
Greener in Texas

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Data Sources Used in This Publication

Electric Reliability Council of Texas
Energy Information Administration
Intercontinental Exchange

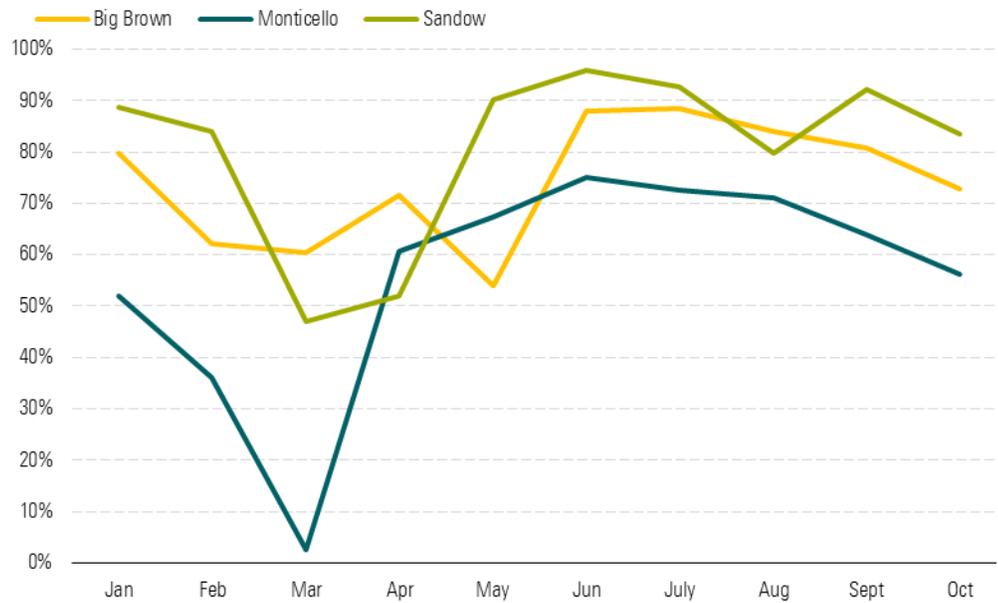
Ditching Coal

Late in 2017, ERCOT approved Luminant's plan to close an additional 2,300 megawatts of coal-fired generation, bringing the company's total planned retirements to 4,167 MW. The plants slated for retirement are Monticello, Big Brown, and Sandow, which leaves Luminant with two operating coal plants, Martin Lake and Oak Grove. The three announced plants are scheduled to be taken off line in the early part of 2018, leaving a projected ERCOT summer 2018 reserve margin of 9.3%, with reserve margins increasing to 11.7% by the summer of 2019 on new generation. The growth in wind generation and coal retirements will continue to change the generation mix for the region, but natural gas' dominance will remain for the time being.

Coal Retirements

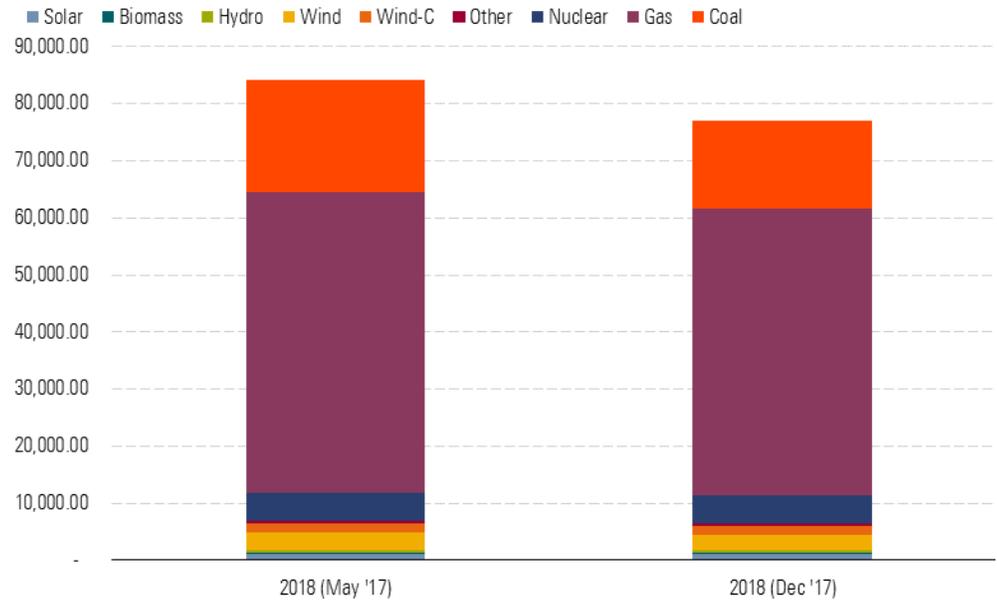
The three coal-fired plants retiring in 2018 are expected to be off line before the coming summer demand season. Monticello, a three-unit plant in Titus County with 1,865 MW capacity, retires this month. Sandow, a two-unit plant with 1,200 MW capacity in Milam County, will also be retired this month, resulting in the closure of its supporting Three Oaks mine. Big Brown, a two-unit coal-fired plant with 1,208 MW capacity in Freestone County, has a planned off-line date of Feb. 11. The Turlington mine, which supplies coal to Big Brown and Monticello, had announced a wind-down of mining operations by December 2017. According to Luminant, the long-term economic viability of these plants proved difficult in the face of low natural gas prices, substantial growth in renewable generation, and low wholesale power prices.

These retirements should have a significant impact, as all three plants were running this past year. According to the EIA, which has reported net generation data through October 2017, these three plants operated at above 50% for most of 2017 (Exhibit 1) and are considered base load plants. Their exit from ERCOT requires the region's base load generation mix to be reshuffled so that existing base load gas units generate more, and/or additional natural gas plants fill the void.

Exhibit 1 Capacity Factor of Three Retiring Coal Plants (2017)

Source: EIA

ERCOT's December 2017 capacity, demand, and reserves report shows a significant change versus May 2017 (Exhibit 2). December's projected summer 2018 capacity by fuel type (the highest ERCOT demand period) shows a reduction in both coal and natural gas over earlier projections in May 2017. Coal capacity was reduced by 4,258 MW, driven by Luminant's retirements, and natural gas was reduced by 2,257 MW. The retirement or unavailability of Greens Bayou Unit 5, S.R. Bertron, and Pearsall STG account for the reductions in gas capacity. The most recent December CDR report forecasts reserve margins hitting 11% in 2019 and 2020, falling back to 9% in 2022 on flat resource growth and growing firm load demand.

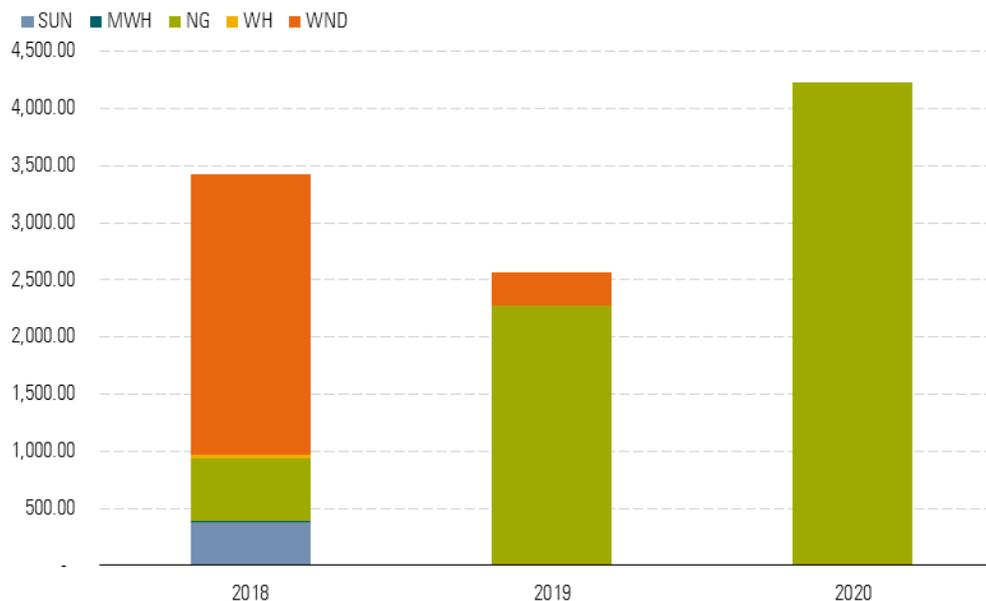
Exhibit 2 Projected Summer Capacity 2018 by Fuel Type (MW)

Source: ERCOT

Besides reducing reserve margins to historically low levels, these retirements will cause adjustments to prices, driven by changes in the generation stack. Conventional wisdom says pulling these coal plants out of the stack leads to higher prices, as more expensive units clear the marginal megawatt. The three retiring plants combined generated on average 2.2 million megawatt-hours a month in 2017, meaning other fuels, most likely natural gas, will make up the difference. However, growth in renewable power and new efficient natural gas generators may damp long-term price hikes. Higher prices this season may be more of a temporary phenomenon than a sign of a permanent shift.

New Generation

New plants are lagging the pace of retirements, especially going into this summer. The current slate of projects falls short of the 7,000 MW that ERCOT will lose early this year, and it looks as if the region won't make the losses up until the end of 2019. According to EIA, and filtering for likelihood of completion, we should see 3,400 MW of new generation, of which 2,400 MW will come from wind (Exhibit 3). We see 2,500 MW in 2019 and 4,200 MW in 2020. In the deferred years of 2019 and 2020, natural gas will make up most of the new generation. In theory, the cost to generate from these assets should fall below the cost of coal, which means summer demand should strike at a lower cost point in the supply stack. The timing between early 2018 retirements and the introduction of new natural gas plants in 2019 and 2020, however, will create the opportunity to capture price spreads this summer.

Exhibit 3 New Plant Capacity in ERCOT by Fuel Type (MW)

Source: ERCOT

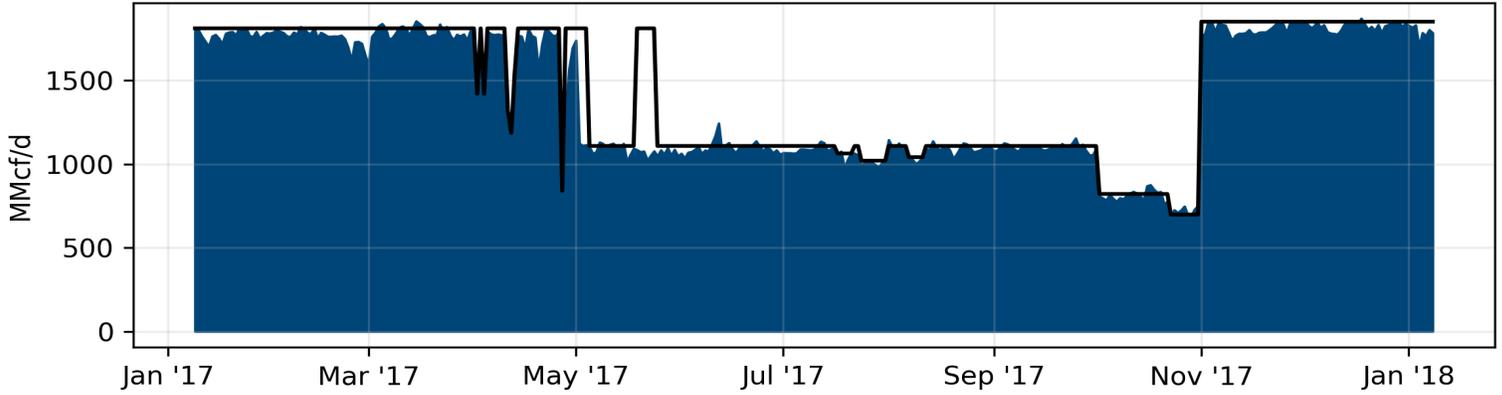
Since the retirements will occur in the first quarter of 2018, the market may be in for a wild summer season. Removing 4,000 MW of base load coal generation will affect prices, especially on days with low wind generation. ERCOT North Hub has seen prices settle above \$1,000/MWh in real time on hot days with low wind generation, and significant changes to the base load portion of the stack could create similar price spikes as the market adjusts and scrambles to meet load. This scenario could create opportunities to capture value as price volatility increases in the summer months. The August 2018 ERCOT North Hub on peak contract is already pricing over \$90 MWh, above the level seen in the hot summer of 2015. We expect similar price sensitivity this season even if the load trends toward historical averages. If the region sees a hotter-than-normal summer, expect to see greater differences between day-ahead and real-time prices. This scenario is more likely to play out this year and dissipate in 2019 and 2020 as new gas generation comes on line, providing the certainty needed to keep prices stable.

Conclusion

ERCOT has transformed over the past several years, and even though Texas has always been a haven for natural gas, the makeup of the RTO's generation portfolio has changed in significant ways. ERCOT has around 20,000 MW of installed coal capacity; after the latest round of retirements, it will be left with a little under 16,000 MW. Compare that number with wind generation, which has around 19,000 MW of installed capacity today. By the end of 2018, ERCOT will have a little over 22,000 MW on line, making wind second to natural gas in installed capacity. The replacement of firm coal generation with variable-generating wind means the region is ripe for greater price volatility and will require increased firm natural gas generation capacity moving forward. In the meantime, ERCOT has the makings of an exciting market as participants adjust to the region's changing generating fleet economics. ■■

Natural Gas Important Points

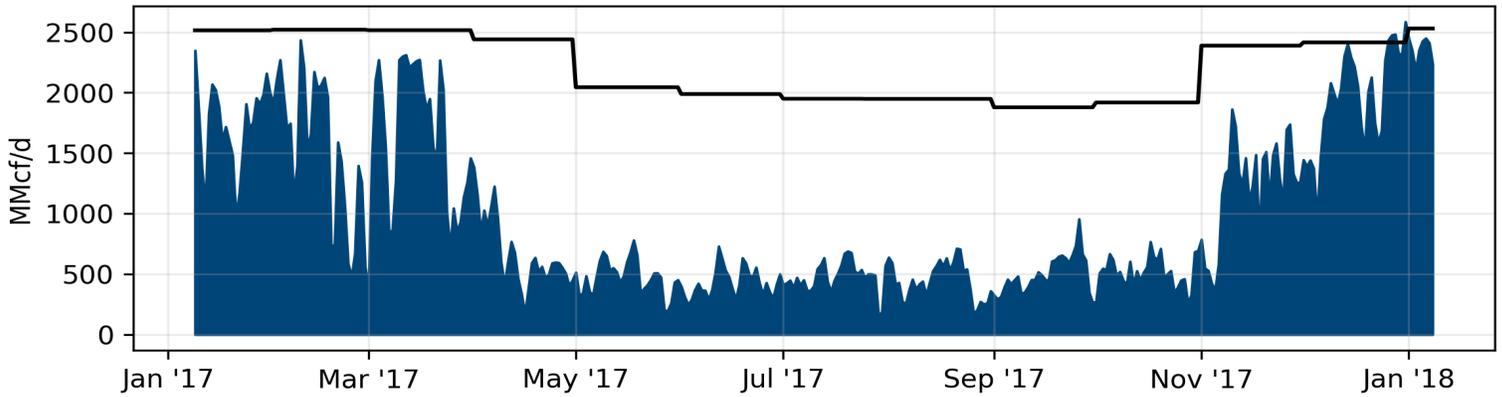
Algonquin: Stony point Compressor



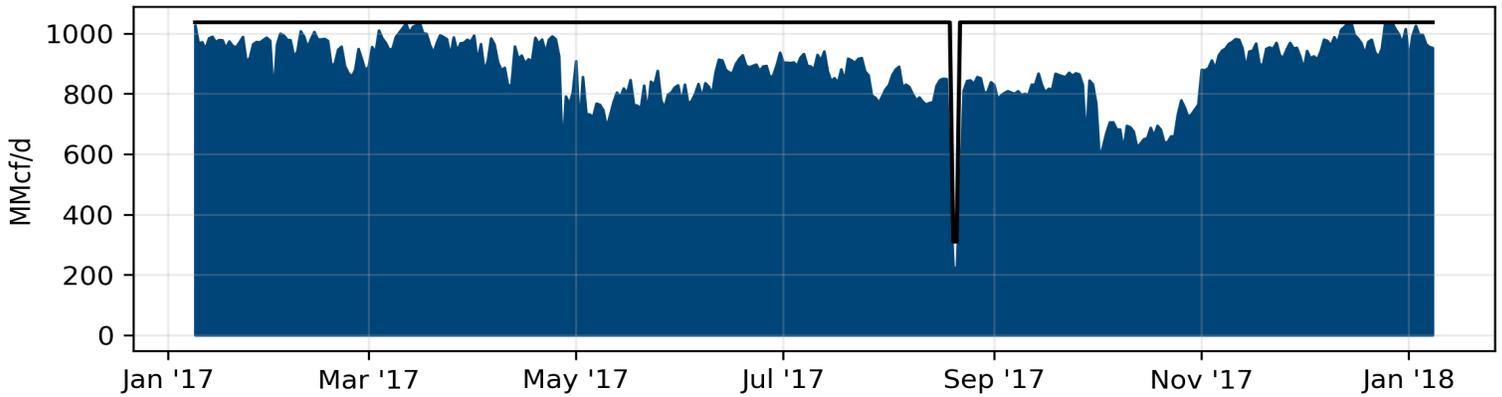
Transcontinental: Leidy Line Station 505



Texas Eastern: Lambertville Compressor

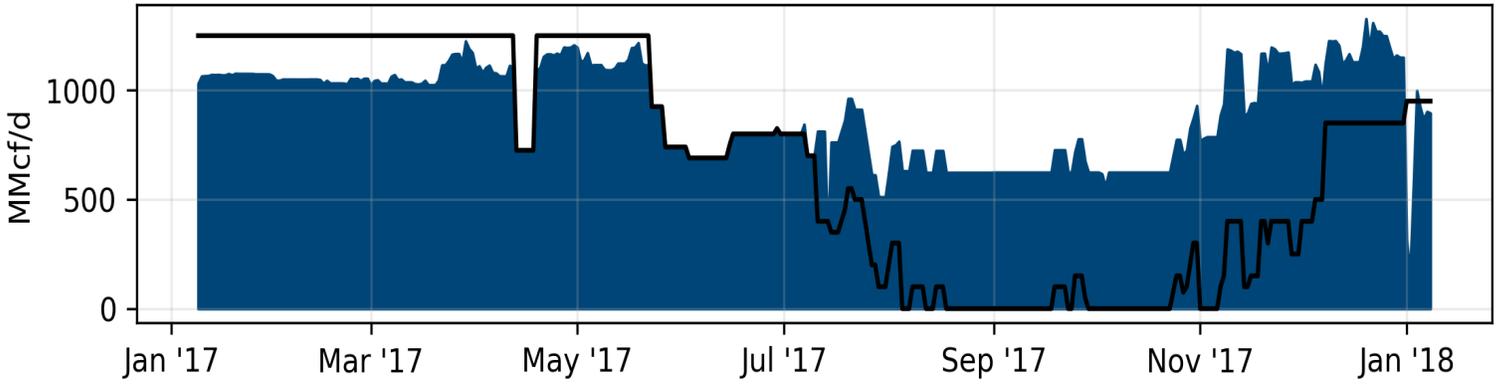


Millennium: Wagner West Compressor

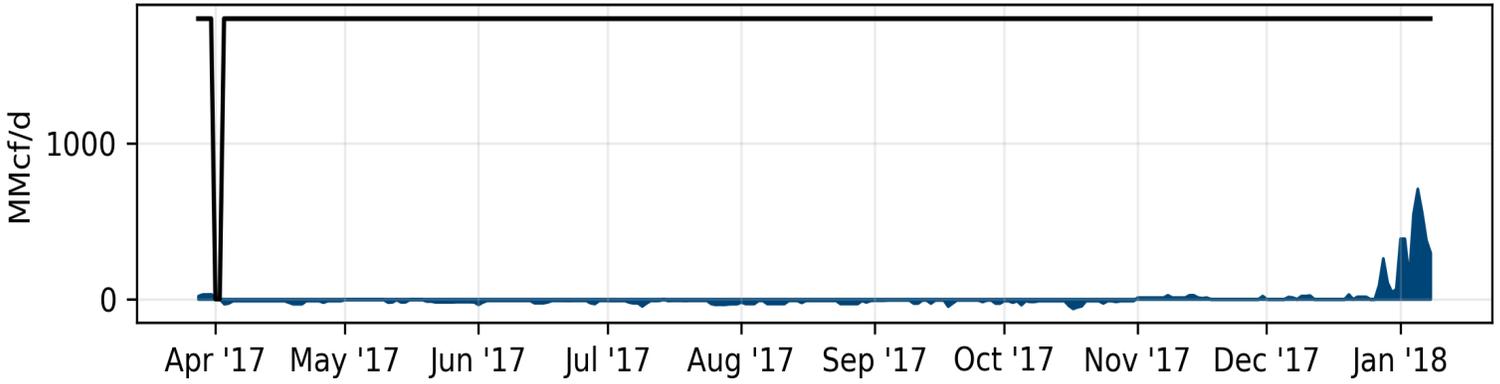


■ Volume — Capacity

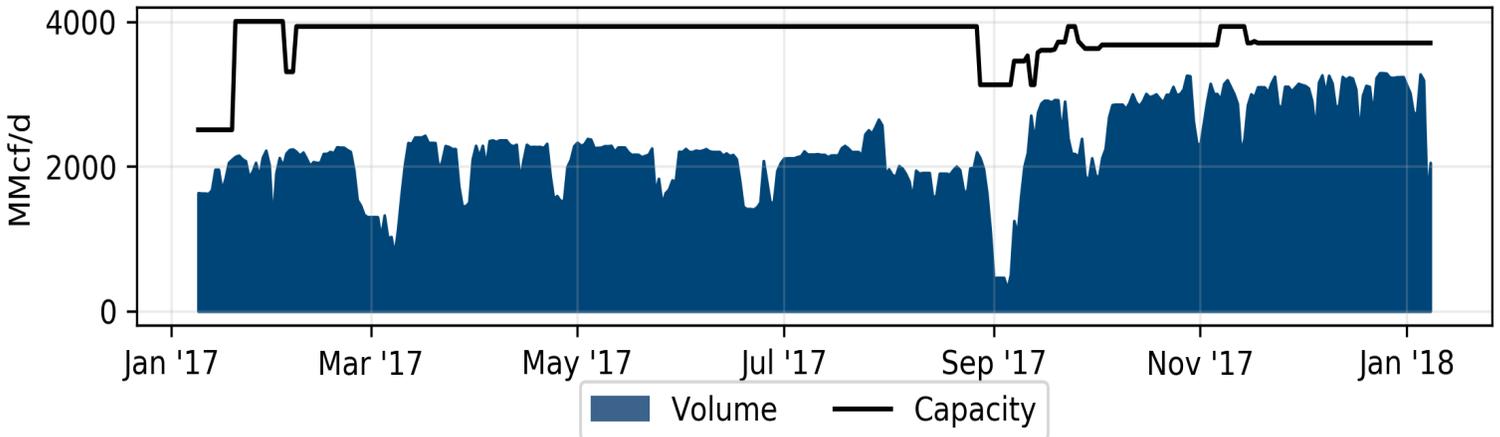
Columbia Gas Trans: Braxton-Stonewall



LNG: Cove Point



LNG: Sabine



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