A Guide to Responsible Development of Wind and Solar Resources on Public Lands and Waters

EXECUTIVE SUMMARY

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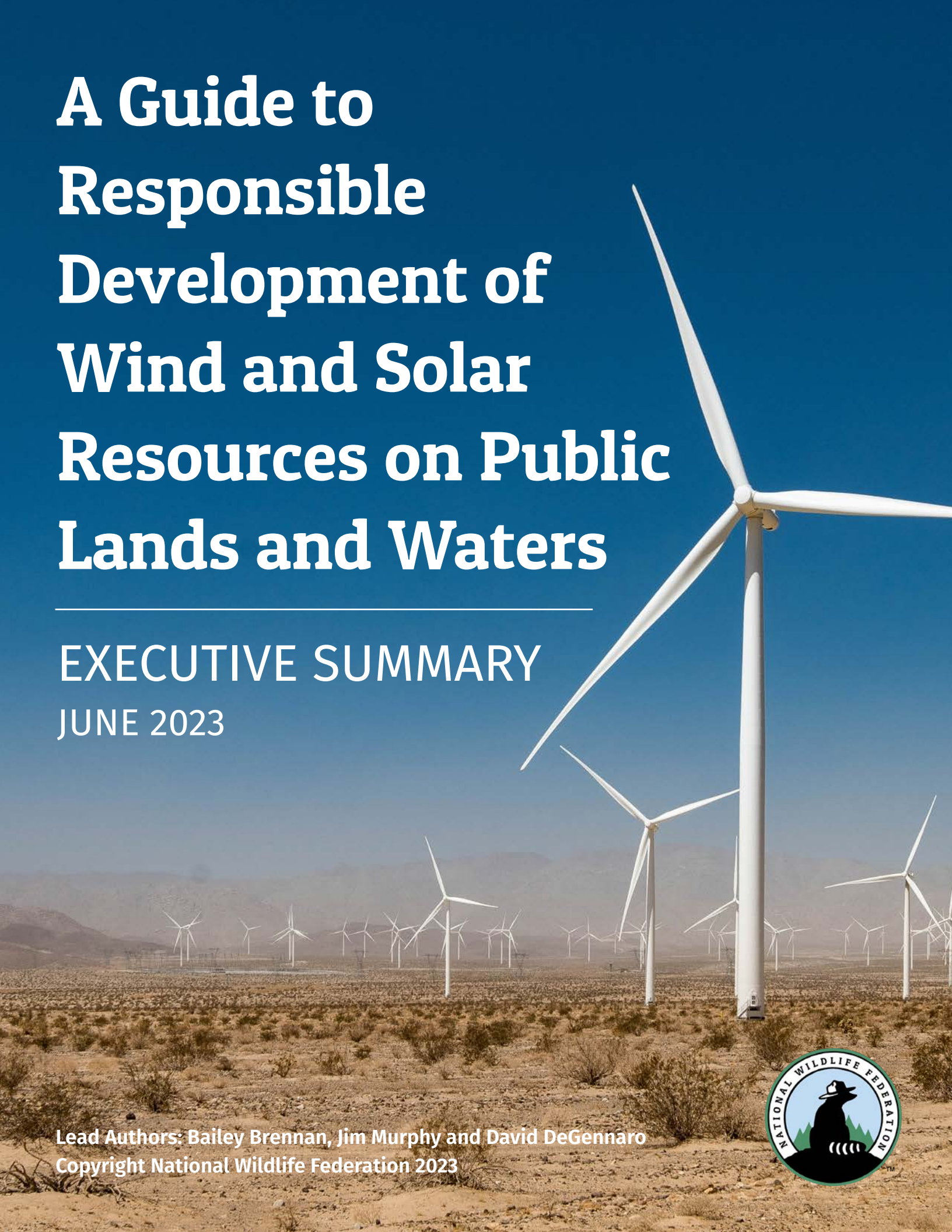

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Renewable energy projects should be sited and managed so they do not inhibit wildlife migration routes. Photo by Emmet Pruss/BLM.

Executive Summary

To meet our goal of 80 percent of electric power coming from low-carbon sources by the end of the decade, we will need to triple the amount of electricity coming from renewables over current business-as-usual forecasts.

This rapid buildout of clean energy is essential to sustaining healthy wildlife populations; it will also affect lands and waters that wildlife depend on. Under virtually all carbon reduction scenarios, we will need at least another 59 million acres of new wind farms and 3.5 million acres of solar developments, an area larger than Illinois and Indiana combined. Domestic offshore wind development may need to occupy over 15 million acres of ocean by 2050.

Development on public lands and waters is unavoidable, but it will come with impacts to wildlife as well as communities, particularly Tribal Nations. Where possible, we should look for other opportunities for generating clean energy—for example, by removing obstacles to rooftop solar and distributed wind or by prioritizing already degraded sites near existing transmission corridors.

Responsible development of renewable energy on public lands and waters involves:

- siting projects responsibly and avoiding, mitigating, and monitoring adverse impacts to wildlife and their habitats,
- allowing for other uses of public lands and waters, where feasible,
- consulting meaningfully with Indigenous Peoples and underserved communities as part of comprehensive efforts to avoid negative impacts,
- engaging with state and local governments and stakeholders from the outset, and
- using the best-available science and information when making decisions.

The full report, available at www.nwf.org/WindSolarOnPublicLands, discusses the benefits of wind and solar energy, the regulatory landscape, the potential impacts of development to wildlife and nearby communities, and has expanded recommendations for moving wind and solar development forward responsibly.

The demonstration-scale Block Island Wind Farm was the first commercial offshore wind project in U.S. federal waters. Large scale leasing for wind is now advancing on the East and West Coasts. Photo by Chris Bentley.

Impacts on Public Lands and Waters

Utility-scale wind and solar projects occupy thousands of acres with varying degrees of potential disruption to wildlife. Solar sites often have a more compact footprint than wind developments, but the impacts can be greater because the land is cleared and fenced. With wind energy sites, the areas in between the turbines, pads, and roads often remain available to wildlife.

Bird and bat mortality from wind turbines is well documented, with some species of bats experiencing significant declines. Noise and light pollution can affect wildlife while renewable sites and their associated roads and transmission lines can fragment habitats and block migration pathways. Desert habitats, where many solar resources are located, are especially vulnerable to disturbances. Big game may alter behavior and movement in response to solar and wind development, limiting access to foraging grounds and other habitats.

Offshore wind projects also have risks such as noise pollution, collisions between birds and bats with turbines and marine mammals with ships, and habitat disruption throughout the water column. The electromagnetic fields created by underwater electric transmission cables may also impact species.

Many of these impacts can be avoided or minimized by responsible siting and design or offset through mitigation. Regulating

Regulating agencies should require developers to research and monitor impacts to wildlife to learn more about how wind and solar development affects wildlife, habitat, and the resources that nearby communities depend on.

The Bodie Hills on BLM lands straddling CA and NV hold high wildlife and conservation values that should not make them candidates for energy development. Photo by Benjamin Cossel/BLM.

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Environmental Justice and Indigenous Peoples

The widespread burning of fossil fuels disproportionally harms public health in communities of color and low-income communities. These same communities are often the most affected by extreme weather fueled by climate change. A swift transition to renewable energy is critical to promoting environmental justice—but these benefits do not come without potential risks and tradeoffs.

Renewable energy generation may pose challenges to local communities, such as the health impacts from constant low-level noise or economic issues from lost outdoor recreation dollars. Renewable projects may affect property values by creating aesthetic concerns or increasing vehicle traffic. Offshore wind can complicate commercial fishing, for-hire fishing, and marine recreation—impacting employees, subsistence and recreational anglers, and the economic wellbeing and cultural resources of coastal Indigenous Peoples.

Many public lands and waters contain sites or characteristics that are cherished by Indigenous Peoples and others for historic, religious, or cultural reasons. Renewable energy development in these places can harm these resources or prevent public access to them.

There are ways to avoid, minimize, mitigate, and compensate for these impacts but it will require developers and regulators to think beyond the regulatory minimum levels of consultation and public input.

Recommendations

Legislation, Regulation, and Policy

Create a Modern Regulatory Landscape at the State, Local and Federal Levels That:

- Prioritizes development off of public lands, particularly on already developed land and where energy will be consumed or moved along existing or permitted transmission infrastructure;
- Ensures robust community engagement, particularly with Tribes and Indigenous Peoples;
- Addresses net-metering concerns at the utility level to better facilitate solar development off public lands; and
- Establishes fees, taxes, or royalties that are robust enough to replace government income lost from fossil fuels.
- Encourages coordination among federal, Tribal, state, and local governments to ease regulatory duplicity for developers.

Recommended Steps for Federal Agencies:

- The Bureau of Land Management (BLM) should revise its wind and solar rules to identify specific criteria the agency will use in identifying Designated Leasing Areas (DLAs), including wildlife, cultural, and natural resources, adjacency to existing development or already disturbed areas, and proximity to transmission facilities.
- BLM should also amend its resource management plans (RMPs) at the state, district office, or field office level to identify which DLAs are suitable for wind and solar energy development and which are not.
- BLM's Renewable Energy Coordinating Offices across the West should help coordinate solar and wind development on public lands, focusing on long-term planning and an analysis of where and how to site renewable developments.
- The Forest Service should expand its regulatory framework to incentivize responsible development.
- The Bureau of Ocean Energy Management (BOEM) should ensure there is broad and robust stakeholder engagement, including with potentially impacted state and federally-recognized Tribes, at the earliest stages of regional siting decisions to help identify the most appropriate places for wind energy, avoid high-conflict locations, and identify cumulative impacts.
- BOEM should also put in place regulations that address ocean-wide stressors on key species like the North Atlantic right whale to ensure that the most acute threats to these species are addressed.

Wildlife

➢ **Co-locate Development:** Prioritize and incentivize co-locating renewable energy facilities and related infrastructure with existing development to reduce land use and wildlife impacts.

➢ **Avoid Sensitive Habitat Areas:** Avoid areas that have high and irreplaceable value to wildlife or are extremely sensitive to impacts that cannot be successfully mitigated.

➢ **Prioritize Already Disturbed or Degraded Sites:** To the extent practicable, prioritize areas for siting that already have been impacted, such as areas that have seen previous energy development, fossil fuel extraction, or mining activity.

➢ **Avoid Impacts to Waters and Aquatic Ecosystems:** To the extent possible, development should not involve the destruction or degradation of existing water bodies and aquatic ecosystems like streams and wetlands. To the extent such impacts are unavoidable, they should be minimized and compensated for.

➢ **Coordinate with State and Local Agencies:** State and local agencies should be involved in planning and permitting processes early on, given that these entities have expertise that can help avoid impacts.

➢ **Expand Existing Research:** Independent federal, state, and private research can aid agencies and private developers in more efficiently siting projects, speeding up the rollout of renewable energy projects, and reducing impacts to wildlife.

Greater sage-grouse populations have been declining across the West, and public lands provide some of their best remaining habitat. Photo by Mark Thonhoff/BLM.

➢ **Require Project Monitoring:** Wherever possible, before-after-control-impact (BACI) studies should be required to provide an understanding of the direct effects of development on wildlife. Data collection should be standardized, coordinated, and transparent.

➢ **Ensure Adaptive Management:** As we learn more about the effects of renewable energy on public lands, new and existing projects should be required to incorporate mitigation measures and technology that limit impacts to wildlife, where feasible.

➢ **Develop Technology:** Advances in technology can deter collisions, minimize disruption to migration paths, and decrease bird and bat mortality stemming from large solar and wind projects.

Environmental Justice

➢ **Early and Consistent Consultation:** Federal agencies and developers should collaborate with communities of color, Indigenous Peoples, and low-income communities early and often to assess how proposed projects may benefit or harm these communities, and should devise tools to ensure these communities' interests are protected. Agency-community consultation should be more robust than that required under federal laws like the National Environmental Policy Act and the National Historic Preservation Act.

➢ **Extend Economic Benefits to Communities:** Federal agencies and developers should avoid or minimize

adverse impacts by adopting tools that ensure the economic benefits of projects return to communities. Workforce training programs and hiring plans, for example, can provide opportunities for local, rural communities and help sustain employment for those displaced from other industries operating on public lands and waters.

Similarly, incentivizing developers to adopt "high road" labor practices can improve the distributional equity of impacts of renewable energy projects by creating stable employment, directing project resources to community members, and increasing union density in the renewable energy sector. These tools also complement the Biden administration's goal of creating well-paying and stable jobs through the development of renewable energy. In the offshore space, BOEM and the Department of Energy are already taking steps to give incentives to developers to develop community benefit agreements and take other measures that ensure benefits flow to environmental justice communities. This includes giving credits for such measures in assessing lease bids. These practices should be expanded.

➢ **Codify Executive Order 12898:** Federal agencies generally execute Executive Order 12898 through their NEPA analyses. However, the executive order lacks the permanence of law. Congress should codify Executive Order 12898, as amended by Executive Order 14008, to ensure federal agencies have a lasting directive to halt environmental injustices and achieve environmental justice.

Solar arrays can be located on marginal lands while still allowing for wildlife use. Photo by Dennis Schroeder/NREL.

Indigenous Knowledges

Regulators and developers should review and incorporate Indigenous Knowledges and existing mapping and modeling tools to identify wildlife habitat and migration corridors and connectivity, and site energy projects in the least interfering way possible.

➢ **Collaborate with Local Communities and Indigenous Peoples:** Work with communities and Indigenous Peoples near potential development to better understand the social, cultural, economic, and environmental impacts of wind and solar energy development and to help identify ways to address and offset these effects. In particular, when engaging with Indigenous Peoples, project developers and federal agencies should adhere to practices and principles of Free, Prior, and Informed Consent as recognized in the United Nations Declaration on the Rights of Indigenous Peoples.

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