

## News

### Tight conditions cause energy emergency for Texas grid; prices top \$5,000/MWh

- 'ERCOT got lucky': analyst
- Light wind output a factor

The Electric Reliability Council of Texas entered Energy Emergency Alert status from 7:30 pm to 9 pm Sept. 6 and asked Texans to curtail power demand from 5 pm to 9 pm Sept. 7 amid a persistent heat wave. Power markets responded with triple and quadruple-digit pricing.

"ERCOT got lucky yesterday and was able to avoid rotating outages, but it remains to be seen if the luck will eventually run out today or tomorrow," said Campbell Faulkner, senior vice president and chief data analyst at OTC Global Holdings, an interdealer commodity broker, on Sept. 7.

Around 11 am Sept. 7, ERCOT issued a news release asking for conservation "due to continued high temperatures, high demand, low wind and declining solar power generation in the afternoon," which prompts expectations for low operating reserves in the afternoon and evening.

"Because of the retirement of various thermal units, lack of new dispatchable build, wear and tear on the peaker fleet, September has shaped up to be the summer load test for ERCOT," Faulkner said.

The National Weather Service has issued excessive heat

warnings or advisories for most of the more populous eastern half of Texas, and CustomWeather forecasts high temperatures above 100 degrees F through much of that region's major metro areas through Sept. 9.

ERCOT has set September peakload records Sept. 4-6, and is forecast to do so again Sept. 7-8.

### Light wind output

Meanwhile, wind output has been lagging in September. During the typical peak demand hour ending at 5 pm CT on Sept. 1-3 and Sept. 5-6, ERCOT has been producing at a level of about 4.6 GW, less than half the 10.4 GW that ERCOT modeled the wind fleet to be producing during the seasonal peak in the summer of 2023. On Sept. 4, the wind fleet produced at a level of 15.4 GW. ERCOT's 1 pm CT forecast showed wind producing at a level of 6.4 GW on Sept. 7 and 7.1 GW on Sept. 8.

"Given high temperatures, very low wind conditions and increasing outages for the thermal fleet given high utilization this summer, the ERCOT system is projected to be very tight on Thursday and Friday, increasing the likelihood of another EEA event," said Juan Giraldo, a PA Consulting energy and utilities expert, on Sept. 7.

"However, whether an EEA event actually occurs is dependent on real-time conditions and unplanned outages that are difficult to predict. Projections for cooler weather and higher wind output in the coming weeks suggest that ERCOT

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could be in a better state after Friday, barring unseasonably hot weather returning.”

Thermal generation has also encountered problems in recent weeks. On Sept. 4, the latest date for which ERCOT has released information on unplanned outages, ERCOT reported 10.4 GW of thermal generation offline for issues such as forced outage or forced extension of a previous outage. Of that total, 5.9 GW was fired by natural gas and 4.5 GW was fired by coal.

ERCOT delays release of unplanned outage data in order to minimize opportunities for anticompetitive behavior.

ERCOT’s 2023 summer Seasonal Assessment of Resource Adequacy modeled less than 5 GW of thermal generation to be on unplanned outage under typical conditions, with a high unplanned outage scenario surging to 8.4 GW. Only the “extreme

unplanned outage” scenario would have a higher total, 11.1 GW, for thermal generation in unplanned outage.

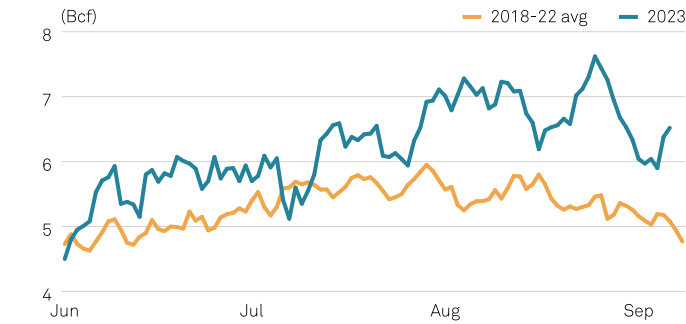
**Thermal performance defended**

However, Michele Richmond, executive director of Texas Competitive Power Advocates, said thermal outages “were not a factor” in the Sept. 6 EEA event, as no unit above 450 MW tripped offline, and “the thermal fleet provided more than 90% of the energy ERCOT needed.”

For June 1 through Sept. 6, ERCOT’s gas-fired generation has consumed about 6.2 Bcf/day, up 900 MMcf/d or 14.4%, from the same days during the previous five years.

“The reality is ERCOT has run the existing thermal fleet exceptionally hard for an extended period of extreme heat to

**ERCOT power burn**



Source: S&P Global Commodity Insights

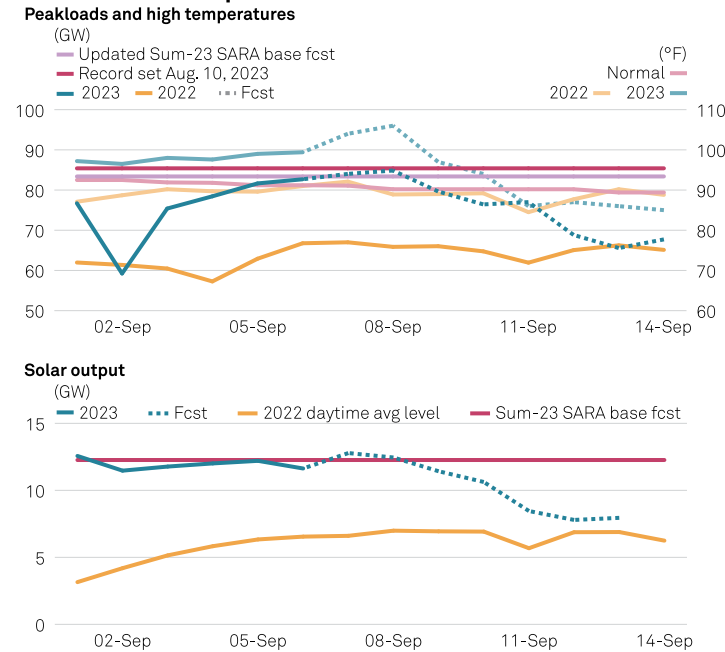
**High temperatures/heat indexes\* for Texas metro areas (°F)**

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug	01-Sep	02-Sep
Dallas	100	94	98	97	98	98	98
Houston	108	97	97	100	99	102	103
San Antonio	104	98	99	100	100	101	102
	03-Sep	04-Sep	05-Sep	06-Sep	07-Sep	08-Sep	09-Sep
Dallas	99/100	99/103	103/107	103/107	106	108	97
Houston	100/105	95/106	100/109	101/111	102/108	103/109	100
San Antonio	99	101	102/106	101/104	101	104	103
	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep	15-Sep	16-Sep
Dallas	94	86	87	86	85	84	85
Houston	93	94	81	88	84	84	86
San Antonio	102	95	85	79	83	85	86

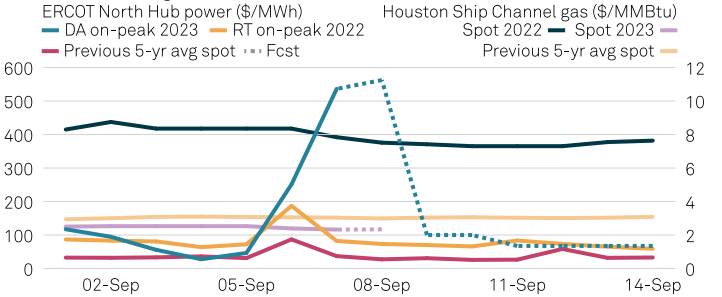
\*When available

Sources: CustomWeather, National Weather Service

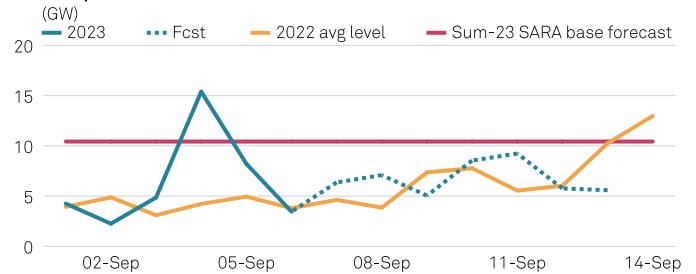
**ERCOT heat wave power fundamentals**



**Power and natural gas prices**



**Wind output**

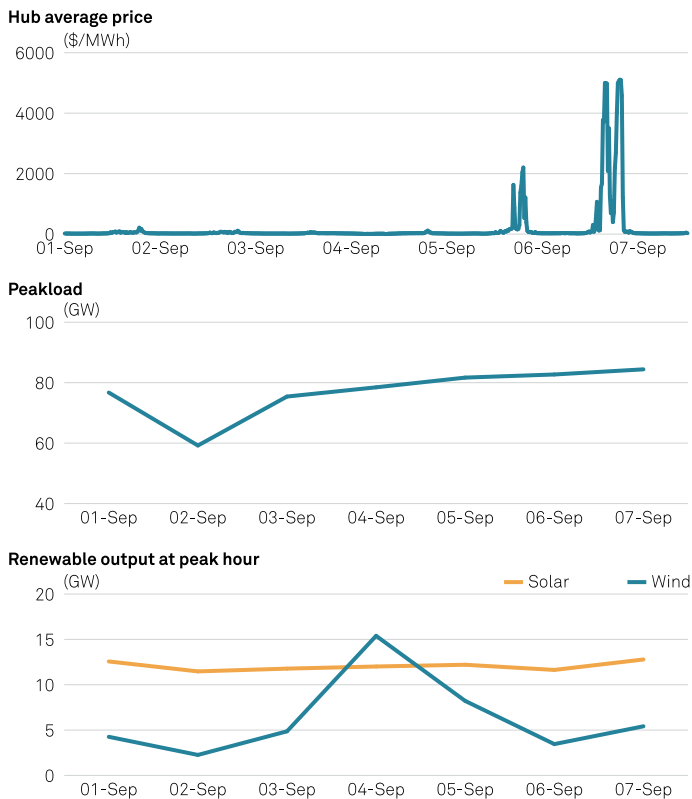


Notes: Peakload forecast was issued 12:30 pm CT Sept. 7. SARA is Seasonal Assessment of Resource Adequacy. Updated SARA is based on latest weather forecast. High temperature forecast for 2023 is for the Dallas-Fort Worth area. Actual high temperatures for 2022-23 and normal highs are population-weighted for the ERCOT market region. Renewable output actual and forecast levels are for hour ending at 5 pm CT, as of the 1 pm CT Sept. 7 forecast. Renewable output levels for 2022 are daytime averages for solar and 24-hour averages for wind. Summer SARA renewable forecasts are for production during seasonal peak hour. Sources: ERCOT, CustomWeather, S&P Global Commodity Insights

meet Texans' needs," Richmond said Sept. 7. "These resources will need to take time in the fall to perform required maintenance necessary to ensure they are ready to perform for the upcoming winter. This means that tight conditions may occur in the fall if other resources on which ERCOT depends underperform."

On Sept. 6, those tight conditions resulted in real-time systemwide hub prices, plus transmission cost, exceeding the \$5,000/MWh systemwide offer cap for 90 minutes and stayed in quadruple digits for five hours.

### ERCOT real-time prices, peakloads, renewable generation



Prices are real-time systemwide hub. Renewable generation is for peak hour ending at 5 pm CT. Peakload and renewable forecasts were issued at 12:30 pm and 1 pm CT, respectively, Sept. 7. Source: ERCOT

ERCOT North Hub day-ahead on-peak power traded around \$562.50/MWh on the Intercontinental Exchange on Sept. 7 for Sept. 8 delivery, up from the previous day-ahead settle at \$536.34/MWh for Sept. 7 delivery and the \$251.08/MWh price for Sept. 6 delivery.

Despite the heavy gas-fired generation use, Houston Ship Channel spot gas prices have remained tame, trading around \$2.34/MMBtu on Sept. 7, down about 21.7% from the 2017-2021 average of \$2.99/MMBtu for that date.

— Markham Watson, Amilcar Flores, Larry Flores

### US Power Tracker: SPP prices trending lower on gas market as coal share declines

- SPP South Hub on-peak October trending 54% higher
- October power burn expected 2.3% lower year on year

Southwest Power Pool wholesale spot power prices were slashed in half in August compared to a year ago, despite setting a new peakload record, on much lower natural gas prices which drove an increase in gas-fired generation even as coal-fired generation led the fuel mix for a second consecutive month.

SPP peakload averaged 48.4125 MW in August, an increase of 4% year on year. Population-weighted temperatures across the SPP footprint averaged about 1% above normal, causing cooling-degrees days to be 5.5% higher than normal, according to CustomWeather data.

"The short-term outlook anticipates annual electricity demand to decline by almost 1% in 2023 and to grow by an average of roughly 1% per year during 2024–27," according to S&P Global Commodity Insights' North American Electricity Short-term Outlook report issued Sept. 1.

#### Record demand in August

SPP set a peak demand record of 56.184 GW on Aug. 21 and issued several conservative operation advisories in August to address multiple days of high load and low wind conditions. At the hour of peak net load with imports of 2.7 GW from the Midcontinent Independent System Operator, there were sufficient dispatchable resources to meet demand, said Morris Greenberg, senior manager with the low-carbon electricity team at S&P Global Commodity Insights.

"The conservative operation posture led to more thermal unit commitments and longer operating timeframes," according to the North American Electricity Short-term Outlook report.

Coal-fired generation led market share, averaging 34.7% of the total fuel mix, even as it dropped 7.5 points year on year, according to SPP data. Gas-fired generation followed with 33.4% of the total fuel mix, an increase of 6 points year on year, while wind-powered generation was up nearly 2 points from a year ago to average 23.6% of the August fuel mix.

"Wind capacity in SPP is up 6% since last summer," Greenberg said.

#### Spot market muted

Despite setting a new demand record, hourly power prices in the day-ahead market were relatively subdued, reaching roughly \$240/MWh, according to the North American Electricity Short-term Outlook report.

In addition, daily prices continued to follow gas prices lower.

South Hub on-peak day-ahead locational marginal prices averaged \$57.64/MWh in August, 50.2% lower year over year,