

# NIUE GRID SCALE BATTERY STORAGE UK



What is a grid scale battery energy storage system? Grid scale Battery Energy Storage Systems (BESS) are a fundamental part of the UK's move toward a sustainable energy system. This guidance supersedes and seeks to build on the original guidance document that was published in 2023 (Version 1).



What is grid scale? Let's break it down. Grid scale refers to something that operates across an entire electrical grid, usually serving an entire nation or region. This is different to other levels of battery storage such as in homes (domestic battery storage) or businesses (commercial battery storage).



What is the health and safety guidance for grid scale electricity storage? This health and safety guidance for grid scale electricity storage, including batteries, aims to improve the navigability and understanding of existing standards. The deployment of grid scale electricity storage is expected to increase.



How big is a battery project in the UK? The average UK grid-scale battery project size went from 6MW in 2017 to more than 45MW in 2021. Image: RES Group. From 2016 onwards, the UK energy market's appetite for battery energy storage systems (BESS) has grown and grown, making it one of the leading centres of activity in the global market today.



How many battery energy storage projects are there in the UK? A battery energy storage system. Over the past year, the number of battery energy storage projects in the UK's pipeline has increased from 239 to 338 in total. The capacity of battery storage is also set to increase substantially as only 5% of projects in 2022 are in operation,



Is battery storage at grid level a good idea? Battery storage at grid scale is mainly the concern of government, energy providers, grid operators, and others. So, short answer: not a lot. However, when it comes to energy storage, there are things you can do as a consumer. You can: Alongside

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storage at grid level, both options will help reduce strain on the grid as we transition to renewables.

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The graphic above shows the built capacity of energy storage in the UK by project size by year where 2022 deployment levels exceeded the 2021 annual installed capacity of 617MWh. The first major utility-scale battery storage project was energised in 2017 ??? a 50MW/25MWh project in Pelham, developed and owned by Staterra Energy.



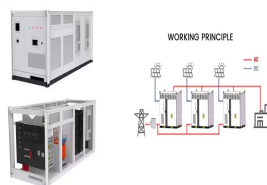
Grid-scale battery storage enables high levels of renewable energy integration for power system operators and utilities to store energy for power backup. The UK is one of the key nations in the European market, aiming high penetration of grid-scale battery through a pipeline of over 16 GW of projects with the potential for deployment over



By 2050, Europe is expected to install at least 95GW of grid-scale battery storage systems, according to separate figures from Aurora Energy Research. It says 5GW of grid-scale storage is online today. It estimates that four-hour battery storage systems will make up 61% of total installed systems by that year, compared with 22% by 2025.



NatPower says it will build over ?10bn worth of battery storage amounting to around 15-20% of the UK's needs by 2040. The UK-based firm, a division of NatPower Group, which is headquartered in Luxembourg, plans to ???



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Huge progress has already been made regarding the increasing number of grid-scale battery storage projects in the UK, of which Statkraft is a significant contributor. At the same time, we must recognise that there are areas where further progress needs to be made. If we want to achieve

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NESO's target of a zero-carbon electricity system by 2025

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Drawing on published scenarios, we estimate that grid-scale battery storage capacity in Scotland is likely to be in the range 1,800-2,700 MWh by 2030, and 6,800-10,500 MWh by 2045.



Total grid scale battery storage capacity stood at a record high of 3.5GW in Great Britain at the end of Q4 2023. This represents a 13% increase compared with Q3 2023. The UK battery strategy acknowledges the need to



The battery was ordered in early 2020 and forms part of Oxford's Energy Superhub project, first announced by the Government in 2019 as part of a string of new smart energy systems demonstrator projects is connected to National Grid's high-voltage transmission system at its substation, providing the flexibility services so often said to be a key part of the

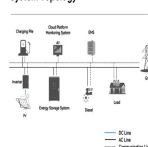


National Grid plugs TagEnergy's 100MW battery project in at its Drax substation. Following energisation, the facility in North Yorkshire is the UK's largest transmission connected battery energy storage system (BESS). The facility is supporting Britain's clean energy transition, and helping to ensure secure operation of the electricity



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System Topology



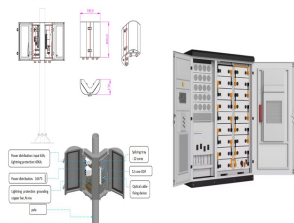
The market for battery energy storage is estimated to grow to \$10.84bn in 2026. The fall in battery technology prices and the increasing need for grid stability are just two reasons GlobalData have predicted for this growth, with the integration of renewable power holding significant sway over the

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power market.

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Information about co-located generation sites with details of grid connections; Battery capacity, location and other valuable data-points to further inform your strategy and business development decisions; As of June 2023, the UK has more than 2.4GW of installed battery storage capacity and a total pipeline of planned capacity exceeding 66GW.



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A 50MW lithium-ion battery energy storage system has come online in Cowley, on the outskirts of Oxford, in what is described as a UK first. EURACTIV's media partner, edie , reports.



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Grid scale Battery Energy Storage Systems (BESS) are a fundamental part of the UK's move toward a sustainable energy system. The installation of BESS systems both in the UK and around the globe is increasing at an exponential rate. A number of high profile incidents have taken place and learning from these incidents continues to emerge.



You may also wish to refer to the GOV.UK guidance published by the Department for Energy Security and Net Zero, Grid scale electrical energy storage systems: health and safety. \_\_\_\_\_ Original consultation communication. Grid scale Battery Energy Storage Systems (BESS) are a

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Grid-scale battery storage is a mature and fast-growing industry with demand reaching 123 gigawatt-hours last year. There are a total of 5,000 installations across the world. In the first quarter of 2024, more than 200 grid-scale projects ???



EDF Renewables UK has won planning permission for a new grid-scale battery energy storage system (BESS) in Braintree, Essex. The BESS will have an output of 57MW and is expected to begin construction in early 2024, becoming operational in 2025. Essex aims to become a net zero county by 2050, in line with government emissions targets.



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Grid-scale battery storage "needs to grow significantly" to meet flexibility needs in a decarbonised electricity system; To achieve net zero targets, grid-scale battery storage will need to increase to around 970GW by 2030



In 2021, global energy storage owner-operator BW ESS and Penso Power, which deploys, owns and manages grid-scale battery energy storage projects, announced a joint venture that will see BW ESS fund the build out of Penso's UK project pipeline totalling over 3GWh.



The average UK grid-scale battery project size went from 6MW in 2017 to more than 45MW in 2021. Image: RES Group. From 2016 onwards, the UK energy markets's appetite for battery energy storage systems (BESS) has grown and grown, making it one of the leading centres of activity in

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the global market today.

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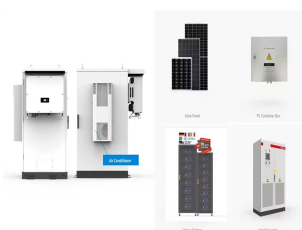
The UK added a record high 800MWh of new utility energy storage capacity last year, as the sector moves closer to GWh additions out to 2030 and beyond. Indeed, the UK's energy storage pipeline increased ???



Grid Scale. Off Grid. Market Analysis. Software & Optimisation. Materials & Production. Features. Resources. BYD Energy Storage's UK and Ireland head Kai Wang announced the launch of the company's "MC Cube-SIB ESS" product. has a "CTS super integrated design", and is the world's first high-performance sodium-ion battery



Downing LLP has announced its first utility-scale battery storage site in the UK, with a 50MW/53MWh project in Nursling, Southampton. The investment manager has selected its co-funding partner as well as having entered into agreements for the supply of the storage solution, the optimisation of the asset and the route to market and trading arrangements.



ILI Group has a portfolio of over 4.7GW energy storage projects, including 2.5GW of utility-scale battery storage and 2.5GW pumped storage hydro. In July, the group submitted a Section 36 planning application for a 1.5GW pumped hydro energy storage (PHES) project called Balliemeanoch, with a planned connection date in 2031.



Three Grid-Scale Battery Startups to Watch 1. RatedPower. The Spanish renewable energy startup creates software that helps engineers model and optimize the design of grid-scale battery storage systems for renewable generation plants. In 2022 it was purchased by Enverus, the world's largest energy software company. 2. Terralayr