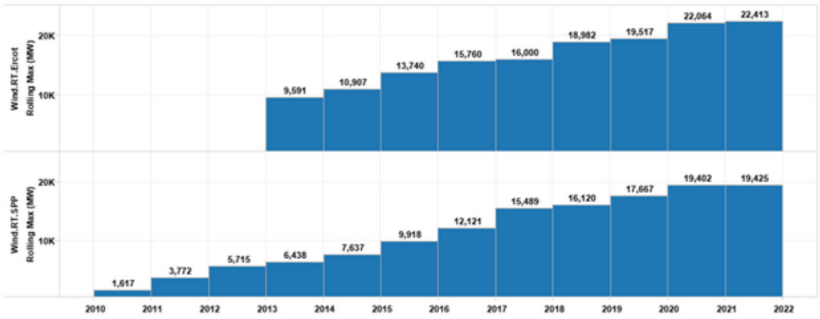
Lone Turbine/Star - Everything is Bigger In Texas

Thursday, February 4, 2021

The Lone Star State gets a lot of attention as it's slogan is such that '***everything is bigger in Texas***'. Little did the state's founders realize that it would pertain to the renewable energy sector known as wind generation. Over the years, the Texas electricity grid (ERCOT) has been adjusting to developers racing to get their turbines up and running to capture the federal production tax credits. The widespread attraction started out in the west, then transitioned to the middle of the state before heading north. The latest move saw the southern zone see a massive influx of wind capacity due to the offshore winds providing a better hourly profile compared to inland facilities (farms). At the end of the day, ERCOT has moved into the top slot of wind capacity that sits within a specific independent system operator (ISO).

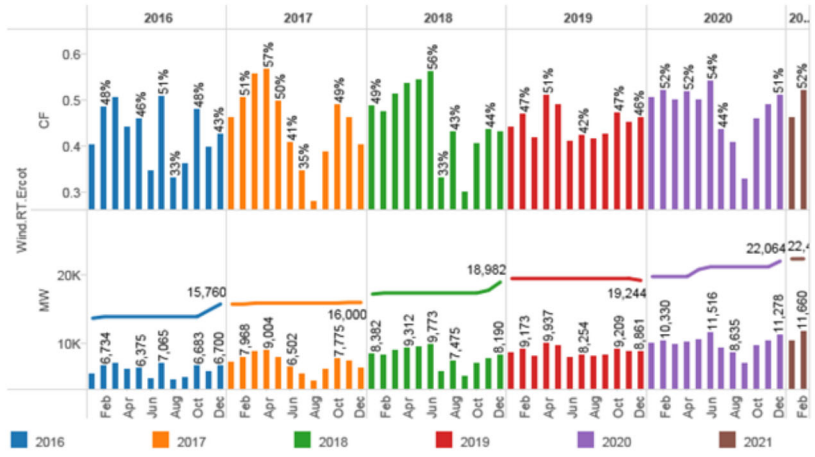
Figure 1 | ERCOT and SPP Annual Wind Cumulative Max Generation



The figure above breaks down the progression of wind generation in both ERCOT and SPP with the former represented in the top pane while the latter is tied to the bottom pane. The x-asis represents the calendar year periods from 2010 through 2021 while the y-axis is the Rolling MW wind output at the end of each year. The 2021 period is represented by the month of January and first three days of February to get its number. As you can see, the first 34 days of the 2021 calendar year has added just under 400 MW in ERCOT and SPP is basically flat. The more important numbers to look at here are the deltas from the end of 2019 and what we see in the 2021 block. Sticking with ERCOT, we see there has been an increase of 2,896 MW by subtracting 22,413 MW minus 19,517 MW. This is roughly 1,000 MW higher than that of SPP over the same time period (2,896 MW vs. 1,758 MWW). Like we stated in the opening paragraph, '***everything is bigger in Texas***'.

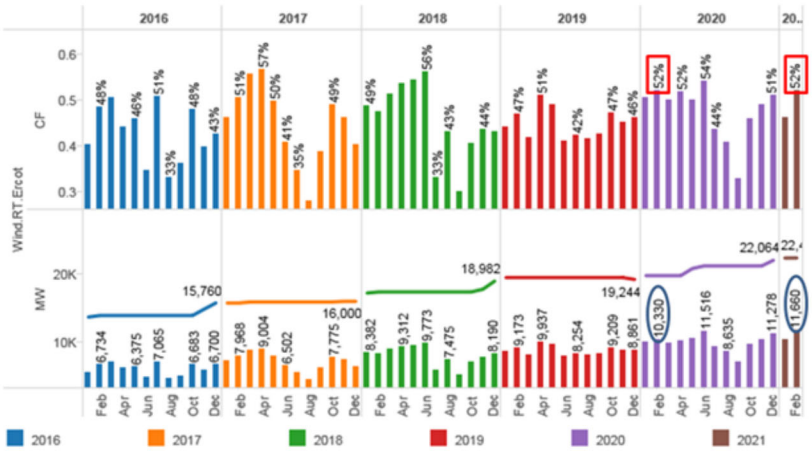
Now that we have the cumulative peak rolling megawatts (mw) in order, it is time to switch to the all mighty monthly capacity factor to see how things are shaping up with Mother Nature. The capacity factor math we will be discussing will take the monthly wind generation values and dividing it by the cumulative rolling mw value discussed above. For example, if we have a cumulative rolling mw of 19,517 (December - 2019) and a monthly average for the same month of 8,861 MW, the capacity factor calculation would be 8,861/19,517 or 46% (rounded).

Figure 2 | ERCOT Wind Generation Summary Breakdown - Monthly



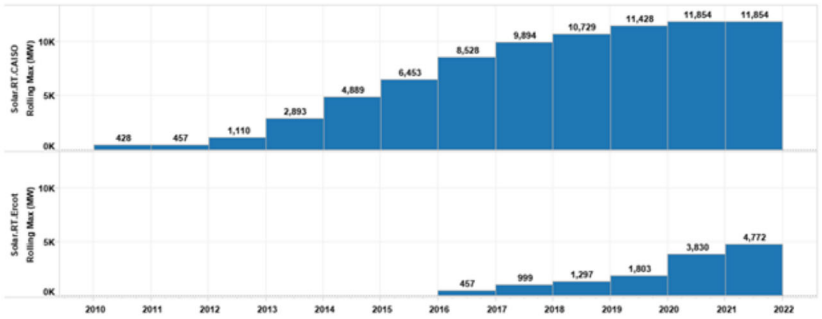
The detail in Figure 2 is tied directly to ERCOT's wind profile at a monthly level. The x-axis represents the months for each year while the y-axis is tied to both the volume in MW and a percentage as the top pane represents the capacity factor described above while the bottom pane represents the two parts that derive such (monthly average generation - bars, cumulative rolling peak mw - line). What sticks out is this, since ERCOT's wind generation cumulative rolling peak mw output has increased the grid is looking at over 1,330 MWa of more supply hitting the grid so far in February 2021 vs. that of February 2020.

Figure 3 | ERCOT Wind Generation Summary Breakdown - February 2020 vs 2021 Month to Date



We have hightlighted the two February's we are alluding to so you can see how the wind volume can change despite having the same capacity factor. This is why it is important to always be on top of the the overall generation fleet when it comes to renewable energy on the grid, especially in the regions such as ERCOT, SPP and California. As we continue to monitor the wind fleet and its hourly/daily/monthly/yearly profiles across the country, we also have our eye on the solar penetration as ERCOT is still in a primitive state compared to California but sticking to the theme of '***everything is bigger in Texas***', maybe in due time the ERCOT solar profile can makes some strides on catching up to California.

Figure 4 | ERCOT and CAISO Utility-Scaled Solar Cumulative Peak Output - Yearly



If you would like to track how the renewable elements are playing out in 2021, the EnergyGPS Newsletter Platinum package is for you as we dive into the detail in our monthly report as well as in intra-month articles and special reports. If you would more consistent coverage within a specific market, please email us at sales@energygps.com for more information about our North America Power and Natural Gas Market Fundamentals product offering.

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