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# United States Department of the Interior



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## Memorandum

To: California Desert District Manager, Bureau of Land Management,  
Moreno Valley, California  
Attention: Greg Miller

From: *Acting* Assistant Field Supervisor, Palm Springs Fish and Wildlife Office  
Palm Springs, California

*Jenna E. Boudie*

Subject: Comments on the Draft Supplemental Environmental Impact Statement for the  
Proposed Palen Solar Energy Generation System Project, Riverside County,  
California (CACA# 048810)

This memorandum transmits the U.S. Fish and Wildlife Service's (Service) comments on the Bureau of Land Management's (BLM) draft Supplemental Environmental Impact Statement (DSEIS) for the proposed 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 California Energy Commission (CEC) in 2010 (CEC 2010a). The BLM completed a final EIS for the PSPP project (BLM 2010), but a record of decision was never issued and the PSPP was never constructed. In June 2012, Palen Solar Holdings (PSH; an indirect subsidiary of BrightSource Energy, Inc.) 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. Palen Solar III, LLC (PS III; a joint venture between Abengoa, Inc. and BrightSource Energy, Inc.) submitted a revised plan of development to the BLM in support of the right-of-way grant application in February 2013. The BLM released the DSEIS for the PSEGS project in July 2013 (BLM 2013).

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 megawatts 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-kilovolt 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.

**Mojave Fringe-toed Lizard (*Uma scoparia*), Sand Transport, and Dune Systems (sections 4.14, 4.17, and 4.21 *et seq.*)**

The Mojave fringe-toed lizard is a California Species of Concern, BLM-designated sensitive species, and proposed covered species in the Desert Renewable Energy Conservation Plan, currently in preparation. The DSEIS relies upon the PSPP analysis and concludes that because the PSPP was reconfigured, impacts to sand transport, dunes, and Mojave fringe-toed lizard habitat would be avoided, in part because the elimination of the 30-foot wind fences (proposed for the PSPP) would allow sand transport to continue across the project site. However, the CEC's Final Staff Assessment (FSA) for PSEGS (CEC 2013a) incorporates more current information, including a new sand transport model, and analysis that would better inform the BLM's DSEIS and conclusions. In addition, expert witness testimony presented at CEC's FSA evidentiary hearing on Oct. 29, 2013, further established the basis for concluding that sand transport dynamics and various sand formation habitats for the Mojave fringe-toed lizard would be directly and indirectly lost and degraded by the proposed PSEGS project.

The recent modeling data and expert testimony indicate that deflation of on-site and downwind sand deposits would result from disrupted wind flow/sand transport by various project features, such as perimeter fencing, heliostat fields, and other project infrastructure. This habitat loss and degradation by direct (on-site) and indirect (downwind off-site) disruption of sand transport processes would eliminate and degrade the various active and stabilized sand deposits that provide Mojave fringe-toed lizard habitat (i.e., dunes, sand sheets, creosote hummocks) downwind of the project. Project-related obstructions would intercept and block downwind sand movement, effectively starving downwind habitats of the replenishing sand supplies from upwind sources. Essentially, once the aeolian sand transport corridors become obstructed, sand-starved winds downwind of the obstacles erode the fine-grained sand particles, leaving behind an armored surface of coarser-grained sand and pebbles that the winds cannot entrain, and are unsuitable for the Mojave fringe-toed lizard. Graphic examples of these deflationary downwind impacts are well documented in the Coachella Valley, as presented by expert testimony at CEC's Oct. 29, 2013 evidentiary hearing.

Though CEC's FSA and related expert testimony largely account for the physical processes and impacts discussed above, the proposed mitigation does not adequately address the loss of non-dune habitats across which sands are transported. As sand supplies are delivered hydrologically by major storm events to the aeolian transport corridor, the periodic pulses of sand are sorted and transported in the prevailing wind direction. Between major storm events, winds often erode all the finer-grained sand particles at various points along the aeolian corridor, resulting in a patchy distribution of various sand formations that are progressively moving downwind to localized

areas along the edge of the corridor or terminus of the larger aeolian system. Therefore, currently sand-starved areas are ephemeral artifacts during intervals between major storm events and associated pulses of sand. As such, the temporary patches of sand-starved habitat downwind of the project need to be addressed as part of the overall mitigation strategy if the integrity of the overall sand transport system is to be maintained. Unlike CEC's proposal for mitigating impacts to the Mojave fringe-toed lizard, we recommend that all lands within the aeolian transport corridor be mitigated equally, regardless of currently ephemeral conditions in a highly dynamic and fast-changing aeolian transport system. Therefore, we recommend all directly and indirectly impacted portions of the aeolian transport corridor be offset consistent with the 3:1 ratio required in BLM's NECO plan amendment to the CDCA Plan (BLM 2002). In addition, we recommend that the BLM integrate the most recent impact analysis and expert testimony provided through the CEC proceedings into the final SEIS.

### **Golden Eagles (*Aquila chryaetos*) (section 3.23 and 4.21)**

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 2010b). 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. We are 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 PSH (Attachment). As noted in the DSEIS, golden eagles do not nest within the project footprint; however, the habitat immediately adjacent to the proposed project site supports several known nests. Last winter, Bloom Biological, Inc. documented at least one subadult golden eagle using areas near the project site during project-specific carcass surveys (CEC 2013b).

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 BLM Applicant Proposed Measure (APM) and CEC Condition of Certification (COC) BIO-16B in recommending an "Eagle Protection Plan", but suggest that the terminology be consistent with that which is used by the Service and refer to the "Eagle Protection Plan" as an "Eagle Conservation Plan" for consistency. While the Service's ECP Guidelines were developed for wind resource projects, we have 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 BLM APM and 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 EIS process.

**Migratory Birds (section 3.23 and 4.21)**

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. Because of the potential for significant cumulative effects, we recommend 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 and contained in the DSEIS 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 BLM 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 BLM APM and CEC COC BIO-16B for the development of a BBCS that will be supported by robust data, and look forward to collaborating with PSH, BLM, and other 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 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. We also concur with the BIO 16B that for the life of the project PSH will be responsible for the financial costs associated with avian rehabilitation and expenses associated with improving fitness necessary for release of any and all birds injured on-site by collision and/or solar flux.

We have 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 BLM APM and 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. We also recommend that a scientifically robust mortality monitoring plan for the site be completed and reviewed in coordination with the BLM, Service, CEC, and other permitting agencies 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 we recommend that all monitoring be conducted by a third party, hired by CEC or the BLM.

We also suggest that public workshops as described in BLM APM and CEC 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. We recommend 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, we agree 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.

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 established in the BBCS, PSH would implement and revise management practices as necessary to reduce or mitigate avian mortality issues as they arise. An ECP would 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 modify operations to reduce 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.

#### **Solar Flux (section 4.21)**

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. We agree with the conclusions contained in the CEC's FSA for the proposed project 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 2013c) corroborates the findings of McCrary et al. (1986) that elevated levels of solar flux produced by



heliostats can 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, a Service Bird of Conservation Concern and a California State fully-protected species (CEC 2013c). 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. This new information should be integrated into the BLM's final SEIS analysis.

In addition and as mentioned in the DSEIS, we remain 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, we acknowledge that limited information is available or has been proffered by the applicant to fully evaluate direct, indirect, and cumulative impacts (blinding and burning) of solar 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, ISEGS, and Rice Solar Reserve, 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 BLM, Service, CEC, 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 (section 4.21)**

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.

#### **Evaporation Ponds (section 4.21)**

The numerous avian mortalities at other utility-scale solar facilities along the I-10 corridor have elevated our concern about these project features. We recommend that evaporation ponds are either eliminated from the project entirely with an alternate means of removing waste liquids or

that the ponds be covered completely with an opaque or camouflage material that eliminates the attractant.

### **Applicant Proposed Measures (Appendix C, pages C-30 to end)**

Because the APMs included in the DSEIS are based on the CEC COCs, we recommend the BLM incorporate the final COCs that were agreed upon during the CEC evidentiary hearing on October 29, 2013, as many applicable to this document have been revised. In particular, BIO 16A, B, and C that address avian species should be updated.

If evaporation pond netting is used, the specifications for BIO-26 should be revised to address recent observations of birds getting entangled in netting at other solar facilities in the region. If the evaporation ponds cannot be eliminated from the project and opaque or camouflage materials cannot be used as recommended above, the applicant should work with the BLM and the Service to ensure the most effective treatment is applied at the site. Monitoring should occur as defined in the BBCS.

### **Additional Concerns not Addressed in DSEIS – Yuma Clapper Rail**

Many avian species are attracted to real and apparent water sources in the desert. We are concerned that the proposed evaporation ponds and heliostats will function as an attractant, drawing birds into the area where they may encounter a number of threats from project features and solar flux. Yuma clapper rail, a State and Federal endangered species, is known to occur occasionally at nearby Lake Tamarisk in Desert Center, and a single carcass was found this year on a neighboring photovoltaic solar project. Because of these concerns, we are working with the BLM to identify conservation measures to minimize potential impacts to the species through the section 7 consultation process.

### **Pollinating Insects**

Staff with the CEC reported large 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). We are concerned about the potential impacts to resident pollinating and migratory insects that are important not only to the desert ecosystem and avifauna, but to insect-dependent bird and bat 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 potential impacts to ecological processes from the operation of this facility, particularly species-specific responses and multi-trophic level interactions within the elevated solar flux field.

We appreciate the additional time allotted to review the DSEIS due to the government shutdown over October 1 through 16, 2013. 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 will continue to work with local, State, and Federal agencies involved in desert-wide regional planning to help achieve the various renewable energy goals and policies guiding development in a manner consistent with the Service's mission. Please contact Jody Fraser at 760-322-2070 or [jody\\_fraser@fws.gov](mailto:jody_fraser@fws.gov) if you have any questions regarding our comments or recommendations on the proposed PSEGS project.

Attachment

cc:

Christine Stora, California Energy Commission, Sacramento, California  
Magdalena Rodriguez, California Department of Fish and Wildlife, Ontario, California  
Andrea Compton, Joshua Tree National Park, Headquarters, Twentynine Palms, California

**Literature Cited**

- AZBIRD.net. 2013. Accessed at <http://azbird.net/sightings/showthread.php?tid=6751#sthash.Rgmrayaa.dpuf>. October 24, 2013.
- (BLM) Bureau of Land Management. 2002. Northern and Eastern Colorado Desert coordinated management plan, an amendment of the 1980 Bureau of Land Management California Desert Conservation Area Plan. Bureau of Land Management, California Desert District, Moreno Valley, California.
- (BLM) Bureau of Land Management. 2010. Final Environmental Impact Statement for the Palen Solar Power Project (PSPP). Prepared by Environmental Science Associates (ESA) for the BLM.
- (BLM) Bureau of Land Management. 2013. Draft Supplemental EIS for the Palen Solar Electric Generating System (formerly Palen Solar Power Project). Volume 1 and Appendices. Palm Springs - South Coast Field Office, Palm Springs, California.
- (CEC) California Energy Commission. 2010a. Palen Solar Power Project Commission Decision. CEC-800-2010-010 CMF, Docket Number 09-AFC-7.
- (CEC) California Energy Commission. 2010b. Applicant's Golden Eagle Survey Results, dated September 13, 2010. (TN 58454). Submitted to CEC/Docket Unit (09-AFC-7) on September 13, 2010.
- (CEC) California Energy Commission. 2013a. Palen Solar Electric Generating System FSA – Part A, dated September 10, 2013 (TN 200442). Submitted to CEC/Docket Unit (09-AFC-7C) on September 10, 2013.
- (CEC) California Energy Commission. 2013b. Palen Solar Electric Generating System Winter 2013 Golden Eagle Survey Results (TN 70242). Submitted to CEC/Docket Unit (09-AFC-7) on April 08, 2013.
- (CEC) California Energy Commission. 2013c. Avian Mortality Report 9-1-2013, spreadsheet of avian mortalities from ISEGS, Exh. 2057 (TN 200962). Submitted to CEC/Docket Unit (09-AFC-7) on October 18, 2013.
- (CEC) California Energy Commission. 2013d. Pat Flanagan testimony, declaration, and resume (TN 200892). Submitted to CEC/Docket Unit (09-AFC-7) on October 16, 2013.
- McCrary, M.D., R.L. McKernan, R.W. Schreiber, W.D. Wagner, and T.C. Sciarrotta. 1986. Avian Mortality at a Solar Energy Power Plant. *Journal of Field Ornithology*, 57(2): 135-141.

Newton, I. 2008. *The Migration Ecology of Birds*. Academic Press. London, UK, 976 pages.

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.

Ruth, J.M., R.H. Diehl, and R.K. Felix, Jr. 2012. Migrating birds' use of stopover habitat in the Southwestern United States. *Condor* 114(4): 698-710.

(Service) U.S. Fish and Wildlife Service. 2009. Final Environmental Assessment Proposal to Permit Take as Provided Under the Bald and Golden Eagle Protection Act. Division of Migratory Bird Management.



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**JUL 19 2013**

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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

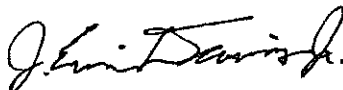
Attachment

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:

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