



# Big Land, Big Opportunity

## Smart Land Use in the Fight Against Climate Change

Tom Kenworthy | October 2010

America has great advantages as it faces an urgent need to accelerate the transition to a clean energy economy and a lower carbon future, including enormous renewable energy resources and a vast public and private land base to develop and deliver that clean, inexhaustible energy. This transformation will mean greater energy security and a more sustainable and prosperous economic future. Yet getting to that future will test our resolve and ingenuity. And getting there while treating our land resources in ways that sustain rather than deplete and degrade them will test our wisdom.

This challenge is already beginning to unfold in America's desert Southwest, which is home to some of the best solar resources in the world as well as vast landscapes that are ecological treasures and fragile wildlife habitats.

The federal Bureau of Land Management and the California Energy Commission have since midsummer been feverishly paving the way for a renewable energy construction boom in southern California and Nevada. They are in a race to meet an end-of-year deadline for funding under the American Recovery and Reinvestment Act. A flurry of final and near-final approvals for nine utility-scale solar power projects will add more than 4,000 megawatts of clean electricity to the U.S. electric power system when construction of the plants is completed over the next several years. That is about seven times the amount of concentrated solar power currently in operation worldwide as of mid-2009,<sup>1</sup> and roughly the equivalent of four nuclear power plants. It is enough to power more than 1 million homes.

The clean power surge getting underway this year in the desert Southwest is a watershed moment in the transition to a renewable energy and lower carbon future—and a vivid demonstration of how changes in land use can further that transition. The United States has a vast geography that, with smart and resourceful

land-use policies, can help accelerate the growth of clean renewable energy, reduce global warming pollution, and still protect treasured public lands and wildlife.

This analysis of the emerging boom in utility-scale solar projects in the Southwest is the first in what will be a series of issue briefs and reports by the Center for American Progress on land use in an era of climate change. Future products will examine a range of topics including the potential for managing forests and rangelands for maximum carbon sequestration, the roles of agriculture and private forestry in tackling climate change, the possibilities for using brownfields and other degraded lands for renewable energy development, and the land-use implications of expanding and modernizing the nation's electricity grid for renewable power.

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## Big land base, big opportunity

Most of the big solar projects are being sited on federal lands. The Obama administration's progress on renewable energy represents a new direction for how we use public lands and a test of whether that shift can occur in environmentally responsible ways, where the federal estate is used as a backbone for developing a clean energy economy and reducing climate pollution.

The development of publicly owned land resources as a path to future prosperity and national security is in many respects a story as old as the nation. Our relationship to the land has been central to the development of our national character, our economic well-being, and our governance throughout the past four centuries of American history.

Anne Mackin writes about how the abundance of land has shaped this relationship in her 2006 book, *Americans and Their Land: The House Built on Abundance*, saying:

*"Nothing has shaped the American character as fundamentally as the sheer abundance of land and resources that met the European colonist, that met the westward-moving settler, and that still appears to meet the American suburbanite pressing into the exurbs. Abundant land supported the frenzied colonial race to procure and use resources—the race that became the large and vigorous American economy. Abundance has supported the prosperity that underpins America's democratic attitudes, all founded on the belief that there can be enough for all."*

Decisions on how to use and apportion the incredible riches offered by America's geography have been a constant preoccupation for government and politics. Transportation projects underwritten by government—from the Erie Canal to the intercontinental railroads to the interstate highway system—have spurred commerce and economic growth. Land grants and land-use preferences for mining, agriculture, forestry, and other industries accelerated expansion and settlement westward, though often at significant environmental cost. And land conservation measures more recently have helped protect Americans' rights to clean water, air, recreation, and health.

The country now faces the imperative of moving to a clean energy and lower-carbon future, and America's public and private land base offers an opportunity just as vital as the one presented in the growth and settlement decades of the 19th century. We can weaken the bondage of fossil fuels and chart a more secure, prosperous, and healthier future with our abundant, inexhaustible supplies of renewable energy—wind, solar, geothermal, and biomass—and the open lands needed to develop them and bring them to market. Our coastal and offshore resources, wind and wave energy, will also play a part, consistent with the protections promised by the Obama administration's ocean policy announced in July.

How to best navigate and orchestrate this transition is the critical question facing public officials and citizens alike. Our history is littered with examples of the unintended consequences of land-use decisions that originally seemed wholly beneficial. Damming many of our rivers for irrigation and power production seemed benign; only later have we come to understand that these can have damaging effects on floodplains, wetlands, and fisheries. Opening up vast areas of public lands to subsidized mineral mining, logging, and livestock grazing seemed a necessary incentive for western development, but careless commercial development has caused widespread and lingering environmental problems on public lands. More recently, the rush to develop oil and gas on public lands over the last decade was sold as a route to decreased dependence on foreign fossil fuels, yet it has created conflicts with hunting and fishing, ranching, clean water, recreation, and wildlife.

It is urgent that we move quickly to a new energy future but experience teaches a measure of humility and caution. The fundamental management philosophy for public lands—that they be used in multiple ways that best meet the current and future needs of the American people—should now include the production and transmission of clean energy. Yet we need to do so with as broad a consensus as possible on the means, methods, and choices. And these decisions must be

informed by the best science and most transparent process available so the environmental gains from clean energy and lower carbon are achieved with minimal detriment to the environment.

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## Public lands and the clean energy future

One of the United States' great advantages in transitioning to a clean energy future is the federal government's—actually the American people's—vast portfolio of land holdings. The Department of Interior, whose agencies include the Bureau of Land Management, the National Park Service, and the U.S. Fish and Wildlife Service, manages about 500 million acres—roughly one-fifth of all our land. The U.S. Forest Service, an agency of the Department of Agriculture, manages an additional 192 million acres.

Much of this federal land base is rich in renewable energy resources. The BLM oversees nearly 30 million acres in the Southwest, for example, that have excellent potential for solar power development. The agency is currently evaluating 24 solar energy study areas that could produce 100,000 megawatts of electricity, enough to power 29 million homes. The BLM also manages more than 20 million acres with the potential to produce wind energy. Just the wind projects currently proposed on those lands could produce more than 800 megawatts of power, enough for 240,000 homes. BLM lands also contain abundant geothermal resources, and the agency has leased more than 1.2 million acres for geothermal energy production.<sup>2</sup>

Congress directed the Interior Department in 2005 to approve renewable energy projects on public lands that would provide 10,000 megawatts of electricity by 2015. Yet the Bush administration was so focused on accelerating oil and gas production from federal lands it essentially ignored the directive, letting solar applications pile up willy-nilly without approving any.<sup>3</sup>

The Obama administration is breathing new life into the drive to develop renewable energy on public lands. As Interior Secretary Ken Salazar told the Senate Environment and Public Works Committee earlier this year, “The great promise of solar energy and other renewable resources has led us at the Department of the Interior to change how we do business. For the first time ever, environmentally responsible renewable energy development is a priority at this department.”<sup>4</sup>

Salazar released an early secretarial order after taking office in 2009 that made renewable energy production and delivery a top departmental priority. His department recently gave final approval to the first-ever solar projects on federal land. Three proposed facilities in California and one in Nevada that will generate nearly 1,200 megawatts of electricity. This is enough energy to power about 350,000 homes, and the projects will generate nearly 2,000 construction jobs and 350 permanent operations jobs.

Salazar opened offices to coordinate renewable energy in several western states and identified the 24 BLM tracts covering approximately 770,000 acres that combine high solar energy potential with the likelihood of few conflicts with other natural resources such as endangered species habitat. He got back on track the request to develop a “programmatically” environmental impact study by the end of 2010 that examines those prime solar energy lands that will enable future projects to be cleared more quickly with fewer environmental conflicts.

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### Fast track: An imperfect process

The Interior Department also put 34 renewable energy development and transmission projects on a fast track for potential approval by the end of 2010, in time to receive federal funding under the American Recovery and Reinvestment Act of 2009. They include 14 solar projects, seven wind energy projects, six geothermal projects, and seven energy power line projects. Most of the fast track projects are in California, Nevada, and Arizona.

Salazar’s stated goal has been to permit projects on federal land totaling 5,000 megawatts by the end of the year in time to secure ARRA funding before it expires. Interior officials now believe they will fall short of that goal but will still permit and get ARRA funding for projects totaling about 3,000 megawatts, enough to power nearly 1 million homes.

As important as this inflection point is, the process of getting there has not been perfect. The Interior Department selected the fast-track projects from among the approximately 200 applications to the BLM because they were far enough along in the planning process to begin required environmental reviews and for their potential to get ARRA funding—in other words because they were relatively “shovel-ready.” Avoiding conflicts with other values was secondary, and some projects have been controversial in part because of insufficient consultation with land conservation advocates, wildlife experts, and citizens.

Utility-scale solar power facilities require very large blocks of land, on the order of 10 acres per megawatt. Some of the fast-track projects that the Interior Department is now reviewing and approving occupy 10 square miles or more of desert land, which can often overlap with habitat for protected species such as the desert tortoise and key wildlife migration corridors. As a recent Defenders of Wildlife report noted, “unless renewable energy generation and transmission projects are carefully planned and their environmental impacts thoroughly evaluated, wildlife, habitat, key corridors, and unique wild lands and natural resources can be substantially altered, impacted or destroyed.”<sup>5</sup>

Several of the projects have been scaled back and altered in other ways to minimize environmental conflicts after consultations with land conservation groups. The 709 megawatt Tessera Solar Imperial Valley Solar Project and 45 megawatt Lucerne Valley Solar Project, both in California, just received final federal approval, for example. But they will occupy fewer acres than originally planned, and the developer will acquire and donate thousands of acres of new habitat for sensitive plant and animal species to compensate for losses due to the project.

Land conservation groups have filed protests of some other large projects, arguing that the BLM did not consider alternatives for using private lands and has failed to do enough to protect sensitive species such as the desert tortoise and golden eagle.

The Interior Department will have an opportunity to be more deliberative and consultative on the second round of big renewable energy projects in 2011. When the Interior Department no longer has time constraints imposed by the rush to secure ARRA funding, it should consider adopting some of the siting criteria developed by a coalition of conservation groups. This criteria emphasizes using already disturbed sites, public lands with low resource values adjacent to degraded private lands, and sites close to urbanized areas, roads, and existing transmission lines. A combination of comprehensive evaluations of suitable and unsuitable landscapes and a strong commitment to environmental protections can help avoid many conflicts and ensure that investors and developers have greater certainty as they plan big renewable projects.

The emerging boom in utility-scale solar power production in the Southwest, if done right, promises a bright future of clean energy, less carbon pollution, and sustained economic growth.

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## Endnotes

- 1 Christoph Richter, Sven Teske, and Rebecca Short, "Concentrating Solar Power: Outlook 2009" (Greenpeace, 2009), available at <http://www.greenpeace.org/international/Global/international/planet-2/report/2009/5/concentrating-solar-power-2009.pdf>.
- 2 "New Energy for America," available at [http://www.blm.gov/wo/st/en/prog/energy/renewable\\_energy.html](http://www.blm.gov/wo/st/en/prog/energy/renewable_energy.html).
- 3 Jason Dearen, "Feds Fail to Use Land for Solar Power," Associated Press, September, 1, 2010, available at <http://abcnews.go.com/Business/wireStory?id=11530900>.
- 4 Interior Secretary Ken Salazar, Testimony before the Senate Environment and Public Works Committee, January 28, 2010, available at [http://www.interior.gov/news/speeches/2010\\_01\\_28\\_testimony.cfm](http://www.interior.gov/news/speeches/2010_01_28_testimony.cfm).
- 5 Erin Lieberman, Jim Lyons, and David Tucker, "Making Renewable Energy Wildlife Friendly" (Washington: Defenders of Wildlife, 2010), available at [http://www.defenders.org/resources/publications/programs\\_and\\_policy/renewable\\_energy/making\\_renewable\\_energy\\_wildlife\\_friendly.pdf](http://www.defenders.org/resources/publications/programs_and_policy/renewable_energy/making_renewable_energy_wildlife_friendly.pdf).