



Monthly Energy Update

NERC Updates its Peak Demand Forecasts to Account for New Datacenters
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Utilities Pursue New Climate Resilience Strategies as Some Await Upcoming Tools

The Electric Power Research Institute (EPRI) is preparing to release its Climate Resilience and Adaptation Initiative, a framework for assessing how climate change affects the power system.

PacifiCorp and APS, along with Duke, Central Hudson Gas & Electric and Puget Sound Energy (PSE), see different paths to reach resilience planning’s potential while awaiting EPRI metrics.

Electric utilities are developing a new understanding of how to plan for the increasing and worsening severe weather events like Hurricanes Milton and Helene.

The U.S. has experienced 24 events so far in 2024 “with losses exceeding \$1 billion each,” and billion-dollar events have impacted all 50 states in the last decade, the National Oceanic and Atmospheric Administration reported. There were 20.4 events per year from 2019 to 2023, but that jumped to 28 events in 2023 that cost \$95.1 billion, NOAA added.

A well-planned, resilient system can better withstand severe weather, said Andrea Staid, principal technical leader, electric sector climate resilience, for research consultant EPRI.

New climate modeling and asset performance metrics “can show which utility investments would make previously disruptive events go unnoticed,” she added. EPRI, utilities and analysts remain uncertain, however, about

which climate and asset performance metrics and methodologies are needed to most precisely identify power system vulnerabilities.

New frameworks are emerging to guide utility resilience planning. “The utility industry is shifting from responding to an individual event to mapping vulnerability to financial risk and quantifying benefits of potential investments on four pillars,” said Aditya Ranade, Guidehouse director of energy, sustainability, infrastructure.

“The first of the four pillars is hazard mapping,” which identifies types of threats, from flooding to wildfires, Ranade added. And “a multi-hazard benefit cost analysis approach is the next level of planning sophistication,” he said.

The second pillar is a vulnerability assessment quantifying utility assets’ vulnerability to climate hazards, Ranade said. “The third pillar is financial risk, which is the sum total of values derived in hazard mapping and vulnerability assessment,” Ranade said.

And “the fourth pillar is decisions on adaptation measures, like replacing wood poles with composite poles, elevating substations against floods, or dynamic line ratings, and that is done by comparing benefits,” he added.

These pillars can help utilities optimize their investments, but the final decision on what spending to approve “is up to state policymakers or regulators,” Ranade said. “The compromise between resilience and keeping rates low is determined jurisdiction by jurisdiction, by state regulators and policymakers,” he added.

Though no two utilities face identical risks, assessment frameworks help utilities understand “the specific sets of risks they must mitigate,” said PA Consulting’s Wei Du.

“Data analytics of the risks of different events, like storms and wildfires, and how to mitigate them, follow the same frameworks,” he added. Specific planning mitigations include system

hardening and technologies to bring situational awareness closer to real time, Wei said.

Planning can also include proactively obtaining more and more granular local meteorology data to know what impacts might occur where and strengthening engineering standards and building codes to harden infrastructure, he added. Utilities need to improve “restoration performance as demonstrated in the storm restoration curve,” Wei continued.

The steeper the slope of the curve, the more people are restored in less time, and the more effective the utility’s restoration preparations were, he said.

There are similar resilience planning frameworks with similar prioritized preparatory mitigations in new papers from the Edison Electric Institute and the Pacific Northwest National Laboratory. But EPRI’s still incomplete Climate Resilience and Adaptation Initiative, or Climate READi, may be the most anticipated assessment, several utilities agreed.

Climate READi will include definitive climate data and metrics, guidance on asset vulnerability, and power system planning for resilience, Staid said. Data-based comparisons of options like asset hardening, installing new assets, or operating the system differently allows prioritizing and justifying the best resilience investments, she added.

“READi will not add new metrics to traditional planning,” Staid said. But it will show where there is “resilience planning data on the increasing frequency and severity of extreme events that wouldn’t typically show up in a resource planning model,” and allow “planning for combinations of climate hazards” that can enable handling “a diversity of region-specific or even system-specific conditions,” she added.

Some utilities will await EPRI’s 2025

The U.S. Supreme Court granted a petition – filed by PacifiCorp and others that are suing the Environmental Protection Agency (EPA) — to hear arguments over whether the lawsuits concerning federal Clean Air Act regulations should be heard in regional appeals courts or the U.S. Court of Appeals for the District of Columbia Circuit.

The court’s decision, issued Oct. 21, concerned two separate cases involving EPA’s denial of state implementation plans from Utah and Oklahoma related to the Clean Air Act’s “good neighbor” provision, which requires states to prohibit levels of interstate air pollution that would affect another state’s ability to attain national air quality standards.

In the case *PacifiCorp et al v. Environmental Protection Agency et al.* [23-1068],

and environmental groups hounding the hydrogen hubs and DOE for information over the past year say that engagement isn’t happening. The Natural Resources Defense Council reported in May that “environmental justice advocates and frontline communities have largely been kept in the dark on key details and basic information about many of these projects.”

Since then, relatively little additional information has emerged. “We’re still struggling at this point to understand what’s really going on with the hubs,” said Morgan Rote, director of U.S. climate at the Environmental Defense Fund (EDF), another nonprofit group that’s been tracking the disconnect between hydrogen hubs and communities.

The initial planning grants are just the first step in what OCED expected to be an eight to 12-year pathway to full-scale ramp-up and operations. Each stage will involve its own series of “go/no-go” decisions, with a long list of “deliverables and criteria”, Cummins said.

To date, only three hubs have been awarded first-phase planning grants of about \$30 million each: the ARCHES hub in California; the Pacific Northwest Hydrogen Association (PNWH2), which includes Oregon, Washington, and Montana; and the Appalachian Regional Clean hydrogen Hub ((ARCH2), which includes Ohio, Pennsylvania, and West Virginia. The remainder are still in the process of negotiating final approval for their first-phase funding.



Less than 1 percent of global hydrogen production today is low-carbon. Of the roughly 90 million tons per year produced globally and 10 million tons per year in the U.S., almost all is derived from fossil gas.

Right now, the two main methods for making low- or zero-carbon hydrogen are far more expensive than dirty hydrogen — and also untested at scale.

