Wind Power Forecasting

We see that Active Power follow a very seasonal pattern. As we see the same general shape in 2018 as 2019. This is as expected.
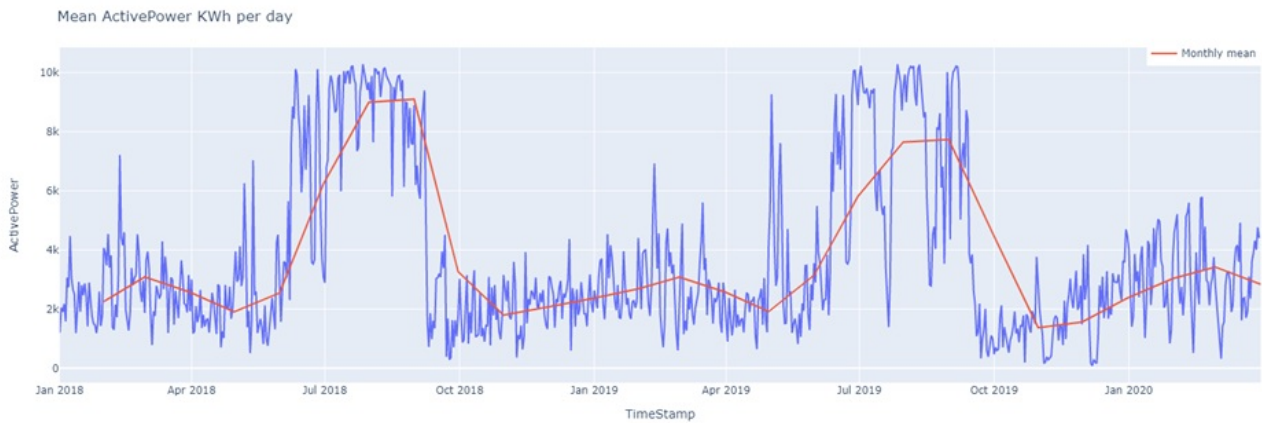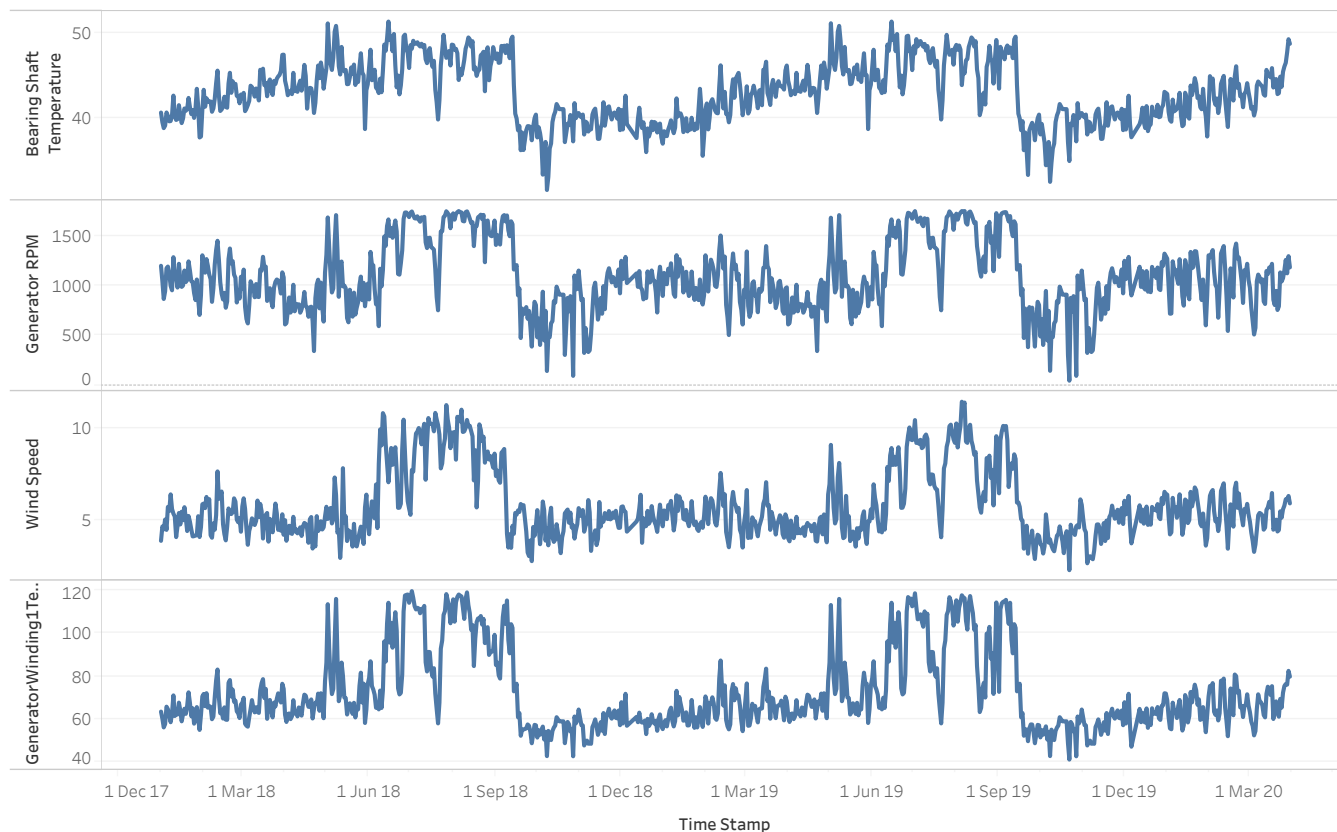

Mean ActivePower KWh per day

Wind Power Forecasting

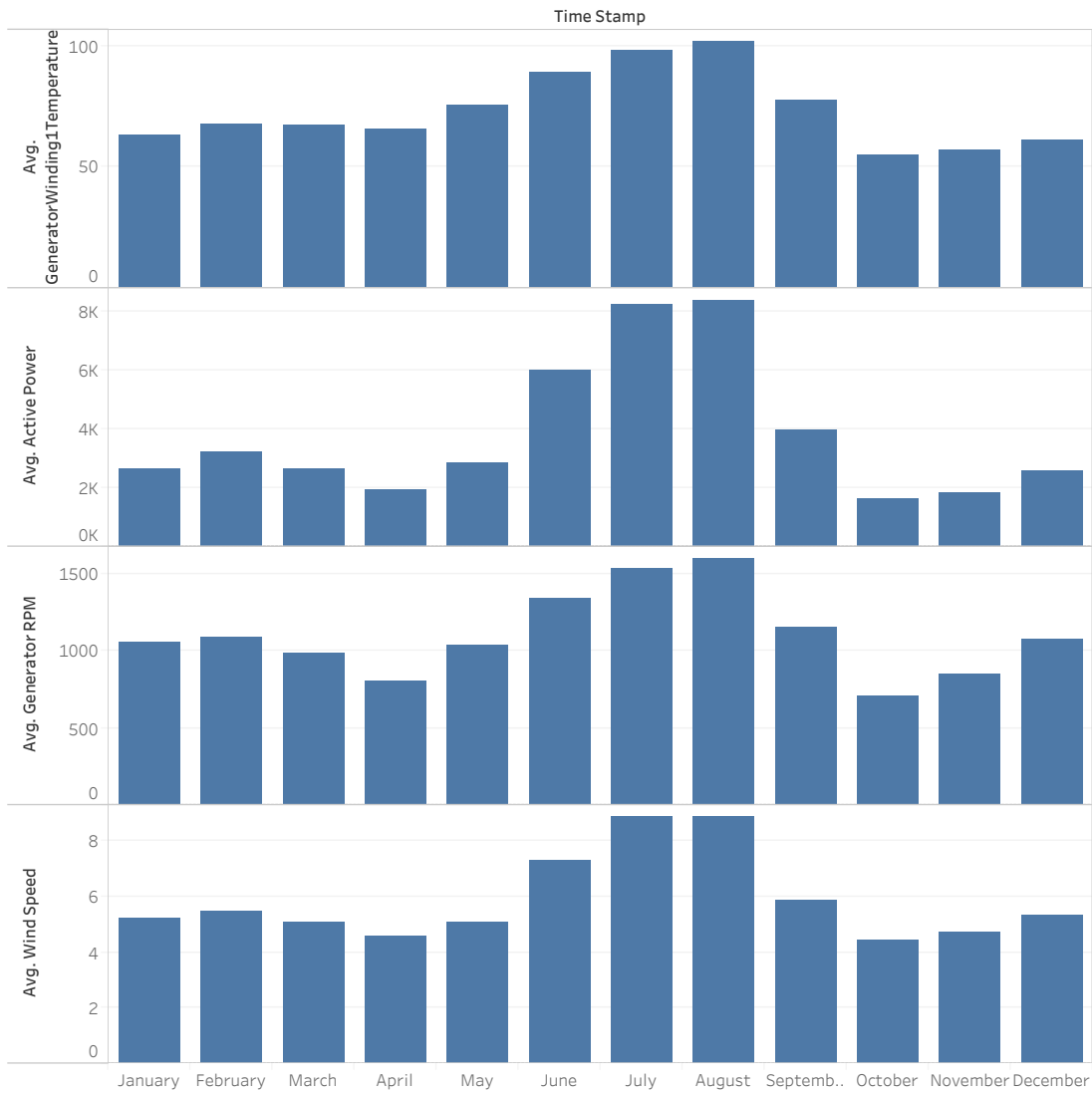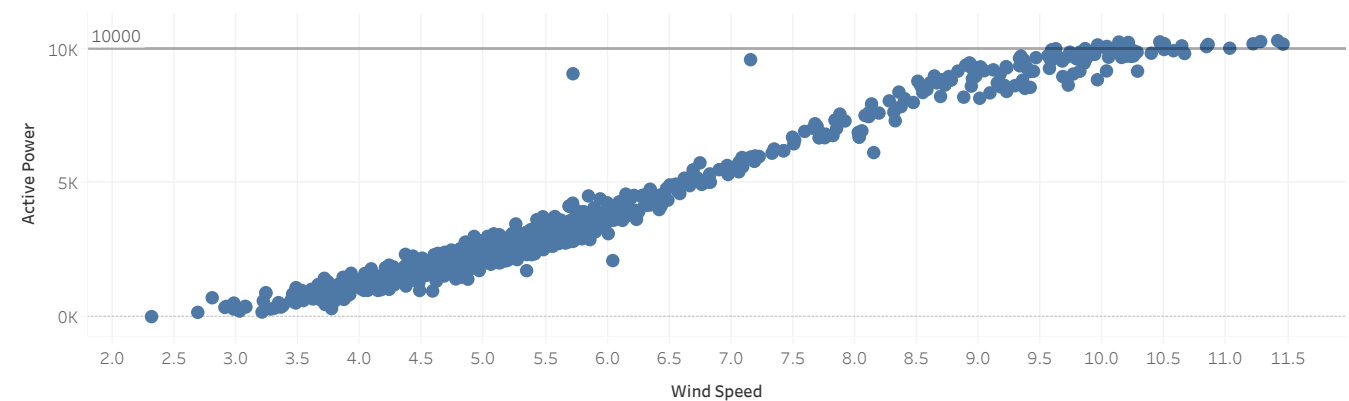| Active Power meets expectation	Patterns in features	Further investigation	A power cap?	A Hypothesis	Rethinking

Features Daily Average Time Series

We see the same patter in in the time series of the features which correlate to Active Power. In some cases, such as wind speed and generator RPM. This is all as expected.

Wind Power Forecasting

Wind Power Forecasting

A plateau in power produced against rising wind speed. Could this mean there is a point where increasing wind had no affect on active power?

Power v wind (daily)

Wind Power Forecasting

1. Wind speed greater than 10m/s has no effect on active power produced
   1. H_0: The mean active power produced between 9.5-10m/s is the same as that produces by wind speeds greater than 10m/s
   2. H_a: The mean power produced by wind speeds greater than 10m/s than of that produced by wind speeds between 9.5-10m/s

Wind Power Forecasting

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Mean active power for 9.5-10 m/s wind speeds: 9580.80
Mean active power for >10 m/s wind speeds: 9976.89
P-val of 5.88e-05 < 0.05 therefore we reject the null hypothesis.
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The result of the t-test tells another story! That there is a difference in the means of these two groups and my initial assumption based on the scatter plot was wrong.

Power v Wind Detail