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## Solar Projects Draw New Opposition



FPL Group, via Bloomberg News

FIELDS OF LIGHT Plans for large solar plants in the desert — like this one in Kramer Junction, Calif. — have come under fire from area residents and environmentalists.

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WHAT'S not to like about [solar power](#)? Sunlight is clean, quiet and abundant. If enough of it were harnessed and turned into electricity, it could be the solution to the energy crisis. But surprisingly, solar power projects are running into mounting opposition — and not from hard-nosed, coal-fired naysayers, but from environmentalists.

The opposition is particularly strong in Southern California. Aside from abundant sunshine and virtually cloudless skies, the California desert has altitude, so there is less atmospheric interference for the sun's rays, as well as broad swaths of level land for installing equipment, and proximity to large, electricity-hungry cities.

But it is also home to the Mojave ground squirrel, the desert tortoise and the burrowing owl, and to human residents who describe themselves as desert survivors and who are unhappy about the proliferation of solar projects planned for their home turf.

“We're tired of everyone looking at the desert like a wasteland,” said Donna Charpied, who lives with her husband, Larry, in Desert Center, Calif., where they have been farming jojoba, a native shrub cultivated for its oil, for 27 years. She is also the policy advocate for the Desert Communities Protection Campaign of the Center for Community Action and Environmental Justice.

The United States [Bureau of Land Management](#) said it had applications for solar power projects that would cover 78,490 acres in the area around the Charpieds' farm, which abuts Joshua Tree National Park. For the entire United States, the total number of applications is far greater, growing from zero less than two years ago to more than 125 projects with a combined electrical potential of 70,000 megawatts, the equivalent of the electrical capacity of about 70 large coal-fired power plants.

Investors, developers and speculators filed so many applications with the bureau that in May it declared a moratorium on new ones. On July 2, overwhelmed by protests, it reversed itself and ended the moratorium.

The land rush is being driven in large part by a California law that calls for 20 percent of the state's electricity to come from renewable resources by 2010.

The California Public Utilities Commission said the state was falling behind in meeting that goal. It estimated that California's electric utilities would have to build or buy 3,000 megawatts of renewable resources over the next two years to meet the 20 percent target. So the utilities are scrambling to find renewable resources, and developers are working furiously to build projects.

Last month, Pacific Gas and Electric, based in San Francisco, signed contracts to buy the electricity produced by projects under development in San Luis Obispo County by two companies, OptiSolar and the [SunPower Corporation](#), which are expected to come on line between 2010 and 2013.

This sudden flood of solar power projects not only caught the staff of the Bureau of Land Management off guard, it also surprised some environmentalists. "Many community groups are up in arms" about the projects planned in the Mojave Desert and Coachella Valley regions, said D'Anne Albers, the California desert associate for Defenders of Wildlife, citing plans by OptiSolar, BrightSource Energy and FPL Energy.

Jim Harvey, a founder of the Alliance for Responsible Energy Policy, an environmental group in Joshua Tree, said: "Our position is that none of this is needed. We support renewable energy, and we support California's renewable energy targets, but we think it can be done through rooftop solar."

Mr. Harvey said that if Germany, which is as far north as the Canadian city of Calgary, could have a successful solar power program that relies heavily on rooftops, so could the United States. Germany's solar program works, he said, because the government offers so-called feed-in tariffs — fixed-rate payments for electricity generated from solar panels.

The tariff is the equivalent of about 50 cents a kilowatt hour. The average residential retail rate in the United States is about 11 cents a kilowatt hour, according to the Department of Energy.

Mr. Harvey said the tariff would not have to be that high in the United States. Matching wholesale rates would be sufficient to spur a rush to small solar power. "It's all about policy," he said. "Our lawmakers have sold out to the big solar lobby."

In addition to obstructing views and disrupting habitats, large solar power projects take a toll on the desert's scarce water supply, environmentalists like Mr. Harvey said. Mirrors and solar panels have to be washed, and some solar projects incorporate steam turbines, which require even more water.

In addition, some solar projects call for grading the land and spraying it with chemicals to inhibit dust or plant growth that can reduce the efficiency of solar panels. Others require backup generators powered by fossil fuels.

These environmentalists favor "distributed generation," like solar panels on rooftops, and they argue that the leadership of national environmental organizations such as the [Sierra Club](#) and the [Natural Resources Defense Council](#) has gone in the wrong direction.

Terry Frewin, the chairman of the Sierra Club's California/Nevada desert committee, wrote to the club's executive director, Carl Pope, in July, criticizing him for backing large-scale solar projects.

"Remote solar arrays destroy all native resources on site, and have indirect and irreversible impacts on surrounding wildernesses," Mr. Frewin wrote. He urged the Sierra Club to embrace distributed generation as an alternative to the "industrial renewable" option.

Carl Zichella, Western renewable projects director for the Sierra Club, said in response to the letter, "We don't take a back seat to anyone in caring for the desert." But he said the group's position was unchanged.

At the current rate of adding 200 megawatts of rooftop solar power a year, it would take 100 years to meet the 20 percent renewable target that California must meet by 2010, Mr. Zichella said. "What they are proposing is not a solution at all."

One of the first tests of public land use for large, privately owned solar projects is likely to be over BrightSource Energy's planned 400-megawatt solar project, which would occupy 3,400 acres on the California border near Primm, Nev.

The project would use an array of mirrors to concentrate the sun's rays on a boiler. Steam produced in the boiler would turn a turbine that would generate enough electricity to power 250,000 homes.

John Woolard, the chief executive of BrightSource, cited several ways in which the company was trying to have as little impact as possible on the desert. He said the project would use "dry cooling" technology to condense the steam in the turbines for reuse, keeping water usage to a minimum, and that BrightSource had purposely sought out already disrupted land (it had been used for cattle grazing) for its project.

But in the end, the scale of BrightSource's project is driven by the efficiencies of the technology. "You get half as much bang for your buck from rooftop solar" as with concentrating solar technology, Mr. Woolard said, adding, "Rooftop solar will never put a dent in California's renewable targets."

Currently available commercial photovoltaic technology converts sunlight to electricity at an efficiency rate of 12 percent to 14 percent. (The most efficient power plants can achieve efficiencies of nearly 60 percent.)

Absent an economic incentive, solar power just does not make sense, said Al Forte, principal and director of the clean energy solutions practice at Nexant, an energy industry consulting firm. Lucrative incentives like Germany's feed-in tariff "tend to warp the reality of the market," he said.

One of the first battles over a large solar power project was fought on the outskirts of Victorville, Calif., on the western edge of the Mojave. Inland Energy is building a "hybrid" project on 250 acres there for the city of Victorville that will combine solar panels with conventional technology.

In compliance with state law, Inland hired a firm to look for endangered species, including the Mojave ground squirrel and the desert tortoise. No squirrels were found, but three or four tortoises were found. Because no squirrels were found, Inland proposed to the California Department of Fish and Game that it buy one acre of land to offset every acre of lost habitat, said Tom Barnett, executive vice president at Inland. But the department insisted on the three-to-one ratio its rules call for, he said.

"Time is more important than anything else" in project development, Mr. Barnett said, explaining why Inland agreed to the three-to-one ratio. But he noted that it would cost \$6.5 million to \$10 million to buy and maintain the offsetting acreage for the tortoises.

A family — of human beings — was also living on the site. Inland reached a deal to relocate them at a total cost of \$250,000.

"One of the biggest concerns we have," Mr. Barnett said, "is that ours is just a 50-megawatt project."

The much larger projects being proposed will be that much more complicated, but Mr. Barnett, who has a master's in environmental science, is not giving up easily. He has begun work on an identical project in Palmdale, Calif., where the wildlife survey, once again, found no squirrels. He said he was prepared to fight the habitat battle again.

Meanwhile, on the other side off the desert, south of Joshua Tree National Park, Donna Charpied said desert residents of California and Nevada were planning some unspecified action within two months. "The desert will not go quietly into that dark night," she said.

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