

## Why Louisiana's Electric Grid Failed in Hurricane Ida

Much of the state, including New Orleans, lost power for days because many of Entergy's electrical poles and towers were not built to withstand a major hurricane, energy experts said.



By Peter Eavis and Ivan Penn

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Just weeks before Hurricane Ida knocked out power to much of Louisiana, leaving its residents exposed to extreme heat and humidity, the chief executive of Entergy, the state's biggest utility company, told Wall Street that it had been upgrading power lines and equipment to withstand big storms.

"Building greater resiliency into our system is an ongoing focus," the executive, Leo P. Denault, told financial analysts on a conference call on Aug. 4, adding that Entergy was replacing its towers and poles with equipment "able to handle higher wind loading and flood levels."

Mr. Denault's statements would soon be tested harshly. On the last Sunday in August, Hurricane Ida made landfall in Louisiana and dealt a catastrophic blow to Entergy's power lines, towers and poles, many of which were built decades ago to withstand much weaker hurricanes. The company had not upgraded or replaced a lot of that equipment with more modern gear designed to survive the 150-mile-an-hour wind gusts that Ida brought to bear on the state.

A hurricane like Ida would have been a challenge to any power system built over many decades that contains a mix of dated and new equipment. But some energy experts said Entergy was clearly unprepared for the Category 4 storm despite what executives have said about efforts to strengthen its network.

The storm damaged eight high-voltage transmission lines that supply power to New Orleans along with scores of the company's towers throughout the state. Hundreds of thousands of homes and businesses were without power for days. Ida damaged or destroyed 31,000 poles that carry lower-voltage distribution lines in neighborhoods, nearly twice as many as Hurricane Katrina, according to Entergy.

Lawmakers and regulators require utilities to ensure safe, reliable service at an affordable cost. The grid failure after Ida is the latest display of how power companies are struggling to fulfill those obligations as climate change increases the frequency and severity of extreme weather. In California, electricity providers have been forced to shut off power to tens of thousands of customers in recent years to prevent their equipment from setting off wildfires and to reduce energy demand during heat waves. In February, the grid in most of Texas failed during a winter storm, leaving millions of people without power and heat for days.

While Entergy has been upgrading its transmission network to bear wind speeds in excess of 140 miles per hour, a lot of its transmission equipment in and around New Orleans was built to withstand wind gusts of around 110 miles per hour, or a Category 2 storm, according to an analysis of regulatory filing and other company records by McCullough Research, a consulting firm based in Portland, Ore., that advises power companies and government agencies.

Entergy said that analysis was inaccurate but wouldn't say how many of its transmission structures were built to withstand 150-mile-per-hour winds. The company has said that its towers met the safety standards in place at the time of installation but older standards often assumed wind speeds well below 150 m.p.h.

The Institute of Electrical and Electronics Engineers, a professional group whose guidelines are widely followed by utilities and other industries, recommends that power companies that operate in areas vulnerable to hurricanes install equipment that can withstand major storms and return service quickly when systems fail. In coastal areas of Louisiana, for example, it says large transmission equipment should be designed to withstand winds of 150 m.p.h.

"If your customers are out of power for three or four weeks today, that's going to be unacceptable," said Nelson Bingel, chairman of the National Electrical Safety Code, standards the engineers group developed for various industries.

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The decisions that Entergy, which serves three million customers in Louisiana and three other states, made before Ida hit are coming under scrutiny as regulators, lawmakers and residents try to figure out why so many people were left without electricity for so long. The New Orleans City Council, which oversees Entergy's operation in the city, has scheduled a hearing for Wednesday.

The central question is whether Entergy moved fast enough to upgrade its equipment, given the growing ferocity of hurricanes. The company says it had acted with alacrity. Its critics contend that it dragged its feet.







The grid failure after Ida is the latest display of how power companies are struggling to deal with extreme weather. Annie Flanagan for The New York Times





“Wood poles no longer have the expected lifetime in the face of climate change,” said Robert McCullough, principal of McCullough Research. Annie Flanagan for The New York Times

Residents said they might also question whether state regulators and city officials did enough to require Entergy to upgrade its equipment more quickly. The company has to seek approval for new investments and the electricity rate increases that pay for them. Utility regulators can require companies to increase spending or aim it at specific upgrades. Some energy experts have also suggested that regulators consider requiring utilities to put more power lines underground, an expensive approach that comes with its own problems.

Initial reviews have focused on why it took Entergy two days to restart a \$210 million natural gas-fired plant the company opened in New Orleans last year that it said would provide power during periods of high demand, including after storms. But energy experts say it is a lot more concerning that so many of the company’s lines went down — and did so for the second year in a row.

Last year, Hurricane Laura, a Category 4 storm, destroyed and damaged hundreds of Entergy’s towers and poles in Southwestern Louisiana. In April, Entergy told the Louisiana Public Service Commission, which regulates its operations outside New Orleans, that the company had strengthened its equipment, including the installation of stronger distribution poles in coastal areas particularly vulnerable to high winds.

Michelle P. Bourg, who is responsible for transmission at Entergy’s Louisiana operations, told regulators that because it was too expensive to make the entire network resilient, Entergy pursued “targeted programs that cost effectively reduce the risks to reliability.”

In a statement, Entergy said its spending on transmission was working, noting that Ida destroyed or damaged 508 transmission structures, compared with 1,909 during Laura and 1,003 in Katrina. The company added that its annual investment in transmission in Louisiana and New Orleans has increased over the last eight years and totaled \$926 million in 2020, when it spent extensively on repairs after Laura. The company spent \$471 million on transmission in 2019.



Crews fixing a utility pole in Holly Beach, La., last year after Hurricane Laura. Entergy said it spent extensively on repairs after Laura. Emily Kask for The New York Times

“The facts of this storm support that we have made substantial progress in terms of resiliency since the storms that hit our system in the early 2000s — both generally and with respect to transmission in particular,” said Jerry Nappi, an Entergy spokesman.

The company declined to provide the age of damaged or destroyed transmission structures and an age range for the damaged distribution poles and equipment. Mr. Nappi acknowledged that distribution poles suffered widespread destruction and were not built to withstand winds of 130 to 150 m.p.h.

“Substantial additional investment will be required to mitigate hardship and avoid lengthy outages as increasingly powerful storms hit with increasing frequency,” he said in an email. “We are pursuing much-needed federal support for the additional hardening needed without compromising the affordability of electricity on which our customers and communities depend.”

The company’s plea for more help comes as President Biden is pushing to upgrade and expand the nation’s electricity system to address climate change as well as to harden equipment against disasters. Part of his plan includes spending tens of billions of dollars on transmission lines. Mr. Biden also wants to provide incentives for clean energy sources like solar and wind power and batteries — the kinds of improvements that community leaders in New Orleans had sought for years and that Entergy has often pushed back on.

Susan Guidry, a former member of the New Orleans City Council, said she opposed the construction of the new natural gas plant, which was located in a low-lying area near neighborhoods made up mostly of African Americans and Vietnamese Americans. Instead, she pushed for upgrades to the transmission and distribution system and more investment in solar power and batteries. The council ultimately approved Entergy’s plans for the plant over her objections.

“One of the things we argued about was that they should be upgrading transmission lines rather than building a peaking plant,” Ms. Guidry said.

In addition, she said, she called for the company to replace the wooden poles in neighborhoods with those built with stronger materials.

Robert McCullough, principal of McCullough Research, said it was hard to understand why Entergy had not upgraded towers and poles more quickly.

“Wood poles no longer have the expected lifetime in the face of climate change,” he said. “Given the repeated failures, it is going to be cost-effective to replace them with more durable options that can survive repeated Category 4 storms — including going to metal poles in many circumstances.”

Hundreds of thousands of homes and businesses in New Orleans and elsewhere in Louisiana were without power for days. Annie Flanagan for The New York Times

Had Entergy invested more in its transmission and distribution lines and solar panels and battery systems, some green energy activists argued, the city and state would not have suffered as widespread and as long a power outage as it did after Ida.

“Entergy Louisiana needs to be held accountable for this,” said one of those activists, Logan Atkinson Burke, executive director of the Alliance for Affordable Clean Energy.

Entergy has argued that the natural gas plant was a much more affordable and reliable option for providing electricity during periods of high demand than solar panels and batteries.

Jennifer Granholm, Mr. Biden’s energy secretary, said that Ida highlighted the need for a big investment in electric grids. That might include putting more power lines serving homes and businesses under ground. Burying wires would protect them from winds, though it could make it harder to access the lines during floods.

“Clearly, as New Orleans builds back, it really does have to build back better in some areas,” Ms. Granholm said in an interview this month.

Mr. Nappi, the Entergy spokesman, said that distribution lines in some parts of New Orleans and elsewhere are already underground but that burying more of them would be expensive. “Distribution assets can be made to withstand extreme winds, through engineering or under grounding, but at significant cost and disruption to customers and to the community,” he said.