Stakeholder feedback, new modelling methods and increased data availability have led us to assume a higher starting point and a faster build rate for electricity storage projects this year compared to FES 2016.

All of our FES 2017 scenarios see strong initial growth in storage to the early 2020s. Beyond this point, growth paths diverge for each scenario, and market saturation for storage is reached at different times and capacity levels.

We see our highest level of storage capacity reduced compared to last year, narrowing the range of projected storage capacities across our scenarios.

**What assumptions do we make when modelling future storage projects in FES?**

Our analysis assumes that storage requires the stacking of multiple revenues to be commercially viable. In addition, we assume that storage will often be co-located with renewable generation, as this minimises capital and network costs and may enable owners to make savings by avoiding electricity purchase. We consider a number of storage technologies in our analysis, such as compressed and liquid air, pumped hydro and various battery technologies.

**How have we modelled storage in FES 2017?**

Increased data availability on storage projects has fed into our analysis this year. We have also worked with storage experts and used market intelligence about future projects and anticipated technology costs. Taken together, all these data sources help us to build a holistic view of what is likely to happen in storage across the different FES scenarios.

This year, we have used dispatch modelling (BID3) to help determine the amount of storage capacity that is required under the different FES scenarios. This models how much storage will be required to smooth generation across the day, in order to obtain arbitrage advantage or to fulfil various ancillary services requirements, for example frequency response. This will be influenced by the assumptions within our scenario framework – for example, the amount of renewables under each scenario (driving flexibility requirements), and likely electricity prices. Beyond this required capacity, it is likely that any additional storage will absorb revenue from other storage or flexibility providers, and so we can anticipate that growth will slow.

As noted above, all of our scenarios see strong growth in storage from now until the early 2020s. There have been a number of factors driving this growth. These include: a fall in the cost of relevant technologies, ICT advances allowing better communication and control of assets, and the emergence of commercial opportunities. Growth in the electric vehicle (EV) market has also encouraged greater production of batteries, driving technological improvements and economies of scale – both of which will help to reduce the cost of storage.

However, we have seen limited progress in some of the specific policy and regulatory developments for storage that were discussed in FES 2016. As a result, looking back at the past year we can see storage growth being driven primarily by market opportunities and technological progress, rather than regulatory evolution.

**Next steps**

More information on these and other demand and supply topics will be found in our Future Energy Scenarios that will be published on 13th July 2017. If you have any queries or comments on this note, please get in touch with us via: Transmission.UKFES@nationalgrid.com