



Texas Public Policy Foundation
**LEGISLATOR'S GUIDE
TO THE ISSUES
2021-2022**

Texas Electric Grid Reliability

The Issue

Texas has the most competitive electricity market in the country, and our market has become a model for deregulating electricity generation and retail distribution. However, a dramatic expansion of wind energy generation, spurred by a [flood of federal subsidies](#) and state subsidies, including the massive socialized cost of renewable-driven transmission lines, has upended the dynamics of our market.

Wind generation is unreliable during periods of peak demand, leading to higher peak prices. At the same time, the distorting effect of the federal Production Tax Credit (PTC) and the lack of any state policies to neutralize this distortion leads to significant suppression of prices during periods of low demand. Texas is now seeing frequent periods of below-cost or even [negative wholesale prices](#), and baseload units must pay to stay online or curtail during such negative pricing events. This price volatility has become more and more evident in recent years.

Coupled with the other market distortions of the PTC, the current price structure is forcing the early retirement of coal and natural gas power plants and putting significant pressure on nuclear units. It is also precluding the type of price signals necessary to finance the construction of new thermal generation, even as wholesale natural gas prices remain at record low levels. The [average ERCOT-wide wholesale price](#) of \$47/MWh in 2019 is well below the [levelized cost](#) of new combined cycle natural gas plants.

The net impact of the flood of unreliable power and the forced retirement of low-cost baseload power has resulted in Texas experiencing sustained periods of razor-thin reserve margins. Summer 2019 saw [two emergency situations](#) in which reserves dropped below 3% of the system load. Both of these alerts occurred on days of low wind output and not on the day of highest demand. Although the effects of COVID-19 are suppressing demand compared to previous projections, Texas is still moving toward a situation where it will not have enough reliable generation during peak times, raising the risk of blackouts.

The Electric Reliability Council of Texas (ERCOT) claims that [reserves during peak summer demand hours](#) will remain well above 13% over the next 5 years, up from 12.6% this year, thanks to new solar and wind installations. However, that number is misleading because ERCOT calculates it using the average output of wind and solar generators during peak hours, whereas the true output is a distribution about that average. Solar generation is relatively consistent during the summer and correlated with peak demand periods, but the same is not true for wind. In summer 2019, Texas [wind output during peak demand hours](#) varied from 7% of total installed capacity to well over 50%, depending on the day. The addition of more wind generation over the next few years will further exacerbate the reliability problem during peak hours.

The actions of Texas cities will also compound the problem. [San Antonio](#) is currently on a path to replace older natural gas assets with wind, solar, and batteries. [Austin](#) is leading the pack with similar “100% renewable” aspirations. Cities such as Dallas and Houston, which do not have municipal utilities to push their agendas, are [switching municipal operations to wind and solar](#) and trying to push them in other ways. All of these cities are counting on reliable generation from the rest of the grid when wind and solar are not producing enough, yet their behavior is exacerbating the market conditions that are preventing those assets from being built.

The Public Utility Commission has taken action to address this problem by increasing payments to generators during times of high demand through the Operating Reserve Demand Curve. However, despite Texas ratepayers forking over an estimated [\\$3.9 billion in 2019](#) through this mechanism, ERCOT is anticipating [very few additions of reliable generation](#) over the next 5 years. It is evident that the current market structure, suffering from the distortions caused by wind and solar subsidies and the absence of policies that require generation to be reliable, is not incentivizing the proper amount of generation to keep up with rising demand.

The Facts

- Require renewable generators to guarantee a certain amount of energy production during peak demand periods to avoid the sudden drops in generation that are leading to increasing risks of electricity shortages and blackouts.
- ERCOT's reserve forecasts do not account for variability in wind and solar output during peak times, instead using average values. Therefore, the true reserve margins will be much lower than their estimates of 13% to 20% over the next 5 years.
- Average wholesale electricity prices are still far below what is needed to ensure significant additions of natural gas generation to keep up with expected annual increases in peak demand of 1-2% over the next decade.
- Texas cities are compounding the problem by forcing the use of wind and solar in place of reliable generation.

Recommendations

- Require new generators to guarantee a certain amount of energy production during peak demand periods to counteract the rising disparity between peak prices and off-peak prices that is causing reliability problems for the Texas electric grid.
- Remove barriers to the construction of new reliable electricity generation.

- Eliminate market-distorting subsidies under the state's control for all forms of energy, in particular the Chapter 312 and 313 property tax abatement programs that disproportionately favor renewable energy generation projects.
- Support/request that members of the Texas Congressional Delegation support the phase out of the federal production and investment tax credits.

Resources

["ERCOT's Review of Summer 2019,"](#) Electric Reliability Council of Texas (Oct. 11, 2019).

[2019 State of the Market Report for the ERCOT Electricity Markets,](#) Potomac Economics (May 2020).

["ERCOT's Phantom Reserve Margins Spell Trouble for Summertime"](#) by Jason Isaac, *Houston Courant* (July 8, 2020).

[The Cautionary Tale of Wind Energy in ERCOT](#) by Chuck McConnell, Texas Public Policy Foundation (Aug. 2020).

[Testimony Before the Senate Business and Commerce Committee](#) by Bill Peacock, Texas Public Policy Foundation (Feb. 5, 2020).

