Data centre electricity consumption in Great Britain, 2020 – 2024

Official Statistics in Development

Hiten Shah energyefficiency.stats@energysecurity.gov.uk

Introduction

This article presents new estimates of the total electricity consumed from the grid by data centres in Great Britain, for the years 2020 – 2024. There is no universally agreed definition of a data centre. The estimates presented here only cover data centres which provide facilities that support external organisations or individuals. These include colocation data centres, managed hosting colocation data centres and hyperscale data centres; they do not include enterprise data centres (those owned and used by an organisation to support its own internal IT and data requirements).

Key headlines

- In Great Britain, data centres accounted for an estimated 4.5 TWh (2%) of the 249.2 TWh[1] of electricity consumed from the grid in 2024. Around three-quarters (77%) of this data centre electricity consumption occurred in the South East (1.8 TWh) and London (1.7 TWh).
- In terms of local authorities, Slough (in the South East) was by far the largest contributor, accounting for 1.3 TWh (29%) of data centre electricity consumption in 2024. In Slough, consumption from data centres doubled between 2020 and 2024 (from 0.6 TWh to 1.3 TWh). In 2024, data centres accounted for almost two-thirds (65%) of all electricity consumed from the grid in Slough.
- Between 2020 and 2024 total data centre consumption increased by 1.3 TWh (41%). The majority of this increase can be attributed to Slough (in the South East) and neighbouring Hillingdon (in London), which saw increases of 0.7 TWh and 0.4 TWh respectively over this period.

Data centre electricity consumption

The estimates of data centre consumption presented in this article are based on compiling a list of data centres (including addresses) from various sources and then matching meter level electricity consumption data to this list of data centres. Only the data centres identified to which consuming electricity meters could be matched are included in these figures. More details, including sources of uncertainty, can be found in the *Methodology* section of this article. The full set of resulting estimates (including the number data centres and total electricity consumption from these data centres) can be found in the accompanying workbook.

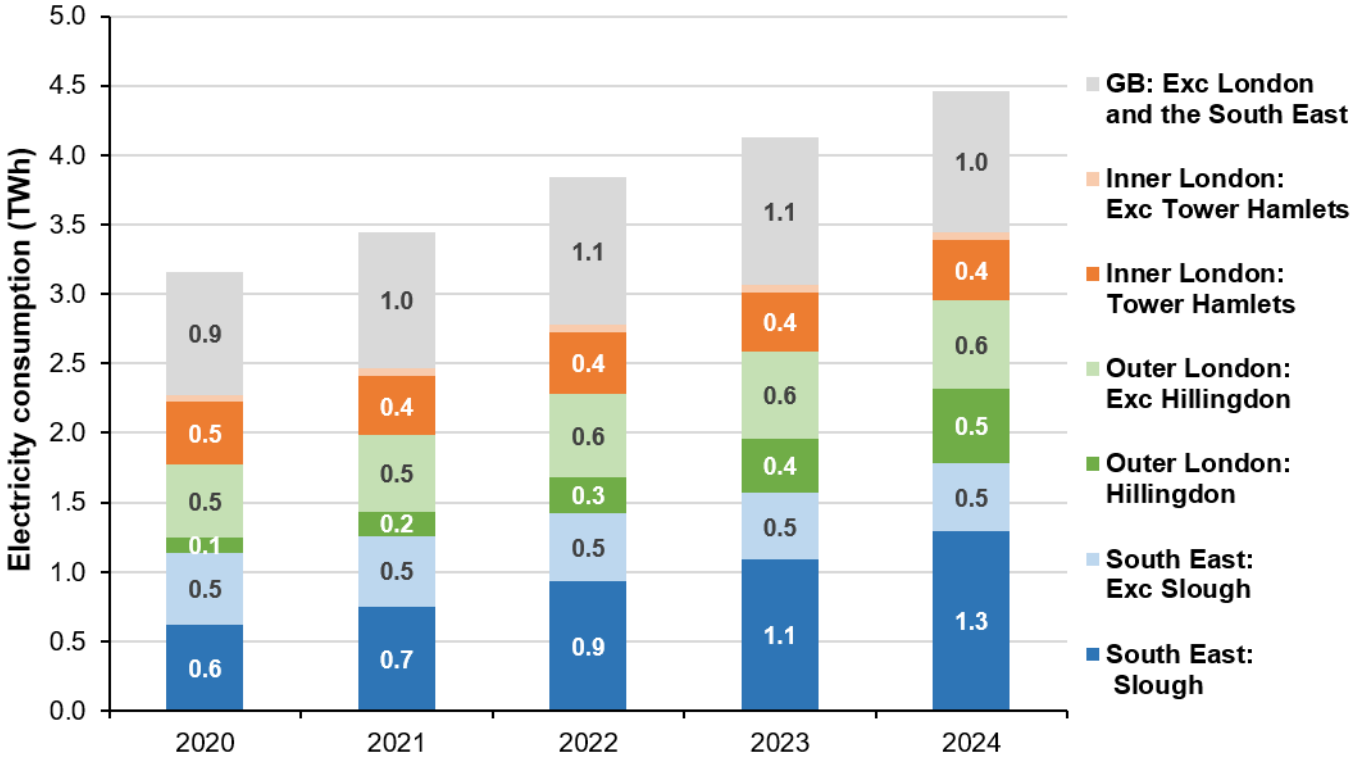
Based on this analysis, in 2024, data centres accounted for an estimated 4.5 TWh (2%) of the 249.2 TWh[1] of electricity consumed from the grid in Great Britain. Data centres located in the South East (1.8 TWh) and London (1.7 TWh) accounted for over three quarters (77%) of data centre electricity consumption in 2024. At the level of individual local authorities, data centres located in Slough had the highest consumption (1.3 TWh), accounting for 29% of total data centre electricity consumption in Great Britain.

Between 2020 and 2024 there was a 41% increase (1.3 TWh) in data centre electricity consumption from the grid. This increase can mostly be attributed to premises in two local authorities: Slough (in the South East) and neighbouring Hillingdon (in London) which saw increases of 0.7 TWh and 0.4 TWh respectively (see Chart 1). Whilst in Hillingdon the increase in consumption was mainly attributable to growing electricity consumption

[1] Subnational estimates of electricity consumption. These are estimates of electricity consumption based on meter level electricity consumption data.

from data centres which were already operational in 2020, for Slough, the addition of new data centres was also a key driver of the increase seen between 2020 and 2024.

Chart 1: Data centre electricity consumption in Great Britain, 2020-2024



South East

Data centres in the South East consumed 1.8 TWh of electricity, 40% of total data centre electricity consumption in Great Britain. Slough (1.3 TWh) accounted for the vast majority, with the remainder coming from Hampshire (0.2 TWh) and the rest of the South East (0.3 TWh).

In 2024, data centres accounted for 5% of total electricity consumption in the South East. Data centres consumed around two-thirds (65%) of electricity from the grid in Slough and 5% of electricity in Hampshire.

Data centre electricity consumption in the South East increased by 57% (0.6 TWh) between 2020 and 2024 owing to a doubling (0.7 TWh increase) in data centres consumption in Slough.

London

Data centres in London consumed 1.7 TWh of electricity in 2024 (37% of GB's total data centre consumption). 1.2 TWh was consumed in Outer London and 0.5 TWh in Inner London. Most of London's data centre electricity consumption in 2024 was concentrated in just two London Boroughs:

- Hillingdon (in Outer London, neighbouring Slough), which accounted for 0.5 TWh, a 5-fold increase on 2020; and
- Tower Hamlets (in Inner London, containing most of the London Docklands area), which accounted for 0.4 TWh, a 5% decrease since 2020.

Just as in the South East, in 2024, data centres accounted for 5% of total electricity consumption in London (7% in Outer London and 3% in Inner London). In Hillingdon and Tower Hamlets data centres accounted for 28% and 18% of total electricity consumption respectively.

Data centre consumption in London increased by 46% (0.5 TWh) between 2020 and 2024 owing to a 5-fold increase in data centre consumption in Hillingdon (0.4 TWh) and a 20% increase in the rest of Outer London (0.1 TWh).

The rest of Great Britain

In the rest of Great Britain (outside of London and the South East), 1.0 TWh of electricity was consumed by data centres (23% of GB's total data centre consumption), with the 'South West and Wales'[2] (0.4 TWh) and East of England (0.3 TWh) being the main contributors. In both of these areas, data centres account for 1% of all electricity consumed from the grid. A further breakdown cannot be provided for these areas owing to there being very few data centres which were operational by 2024.

Data centre consumption outside of London and the South East increased by 15% (0.1 TWh) between 2020 and 2024 mainly due to a doubling (0.2 TWh increase) of data centre consumption in the 'South West and Wales', partially offset by reductions seen in other parts of the country.

Methodology

Scope

The estimates presented in this article only cover data centres which provide facilities that support external organisations or individuals, and they exclude those owned and used by an organisation to support its own internal IT and data requirements (enterprise data centres). The data centres covered include:

- **Colocation data centres** – these provide the space, power, cooling, connectivity and security, for customers to manage their own servers and other hardware.
- **Managed hosting data centres** – the management of the hardware (and possibly also the software) is outsourced to the data centre.
- **Hyperscale data centres** - very large, highly scalable facilities used by major technology firms (e.g. Microsoft, Google, Amazon Web Services) to deliver services such as cloud computing, data storage and AI.

Data and matching

The estimates presented here are based on the same underlying meter level electricity consumption as used for producing Subnational electricity consumption estimates for Great Britain.

The Department for Science, Innovation and Technology (DSIT) internal dataset containing information on colocation data centres was used as a starting point. The records in the DSIT dataset were corroborated against and supplemented by other publicly available sources, including:

- the websites of Data Centre Operators
- a number of data centre industry websites including: datacentermap.com, datacenters.com, baxtel.com, colo-x.com, peeringdb.com

Additional data centres were identified from investigating cases where electricity meters (based on the address and consumption) were suspected to be corresponding to data centres.

Electricity meters were then matched to the expanded list of data centres, resulting in 242[3] data centres with electricity consumption data matched to them, which these estimates are then based on. DESNZ's Accredited Official Statistics on property/building level Domestic and Non-Domestic gas/electricity consumption rely on the DESNZ automated address matching algorithm. Here, electricity meters were matched to data centres manually instead, for reasons discussed in the *Comparison with other published estimates* section below.

[2] Regions are combined for disclosure reasons.
[3] This is the total number of identified data centres which these statistics are based on, but the number which are operational varies from year to year.

Uncertainty

One source of underestimation in these estimates is that some data centres within scope will not have been captured in the final list. These are likely to be smaller data centres which will have a minor impact on the final estimates. Additionally, there were some data centres (17 out of 259[4]) to which electricity meters could not be matched. It is expected that the addition of these data centres would also have a limited impact.

One possible source of overestimation is cases where there may be one or more large data centres in the same building as other offices and so some of the consumption captured may not be data centre consumption. However, we expect the number of such cases to be small, and in these cases the data centre(s) are likely to account for the vast majority of the electricity consumed in the building.

Comparisons with other published estimates

The National Energy System Operator (NESO) has published a figure of 7.6 TWh[5] for the total data centre electricity consumption across Great Britain in 2023. This estimate is based on information about the capacities of data centres in Great Britain with assumptions made about the utilisation of this capacity. The estimates presented here, which are instead based on meter level data on the electricity actually consumed, give a lower 2023 total of 4.1 TWh.

DESNZ's Non-Domestic National Energy Efficiency Data-Framework (ND-NEED) (which provides statistics on non-domestic gas and electricity consumption by business characteristics) has a published figure of 2.6 TWh[6] for data centre electricity consumption in England and Wales in 2023. The estimates presented here, give a higher 2023 total of 4.1 TWh for England and Wales.

The ND-NEED estimates are based on the same underlying meter level electricity consumption data as the new estimates presented in this article. ND-NEED uses the HMRC Non-Domestic Ratings List of all non-domestic buildings. Classifications within this dataset are used to identify the premises which are data centres.

ND-NEED makes use of the DESNZ automated address matching algorithm to match electricity meters to non-domestic buildings (records in the HMRC Non-Domestic Ratings List). This is consistent with the approach taken for Domestic NEED. An automated approach is essential given the volumes of data involved when looking across the whole country.

In the specific case of data centres, given that there are a relatively small number of them and that they vary greatly in terms of size (and therefore consumption), failing to match (or match correctly) a few key high consuming data centres, can have a large impact on the final estimates. There are also a number of other issues related to data centre addresses which mean that automated matching may be less reliable here. These include:

- Different sources often have conflicting information about the address of the data centre. One common reason is that a large data centre campus may have multiple entrances. In such cases further investigation may be required to understand the situation and find an address for the data centre which can be used for the purpose of matching electricity meters to the data centre(s) in question.
- The data centre address and/or the meter level address often doesn't include a building number and so the presence of the name of the data centre/data centre operator and/or building name may be crucial components of the meter address in enabling meters to be matched. Moreover, especially with data centres being a fast-changing area, this part of the meter address may be out of date. In such cases further investigation of the history of the data centre may be necessary.

This is why a more manual resource intensive approach has been taken to matching addresses here. This was only feasible because the premises of interest are a small sub-population of all non-domestic buildings.

---

[4] This excludes data centres that were not yet operating in 2024 (the latest year covered by these estimates).
[5] Future Energy Scenarios: Pathways to Net Zero, November 2025 (page 110).
[6] Non-domestic National Energy Efficiency Data-Framework, August 2025 (page 51).

Further information

The statistics presented here are classed as Official Statistics in Development as they carry a higher degree of uncertainty than Official Statistics. Information has been included to allow users to assess quality and judge whether fit for their intended use. The Department will continue to evaluate these estimates, exploring opportunities for development. We will continue to engage with organisations producing estimates on data centre consumption such as NESO. We plan to update our estimates in 2027 to include 2025 electricity consumption data along with any improvements made to data and methods used.

These statistics will inform sectoral electricity consumption estimates in the Digest of UK Energy Statistics (DUKES) and UK Energy Trends publications. Data centre consumption is included in the Post and telecommunications sector in DUKES table 5.2, which itself is included in broader Commercial sector category in DUKES table 5.1.

User feedback

Users are encouraged to provide comments and feedback on how these statistics are used and how well they meet user needs. Comments on any issues relating to these statistics are welcomed and should be sent to energyefficiency.stats@energysecurity.gov.uk.

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

If you need a version of this document in a more accessible format, please email energy.stats@energysecurity.gov.uk

Please tell us what format you need. It will help us if you say what assistive technology you use.