Grid-scale battery storage statistics

Will York **0785 693 3811** electricitystatistics@energysecurity.gov.uk

Key headlines

- UK grid-scale battery storage power capacity reached 7.5 GW in 2025, with a record 2.3 GW energised in 2025 alone.
- Output from Great Britain's grid-scale batteries totalled 2.3 TWh in 2025, with an 85 per cent average efficiency over the year.
- England accounted for 74 per cent of GB battery output in 2025, with Scotland at 24 per cent and Wales at 2.1 per cent.
- Methodological changes and revisions to the input, output and power capacity time series

Background

Grid-scale battery storage sites provide short-term, flexible energy storage and can help keep the grid frequency stable. They are particularly useful in storing excess electricity from renewable sources, reducing curtailment costs. The first major grid-scale battery storage project in the UK became operational in 2017. Since then, capacity has grown rapidly, with the total annual electricity output from batteries rising from 0.5 GWh in 2017 to almost 2,300 GWh in 2025.

Statistics on battery storage were first published in the Digest of UK Energy Statistics (DUKES) in 2024. This article outlines the methodological changes adopted for DUKES 2026 and revisions made to statistics. We are continuing to seek improvements to the methodology and data sources and welcome any feedback users may have.

This article is concerned with grid-scale batteries only, which in this article are also referred to as 'batteries' or BESS (Battery Energy Storage Systems). By grid-scale batteries, we mean commercial-scale, metered assets which typically have power capacities upwards of 5 MW. Batteries outside of this include 'behind-the-meter' batteries, such as batteries co-located with domestic rooftop solar panels. Data monitoring of the installation of domestic batteries recorded on the Microgeneration Certification Scheme (MCS), including capacity and cost statistics, can be found here.

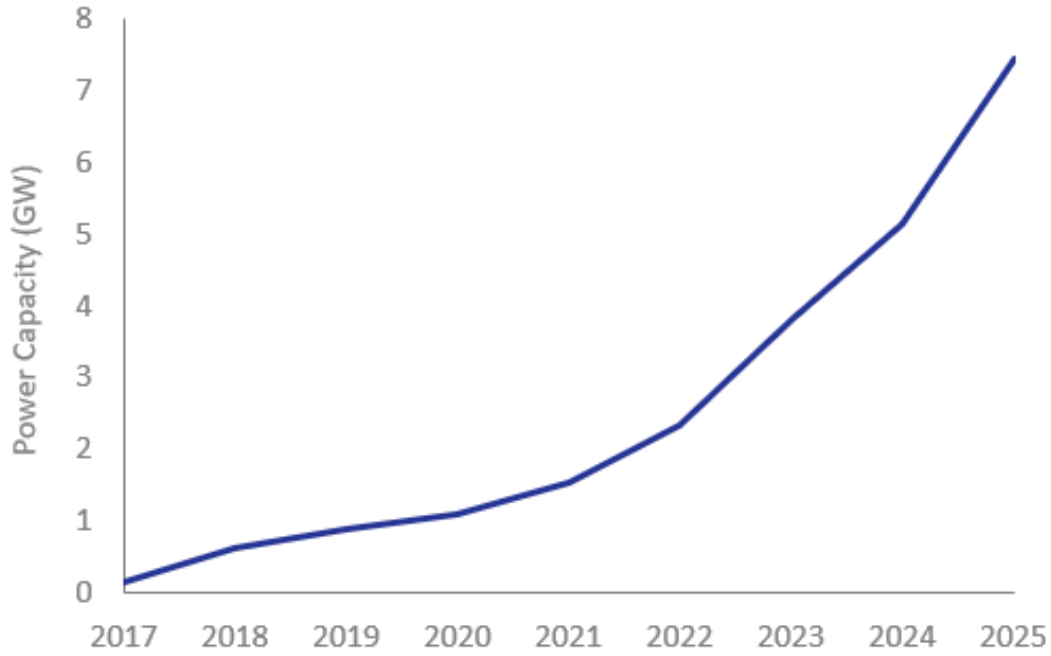
Capacity data covers the UK whilst battery input and output date are currently only estimated for Great Britain, as the underlying Elexon data is Great Britain only.

Power capacity

Battery power capacity measures the maximum rate of electricity output from a battery (in MW), while energy capacity measures the maximum amount of energy stored by a battery at one time (in MWh). We do not currently have a reliable data source for energy capacity figures. The trend in recent installations is towards higher energy capacity, with the average duration of maximum discharge greater than one hour and rising. Industry and policy are driving towards longer-term battery storage to provide more grid flexibility.

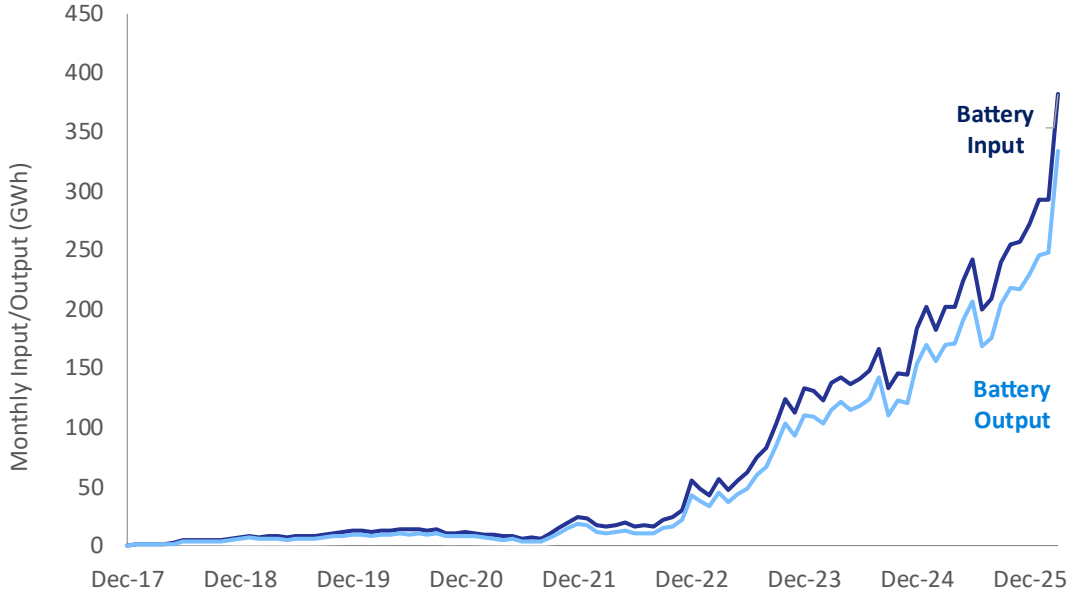
The first major UK grid-scale batteries came online in 2017. Since then, the total power capacity has risen considerably, reaching 7.5 GW in 2025. Capacity growth was steady from 2017 to 2021 and accelerated from 2022 in line with improved returns on investments. Standalone battery storage was removed from the NSIP (Nationally Significant Infrastructure Project) procedure in 2020, which removed a barrier from the planning process.

Chart 1: Annual UK grid-scale battery power capacity (GW), 2017 to 2025



Battery input and output

Chart 2: Monthly Great Britain (GB) grid-scale battery input and output (GWh), 2017 to March 2026

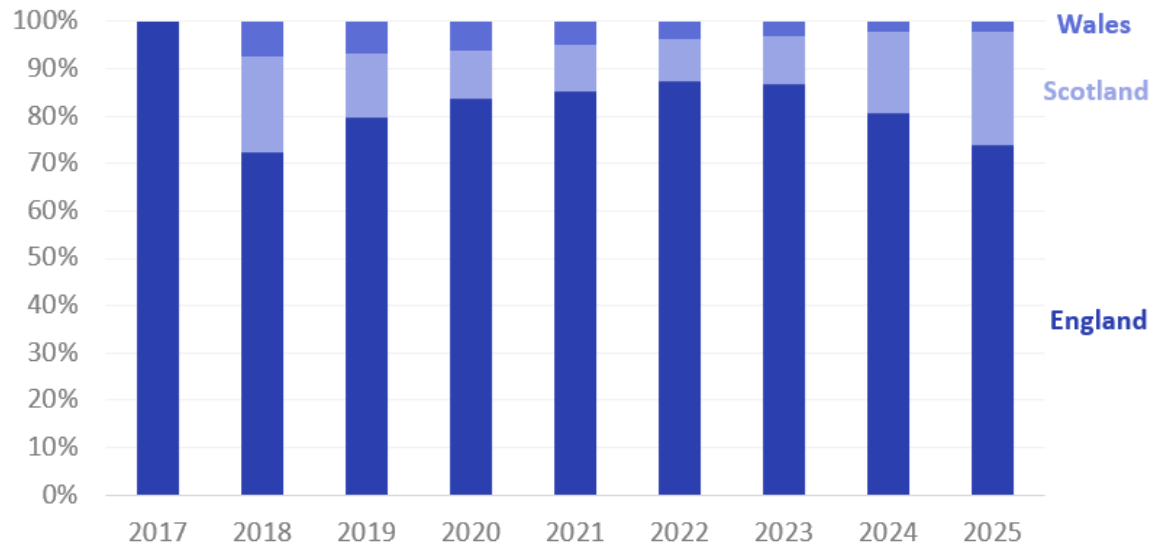


GB grid-scale battery input (charging) and output (discharging) rose in line with increases in capacity from 2017 to 2020 and dropped slightly in 2021, while the battery market was still developing and optimisation strategies shifted. Input and output increased more sharply from late 2022, driven by increases in installed capacity. Output from batteries rose from 0.8 TWh in 2023 to 2.3 TWh in 2025, while input followed a similar trajectory, reaching 2.7 TWh in 2025. For context, 294 TWh of electricity was generated in 2025.

Output always remains below input, as some energy is lost in each storage cycle. In 2025, GB's battery storage was on average, 85 per cent efficient. This is higher than that of pumped storage, which averaged 81 per cent in 2025. The increase in difference between input and output over time reflects increased utilisation rather than a significant deterioration in efficiency.

Input and output data is scaled from balancing mechanism activity only [see methodology below]. Data prior to 2022 is possibly less representative of all markets given that fewer battery assets were incentivised to register with the balancing mechanism then. Since 2022 however, a higher proportion of batteries were registered.

Chart 3: Regional proportions of Chart 3: Regional proportions of annual GB battery output, 2017 to 2025 [provisional]



In 2025, almost three quarters of battery output to the GB grid came from batteries located in England. Scotland accounted for 24 per cent in 2025, up from 17 per cent in 2024 and increased its share each year since 2022. Wales' share has remained relatively small with 2.1 per cent in 2025.

These data are provisional and will be published in the 2026 edition of 'Electricity generation and supply in Scotland, Wales, Northern Ireland and England'. As noted in the input/output methodology, Northern Ireland is not included due to lack of data visibility but is understood to be small relative to the total (approximately 2.1 per cent of UK power capacity).

Methodology

Input and output electricity (Great Britain only)

Data on the electricity input to and output from batteries comes from Elexon's BM Unit Aggregation Report, which quantifies the volume of electricity input/output to GB's Balancing Mechanism by Balancing Mechanism Units (BMUs). Batteries co-located with generation sites were excluded where identifiable to prevent double counting of supply. Where multiple settlement runs were available for a given day, the most recently published run is used.

Using the total electricity input/output of grid-scale batteries from/to the GB balancing mechanism, we can estimate the total electricity input to / output from grid-scale batteries to all markets in GB, as batteries can participate in markets other than the balancing mechanism. A 2026 review sought to re-visit the previous finding that on average since 2017, approximately half of battery output electricity is attributed to the Balancing Mechanism, with the rest attributed to other markets. Subsequently, it was found that in more recent years, this was closer to 70%. We do not currently hold data on usage of Northern Ireland's batteries. Future work will investigate non-balancing mechanism batteries, as well as those connected to Northern Ireland's grid.

Capacity (UK wide)

Data on the power capacity of grid-scale batteries is sourced from Elexon's list of registered BM units, available daily via their data portal. Batteries are identified in this file using the same list of IDs compiled for the input/output of electricity and additionally includes the output capacities of virtual/secondary BMUs of battery assets. The power capacity of a battery is taken to be the generation capacity, except in a handful of cases where power capacities are adjusted to the known figure. Like input and output, battery capacity is scaled to

account for non-BM assets compiled from a range of sources (was unscaled in previous publications). Scale factors are reviewed annually and are around 1.3x each year.

Work is ongoing to identify a data source as a basis for energy capacity figures, as well as gaining a better understanding of which battery assets are co-located with renewable generators. Comments and suggestions from readers of this article with respect to the methodology used and data coverage are welcome.

Revisions

Revisions have been made to battery input, output and power capacity figures in line with the above methodological changes and improved data coverage. Specifically, this includes 2017-2024 of the capacity time series and 2023-2024 of the input and output time series, as well as net supply figures in Energy Trends table 5.4. The energy storage rows of the balance tables have been revised to add the full electricity input to batteries.

The average revision to the capacity time series across all revised years was 17 per cent upwards, and downwards 22 per cent for the input, output and net supply time series. The overall impact on net electricity supply and demand was very small, under 0.5 per cent.

Battery statistics publications

Annual battery power capacities and input/output figures are published in the Digest of UK Energy Statistics (DUKES) table 5.16. Net electricity output from batteries to the grid (the difference between input and output) is published monthly in Energy Trends table 5.4. Regional breakdowns of input and output are published annually in a special feature article as part of Energy Trends.

This publication is available from: https://www.gov.uk/government/collections/energy-trends

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