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ENERGY DEVELOPMENT TAKES CENTER STAGE IN MODERN WILDLIFE CONSERVATION

We all rely on electricity to exist in the modern world. We use it to heat our homes, cook our food, and power devices to do all manner of tasks, from communicating with one another to keeping grizzly bears out of calving yards. Our existence on Earth would look drastically different if not for a vast, interconnected web of copper wires carrying electrons from generation facilities to final consumers.

All forms of energy development impact the world around us, including wildlife and their habitats. Energy development and transmission can fragment habitats, disrupt wildlife movements, and impair water quality and quantity, among other impacts. However, energy development is not exclusive of conservation. We have a responsibility to conserve the energy resource itself, the wildlife and habitats that may be impacted by development, and to meet the needs of people.

Historically, the Boone and Crockett Club has funded research on and advocated for policies to mitigate the impacts of mining, drilling, and fracking on wildlife. Now, we face a new set of challenges. As low- or no-carbon electricity generation—and associated transmission—expands to meet various climate and grid-resilience goals, conservationists must address new impacts on wildlife. How and where this infrastructure will exist is up to us. We must be thoughtful and deliberate in maintaining robust fish and wildlife populations while supporting an energy transition.

Generation facilities and transmission infrastructure often require several levels of government involvement, ranging from municipal land-use permitting and state public service commission approvals to the consent of the Federal Energy Regulatory Commission and public land management agencies. As various legislatures and administrations rush to advance policies crafted to reduce greenhouse gas emissions by promoting low- or no-carbon sources of energy, it is critical that they consider the costs to our nation's fish and wildlife resources. Problems associated with energy development are best addressed by state and federal wildlife, land management, and utility regulatory agencies working together with industry and conservation partners.

Members of the Boone and Crockett Club are actively working with these permitting agencies to adopt siting policies that incentivize deploying new developments on previously disturbed lands rather than those that provide strong value to fish and wildlife. Today, these policies focus on promoting solar, wind, and hydroelectric energy generation—all of which avoid harmful emissions but can cause other harms.

Photovoltaic (photo meaning light, voltaic meaning electric) solar panels have been around for several decades, and they are becoming more efficient at generating carbon-free electricity but have more recently been deployed by many utilities at a large scale. Often, at least anecdotally, these facilities are replacing row-crop

agriculture, pasturelands, or even wetlands or forests. While large-scale solar arrays in some parts of the country may provide some benefits to small mammals and pollinators, the fencing and mowing regimes required to maintain these facilities typically eliminate any value of the land for big game. When placed in a migration corridor, the results can be disastrous. Ignoring the impacts of extracting the minerals needed to manufacture solar cells would also be naive. However, the impacts of solar generation are nearly all relative to siting. When placed on rooftops, over parking lots, or on top of other built surfaces, panels have nearly no added impact on wildlife. But, solar electricity must always exist in concert with other generation technology, as cells only produce electricity when the sun is shining, and electricity must be generated and consumed simultaneously. Developments in battery technology will help this but have not yet proven scalable.

Wind farms, consisting of several turbines located close together, have also rapidly expanded in recent decades. Like solar cells, the electricity generated by these facilities is carbon-free once the turbines are manufactured, installed, and when they are turning. We know that land-based facilities cause some harm to migrating and local birds and bats, but their impacts to other species are still in question. Off-shore wind developments can disturb particularly sensitive marine mammals and migratory birds. Again, proper siting is key, as these facilities have the potential to produce a great deal of electricity. Recent technological developments have also made small, household-scale wind power financially feasible and less harmful to wildlife.

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