

## Chart of the Week

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“For South Australia, negative prices occurred in 7% of trading intervals. Most negative intervals are occurring in the middle of the day when solar output is at its highest. During the hours of 10:00-16:00 in SA, 14% of trading intervals were negative. Negative prices are also occurring during lower demand periods (in the early morning hours as wind capacity also continues to rise. This is a significant increase when compared to the previous financial year.”

## Race to the bottom: Negative prices on the rise and spreading

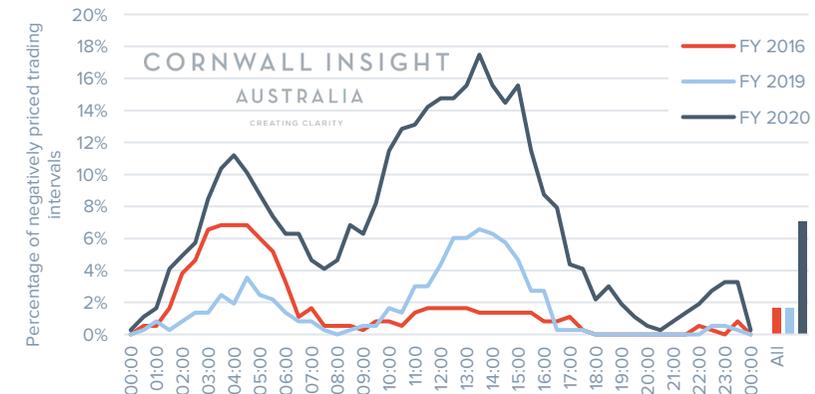
Negative prices are becoming a more frequent occurrence in the NEM as variable renewable energy (VRE) plays a larger role in the supply mix. Negative priced offers from generators form a large part of the MW capacity offered into the market. The negative prices we see in dispatch intervals reflects the situation where there is sufficient negatively priced capacity to meet demand. In this week's Issue, we look into the trends of negative prices and the challenges that come with operating in this type of environment.

Firstly, to be clear, there is nothing wrong with negative prices. The ability to offer negative prices was originally designed to provide financial incentives for participants to self-manage their commitment decisions. Individual generators would need to determine their willingness to continue operating or shut down in the face of negative market prices. That decision rests on a few factors including the expected duration of negatively priced periods as well as the respective participant's market exposure and risk profile.

For vertically integrated participants for example, exposure to negative prices is not necessarily a major disturbance assuming that their expected portfolio consumption can be covered by their own generation. However, for wind and solar assets (particularly those with merchant exposure), negative prices can impact their operational decisions particularly if their contracts with retailers leave them financially exposed if negative prices eventuate.

Overall, in FY20 negative trading intervals occurred in 3% of NEM-wide trading intervals; but for South Australia (SA), negative prices occurred in 7% of trading intervals. Most negative intervals are occurring in the middle of the day when solar output is at its highest. During the hours of 10:00-16:00 in SA, 14% of trading intervals were negative. Negative prices also occur during low demand periods in the early morning, when wind generation also rises. This is a significant increase when compared to the previous financial year.

Figure 1: Negative priced trading intervals in South Australia by time of day



It is important to note however, that the relative impact of negative prices on time-weighted average yearly price outcomes is minimal to date – roughly \$1-2/MWh NEM wide price reductions due to negative trading intervals, except for SA which saw declines of ~\$6-8/MWh in FY 20.

While increased instances of negative prices are most prevalent in SA, it is quickly emerging in Queensland (QLD) as more solar enters the region. Similar to SA, QLD in FY20 between 10:00-13:00 had negative prices 11% of the time – compared to practically zero a year prior. This trend will continue as penetration of both behind-the-meter and grid scale solar rush into the system and compete directly with incumbent generators. As this occurs, daytime prices are likely to trend towards the SRMC of solar which will be very close to zero and with them captured prices.

However, this is not the only concern. As more solar floods into the midday supply stack, coal will be continually displaced and forced to operate closer to their minimum stable operating limits. Eventually, the amount of solar in the middle of the day may force coal generators to weigh up their options – to ride through these periods at minimum loading, to two-shift, mothball or ultimately close their doors. That decision depends on both on peak pricing, regulation and new market design.