The United Nations Intergovernmental Panel on Climate Change (IPCC) has warned that it is 'now or never' to limit global warming to 1.5 degrees. Whilst our investors will know this already, the warning underscores the need for a rapid transition, and highlights how the dialogue has changed in recent years.

In terms of themes, clean energy is the largest in clients' portfolios. This includes investments into original equipment makers (OEMs), as well as owners and operators of assets such as wind and solar in developed nations, but also more recently, developing countries such as India and the Philippines.

Portfolios are diversified at a technology level, so beyond the mature sectors above, there is exposure to other low carbon generation assets, such as anaerobic digestion.

When looking to the UK, the energy generation mix is ahead of many other developed nations in terms of the amount of low carbon generation assets. In fact, in 2019 the National Grid reached a point where 85.1% of generation was from low carbon sources, and was able to run with no coal for a continuous 1630.5 hours in the summer of 2020. Whilst gas still accounts for around 11 GW or 30% of the generation mix, Coal has fallen by 94% since 2012, and fossil fuel usage continues to decline.

The UK has commitments to source 100% of power generation from renewables by 2035

The UK has commitments to source 100% of power generation from renewable assets by 2035, so whilst decarbonising, it will also mean a decentralisation of our power grid. This will lead to a greater energy mix of renewables, which by their nature are volatile and intermittent.

This volatility has been evident in recent years. As we emerged from the covid crisis and demand for energy rose, the volatility and intermittence of renewable assets (as well as other issues) was really felt, and at times, the electricity price soared into the thousands of pounds per megawatt hour.

Whilst switching off fossil fuel generation will solve an environmental issue, it would lead to a number of social problems, such as people being unable to heat their homes or the cost of energy rising and people slipping into fuel poverty. This means it does need to be a transition, but a rapid one at that.

Thankfully, the bridge gap solution to the volatility of using renewables in an energy mix is available, and comes in the form of battery storage. Battery storage will play an essential role in providing low carbon energy as well as balancing the grid in times of high demand. By charging utility-scale batteries during times of excess renewables or low demand on the grid, they can be used in periods where renewable output drops or demand on the grid is high.

The use of large-scale battery storage is relatively new, although the battery technology has been around for decades. The main technology used, as with Electric Vehicles, is lithium-ion batteries, as very few other technologies currently provide the size, response time, efficiency and economic value.

Lithium-ion batteries have benefited from being one of the first technologies introduced a number of decades ago, although others technologies continue to grow, such as solid-state batteries. Beyond this, software management also plays a vital role in the process to ensure the most efficient use of the batteries to enhance value.

Battery Projects are now over 100MW in size

The market for battery storage continues to expand rapidly, and this is evident in the scale of the projects. Sizes are now north of 100MW, where as only a few years ago they were in the low single digits.

There are of course supply chain concerns with the use of batteries, due to the usage of metals such as cobalt or lithium (we covered some of the social and environmental issues in a post a couple of years ago – click here to read).

Our core holding in this area is the Gresham House Energy Storage Fund, which invests into utility scale projects in the UK. At the end of the year, they had 425MW of operational capacity, which was a UK market share of 30%. The pipeline for future projects remains strong and will continue to grow as renewables become a larger part of the energy mix, not just here in the UK but globally.