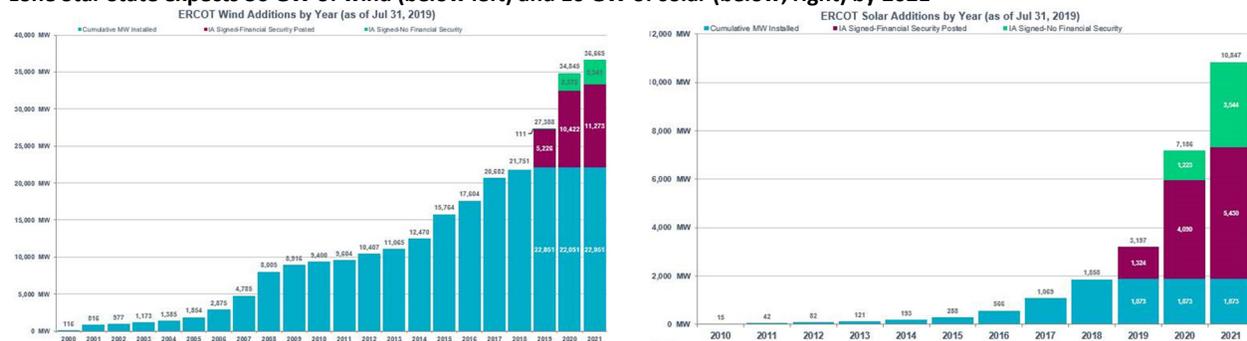


Vanishing Renewable Premium

Green premium has disappeared in Texas, same will happen elsewhere

Traditionally, environmentally conscious consumers had to pay a premium to get clean kWhs, typically offered as a “premium” product by the suppliers. The higher the renewable content, the greener the electrons and the higher the premium. Still, some consumers were willing to pay a little more on their electricity bill in exchange for receiving green electricity. But as more renewable resources are added to the networks across the world and as the cost of renewable generation continues to fall, the renewable premium is beginning to vanish in some key markets. Even more astonishing is that in places where the renewable generation frequently floods the wholesale market – say when it is windy and/or sunny, but the demand is low – the consumers are effectively paid to take the excess green generation.

Lone Star State expects 36 GW of wind (below left) and 10 GW of solar (below, right) by 2021



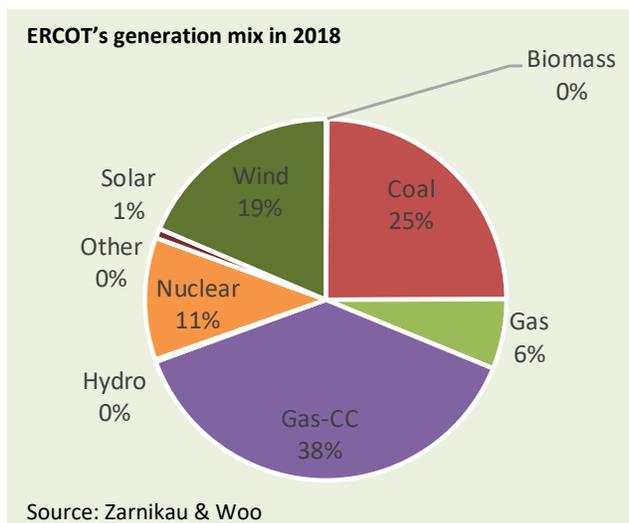
Source: ERCOT

[Capacity Changes by Fuel Type Charts, July 2019](#)

Writing in a recent issue of *Energy Policy*, **Jay Zarnikau** of Frontier Energy and **C.K. Woo** of the Education University of Hong Kong, analyzed 710 retail pricing plans in Texas and found something interesting: the renewable energy premium has virtually disappeared.

Since January 2002, when Texas opened its wholesale and retail market to competition, most Texans can purchase electricity from their pick of multiple **retail electric providers** (REPs) that offer a variety of pricing plans and services. REPs often differentiate their plans by renewable energy content, mostly clustering at the 10%, 15% or 100% levels. For example, a recent review of the state’s [PowerToChoose](#) website shows that 17 REPs offer 35 different rate plans with 100% renewable energy to consumers in Houston.

Enabled by transmission infrastructure projects, federal tax credits, a favorable business environment, and a vast resource potential, wind energy has become a major share of the state’s generation mix. At the end of 2018, 28,638 MW of wind capacity was enrolled in the state’s Renewable Energy Credit Program – far in excess of State’s 2025 target of 10,000 MW of renewable generation capacity. In 2018, wind farms provided 18.6% of the energy requirements in the **Electric Reliability Council of Texas** (ERCOT), while solar energy contributed 1.3%. This suggest that the average renewable energy content without any premium would be around 20% for electricity sold in ERCOT.



To examine Texas's renewable energy premium, the authors performed a regression analysis of the residential pricing plans available in four cities at the end of 2018. This analysis estimated the effects of various attributes on a plan's price, for example a plan's renewable energy content, contract length, and minimum usage requirement. They also looked at other features that can affect price, like pre-payment, "free kWh" on weekends, time-varying pricing, and price certainty.

In the past, customers had paid more for plans that offered a greater mix of renewable energy sources. But in their analysis Zarnikau & Woo found that – surprise – there is no longer a statistically significant price premium for the

plans' renewable energy content. Buying green electrons no longer comes at a price premium.

The authors ask: "Is Texas unique?" Does electricity from renewable energy sources cost about the same as generation from fossil-fueled power plants? Perhaps less, given the current price trends?

Perhaps Texas is somewhat unique. It is the leading state in installed wind capacity and has an abundant solar and wind potential for further renewable energy development. And, its "energy-only" market differentiates it from other wholesale electricity markets that have capacity markets or resource adequacy requirements (article on page 6).

That said, renewable energy has become increasingly cost-competitive relative to natural gas- and coal-fired generation in many markets throughout the world, implying that the renewable premium in these markets will likely vanish soon, similar to what has already happened Texas.

As more states move towards higher RPS levels, wouldn't the same apply everywhere, sooner or later? Zarnikau said, "Perhaps. But, the renewable energy resources in other markets need to be competitive with the fossil fueled resources. In Texas, Hawaii, and some other markets with ample solar and wind resources, renewable energy is now competitive, and the **production tax credit** (PTC) for wind and **investment tax credit** (ITC) for solar, helps."

Will we get to a situation where renewables, indeed most electrons, will be essentially "free" or low cost since they will increasingly come from zero marginal cost sources? Zarnikau notes that having a short-run marginal cost of zero doesn't necessarily imply that the resource is free – most renewable resources have a small variable operating costs plus a significant capital cost component, adding,

"But, yes, we are seeing higher renewable energy development in ERCOT, California, MISO, and many other markets lead to lower wholesale energy prices through the economic merit order effect."

Zarnikau explains that this is among the reasons for Texas raising its **operating reserve demand curve** (ORDC) to more rapidly to reach the \$9,000/MWh offer cap, the highest in the US. The change was intended to provide additional compensation to generators. The offer cap was raised to \$9,000 in 2010, but was seldom reached until the recent changes to the ORDC.

As it happened, in August, ERCOT set a new peak demand when temperatures hit triple digits (in F, that is) on successive days and prices spiked to the \$9,000/MWh (article on page 6), which happens more often due to the changes in the ORDC. ■

[Energy Policy paper](#)