

“Flexible gas generation in the energy transition”

By Gareth Goodall, New Stream Renewables

When Provisional Clearing Prices in the T4 Capacity Market auction hit £15.97/kw/year, it sent a strong signal that flexible energy generation from non-intermittent assets, such as gas peaking plants, was likely to be an increasing influential in the UK's transition to a lower carbon economy.

The T-4 pricing certainly surprised to the upside, with previous auctions clearing at £6.44/kw/year and £8.40kw/year respectively. It also provided a much-needed fillip to the flexible generation sector, which has found investment hard to come by in recent years in a market beset by uncertainty.

The latest 15-year Government backed agreements will provide an important revenue stream to new non-intermittent assets, helping provide replacement capacity as old fossil fuel and nuclear plants close down. There is now a stronger business case for investment in these assets.

In the auction, 43.7GW won agreement, of which 78% was existing generation (81% in T-3) and 12% was interconnectors (13.2% in T-3). 1.3GW of coal won an agreement - this was Ratcliffe on Soar, likely to be the last coal station in UK, indicating a significant shift away from legacy generation. More notable still was the 1.9GW of Nuclear generation that declined to take an agreement for 2023/24.

These are certainly interesting times in the energy market, with huge volatility resulting from the implosion of the alliance between the OPEC cartel, led by Saudi Arabia and Russia, and the fall-out from Coronavirus. And how will the USA react to shield its major producers and stop shale prices going through the floor?

There have been significant policy shifts and changes in market mechanisms that have created pressure in energy generation. Big generators are needing to move more quickly to cleaner technologies than they had originally envisaged, the removal of TRIAD payments sent a negative message, and the Capacity Market struggled to shake off the influence of coal. This plus two mild winters have kept prices benign.

There are signs now though, as evidenced by the T4 auction, that things could be moving towards the Reserve market, with growing awareness of the role of small-scale, fast responding gas generation in facilitating renewables. Currently, there is a lot of intermittent energy on grid, but there's also a realisation that more flexibility is needed when unpredictable wind doesn't show up.

Our view is that small scale, flexible gas generation will play an increasingly important role in supporting the structural energy transition. With the electrification of

everything from transport to home heating, demand for power is clearly going to increase and while battery storage will likely become important over the longer term, currently the technology costs for storage as a major contributor to the grid do not appear to stack up. Where there may be opportunities is in peaking plant/ battery hybrids, where battery provides a short-term boost before gas takes over, enabling operators to respond quickly to capacity demand and price spikes.

As an indicator of the flux in the UK market, it was interesting that on March 5, 2020, UK energy cash out pricing reached levels that had not been seen since 2015. System Pricing in the 6pm to 7pm window (periods 37 and 38) reached £2,242/MWh and £1,708/MWh – almost £2,000/MWh above where the Day-Ahead (DA) and Within-Day (WD) power markets had valued the settlement periods. Why did this happen?

New Stream Renewables' systems showed a “Net Imbalance Volume” of around 475 MWh short, which isn't a significant level. On the supply side, generation capacity was similar to recent days with no big changes to plant availability and demand was around the seasonal normal.

It would be too simplistic to say that the short system alone created the issue and spike in prices – in

fact the spike and high imbalance pricing was a result of the Reserve Scarcity Pricing (RSP) mechanism - the methodology used to try to correctly price-in the value of demand disconnection from the grid, combined with unexpectedly low wind generation.

The RSP is measured as the Value of Lost Load (VoLL) x Loss of Load Probability (LoLP). The VoLL is set at £6,000/MWh. If we look at LoLP in period 37, this was showing a figure of around 37%, which resulted in cash out pricing of up to £2,250/MWh. On the supply side, we had most of the large units running so there was little margin or flexibility to manage the short system. STOR units were then called on and system pricing was set relative to the RSP.

LoLP is a transparent figure and is forecast and published so this should act as a price signal, but the market did not price in the RSP event. We only saw on the day market prices of around £350/MWh, which is well below the VoLL and imbalance pricing.

RSP was only introduced in 2015, and at the time, there was lots of discussion about making imbalance pricing more sensitive, but this is the

first time we have seen this play out in terms of a price spike.

Investment in the wider renewables market is also likely to accelerate after the UK government abandoned its opposition to subsidising new onshore windfarms. This is over four years after ministers scrapped support for new projects, which effectively put an end to new project developments. Only one new onshore windfarm started under current UK policies back in 2019.

Now, the government has agreed to re-open subsidies for onshore wind projects by allowing schemes to compete for financial support alongside other renewable energy technologies.

This seems to be exciting news, but the devil may yet be in the detail.

We are assuming that this will be some sort of CfD, but there are lots of immediate questions in terms of which pot, what deployment caps will be used and how they will manage any unintended consequences in terms of negative power pricing.

This news comes at the same time that Drax has announced plans to close the UK's biggest coal plant three years early. It says it will then

close its two coal units in September 2022, which are located near Selby. A government ban on coal-fired electricity generation comes into effect in 2024.

We are witnessing the transition to a low carbon energy economy, most obviously illustrated by the UK government's decision to ban the sale of all new diesel and gasoline powered vehicles from 2035. This alone will create challenges in terms of power supply, and while it is encouraging to see the growing influence of clean intermittent technology, gas peaking plants will be important in offering a more flexible approach to maintaining base load while acting as an enabler for renewables investment.

Ends

Established in 2008, New Stream are a specialist commercial, operational and technical asset manager for "peaking" and distributed generation assets.

www.newstreamrenewables.com