



INTEGRATING DISTRIBUTED ENERGY RESOURCES INTO WHOLESALE MARKETS SAVES CUSTOMERS MONEY

DERs Support A Cleaner, More Resilient, And Cost-Effective Grid

Distributed energy resources (DERs) support the Electric Reliability Council of Texas (ERCOT) market with valuable services by enhancing competition, mitigating price spikes, and responding to wholesale price signals.

When the ERCOT market was initially designed about 20 years ago, it was designed by and for traditional, large scale thermal generators. Because of changing economics, a larger share of generation is variable solar and wind, and today's markets would benefit from the addition of fast-responding, flexible DERs.

The grid and the technologies for generating and managing energy are continuing to evolve due to lower costs and improvements in technology. Today's technology allows fleets of individual DERs to be aggregated into virtual power plants, but market rules do not allow the full value of these resources to be realized.



DERs REDUCE ENERGY COSTS

The ability of DERs to reduce electricity production costs is tied to supplying resources when they are needed most. When prices are high, even a small amount of incremental resources can have a substantial effect on reducing the market-clearing price.

\$3.02B

A new study* shows that adding 1,000 MW of DER resources into the supply stack (less than 1.2% of peak load) can decrease electricity costs for Texas consumers by up to \$3.02 billion over 10 years by reducing price spikes.



Extreme Demand Drives Up Energy Prices in ERCOT

Electricity prices in Texas can reach extreme heights when demand is high, resources are offline, an unexpected event occurs (e.g., transmission outages, generator outages), or other unforeseen changes in load or supply.

The extreme prices that occur in ERCOT are generally limited to a small number of hours, but account for a substantial share of costs. Over 2014-2018:

- On average, 9.2 hours per year exceeded \$500 per MWh (max of 30 hours)
- On average, 23.5 hours per year exceeded \$200 per MWh (max 50 hours)

In 2019, real-time prices exceeded \$9000/MWh during a system peak, while the ERCOT-wide load-weighted average price was \$35.63/MWh across the year. Because the study included data only from 2014-2018, the potential value of DERs in ERCOT markets is understated.

ERCOT market prices signal the need for additional resources on a limited number of days and hours. DERs are able to mitigate extreme prices by specifically targeting the limited hours when net loads are high.

*About the Study

The Texas Advanced Energy Business Alliance commissioned a study produced by Demand Side Analytics to quantify the potential savings from the integration of DERs in Texas. [Download the full report at texasadvancedenergy.org](https://www.texasadvancedenergy.org)



OPPORTUNITY FOR GREATER INTEGRATION

While ERCOT rules and procedures allow DERs to deliver some grid services, the full potential of DERs has not been realized:

- Most smaller DERs cannot bid directly into the energy markets, even when aggregated, and are limited to participating indirectly as load modifying demand.
- A third party capable of operating a virtual power plant by controlling connected DERs is unable to bid into ERCOT unless they are a load-serving entity or retailer or partner with one.

Participation in wholesale markets increases the amount of power available when resources are needed most, leading to lower market prices. Lower market prices translates to lower costs for Texas consumers.

About TAEBA

The Texas Advanced Energy Business Alliance (TAEBA) includes local and national advanced energy companies seeking to make Texas' energy system more secure, clean, reliable and affordable. TAEBA's mission is to raise awareness among policymakers and the general public about the opportunity offered by all forms of advanced energy for cost savings, electric system reliability and resiliency, and economic growth in the state of Texas. Learn more at [texasadvancedenergy.org](https://www.texasadvancedenergy.org) and follow our latest news [@TXAdvEnergyBiz](https://twitter.com/TXAdvEnergyBiz)