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**Ivanpah Solar Electric Generating System (Ivanpah)
Avian & Bat Technical Advisory Committee (TAC) Meeting**
August 9, 2018 – Meeting Notes

TAC Meeting on August 9, 2018 at the California Energy Commission

TAC Members

Present: Eric Knight – TAC Co-Chair – CEC
George Piantka – TAC Member - Solar Partners I, II and VIII,
LLC
Thomas Leeman – TAC Member – USFWS

Via Teleconference: Mike Ahrens – TAC Co-Chair – BLM
Magdalena Rodriguez - TAC Member – CDFW
Sandy Taylor – BLM Biologist

Invited Guests Present: Tim Sisk – Solar Partners I, II and VIII, LLC
Daniel Riser-Espinoza – WEST, Inc.
Karl Kosciuch – WEST, Inc.
Marc Sydnor – Sydnor and Associates, Inc.

Introductions

- Attendee introductions (TAC members and invited guests).

Review of Agenda –

- Agenda items reviewed – no changes.

Review of Previous TAC Notes and Monitoring Update-

- TAC February 15, 2018 meeting notes reviewed; notes were docketed June 12, 2018.
- TAC Notes show that Avian & Bat Monitoring and Management Plan (“ABMMP” or “Plan”) Revision (Rev) 14 (operational monitoring) was approved contingent upon documentation of the methods to assess impacts consistent with previous 4 years of monitoring.
- NRG stated that monitoring efforts using the on-site operations personnel impacted the availability of personnel for plant operations. Thus, NRG has assigned the responsibility of operational surveys to WEST.

TAC Discussion –

- TAC discussed if the time constraint was the only reason for the cessation of the use of the operations staff. NRG re-iterated that the time constraints placed on the operators to survey was not feasible with current staffing levels onsite. WEST biologists were re-instated as the surveyors.

- TAC discussed the project engagement with WEST. NRG indicated that based upon project staffing levels, surveys may be conducted by operations staff in the future; however, the current plan is to use WEST surveyors.

Follow-up Items (from previous TAC meeting):

- TAC agency members agreed to review the revised Plan Revision 14 by March 1st, the Fall Report by March 14th and the Annual Report by March 30th. **Item Completed.**

Presentation by NRG - ABMMP Plan Development, Agency Policies and Approvals:

- NRG presented a summation of the requirements for the ABMMP, the goals and accomplishments, risk levels and required responses by the TAC.
- The original Plan contemplated two years of study as recommended by USFWS; four years of study have been conducted.
- The goals of the previous and current Plan (Plan Versions 12 and 13) were to identify risks from collision and solar flux, and to provide a framework for responses to risks identified.
- The patterns in the data have been consistent over the past 4 annual reports (16 seasonal reports) and additional monitoring is not anticipated to revise these results.
- The avian monitoring reports have shown consistent low potential for risk to species (as defined in the ABMMP) for over four years.
- The management framework is specific within the Plan and states that if avian mortalities are deemed as “low” as defined in the plan, then no management response is required, and studies should be reduced.
- The revised Plan Rev 14 was approved by the TAC – CEC and BLM approval sent via email on December 21st, 2017, USFWS concurrence with Plan (subject to revisions, see above) sent via email on December 21st; and CDFW approval (subject to revisions, see above) sent via email on December 28th, 2017.
- The facility is continuing to monitor the project as per the approved Revision 14 (TAC Notes docketed June 12, 2018) with bi-weekly surveys conducted according to the BLM requirements and approved Plan with the results reported annually.

TAC Discussion

- TAC discussed the history of the policy and plan. NRG indicated that since many of the TAC members are relatively new, an understanding of the background was essential to moving forward with an operational plan.
- The TAC discussed that during project development, the scale of effects was of concern; however, after four years of monitoring, national and regional impacts are no longer a concern; however, determination of the local population effects needs more granularity. WEST responded that the following presentation would address local effects through a formalization of the quantitative/qualitative approach that has been previously conducted to determine effects to species.

Follow-up Items:

- **None**

Presentation by WEST - 2016-2017 Annual Report and Review Impact Assessment

- WEST presented the formalization of the method to assess low, medium and high effects as per Plan and the implementation of this method in the 2017 annual report.
- The first step in the process is to disaggregate the sensitive and non-sensitive species. It was noted that throughout the four years, all sensitive species detected have been reviewed in all quarterly and annual reports.
- Second, the population level and area of interest are defined at the national – United States, Regional – California, and local levels. The project local level is defined as the birds detected that breed near the project.
- Third, for non-sensitive species, the project level estimates are divided by the national and regional populations as determined by the Partners in Flight database. The results show that less than 1/1000th of 1% of the population is removed by the project for non-sensitive species at these scales. Thus, there is a “low” potential for population effects at these levels.
- For special status species at the national or regional level, estimates for these birds are generally less than non-sensitive species, however, population effects are also deemed as low, since the number of detections or estimated fatalities is also very small in comparison to the overall populations (less than 2 detections per any special status species).
- Finally, to evaluate the effects on the local population all species detected are reviewed, to identify if any species has >5 detections or if any special status species were detected. For those sensitive and non-sensitive species that were detected, these are examined to determine which may breed locally. The local breeding population is determined by tallying the detections that occurred during the breeding season for each individual species. All sensitive species are examined during the breeding season and throughout the year.
- Only six species were identified as local breeding birds by this method. Of these, only two species, mourning dove (10 detections) and northern mockingbird (6 detections) have enough detections ($n > 5$) to produce an estimated number of fatalities. Further considering these species, neither is managed as a distinct population in the Mojave Desert, both have the potential for long-distance dispersal and have high productivity, thus the potential for these local populations to be affected is low.
- WEST also presented the local analysis for local sensitive status species. Of these species detected only one species had a single detection during the breeding season. Hence the single detection of a single species during the breeding season is thought to present a low potential for local population level effects.

TAC Discussion

- The TAC discussed the USFWS species of concern that were not coincidental with the California sensitive species list (USFWS Bird of Conservation Concern). WEST reviewed this list and determined that most of those species are coincidental with the California species of special concern. For those not coincidental, there were no detections.
- The TAC discussed the appropriateness of aggregating bird groups by guilds to produce estimates and to subsequently determine if there is a potential to affect populations.

WEST explained that the mortality across guild distributions may be uneven and therefore the inference from this analysis would be very limited.

- TAC discussed that locally breeding species may also be present in the winter, and thus they may be part of the local population. WEST indicated that these species may be part of the local population; however, for 2017 this would only add one mortality to a single special status species (total mortality equals 2 individuals) and therefore the determination of “low” is appropriate.
- TAC discussed the potential for local birds to be resident outside of the breeding season. WEST stated that like the winter populations, the five special status species had only a single mortality that occurred across all species, except for one species with two fatalities. Thus, the utility of looking at the breeding season versus the entire year is limited and the potential to affect local populations still would not rise above a “low” potential.

Follow-up Items:

- None

Presentation by WEST of the Avian and Bat Monitoring and Management Plan Operational Impacts Assessment

- WEST presented how the surveys under Rev 13 compare to Rev 14 and how the results of the previous four years of monitoring could be compared to the detections from surveys conducted under Rev 14.
- Specifically, WEST showed that Rev 13 and Rev 14 tower area sampling locations/transects are the same, the total number of surveys will be the same despite the slightly different search intervals, and data collection, tabulation and tracking methods will remain the same.
- Therefore, WEST stated that estimating expected detections is possible via a simulation model. The model is calibrated by inputting the four-year data set for composition (species, spatial, temporal) of detections, searcher efficiency and scavenger trials with a given number of fatalities and search interval.
- The model varies all the parameters for bias trials and detections over the ranges observed for the previous four years to determine the potential range of detections that could occur at the site as per the previous four years of data.
- WEST showed the steps to construct the model and the model verification results as compared to the actual detections during monitoring.
- WEST stated that the process would allow for the detections to be placed in the context of the 4 years of data that were previously collected.
- Specifically, if the number of detections during operational monitoring are within the confidence intervals determined by the model, then the expected estimates would be within the bounds of those previously determined by the TAC to have a “low” potential to affect populations.
- WEST also explained that if the upper confidence limits are exceeded, then searcher efficiency and carcass persistence may have changed, or perhaps the detection numbers have changed; thus the determination of low may still be valid and additional analysis should be conducted.

TAC Discussion

- TAC discussed the method considering what the verification looks like for individual years versus the total dataset to determine if the confidence intervals vary. WEST explained that the evaluation of differing variation across years may need to be evaluated as part of the operational monitoring assessment. Regardless, the results of the verification show a high degree of confidence in the model.
- TAC discussed the two methods presented as forming the outline for future annual reports. WEST concurred that a species-specific analysis and a comparison of the detections to the expected detections would be the basis of future reporting.

Follow-up Items:

- None

TAC Comments to the Annual Report and ABMMP Revision 14 and Response Matrix

- NRG indicated that the specific comments were covered in presentation/discussion and the matrix provided can assist the TAC in their review.

TAC Discussion

- TAC discussed whether the 2017 Annual Report and Plan can be reviewed and posted separately. WEST indicated that the two reports are integrated with the ABMMP stating the method and the Annual Report containing the analysis using the method.

Follow-up Items:

- TAC to complete reviews of the Annual Report and Plan - Comments on local assessment in annual report by August 31 – comments on ABMMP by September 14th.

Action Items:

- Completion of report reviews by the TAC.

Next Meeting:**TBD**