

Texas' Changing Winds

U.S. Power and Gas Weekly

Morningstar Commodities Research

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Data Sources Used in This Publication

ERCOT
 NOAA

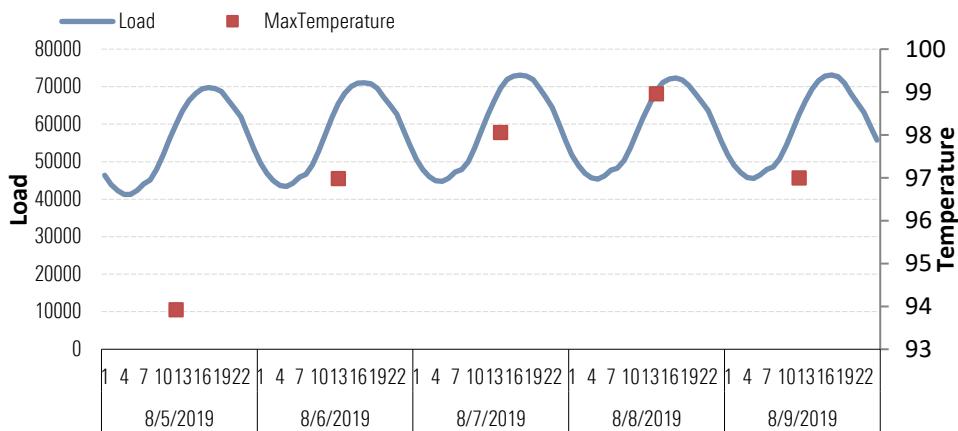
Strong Demand

ERCOT's system saw the highest demand levels year to date last week, with systemwide load exceeding 70,000 MW in four of the five weekdays. Load peaked for the week at 73,090 MW on Aug 9, setting the high point year to date. Along with setting the year high for load, prices also peaked on the Aug. 7, hitting over \$1,000/MW for hour-ending 16 in the day-ahead market. This piece will review the events and conditions that may have driven prices higher last week.

Strong Demand

Last week saw the strongest demand from ERCOT year to date. Load peaked for the week on Friday, Aug. 9, when system-wide load reached 73,090 MW (Exhibit 1). Daily peak loads were also stronger on the other days of the week, with a peak average for the week coming in at 71,861 MW. Much of Texas saw average temperatures deviating above the norm by several degrees, with temperatures in Houston staying in the mid- to upper-90's. However, as many people know, Texas demand is not driven by temperatures alone. Along with higher temperatures, triple-digit heat indexes started to impact the market in the second half of the week, with the trend continuing through the first half of this week.

Exhibit 1 Weekday Load ERCOT Systemwide and Daily Max Temperature Houston (MW)

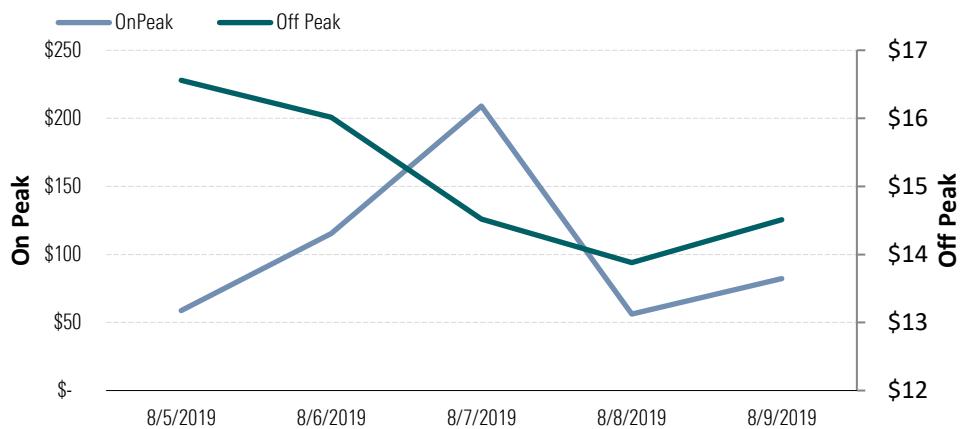


Source: ERCOT, NOAA

Strong Prices

Along with the strong demand, prices in the on-peak hours were up considerably across the board. The ERCOT Hub average for the week came in at \$104/MW (Exhibit 2), with Wednesday, Aug. 7's average settling at \$209/MW. Most of the stronger prices happened in the super-peak hours (HE 15-19), which averaged \$253/MW for the week. The day-ahead hub average peaked on Aug. 7 where hour-ending 16 settled at \$1,009/MW. Over the course of the week, off-peak prices stayed fairly range bound settling between \$14/MW and \$17/MW.

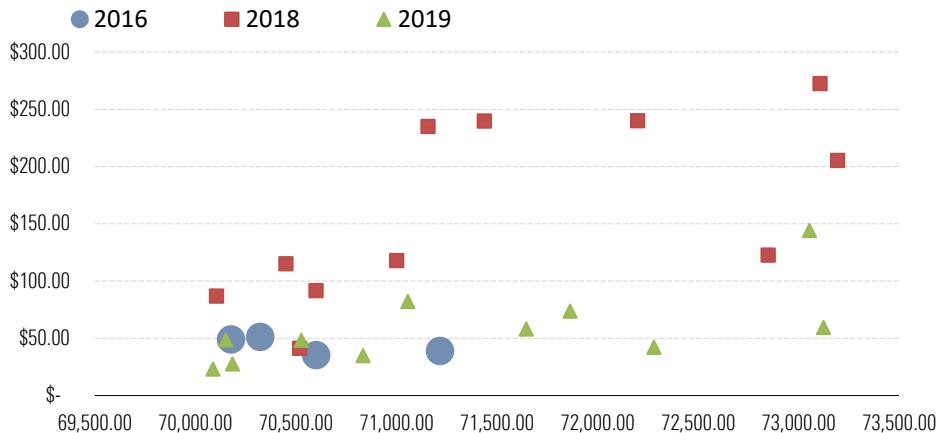
Exhibit 2 Day-Ahead Prices - Hub Average (\$/MW)



Source: ERCOT

Stacking Last Week Up Historically

Comparing last week's strong demand with similar events in recent history, we see 26 days since 2016 with peak load in excess of 70,000 MW (Exhibit 3). Over the same three years, only two days have seen loads above 73,000 MW, July 19 and July 23, 2018. In those two cases, the ERCOT hub average price for around-the-clock power settled at \$205/MW and \$272/MW, respectively. In the two cases where load exceeded 73,000 MW from the current season, Aug. 7 and Aug. 9, the ERCOT hub average price for ATC power settled at \$144/MW and \$59/MW, respectively.

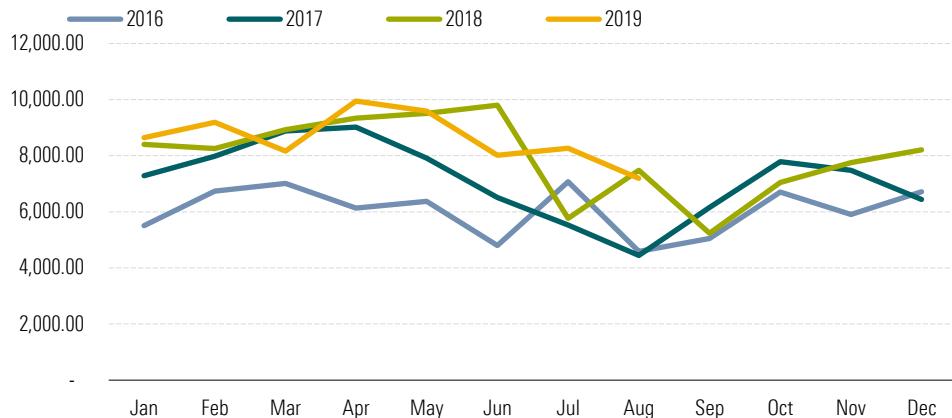
Exhibit 3 Historical 70,000+ MW Peak Days against Around-the-Clock Day-Ahead Power Price

Source: ERCOT

All the 70,000+ load days this year have also trended lower when compared with last year. The super-peak hours in 2018 saw stronger prices, settling above \$1,000/MW on four days where peak load was above 70,000 MW. The super peak average for all load days above 70,000 MW in 2018 was \$720/MW. Compare that significantly higher price with 2019, which has averaged \$186/MW in the super peak hours year to date.

Growth in Wind Generation

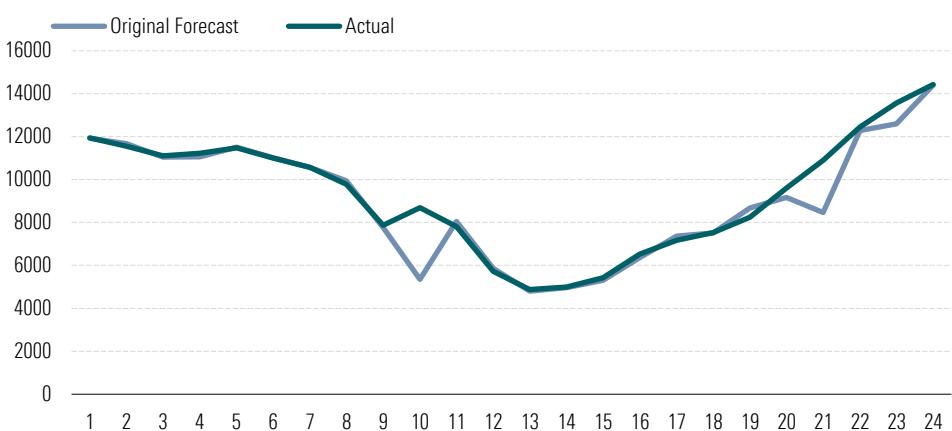
The shift in prices seen across the board in Texas can be attributed to changes in the generation landscape of the grid. Wind generation on average has grown by 2,600 MW from 2016, where wind generated 6,000 MW to the 2019 year to date average of 8,600 MW (Exhibit 4). The weaker wind generation in July 2018, contributed to higher power prices that month comparatively, and a similar scenario appears to be playing out for August this year. Wind generation month to date is down 1,000 MW from July 2019, which is also down 300 MW when compared with August last year. The additional wind resources on the grid have added a level of sensitivity to short-term prices that are getting more and more difficult to forecast, as small shifts cause greater reactions in price.

Exhibit 4 Average Systemwide Wind Generation by Month (MW)

Source: ERCOT

Wind Conditions the Week of Aug. 5

Changes in wind generation likely contributed to the spike in prices seen Aug. 7, when the day-ahead price of power for hour-ending 16 settled above \$1,000/MW, and the Hub average ATC price of power settled at \$144/MW. The first wind generation forecast for the 7th by ERCOT showed less wind generation in the morning, but actual generation on Aug. 7 showed more wind on the day (Exhibit 4). This shift in the wind likely led to the wider day-ahead/real-time spread, which ended with real-time prices \$120/MW below the day-ahead settle.

Exhibit 5 Hourly Wind Generation - Aug. 7 (MW)

Source: ERCOT

Another example last week of wind generation impact with prices came Aug. 9 when peak load hit 73,090 MW. The day-ahead ATC hub price settled at \$59/MW. Real-time prices on Aug. 9 averaged \$89/MW, where hours ending 9 through 11 averaged \$547/MW. Prices at Houston hub specifically, averaged over \$800/MW in the real-time over those three hours. The spike in prices, coincides fairly well with the changes in wind generation seen between hours ending 8 to 11 (Exhibit 6). Between hour 8 and hour 11 wind generation fell about 3,000 MW, which coincided with real-time prices moving from a \$34/MW average in hour-ending 8 to an average price of \$730/MW in hour-ending 11.

Exhibit 6 Cumulative Hourly Change in Wind Generation - Aug. 9 (MW)



Source: ERCOT

Conclusion

If the market activity last week did anything, it highlighted how much ERCOT has changed since last year. Large price moves in the system are influenced to a greater degree by changes in the wind stack, and the trend will continue as ERCOT plans to add more wind and solar to the grid than any other fuel in the coming years. As wind and solar generation grows, prices will inevitably be impacted by difficult-to-forecast changes in the variable stack, creating additional short-term price volatility. However, the addition of wind resources has structurally depressed prices in aggregate and will continue to do so as renewables take up a larger portion of the low-cost stack. While last week injected a lot of excitement for market participants waiting to see some significant price moves, the activity also showed that such events are likely to be more muted and less frequent as the ERCOT grid continues to evolve.

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