

Chart of the Week

Issue 21

13 February 2020



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From sunrise to sunset: the outlook for merchant solar

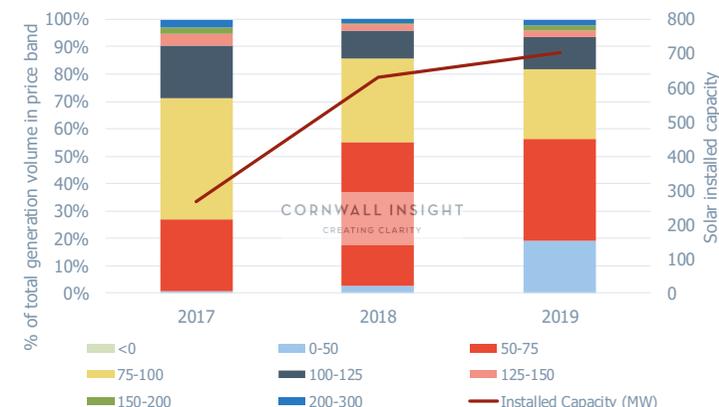
Utility-scale solar is certainly making an impression on the NEM with the recently released [Quarterly Energy Dynamics](#) from the Australian Energy Market Operator (AEMO) reporting that Q4 2019 saw the highest grid-solar output on record. In addition, Shell announced its first foray into the world of utility-scale solar with its plan to build a 120 MW solar farm in Queensland.

Typically, these projects come with some hedge against spot price risk in the form of a Power Purchase Agreement (PPA) or some other contracting arrangement with a counterparty (typically an offtaker). However, there has recently been a rise in interests around fully-merchant solar projects despite the probable effect of price cannibalisation especially in solar-rich states such as Queensland and NSW. In this chart of the week, we analyse price bands by delivered volume from a typical (existing) solar farm in NSW. This analysis sheds light and provides commentary on how captured prices - and in turn merchant price exposures - for solar are evolving over time as more grid-scale solar connects in the state.

In 2017, 99% of solar volumes were delivered at over \$50/MWh with 73% of these volumes capturing prices north of \$75/MWh (see Figure 1). By contrast, 2019 saw just 43% of volumes delivered above \$50/MWh with 19% of volumes below \$50/MWh compared to just 1% in 2017. Last year also saw the first solar volumes (0.1% of total volumes) delivered during negative pricing. On the other end of the price scale, in 2017, about 10% of solar volumes were delivered above \$125/MWh compared to 5% and 6% for 2018 and 2019 respectively. Between 2017 and 2019, installed capacity for solar in the state has increased almost 3-fold (Figure 1).

This puts into perspective the ongoing evolution of day-time prices in the NEM as more solar projects connect to sun-rich regions of the market. This trend has also been observed in Queensland with the state seeing much higher volumes (~3%) in negative price bands. Like NSW, Queensland is also seeing lower volumes in high value price bands with solar installed capacity doubling between 2018 and 2019 alone.

Figure 1: Solar generation captured prices by price bands (NSW), 2017-2019



The value, however, is not eroding from the market as it is partly shifting from the middle of the day to the later peaks at sunset (peakier evening prices). These trends are perhaps sending early signals for energy shifting and intraday sized co-located storage projects. Front of mind is AGL's very recent signing of a 15-year agreement with Vena Energy for Australia's biggest subsidy-free battery (100MW/150MWh) to be located in Queensland. Co-located projects, of course, come at much higher costs with key questions yet to be answered on how long these “peak” events will last both within the day and over the life of a potential project.

As pockets of opportunities in the market continue to shift through the transition, successful investors in the emerging NEM will need to have the right level of risk appetite and access to accurate data-driven analysis.

From a market outlook and forecasting perspective, these trends render price projections lacking granularity and intraday visibility almost obsolete to financing interests in co-located projects. For more on Cornwall Insight Australia's views on long-term price trends, feel free to reach us at enquiries@cornwall-insight.com.au and ask about our *Benchmark Power Curve*.