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Docket Number:	09-AFC-07C
Project Title:	Palen Solar Power Project - Compliance
TN #:	202929
Document Title:	Palen Solar Holdings, LLC's Proposed Modifications to BIO-16b - Outcome Performance Standards
Description:	N/A
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Submission Date:	8/15/2014 9:14:04 AM
Docketed Date:	8/15/2014

AVIAN AND BAT PROTECTION PLAN

BIO-16b The Project owner shall prepare a Bird and Bat Conservation Strategy (BBCS) and submit it to the CPM for review and approval, in conjunction with BLM, CDFW, and USFWS for review and comment or, if available, shall implement a standard monitoring protocol as developed by the BLM, USFWS, CDFW, and Energy Commission staff. The BBCS, whether developed by the project owner or the regulatory agencies, shall provide for the following:

- Survey and monitor onsite and offsite avian use and behavior to document species composition on and offsite, compare onsite and offsite rates of avian and bat use, document changes in avian and bat use over time, and evaluate the general behavior of birds in and near the facility.
- Implement an onsite and offsite (if feasible) avian and bat mortality and injury monitoring program to identify the extent of potential avian or bat mortality or injury from collisions with facility structures or from elevated levels of solar flux that may be encountered within the facility airspace, including:
 - assessing levels of collision-related mortality and injury with heliostats, perimeter fences and power tower structures;
 - calculating rates of solar flux-related avian mortality and injury, if any;
 - documenting seasonal, temporal, and weather-related patterns associated with collision- or solar flux-related mortality and injury, if any; and
 - documenting flight spatial patterns that may be associated with collision- or flux-related mortality and injury, if any.
 - documenting spatial patterns that may be associated with avoidance of the facility.
- Identify specific conservation measures and/or programs to minimize impacts and evaluate the effectiveness of those measures.
- Implement an adaptive management and decision-making framework for reviewing, characterizing, and responding to quantitative survey and monitoring results. ***Include performance standards in the decision-making framework to determine the effectiveness of adaptive management and/or deterrent methods.***
- ***Inclusion of performance standards in the decision-making framework to direct the distribution of the funds of BIO-16a towards programs that benefit the types of avian species being impacted.***

BBCS Components

The project owner shall prepare and implement a BBCS adopting all requirements applicable to solar generation in current guidelines recommended by the USFWS (currently 2012 USFWS Land Based Wind Energy Guidelines). The BBCS shall include the following components:

1. Preconstruction Baseline survey results. A description and summary of the baseline survey methods and results.
2. Formation of a technical advisory committee (TAC). The TAC will consist of a single representative of the BLM, CEC, CDFW, USFWS, one representative of the Project Owner involved in operation of the project and one representative of the Project Owner with environmental compliance responsibilities. The representatives of the Project Owner will not have voting rights on the TAC. The TAC will facilitate concurrent project owner, CPM, and state and federal wildlife agency review of seasonal and annual survey results, development of a decision-framework for evaluating the effectiveness of the adaptive management measures implemented by the project owner, modification of the surveys in response to the results, if necessary, ***distribution of the funds of BIO-16a towards programs that benefit the types of avian species being impacted as outlined in Section 7(c)***, and the identification of additional mitigation responses that are commensurate with the extent of impacts that may be identified in the monitoring studies. A meeting schedule for the TAC will be identified, for regular review of avian and bat injury and mortality monitoring results, and **to** recommend to the CPM for approval any necessary changes to monitoring, adaptive management, and appropriate dissemination of mitigation funds per BIO-16a #2. The TAC will also assist the CPM in implementing the following provisions #3 - #8 and the CPM will have the authority to require independent, third-party monitoring, if it determines that the project owner is not monitoring consistent with the approved BBCS and the project owner fails to timely cure such inconsistency after reasonable advance notice from the CPM.
3. Avian and bat use and behavior surveys. Avian and bat site-use behavior surveys shall be conducted during construction and operation. The program will outline survey methodology and field documentation, identification of appropriate onsite and offsite survey locations, control sites, and the seasonal considerations. Prey abundance surveys will also be conducted to identify the locations and changes in the abundance of prey species. Bat acoustic sampling may be implemented depending on results of the baseline study.
4. Golden eagle nest surveys and monitoring. Results of annual pedestrian and/or helicopter surveys of golden eagle nesting sites within a 10-mile radius of the project site, including a summary of available information concerning golden eagle nesting activity in the project vicinity.

5. Avian and bat mortality and injury monitoring: An avian and bat injury and mortality monitoring program shall be implemented during construction and operation of the project. The results of avian monitoring data shall be reported directly to the CPM and the project owner, as well as all raw data and field notes. Monitoring activities will include:
 - (a) Onsite monitoring that will systematically survey representative locations within the facility, at a level that will produce statistically robust data; account for potential spatial bias and allow for the extrapolation of survey results to unsurveyed areas and the survey interval based on scavenger and searcher efficiency trials and detection rates.
 - (b) Offsite monitoring, to the extent that access can be reasonably and feasibly obtained by the project owner, of one or more locations adjacent to the project facilities using the same or comparable methods as implemented for the onsite monitoring to identify which avian species potentially injured by collisions or solar flux within adjacent areas.
 - (c) Low-visibility and high-wind weather event monitoring to document potential weather-related collision risks that may be associated with the power towers at the facility, including foggy, highly overcast, or rainy night-time weather typically associated with an advancing frontal system, and high wind events (40 miles per hour winds) are sustained for period of greater than 4 hours. The monitoring report shall include survey frequency, locations and methods.
 - (d) Scavenger and searcher efficiency trials to document the extent to which avian or bat fatalities remain visible over time and can be detected within the project area and to adjust the survey timing and survey results to reflect scavenger and searcher efficiency rates.
 - (e) Statistical methods used to generate facility estimates of potential avian and bat impacts based on the observed number of detections during standardized searches during the monitoring season for which the cause of death can be determined and is determined to be facility-related.
 - (f) Field detection and mortality or injury identification, cause attribution, handling and reporting protocols consistent with applicable legal requirements.
6. Survey schedule and period. All surveys and monitoring studies included in the BBCS shall be conducted for at least three years following commercial operation and approval of the BBCS by the CPM. At the end of the three-year period, the project owner, the TAC and the CPM shall meet and confer to determine whether the survey program shall be

continued for subsequent periods. The monitoring program may be modified with the approval of the CPM in response to survey results, identified scavenging efficiency rates, or other factors to increase monitoring accuracy and reliability or in accordance with the adaptive management decision-making framework included in the BBCS. The individuals conducting the surveys and monitoring shall be available to the CPM or Energy Commission biological resources staff to answer questions on monitoring status, survey methods or the results of monitoring studies, and shall not be precluded from sharing their full and complete knowledge of the monitoring program, incidental observations, and results with the CPM or responsible Energy Commission staff.

7. Adaptive management. An adaptive management program shall be developed to identify and implement reasonable and feasible measures that would reduce any biologically significant levels of avian or bat mortality or injury attributable to project operations and facilities. Any such impact reduction measures must be commensurate (in terms of factors that include geographic scope, costs, and scale of effort) to the level of avian or bat mortality or injury that is specifically and clearly attributable to the project facilities. The adaptive management program shall include the following elements:
 - (a) Reasonable measures for characterizing the extent and significance of detected mortality and injuries clearly attributable to the project and ensuring adequate funding for wildlife rehabilitation activities necessary for injuries clearly attributed to the project or wildlife found on site and approved by the CPM, in conjunction with the USFWS and CDFW. The Designated Biologist or Biological Monitors shall identify and photograph the injured or dead birds or bats in-situ, as well as a full-frame dorsal, ventral and head view using a camera with an automatic GPS and time/date stamp. The record(s) will be provided to the CPM in the monthly compliance report during construction and operation.
 - (b) Measures that the project owner will implement to adaptively respond to detected mortality and injuries attributable to the project, including passive avian diverter installations along the perimeter or at other locations within the project to avoid site use, the use of sound, light or other means to discourage site use consistent with applicable legal requirements, onsite prey or habitat control measures consistent with applicable legal requirements, and additional perch and nest proofing of project facilities.
 - (c) ***A discussion of performance standards that may be used by the CPM, the project owner, and the TAC to inform the adaptive management and decision-making framework. Performance standards may include, but are not limited to, avian mortality thresholds (either absolute or relative), other on-site conditions or***

observations that would trigger the deployment of adaptive management methods, adaptive management effectiveness standards, or some combination of the above.

The TAC shall use the mitigation funds of Condition of Certification BIO-16a in a manner to achieve a 1 to 1 mitigation ratio for state or federally listed species, and at a ratio to be determined by the TAC for special status species which are experiencing population level impacts caused by PSEGS. In order to achieve these objectives the TAC shall solicit proposals from third parties (wildlife management companies; mitigation land banks; managers of state or federal programs; avian conservation groups; or parties seeking to implement a Conservation Business Plan for impacted species) after three years of mortality data has been collected at the PSEGS. The proposals shall include specific mitigation measures and a description of how the funds would be used to achieve the outcome of 1 to 1 mitigation for state or federally listed species and at a ratio sufficient to mitigate impacts to special status avian species experiencing population level impacts caused by PSEGS. The TAC shall use experts to assist in evaluating proposals and shall require the selected proposer to report annually to the TAC demonstrating achievement of the specified outcome of the proposal.

8. Eagle Protection Plan (EPP): The project owner shall prepare and implement an Eagle Protection Plan adopting all requirements applicable to solar generation as outlined in guidelines recommended by the USFWS (currently 2012 USFWS Land Based Wind Energy Guidelines 2011b). The EPP may be prepared as a stand-alone document or included as a chapter within the BBCS. The EPP shall describe all available baseline data on golden eagle occurrence, seasonality, activity, and behavior throughout the project area and vicinity. The EPP shall outline a study protocol consistent with Item 5 above to include annual pedestrian and/or helicopter surveys of golden eagle breeding sites within a 10 mile radius of the project site, to be reviewed and approved by the CPM, in consultation with the USFWS, BLM, and CDFW.

The EPP shall describe all proposed measures to prevent death and injury of eagles from (1) collisions with facility features including the heliostats, power towers, and gen-tie line towers or transmission lines, (2) electrocutions on transmission lines or other project components, and (3) concentrated solar flux created over the solar field. The EPP shall describe efforts taken pursuant to BIO-16a.

The EPP shall also include any feasible adaptive modifications to-heliostat positioning during operation (including day time and night time) in order to minimize collisions and/or risk of exposure to concentrated solar flux. Any such adaptive minimization measures must be commensurate (in terms of factors that include geographic scope, costs, and scale of effort) to the level of avian or bat risk that is specifically and clearly attributable to the project facilities. The EPP shall provide a reporting schedule for all monitoring or other activities related to bird or bat conservation or protection during project construction or operation. The EPP shall be subject to review and approval by the CPM in consultation with CDFW, BLM, and USFWS, and shall be incorporated into the project's BRMIMP and BBCS, and implemented.

Verification: The BBCS (and EPP if submitted under separate cover) shall be submitted to the CPM for review and approval and to CDFW, BLM, and USFWS for review and comment no less than 60 days after start of construction. The project owner shall provide the CPM with copies of any written or electronic transmittal from the USFWS, BLM, or CDFW related to the BBCS within 30 days of receiving any such transmittal. Survey reports shall be submitted to the CPM after each season and in an annual summary report throughout the course of the three-year study period and as set forth in the approved monitoring study plan. The reports will include all monitoring data required as part of the monitoring program, such as photographs, GPS locations, observations, and other information required by the CPM.

Methods and results of the Monitoring Study shall be submitted to the CPM in Monthly and Annual Compliance Reports throughout the course of the study, or as otherwise directed by the CPM. Mortality or injuries of special status species shall be reported to the CPM via phone and email within one working day of discovery. The Monitoring Study shall continue until the CPM, in consultation with CDFW, BLM, and USFWS, concludes that the cumulative monitoring data provide sufficient basis for estimating long-term bird mortality for the project. The reports will include all monitoring data required as part of the monitoring program.

The reports shall also summarize any additional wildlife mortality or injury documented on the project site during the year, regardless of cause, and assess any adaptive management measure implemented during the prior year as approved by the CPM. After the third year of the monitoring program, the CPM shall meet and confer with the TAC to determine if the study period shall be extended based on data quality and sufficiency of analysis, or if needed, to document efficacy of any adaptive management measures undertaken by the project owner. If a carcass of a golden eagle or any state or federally listed threatened or endangered species is found at any time by the monitoring study or project operations staff, the project owner, Designated Biologist, or other qualified biologist that may be identified by the Designated Biologist shall contact the CPM, CDFW and USFWS by email, fax or other electronic means within one working day of any such detection.