

California's hydro power dries up as drought worsens; utility customers paying more

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The drought is drying up California's once-plentiful supply of cheap hydroelectricity, and utility customers are paying for it.

SMUD said it expects to raise rates slightly, starting with April's bills, to compensate for the use of more expensive energy alternatives. Roseville's city-owned utility has imposed a 2 percent "hydroelectric surcharge" on ratepayers since last July. PG&E consumers have been shouldering a 1.5 percent rate increase for more than a year to cover the cost of replacing inexpensive hydro.

While there's little fear of blackouts this summer, the scarcity of water has slowed the state's far-flung network of hydro turbines practically to a crawl. Hydroelectric production in California plunged 60 percent from 2011 to 2014, according to the U.S. Energy Information Administration. Estimates for 2015 aren't available yet.

That's forcing utility companies to rely more heavily on power from natural gas-fired plants, solar farms and other sources, all of which are pricier than hydro.

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"Eventually that gets rolled into rates," said Robert B. Weisenmiller, chairman of the California Energy Commission.

The problem is particularly acute in Northern California, where most of the state's big hydroelectric plants are located. The [Sacramento Municipal Utility District](#), one of the most hydro-dependent utilities in the state, gets one-fourth of its power from hydro in an average year of precipitation.

Last year, though, hydro produced just 12 percent of SMUD's power supply. The same is expected this year, said Jennifer Davidson, the utility's manager of budget and enterprise performance.

Still, Davidson said she doesn't expect the April rate increase to jolt consumers. While the exact increase hasn't yet been calculated, "it would be a very small amount," she said. The average monthly household bill at SMUD is \$93.93, she said.

Pacific Gas and Electric Co. spent \$200 million replacing cheap hydro in 2013. That translated into an approximately 1.5 percent increase in electric rates effective January 2014, said PG&E spokesman Paul Moreno.

The statewide impact from the loss of hydro power is considerable. A recent [report by the Pacific Institute](#), an Oakland environmental think tank, said electricity costs jumped \$1.4 billion from 2012 to 2014 as utilities switched to gas-fired generation and other sources.

Utilities large and small are coming to grips with the problem. Roseville Electric placed a 2 percent surcharge on monthly bills last July. The charge expires in June but likely will be renewed the following month in an amount to be determined, said Michelle Bertolino, director of the city utility.

Bertolino said customers haven't complained about the charge. Most bills have gone up less than \$2 a month, and "our rates are some of the lowest in the state," she said.

Roseville Electric is part of a consortium, the [Northern California Power Agency](#), that owns a hydro plant on the Stanislaus River and purchases additional supplies from the federal government. Both sources are delivering less power than usual.

“We sort of get a double hit,” said Ken Speer, assistant general manager of the power agency. “We’re far worse than we were last year.”

Despite the water shortage, the state should be able to endure the summer with enough electricity to go around. In a preliminary forecast, the California Independent System Operator believes supplies “will be sufficient, even in the worst case scenario,” said spokesman Steven Greenlee. The ISO runs the state’s transmission grid.

Nonetheless, the drought is forcing utility managers and others to take a hard look at the network of reservoirs and dams that has become such a big part of the power picture.

California has traditionally been one of the leading hydro-producing states, trailing only Washington and Oregon. In a typical year, hydro is responsible for 15 percent of California’s electricity supply.

Last year, that sank to just 8 percent, according to federal data. That’s robbed the state of millions of megawatt hours from one of the least-expensive energy sources around.

“Hydro is king,” Weisenmiller said.

The Pacific Institute study said the shortage of hydro has hurt the environment, too. Utility companies are switching to gas-fired plants, increasing their greenhouse-gas emissions by 8 percent over the past three years at a time when California has mandated that utilities and others reduce their carbon output, the institute said.

Other experts, however, said the institute’s carbon estimate is probably overblown. Weisenmiller and Stanley Young, spokesman for the California Air Resources Board, said many utilities are looking to non-carbon alternatives such as solar and wind power to offset the decline in hydro power.

“You’re seeing a really big growth in wind and solar,” Weisenmiller said.

[Solar power generation in California](#) nearly tripled last year, a growth rate that was enough to offset 83 percent of the loss in hydroelectricity, according to the Energy Information Administration. California got 5 percent of its power from solar last year and 7 percent from wind. State law requires utilities to generate one-third of their electricity from renewable sources by December 2020.

The good news is that alternatives to hydro, including renewables and gas-fired generation, have fallen in price in recent years. But they’re still more expensive than hydro.

At SMUD, Davidson said solar, wind and other renewable sources generally cost about 8 to 10 cents per kilowatt-hour. Electricity from natural gas-fired plants runs about 4 cents. Hydro is a mere 2 cents. The typical SMUD household uses 750 kilowatt-hours a month.

The Sacramento utility normally draws on power it generates from the Upper American River Project, a string of eight SMUD-owned plants, and buys additional supplies from the federal government’s Western Area Power Administration. If it’s a dry year and SMUD needs additional electricity, it can normally dip into its “hydro rate stabilization fund,” a pile of cash that’s been stored up during wet years.

But now, after four years of drought, the fund is nearly exhausted.

“In 2011, we had \$40 million in that,” Davidson said. “As of now, we have only \$3 million.” As a result, she said SMUD ratepayers will have to pay more, beginning with bills going out on or about April 10. The amount of the increase won’t be known for several more days, but Davidson said it will be modest.

The warmer-than-usual winter hasn't helped. While there have been a few decent rainstorms, the snow has been painfully thin. That will leave utilities in an even deeper bind as summer approaches.

Consider PG&E, for example. Its reservoirs are surprisingly full considering the severity of the drought: Moreno said they're at above-average levels for this time of year, as PG&E has been conserving water as much as possible. But with the state snowpack at 8 percent of normal, the utility won't get the late-spring runoff it needs to augment its hydro supplies.

"We're not going to have the snowmelt this year, and the snowmelt plays an important role in recharging the reservoirs as we go through summer," Moreno said.

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