

Energy initiative sparks desert duel

Industry, scientists spar as Obama tries to fast-track Mojave wind and solar farms

By Carolyn Lochhead



Mark Boster / Los Angeles Times

Huge mirrors help generate power at the Ivanpah Solar Electric Generating System in the Mojave Desert.



David Lamfrom

Burrowing owls and other wildlife may be at risk if energy farms are developed in the Mojave

Desert, environmentalists warn.

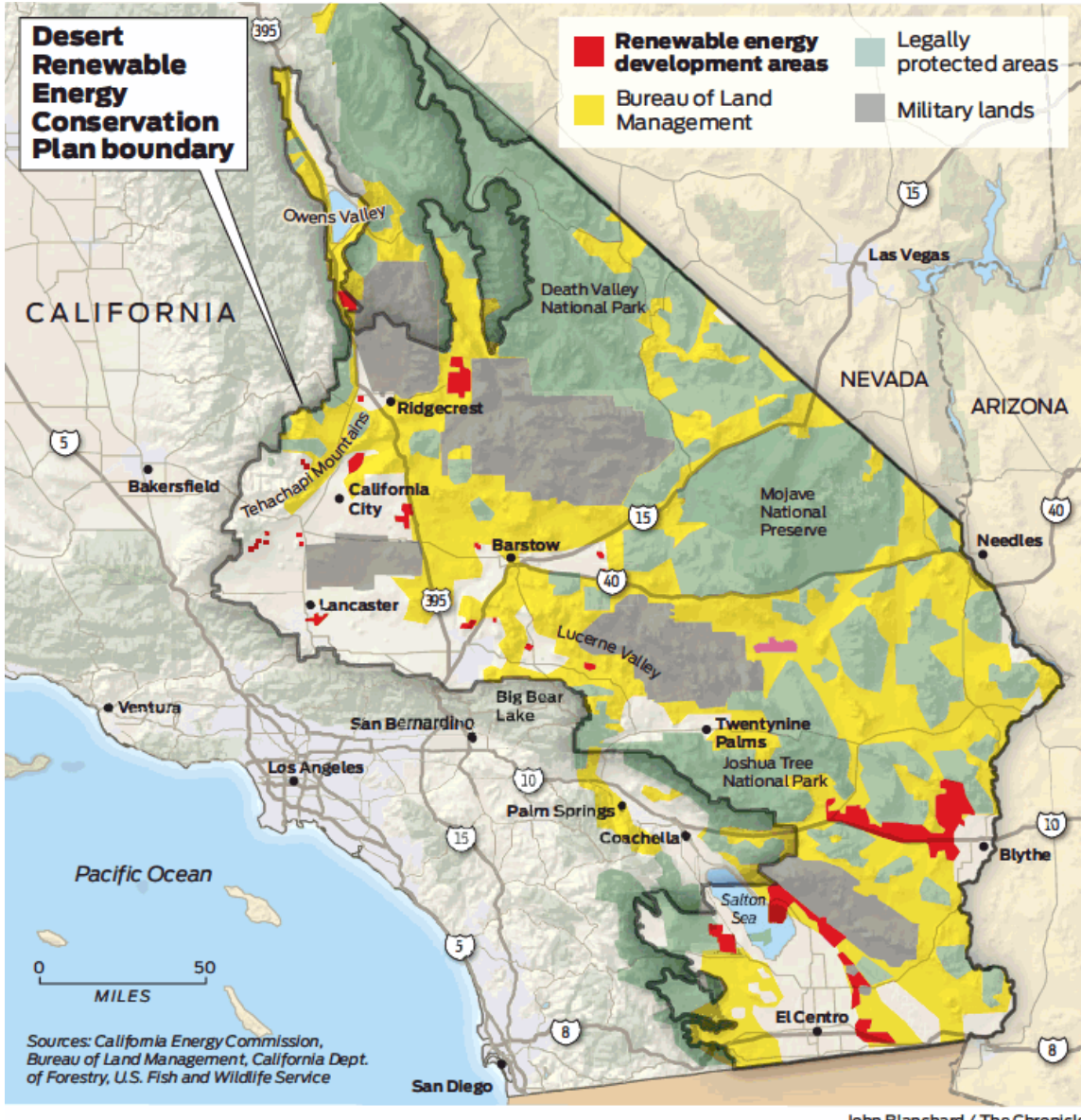


Some of the Ivanpah Solar Electric Generating System's more than 300,000 computer-controlled mirrors, each about 7 feet long and 10 feet wide, reflect sunlight to boilers that sit on 450-foot-high towers. The sun's power is used to heat water in the boilers' tubes and make steam, which in turn drives turbines to generate electricity. Chris Carlson / Associated Press 2014



David Lamfrom

Desert tortoises are among the many species of wildlife that environmentalists say could be threatened by an energy initiative.



In its final months, the Obama administration is racing to complete a far-reaching environmental initiative that could forever alter one of the wildest places left in California.

A giant energy plan for the Mojave Desert attempts to reconcile two contradictory goals: fast-tracking big solar and wind installations across 10 million acres of public lands to reduce carbon emissions and slow climate change, and preserving the region's natural beauty and ecological integrity.

Solar and wind developers say they will need broad expanses of public land to build their big installations. But scientists say those large-scale developments will permanently scar the desert landscape, destroy native plants and wildlife, and, to top it off, may not do for the environment what they were intended to do.

More than seven years in the making, the joint state-federal Desert Renewable Energy Conservation Plan is driven by President Obama's promise to install 20,000 megawatts of renewable energy on federal land and by the state's ambitious new effort to get half of California utilities' electricity from renewable sources by 2030.

The administration's goal is to deliver the equivalent of almost a quarter of California's current daily electrical generating capacity. That's enough to provide power to 3.28 million homes, according to solar industry estimates.

The plan attempts to correct mistakes made early in the Obama administration, when the California desert was opened to large-scale solar development by the Bureau of Land Management, the current plan's chief architect, without taking into account the broader environmental impacts on the desert. Unlike the National Park Service, whose mission is conservation, the bureau encourages multiple use of public lands, including mining, hunting, recreation, logging, grazing, oil and gas drilling, and renewable energy production.

The bureau's plan is to set aside 388,000 acres, or more than 600 square miles, of public land in the Mojave for renewable energy development and make another 842,000 acres available if needed. In all, nearly 2,000 square miles of desert could be developed.

The plan also sets aside 5 million acres, or 7,812 square miles, for conservation.

Going 'under the radar'

Administration officials are expected to sign off on the plan this summer. After that, only litigation or an act of Congress could prevent it from going forward. While the state is a partner in the effort, only federal land will be developed.

The California desert plan is "an environmental story in the United States that hasn't received the attention that it's owed," said Rebecca Hernandez, an earth systems scientist at UC Davis. It "has really gone under the radar."

Outside its three national parks at Death Valley, Joshua Tree and the Mojave National Preserve, the desert has been long considered a scrub wasteland. For decades it's been a repository for sprawling military bases, off-road vehicle playgrounds and booming desert cities, divided by three interstate highways. It's been mined and grazed for a century and a half. And, with a solar intensity that rivals the Sahara, the California desert is now seen as a natural place for renewable energy development.

Despite these human incursions, the desert remains one of the most intact ecosystems in the continental United States.

Scientists have come to understand that the desert is a major carbon sink, whose ancient, deeply rooted plants are a slow-motion machine for drawing carbon from the air and burying large stores of it underground in stable form.

They have shown that deeply rooted desert plants suck huge amounts of carbon from the air and bury it in the earth, where it interacts with soil calcium to form the white desert crusts known as caliche. When these soils and plants are disturbed, this natural process of carbon sequestration is disrupted.

In other words, critics say, building big solar and wind plants on undisturbed desert soils to fight climate change could backfire.

"Globally, there's probably about as much carbon bound up in (desert soil) as there is in the atmosphere," said soil biologist Michael Allen, director of UC Riverside's Center for Conservation Biology and a pioneer in studying desert carbon sequestration. "It's a very large pool."

Little land for development

Opposition to the administration's plan also comes from the solar industry. In a last-ditch effort to make changes, industry groups warned in a memo this month that the initiative will make it "impossible" to achieve the administration's climate goals — including those that came out of last year's landmark Paris climate accord — because it leaves too little public land available for development.

"California is home to the best solar radiance in the world," said Shannon Eddy, executive director of the Large-Scale Solar Association, and the Bureau of Land Management "is on the threshold of locking it off against

development in perpetuity.”

Environmental groups that support the administration’s plan fear the desert will be under significant threat from solar development without the government’s protection of 5 million acres.

Without such protection, said Kim Delfino, California program director for Defenders of Wildlife, “the public lands will yet again be the place a lot of these large projects go.”

The plan was designed to avoid a repeat of actions taken in the Obama administration’s early days, when it handed \$50 billion in subsidies to renewable energy developers as part of the economic stimulus that followed the 2008 crash. The initiative set off a desert land rush by those hoping to cash in on the government money and the vast tracts of available public land, which in turn overwhelmed federal agencies, causing them to approve projects without considering their broader environmental impacts.

“The state and the federal permitting agencies were scrambling to do a good job of analyzing projects in the desert on a site-by-site basis, but without the benefit of a broader plan that would help us really begin to see the big picture of how these different projects might together affect the desert environment,” said Karen Douglas, a member of the California Energy Commission who has taken a leading role for the state in the current plan.

One project that environmentalists point to as an epic mistake is BrightSource Energy’s solar-power farm at Ivanpah (San Bernardino County), built to provide power for Pacific Gas and Electric Co. Constructed just north of the Mojave National Preserve on 6 square miles with \$1.6 billion in federal loans and \$600,000 in tax credits, the plant has fallen short of its production goals.

Construction turned up many more endangered desert tortoises than expected, and thousands of birds have been incinerated in the light beams that reflect off the plant’s nearly 350,000 mirrors to three 45-story-tall towers. The plant has burned so much natural gas that it has needed to buy carbon credits to comply with the state’s greenhouse gas emissions program. Bright-Source, an Oakland firm, says the plant has vastly improved its solar power output this year.

Many would prefer rooftops

With the new plan, the administration is trying to look at entire landscapes when planning for renewable energy. In a speech in April, Interior Secretary Sally Jewell said the effort would “determine where it makes sense to develop, where it makes sense to protect the natural resources, and where we can accomplish both.”

Barbara Boyle, head of the Sierra Club’s “Beyond Coal” campaign, called the plan “a really important milestone ... that looks at the big picture of development and conservation.”

“We take a very pragmatic view of this, recognizing that some development is going to happen in this desert, and it’s not going to be possible to stop it all,” Boyle said. “We are pushing as hard as we possibly can to put it in the least damaging places and to limit how much is done.”

Three factors are driving the push for large-scale solar and wind development: a law passed by the California Legislature last fall requiring half the energy provided by utilities to come from renewable energy sources within 14 years; the Obama administration’s targeting of public lands for such renewables; and Congress’ decision in December to continue a lucrative solar tax credit.

But common sentiment among local environmental activists, business leaders, county officials and scientists living in the desert is that solar should come from panels on the rooftops of homes and businesses where electricity demand is. Putting solar on rooftops would encourage more small-scale advances in renewable energy production and reduce the need for sprawling desert projects, they say.

“If the state of California was really smart, they would do a Google search and look at all of the parking lots and rooftops in Southern California — the Walmarts, the Targets, the humongous shopping center areas,” said Chuck

Bell, head of the pro-business Lucerne Valley Economic Development Association, who joined local environment activists to protest the desert plan.

Hernandez, the UC Davis scientist, worked with Stanford University researchers on a study last year that found that rooftop and other solar systems in developed areas "could meet the state of California's energy consumptive demand three to five times over."

"When you have so many other places that are already disturbed, especially across the whole of California, it just doesn't make sense to destroy any remaining natural habitat we still have left intact," said Hernandez, whose joint study was published in the journal Nature Climate Change.

Advantages of desert

But Douglas, the California Energy Commission member, insists the state needs large-scale renewable energy to provide reliable electricity, and the desert so far has been instrumental to building the capacity to do that.

"Rooftop is a really important part of the portfolio," Douglas said. "It will get more important, and it is getting more important, but we have big goals. Large-scale projects, they also get you scale. They are located in areas with very good resources, and when they come online they can increase our renewable energy generation as part of our statewide portfolio very quickly."

In its planning, the Bureau of Land Management said rooftops are outside of the agency's authority and that its orders were to evaluate renewable energy projects only "on federally administered land." Planners focused solely on the desert.

Rex Parris is the Republican mayor of Lancaster (Los Angeles County) in the western Mojave. His focus on renewable energy has resulted in the placement of solar panels over parking lots, on city buildings, schools and even the city's baseball stadium. He wants to make Lancaster the first city to require solar panels on all new housing. His aim, he said, is twofold: to battle climate change and save money.

He invited a Chinese company to manufacture electric buses in Lancaster, which, under his leadership, also bought the city's streetlights from Southern California Edison when the utility refused to switch the bulbs to LED lights. Parris is pushing large-scale solar installations on some of Antelope Valley's 56 square miles of abandoned alfalfa fields.

There's no reason to bulldoze desert wilderness, the mayor said. Gesturing to his city of 150,000 people, he said, "We have the land here."

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