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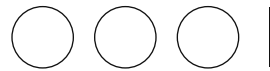
INVESTIGATIONS

Fixing Texas' unreliable power grid won't be cheap or easy. Can we trust politicians to get it done?



James Osborne, Staff writer

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Mark Mulligan, Houston Chronicle / Staff photographer

This story is the third and final part in our ["Failures of Power"](#) series. Read [the first part here](#), and [the second part here](#).

Rob Snyder quit the retail power business two years ago, no longer willing to take what he viewed as an increasing and unacceptable risk.

Quite simply, power supply was not keeping up with Texas' rapidly growing population, a recipe for severe shortages and crazy price swings that could bankrupt a retail power company buying electricity in wholesale markets. In 2019, he sold his firm, Stream Energy, for \$300 million to the Houston power company NRG Energy.

Snyder was mostly worried about broiling summer days when power supplies often are stretched to their limits. But his analysis, borne out over four frigid days in mid-February, pinpoints the underlying problem that led to the massive failure of the state's power system and [an estimated 200 deaths across Texas](#): a shortage of power when conditions turn extreme.

It's a problem that will be neither cheap nor easy to fix. At the most fundamental level, experts say, avoiding another grid disaster will require the rethinking of [a market-driven system that favors efficiency – and the resulting lower prices – over reliability](#), which requires backup generation and redundant systems that can add significant costs, even if they are rarely used.

What worries insiders such as Snyder is politicians are looking for simple fixes, a checklist of solutions to protect against a repeat of February's frigid weather, as opposed to creating a more resilient system capable of handling extreme weather yet to be anticipated.

“I'm getting a lot of calls from legislators, and frankly the people who are going to

and pipeline companies to better weatherize their systems, as well as revamp the organizations that oversee the grid and power system, the Electric Reliability Council of Texas, or ERCOT, and the Public Utility Commission. But these measures do little to induce power companies to have sufficient generation ready for unusual weather that drives electricity demand far beyond what was forecast, experts say.

For the past decade, ERCOT has operated with the smallest amount of backup generation of any grid in the country. In 2019, ERCOT ran a reserve margin of just 9 percent, compared to 19 percent in the Midcontinent Independent System Operator, which runs from Minnesota to Louisiana, and 32 percent in Southwest Power Pool, which spans an area running from the Texas Panhandle to North Dakota.

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Failures of Power

This series documents how 20 million Texans lost power in a deadly freeze after state lawmakers brushed aside a decade of warnings about the increasingly vulnerable electric grid.

'Collective amnesia': Texas politicians knowingly blew 3 chances to fix the failing power grid

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That margin is increasing – reaching 15.5 percent this summer – but almost all of it comes from new solar and wind farms, which are weather-dependent and can't be counted on during power shortages.

“The power market needs to do two things. It needs to provide power today, but it also needs to plan years ahead. And that's where the Texas market fails,” said Eric Fell, who studies power and gas markets for the research firm Wood Mackenzie. “ERCOT has skated by for years with several close calls where we avoided blackouts because the weather wasn't quite so crazy.”

An influx of renewables

Running a grid necessitates a constant balancing of electricity demand and supply. Historically, that meant ramping power plants up and down, depending on whether temperatures were rising or falling, or households were turning on televisions and dishwashers.

But as renewables have expanded in recent years, accounting for as much as 42 percent of the state's electricity generation during some months, the grid has become far more difficult to manage. Grid operators must predict how much power wind turbines and solar panels will generate based on weather forecasts, which is

to power about 1.3 million homes – has been built, compared to almost 40,000 megawatts of wind and solar.

And as more renewables come online, driving prices down further and discouraging investment in backup power, the problem is only expected to worsen. Some analysts worry that Texas could have insufficient generation to meet summer demand in just a few years.

generators for the cost of building additional gas plants or other backup for the grid. But that idea was set aside amid criticism it would make the cost of building wind and solar prohibitive when more clean energy is needed to fight climate change.

Grids across the country are managing the onslaught of renewables. Following the 2014 “polar vortex” that drove record natural gas prices, PJM Interconnection, the nation’s largest power grid covering 13 states in the Northeast and Midwest, imposed a minimum price on power to protect coal and nuclear power plants, which tend to perform better during cold snaps, from competition with cheaper natural gas plants and renewables.

PJM, like all deregulated markets in the United States other than ERCOT’s, operates a capacity market, paying for power generation to be ready for theoretical emergencies years down the line.

“If anything comes out of this crisis, it’s that there should be more redundancy throughout the system,” he said. “If it turns out we really can’t depend on our gas infrastructure to be as resilient as we need it to be, then have the backup.”

Over the past few decades, the state's homes have shifted toward electric heating systems, which, while cheaper to install, are far less efficient than fuel oil or natural gas systems. In 2018, more than 60 percent of homes in Texas had electric heating, according to Census data.

Most of the time, that's not a problem – Texas has some of the warmest weather in the nation. But when temperatures fall below freezing for sustained periods, as

Grid woes

The other fundamental failing during the February winter storm was utilities' limited ability to rotate outages.



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The problem that led to the massive failure of the Texas power system and an estimated 200 deaths across the state will be neither cheap nor easy to fix.

BY JAMES OSBORNE

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