

Case study

From dirty coal to one of Europe's largest battery storage facilities at Roosecote

centrica
Business Solutions



Centrica Business Solutions built one of Europe's largest battery storage facilities at Roosecote in Cumbria, supporting the UK's energy transition

The Roosecote site on the Cumbrian coast was opened in the 1950s as a coal-fired power station. When the UK electricity market was privatised in 1990, the site was transformed into the UK's first Combined Cycle gas-fired power station, which led the way for all large gas-fired power stations in the UK that followed.

Centrica took over Roosecote in 2003. In the years that followed, it was modified to meet the changing demands of the energy markets. When it eventually reached the end of its life, Centrica Business Solutions transformed the brownfield site into a battery storage asset that would provide more flexible power to the region.



49MW

battery capacity

100k

second generation lithium-ion battery cells

50k

can be powered for half an hour

Solution

Roosecote is one of the largest battery storage facilities in Europe. It holds enough power to meet the needs of around 50,000 homes for around half an hour. That's equivalent to powering a town the size of Carlisle.

Roosecote has a maximum capacity of 49 MW. It is made of more than 100,000 second generation lithium-ion battery cells. It is connected to the Electricity Northwest 132kV South Lakeland distribution network.

It's used as an asset to help National Grid manage changes in supply and demand on the grid. It is remotely operated from our Energy Centre, and the system automatically charges the batteries when there is spare capacity on the National Grid network and discharges that power at periods of high demand. Although has a limited duration, it can respond to fluctuations in demand and be at full power in less than a second. This is approximately 10 times faster than similar services provided by conventional generation.

A broad portfolio of different energy assets are managed from the Energy Centre, some of which are Centrica-owned and some of which are owned by our business customers. These assets are bought together and operated as a single unit – forming what we call a Virtual Power Plant. Using advanced digital platforms to coordinate the production and storage of energy across all of the assets, our customers can unlock the most revenue from their assets while providing the grid as a whole with the flexibility needed to transition to more renewable energy sources.

“We've set up a new team to develop and build utility-scale battery storage and solar assets. These assets will help to transform the UK energy landscape and will enable our transition to a low-carbon future.”

Bill Rees, Director at Centrica Business Solutions

Result

While governments around the world are making net zero commitments, one of the problems we face when generating clean energy through solar and wind is that they're intermittent. If the sun isn't shining or the wind isn't blowing, energy can't be generated. To enable a greater proportion of renewable energy on the grid, we need to be able to balance energy supply and demand.

That's where battery storage assets like the one in Roosecote come in. They're the unsung hero of the energy transition. The battery charges up when excess power is available; and discharges that energy back onto the network when there's high demand. It helps to stabilise the grid, by acting as a highly reliable, fast delivery, back-up energy source that can be tapped when needed.

What's more, with its history as a coal-fired and a gas-fired power station, Roosecote is a great example of the transition we've made in the UK power generation industry – from dirty coal to cleaner, more flexible power.



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