

Multiagency Avian-Solar Collaborative Working Group Releases Science Coordination Plan

In early 2016, a Multiagency Avian-Solar Collaborative Working Group (CWG), including federal and state agency representatives, was formed to advance the knowledge of avian-solar interactions and to inform future agency actions to reduce the impacts of solar energy development on birds. In November 2016, the CWG released an [Avian-Solar Science Coordination Plan \(Plan\)](#) that lays out a framework for future avian-solar research activities by identifying a collective set of information needs and establishing research priorities. The Plan is focused on future research that will address agency management questions in the following seven categories: (1) baseline information and landscape considerations; (2) methods to evaluate avian risk and impacts; (3) sources of fatality and injury; (4) avian behavior in relation to solar facilities; (5) impacts on habitat and other wildlife that might affect birds; (6) assessing the incidence and magnitude of mortalities; and (7) minimization, mitigation, and adaptive management. The specific research questions related to these management question categories are provided in an appendix of the Plan.



Crescent Dunes Solar Project, Tonopah, Nevada.
(Photo credit: R. Sullivan, Argonne National Laboratory)

The Plan identifies and prioritizes information needs based on a preliminary understanding of how solar development may impact birds and initial interpretations of existing information on avian-solar interactions. Based on this information, and an understanding of current and planned avian-solar research activities, this Plan identifies the information needed in order to better understand avian mortality risk at solar facilities. The CWG developed several criteria, with input from stakeholders, to facilitate the prioritization of research activities to address these needs. These criteria are summarized in Table 1.

Table 1. CWG Prioritization Criteria (in order of importance)

Sequence/ Foundationality	Addressing information needs in sequence and prioritizing activities that are prerequisites to other information needs.
Management	Questions that are important for agency decision-making.
Basic Process	Questions about basic ecological processes that influence avian behavior and natural history.
Timeliness	Questions that can be addressed in under 3 years.
Overlap	Questions that are shared by more than one agency.
Budget	Cost to complete research. Because scientific need was prioritized over cost, this criterion received the lowest rank.

On the basis of the ranking criteria and consideration of the information needs discussed in the Plan, three broad research priorities have been identified (Table 2; reverse): (1) baseline avian activity, abundance, and potential for interaction; (2) mechanisms by which birds interact with solar facilities; and (3) methods that should be used to understand the magnitude of avian impacts.

The CWG members determined that initial research priorities should focus on addressing direct fatality-related factors that are unique to utility-scale solar development. As more information becomes available in the future, research priorities will focus on the development and evaluation of mitigation measures that might be implemented in conjunction with solar development. In addition, future research priorities may address the indirect effects related to habitat loss and modification, which are not entirely unique to solar development.

Table 2. Initial CWG Research Priorities

Research Priority	Description
1. Baseline avian activity, abundance, and potential for interaction	The CWG identified this as a high-priority information need because it represents a foundational need to address other questions and inform agency decision-making. This priority directly addresses several CWG management questions. Such activities will aid in the identification of avian migratory flyways and inform decisions on project site selection and the selection of avoidance, minimization, and mitigation measures.
2. Mechanisms by which birds interact with solar facilities	The CWG identified this as a high-priority information need because it represents a foundational need to understand other management questions and inform agency decision-making. This priority will be used to better understand how birds perceive solar facilities (including technology-specific factors) and how these factors contribute to mortality risk. It can also be used to understand the need for and the development of appropriate deterrents and minimization and mitigation measures.
3. Methods to understand the magnitude of avian impacts	The CWG identified this as a high-priority information need because of its management importance in agency decision-making. Prioritized research will focus on developing and testing methodology to better understand impacts, as well as synthesize existing data to understand impact magnitude. The development and testing of methodology to evaluate impacts could occur concurrent with other, more foundational, activities.

The Plan also discusses how this research agenda may be implemented by identifying agency roles and responsibilities, the role of adaptive management, and future updates. It is anticipated that future research will tier from the Plan and that CWG member agencies will use the Plan to support internal budgetary actions and research decisions.

The Plan is intended to be an evolving, “living” document that serves to coordinate future avian-solar research efforts. It will be updated periodically as new data are collected and research needs and priorities change. The Plan is intended to be sufficiently broad so that it may be used to identify and guide specific projects and avoid the need for major revisions. Dissemination of research findings, especially through a peer-reviewed, unbiased, and transparent process, will ensure that research outcomes are publicly available. Where possible, data will be made publicly available to improve transparency and advance the science. Stakeholder engagement will be conducted to provide transparency, allow sharing of information with interested stakeholders, and support interaction with other working groups. The CWG will engage with stakeholders by hosting in-person meetings and webinars to share information about CWG activities and to obtain information from stakeholders.



Copper Mountain Solar Facility, Boulder City, Nevada.
(Photo credit: R. Sullivan, Argonne National Laboratory)

For a copy of the Avian-Solar Science Coordination Plan, a list of participating agencies, and other information about the CWG, including opportunities for future involvement, see the Multiagency Avian-Solar Collaborative Working Group webpage: <http://blmsolar.anl.gov/program/avian-solar/>.