

LOCAL

What California needs to do to avoid a Texas-style electricity crisis



J.D. Morris

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A cyclist rides through the pier plaza in Huntington Beach during last August's California heat wave which caused rolling power blackouts

California and Texas, the country's two most populous states, have each faced major energy crises within the past six months that share a primary cause: extreme weather.

This week, millions of Texans lost power amid a historic winter storm that blanketed the state in snow and ice and sent temperatures plunging to uncommonly frigid depths. People have died or been sickened by carbon monoxide poisoning as they struggled to stay warm, and officials in one county requested a refrigerated truck to store the bodies of people who died during the cold snap.

The Lone Star State's plight is many orders of magnitude worse than the rolling blackouts Californians endured over two blistering days in August. Yet both situations have exposed the extent to which the United States' vital energy infrastructure is threatened by erratic and extreme weather conditions that are becoming increasingly common as climate change advances.

"In some sense, it is two states with very different approaches to electricity markets ending up with a very similar problem, which is poor planning," UC Berkeley energy economist Severin Borenstein said.

California's rolling blackouts occurred when electricity supplies ran unexpectedly short during a widespread heat wave that sent demand for air conditioning skyrocketing throughout the western United States. As a result, the state's primary grid operator ordered temporary outages that affected hundreds of thousands of homes and businesses for limited periods on Aug. 14 and 15. The grid emergency that led to the blackouts lasted for about two hours on the first day and about 20 minutes on the second.

In Texas, by contrast, millions of people had no power for days in a state that is not used to dealing with such extremely cold weather.

"There is no comparison between these incidents," said Ralph Cavanagh, the Bay Area-based energy program co-director for the Natural Resources Defense Council.

He worked with Texas energy companies earlier in his career.

California energy leaders have repeatedly said that climate change contributed to the heat wave that baked the west in August. Research has also [pointed to a link](#) between rising temperatures and extreme winter weather in the United States, though scientists are not certain about the exact relationship.



— People line up to enter Costco in Pflugerville, Texas, last week. Millions of residents in the energy capital of the United States lost power because of unusual and severe winter weather.

Ricardo B. Brazziell / Austin American-Statesman

Judah Cohen, director of seasonal forecasting at Atmospheric and Environmental Research, a weather consultancy, thinks climate change is one factor that can disrupt the polar vortex, sending Arctic weather south.

“In its normal state, the polar vortex is strong and stable,” he said. “It’s like the fast, tight rotation of a top, and it keeps all the cold air very close to it. When it gets disrupted, just like the top when you bang on it or it knocks into something, it starts to

meander, it starts to wobble.”

The fact that the two largest U.S. states by population have in such close succession been forced to confront weather-induced blackouts is a startling indication that the country’s energy systems may not be fully prepared for the uncertainties of climate change. And strengthening power grids to better withstand future events like massive heat waves — which California could see again in just a few months — will require major infrastructure upgrades that won’t be cheap.

“The really big thing to keep in mind here is that we’re at the beginning of a very, very challenging transition in terms of trying to entirely remake our energy system for decarbonization reasons,” said Emily Grubert, an assistant professor of civil and environmental engineering at Georgia Tech. “We’re going to have to do some things that we don’t want to do, and some of that is actually spending more money on our infrastructure.”

One of the major challenges facing states as they try to adapt their electric systems to the country’s more volatile climate will be ensuring that the costs do not fall disproportionately on low-income communities already struggling to get by, Grubert said.

That is a particularly urgent task in California. While Californians have historically paid lower monthly bills on average than the rest of the country, that is in large part thanks to a typically temperate climate that demands less energy use. Despite the smaller bills, the state has some of the country’s highest electricity rates — and prices will likely rise further.

The California Public Utilities Commission [forecasts a steady rise in rates](#) for each of the state’s three main electric companies. Between 2020 and 2030, Pacific Gas and Electric Co. customers are expected to see annual average rate increases of 3.7%, a commission study concluded. Authors warned that the state’s policy goals influencing higher rates “appear manageable” over the long term, but “if not managed correctly could trigger equity and affordability concerns for vulnerable customer populations over the short- to mid-term horizon.”

California has already taken immediate steps to reduce the likelihood of more weather-induced blackouts this year. The utilities commission has directed PG&E and its Southern California counterparts to [line up more power supplies by this summer](#) and is poised to take further action next month.

But the state will need to take even more aggressive steps to fully transform its grid and achieve its goal of [getting all of its energy from carbon-free sources by 2045](#).

Climate Change

That's why Assembly member David Chiu, D-San Francisco, wants to see wind turbines installed in the waters off the California coast — a type of renewable energy project already found off the coast of Rhode Island. Chiu has introduced a bill, [AB525](#), that would set a short-term goal of producing 3 gigawatts of offshore wind — enough to power about 900,000 homes — by 2030 and 10 gigawatts by 2040. He sees it as a vital step to modernizing the electric grid and better preparing for harsher weather by making the state's sources of power generation even more diverse.

"We've gotten a preview of the havoc climate change will wreak on our state as we weather heat waves, wildfires and rolling blackouts," Chiu said. "The good news is, we have a once-in-a-generation opportunity to put people back to work and rebuild cleaner and greener."

Regulators at the state utilities commission are currently "studying the potential of offshore wind to play a role in the future of the electric grid," spokeswoman Terrie Prosper said in an email. But it will likely be at least several years before any projects are built.

Some environmental groups and public officials feel state energy leaders haven't done enough to respond to the rolling blackouts and hasten the transition to a carbon-free grid. Critics have been calling for more aggressive measures through public comments and letters sent to the utilities commission and the governor this month.

Chris Field, director of Stanford University's Woods Institute for the Environment, said in an email that Texas' power woes this week should be yet another reminder that California needs to invest more in preparing for disaster risk. A potential infrastructure package advocated for by President Biden's administration — which also views climate change as a top priority — could help, he said.

"That's what we need in Texas and in California to address our electricity challenges,"

Field said in the email. "Both states need a 21st century electricity system. And both states need to recognize that the creaky current systems are not up to the challenges they face."

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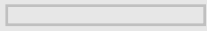
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