



# Solar Energy, National Parks, and Landscape Protection in the Desert Southwest

Executive Summary



CENTER FOR  
Park Research



Since 1919, the National Parks Conservation Association has been the leading voice of the American people in protecting and enhancing our National Park System. NPCA, its members, and supporters work together to protect the park system and preserve our nation's natural, historical, and cultural heritage for generations to come.

- 600,000 members and supporters
- 24 regional and field offices

NPCA's California Desert Field Office and Mojave Field Office focus on protecting the health and recreational values of Death Valley National Park, Joshua Tree National Park, and Mojave National Preserve. To learn more about this work, contact Senior Program Manager David Lamfrom at 760.957.7887 or [dlamfrom@npca.org](mailto:dlamfrom@npca.org).

## CENTER FOR Park Research

More than a century ago, Congress established Yellowstone as the world's first national park. That single act was the beginning of a remarkable and ongoing effort to protect this nation's natural, historical, and cultural heritage.

Today, Americans are learning that national park designation alone cannot provide full resource protection. Many parks are compromised by development of adjacent lands, air and water pollution, and invasive plants and animals. Park officials often lack adequate information on the condition of critical resources within their parks, and knowledge about system-wide issues is also incomplete.

The Center for Park Research (CPR) delivers scientific information on systemic issues affecting national parks and their solutions. The goal of the center is to provide information that will help policymakers, the public, and the National Park Service improve conditions in national parks, celebrate successes, and ensure a lasting legacy for future generations.

To learn more about the Center for Park Research, visit [www.npca.org/cpr](http://www.npca.org/cpr) or contact: NPCA, Center for Park Research, P.O. Box 737, Fort Collins, CO 80522; phone: 970.493.2545; email: [parkresearch@npca.org](mailto:parkresearch@npca.org).

**Right:** Joshua Trees are an iconic resident of the Mojave Desert. ©David Lamfrom



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**Top:** Anza-Borrego Desert State Park is part of the Mojave and Colorado Deserts Biosphere Reserve, which also includes Death Valley and Joshua Tree National Parks, as well as Santa Rosa Mountains Wildlife Management Area. ©David Lamfrom

**Above:** Gambel's quail are a common sight in the desert Southwest. ©David Lamfrom





## Solar Energy, National Parks, and Landscape Protection in the Desert Southwest

The Mojave and Sonoran Deserts of the American Southwest are at the center of a rush to develop critical renewable energy resources. These important projects have been fraught with conflict and litigation, in large part because the sites selected for development are located near protected areas that could be compromised by such developments. These conflicts are unnecessary. Developing renewable energy resources, such as solar energy, can be accomplished while protecting our shared investments in our Southwestern national parks and protected landscapes. The National Parks Conservation Association is calling on the administration and our elected officials to protect many of America's favorite landscapes and species while pursuing needed renewable energy projects in the right places—and we need your help and support to tell the Department of Interior to make the right choices when deciding renewable energy policy.

**Left:** The organ pipe cactus, namesake of Arizona's Organ Pipe Cactus National Monument, is one of 26 cactus species in the Sonoran Desert ecosystem of the monument. ©David Lamfrom

## The Southwestern Deserts: Wonderlands, not Wastelands

Vibrant. Diverse. Expansive. Full of life. Threatened. For those in the know, these words and phrases are apt descriptions for the Mojave and Sonoran Deserts of the American Southwest. Though summertime temperatures of 120° F are not uncommon, and water is a precious resource in scarce supply, these regions teem with life specially equipped to thrive here. Even summer's mercury-busting temperatures can't discourage plants and wildlife from persevering—the distinctive limbs of Joshua trees still reach for the sky, carpets of wildflowers blanket the landscape each spring, and desert bighorn sheep continue to expertly mountaineer their craggy kingdom.

People are often surprised to learn that California's Mojave Desert abounds with wildlife, providing homes to 439 vertebrate species, while more than 500 resident and migrant bird species fill Sonoran skies. In contrast to sentiment about the barren nature of deserts, our Southwestern deserts and their associated mountains contain many of the most biologically diverse habitats in North America and protect many of our most intact landscapes.

The importance and beauty of these desert landscapes has not gone unnoticed. Organ Pipe National Park in Arizona is part of a larger international biosphere reserve, and at nearly 6 million acres, California's Mojave and Sonoran deserts comprise the largest concentration of national park lands in the lower 48 states. The desert lands of the American Southwest are not wastelands available for sacrifice. Instead, they are wonderlands of uniquely adapted living things worth protecting.

## National Push for Solar Energy

In addition to their diverse ecosystems, the deserts of the American Southwest boast several other increasingly desirable commodities in abundance: sunshine and wide open spaces. As policies encouraging and, in some cases, requiring a transition to clean energy sources have gained traction, and technology has developed to make solar energy production economically viable, heads have turned to the desert Southwest as the location that can fulfill our growing energy needs. According to the National Renewable Energy Laboratory based in Golden, Colorado, the states of California, Nevada, Utah, Arizona, Colorado, New Mexico, and Texas receive the highest levels of solar irradiance that can currently be captured by the two most prominent solar technologies—photovoltaic panels and concentrating solar technology. Encouraged by federal tax incentives and grants, companies are rushing to develop industrial-scale solar energy facilities on the vast public lands of California, Nevada, and Arizona—most of which are administered by the Bureau of Land Management (BLM). The National Parks Conservation Association (NPCA) supports renewable energy development in the right places, and continues to work with communities and decision-makers to identify and promote those locations.



**Top and Above:** Concentrating solar technology (top) and photovoltaic panels (above) are the two most common technologies for capturing solar irradiance. ©Andrei Orlov/123rf and ©Paul Rommer/Shutterstock

## Project-by-Project Review

In order to get permission to use public lands administered by the BLM, solar energy development companies must submit proposals that are evaluated through project-specific environmental impact analyses. The BLM's approach to granting rights-of-way for solar developments, until recently, has been to review and approve or deny proposals on a project-by-project basis. Despite the environmental reviews required for proposed projects, poorly sited projects have been approved that will harm natural and cultural resources shared between BLM lands and desert national parks. Conflict that has grown out of these siting decisions has raised serious concerns for this important burgeoning industry. We can protect our desert parks and Southwestern wildlands while pursuing our renewable energy future if we are thoughtful about where we site these projects. The following examples of resource concerns associated with approved solar projects illustrate the difficulty of ensuring shared resources are adequately protected across the desert landscape, and underscore the importance of thoughtful planning and siting. See the maps on pages 6 and 7 for locations of these approved facilities in relation to national parks.

**Amargosa Farm Road Project, Nevada:** This facility, proposed just a few miles from Death Valley National Park, initially planned to use wet-cooled technology—a method that uses vast quantities of water to cool synthetic oil that has been superheated by the sun. Because water is so scarce in the desert, and because significant groundwater pumping could compromise the groundwater supplies of the nearby Ash Meadows National Wildlife Refuge and the Devils Hole unit (home of the endangered Devils hole pupfish) of Death Valley National Park, the project was permitted only after switching to a less water-intensive dry-cooled technology. But even though the water issue was satisfactorily resolved, the overall project will destroy 4,000 acres of desert scrub habitat, fragment the larger landscape, and mar scenic views from Death Valley National Park's wilderness lands.

**Ivanpah Solar Electric Generating Station, California:** Located in the Ivanpah Valley near Mojave National Preserve, this installation will destroy significant habitat for the threatened desert tortoise, potentially interfere with wildlife migration and habitat connectivity, and impair the scenic vistas from Mojave National Preserve, the third-largest national park site in the lower 48 states. These impacts will occur despite significant alterations to the initial project proposal to minimize the footprint of the facility and exclude lands containing rare plants.

**Desert Sunlight Solar Farm, California:** Located only 2 miles from the south side of Joshua Tree National Park, this project will also potentially interfere with wildlife migration routes, especially for desert bighorn sheep, and it will impair the view from wilderness lands within the national park. Visitors who participated in a 2010 survey at Joshua Tree ranked views without development as the most important park attribute, so compromising these views is likely to upset visitors. The environmental impact process did improve some aspects of the siting, though, and the overall impact of the project was likely reduced by the changes made during the review process.

These approved solar facilities demonstrate that large, industrial-scale solar energy development will have significant impacts—despite the best efforts at resource protection and mitigation. In particular, the resulting habitat fragmentation and destruction, impaired visual resources, and lost wildlife connectivity will affect not only BLM lands but adjacent national park lands as well. In short, while there are great benefits to harnessing sunlight for electricity generation, these benefits come at a significant cost to desert resources. This reinforces the need to responsibly site solar facilities while continuing to support this needed upgrade to renewable energy.

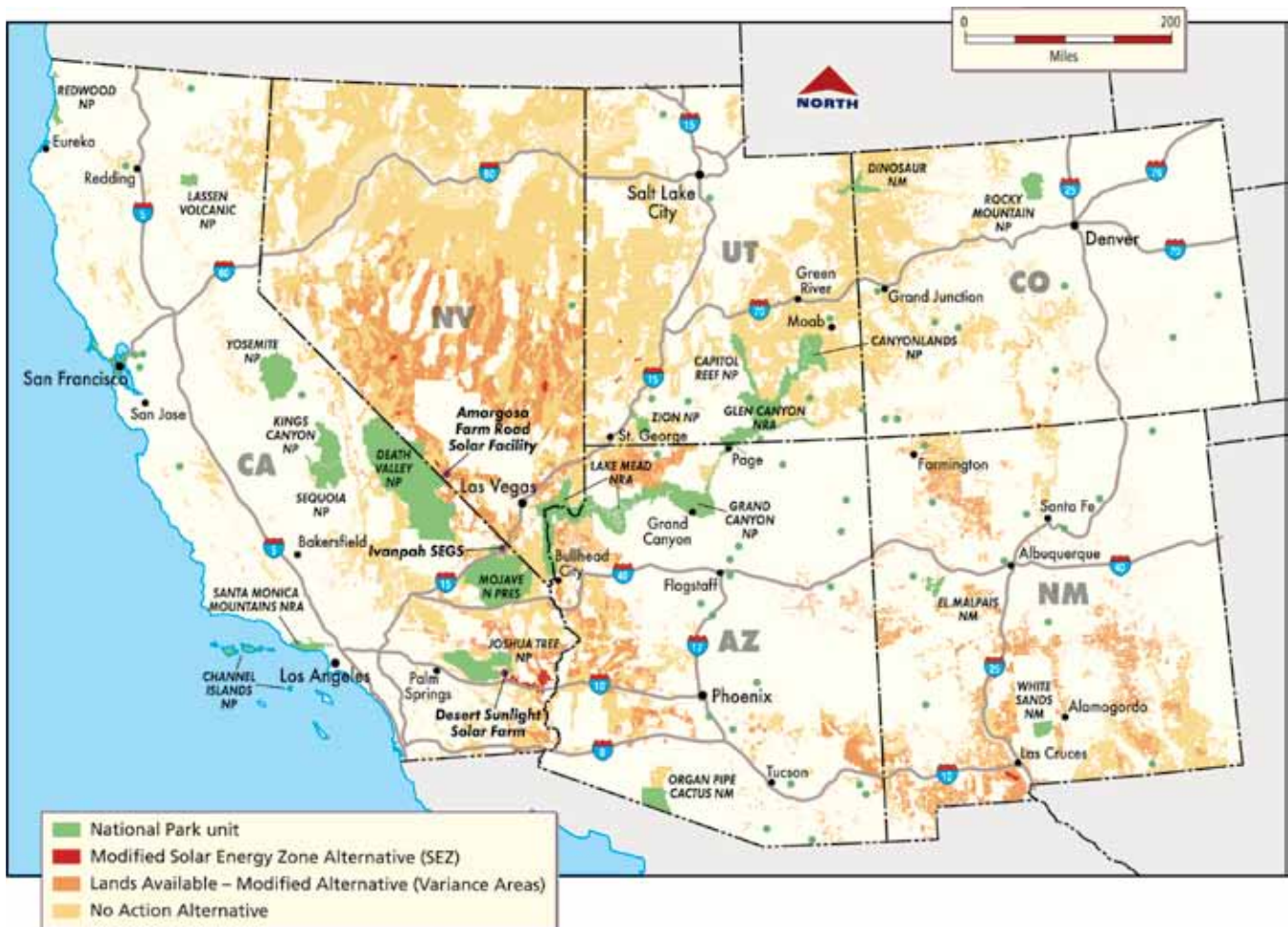
Our Southwestern deserts and their associated mountains contain many of the most biologically diverse habitats in North America.

### New Framework

Currently, 11 solar developments have been approved on lands administered by the Bureau of Land Management in California, Nevada, and Arizona; 77 more have been submitted to the agency for consideration in these states plus New Mexico, as of mid-May 2012. With the high number of solar projects on the drawing board, ensuring there is a thorough review process in place that gives due consideration to the unique and often fragile desert ecosystems that could be affected by these projects is critical. The burden of evaluating the high number of applications for solar projects on BLM lands in the Southwest has led the Department of Interior, along with the Department of Energy, to develop a larger programmatic environmental impact statement (PEIS) to guide evaluation of solar proposals in California, Nevada, Arizona, New Mexico, Utah, and Colorado.

Within this process the BLM has developed an alternative known as the “Modified Alternative (Variance Areas).” It will exclude some lands from utility-scale solar energy development and identify specific locations well suited to such development (i.e., Solar Energy Zones or SEZs). The BLM would prioritize solar energy development in these SEZs. This alternative emphasizes (and incentivizes) development within SEZs and proposes a collaborative process to identify additional SEZs. The alternative also allows for utility-scale solar development in variance areas outside of SEZs in accordance with a proposed variance process. Currently, there are 17 proposed SEZs, totaling about 285,000 acres. There are more than 22 million variance acres open to development outside those SEZs. Another alternative on the table, the “Modified Solar Energy Zone Alternative (SEZ),” allows solar development only in the SEZs, eliminating the variance

## Potential Solar Management Alternatives for BLM Lands





areas from consideration. This is NPCA's preferred alternative because it protects sensitive lands in the desert Southwest, promotes solar development in identified zones, and opens the doors to identifying new zones in the future as needed, rather than opening up millions of sensitive acres for consideration. The decision regarding these alternatives will shape our national-level renewable energy policy for years to come, and we must choose wisely.

Through the planning done to date, the BLM has made significant efforts to gather resource information needed to make good decisions. In addition, the agency intends to restrict certain technologies such as wet-cooled systems and tall solar towers in places where they would be too damaging, such as areas where water is scarce and areas where it is important to protect scenic viewsheds, respectively. The agency has also strived to create an ethos of resource protection, and to cooperate with the National Park Service and other land management agencies to protect resources on adjacent lands. The BLM knows that its decisions will impact neighboring lands, and it has made notable strides to minimize future conflicts.



Above: The Ivanpah Solar Electric Generating Station will destroy habitat for the threatened desert tortoise. ©David Lamfrom

Nonetheless, there are still significant issues to be resolved, one of which is the ultimate status of the 22 million acres of variance lands identified in the second alternative above. Millions of acres of variance lands abut or are very close to national parks (see map on page 7). If the BLM decides to make these areas eligible for solar development, there will be significant impacts on national parks if developments occur.

### Decision Time

NPCA believes that developing solar energy resources and protecting resources in our national parks and other public lands are not mutually exclusive. The BLM's efforts to develop a framework for evaluating solar energy project proposals has initiated an important national discussion—one that requires us to consider the benefits of solar energy and weigh them against the costs to desert landscapes. These are not wastelands, devoid of life and low in value. Instead, these places provide habitat for specially adapted desert plants; these intact landscapes connect wildlife that range over significant distances; and these open spaces connect us to the living things that surround us, giving us places to explore and enjoy with family and friends.

We must now decide the future of these lands. We have already invested significantly in these places, their communities, and their resources—including through the expenditure of federal funds to designate and manage the region's national parks for the protection of resources and the enjoyment of the public. The region's national parks and other public lands are national treasures held in trust for all Americans. To protect them, we must thoughtfully and cautiously pursue solar energy development.

### Contact Us

To read NPCA's full report, *Solar Energy, National Parks, and Landscape Protection in the Desert Southwest*, visit [www.npca.org/cpr](http://www.npca.org/cpr). For more information on California's desert parks, including details on solar developments that could affect these parks and actions you can take to protect them, please contact NPCA:

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**Top:** This collared lizard is one of the many reptilian inhabitants of the desert Southwest. ©David Lamfrom

**Above:** Vibrant cactus blossoms add bursts of color to the landscape. ©David Lamfrom



## Our Recommendations

- The Bureau of Land Management should invite the National Park Service, Fish and Wildlife Service, other federal and state land management agencies, non-governmental organizations, citizens' groups, and other relevant stakeholders to participate in solar project approval processes on the individual project level, in recognition of the shared natural resources at stake. It is important that the National Park Service collaborate with BLM and other public and private stakeholders in order to protect park resources, critical wildlife corridors, and recreational opportunities—priorities identified in the administration's recent *America's Great Outdoors* report.
- Information is the key to making good decisions about where to situate solar developments, but existing vegetation, species, and cultural site maps are incomplete. The Bureau of Land Management should invest significant resources in thorough inventories to identify important natural and cultural resources that could be affected by siting decisions.
- Solar energy projects should be sited only in designated solar energy zones; the lands currently considered as variance lands should not be considered for solar energy development. Instead of investing in variance lands to provide flexibility to industry, the administration should work in partnership with local stakeholders to nominate and adopt new solar zones in low-conflict areas.
- Reuse and repurpose areas that have previously been used for industrial purposes or have otherwise been ecologically degraded—they are premier sites for solar facilities. Bringing other federal landholders that manage such degraded lands, such as the Department of Defense, to the table makes sense when decisions are being made on solar facility siting. Additional opportunities for public-private partnerships exist on hundreds of thousands of fallowed agricultural lands throughout the desert Southwest.
- Much of the land being considered for solar developments harbors a variety of endemic species and species with limited geographic ranges, including state or federally listed endangered or threatened species. These plants and animals should continue to be a primary focus as land managers evaluate the suitability of potential solar development sites, particularly since many of these species are the focus of existing management plans aimed at long-term preservation of the species.
- Companies applying for solar rights-of-way on public lands should use available technology and data gathered on critical resources to minimize or reconfigure each project's footprint and limit water consumption in this arid region. In some cases, projects are planned for locations where natural and/or cultural resources and recreational values would be destroyed or greatly compromised. These projects should relocate to lands identified within Solar Energy Zones or to lands that have already been disturbed by other activities.



Long-eared owl. ©David Lamfrom



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