



What Went Wrong in Texas?

As temperatures in Texas dropped up to 50 degrees below normal, a combination of bad timing, market structure, and equipment failure led to massive blackouts.

1. Some units were already offline for maintenance. Texas summer's promise of high air conditioning usage causes thermal units to perform necessary maintenance other times of the year. Late February is usually "shoulder season" when spring temperatures reduce demand for electricity. In the week leading up to the blackouts, approximately 14 GW of coal and gas-fired generation was offline for maintenance. [[Wood Mackenzie: Breaking Down the Winter Blackouts](#)]

2. ERCOT does not have the authority to require plants to come online. During the week before Feb 15th, ERCOT issued an Operating Condition Notice (OCN) calling for offline generation to return. But plants are not penalized for ignoring ERCOT's OCN. In fact, ERCOT does not own, operate or have any enforcement authority over any electric generation facilities or any electric transmission or distribution lines or substations. [[Wood Mackenzie: Breaking Down the Winter Blackouts](#); ERCOT Presentation, Review of February 2021 Extreme Cold Weather Event, 2/24/21]

3. Some plants were not available to secure gas, while the gas that was available was diverted for home heating, not power generation. Prices for gas shot up. At the same time, some offline plants were likely unable to secure gas on such short notice as the weekend's gas prices rapidly increased from \$7 per mmBTU on Thursday to \$150 per mmBTU by the weekend due to supply concerns around freeze-offs and heating demand. And in Texas, during extreme winter peaks gas is diverted for residential heating, decreasing availability for power plants. [[Wood Mackenzie: Breaking Down the Winter Blackouts](#)]

4. Freezing rain and extreme cold further reduced capacity. Whether due to gas shortage or unresolvable maintenance issues, 14 GW of thermal generations was offline going into Monday morning. But over the span of just four hours Monday morning, outage totals more than doubled to 32 GW as freezing rain and cold temperatures decimated coal, natural gas, and nuclear power plants alike, with emergency equipment failures, broken sensors, frozen coal piles and more issues slashing ERCOT's thermal generation capacity from 70 to 45 GW in the span of a few hours. [[Wood Mackenzie: Breaking Down the Winter Blackouts](#)]

No, frozen wind turbines aren't the main culprit for Texas' power outages



Don't Blame Wind for Texas Electricity Woes

Renewable energy and market design are easy targets during electricity failures but they are inadequate explanations

THE WALL STREET JOURNAL

Peak Demand + Offline Plants Led to Massive Power Outages.

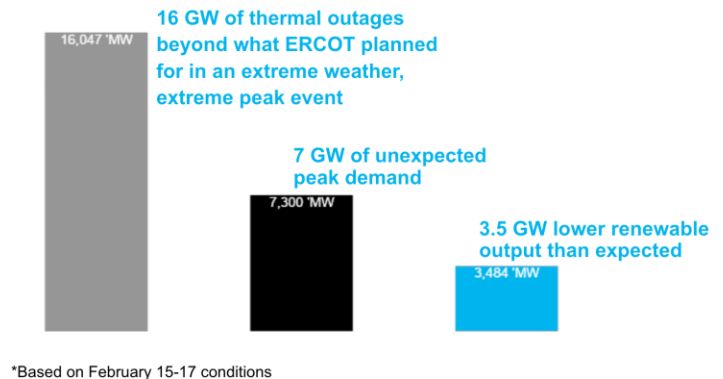
30 GW were offline & demand was over 70 GW.

As temperatures plummeted and power plants tripped offline, ERCOT was forced to implement the largest forced power outages in its history. With more than 30 GW of thermal resources unavailable and forecasted demand over 70 GW, there was simply not enough supply of electricity available to meet customer needs.

The ~30 GW of thermal capacity out combined with a further 3-4 GW of wind and solar short of winter peak expectations left ERCOT without sufficient power supply to deliver customers with all the electricity they demanded.

As a result, rolling blackouts were first issued around 1 AM on February 15th. They would remain in effect for 105 hours.

Unexpected thermal outages and peak demand were primary contributors to ERCOT blackouts



Renewables Played a Role, But Not a Big One.

It's all about expectations. And wind and solar generally performed as ERCOT planned and forecasted.

Some wind turbines did experience icing that forced them offline. At solar projects, the precipitation and wintery mix generally slid off thanks to the angle of the panels.

Throughout the blackouts, wind and solar production tracked closely to ERCOT's short term forecasts for what they could expect from the resources. Importantly, wind and solar output was also firmly within the range of output volumes that ERCOT plans for as part of its seasonal planning process.

As the week progressed, lower wind power production was largely due to low wind speeds rather than wind turbines being unavailable due to icing or freezing temperatures.

ERCOT Wind and Solar Generation

