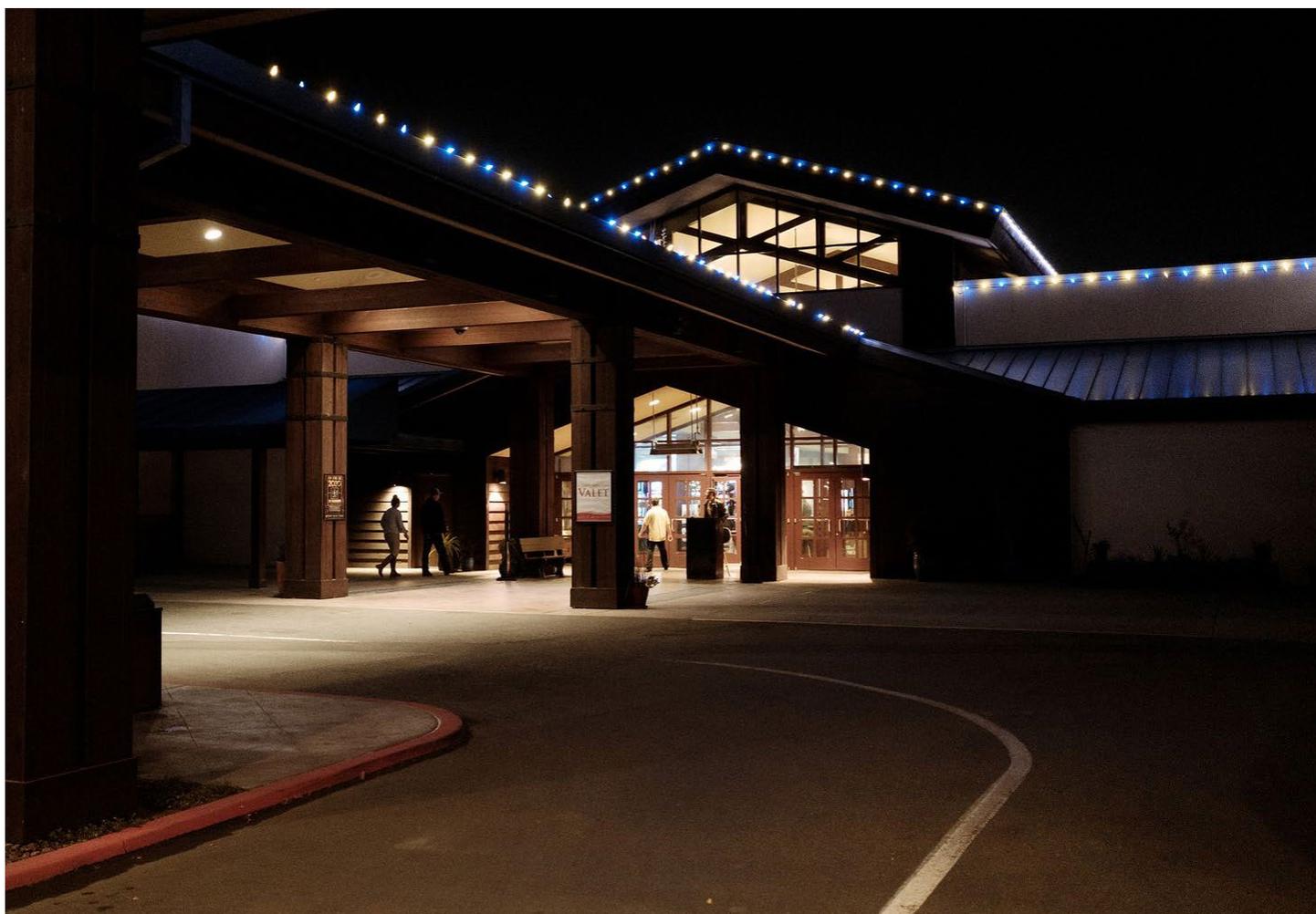




Climate Solutions

Amid shut-off woes, a beacon of energy

A Native American tribe has insulated itself from California's blackouts by creating a microgrid utility



Customers enter the Blue Lake Casino and Hotel in Northern California, where the lights remained on during a recent wildfire-related power outage. (Photos by Mason Trinca for The Washington Post)

By [Scott Wilson](#)

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BLUE LAKE, Calif. — After months of wildfires, an essential question in a warming, windy California is this: How does the state keep the lights on? A tiny Native American tribe, settled here in the Mad River Valley, has an answer.

Build your own utility.

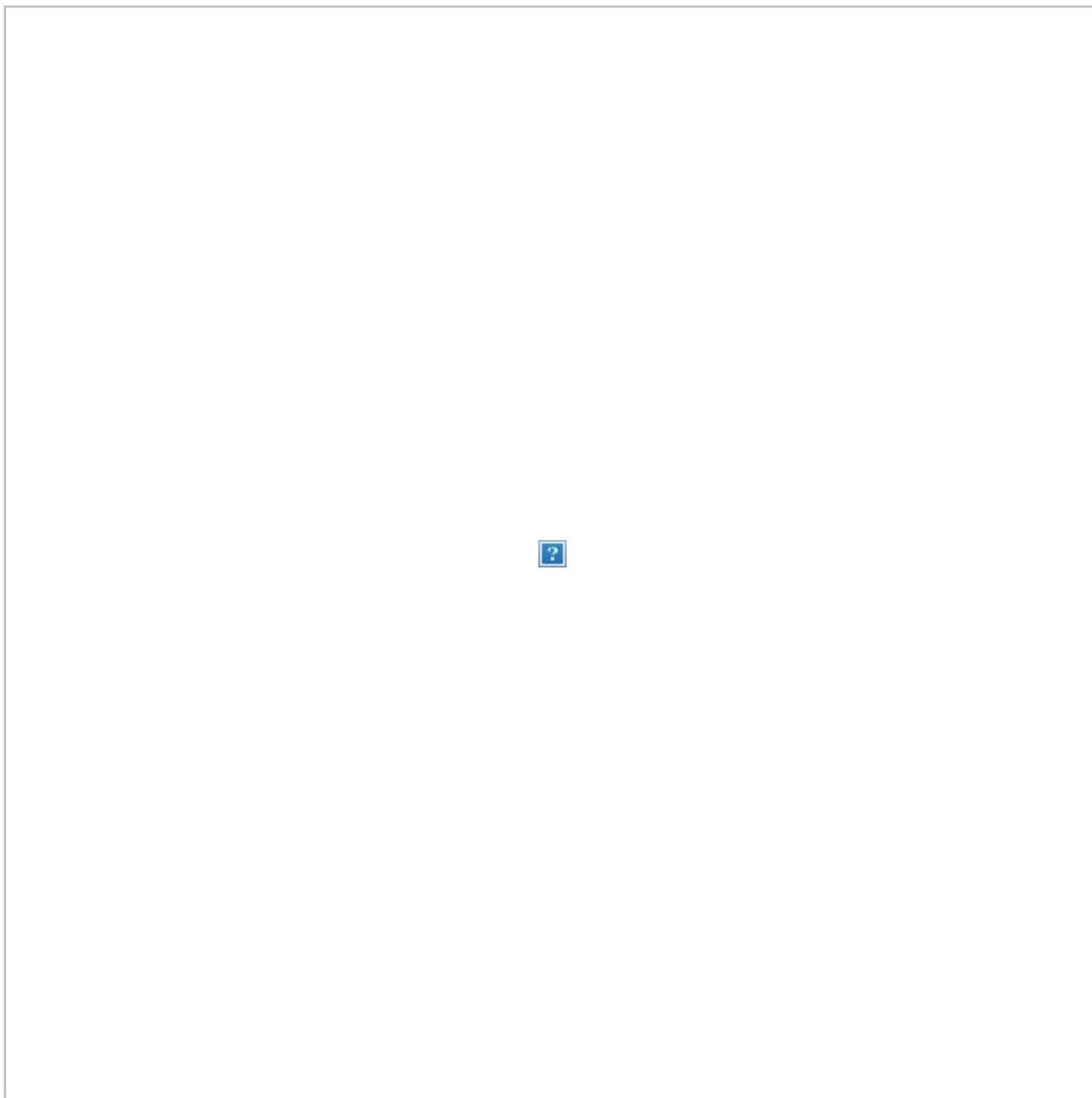
The Blue Lake Rancheria tribe has constructed a microgrid on its 100-acre reservation, a complex of solar panels, storage batteries and distribution lines that operates as part of the broader utility network or completely independent of it. It is a state-of-the-art system — and an indicator of what might be in California’s future.

In early October, Pacific Gas & Electric cut power to more than 2 million people across Northern California, including all those who live here in rural Humboldt County, where redwood forests fringe the wild edge of the continent. The shut-off aimed to reduce the risk of wildfire, and as the region sat in darkness, the tribe’s multimillion-dollar investment in its power system glowed.

Responding to public needs, the tribe transformed a hotel conference room into a newsroom so the local paper could publish. It used hotel guest rooms to take in eight critically ill patients from the county’s Health and Human Services Department. The reservation’s gas station and mini mart were among the only ones open, drawing a nearly mile-

long line of cars.

The Blue Lake Rancheria served more than 10,000 people during the day-long outage, by some estimates, roughly 8 percent of Humboldt's population. And for a government that had largely ignored the tribe for more than a century, the tribe suddenly became a vital part of its emergency response.



“The irony was not lost on us,” said Jason Ramos, a member of the tribal

council who ran emergency operations during the blackout. “When these power cuts started, we looked like geniuses for what we had done. But in truth, we didn’t really see them coming when we made our decision.”

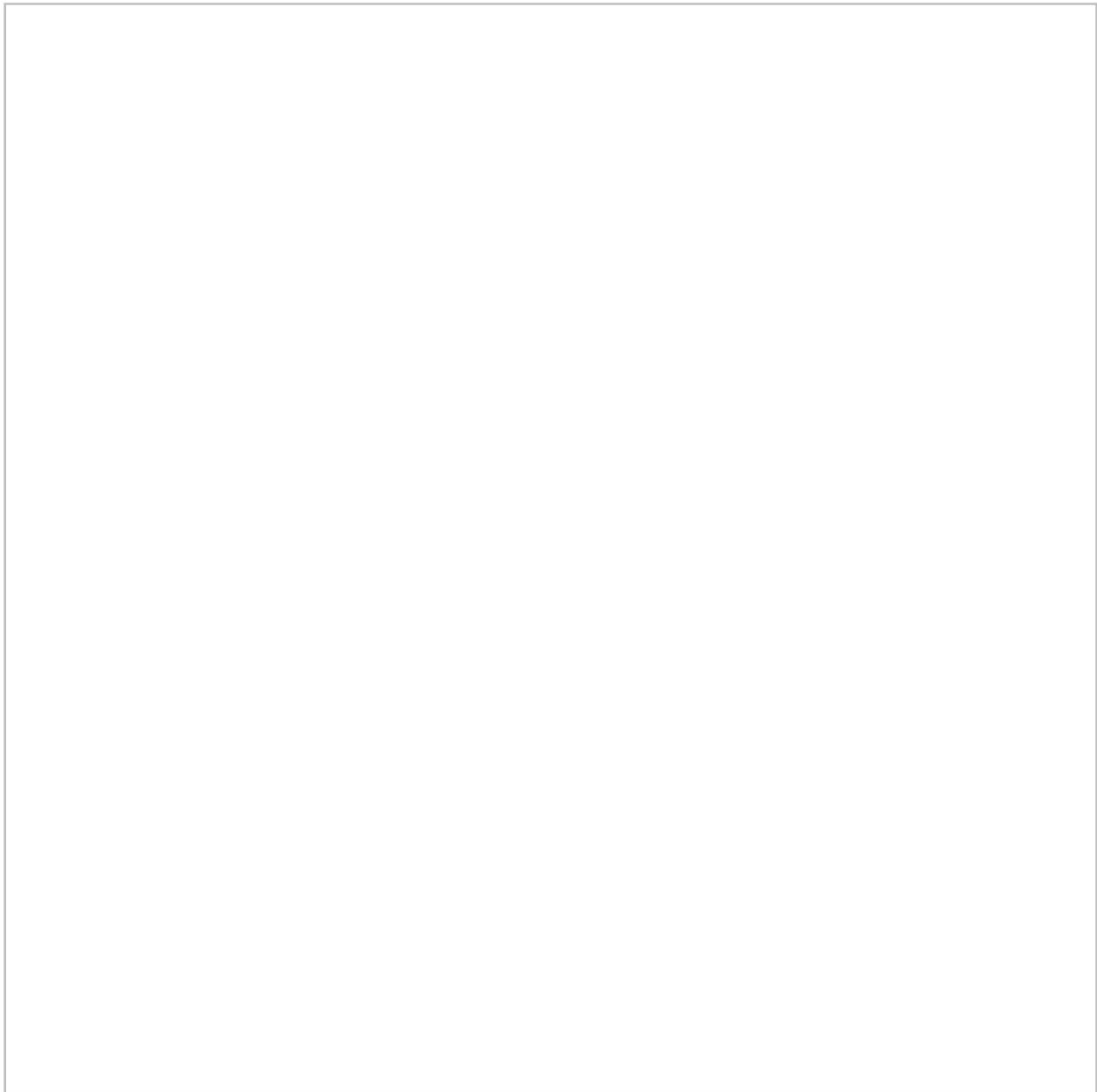
California, a hive of rapid private-sector innovation, is adjusting slowly to the accelerating changes in its climate. The sharp transition between heavy rains and hot, windy weather has primed the landscape for wildfires, which have burned larger and deadlier in recent years than at any time in history.

After an autumn of power cuts and economic losses, the reliability of California’s electricity grid and of its three largest investor-owned utilities is among the most pressing public policy issues facing Gov. Gavin Newsom (D). The state lags behind some on the East Coast, where Tropical Storm Irene swamped towns in 2011, causing blackouts and a rethinking of how to strengthen a vulnerable electrical grid.

The ideas under consideration here are complicated by the bankruptcy of PG&E, the state’s largest investor-owned utility. All would require a measure of public money — such as a state takeover of the grid or breaking up utilities into municipal agencies — and changes to a regulatory system yet to adapt to California’s new climate-driven threats.



The Blue Lake Casino and Hotel is owned by the Blue Lake Rancheria tribe.



Jana Ganion, energy director for the Blue Lake Rancheria tribe, stands in front of a solar array on the reservation. Its microgrid allowed the power to stay on, and the tribe shared electricity with neighbors.

“It’s like we have a high schooler stuck in the sixth grade,” said [state Sen. Henry I. Stern](#) (D-Canoga Park), who represents a district that has experienced several fires and intentional blackouts this fall.

Stern, who lost his Malibu home in the 2018 Woolsey Fire, pushed through legislation that year that directs state regulators to revise the rules around microgrid use to make it easier for private-utility

customers to use them. Then-Gov. Jerry Brown (D), who installed a microgrid on his Colusa County ranch, signed the bill, which sets a December 2020 deadline for the new regulations to be in place.

“We’ve got a mature technology stuck in a far less mature regulatory system,” Stern said. “It’s as much a culture shift as an engineering challenge that we face now.”

[PG&E helped fund the careers of Calif. governor and his wife. Now he accuses the utility of ‘corporate greed.’]

No one keeps count of how many microgrids operate in the state. But many large university campuses, medical centers and public-safety operations have them.

The idea is simple. Microgrids are connected to the larger utility system when the electricity is on, contributing power in some cases. When there is a power cut, microgrids can become “islands” — disconnect from the system and use solar-generated energy stored in batteries to operate independently.

The chief obstacle to their wider use here is cost and regulations that make them prohibitively expensive for most private customers.

The Blue Lake Rancheria operates a 102-room hotel and casino, and the revenue helped pay for its \$6.3 million microgrid, which keeps the businesses and the tribal government building open during blackouts. A state grant secured with help from the [Schatz Energy Research Center](#), a clean-energy institute affiliated with Humboldt State University, also funded the project.

A major issue for microgrids is a rule that prohibits private-utility customers from selling electricity “over the fence” — on the public market — because they are not regulated by the state.

The ability to do so would make the economics far more feasible for neighborhoods, community groups and private customers interested in building microgrids, especially in rural areas, as a backup to the increasingly unreliable utility-provided electricity. One compromise would be to allow some private microgrid electricity sales only during blackouts, a step other states have taken.

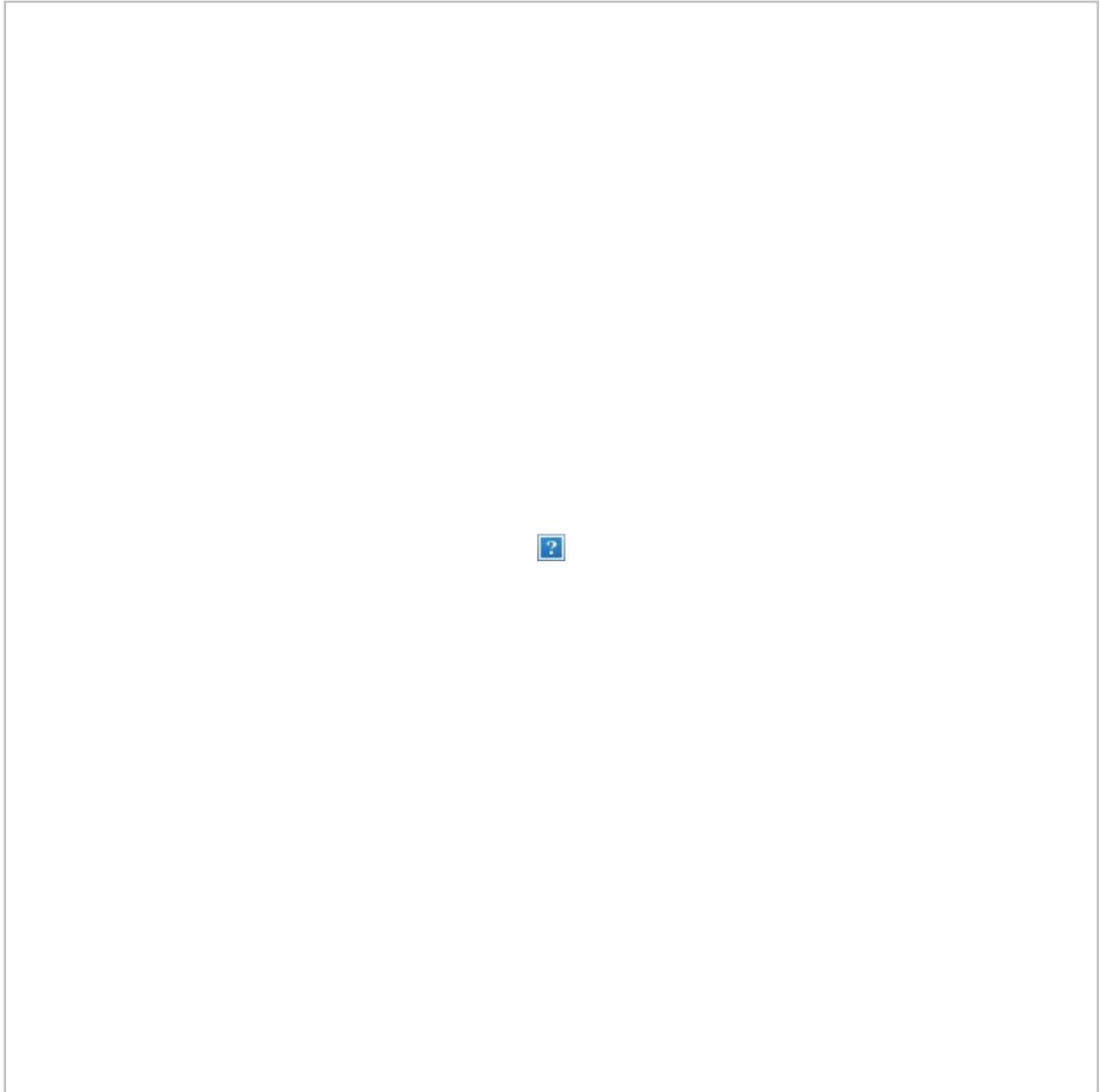
“As you think about doing these systems, you have to ask how much they will cost and how do you continue to fund the rest of the grid,” said a senior official in the Newsom administration who spoke on the condition of anonymity to describe ongoing government discussions to improve electricity reliability. “Microgrids are a tool, they have a role, and they must be one of many things we have to look at. But they are not a panacea.”

The public policy considerations are similar to those that define the debate around school vouchers: If too many children take public money to pay private-school tuition, what then becomes of the public school system? State regulators say the three utilities need almost \$30 billion a year to operate.

Even those who favor more relaxed regulations worry that, down the road, too many microgrid users could create an electricity system of haves and have-nots in a state where that divide is already canyon-deep in housing, incomes and other aspects of daily life.

“Utilities have had the same business model for 100 years, and boy, is it

hard for them to change,” said Tom Williard, principal of [Sage Energy Consulting](#), which advises businesses on the use of microgrids. “But this is an issue that must be addressed quickly.”



One of the backup generators at the Play Station 777 gas and mini mart in Blue Lake, Calif.



Randy Cox, the Blue Lake Rancheria tribe's electric system director, tests the microgrid transformers.

A rude realization

Humboldt County has always considered itself an off-the-grid kind of place, the remote destination of a post-Summer of Love hippie migration that brought thousands here to live off the land.

A renowned marijuana industry emerged in the hard-to-reach canyons and valleys, and solar panels and generators helped keep the “grows” hidden from the law. That outlaw culture and black-market economy is now [struggling to adapt](#), like the power system itself, to the regulations that come with a now-legal cannabis market.

But the October power shut-off, followed three weeks later by an even

longer outage, revealed just how reliant Humboldt is on a vast, regionwide electricity grid.

While low humidity and high winds made Shasta County to the east a high-fire risk in October, cool, damp Humboldt faced no fire threat at all. Yet to protect Shasta, PG&E had to cut off transmission lines that also serve Humboldt.

“We always get the ‘What is going on there?’ question from businesses we talk to,” said Gregg Foster, executive director of the [Redwood Region Economic Development Commission](#) in Humboldt. “But we didn’t know we were tied to a grid hundreds of miles away, and now we’re looking at why their issues have become our problems.”

Those with generators when the lights went out flipped them on, creating fire risks of their own.

On the city of Arcata’s central square, where the bead shops, cannabis oil vendors and vintage clothing stores attract a steady flow of tourists, owners of the Big Blue Cafe turned on their generator in the minutes after the power went out for the second time in October.

A few hours later, the popular diner was in flames, the generator later found to have vibrated across the floor to a wall, where the hot exhaust sparked the fire. The restaurant and its two neighbors are still closed.

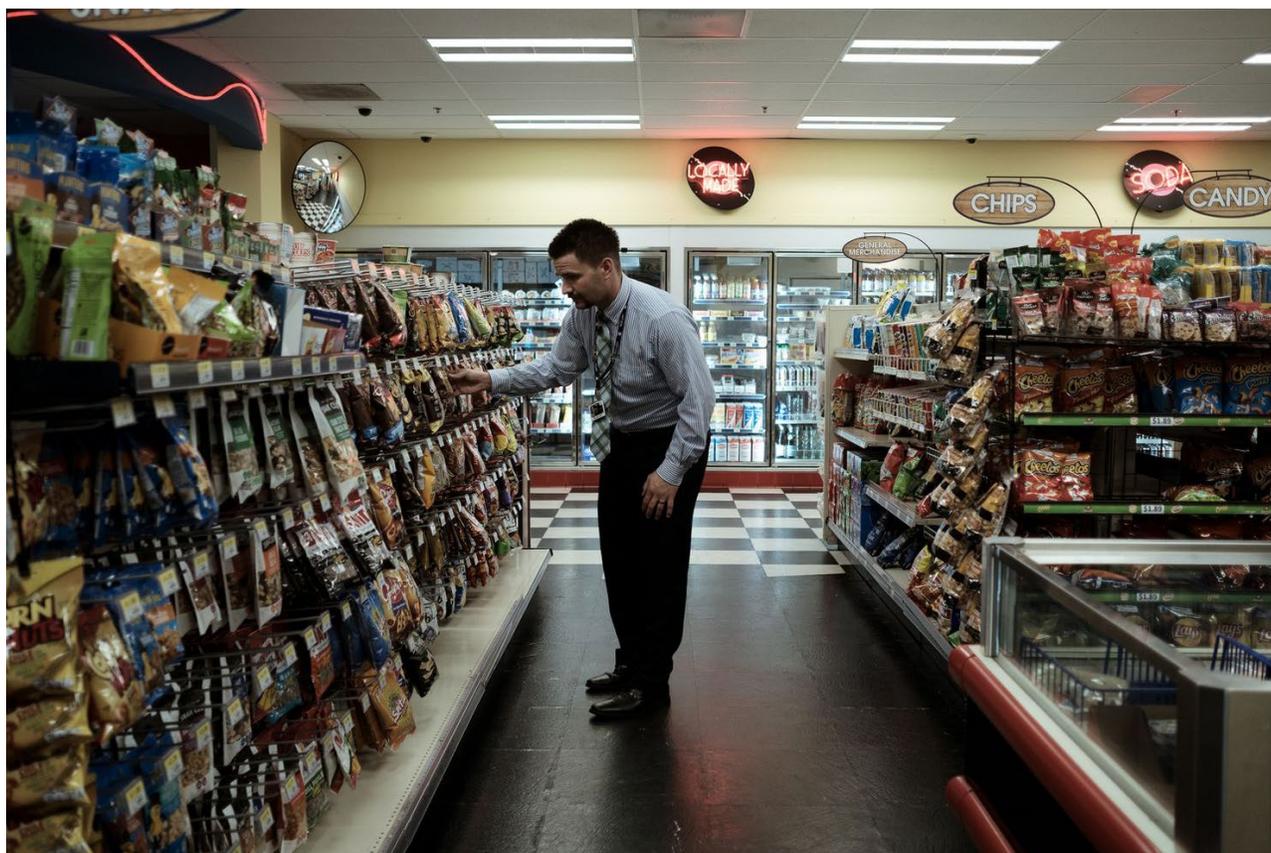
The makeup of Humboldt’s population also is a barrier to the large-scale adoption of microgrids. It is more transient than most, with a homeownership rate below the national average. Landlords and renters are far less likely to invest in a new, expensive electricity system. The median household income of \$42,000 also is well below the national

average.

But use of microgrids is growing with the help of state money.

At the California Redwood Coast-Humboldt County Airport, designed during World War II to train pilots how to fly in fog, an \$11 million microgrid project is in the works. It is nearly twice as expensive as Blue Lake's microgrid but five times more powerful, a sign the costs for the systems are coming down.

When finished next year the microgrid will provide electricity to the airport, a U.S. Coast Guard Air Station, a nearby animal shelter and a few other nearby businesses during blackouts.



Michael Shackelford, manager of the Play Station 777, restocks the store's shelves. Shackelford is a fourth-generation Tolowa member of the Blue Lake Rancheria.

A place for retreat

Rancheria is the name the federal government gave to a series of small Native American reservations around the state's far-northern coast, and Blue Lake's reservation is indeed small. So is the tribe — 50 members, now, after more than a century of federal recognition.

The Mad River Valley flooded frequently until the 1950s, when the government built a levee to contain the unruly river. Now the tribe's land sits between county sewage ponds and a city dump, although the steep-valley landscape on a clear winter day remains breathtaking.

“For a long time, we have had to rely on ourselves. You couldn't count on help from the federal or the state government,” said Ramos, the tribal council member. “The sense of tribal sovereignty is strong.”

Of California's many natural plagues, it was not fire but tsunami that focused the tribe's interest on creating an independent power supply.

In early March 2011, an earthquake shook Japan, triggering the disaster at the Fukushima Daiichi nuclear power plant. The force created a tsunami that moved across the Pacific and flooded California's northern coast, including parts of Humboldt.

Now, tsunami warning signs line Humboldt's coastal roads. But the tribe noticed that, when residents sought higher ground at the time, many of them congregated in and around Blue Lake above the flood's high-water mark.

“The tsunami was really a wake-up call about how people experience a

disaster here,” said Jana Ganion, the tribe’s energy director. “We realized that people are going to come here for resources.”

When the lights went out in October, Heather Muller, emergency manager for the county’s Department of Health and Human Services, said the agency began contacting its nearly 150 patients who use medical devices that rely on power.

Some were admitted to the hospital, which had its own emergency power. Muller said the staff identified eight patients “who were not sick enough to be hospitalized but could possibly die overnight without power for their devices.” They were checked into the reservation’s hotel.

Journalists at the daily newspaper, the [Times-Standard](#), needed power to put out the paper. Five journalists worked through the night in a reservation conference room, publishing updates online and even getting designs for the printed edition to Chico, a city 200 miles to the southeast.

“On a normal night, they send those pages back to us and we print them here,” said Marc Valles, the Times-Standard’s managing editor. “This was not a normal night.”

The paper’s delivery trucks in Humboldt met trucks from Chico halfway, picking up the morning edition and delivering it on time. With PG&E “telling public officials one thing, and the public another,” Valles said, it was especially important to have the paper’s reporting as a guide.

“People are skeptical enough of distant officials already, and these mixed messages really didn’t help,” he said. “That’s true anywhere in America, but more so here.”



The Play Station 777 is lit up at night. The roof is covered in solar panels.

The greening grid

Solar panels cover two fenced-in acres behind the tribe's hotel and casino, and stacks of Tesla batteries sit in the shade of the building. Across from the hotel, the tribe is growing its own food in greenhouses. It turns cooking oil from the hotel kitchen into biofuel.

Ganion estimates that the microgrid decreases the tribe's greenhouse-gas emissions by 200 tons a year, pushing toward the tribe's goal of becoming carbon-neutral over the next decade. In addition, by selling energy to the broader grid during peak-use hours, the tribe saves roughly \$200,000 a year in PG&E costs.

And it is expanding its self-run utility.

The roof of the Play Station 777 gas and mini mart is covered in solar panels, the power source for a second microgrid set to come online soon. The storage batteries are tucked behind the store, on the edge of the parking lot, a paved dot in a river valley changing like the state around it.

“The main culprit here is climate change,” Ganion said. “When we look for the solutions to the wildfires and the power shut-offs, examples of our changing climate, we must make these decisions through the lens of clean energy.”