

More renewables; more negative prices

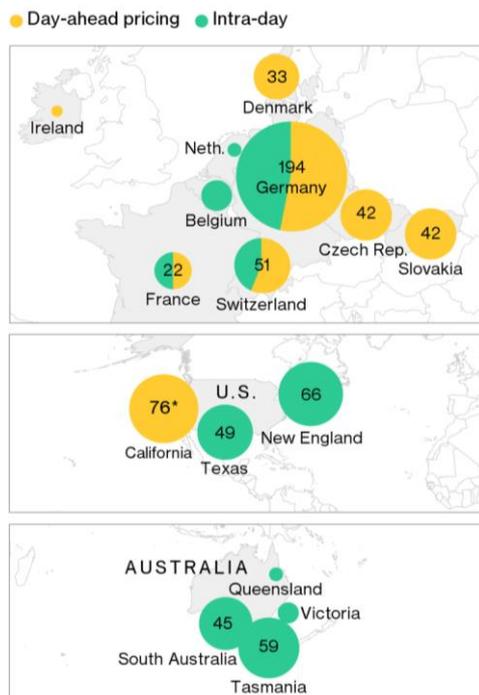
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As even more renewables are added over time, average wholesale prices can be expected to continue to drop, ultimately resulting in a virtually zero-cost energy mix dominated by renewable generation. The prevalence of negative prices is becoming more noticeable.

As noted by Bloomberg New Energy Finance (BNEF), as wind and solar output glut networks more frequently and for longer durations, conventional generators – in particular coal – continue to lose market share and become less profitable.

Looking at selected renewable-saturated markets in the US, Europe and Australia, BNEF highlights where incidents of negative prices have been on the rise, both in the day-ahead and intra-day prices (see Figure 1).

Figure 1: Number of hours with negative power prices since the beginning of 2018



*California hours Jan. 1 to July 16, 2018
 Source: Epex Spot, Nord Pool, CAISO, SEMO, OTE, National Electricity Market of Australia, and ERCOT

Bloomberg

Source: BNEF

in California, RWE in Germany and Origin Energy in Australia, according to Bloomberg. In the case of Europe, countries such as Belgium, the Czech Republic and Slovakia are simply caught in the game as the surplus of wind and solar in Germany and Denmark affects their network, suppressing prices and causing massive loop flow problems.

The falling and negative wholesale prices ought to be sending investors and operators of conventional thermal plants a clear and loud message: future markets dominated by variable renewable generation will increasingly value flexible generation, not baseload or plants that cannot respond to fluctuations in supply and demand – such as nuclear.

The growing interest in flexible generation – and conversely lack of interest in inflexible baseload – more than anything else, explains why San Francisco-based Pacific Gas & Electric Company (PG&E) decided to shut down its two perfectly safe and functioning nuclear reactors at Diablo Canyon by 2025 rather than extending their original operating license.

If the current trends continue – California had 110 hours of negative prices in its day-ahead market in 2017 – nuclear plants will become progressively less economical over time.

In the case of California, however, the amount of wind and solar curtailment has been on the rise since 2014, according to the Natural Resources Defence Council (NRDC). Examining records from the California Independent System Operator (CAISO), the NRDC says there has been a 600% increase in curtailment in May of 2018 compared to May of 2014. In the first 7 months of 2018 CAISO had to curtail over 315,000MWh of renewable generation, according to the NRDC.

The NRDC is correct to point out that, once investments have been made to install renewable capacity, it is a waste not to use as much of the generated renewable energy as possible. Zero curtailment may not be the optimal number but is a good aspirational target.

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Falling wholesale prices are already eating into revenues of major generators such as NRG Energy