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Battery power – applying the electrodes

Angus Leslie Melville

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Perched in the Regency splendour of Le Méridien Piccadilly for the 19th gathering of REFF Europe, surrounded by the great and good of the renewable energy community for a couple of days this week, nervousness started to set in over what to write for Friday's editorial.

Fortunately options flourished as sessions rolled on, but the one that really caught attention was energy storage – a subject last visited in these pages in September (2017) when we pontificated that it had indeed come of age.

Since then, there has been a surge in media attention as high-profile facilities are rolled out, the most eye-catching being Elon Musk's Hornsdale Power Reserve, the 100MW/129MWh lithium-ion storage facility in South Australia that it delivered with Tesla tech working with Neoen.

But this project – while the biggest to date and delivered in a Muskian storm of media hype (if not ready on time, you get it for free) – is one of many that are operational, currently under construction or in planning around the world as the technology leaps from emerging status to maturity in the blink of an eye.

At *IJGlobal*'s Renewable Energy Finance Forum (REFF) Europe event, this subject was discussed at length by a group of specialists. The energy storage panel was chaired by Felicity Jones of Everoze Partners who led discussion with four panellists: Erik Nygard of Limejump; Nick Heyward from Origami Energy; Bruce Huber of Alexa Capital; and Jerry Stokes from GRIDSERVE.

The greatest sense that came from the discussion was that the energy storage market is working its way through adolescence, and that it will continue to evolve in coming years, blossoming into maturity as renewable energy technologies drop (even more) in price – while storage itself becomes cheaper and more efficient – allowing it to develop into a bigger asset class.

A success story in the making, having already claimed a good few victories along the way as it carves its niche. However, one of the key questions to be raised at the event was… will batteries ever be bankable?

Suck through teeth. You've just opened a can of worms and there's so many ways to answer that questions without saying "no"… while insisting that – yes – it totes is.

Bankable batteries…

Perhaps the strongest line to be championed on the day was that the technology itself is entirely bankable.

But that comes with a caveat: you need to be tied in with a good EPC contractor, your energy management system is up to snuff, the system is sized correctly and you have good battery warranties.

Yeah, fair point. But are energy storage facilities actually bankable?

The answer to that comes in several parts. Starting to get used to that with energy storage!

The greatest barrier to bankability is contract length which comes in woefully short for frequency response – the most popular mechanism being adopted by the energy storage pioneers – but can be quite respectable for capacity market.

At this stage it's important – for those new to this space – to point out the differences between two mechanisms (no requirement for them to be mutually exclusive) for energy storage to be contracted:

- frequency response – short blast of a lot of energy delivered on to the grid at a moment's demand. This has been the most popular revenue stream for the last few years
- capacity market – a resource to be called upon as required by the off-taker. Long-term contracts are more likely here, but the big bucks are in frequency response

Frequency response is the most popular among developers and plays to batteries' greatest strengths – especially on big projects – super-fast (second-by-second) response to changes in grid frequency. To date, this has been by far the most lucrative option and so the weapon of choice.

The capacity market is a bit hum-drum, helping the system at times of stress to plug gaps in supply to provide energy for, say, four hours to help with extreme capacity shortage events. As speed is not a key element, it can be achieved by a number of different technologies… hence the value is lower.

So just how bad can it be for contract on frequency response?

Felicity Jones, partner at Everoze Partners, says: "To put this in context, you would get a one-week contract for frequency response in Germany. In Great Britain that would be two years, and the best contracts on offer in Europe at the moment are in Ireland where you can get six years."

This is very different to the wider renewable energy scene where it is customary to have a, say, 15-year PPA (often with a support mechanism) after which it has to evolve its business to fit within the merchant risk landscape.

For battery storage, merchant risk is pretty much the opening gambit – a market reality that it has already adapted to, but is not particularly attractive to the lending community. And this is where "vendor debt" creeps into the lexicon… which is not quite the same thing.

Bruce Huber, chief executive of Alexa Capital, says: "California has probably provided the longest-term contract in the energy storage market, but we are in this early adolescence stage where there is no standard contract.

"We have had a number of the early implementations where some benefit from long-term contracts and the asset class costs are still being worked down"

Back to brass tacks… is it bankable. Again you will be told that the tech is bankable and that the sector – while no longer in its infancy – still has to work its way through adolescence, so it's not fair to ask the question.

Oh heck, let's go with this answer to the yes/no question of whether energy storage is bankable… soon.