eagle Protection Plan", but suggest that the CEC use the same terminology as the Service and refer to the "Eagle Protection Plan" as an "Eagle Conservation Plan" for consistency. While the Service ECP Guidelines were developed for wind resource projects, the Service has committed to working with developers of utility-scale solar projects to modify those components of the guidelines that are clearly written for wind projects to allow the use of similar analytical and adaptive management approaches. The ECP could then be used as the basis for an eagle take permit application. While CEC COC BIO-16A allows for compensatory mitigation for the take of golden eagles, permits for the take of golden eagles are necessary prior to take of golden eagles. As we indicated in our letter to PSH, an eagle take permit would allow the project to receive credit for the compensatory mitigation that has been offered as long as it meets the "no net loss" and "best scientific and practicable methods available" standards.

In addition, risks to bald eagles (*Haliaeetus leucocephalus*) have not been considered thus far. Bald eagles were observed at Lake Tamarisk on October 5, 2013, about 5 miles from the project location and in January 2013 near Blythe at the Cibola National Wildlife Refuge to the southeast (reports available on [www.eBird.org](http://www.eBird.org)). Bald eagles do not nest at Lake Tamarisk, but this species is known to migrate across the desert from the coast and Imperial Valley to the Colorado River corridor; therefore, a similar effects analysis should be conducted for bald eagles as part of the proceedings.

### **Migratory Birds**

At nearby Lake Tamarisk, bird enthusiasts have documented at least 202 bird species that are residents and/or migrants. Some of the bird species observed, such as yellow-billed cuckoo (*Coccyzus americanus*), turkey vulture (*Cathartes aura*), broad-winged hawk (*Buteo platypterus*), and Swainson's hawks (*B. swainsoni*), are known to migrate in pulses and in large numbers. This suggests many species of birds may move through the area in a relatively short time and could be missed by the sampling regime implemented by PSH. Additionally, desert songbirds can congregate in large flocks to forage and avoid predators during the winter months. These flocks are likely using the site and nearby habitat and could also be under-sampled during



the limited surveys conducted for the project. During a visit to the project site in April 10, 2013, Service staff observed ferruginous hawks (*B. regalis*) in the northern portion of the project site and CEC staff observed at least 29 different species in one observation period on the same morning. On the morning of Sept. 30, 2013, an observer reported approximately 3,000 turkey vultures flying en masse over Desert Center (accessed at AZBIRD.net).

Despite the comparatively low structural and biological diversity of plants on the project site, these habitats support unique breeding and wintering populations of birds and provide important migratory stopover habitat. Recent research by Ruth et al. (2012) suggests that open arid habitats in the southwest may be more important than previously thought for migratory birds. The Service recommends that project-specific site characterizations should fully consider the geographic location and the temporal aspects of habitat use by both resident and migratory species.

Surveys were conducted on the project site to assess use by migratory birds; however, the data submitted by PSH to date are inadequate to characterize migratory bird use of the habitat, and the non-breeding occurrence of bald and golden eagles and other raptors. Surveys using protocols recommended by the interagency Renewable Energy Action Team (REAT) were only conducted during April 2013. This short timeframe is not adequate to provide a baseline of avian use of the site prior to construction. An adequate baseline of avian use of the project site is necessary to evaluate changes to the bird community resulting from plant operations and to design meaningful adaptive management measures should impacts be observed. Therefore, we recommend that PSH continue surveys using REAT-approved protocols until construction begins and if necessary, off-site after construction in similar habitats.

### **Proposed Compensation for Impacts to Migratory Birds**

Migratory birds are an important component of our national heritage and a trust resource for the Service. Birds are also important economic resources, given that they prey on numerous species that are considered pests (e.g., some insects and rodents) and generate income to communities through bird-watching. The unauthorized take of migratory birds is illegal under the Migratory Bird Treaty Act (MBTA) and currently, there are no mechanisms for the issuance of an incidental take permit for migratory birds for a project such as this. We support both the CEC and PSH in considering the implementation of measures to partially offset the adverse effects of the proposed action to migratory birds and their habitat. However, the proposed mitigation does not alleviate the responsibility of PSH to avoid impacts to migratory birds under the MBTA. Furthermore, without a clear assessment of bird use of the site and the level of harm the project may cause from direct and indirect take of migratory birds, we do not have any basis to evaluate whether total impacts from the project could be adequately offset through other conservation measures.

Nonetheless, we support the CEC COC BIO-16B for the development of a BBCS that will be supported by robust data, and look forward to collaborating with PSH and REAT agencies on developing an appropriate approach to conserve birds, including residents, winter visitors, and

migrants. We consider PSH's proposal to implement or fund measures that would conserve migratory birds on a regional basis as an important first step to offset the potential adverse effects of the proposed project and to improve the conservation status of migratory birds on a regional basis. Furthermore, we recommend that resources mentioned in CEC COC BIO-16A to benefit migratory birds be directed to the Sonoran Joint Venture (<http://sonoranjv.org/>) rather than the Migratory Bird Conservation Fund, which focuses on acquiring wetlands as habitat for migratory waterfowl. The Sonoran Joint Venture is a multi-agency Federal, State and non-governmental partnership with the mission of conserving the unique birds and habitats of the southwestern United States and northwestern Mexico. In addition, the National Fish and Wildlife Foundation is another venue that would be well suited to direct conservation funding for migratory birds in the region of the project. The Service also concurs with the CEC COC BIO-16B that for the life of the project, PSH will be responsible for the financial costs directly accrued by avian rehabilitation, and expenses associated with improving fitness necessary for release of any and all birds injured on-site by collision and/or flux.

A robust adaptive management program should be specified in the BBCS that would address the need for additional information on the extent of and circumstances surrounding avian and bat mortality at the site, and explore the most effective methods for avoiding and minimizing these impacts. As spelled out in the BBCS, PSH would implement and revise management practices as necessary to reduce or mitigate avian mortality issues as they arise. An ECP should also be prepared that assesses the risk to golden eagles. The adaptive management section of the BBCS and ECP should include specific steps that will be taken should eagle take or other avian mortality occur. These could include developing advanced conservation practices to detect and deter birds, or that would that reduce operations to diminish mortality when eagles or other bird species are detected and determined to be at risk using radar or other methods. In an effort to ensure avian mortality does not rise to a level that would result in a significant impact on bird populations, the BBCS should include the possibility that project operations may need to be curtailed during seasons (spring and fall migration) and times of day (dusk and dawn) when higher bird activity is expected. Species-specific take limits for special status species could also be identified to trigger reduced operation.

The BBCS is not a surrogate for a take permit under the MBTA; therefore it does not limit or preclude the Service from exercising its authority under any law, statute, or regulation, nor does it release any individual, company, or agency of its obligations to comply with Federal State, or local laws, statutes, or regulations. To address impacts to golden eagles, advanced conservation practices for this species would be developed through the ECP and eagle take permit process.

### **Pollinating Insects**

Staff with the CEC reported mass mortalities of insects killed during flux testing at the ISEGS site; among those documented include migratory monarch butterflies and dragonflies. This was also reported at Solar One by McCrary (CEC 2013d, McCrary et al. 1986). The Service emphasizes that resident pollinating and migratory insects are important not only to the desert ecosystem and avifauna, but to insect-dependent species at locations all along their migratory

route. The ecological effects of mass insect mortalities have not been investigated and may lead to greater levels of mortality than have been anticipated. In particular, concentrations of insects are likely to draw insectivorous and omnivorous migratory bird species, including many raptors, which may increase the risk of bird mortalities (Newton 2008). Consequently, we recommend focused research on the ecological processes associated with the operation of this facility, particularly species-specific responses and multi-trophic level interactions within the elevated solar flux field.

### **Desert Tortoise**

We are still seeking clarification on impacts to desert tortoise and its habitat from the proposed project's gas line. We will continue to work with CEC, BLM, and the applicant on clarifying impacts from that component.

### **Desert Tortoise Connectivity**

Models have shown variation in the relationship of the proposed project area with respect to modeled desert tortoise connectivity. The Service promotes looking at connectivity from a regional perspective and is concerned about the ability to mitigate for the ongoing cumulative impacts to desert tortoise population and habitat linkages. We concur with the COCs that require land acquisition proposed to mitigate for impacts to linkages should be strategically identified and focused on improving the linkage affected by the proposed project. We also recommend CEC require a contribution to a long-term monitoring effort to study desert tortoise connectivity in the vicinity of the Palen project.

### **Yuma Clapper Rail**

Many avian species are attracted to water sources, especially in the desert. The Service is concerned that the evaporation ponds proposed with the project will function as an attractant, drawing birds into the area where they may encounter a number of threats from project features. Specifically, there are several avian species listed under the Endangered Species Act, as well as the MBTA that occupy the desert, including but not limited to the Yuma clapper rail. Although other project features may still attract Yuma clapper rails to the site, we recommend the evaporation ponds are removed (or effectively covered) from the proposed project in an effort to reduce the number of potential attractants. Additionally, we are concerned about the lake effect from the heliostats and the potential risks to avian species from this kind of attractant.

### **Mojave Fringe-toed Lizard and Sand Transport**

The Service has been in close coordination with the BLM and California Department of Fish and Wildlife on impacts to sand transport and Mojave fringe-toed lizard (MFTL) from project development. The REAT agencies remain concerned about the impacts to the sand transport system and the discrepancies in the quantification of impacts relative to the different resources

(e.g., dunes, sand transport system, and MFTL habitat) and mitigation for indirect impacts. We will continue to work with the REAT agencies to clarify these concerns.

### **Additional Comments**

The Service has noted that avian mortalities and other impacts to wildlife commence long before construction of a project is complete. Consequently, we recommend that the project BBCS and all associated permits be in place prior to beginning construction. Typically, Technical Advisory Committees (TAC) as called for in CEC COC BIO-16B are not formed prior to plant operations (i.e., ISEGS); however, we recommend that the TAC for the Palen project be established and in place prior to permitting and subsequent construction of the facility. The Service also recommends that a scientifically robust mortality monitoring plan for the site be completed and reviewed in consultation with the Service as part of the BBCS prior to the start of any construction on-site. This plan will fully address and monitor construction-related mortalities of wildlife (mammals, reptiles, and avifauna) including insects (i.e., at water ponds, fencing, utility wires, and impacts with vehicles), heliostat presence (monitoring from first installation of heliostats), flux testing (insects, birds, and bats), and operation. The plan should include daily checks for bird mortalities in the areas cleared of vegetation under the towers in response to the "funnel effect" of dead birds recently observed at another power tower facility. The monitoring plan should be robust, and the Service recommends that all monitoring be conducted by a third party, hired by CEC or the BLM.

The Service recommends that public workshops as described in COC BIO-16B to present data collection results, discuss and evaluate suitable adaptive management measures, and determine if additional mitigation is required, be a regular feature of TAC operations. The Service also recommends that public workshops should occur after 2 years from the start of construction, and annually after the start of operation of the facility in association with review of mortality reports and consideration of adaptive management. Based on the documentation of mortality of avifauna and bats at ISEGS, we believe dissemination and review of operation impacts should be publicly disclosed and discussed early enough in the plant's operation to allow for meaningful adaptive management and mitigation of impacts to wildlife. As part of this public disclosure process, the Service agrees that all mortalities and injuries of birds on-site should be documented by photographs using high quality resolution images as described in the COC BIO-16, as revised, along with the appropriate data necessary to understand the circumstances of the mortality, with all records being provided to members of the TAC and the public. We are aware of existing cameras on-site as part of the operational maintenance features of the facility. We recommend these be utilized to also capture video of bird incidents occurring in the flux zones.

## References

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## United States Department of the Interior



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IN REPLY REFER TO:  
FWS/RR/MBS/MB

**JUL 19 2013**

Clay Jensen, Senior Director Project Development  
Palen Solar Holdings, LLC  
1999 Harrison, Suite 2150  
Oakland, CA 94612

Dear Mr. Jensen,

My staff and I greatly appreciated the opportunity to discuss the proposed Palen Solar Energy Generating System Project (Palen) with your team on June 27th, 2013. I would like to summarize the Fish and Wildlife Service's (Service) position regarding migratory bird and eagle issues arising from the project as we discussed during the meeting.

The Service remains concerned about the potential impacts from the project to migratory birds and golden eagles. Evidence presented by the Service and others to the California Energy Commission (CEC) for other projects using the same power tower technology proposed for Palen suggests that eagles and other birds are at risk of direct injury and blindness from elevated solar flux levels. In addition, there is the potential for direct injury from collision with project components, including the mirror heliostats and the 750 foot towers. Consequently, we appreciate your commitment to submitting a Bird and Bat Conservation Strategy (BBCS) and an Eagle Conservation Plan (ECP) before the Notice to Proceed is issued by the Bureau of Land Management. The BBCS and ECP are planning documents that provide tools for assessing risk from the project to eagles and other birds, in addition to detailing the robust monitoring that will provide the basis for the adaptive management framework presented in the documents.

Since the BBCS and ECP guidelines were initially developed for wind projects, some of the specifics will not apply to the Palen project. The Service plans to work cooperatively with Palen to adapt those sections where the guidance needs to be refined for this technology. We acknowledge your intent to finalize the ECP prior to the commercial operational date. Mortality monitoring and risk assessment to eagles and other migratory birds will require robust data as inputs. Therefore, we recommend that the avian surveys included in CEC Data Request Number Three continue until construction commences to capture the critical fall migratory and overwintering periods. The BBCS and ECP should specify all additional monitoring, including mortality monitoring, during the construction and operational phases of the project. Preconstruction surveys will document bird populations and community composition at the project site as a baseline for evaluating impacts once the project is underway. Mortality monitoring and continued avian surveys can then be utilized as the basis for evaluating project impacts to inform adaptive management.

Through adaptive management, Palen will be able to implement and revise management practices as necessary to reduce or mitigate avian mortality issues as they arise. The adaptive

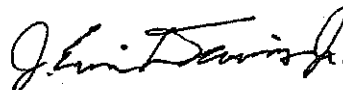
Enclosure 2

management section of the BBCS and ECP should include specific steps that will be taken should eagle take or other avian mortality occur. These could include developing advanced conservation practices that modify operations to reduce mortality by reducing or diffusing the concentrated solar flux when eagles or other bird species are detected as at risk using radar or other technologies. Other spatial and temporal curtailments of operations could be used to respond to specific issues, such as active breeding attempts or migratory events. The Service is already working with project proponents on a similar project at Ivanpah to develop robust monitoring and an adaptive management framework that can serve as a model for the BBCS and ECP documents for Palen.

Once the eagle risk assessment is completed utilizing all available data, including eagle use data the company is gathering, the Service will be better able to determine whether an eagle take permit would be appropriate. The threshold for projects that pose a high or moderate risk to eagles and the level at which the Service would recommend an eagle take permit if estimated take is 0.03 eagles per year (ECP Guidelines 2013). An eagle take permit would allow the project to receive credit for the compensatory mitigation that has been offered as long as it meets the "no net loss" and "best scientific and practicable methods available" standards. The recently published ECP guidelines describe the process for calculating mitigation and acceptable forms of mitigation. The completed ECP would provide the basis for an eagle take permit should the project apply for a permit.

Thank you for taking the time to meet with us regarding migratory bird and eagle issues pertaining to Palen. Please feel free to contact Thomas Dietsch (thomas\_dietsch@fws.gov) if you have any further questions.

Sincerely,



Eric Davis  
Assistant Regional Director  
Migratory Birds and State Programs

Cc:

Tom Pogacnik, Bureau of Land Management, California Office  
Peter Weiner, Paul Hastings LLC  
Scott Galati, Centerline  
Matt Stucky, P.E., Abengoa Solar  
Ken Corey, Fish and Wildlife Service, Palm Springs Field Office