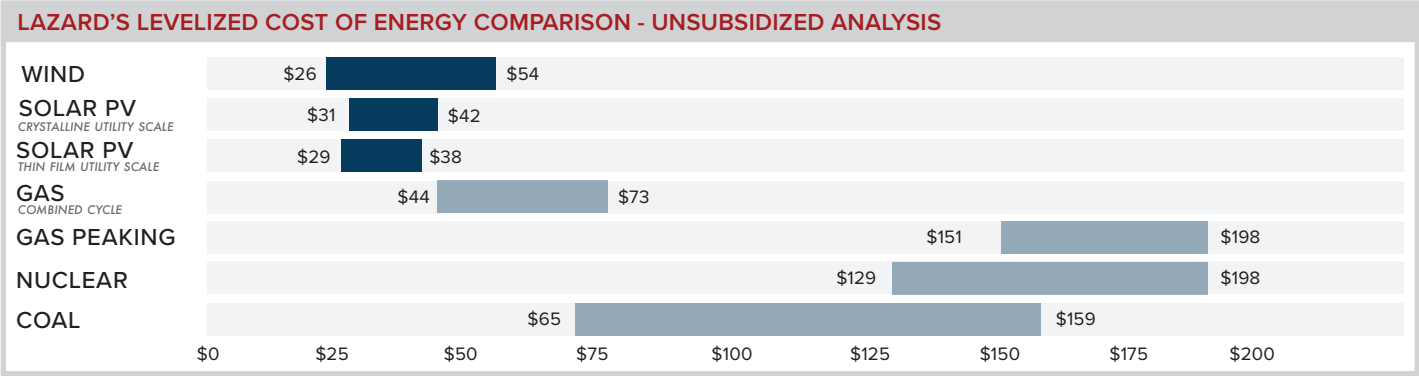
Wind and Electricity Prices:
Saving Money for Texas Families and Businesses

Renewable energy is an affordable source of reliable electricity. As the costs of wind and solar continue to decline, Texas families and businesses benefit. Access to these low-cost energy resources make Texas a competitive place to do business - And, as renewable energy grows in the state, more Texas communities are reaping the economic benefits.



Texas Has Among The Lowest Power Prices In The Country

- Texas has among the lowest electricity costs in the U.S. thanks to two of the state's biggest resources, wind and natural gas.
- Wind is the cheapest source of new electricity in Texas. As a substantial part of the energy mix along with other renewables, these technologies saved Texans $5.7 billion from 2010 to 2017.
- Renewable energy combined with historically low natural gas prices means that Texas businesses have access to low-cost energy, and the monthly electric bill goes easy on consumers' wallets. According to ERCOT, wholesale market prices "tend to be lower when more wind generation is being produced." That's partially because in some parts of Texas, wind and solar are the cheapest sources of new electric generating capacity.

Hot Texas Summers Show That Texas' Diverse Energy Portfolio Can Withstand Extreme Demands

- Leading up to summer 2020 experts warned of tight grid conditions for ERCOT due to high temperatures and uncertainty surrounding COVID-19. ERCOT warned it could declare an Energy Emergency Alert depending on a combination of factors.
- As predicted, power use was high over summer. However, ERCOT did not have to call for electricity conservation or issue emergency alerts - the lights stayed on.

Negative Pricing and The Minimal Impact in ERCOT

- Negative pricing occurs either at times of high electricity output and low demand, usually overnight or when there is a transmission constraint.
- Occurrences of negative pricing attributed to wind generation have declined as a result of transmission lines built under the state's Competitive Renewable Energy Zones (CREZ), but negatice pricing has a minimal impact on the average power price in ERCOT.
- According to ERCOT, "In 2019, system-wide negative pricing occurred for 58.5 hours, or less than one percent of the year."
- Negative pricing events in ERCOT have been well correlated in some years but not others. Specifically, negative pricing events were less correlated prior to the expansion of the transmission network in 2013 (CREZ), because transmission constraints limited negative pricing events to high-wind areas in West Texas.

- Immediately after the expansion of the transmission network, the smaller number of remaining negative pricing events were well correlated across ERCOT. However, as wind capacity continued to expand in West Texas, transmission began again to be a constraining factor, causing an increase in localized negative pricing events over the last several years.
- Expanding transmission lines in Texas will be critical in limiting negative pricing events in the future.

Other Energy Sources Are Leading Contributors to Negative Pricing

- All resources, including less flexible thermal resources like coal and nuclear that cannot ramp up and down quickly, will bid negative at times.
- Many coal-fired power plants have "inflexible contracts" with coal mines and railroads, forcing them to either accept delivery and stockpile coal, or face large contract penalties if they refuse coal deliveries they do not need.
- "For reference, the 19.5 million tons of coal stockpiled at Texas power plants as of the start of 2016 would fill a coal train stretching from coast to coast across the United States."
- With limited space to stockpile coal, some power plant operators may choose to run their coal-fired generation units to clear room for new deliveries, even if there is no demand for their output and it's uneconomical to run the plants at that time.
- They do this despite power prices going negative, ignoring the market signal that generation should be reduced.
- This implies that negative market prices are less costly to some coal-fired generation owners than the contract penalties for not taking delivery of the coal.

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