

Excitement in ERCOT

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Data Sources Used in This Publication
ERCOT
NOAA
EOX Live

To discover more about the data sources used, [click here](#).

Wild Summer Ride

The Electric Reliability Council of Texas earlier this spring released its preliminary summer seasonal assessment of resource adequacy and is projecting a peak summer load of 72,756 megawatts. This easily beats the record back in August 2016, when ERCOT hit an all-time high 71,110 MW peak. This summer's projection, coupled with the retirement earlier this year of three Luminant coal plants, has been garnering the excitement of the equity and commodity trading worlds alike in anticipation of spiking power prices. ERCOT appears to be acknowledging that the tight capacity margins will require the independent system operator to resort to emergency response services to maintain operating reserve levels. While ERCOT says that it has adequate resources to meet demand, the chances of considerably elevated prices this summer are good, with a shot at extreme price prints, setting up to make some big winners and losers this summer.

Current Price Action

The forward curve shows summer prices over the last month are still driving upward (Exhibit 1) with a \$10 move since our last look at ERCOT (see [Summer ERCOT](#)). A monthly price tag in the triple digits is unusual, as even during the August 2016 heat wave, monthly prices didn't come close to that level. With ERCOT's price ceiling set at a very high \$9,000 per megawatt-hour, the desire for protection from such an upside spike is raising the price premium for those looking to hedge their bets.

Exhibit 1 Summer Price Curve

As Of:	Houston Hub				North Hub			
	June	July	August	Summer	June	July	August	Summer
5/7/2018	\$50.25	\$106.93	\$203.50	\$120.23	\$ 48.98	\$ 106.98	\$202.50	\$119.49
3/21/2018	\$45.60	\$102.81	\$181.71	\$110.04	\$ 44.36	\$ 103.12	\$181.24	\$109.57

Source: EOX Live

Demand Outlook

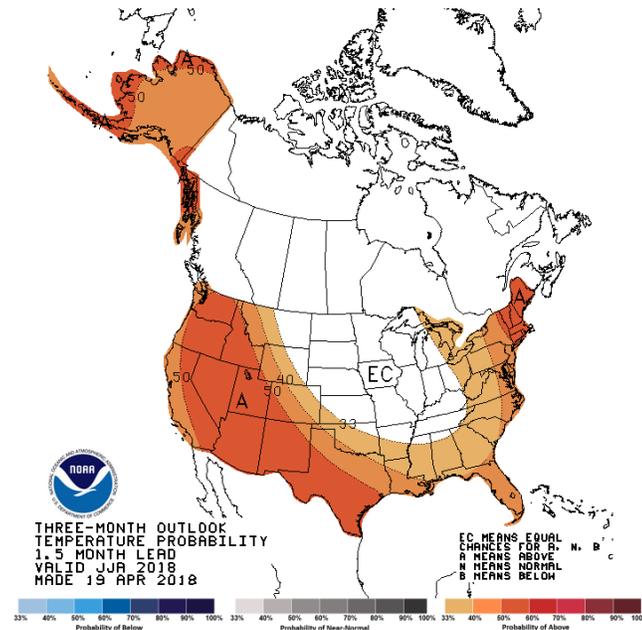
Demand this spring remained normal at under 40 gigawatts. However, in May ERCOT started its summer climb, breaking through the 40 GW barrier and will now start climbing on its way to expected levels of over 70 GW during the summer peak. Many are anticipating a high-demand summer with record-breaking potential not seen since Aug. 8-12, 2016. Prices in ERCOT responded during that week well into triple-digit territory in the day-ahead market. With the underlying generation stack shifted this summer, we could see another record-breaking week with some heart-racing prices. The weather

outlook so far is favoring high prices throughout the ISO. The National Oceanic and Atmospheric Administration's three-month outlook in Exhibit 2 shows a strong likelihood of higher-than-average temperatures for the summer. NOAA's monthly cooling degree day outlook shows a departure above the norm of 31, 25, and 16 for June, July, and August, respectively. The early months this summer are currently seeing a higher deviation from normal levels, but the real emphasis from a price perspective, and trading around \$200/MWh, is currently all about August.

It Is All About the Dew Point

While a 16 cooling degree day departure over the whole month does not seem extreme, the real heat will likely not be found in the monthly aggregate but rather in at least one singularly strong stagnant heat wave during the month. In addition to elevated temperatures, dew points play an important role in the South. Dew point should not be confused with humidity, which measures air saturation with water vapor. When relative humidity gets over 100%, it creates a somewhat refreshing fog as water particles come together in the air. Dew point in terms of energy trading is the more accurate misery index that measures the temperature at which dew forms—as it does around a glass of lemonade left in the sun. A dew point measure under 50 degrees Fahrenheit is probably comfortable, but once over 60 degrees it becomes uncomfortable. With a dew point at 70 degrees and above, most people are downright miserable and cranking the air conditioning. For comparison, the August 2016 records saw temperatures in the high 90s to low 100s, with dew points around the mid-70s during the afternoons. Weather conditions like these this summer will trigger the highest load and price spikes.

Exhibit 2 NOAA June-July Temperature Probability Outlook



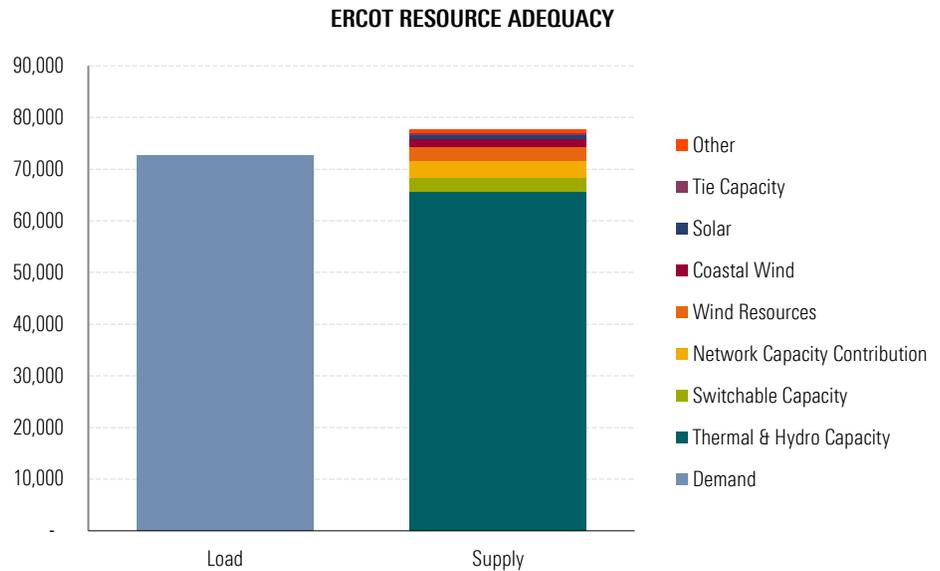
Source: NOAA

Wind in the Stack

In a previous note (again see [Summer ERCOT](#)) we already reviewed the effects of ERCOT's reduced coal generation capacity this summer. These retirements, coupled with ERCOT's forecast that only 77,658 MW capacity will be available, leaves a mere 4,902 MW reserve margin. That slender margin has been a driver elevating prices across ERCOT for this summer. However, just looking at the capacity on paper is missing potential challenges from a lack of wind generation during periods of sustained heat. It is that challenge that justifies \$200/MWh prices.

A key to understanding ERCOT's capacity calculations for managing load this summer comes from the level of traditional thermal and hydro generation in the fleet, which sits at 65,694 MW installed capacity. This generation has no capacity factor attributed to it. The number sits well under the predicted peak load, as can be seen in the comparison in Exhibit 3. Adding in switchable and mothball capacity brings installed capacity closer to 72,669 MW, which is right in line with the peak load forecast. That leaves variable renewable capacity, which will determine whether this summer turns out to be a price blowout or a big bust. That variable generation comes almost entirely from wind, and since it is not reliable capacity, its utility depends on when the wind blows and how hard. ERCOT therefore applies a capacity factor to wind generation in its resource adequacy calculations.

In the current ERCOT resource adequacy assessment, noncoastal wind capacity sits at 18,265 MW, when applying a 14% capacity factor. Coastal wind capacity sits at 2,619 MW when using a 59% capacity factor. If these percentage capacity factors turn out to be accurate or even low, the level of wind forecast will suppress prices outside of the daily peaks and drag prices down by reducing the need for more expensive generation or emergency procedures. Even if record heat and dew point drives demand, ERCOT could sail smoothly through the summer leaving considerable downside at current forward prices if the wind is blowing, especially in the northwest of the state. On the other hand, strong summer heat plus dead wind should lead to a price blowout that may not put a \$9,000 print out of the question, with the operating reserve demand curve price adder making today's \$200 price tag a bargain.

Exhibit 3 Summer ERCOT Resource Adequacy

Source: ERCOT

ERCOT's Laissez Faire Capacity Process

ERCOT rate payers have saved millions over the years by not having to pay up-front capacity costs to garner additional generation to lengthen the supply curve and ensure adequate capacity levels. While the savings have been a boon so far, this summer will be another test of the current market structure. Utilities may have to absorb some high pricing pain, which will ultimately get passed on to customers if this summer's forward curves hold. Worse yet could be the impact of unforeseen outages that put the ISO's supply further under water relative to demand.

Conclusion

This summer is already pricing a premium not previously seen in ERCOT. Surprisingly, July is still around a \$100 discount to August, but still has plenty of heating potential for a summer spike. Even so, the day-ahead price has not settled in August in the triple digits since 2011 at \$153. This summer seems wild after years of milder temperatures. As renewable generation becomes increasingly important, the wind scenario now complicates matters further. A low-wind scenario needs to play out with high heating demand, or we may see the ISO take the summer demand in stride. Sustained hot weather with low wind is likely to drive prices to extreme levels. If temps stay only slightly elevated to normal and the dew point does not give Texans too much pain, then we will likely see all three summer months print below \$100. ■■■

Natural Gas Important Points

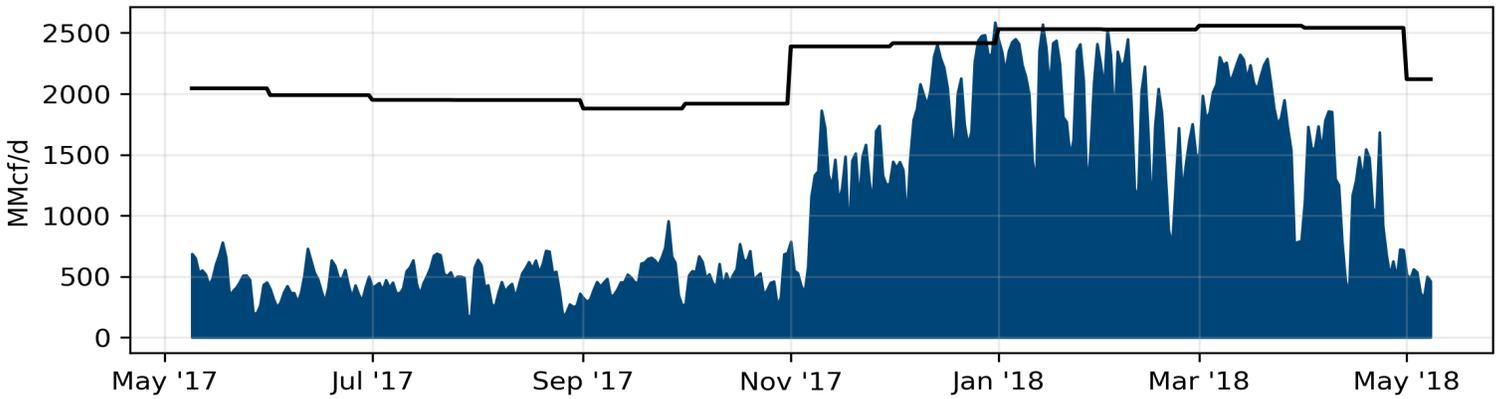
Algonquin: Stony point Compressor



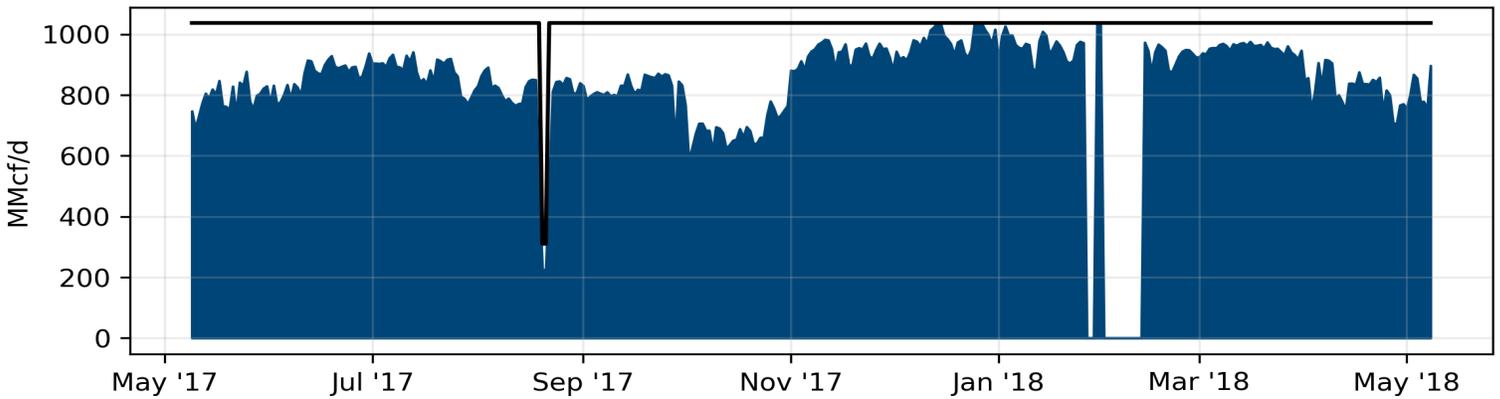
Transcontinental: Leidy Line Station 505



Texas Eastern: Lambertville Compressor



Millennium: Wagner West Compressor

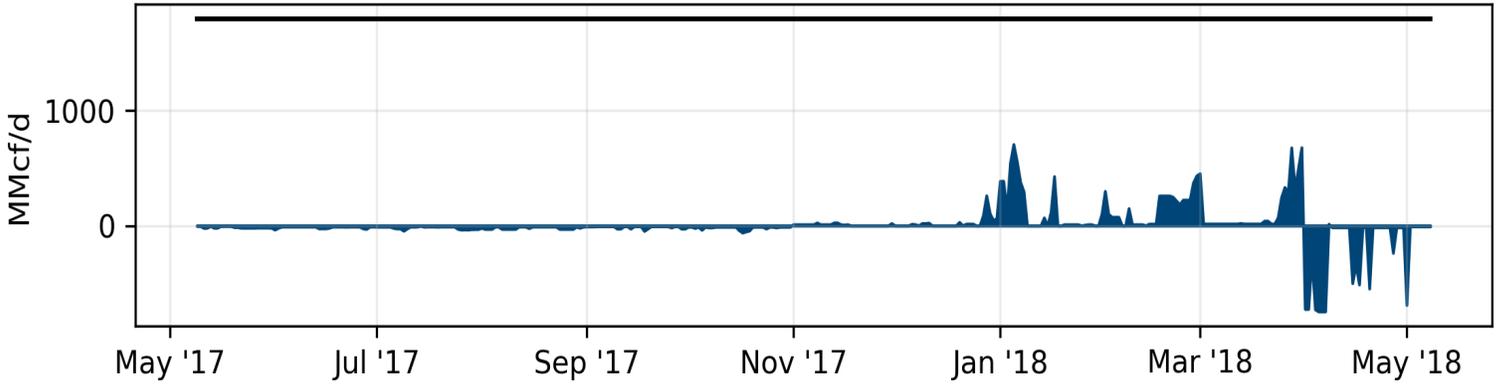


■ Volume — Capacity

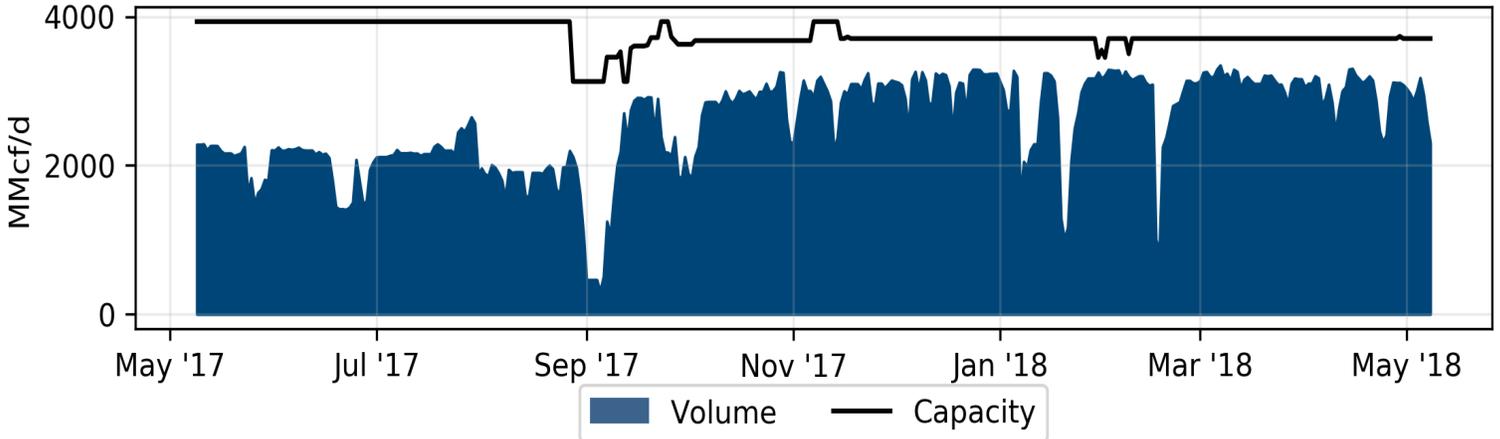
Columbia Gas Trans: Braxton-Stonewall



LNG: Cove Point



LNG: Sabine



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