

Avian Solar Work Group Final Framework

Updated October 14, 2016 with Research Questions

I. BACKGROUND

Avian interactions with utility-scale solar facilities have been a much-discussed topic since the latter part of 2013. The ASWG endeavors to investigate issues including but not limited to the extent to which utility-scale solar projects cause avian mortality, and whether potentially causal mortalities could have adverse impacts on bird populations. For example, because little is known about background avian mortality (i.e. mortality in the field, absent development), particularly for non-listed avian species, determining the degree of causality, if any, is a challenge.

Results from established work groups such as the American Wind Wildlife Institute (AWWI) and the Avian Power Line Interaction Committee (APLIC), demonstrate that positive collaboration leads to effective communication and engagement with state and federal agencies and other key stakeholders. The result has been the development of regulatory plans and guidance that are informed by science and the input of key thought-leaders, and therefore reflect the realities on the ground with respect to both the projects and the species. The agencies have come to rely upon and trust these groups when it comes to addressing species-infrastructure issues.

II. MISSION

The Avian Solar Work Group (ASWG) is a collaborative group of environmental organizations, academics, solar companies, and solar industry representatives that will advance coordinated scientific research to better understand how birds interact with solar facilities. Given the threat that climate change poses to avian species, participants will work with the shared interests of protecting avian species and developing solar projects in an environmentally responsible and a commercially viable manner

III. PURPOSE

The ASWG is envisioned as a collaborative assembly of companies from the utility-scale solar industry, representatives from environmental non-governmental organizations, interested academics, and other parties who have experience with and are interested in the interaction of avian species with utility-scale solar facilities. The purpose of the ASWG is to better understand and address potential avian interactions with utility-scale solar projects with an approach that blends collaboration, issue identification, and action. The ASWG will have a national scale, while recognizing the location of many solar facilities throughout the 6 southwestern states including Arizona, California, Colorado, Nevada, Utah and New Mexico.

Objectives

1. Identify the fundamental research questions we need to answer.
2. Identify which questions can be answered with existing data, existing and proposed research initiatives, and which require further research.
3. Supplement the most recent Review of Avian Monitoring and Mitigation Information at

Existing Utility-Scale Solar Facilities report¹ with existing data, and map all available data on the interactions between birds and solar power facilities to identify information gaps and inform future data collection methods.

4. Develop and implement standardized field methods for near-term data collection to fill information gaps.
5. Continue to refine and improve data collection methods based on findings and conclusions.
6. Explore the implications of the data/research findings on policy
7. Communicate, on an ongoing basis, relevant information and findings to governmental agencies and stakeholders.
8. As appropriate, develop industry best practices to reduce adverse avian impacts.

IV. COLLABORATION

Each party brings a unique perspective to the table, and all are willing to take the necessary risks in order to gain the potential benefits of collaboration. Accordingly, and in the spirit of effective, collaborative problem solving, the ASWG will seek first and foremost to identify and/or produce research, and communicate their findings to relevant stakeholders. The group will assess opportunities for making more specific policy recommendations on a case-by-case basis.

Collaborative problem-solving is most successful when the process is organized to jointly (1) define the problem, (2) identify key issues necessary to address the problem, and (3) generate potential options for addressing those issues. Collaborative problem solving is successful when deliberation results in three conditions: (1) participants agree that their major interests have been considered meaningfully; (2) participants have made every effort to address all parties' interests in any final decisions, recommendations or advice, and (3) that the final decisions, recommendations or advice accurately characterize both areas of agreement and any remaining differences.

V. DECISION-MAKING

Approaches to and Thresholds for ASWG Agreements

Guiding principles for decision-making are transparency, consultation, and objective evaluation criteria. Facilitators will use a non-binding straw poll (of decision-making members – explained below under participants) to ascertain the level of support for a proposal. If an ASWG member has reservations about a specific recommendation, s/he should create and propose an alternative that the whole ASWG can support. If the ASWG doesn't reach agreement, the facilitators will use the deliberations to document points of, and reasons for, agreement and disagreement.

Those who participate will build ASWG work products. Final decisions made by the ASWG will not be revisited unless significant new information surfaces requiring reconsideration. That

¹ Walston, Leroy J., et al. A Review of Avian Monitoring and Mitigation Information at Existing Utility-Scale Solar Facilities. No. ANL/EVS-15/2. Argonne National Laboratory (ANL), 2015.

which constitutes significant new information requires supermajority support of ASWG decision-making members.

External review (including peer review as appropriate) will be utilized to ensure broader support and understanding before the ASWG finalizes work products.

The threshold for using the ASWG imprimatur for external communications is unanimous support of decision-making members. Unanimous support means members can live with any reservations in light of the larger decision, body of advice or recommendation.

VI. PARTICIPANT ROLES AND RESPONSIBILITIES

The ASWG will operate as a limited forum, with participants from the solar industry, conservation community and the academic and scientific communities. Participants include decision-making members, science advisors, and observers.

Decision-making Members

ASWG decisions will be made by one representative from each company and NGO.

Alternates

One alternate per decision-making member may be designated to serve when members are unable to attend meetings. Members agree to brief alternates to ensure they are both up to speed and that they will consistently represent the perspectives of that member.

Commitment

Invitations to join the ASWG are conveyed to organizations and companies. Member commitment includes attending meetings, reviewing work products and participating in calls or conversations in-between meetings.

Administration

The group will be administered by the Large-scale Solar Association (LSA), which will serve as the financial host for the work group, as well as the primary convener of the dialogues. As the convening organization, LSA will be responsible for administrative, financial, and convening functions, such as the hiring of consultants and legal representatives, vetting and inviting new members, and coordinating meetings. LSA will work in concert with the other decision-making members and the facilitation team, following the guiding principles of transparency, consultation, and objective evaluation criteria.

Science Advisors

In the interest of ensuring scientifically rigorous and objective approaches are utilized to design research to help better inform decision-makers, academics will participate as science advisors. Science advisors will help all parties better understand how to produce the most reliable data in the most efficient way. They will help to identify data gaps and subject matter experts, address key challenges such as standardization of data collection methodologies, and translate ASWG priorities into research design. Science advisors will not participate in ASWG decision-making.

Observers

Observers will not participate in ASWG decision-making. Representatives from relevant state and federal agencies will be invited as observers to select meetings and will also be asked to review and provide feedback about documents and materials produced by the group, as appropriate.

Once the group is well established and operating, it may choose an open-forum approach, which would make the group and its activities available to other interested parties.

Participant Operating Protocols

Confidentiality

No ASWG member will characterize the position of any other party in public statements, or in discussions with the press, agencies, even if that party withdraws from the activity.

No Sandbagging

ASWG members commit to undertake no activity outside of the ASWG that could undermine the goals of the ASWG.

No Surprises

Members will make good-faith efforts to inform the full ASWG of any imminent media, policy, or legal action related to the purpose of the ASWG, or that may directly impact other members of the ASWG. Notification can occur via email or other method, but it is encouraged for members to disclose concerns and the potential for legal action during a meeting of the full ASWG. Where ASWG members are involved in requests for actions outside of and related to the purpose of the ASWG, they will notify the ASWG and make good-faith efforts to inform the ASWG of concerns or issues in advance of such actions.

Participants will:

- Assume good intent
- Operate in good faith
- Conduct themselves professionally and courteously
- Work to find ways to resolve differences as they occur, and engage the facilitation team to facilitate/mediate if and as needed
- Go directly to one another – not the press – to clarify concerns
- Explore, without committing, during the deliberation as a way of opening up the collaborative problem-solving process
- Neither initiate nor undertake any action outside of the ASWG process intended to undermine the process
- Not publicly represent the views of other participants

During ASWG discussions the participants will:

- Respect the range of views and perspectives represented at the table
- Disclose interests
- Approach discussions with a “beginner’s mind” to expand the conversation

- Listen fully to understand
- Ask for clarification
- Look for ways to address one's own interests and the interests of others
- Participate, share the floor, be concise
- Look ahead—acknowledge the past but don't rehash it
- Be explicit and factual

VII. GOVERNANCE

Committees

The group may convene informal subcommittees to help guide specific ASWG activities. Participation on committees will be open to all interested group volunteers (or others as deemed appropriate by the work group), and Pivot Point/LSA may solicit information and participation from additional parties (e.g. subject matter experts) for more refined information, or may narrow committee participation from a specific sector to ensure balance and a manageable committee size. Committees will table recommendations for consideration/deliberation by the ASWG, and will not represent themselves as decision-makers for the broader group.

Facilitation

Kathleen Rutherford and Caitlin Doughty, Pivot Point will facilitate ASWG and working group meetings. To make meetings productive, the facilitators will:

- Provide neutral facilitation to ensure all interests are represented throughout deliberations and the decision-making process
- Work to develop final meeting agendas
- Ensure that the participants receive all relevant background information or documents for discussion in advance of each meeting, ideally a week in advance
- Assist the ASWG in collaborative problem-solving during and between meetings
- Summarize each meeting (without attribution to any individual) in draft, provide opportunity for ASWG participants to finalize the summary and produce a final summary
- Summarize agreements as they occur and at the end of each meeting
- Help the participants meet their responsibilities, listed above

VIII. MEDIA RELATIONS AND OUTREACH

A selected spokesperson will serve as the ASWG's liaison to the media. For a specific topic, the ASWG may designate a spokesperson for the ASWG who will respond to or initiate contact with media outlets as appropriate and serve as the point of contact for the press. Talking points may be developed by the ASWG to be determined on a case-by-case basis. All member organizations mentioned specifically in any press release or other document will be consulted prior to release.

If a member of the press contacts someone other than the designated spokesperson, they should limit their comments to final recommendations, if any, but not provide any attribution. In communicating externally to the media, elected officials, agency employees, or other external outlets, ASWG members agree to represent themselves or their organizations only, making it clear they are not speaking on behalf of the ASWG.

IX. APPENDIX

Decision-Making Entities

Audubon Society
Defenders of Wildlife
Duke Energy
First Solar
Large-scale Solar Association
Natural Resources Defense Council
NextEra Energy Resources
Recurrent Energy
SunPower

Action Plan (pending)

Research Questions² - February 2016

I. Siting

- 1) Do avian mortality rates at PV solar power plants differ from background rates at control sites?
- 2) What is the relationship of mortality rates to site characteristics (e.g., panels, fence lines, overhead transmission lines, scale/configuration of installations, proximity to other solar facilities or other natural or human landscape features such as levels of fragmentation and loss of habitat, migratory flyways and stop over sites, etc.)?
- 3) How might siting be optimized to reduce potential impacts on vulnerable bird populations in a cost-effective manner?

II. Population level effects

- 1) Are solar sites causing avian mortality that is significant at the scale of the population for individual species?
 - a) How should populations be defined in this context?
 - b) What research and data would be required to determine if mortality associated with solar sites is additive or compensatory?
 - c) How do population impacts differ by species, guild, migratory pathway, taxonomic unit and classification (threatened versus non-threatened), etc.?

III. Lake Effect

- 1) Are water or other birds attracted to solar panels because they perceive them as water bodies (i.e., a “Lake Effect”)?
 - a) Is a possible Lake Effect related to geographic and environmental/infrastructure characteristics of sites?

² The research questions reflect the range of concerns of the ASWG; they are not a reflection of priorities of the ASWG or any ASWG members.

- b) Do birds show evidence of attraction to large solar arrays (e.g. show changes in flight direction or behavior as they approach arrays)?
- c) What types of birds are affected?
- d) Is possible mortality due to stranding, strikes or some other process?
- e) If the Lake Effect is demonstrated, what cues are causing the birds to mistake the solar array as a water body (e.g., what wavelength of reflected light are they responding to)?
- f) If a Lake Effect can be demonstrated, how might the threat be mitigated or eliminated?

IV. Avian attraction/mitigation/deterrents

- 1) What are the avian risk-reduction options that might lower avian mortality?

V. Feather spots

- 1) What do feather spots represent? Can feather spots be better defined and quantified?
 - a) What methods can be used to identify the species and number of individuals that comprise feather spots? Are feather spots a reliable indicator of avian strikes and/or fatalities.
 - b) Do feather spots from larger carcasses persist in the environment longer than spots from smaller ones?

VI. Climate change and other broader impacts

- 1) What demographic effects may result from climate change in the absence of large-scale solar development, and how do these compare with the impacts of solar facilities for specific bird populations?
- 2) Using historical and contemporary data on the abundance and distribution of avian species with future climate projections, what are the predictions for the future avian distribution and population trends in California?
 - a) How can this be used to mitigate the impacts of PV facilities?