

# Is California building wrong kind of solar?

**Tom Elias, Redding Record Searchlight, 3-1-11**

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Ex-Gov. Arnold Schwarzenegger made his way to a remote desert location last October, not far from Interstate 15, which runs between Southern California and Las Vegas. So did U.S. Interior Secretary Ken Salazar and bunches of utility executives.

All pronounced themselves thrilled to mark what they called a landmark advance in energy, the start of work on a huge solar power farm that will help meet the state's goal of producing one-third of its electricity from renewable sources by 2020.

The project, on a site near the Mojave Desert's Ivanpah dry lake, is the second-largest of six solar thermal energy projects Salazar has greenlighted to use about 12,000 acres of federal land for 30 years or more. The largest is eight miles west of Blythe, near the Arizona border and a bit closer to Los Angeles. This one was greenlighted three weeks after Ivanpah.

These two big projects will generate about 1,000 new jobs, making them a significant component of the "green" job growth counted on by current Gov. Jerry Brown. When finished, they will produce about 709 megawatts from 28,000 solar dishes and panels, enough to power about 300,000 homes year-round.

The solar plans are now being challenged on grounds they impinge on endangered species and treasured Native American sites. A more serious question about them is whether they represent a colossal waste of federal money. Altogether, more than \$6 billion in federal stimulus money is earmarked for these projects, along with billions more worth of tax credits and other writeoffs for the solar firms that will build and own these, which will be among the world's largest solar power plants.

The question: Would that money be better spent on much simpler and smaller solar photovoltaic panels that can be installed on rooftops and parking lots in the cities where the power will be used than on vast expanses of solar thermal panels in the desert, where the electricity will have to be transmitted hundreds of miles to its eventual users? The jobs are not an issue here. Photovoltaic would create at least as many as solar thermal.

The answer, as outlined this winter in an article in the journal *Natural Gas and Electricity*, is that the same amounts of energy can be produced from photovoltaic panels for less than 55 percent of the cost.

The author, San Diego engineer William Powers, cites federal Department of Energy statistics to argue that solar thermal energy is now outmoded, and not being pursued in other advanced countries like Japan and Germany, both of which have large-scale solar photovoltaic energy projects under way.

One reason is that photovoltaic panels are far simpler than solar thermal ones. Photovoltaic energy is produced when sunlight is converted directly to electricity without the involvement of water or oil, while solar thermal uses fluids like synthetic oil or pressurized steam to convert heat into energy in large-scale facilities.

The bottom line financially, Powers calculates, is that solar thermal energy, including all transmission expenses, would cost about \$250 per megawatt-hour, while photovoltaic would run only about \$136 per megawatt-hour for sites getting the frequency of sunshine seen in or near Los Angeles and San Diego.

There are two reasons why big power companies like Southern California Edison and San Diego Gas & Electric (Pacific Gas & Electric remains mostly an interested spectator at this point) line up behind the big solar thermal farms in remote locations: One is that when photovoltaic panels are installed on private buildings, the utilities must pay the owners a "feed-in tariff" for power not consumed in the buildings themselves that is then put onto their overall grids.

The other is that building the transmission capacity to carry power from faraway desert points to big cities and their suburbs would cause them to invest billions of dollars, thus increasing their "rate base" considerably. A major component of electricity pricing is the "rate of return" (yearly profit percentage) utility companies get on their rate base, the total they've spent over the last 20 years on facilities and equipment. The current estimate for building just one of the needed transmission lines — roughly paralleling Interstate 15 — is \$750 million.

Which means large solar-thermal plants could force even greater electricity price increases than building new, conventional oil- or gas-fired power plants.

All of which suggests another look at the huge and politically connected solar developments in California's almost-always-sunny deserts is called for. Californians and all American taxpayers deserve to know for sure that these won't turn into just another massive government-supported boondoggle.