

Drought threatens California's hydroelectricity supply, but solar makes up the gap

By Dana Hull

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Despite last week's showers, the lack of rain in California this winter is having a dire impact on the rivers and reservoirs that power the state's hydroelectricity plants.

But the abundance of sunshine has been ideal for solar power, which is stepping in to fill the anticipated drop-off in hydroelectricity generation.

"We're going to have enough power to keep the lights on: We are not concerned about blackouts or outages," said Robert Weisenmiller, chairman of the California Energy Commission. "We are much less dependent on hydropower now than we were in the 1940s. In just the last year, we've added more than 1,000 megawatts of solar alone."

One megawatt of solar power capacity is sufficient to power about 200 households, so 1,000 megawatts is enough for roughly 200,000 homes.

Many of the state's largest hydro facilities are located in Northern California's mountain ranges, which remain desperate for precipitation despite the downpours last weekend.

"Hydroelectricity is completely dependent on reservoir levels, and right now the reservoirs are so low," said Steve Melavic, the head of Operations at the Shasta Dam, located on the Sacramento River in the southern Cascades. "We're only 36 percent full right now."

But state energy officials aren't in a panic. Utilities have a diverse portfolio of power sources to draw from and are not expecting customer rates to be impacted this summer. PG&E gets 11 percent of its electricity from large hydropower; the rest comes from renewable sources like solar and wind, nuclear and natural gas.

The California Independent System Operator, or ISO, which manages 80 percent of the state's electric grid, gets 13.6 percent of its electricity from large hydro plants and 18.3 percent from renewables.

Several large solar plants, including SunPower's 250-megawatt California Valley Solar Ranch in San Luis Obispo County, have come online in recent months. California now has 2,926 megawatts of utility-scale solar in operation, according to the Solar Energy Industries Association. On Thursday, BrightSource Energy's 392-megawatt Ivanpah project is scheduled to come online in the Mojave Desert.

The solar industry has been quick to point to solar's advantages in a drought.

"Solar not only helps California's economy and environment, it's also the smart way to go if you want to conserve water resources," said SEIA spokesman Ken Johnson. "Solar panels use almost no water, while nuclear, coal and natural gas facilities can use thousands of gallons per megawatt hour, depending on the technology and the facility."

Hydroelectric power typically accounts for 15 percent of California's electricity, but the amount of electricity generated each year depends on rainfall and mountain snow pack. In 1992, a low water year, hydro accounted for just 11 percent of the state's electricity, according to the federal Energy Information Agency, while in 1995 it accounted for 28 percent.

It's too early to tell what California's hydro output will be in 2014, but everyone is expecting it to be low.

"We're unlikely to achieve normal precipitation this year," said Stephanie McCorkle, a spokeswoman for the ISO. "Hydroelectricity is a flexible operating tool, because water can be stored. But we're less reliant on it. The power mix in the West has changed."