



SIERRA CLUB
GRAND CANYON



**Conservation Priorities for Renewable
Energy and Transmission in Arizona:**
Incorporating Wildlife and Community
Considerations into Project Siting and
Design

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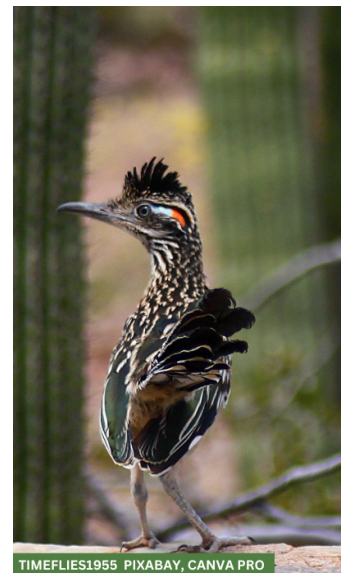


Renewable Energy and Transmission Development Coordination Priorities

- [Coordinate](#) early in the planning process with state and federal wildlife agencies, Tribal nations, and impacted communities.
 - Respect Tribal sovereignty and encourage Tribal community benefit agreements (when and where appropriate, and requested by the Tribes) that support Tribes and Tribal wildlife resources impacted by new renewable energy and/or transmission development.
 - Encourage community benefit agreements and proactive planning identifying community needs that may then support local communities and local wildlife resources impacted by new renewable energy and/or transmission development.
- Focus on a net-positive biodiversity approach to conservation.
 - Utilize early consultation and coordination with the Arizona Department of Transportation and Arizona Game and Fish Department during project siting to address roadway and traffic-related wildlife impacts from both project construction and long-term operations during project design.

Renewable Energy and Transmission Development Siting and Design Priorities

- Use [existing infrastructure](#) and previously disturbed sites to the maximum extent practical to prevent fragmentation, degradation, or irreparable harm of important fish and wildlife habitat, natural resources, and communities.
- Follow the mitigation hierarchy of avoid first, minimize second, and provide compensatory mitigation as a last step (use existing research and data from wildlife management agencies and input from Tribal nations and communities when determining siting locations for energy and transmission development).



- Minimize the overall size of the fenced area and project footprint.
- Avoid rare, unique, and sensitive high-value conservation value lands identified by federal, Tribal, state, and local agencies.
- Use of the U.S. Fish & Wildlife Service's [Land-Based Wind Energy Guidelines](#) and state renewable energy siting guidelines and Best Management Practices would help to avoid, minimize, and mitigate effectively for impacts on birds, bats and other impacted species.
- Apply dual-use principles where possible when siting and designing facilities, including incorporation of agrivoltaics, pollinator habitat, and ecosystem benefits to wildlife.
- Address short- and long-term surface and groundwater needs of the project during project siting and design. Identify where the water is coming from and how the impacts to surface and groundwater use will be mitigated.



- Consider landscape-scale and localized wildlife movement corridors, habitat connectivity, and facility permeability during project siting and design.

- Site renewable power generation projects in existing right-of ways, near existing substations, and along roads to decrease wildlife habitat fragmentation.
- Give siting preference to projects that use Grid Enhancing Technologies (GETs) and / or increase the capacity of existing transmission lines.
- Conduct pre-construction baseline assessments of proposed development sites at different times of the year to get a full picture of what wildlife species are using the area and what the impacts of the proposed development will be.
- Conduct post-construction monitoring and adaptive management to identify and address any impacts of concern to wildlife raised by federal, state, Tribal and local agencies. Develop an Adaptive Management Plan that includes responses such as curtailment, detection and avoidance technologies (e.g., Identiflight), and operational changes if unexpected significant impacts occur.



- Leave native habitats and plants intact in particularly sensitive areas and areas known to be difficult to reclaim. Develop a Vegetation Management Plan when and where appropriate. This should include minimizing opportunities for invasive species.
- Minimize onsite human activity when vulnerable wildlife or nearby species have been found to be impacted by human presence.

- Consider structural or screening cover (e.g., vegetation) to mask potential visual disturbances.
- Consider the level and proximity of human disturbance (e.g. traffic and noise) to minimize impact to nearby wildlife.
- Consider rounded or angled fence corners and smooth fencing surfaces to encourage animal movement around the perimeter of projects or into designed corridors.
- Minimize impacts of lighting on sensitive species, including bats.
- Ensure compliance with the Arizona Interagency Desert Tortoise Team to complete a Candidate Conservation Agreement (CCA) for the Sonoran desert tortoise.
- Leave dry washes/ephemeral streams unfenced and as undisturbed as possible through projects to allow for movement of species utilizing these wildlife corridors. Provide a buffer to the fenced areas of the adjacent energy facility (do not fence up to a wash).
- Incorporate a Bird Bat Conservation Strategy or Avian Protection Plan that outlines monitoring and minimization measures for these groups of species.
- Use the Avian Power Line Interaction Committee (APLIC) [guidelines](#) for generation-tie power lines.
- Site generating projects close to transmission interconnection to avoid long distribution lines to the grid (generation-tie lines) and roads.
- Consider building underground generation-tie lines and collection lines when feasible and necessary to avoid, minimize, or mitigate otherwise unavoidable adverse impacts to Species of Greatest Conservation Need identified in the State Wildlife Action Plan.
- Site transmission in existing transportation corridors whenever possible to avoid additional habitat fragmentation.



Developed in partnership with conservation groups across Arizona.

REFERENCE LIST

General Local Siting Guidelines and Recommendations

- U.S. Fish & Wildlife Service, Land-Based Wind Energy Guidelines, 2012 [\[LINK\]](#)
- Solar Energy Technologies Office, Tribal Guide to Solar Energy, 2024 [\[LINK\]](#)
- US Department of Energy, Developing Clean Energy Projects on Tribal Lands
- Data and Resources for Tribes, Developing Clean Energy Projects on Tribal Lands, December 2012, [\[LINK\]](#)
- Energy + Environmental Economics, Assessment of Renewable Energy Siting and Permitting Policies - CATF, NRDC, TNC, April 11, 2024 [\[LINK\]](#)
- Evergreen Collaborative, Warp Speed: Expediting Permitting and Equitable Grid Deployment Without Congress, December 2023 [\[LINK\]](#)
- Bureau of Land Management, Restoration Design Energy Project (RDEP), 2020 [\[LINK\]](#)
- Bureau of Land Management, BLM issue [\[LINK\]](#)
- The Association of Fish & Wildlife Agencies (AFWA), Solar Siting Survey Report - AFWA Energy and Wildlife Policy Committee, 2021 [\[LINK\]](#)
- Association of Fish and Wildlife Agencies, Solar Beneficial Management Practices Database, 2024, [\[LINK\]](#)
- Bureau of Land Management, 2023/2024 Solar Programmatic EIS, 2023/2024 [\[LINK\]](#)
- Arizona Game and Fish Department, BLM, Solar Draft PEIS comments, 2024, [\[LINK\]](#)
- AZ BLM, Solar Draft PEIS comments by the Theodore Roosevelt Conservation Partnership, Arizona Wildlife Federation, Arizona Chapter of Backcountry Hunters & Anglers, 2024 [\[LINK\]](#)
- TRCP, NWF, TU, et al. BLM Solar Draft PEIS comments, 2024 [\[LINK\]](#)
- National Audubon Society, BLM Solar PEIS Comments, 2024 [\[LINK\]](#)

Arizona-Specific Renewable Energy Local Siting Regulations and Guidelines

- Arizona Game and Fish Department, Guidelines for Solar Development in Arizona, March 12, 2010 [\[LINK\]](#)
- Arizona Game and Fish Department, Guidelines for Reducing Impacts to Wildlife from Wind Energy Development in Arizona, October 15, 2012 [\[LINK\]](#)
- Arizona Game and Fish Department, Planning for Wildlife: Wildlife Friendly Guidelines [\[LINK\]](#)
- Coconino County Arizona, Coconino County Zoning Ordinance: Utility Scale Renewable Energy, June 20, 2024 [\[LINK\]](#)
- JD Supra, LLC, Siting Energy and Transmission Line Projects in Arizona - An irreverent Primer: 2024 Edition, 2024 [\[LINK\]](#)

State Level Policies on Renewable Energy Local Siting

- National Conference of State Legislatures, Electric Transmission Planning: A Primer for State Legislatures, December 19, 2023 [\[LINK\]](#)
- Energy Technologies Area, Berkeley Lab, Laws in Order: An Inventory of State Renewable Energy Siting Policies, June 20, 2024 [\[LINK\]](#)
- General Assembly of the State of Colorado, Senate Bill 24-212, May 21, 2024 [\[LINK\]](#)
- The Colorado Electric Transmission Authority, CETA community engagement principles, 2023 [\[LINK\]](#)
- Colorado General Assembly, Greenhouse Gas Emission Reduction Measures, 2023 [\[LINK\]](#)
- Mesa County, Colorado, Land Development Code Amendment approved to include solar regulations, April 26, 2024 [\[LINK\]](#)
- General Assembly of the State of Illinois, Illinois Public Act 102-1123, 2020 [\[LINK\]](#)
- Michigan Legislature, House Bill 5120 of 2023 (Public Act 233 of 2023), 2023 [\[LINK\]](#)
- Washington State Legislature, Washington H.B. 1216 / S.B. 5380, 2023/2024 [\[LINK\]](#)
- Washington State Legislature, Washington S.B. 5165, 2023 [\[LINK\]](#)
- Minnesota Legislature, Minnesota H.F. 4700 - Minnesota Energy Infrastructure Permitting Act, 2023 - 2024 [\[LINK\]](#)
- State of New York, New York Renewable Action Through Project Interconnection and Deployment (RAPID) Act, 2024 - 2025 [\[LINK\]](#)

Wildlife and Habitat

- Sawyer, H. and J. Holst. 2024. Big Game Guidelines for Utility-Scale Photovoltaic Solar Development. Theodore Roosevelt Conservation Partnership, Washington, DC. [\[LINK\]](#)
- National Wildlife Federation, A Clean Energy Transmission Policy Platform for Thriving Communities and Wildlife, June 1, 2023 [\[LINK\]](#)
- Association of Fish & Wildlife Agencies (AFWA), Communication Framework For Solar Energy Project Proponents and State Fish and Wildlife Agencies [\[LINK\]](#)
- National Audubon Society, Birds and Transmission Report, 2023 [\[LINK\]](#)
- Renewable Energy Wildlife Institute, Training: Wind Energy & Wildlife, May 22-23 & 29-30, 2024 [\[LINK\]](#) and additional information [\[LINK\]](#)
- Official Website of the State of Arizona, Wildlife Linkages, 2006 [\[LINK\]](#)
- PEW, Addressing Energy Development and Habitat Connectivity, July 18, 2023 [\[LINK\]](#)

Renewable Energy Local Siting Studies

- Massachusetts Institute of Technology (MIT), Resolving Renewable Energy Siting Disputes, 2024 - 2025 [[LINK](#)]
- Princeton University, Net Zero America Study, December 15, 2020 [[LINK](#)]
- Stanford University, What it May Take to Harness Solar Energy on Native Lands, May 6, 2021 [[LINK](#)]
- U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy, Solar Futures Study, September 2021 [[LINK](#)]

Community Engagement

- Colorado Electric Transmission Authority, Community Engagement Toolkit [[LINK](#)]

Media Articles

- US Geological Survey, Mapped: 33 New Big Game Migrations Across the American West, April 11, 2024 [[LINK](#)]
- The New York Times, The Planet Needs Solar Power, 2/11/24 [[LINK](#)]
- The Nature Conservancy, Power of Place: Clean Energy Solutions that Protect People and Nature, May 9, 2023 [[LINK](#)]