

San Francisco Chronicle

June 5, 2022

Four ways California can keep the power on amid climate change. More natural gas isn't one of them

Wind turbines turn near Rio Vista. If California needs to start now if it is going to build the offshore wind-power capacity it needs by 2030. Rich Pedroncelli/Associated Press 2013

Mike O'Boyle

It's August 2030, and California is suffering through one of its worst summers on record.

Climate change's relentless creep continues, with a heat dome keeping temperatures stuck over 100 degrees, straining air conditioners. The Western mega-drought has worsened, and near-empty reservoirs sap our hydropower supplies. Meanwhile, California's aging natural gas power plants have begun shutting down as the state pursues its emissions reduction targets, and all coal-fired power plants across the Western U.S., which supply power to our state during regional demand peaks, closed after becoming too expensive to run.

But instead of the rolling power outages — like those California energy agencies are predicting for the summer of 2022 — the lights stay on across California, preventing thousands of heat-related deaths. This difference didn't happen by expanding natural gas electricity infrastructure. Instead, California policy makers accelerated solar, offshore wind, battery and geothermal power plant development, creating a reliable 85% carbon-free grid that leads the planet with its ambition.

This postcard from the future emerged from an analysis conducted by researchers at GridLab, Telos Energy and Energy Innovation, where I work as electricity policy director. It showed that an 85% clean grid in 2030 can be more reliable than the one we have today.

Using the same planning tools state agencies use, our analysis simulated grid reliability against "what-if" questions facing Californians:

What if extreme heat repeats itself? What if dwindling snowpacks make hydropower unpredictable? What if the wind doesn't blow and the sun doesn't shine? What if we start winding down fossil fuels? Our simulations showed an 85% clean electricity grid holds up to these stressors. So how do we get there?

A diverse portfolio of clean energy resources is the key. California leads the nation in solar technology and battery storage, but it has faced headwinds from international supply chain bottlenecks and the threat of new solar tariffs. Finding a place to put enough solar to reach our clean energy goals won't be easy either — a recent analysis from the Air Resources Board indicated we would need up to six times our current solar capacity by 2045.

We can reduce the risk of these supply shortages and land-use constraints by embracing four technologies.

The first is offshore wind. California has some of the world's most consistently strong coastal winds, and technological innovations make floating offshore wind turbines possible in our deep coastal waters — a job creation opportunity for once-bustling ports like Humboldt Bay. Reaching this potential starts with the California Energy Commission setting ambitious planning goals for the state under AB525, a law that requires the commission to assess offshore wind's "feasible potential" and develop a road map to achieve it. Launching the results of this effort by 2030 will require immediate public and private investment in ports, grid infrastructure and manufacturing capacity.

The second source of diversity is geothermal power plants that use subterranean heat to produce round-the-clock electricity. But we haven't built a new plant in a decade. East Bay Clean Energy is among the California utilities purchasing reliable, clean power through advanced geothermal technology. Others should follow.

The third is building a system that helps utility customers reduce demand during peak times. Remember "flex alerts" from PG&E and state officials asking large customers to turn off their facilities during August 2020 heatwaves? California must turn ad hoc efforts like that into a comprehensive system where more customers get predictably paid to reduce demand when needed. Gov. Gavin Newsom's plan to spend \$5 billion on a strategic reserve to prevent outages should focus on signing up customers to reduce demand when needed, rather than propping up old gas plants.



The fourth source of diversity is more effective coordination with neighboring utilities when in-state power isn't enough. California imports 30% of its electricity, but that availability becomes less predictable during regional heatwaves. Most of our neighbors are phasing out coal and have similar goals to build a carbon-free grid. Resuscitating a failed 2018 bid to create a regional grid would add billions in consumer benefits and reduce import risks during regional crises.

Expanding and diversifying our clean electricity mix in these four ways creates room to retire the gas plants burdening California's most polluted communities. We'll still need some gas generation in 2030 to keep the lights on, but an 85% clean system creates room to close almost a third of existing gas plants.

We know how to do this the right way. In 2018, the California Public Utilities Commission approved a clean energy portfolio that replaced the expansion of the Puente gas plant in Oxnard. Local community organizers led opposition to the Ventura County plant, which would have continued to pollute the community, forcing the utility to change course. Now Oxnard boasts one of the largest battery arrays in the country providing reliability at lower cost. State agencies can replicate this success, prioritizing disadvantaged communities who are suffering from polluting, aging gas plants.

Heat waves, drought and retiring fossil plants are known and predicted risks. Modeling shows California's grid can handle these stressors — if we build the right clean energy mix.

Mike O'Boyle is director of electricity policy at the Bay Area-based, nonpartisan, climate policy think tank Energy Innovation.