

# Keep it humming

Texas needs more battery farms to keep its electricity grid stable



2012 File Photo/Staff

Work has started on 20 megawatts' worth of battery storage at West Texas wind energy plants, but Texas still lags the country in energy storage.

BY JEFF MOSIER ENERGY AND ENVIRONMENT WRITER [JMOSIER@DALLASNEWS.COM](mailto:JMOSIER@DALLASNEWS.COM)

## ENERGY

Texas is a leader in wind power and is quickly growing its solar capacity. The state, however, has fallen short in the newest green energy frontier: storage.

Although it trails California and other early adopters, Texas is quickly adding more storage to make the state's electricity grid more stable and reliable.

That, experts say, could potentially undercut some natural gas plants years in the future.

Texas' newest utility-scale battery-based electricity storage facility was approved in August, and work started in the fall on another 20 megawatts' worth of batteries at West Texas wind energy plants. There's also a much larger, low-tech storage option deep underground expected to open in the summer of 2020.

"Battery storage is still in its infancy," said Steve Stengel, spokesman for Florida-based NextEra Energy, which owns the 30-megawatt Blue Summit battery that opened last year.

"It's something that we're very focused on. We're spending a lot of time studying it."

These storage facilities provide electricity to the grid in fractions of a second to help keep it humming at a steady 60 hertz because large enough drops or spikes in frequency could lead to blackouts or damage equipment.

Texas is getting more and more power from wind and solar energy. But batteries aren't cheap enough yet to use them to store excess renewable electricity, which can be unleashed when the sun isn't shining or the wind isn't blowing. Instead, storage is used for short bursts that keep the grid humming efficiently.

In 2016, the U.S. had 23.3 gigawatts of storage, or about 10 times the generation capacity of the Comanche Peak Nuclear Plant in Glen Rose, according to federal figures. A vast majority of that storage was connected to hydroelectric energy instead batteries.

And little of that storage — less than two-tenths percent — was in Texas.

The opening of Blue Summit, which is next to a NextEra wind energy plant, increased the state's utility-scale battery storage significantly. And a nonbattery, compressed air storage project in the planning stages would nearly quadruple the state's storage capacity.

## Balanced grid

For now, storage in Texas is another tool to keep the grid balanced.

Eventually, it could play a role in undercutting certain natural gas plants called "peakers," which are fired up on-demand to provide electricity during peak demand.

"If you think about how energy storage starts to take over the world, peaking is kind of your first big market," Shayle Kann, a senior adviser to GTM Research and Wood Mackenzie, said at a December 2017 conference.

GTM Research/Wood Mackenzie research projected that electricity storage would compete against peakers in four years and always win the price battle in a decade.

Cyrus Reed, director of the Sierra Club Lone Star Chapter, wrote hopefully about that possibility in September.

"The promise of storage is also that Texas — and other states — may be able to reduce and even eliminate the need for the use of fairly inefficient and dirty natural gas peaker plants by charging up batteries during low use times and releasing the energy during peak energy use times," he wrote on the website of the Cynthia and George Mitchell Foundation.

Peakers have helped meet demand as Texas integrated more renewable energy into its mix.

Wind provided more than 17 percent of the state's electricity in 2017 and is expected to pass coal within a couple of years.

Steve Everley, spokesman for industry group Texans for Natural Gas, said projections are often unreliable and that he hopes government officials don't base policy on these assumptions.

"Technological innovation is a good thing," Everley said. "But when you're talking about power markets, when you're talking about keeping the lights on, you want to make those decisions based upon certainty, not based upon speculative projections."

Storage has already gotten a big push from states working to reduce emissions. Natural gas produces much less carbon dioxide than coal. But the methane released is a much more powerful greenhouse gas contributing to climate change.

Behind other states

New York Gov. Andrew Cuomo has called for 1,500 megawatts of new energy storage projects by 2025. And California is pushing for battery storage to replace natural gas peaker plants.

Joshua Rhodes, a research fellow at the Energy Institute at the University of Texas at Austin, said there are only a few utility-scale batteries in Texas.

The 4-megawatt Big-Old Battery, or BOB, provides backup power for Presidio. That city along the Texas-Mexico border is at the end of a stretch of transmission lines and was subject to frequent and extended outages.

"It was cheaper to build a battery at the end of the line than to firm up the transmission that went out to Presidio,"

Rhodes said.

But electricity storage doesn't always mean batteries.

Financing is being finalized for a 317-megawatt compressed air energy storage facility near Palestine in Anderson County.

The operator plans to pump air into salt caves, create about 2,800 pounds per square inch pressure, and then use that pressure to run a series of turbines to generate electricity when necessary — much like hydroelectric power generation.

In many ways, it's comparable to batteries, only many times larger, said Jack Farley, president and CEO of project developer Apex. Unlike batteries, the Bethel Energy Center isn't linked to a wind or solar project.

Farley said the company will buy electricity from the grid when prices are cheap — that's also when renewables are generating much of the supply — and then sell it back when prices are higher.

Rhodes said it's difficult to project the future of storage. He said there are a large number of battery mega-factories worldwide that could keep the industry supplied. At the same time, abundant natural gas is keeping a lid on energy prices.

“When renewables plus storage are less than natural gas,”

Rhodes said, “that’s when everything flips.”

Twitter: @jeffmosier