

News : Potential record-setting hurricane season is forecast and may weaken energy demand, prices

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- Most tropical cyclones forecast
- Peakloads, power burn, prices could plunge
- LNG exports may be interrupted

The National Oceanic and Atmospheric Administration on May 23 projected the most tropical cyclones ever in its early hurricane season forecast, and such storms could weaken energy demand and prices in landfall areas during what may be an otherwise warmer-than-normal summer.

In particular, NOAA made the following forecast:

- 17-25 named storms, up from 14.7 for 1991-2023
- Eight to 13 hurricanes, up from 7.2 for 1991-2023
- Four to seven major hurricanes, up from 3.2 for 1991-2023

At the high end of the forecast, the season could equal 2020's record seven major hurricanes and approach 2020's record 30 named storms and 2005's record 15 hurricanes.

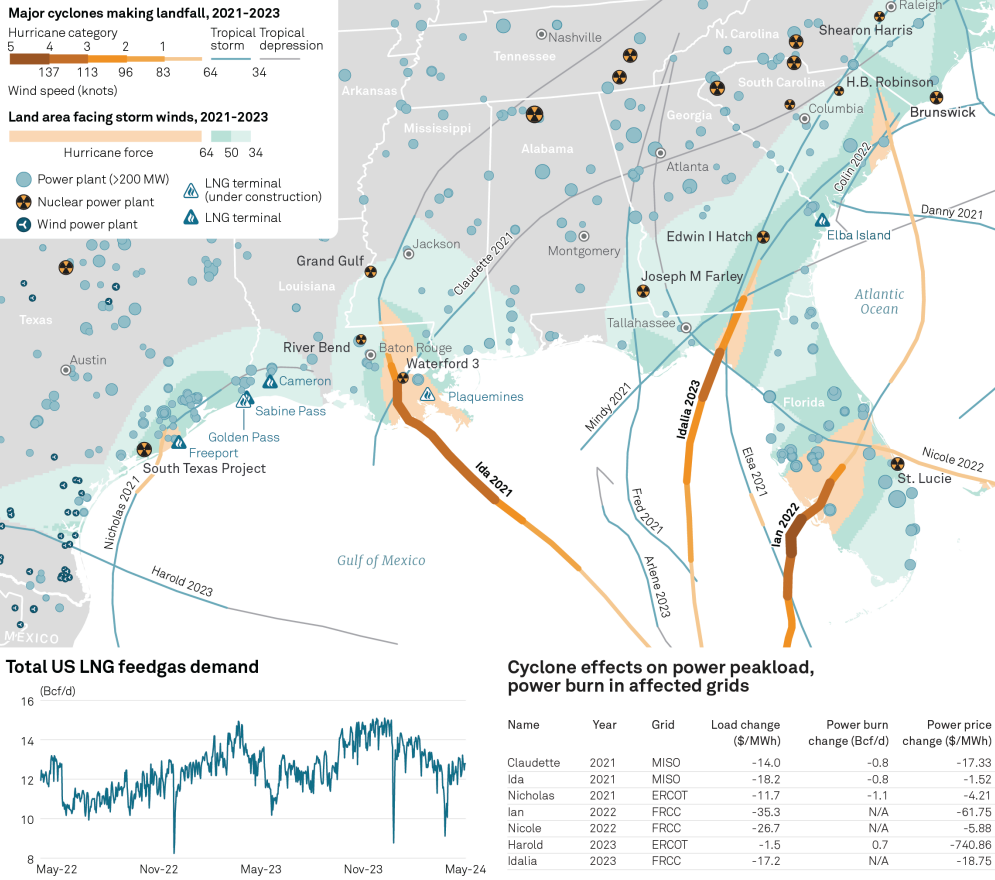
"As one of the strongest El Nino ever observed nears its end, NOAA scientists predict a quick transition to La Nina conditions, which are conducive to Atlantic hurricane activity because La Nina tends to lessen wind shear in the tropics," NOAA said. "At the same time, abundant oceanic heat content in the tropical Atlantic Ocean and Caribbean Sea creates more energy to fuel storm development."

Energy market impacts

Tropical cyclones making landfall 2021 through 2023 cut peakloads at affected grids an average of 18%, power burns an average of 17%, and power prices -- excluding the Electric Reliability Council of Texas South Hub's extreme case in 2023 -- an average of 38%.

Energy demand, prices may dip in heavy 2024 hurricane season

The 2024 Atlantic hurricane season is forecast to have 17-25 named storms, 8-13 hurricanes and 4-7 major hurricanes. Tropical cyclones making landfall 2021 through 2023 cut peakloads at affected grids an average of 18%, power burns an average of 17%, and power prices -- excluding ERCOT's extreme case in 2023 -- an average of 38%.



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ERCOT had one of its hottest summers on record in 2023, so day-ahead on-peak locational marginal prices at the South Hub averaged almost \$795/MWh on Aug. 15, the Tuesday before Tropical Storm Harold hit South Texas on Tuesday, Aug. 22, when prices averaged less than \$60/MWh.

The change was drastic, inasmuch as ERCOT load fell just 1.5% on the week, and natural gas power burn actually increased 10.7%. South Texas has a large wind generation fleet, which may have been taken offline during the storm due to transmission constraints or grid reliability concerns.

Grant Gunter, energy markets expert at PA Consulting, said hurricanes “can be a mixed bag for supply and demand” for natural gas.

The production impact “used to be the typical thinking for hurricanes,” as they would diminish offshore production as platforms shut down and evacuate, Gunter said in a May 23 email.

“However, as offshore gas production has fallen and moved more onshore, these impacts have become more muted,” Gunter said. “A mild hurricane likely won’t impact onshore Gulf Coast production all that much.”

In contrast, hurricanes can have a big impact on power burn and shut-in LNG exports, Gunter said.

The National Weather Service on May 16 forecast enhanced chances – 40% to 60% -- for above-normal temperatures for June, July and August across the US South Atlantic and Gulf Coast. CustomWeather on May 22 forecast temperatures to be zero to two degrees above normal across the region in June.

“Power outages naturally reduce power burn demand, which is a significant source of demand in Texas and the Southeast,” Gunter said. “LNG facilities, which are situated primarily along the Texas and Louisiana Gulf Coast, will usually halt exports during hurricanes due to rough seas and an inability to bring in tankers to load. These shut-ins can last 3-5 days or more depending on the severity of the storm, and a single LNG facility shutting in can result in 2+ Bcf/d of demand going offline.

Ian Palao, vice president for strategic energy services at POWWR, an energy management service, advised considering ERCOT’s likely heavy heat-driven power demand, despite the hurricane forecast.

“Because of the random nature of hurricane landfall, I wouldn’t expect an increased level of forecasted tropical activity to nullify the potential heat risk this far out in time,” Palao said in a May 23 email.

Hurricanes in the past have affected not only the demand side from reduced load due to system outages but also the supply side, due to reduced offshore production.

"I would say hurricanes have more of a demand (gas burn for electricity generation) impact than a supply impact as significant swaths of cities can be off the grid for upwards of a week or more (thinking of Hurricanes Harvey and Ida)," Palao said. "Additionally, given that on-shore gas production far outpaces off-shore production, a temporary shutdown of offshore rigs will be but a blip in total supply."

Risk management

As of May 22, day-weighted average on-peak power forwards for the 2024 hurricane season, June 1 through Nov. 30, were less than day-ahead on-peak prices at relevant hub in ERCOT, but had premiums in comparison with day-ahead on-peak power in the Southeast and at the Midcontinent Independent System Operator's Louisiana Hub.

Campbell Faulkner, senior vice president and chief data analyst at OTC Global Holdings, a Houston-based interdealer commodity broker, said "over all forward market seems to mostly be pricing in generalized 'heavy load' season prices that have been driven up" by weather-normalized load growth.

"From the risk side, there are some very difficult to predict effects of what a major hurricane would do to any of the Southern control districts," Faulkner said in a May 23 email. "Florida is the best equipped to deal with a major strike. Texas? Well the derecho storms that recently rolled through highlight the extreme risk that a Houston-centered major wind event hurricane could cause."

Gary Germeroth, a PA Consulting energy market risk management expert, said the location and strength of such storms affect the risk of lost load the most.

"The forward markets, even at a near coastal hub months before the hurricane season begins, do not have any information or data that indicates the timing or severity of hurricane landfall, so the incorporation of a long-term forecast like this is interesting data to the market, but not likely a key component of forward price," Germeroth said in a May 23 email.

Another risk to consider is the effect on solar installations, which have grown substantially over the past few years along the Gulf Coast, particularly in Florida and Texas.

Tulane Energy Institute Associate Director Eric Smith said Florida's "new solar capabilities will be vulnerable to damage from wind-borne debris."

"Texas is also vulnerable to wind damage to both solar and wind assets," Smith said May 23.

But Derek HasBrouck, PA Consulting's ReliabilityOne program director in a May 23 email that storm tracks from the more active seasons of 2004 and 2005 show the grid and solar installations are distributed widely over the peninsula, such that "any one hurricane, or even several, are not going to make the sort of direct hits required to cause extensive damage."

"And, to the extent those installations have associated storage and/or inverters capable of operating islanded from the grid, any installations that are not damaged are useful resources for consumers and/or the utility," HasBrouck said.

Effects on oil, gas, LNG

The US Energy Information Administration noted that production of crude oil dipped during Hurricanes Katrina and Rita in 2005, Hurricanes Gustav and Ike in 2008 and Hurricane Ida in 2021.

Export terminals for liquefied natural gas (LNG) on the Gulf Coast could be in harm's way as well, the EIA said in a May 22 analysis. The US exports about 13 billion cubic feet of LNG daily, mainly through Gulf Coast facilities.

"Although LNG facilities generally have many layers of protection from direct impact, hurricanes can damage electrical and marine infrastructure and hamper ship movement," the EIA analysis said.

Hurricane Laura in 2020 temporarily halted LNG exports from Louisiana's Sabine Pass and Cameron LNG facilities.

All that said, OTC Global Holdings' Faulkner described forecasts for an abnormally active hurricane season are "borderline useless."

"Last year was supposed to be horrible and ended up being rather benign," Faulkner said May 23. "Thus the prognosticating and fear mongering is an exercise designed to drive clicks and induce fear in the wider populace."

But Faulkner acknowledged that if a hurricane does approach the Gulf Coast, its effect "could be serious, especially given the importance of LNG exports," causing gas prices to "plummet."

Atlantic hurricane season forecasts for June 1-Nov. 30, 2024					
Parameters	NHC forecast	CSU forecast	AccuWeather forecast	Avg. 1991-2023	2023
Named storms	17-25	23	20-25	14.7	19
Hurricanes	8-13	11	8-12	7.2	7
Major hurricanes	4-7	5	4-7	3.2	3
Direct US impacts	N/A	N/A	4-6	4.1	4

Sources: National Oceanic and Atmospheric Administration, Colorado State University, AccuWeather

Atlantic hurricane season forecasts for June 1-Nov. 30, 2024ParametersNamed stormsHurricanesMajor hurricanesDirect US impactsSources: National Oceanic and Atmospheric Administration, Colorado State University, AccuWeather

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