

Why are batteries important in energy storage?

Batteries and other energy storage methods are vital for maintaining consistent supply from renewable sources. They help grid operators finely balance the supply of electricity to meet demand, and provide extra resources when needed, such as for frequency response.

How do batteries reduce emissions?

Another way that batteries reduce emissions is through energy actions. They do this on a daily basis, and we can see an example of this on April 15th, 2024, when batteries saved over 1,000 tonnes of CO₂. They did this by importing wholesale energy when the marginal carbon intensity (shown in red on the chart) was low.

Do batteries reduce CCGT costs?

Batteries providing frequency response reduce the need for CCGTs to do so. Therefore, every MW of frequency response provided by batteries has an associated carbon emissions saving or cost. Carbon costs come from batteries performing high-frequency response services.

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Lithium-ion batteries are effective for short-term energy storage capacity (typically up to four hours), but other energy storage systems will be needed for medium- and long-term storage capabilities.

Our latest EnergyPulse Energy Storage report shows that the total pipeline of battery projects (operational, under construction, consented or being planned) has increased from 57.1 gigawatts (GW) a year ago to 95.6GW, which is enough to fully charge more than 2.6 million electric vehicles, and an increase of 67.4% (38.5GW).

Use of battery storage at both grid and consumer level is a vital step to net zero. Energy storage helps offset the hour-to-hour variability of some renewables, and facilitates the increasing electrification of transport and heating (EVs, heat ...

Flexible technologies like batteries will form part of the UK's smarter electricity grid, supporting the integration of more low-carbon power, heat and transport technologies, which it is estimated could save the UK energy system up to \$60 billion by 2050.



United Kingdom energy stored in batteries

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