

Subnational Electricity and Gas Consumption Statistics Regional and Local Authority, Great Britain, 2023 Accredited Offici

Accredited Official Statistics

This publication provides national and subnational estimates of annual electricity and weather corrected gas consumption in Great Britain. The latest estimates are for 2023¹.

- Following record falls in average (mean) domestic electricity (8.9 per cent) and gas (13.3 per cent) consumption between 2021 and 2022 (likely related to higher retail electricity and gas prices as well as the generally increased cost of living), there have been slight rebounds for both electricity and gas in 2023. However, across all countries/regions, mean domestic consumption in 2023 remains below 2021 levels, with reductions of 5 to 9 per cent for electricity, and reductions of 10 to 13 per cent for gas.
- Over the past 5 years (2018 to 2023) total electricity consumption has decreased in almost all (98 per cent) local authorities and around half (51 per cent) saw reductions of over 10 per cent. For gas a similar proportion of (gas-consuming) local authorities have had reductions in total consumption (96 per cent) over this period, with two thirds (68 per cent) experiencing reductions of over 10 per cent.
- Out of all countries/regions, the South West had the highest proportion of domestic properties not connected to the gas grid (24 per cent compared to 16 per cent for Great Britain as a whole). For consuming gas meters, the South West also consistently had the lowest mean domestic gas consumption at around 11 to 12 per cent below the Great Britain average. The North East had the lowest proportion of domestic properties not connected to the gas grid (7 per cent) and has consistently had the lowest mean domestic electricity consumption (around 13 to 15 per cent below the Great Britain average).

What you need to know about these statistics:

These statistics provide geographical breakdowns of electricity and gas consumption in Great Britain (GB). Estimates are based on meter point data provided by the electricity and gas industries from their administrative systems. The estimates for the years 2015 onwards are revised each year.

DESNZ also publishes similar subnational statistics at local government district level for Northern Ireland (NI) for both <u>electricity</u> and <u>gas</u>. For information on electricity and gas consumption for the UK as whole, users should refer to <u>Energy Trends</u>.

Gas meters consuming above the industry standard threshold of 73,200 kWh per annum are categorised as non-domestic, otherwise as domestic. This may result in some smaller commercial properties being classified as domestic and can affect the trends over time.

Visit the <u>Domestic Energy Map</u> – an interactive map which displays average domestic electricity and gas consumption as well as the proportion of domestic properties not on the gas grid. This map will be updated with 2023 consumption data in January 2025.

¹ The current gas year of 2023 covers the period of mid-May 2023 to mid-May 2024. See "Gas years" on page 16 for more detail. The electricity year is more closely aligned with the calendar year.

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1. Introduction

1.1 Background

This document provides commentary on Subnational estimates of electricity and weather corrected gas consumption for Great Britain. Estimates are based on meter point data provided by the electricity and gas industries from their administrative systems. In this document, both the gas and electricity consumption years are referred to as 2023. It should be noted that the 2023 gas year runs from mid-May 2023 to mid-May 2024, whereas the electricity year more closely aligns to the calendar year; more detail is provided in the electricity and gas chapters. All local authority tables from 2015 are based on the administrative boundaries as of 1 April 2024. A <u>subnational methodology and guidance booklet</u> is published alongside this statistical release and provides further information on the collection and compilation of these subnational estimates of consumption.

Estimates are published for domestic and non-domestic meters broken down by countries and regions² (within England), and local authorities. Data are also published at middle layer super output area (MSOA) and lower layer super output area (LSOA) for England and Wales, and intermediate zone (IZ) and data zone (DZ) for Scotland. These are based on the latest census geographies for England and Wales (2021) and Scotland (2011). Domestic electricity and gas consumption data is also provided by individual postcodes.

For national estimates of domestic consumption, <u>Table C9 of ECUK</u> should be used. Electricity and gas consumption estimates by <u>property attributes</u>, <u>household characteristics</u> and <u>business</u> <u>characteristics</u> are available as part of the National Energy Efficiency Data-Framework (NEED).

1.2 Users

The most significant use of the subnational consumption data is by Local Authorities and devolved administrations, and other external users such as academics and industry. These data have most commonly been used for targeting, to examine trends over time, or to assess the effectiveness of carbon reduction and energy efficiency policies and initiatives.

Internally, these data are used by the Department for Energy Security and Net Zero (DESNZ) to inform policy development and help with the monitoring and evaluation of DESNZ policies. The meter point gas and electricity data collected for subnational consumption outputs are also used in <u>NEED</u>.

Feedback from users of these data is welcomed. If you have any queries or suggestions, please contact us using the <u>Energy Efficiency Statistics mailbox</u>.

² A region refers to areas previously known as Government Office Regions (GORs), which were the primary statistical subdivision of England in which the Government Offices for the region fulfilled their role. They closed on 31 March 2011 and have remained a static geography used for statistical reporting since then. Further information is available in section 1.3 of the <u>Subnational methodology and guidance booklet</u>.

2. Electricity

The statistics presented in this section are based on meter level electricity consumption data obtained from electricity data aggregators (who compile these data on behalf of electricity suppliers). The estimates presented for 2023 cover the following years:

- Non-half hourly meters: February 2023 January 2024
- Half hourly meters: January 2023 December 2023

This section presents electricity consumption by consuming sector (domestic and nondomestic) and geographic area (country, region and local authority). This report is accompanied by <u>tables showing the full subnational electricity consumption statistics</u>.

Electricity statistics: Background information

On site generation of electricity

An increasing proportion of domestic and non-domestic properties in the UK have installed electricity generators on-site, including solar panels and wind turbines. Some of this electricity is fed back into the grid and some is used on site. As the data reported on in this collection is based on meter readings, electricity consumed directly from on-site generation is not captured in these statistics.

Sectoral classification for electricity

Profile class	Description
1-2	Standard and Economy 7 domestic meters, respectively.
3-4	Standard and Economy 7 non-domestic meters, respectively.
5-8	Higher consuming non-domestic meters.
0	These meters tend be the very highest consuming non-domestic meters
0	and the consumption is monitored on a half-hourly basis.

The industry assigns a profile class (0-8) to each electricity meter:

Profile class 1-8 meters are non-half hourly meters, and profile 0 meters are half hourly meters. For the purpose of these statistics, profile class 1-2 meters are assumed to be domestic (aside from a small number of exceptions – see section 3.1.2 of the <u>methodology note</u>), while the remainder of the profile classes are assumed to be non-domestic.

Domestic meters and domestic properties

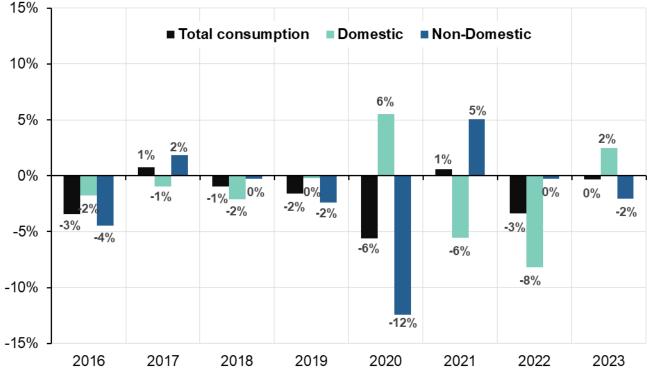
In 2023 there were 31.7 million consuming domestic electricity meters. However, there were an estimated 28.0 million households³ in Great Britain in 2023. Part of the reason for the difference between the number of domestic meters and households is likely to be due to non-domestic meters being incorrectly classified as being domestic, as well as some properties having more than one linked electricity meter point. Additionally, the figures on the number of households are estimates which may be revised when they are recalibrated against data from the 2021 Census.

³ Through the <u>Office for National Statistics</u>, <u>Welsh Government</u> and <u>Scottish Government</u> statistics there are an estimated 28.0 million households in Great Britain. Household estimates for the years 2021-2023 were not available for Wales at time of publication, therefore for each local authority in Wales, figures for the year 2021-2023 were derived by applying growth factors to the number of households in 2020. The growth factors used were the average growth rates in the number of households between 2015 and 2020.

2.1 Total electricity consumption

For Great Britain as a whole, a total of 249,044 GWh of electricity was consumed in 2023 via 31.7 million meters. There was a 0.3 per cent decrease in total electricity consumption in Great Britain between 2022 and 2023. All countries/regions saw similar falls in total electricity consumption aside from London (a 0.5 per cent increase) and the South East (where consumption was virtually unchanged), see Table1 and Chart 2.





Following on from a record fall (8.2 per cent) in domestic electricity consumption in 2022, there has been a slight rebound, with domestic consumption increasing by 2.5 per cent between 2022 and 2023.

However, the domestic sector only makes up around 40 per cent of total electricity consumption in Great Britain. So, the increase the in domestic consumption was offset by a 2.0 per cent decrease in non-domestic consumption, resulting in a 0.3 per cent year-on-year fall in total electricity consumption.

Over the longer term, total electricity consumption has been falling across all countries/regions (see Table 1 and Chart 2) with total consumption around a fifth lower in 2023 than in 2005. Similar reductions are seen in both the domestic and non-domestic sectors. Across both the domestic and non-domestic sectors, the reductions in electricity consumption since 2005 are lowest in London and surrounding regions (South East and East) and highest in the North East and Scotland.



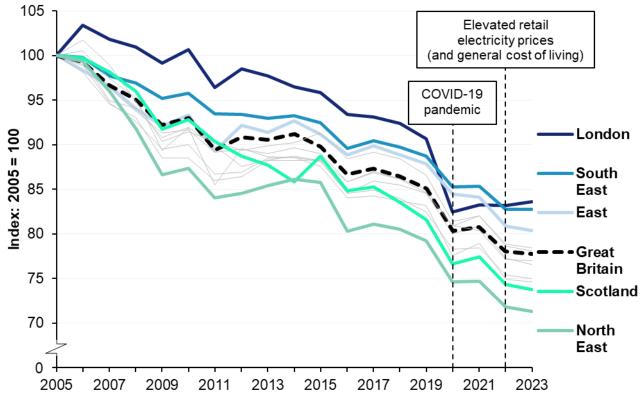
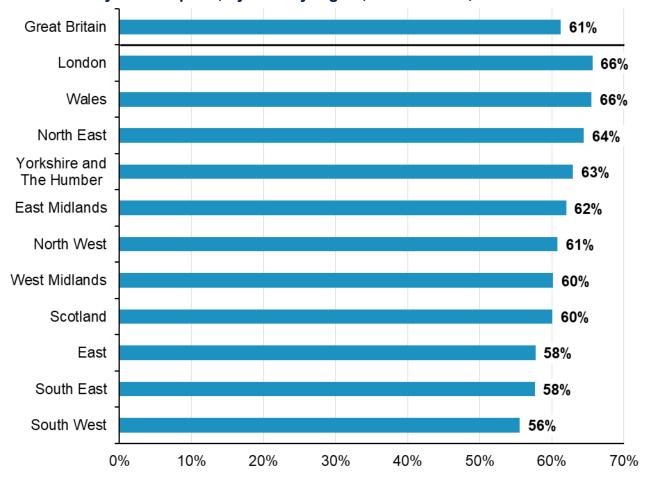


Table 1: Percentage change in total electricity consumption since 2005 and 2022, by country/region, Great Britain

		Non-			Non-	
	Domestic 2022-2023	Domestic 2022-2023	Total 2022-2023	Domestic 2005-2023	Domestic 2005-2023	Total 2005-2023
North East	2.1%	-2.3%	-0.8%	-22.6%	-31.7%	-28.7%
North West	3.9%	-3.3%	-0.6%	-19.1%	-28.5%	-25.1%
Yorkshire and The Humber	3.1%	-3.1%	-0.9%	-22.2%	-24.1%	-23.4%
East Midlands	2.5%	-2.7%	-0.8%	-17.9%	-24.3%	-22.0%
West Midlands	3.2%	-2.9%	-0.5%	-17.5%	-24.0%	-21.5%
East	1.5%	-2.2%	-0.6%	-17.7%	-21.0%	-19.6%
London	1.8%	-0.1%	0.5%	-14.3%	-17.5%	-16.4%
South East	2.0%	-1.4%	0.0%	-15.7%	-18.4%	-17.3%
South West	2.8%	-2.4%	-0.1%	-18.5%	-26.2%	-23.0%
England	2.5%	-2.1%	-0.3%	-17.8%	-23.1%	-21.1%
Wales	3.5%	-2.2%	-0.3%	-20.1%	-27.9%	-25.3%
Scotland	1.1%	-1.9%	-0.7%	-29.8%	-23.6%	-26.2%
Great Britain	2.5%	-2.0%	-0.3%	-19.2%	-24.1%	-22.2%





Non-domestic electricity consumption accounts for more than half of the electricity consumed in Great Britain (61 per cent in 2023). This is also the case for each country/region, as shown in Chart 3. Within England, in general, this proportion is lowest in the more southern regions: South West (56 per cent), South East (58 per cent) and East (58 per cent). The notable exception to this is London (66 per cent).

In 2023, total electricity consumption was lower than 5 years ago (2018) for 98 per cent of local authorities (342 out of 350) with around half (179 out of 350) experiencing reductions greater than 10 per cent over this period. Of the 8 local authorities experiencing increased total electricity consumption over this period, Slough in the South East had the largest increase, with a 44 per cent increase in total electricity consumption entirely driven by a 52 per cent increase in non-domestic consumption (alongside a decrease of 2 per cent in domestic consumption). Slough is an example of a local authority where trends in total electricity consumption are substantially driven by a small number of high-consuming non-domestic buildings, which in this specific local authority are data centres⁴. If these buildings are excluded from our statistics, Slough shows similar reductions in electricity consumption to other local authorities between 2018 and 2023 (an 8 per cent decrease in total electricity consumption).

⁴ Electricity consumption from data centres is also referenced in the <u>Non-domestic NEED report 2024</u> (page 49).

2.2 Domestic electricity consumption

Between 2021 and 2022 mean domestic electricity consumption fell by 8.9 per cent across Great Britain (with similar falls seen across all countries/region). This was likely a result of particularly elevated domestic electricity prices as well as the generally high cost of living during 2022. In 2023 there was a slight rebound (a 1.9 per cent year-on-year increase), leaving mean domestic electricity consumption 7.2 per cent lower than in 2021. Across all countries/regions in 2023 mean domestic electricity consumption remained lower than in 2021, by 5 to 9 per cent.

Over the longer term, total domestic electricity consumption in Great Britain has been on a downward trend with total domestic consumption 19.2 per cent lower in 2023 than in 2005. This reduction has happened despite a 12.7 per cent increase in the number of domestic meters, due to a 28.3 per cent reduction in mean domestic consumption per meter over this period.

Among all countries/regions, Scotland has experienced the largest percentage fall in total domestic electricity consumption between 2005 and 2022 (29.8 per cent). This is a result of Scotland experiencing the smallest increase in the number of domestic meters (4.9 per cent) combined with the largest reduction in mean consumption per meter over this period (33.1 per cent). A full country/region breakdown is provided in Table 2.

	Number of meters 2022-2023	Mean cons per meter 2022-2023	Total cons 2022-2023	Number of meters 2005-2023	Mean cons per meter 2005-2023	Total cons 2005-2023
North East	0.4%	1.7%	2.1%	7.4%	-27.9%	-22.6%
North West	0.6%	3.3%	3.9%	15.1%	-29.7%	-19.1%
Yorkshire and The Humber	0.5%	2.6%	3.1%	8.6%	-28.4%	-22.2%
East Midlands	0.7%	1.8%	2.5%	12.8%	-27.2%	-17.9%
West Midlands	0.5%	2.7%	3.2%	19.5%	-30.9%	-17.5%
East	0.7%	0.9%	1.5%	14.0%	-27.8%	-17.7%
London	0.6%	1.2%	1.8%	14.0%	-24.8%	-14.3%
South East	0.5%	1.5%	2.0%	14.4%	-26.3%	-15.7%
South West	0.5%	2.3%	2.8%	15.2%	-29.3%	-18.5%
England	0.6%	2.0%	2.5%	13.9%	-27.8%	-17.8%
Wales	0.2%	3.3%	3.5%	9.6%	-27.1%	-20.1%
Scotland	0.4%	0.7%	1.1%	4.9%	-33.1%	-29.8%
Great Britain	0.6%	1.9%	2.5%	12.7%	-28.3%	-19.2%

Table 2: Percentage change in number of domestic electricity meters and mean consumption since 2005 and 2022, by country/region, Great Britain

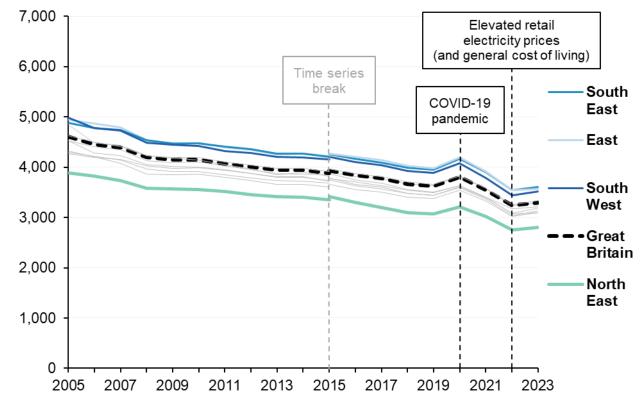




Chart 5: Mean domestic electricity consumption (kWh per meter) by country/region, Great Britain, 2018 and 2023

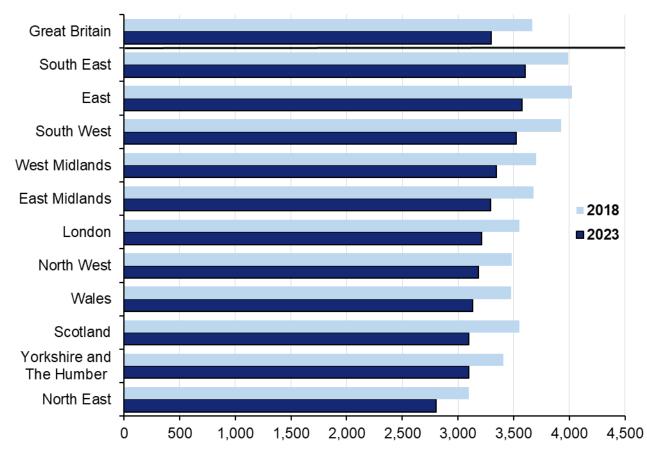
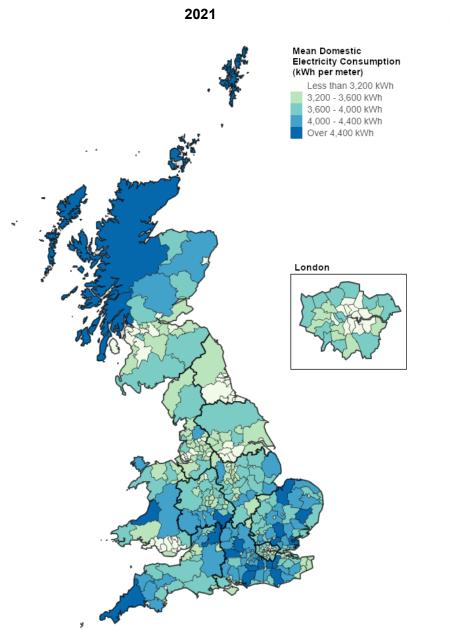


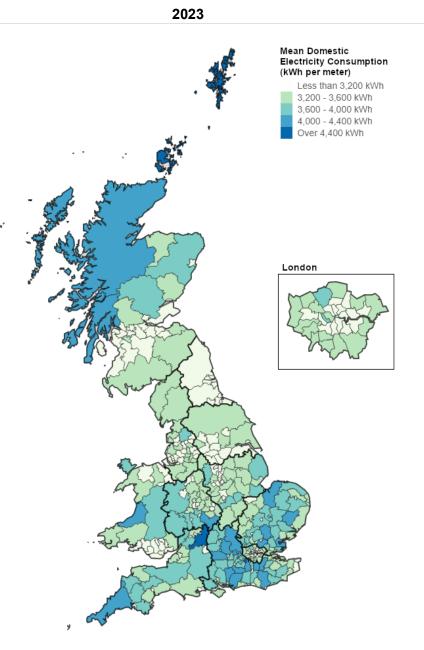
Chart 4 shows the trend in mean domestic electricity consumption since 2005, and Chart 5 shows how mean domestic electricity consumption varies across countries/regions in 2023 compared with 2018. The North East has always had the lowest mean domestic electricity consumption per meter, consistently remaining at around 13 to 15 per cent below the Great Britain average. This is likely to be related to the North East having the lowest proportion of domestic properties not connected to the gas grid (see pages 12, 25-27). Census (2021) data on the type of central heating used by each household shows that, within England and Wales, the North East has the lowest proportion of households only using electricity for central heating (5.1 per cent compared to 8.5 per cent for England and Wales as a whole).

At the other end of the scale, the most Southern regions (with the exception on London) have consistently had the highest mean domestic electricity consumption. In 2023, mean domestic consumption in the East was 8.3 per cent higher than the Great Britain average, while the South East was 9.1 per cent higher and the South West was 6.8 per cent higher. In the case of the South West, the higher than average electricity consumption per meter is likely to be related to it having the highest percentage of domestic properties not connected to the gas grid. The Census data shows that, within England and Wales, besides London, the South West has the highest percentage of households only using electricity for central heating (10.3 per cent).

Map 1 shows how mean domestic electricity consumption per meter varied geographically at the level of individual local authorities in 2021 and 2023. No single factor can explain the geographical variation shown. The most northern parts of Scotland (Highland, Western Isles, Orkney Islands and Shetland Islands) all had a mean domestic consumption greater than 4,000 kWh in 2023 (compared to 3,301 kWh for Great Britain as a whole). These local authorities have among the highest proportion of properties off the gas grid and among the highest proportion of properties only using electricity for central heating (according to the <u>2022</u> <u>Scotland Census</u>). Other factors include the <u>size of the property and household income</u>. These maps also illustrate the change in electricity consumption between 2021 and 2023. For the vast majority (92 per cent) of local authorities, mean electricity consumption in 2023 was over 5 per cent lower than in 2021.

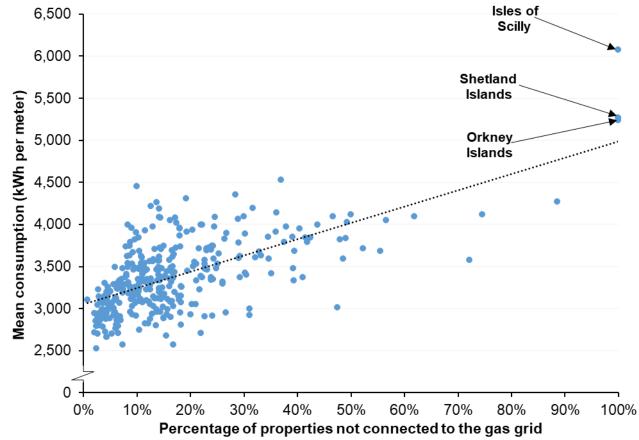
Map 1: Mean domestic electricity consumption per meter by local authority, 2021 (left map) and 2023 (right map)





In general, heating tends to be the main source of total energy consumption (from all energy sources) in domestic properties (61 per cent of domestic energy consumption in 2023⁵ was for space heating). Properties not connected to the gas grid are more likely to use electricity for heating⁶, which will raise their electricity consumption. Therefore, some correlation between electricity consumption and the percentage of properties not connected to the gas grid is expected. For each local authority, Chart 6 shows the mean domestic electricity consumption per meter against the proportion of properties not connected to the gas grid. There is indeed a moderate correlation between these variables (a correlation coefficient of 0.65 and a correlation of 0.55 if the 3 local authorities with no properties connected to the gas grid are excluded).





⁵ Source: <u>Energy Consumption in the UK 2024</u>, <u>End uses data tables</u> (XLS, 519KB), Table U1.

⁶ For those properties with no gas meter present, 53 per cent use electricity as their main fuel type. Among properties with mains gas, 1 per cent use electricity as their main fuel type. Source: English Housing Survey 2017/18, annex table 3.5.

Chart 7 shows the distribution of domestic electricity consumption at the level of individual meters in 2023. While most (68 per cent) domestic electricity meters consumed between 750 and 4,000 kWh, 3 per cent consumed over 10,000 kWh. As a result of these few high consuming meters the mean domestic electricity consumption of 3,301 kWh is substantially higher than the median domestic electricity consumption (the value which half of meters are above, and half are below) of 2,533 kWh.

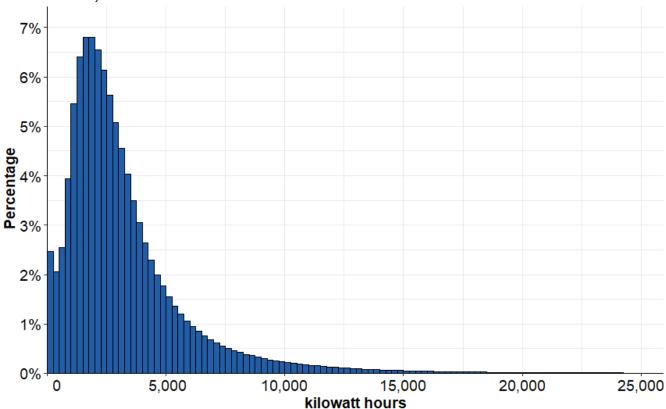


Chart 7: The distribution of domestic electricity consumption per meter, Great Britain, 2023

2.3 Non-domestic electricity consumption

Across Great Britain as a whole, total non-domestic electricity consumption decreased by 2.0 per cent between 2022 and 2023, driven by a 1.3 per cent reduction in the mean consumption per meter and a 0.7 per cent fall in the number of consuming non-domestic electricity meters. This reduction in the number of non-domestic meters may be related to the <u>1.5 per cent fall in the number of Value Added Tax (VAT) and/or Pay As You Earn (PAYE) registered businesses between March 2022 and March 2023</u>. As shown in Table 3, all countries/regions experienced similar year-on-year falls in total non-domestic consumption except for London which saw virtually no change (only a 0.1 per cent decrease).

Over the longer term there has been a 24.1 per cent reduction in total non-domestic electricity consumption between 2005 and 2023, driven by a 23.9 per cent reduction in mean electricity consumption per meter. A full country/region breakdown is provided in Table 3.

	Number of meters 2022-2023	Mean cons per meter 2022-2023	Total cons 2022-2023	Number of meters 2005-2023	Mean cons per meter 2005-2023	Total cons 2005-2023
North East	-0.1%	-2.2%	-2.3%	1.9%	-33.0%	-31.7%
North West	-1.0%	-2.4%	-3.3%	1.1%	-29.3%	-28.5%
Yorkshire and The Humber	1.6%	-4.7%	-3.1%	5.2%	-27.9%	-24.1%
East Midlands	-1.7%	-1.0%	-2.7%	1.2%	-25.2%	-24.3%
West Midlands	-1.9%	-1.0%	-2.9%	6.9%	-28.9%	-24.0%
East	0.6%	-2.8%	-2.2%	4.0%	-24.1%	-21.0%
London	-0.3%	0.2%	-0.1%	-6.7%	-11.5%	-17.5%
South East	-0.8%	-0.6%	-1.4%	-0.9%	-17.6%	-18.4%
South West	-1.7%	-0.7%	-2.4%	3.0%	-28.4%	-26.2%
England	-0.6%	-1.5%	-2.1%	0.6%	-23.6%	-23.1%
Wales	-1.7%	-0.6%	-2.2%	-3.4%	-25.3%	-27.9%
Scotland	-1.0%	-0.9%	-1.9%	-4.6%	-19.9%	-23.6%
Great Britain	-0.7%	-1.3%	-2.0%	-0.2%	-23.9%	-24.1%

Table 3: Percentage change in the number of non-domestic electricity meters and mean consumption since 2005 and 2022 by country/region, Great Britain

Chart 8 shows the trend in mean non-domestic electricity consumption since 2005. The North East has consistently had the highest mean non-domestic consumption, while the South West has consistently had the lowest. However, with so many different factors involved it is difficult to make meaningful, like for like comparisons between different parts of the country. This is particularly the case for non-domestic consumption as businesses vary greatly in size and activity⁷. Moreover, changes for a very small number of large very high consuming businesses can make a very big difference to total and mean consumption.

⁷ Further information on the non-domestic building stock and non-domestic building energy consumption in England and Wales can be found in the <u>Non-Domestic National Energy Efficiency Data-Framework</u>.

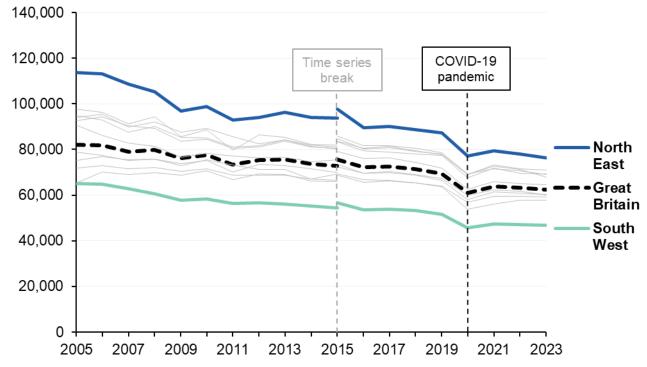
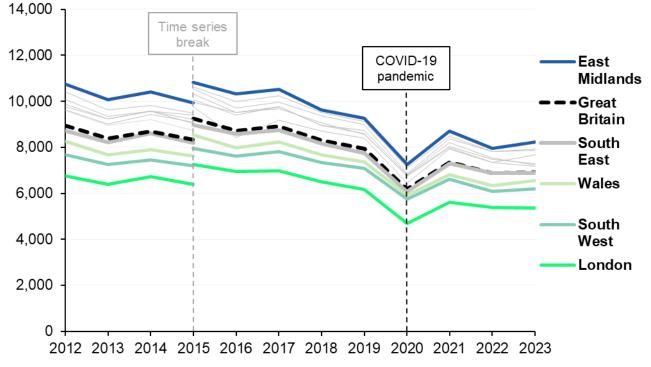


Chart 8: Mean non-domestic electricity consumption (kWh per meter) by country/region, Great Britain, 2005 to 2023

While mean non-domestic electricity consumption may be heavily affected by a small number of very high consuming meters, the median consumption can give a better indication of changes in electricity consumption for more typical meters in the non-domestic sector. Trends in median non-domestic electricity consumption since 2012 are shown in Chart 9, where the impacts of COVID-19 restrictions can be seen more clearly in the time series.





⁸ The lower mean/median estimates prior to the *time series break* in 2015 reflect the fact that non-consuming meters were included in the estimates for these earlier years.

3. Gas

This section presents gas consumption by domestic/non-domestic classification and geographic area (country, region and local authority). This report is accompanied by <u>tables</u> showing the full subnational gas consumption statistics.

Gas statistics: Background information

Sectoral classification for gas

To classify a gas meter as domestic or non-domestic, the gas industry cut-off point of 73,200 kWh is used. If a meter consumes less than 73,200 kWh within the gas year it is defined as domestic, or non-domestic if it consumes 73,200 kWh or more.

Unique sites in the gas consumption statistics

In addition to domestic and non-domestic meters, DESNZ is supplied with data on "Unique Sites" (also known as "Non-Standard Sites"). These are high consuming sites for which data was not available in earlier years, due to the complexities in their billing arrangements. Gas consumption from unique sites continues to be excluded in these statistics, to preserve consistency across the time series.

Break in trends

With the 2017 consumption figures, Xoserve introduced a new data collection system. Due to this, a large proportion of meters, which had not reported for some time, have had their consumption updated in 2017 leading to a sizeable increase in gas consumption reported in 2017. With most gas meters now providing timely meter readings, the figures from 2017 onwards give a more accurate reflection of gas consumption.

Weather correction

In the domestic sector, gas is predominantly used for heating purposes (76 per cent of domestic gas consumption was for space heating⁹ in 2023). As a result, usage is driven by external temperatures and weather conditions. The weather correction enables more like-for-like comparisons of gas use over time, by adjusting for weather changes. However the <u>weather</u> <u>correction process</u> may not adequately compensate for extreme weather conditions as consumers may adjust their gas use sharply over short periods of time.

Gas years

The gas years used for in these statistics are not calendars years, but are as follows:

- Prior to 2015: October September (same as for 2015)
- 2015: October 2014 September 2015
- 2016: Mid-July 2016 Mid-July 2017
- 2017: Mid-June 2017 Mid-June 2018
- 2018: Mid-May 2018 Mid-May 2019
- 2019 onwards: Mid-May Mid-May (same as for 2018)

⁹ Source: Energy Consumption in the UK 2024, End uses data tables (XLS, 518KB), Table U2.

3.1 Total gas consumption

In Great Britain as a whole, a total of 444,389 GWh of gas was consumed in the 2023 gas year (via 24.8 million meters). Following a record fall (9.6 per cent) between 2021 and 2022, total gas consumption fell slightly between 2022 and 2023 with a reduction of 0.8 per cent. Total gas consumption fell in 10 out of 14 countries/regions between 2022 and 2023. The 4 regions which saw increases (of up to 1.5 per cent) tended to be those which experienced the largest falls the previous year.

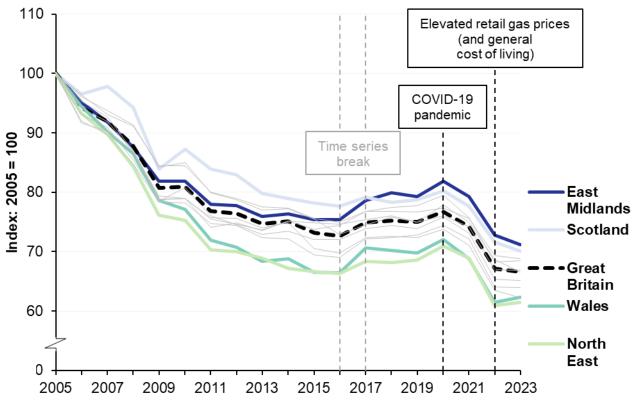


Chart 10: Total gas consumption by country/region, Great Britain, (Index: 2005 = 100)

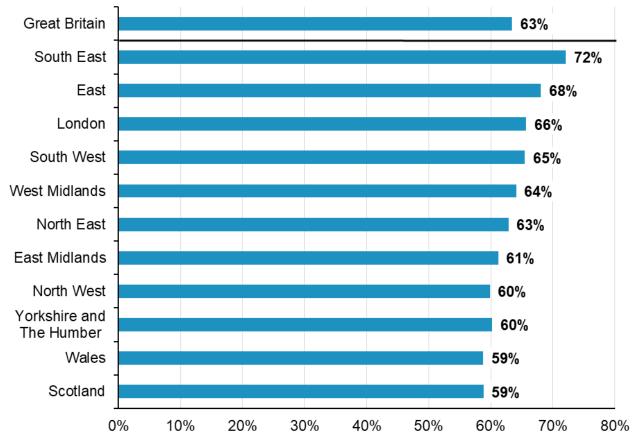
The domestic sector is the larger consumer of gas, accounting for around 60 to 70 per cent of total gas consumption across all countries/region (see Chart 11). Following on from a record fall (12.7 per cent) in domestic gas consumption in 2022, there has been a slight rebound, with domestic consumption increasing by 2.3 per cent between 2022 and 2023. However, this was offset by a 5.8 per cent decrease in non-domestic consumption between 2022 and 2023.

Over the longer term, total gas consumption has been falling across all countries/regions (see Chart 10 and Table 4), with total consumption around 33 per cent lower in 2023 than in 2005. Similar reductions were seen in both the domestic and non-domestic sectors.

		Non-			Non-	
	Domestic 2022-2023	Domestic 2022-2023	Total 2022-2023	Domestic 2005-2023	Domestic 2005-2023	Total 2005-2023
North East	3.0%	-2.4%	0.9%	-35.3%	-43.2%	-38.5%
North West	3.4%	-4.9%	-0.1%	-36.0%	-36.2%	-36.1%
Yorkshire and The Humber	3.2%	-8.9%	-2.0%	-33.1%	-43.7%	-37.8%
East Midlands	1.8%	-7.9%	-2.2%	-30.3%	-26.5%	-28.9%
West Midlands	2.9%	-5.4%	-0.2%	-31.1%	-36.5%	-33.2%
East	1.9%	-12.4%	-3.1%	-28.1%	-42.6%	-33.5%
London	0.8%	-3.7%	-0.8%	-31.4%	-30.7%	-31.2%
South East	1.9%	-5.9%	-0.4%	-28.3%	-47.4%	-34.9%
South West	2.1%	-3.0%	0.3%	-29.5%	-35.0%	-31.5%
England	2.2%	-6.2%	-0.9%	-31.4%	-38.3%	-34.0%
Wales	3.4%	-1.2%	1.5%	-36.8%	-38.8%	-37.6%
Scotland	2.0%	-7.2%	-2.0%	-28.9%	-31.3%	-29.9%
Great Britain	2.3%	-5.8%	-0.8%	-31.4%	-36.7%	-33.4%

Table 4: Percentage change in total gas consumption since 2005 and 2022, by country/region, Great Britain

Chart 11: Domestic gas consumption as a percentage of total gas consumption, by country/region, Great Britain, 2023



3.2 Domestic gas consumption

Between 2021 and 2022 mean domestic gas consumption fell by 13.3 per cent across Great Britain (with similar falls seen across all countries/region). This was likely a result of elevated domestic gas prices as well as the generally high cost of living during 2022. In 2023 there was a slight rebound (a 1.9 per cent year-on-year increase), leaving mean domestic gas consumption 11.6 per cent lower than in 2021. Across all countries/regions in 2023 mean domestic gas consumption remained lower than in 2021, by 10 to 13 per cent.

Over the longer term, total domestic gas consumption in Great Britain has been on a downward trend with total domestic consumption 31.4 per cent lower in 2023 than in 2005. This reduction has happened despite a 13.9 per cent increase in the number of domestic meters, due to a 39.8 per cent reduction in mean domestic consumption per meter over this period. A full country/region breakdown is provided in Table 5.

Table 5: Percentage change in number of domestic gas meters and mean consumption since 2005 and 2022, by country/region, Great Britain

	Number of meters 2022-2023	Mean cons per meter 2022-2023	Total cons 2022-2023	Number of meters 2005-2023	Mean cons per meter 2005-2023	Total cons 2005-2023
North East	0.5%	2.5%	3.0%	12.2%	-42.4%	-35.3%
North West	0.3%	3.0%	3.4%	10.2%	-41.9%	-36.0%
Yorkshire and The Humber	0.3%	2.8%	3.2%	11.6%	-40.1%	-33.1%
East Midlands	0.6%	1.2%	1.8%	18.1%	-41.0%	-30.3%
West Midlands	0.3%	2.6%	2.9%	12.4%	-38.7%	-31.1%
East	0.5%	1.4%	1.9%	17.9%	-39.0%	-28.1%
London	0.0%	0.9%	0.8%	3.4%	-33.7%	-31.4%
South East	0.4%	1.5%	1.9%	16.2%	-38.3%	-28.3%
South West	0.5%	1.6%	2.1%	22.1%	-42.3%	-29.5%
England	0.3%	1.9%	2.2%	13.1%	-39.3%	-31.4%
Wales	0.3%	3.1%	3.4%	12.6%	-43.9%	-36.8%
Scotland	0.6%	1.4%	2.0%	22.9%	-42.1%	-28.9%
Great Britain	0.4%	1.9%	2.3%	13.9%	-39.8%	-31.4%

Chart 12 shows the trend in mean domestic gas consumption since 2005, and Chart 13 shows how mean domestic gas consumption varies across countries/regions in 2023 compared with 2018. The South West has always had the lowest mean domestic gas consumption per meter, consistently remaining at around 11 to 12 per cent below the Great Britain average.

Map 2 shows the geographical variation in mean domestic gas consumption per meter at the level of individual local authorities in 2021 and 2023, and illustrates the changes between 2021 and 2023. For the vast majority (94 per cent) of gas-consuming local authorities, mean gas consumption in 2023 was over 10 per cent lower than in 2021.

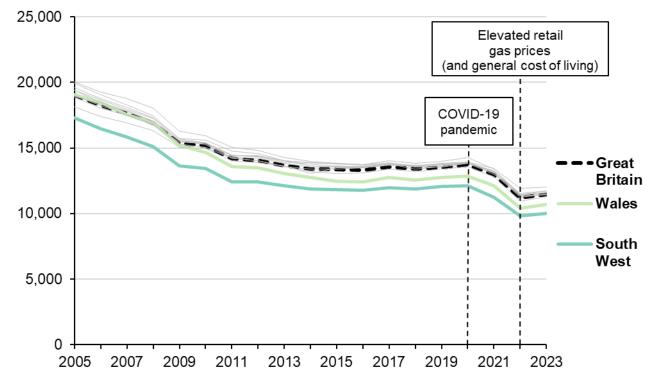
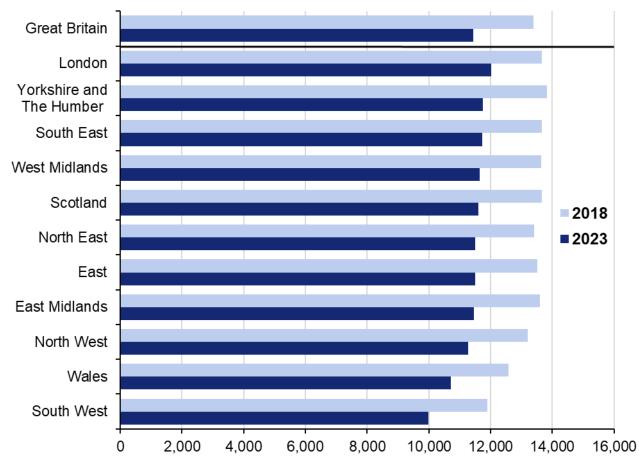
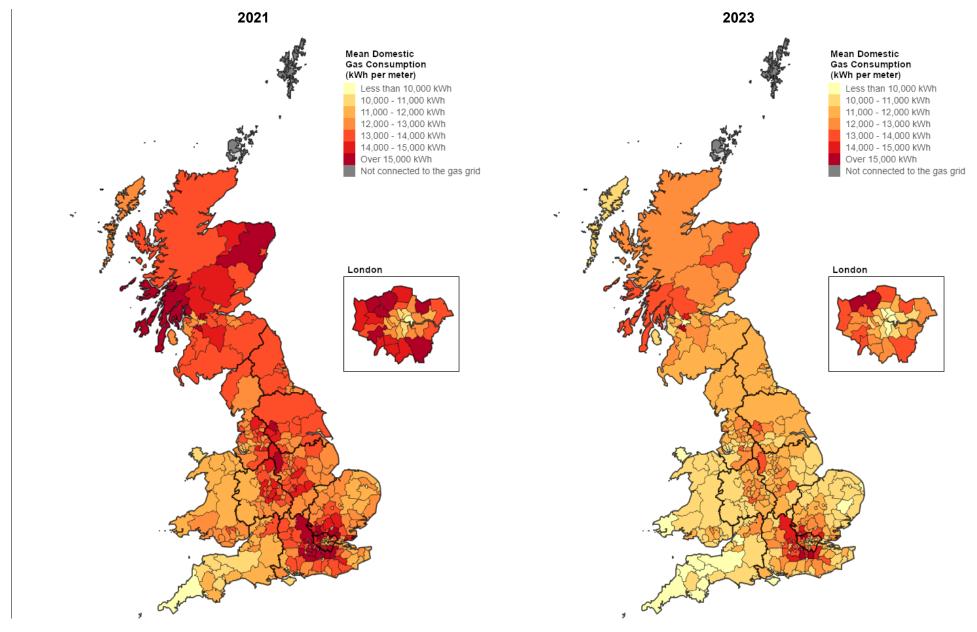


Chart 12: Mean domestic gas consumption (kWh per meter) by country/region, Great Britain, 2005 to 2023





Map 2: Mean domestic gas consumption per meter by local authority, 2021 (left map) and 2023 (right map)



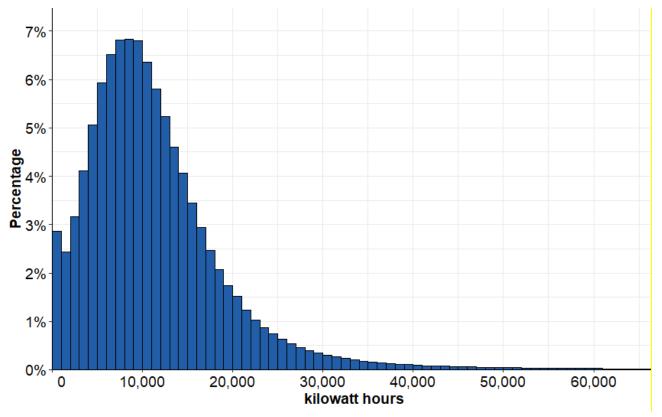


Chart 14: The distribution of domestic gas consumption per meter, Great Britain, 2023

Chart 14 shows the distribution of domestic gas consumption at the level of individual meters in 2023. While the majority of domestic gas meters (68 per cent) consumed between 3,000 kWh and 15,000 kWh, 3 per cent consumed over 30,000 kWh. Due to these few high consuming meters, the mean gas domestic consumption of 11,451 kWh is substantially higher than the median domestic gas consumption (the value for which half of meters are above, and half are below) of 9,928 kWh.

There are a variety of factors which may be influencing the variation in domestic gas consumption, for example property type, property age, energy efficiency of a property and number of occupants. Analysis presented in the NEED Annual report: <u>NEED Annex D</u>: <u>Determinants of domestic gas consumption</u> (PDF, 1.46MB), looks at how various factors affect household gas use, including property age, property type, household income and number of occupants.

3.3 Non-domestic gas consumption

Across Great Britain, total non-domestic gas consumption decreased by 5.8 per cent between 2022 and 2023. Over the longer term, total non-domestic gas consumption in Great Britain has been on a downward trend, with total non-domestic consumption in 2023 levels being 36.7 per cent lower than in 2005.

The use of the consumption threshold of 73,200 kWh for categorising gas meters as domestic or non-domestic means that some smaller commercial properties are classified as domestic. Consequently, our consumption estimates for the non-domestic sector (especially means and medians) can be distorted by meters crossing the classification threshold from one year to the next. The effect of meters crossing this threshold is not the cause of the 5.8 per cent decrease in total non-domestic consumption between 2022 and 2023, as can be seen by calculating the consumption change for those gas meters which were classified as non-domestic in both years, which shows a similar 6.4 per cent decrease in total consumption.

Over the longer term there has been a 36.7 per cent reduction in total non-domestic electricity consumption between 2005 and 2023, driven by a 39.0 per cent reduction in the number of non-domestic gas meters. A full country/region breakdown is provided in Table 6.

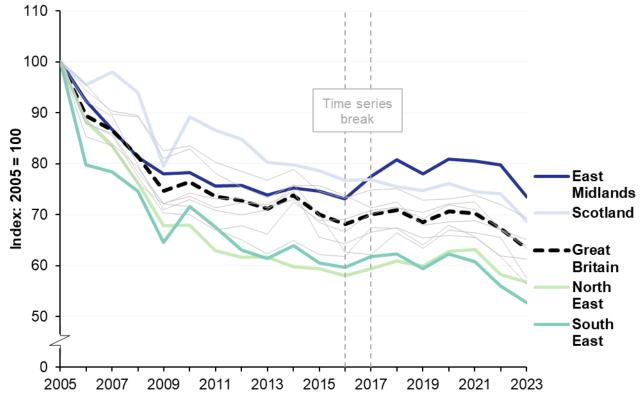
	Number of meters 2022-2023	Mean cons per meter 2022-2023	Total cons 2022-2023	Number of meters 2005-2023	Mean cons per meter 2005-2023	Total cons 2005-2023
North East	-2.2%	-0.2%	-2.4%	-36.5%	-10.6%	-43.2%
North West	-2.6%	-2.3%	-4.9%	-43.4%	12.8%	-36.2%
Yorkshire and The Humber	-2.1%	-6.9%	-8.9%	-42.7%	-1.7%	-43.7%
East Midlands	-2.4%	-5.7%	-7.9%	-39.6%	21.7%	-26.5%
West Midlands	-2.3%	-3.2%	-5.4%	-41.1%	7.8%	-36.5%
East	-1.9%	-10.6%	-12.4%	-39.9%	-4.4%	-42.6%
London	0.4%	-4.1%	-3.7%	-34.7%	6.2%	-30.7%
South East	0.1%	-5.9%	-5.9%	-39.1%	-13.5%	-47.4%
South West	-2.4%	-0.6%	-3.0%	-36.3%	2.0%	-35.0%
England	-1.4%	-4.8%	-6.2%	-39.3%	1.8%	-38.3%
Wales	-1.1%	-0.1%	-1.2%	-39.6%	1.3%	-38.8%
Scotland	-2.2%	-5.1%	-7.2%	-36.8%	8.7%	-31.3%
Great Britain	-1.5%	-4.4%	-5.8%	-39.0%	3.7%	-36.7%

Table 6: Percentage change in number of non-domestic gas meters and mean consumption since 2005 and 2022, by country/region, Great Britain

While the trends in total gas consumption (mainly driven by the domestic sector) are fairly uniform across the countries/regions (see Chart 10), the same is not the case when looking at

the non-domestic sector (see Chart 15). This is because gas consumption in the non-domestic sector is heavily influenced by the small number of high consuming sites.





3.4 Domestic properties not connected to the gas grid

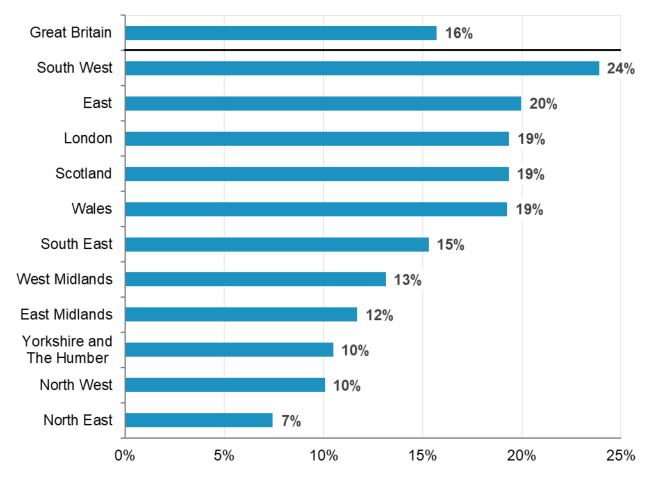
Properties not connected to the gas grid: Background information

There is no definitive source of information on properties that are not connected to the gas grid. However, DESNZ produces <u>estimates of the number of domestic properties not connected to</u> <u>the gas grid</u> based on the difference between the number of properties and the number of domestic gas meters in each area.

DESNZ is not able to identify specific properties within an area which are not connected to the gas grid but estimates the identification of areas which have few or no gas meters. Some limitations which should be considered when using these estimates include:

- Each gas meter is assigned as domestic or non-domestic based on the gas industry threshold of 73,200 kWh, with all meters consuming below 73,200 kWh per gas year assumed to be domestic. This means that the meters for smaller consuming commercial/industrial consumers are inadvertently classified as domestic. Therefore, estimates of the number of properties without gas are an underestimate of the true number. The impact of this assumption on estimates will vary by area.
- Approximately 0.1 per cent of domestic meters could not be allocated to a local authority region in 2023 as the postcode provided could not the matched to the National Statistics Postcode Lookup (NSPL). These unallocated meters are included in the overall estimates for Great Britain, England and Wales, and Scotland but excluded from all other geographical breakdowns.

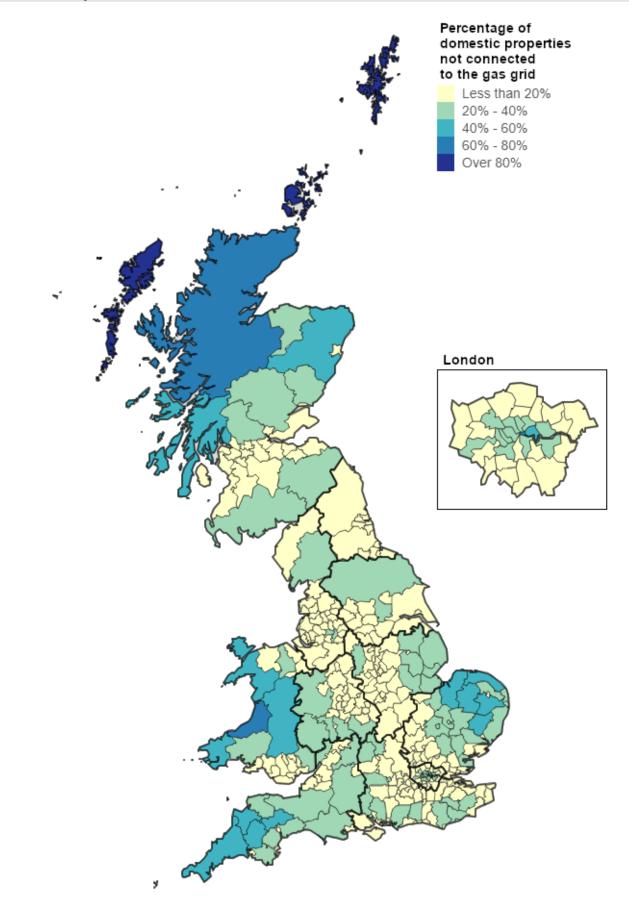
Chart 16 shows the estimated proportions of properties not connected to the gas grid for each country/region. Across Great Britain in 2023, an estimated 16 per cent of domestic properties were not connected to the gas grid, a similar proportion to 2015. The percentage not connected to the gas grid was lowest in the North of England: North East (7 per cent), North West (10 per cent) and Yorkshire and The Humber (10 per cent). The South West had by far the highest percentage of properties not connected to the gas grid was almost twice as large in Inner London (26 per cent) as in Outer London (14 per cent).





Map 3 shows how the proportion of domestic properties not connected to the gas grid varies geographically at the level of individual local authorities in Great Britain in 2023. There is no mains gas network in the Shetland Islands and the Orkney Islands north of mainland Scotland, and the Isles of Scilly off the coast of Cornwall (all properties are therefore off the gas grid). Na h-Eileanan Siar (the Western Isles of Scotland) has the next highest proportion of domestic properties not connected to the gas grid (89 per cent in 2023).

Map 3: Percentage of domestic properties not connected to the gas grid, by local authority, Great Britain, 2023



4. Comparisons with other sources

This subnational energy consumption report provides geographical breakdowns of <u>electricity</u> and <u>gas</u> consumption in Great Britain (GB). DESNZ also publishes similar subnational statistics at local authority level for Northern Ireland (NI) for both <u>electricity</u> and <u>gas</u>. Collectively, these statistics are 'bottom up' estimates produced from meter level consumption data and are primarily used to provide geographical breakdowns of electricity and gas consumption.

DESNZ also publishes 'top-down' estimates of total UK consumption in <u>Energy Trends</u>, for both <u>electricity (see ET5.2)</u> and <u>gas (see ET4.1)</u>, based on aggregate figures provided by energy suppliers. Energy Trends provide detailed sectoral breakdowns of consumption, rather than geographical breakdowns. Despite the differences in the data sources used, the UK-wide consumption timeseries from Energy Trends is broadly consistent with the subnational statistics in this report, as shown in Tables 7.1 and 7.2. However, users that are seeking the most accurate estimate of UK-wide consumption should take this from Energy Trends, and instead use these subnational estimates for lower level geographical breakdowns.

Subliatio	nai (bollom-u	p) estimates	compared to r	inergy rienus (to	op-uo
Year	Subnational: GB	Subnational: NI	Subnational: GB + NI	Energy Trends: UK	
2015	287,536	7,717	295,254	303,480	
2016	277,607	7,709	285,316	304,033	
2017	279,663	7,786	287,449	299,328	
2018	277,010	7,684	284,694	300,364	
2019	272,589	7,585	280,174	297,141	
2020	257,216	7,296	264,511	279,556	
2021	258,698	7,506	266,203	285,228	
2022	249,900	7,222	257,122	272,410	
2023	249,044	7,141	256,186	269,086	

7,516

Average

267,696

Table 7.1: Total electricity consumption (GWh), Non-Weather-Corrected, 2015 – 2023, Subnational ('bottom-up') estimates compared to Energy Trends ('top-down') estimates

Table 7.2: Total gas consumption (GWh), 2015 – 2023, Subnational ('bottom-up') estimates compared to Energy Trends ('top-down') estimates

275,212

290,070

Year	Subnational: Non-weather- corrected GB	Subnational: Weather- corrected NI	Subnational: GB + NI	Energy Trends: Non-weather- corrected UK
2015	499,463	5,924	505,387	505,837
2016	486,733	5,827	492,560	491,578
2017	512,816	6,562	519,379	519,029
2018	492,104	6,273	498,377	481,393
2019	501,298	7,074	508,372	495,488
2020	528,117	7,576	535,693	512,306
2021	473,135	7,248	480,383	490,367
2022	435,470	6,797	442,267	424,325
2023	425,678	6,924	432,602	415,827
Average	483,868	6,690	490,558	481,794

4.1 Electricity

While there are some differences in estimates of electricity consumption between the two sources (with Subnational giving an average of 5 per cent less annual total electricity consumption than Energy Trends between 2015 and 2023), the broad trend tends to be reasonably well aligned (as shown in Chart 17). One reason for the absolute difference in totals is that Energy Trends includes electricity that is generated and consumed on-site, which is excluded from Subnational estimates.

Charts 17-19 compare the trends in total consumption, total domestic consumption and total non-domestic consumption between the subnational estimates in this publication (GB) and the Energy Trends (UK) estimates. On this basis the changes in total consumption between 2005 and 2023 are:

- For total electricity consumption, Subnational (GB) estimates show a 22.2 per cent decrease compared to a 22.8 per cent decrease in Energy Trends
- For total domestic electricity consumption, Subnational (GB) estimates show a 19.2 per cent decrease compared to a 26.4 per cent decrease in Energy Trends
- For total non-domestic electricity consumption Subnational (GB) estimates show a 24.1 per cent decrease compared to 20.8 per cent decrease in Energy Trends

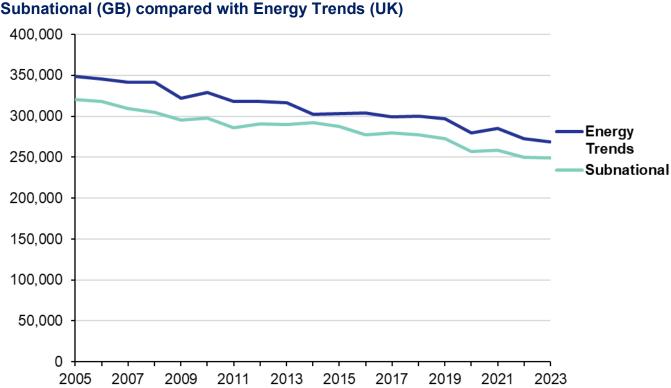


Chart 17: Total annual electricity consumption (GWh), non-weather-corrected, 2005 to 2023,

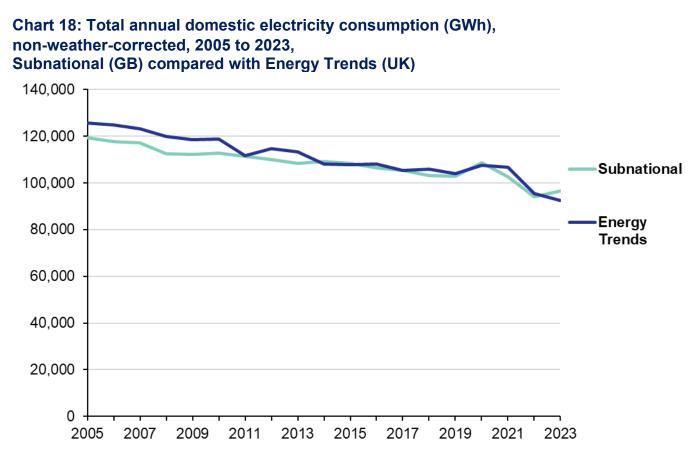
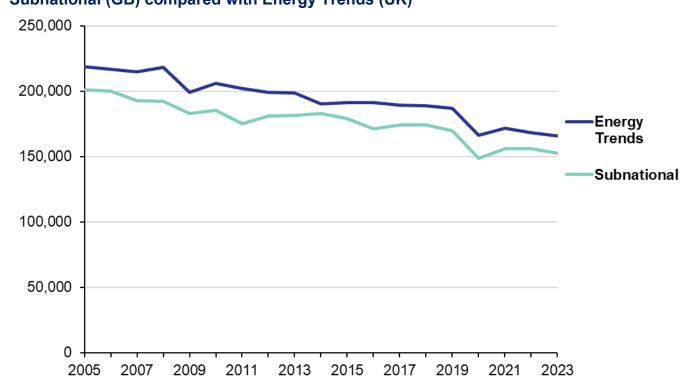


Chart 19: Total annual non-domestic electricity consumption (GWh), non-weather-corrected 2005 to 2023, Subnational (GB) compared with Energy Trends (UK)



4.2 Gas

While there are some differences in estimated gas consumption between the two sources (with Subnational giving 2 per cent more in total gas than Energy Trends on average between 2015 and 2023), the longer-term trends based on Subnational and Energy Trends tend to be reasonably closely aligned (as shown in Chart 20). One reason for this difference is that gas used for transformation and energy industry is not included in the final consumption estimates from Energy Trends, but some of this is included in Subnational estimates. In addition, as outlined below, slightly different time periods are being compared.

Charts 20-22 present non-weather-corrected gas consumption from Subnational (GB) and Energy Trends (UK) with gas years (for example: 2023 = mid-May 2023 to mid-May 2024) used for the former and financial years (calculated from the quarterly estimates) used for the later (e.g. 2023 = April 2023 to March 2024)¹⁰. On this basis the changes in total consumption between 2015 and 2023 are:

- For total gas consumption, Subnational (GB) estimates show a 14.8 per cent decrease compared to a 17.8 per cent decrease in Energy Trends
- For total domestic gas consumption, Subnational (GB) estimates show a 16.0 per cent increase compared to a 22.6 per cent decrease in Energy Trends
- For total non-domestic gas consumption Subnational (GB) estimates show a 12.5 per cent decrease compared to 10.4 per cent decrease in Energy Trends

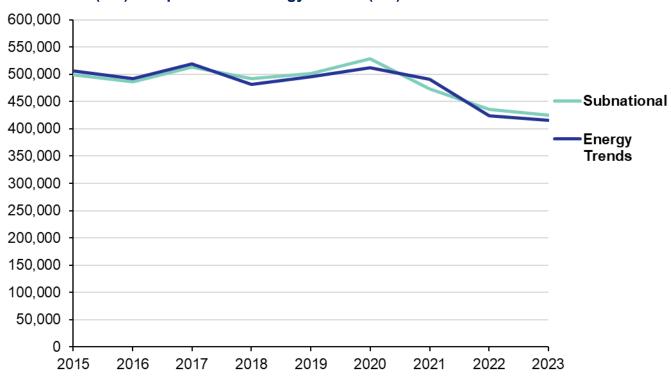


Chart 20: Total annual gas consumption (GWh), non-weather-corrected 2015 to 2023, Subnational (GB) compared with Energy Trends (UK)

¹⁰ This is with the exception of 2015. In subnational, the gas year 2015 was October 2014 to September 2015 and the same period was taken for taken from Energy Trends (Q4 2014 to Q3 2015).

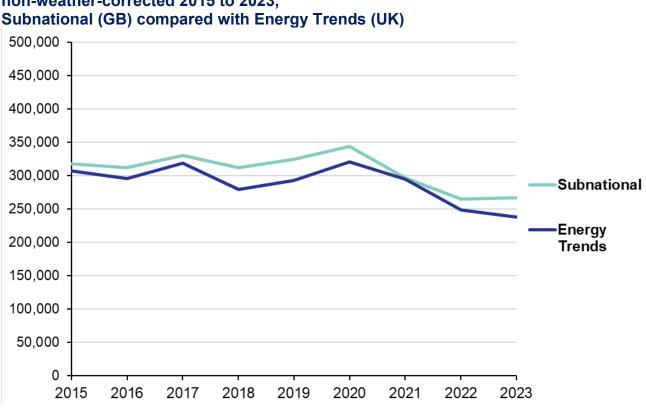
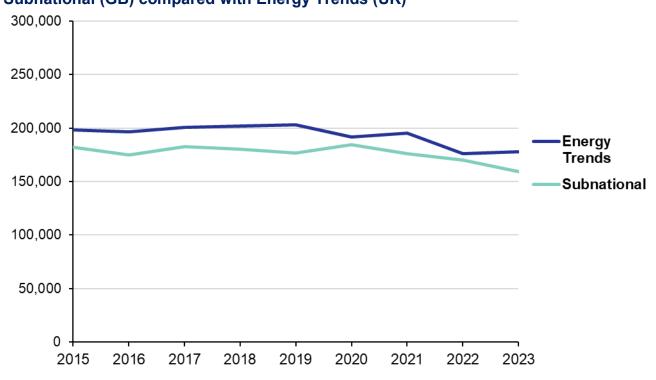


Chart 21: Total annual domestic gas consumption (GWh), non-weather-corrected 2015 to 2023,

Chart 22: Total annual non-domestic gas consumption (GWh), non-weather-corrected 2015 to 2023, Subnational (GB) compared with Energy Trends (UK)



For gas, an additional factor to consider, is the methodology within Subnational (GB) used to classify meters as either being domestic or non-domestic. Those consuming meters with a consumption less than the industry cut-off of 73,200 kWh, are classified as domestic, with all other consuming meters classified as non-domestic, for the given year. This means that meters can switch between the two categories which distorts year on-year changes. This has much less of an impact on domestic consumption as, with the vast majority of gas meters being domestic, the consumption from meters switching classifications makes up a much smaller proportion of total domestic gas consumption in any given year.

Additionally, many low gas consuming meters which are in reality non-domestic meters, and consistently consume less than less than 73,200 kWh, will consistently be classified as domestic in Subnational (GB), having some effect on the domestic trends observed over the longer term. This is likely also part of the reason for Subnational (GB) consistently giving a higher total domestic consumption than Energy Trends (UK).

Accompanying tables

The following <u>electricity consumption tables</u> accompany this report:

- Regional and local authority electricity consumption (domestic and non-domestic)
- Middle Layer Super Output Areas electricity consumption (domestic and non-domestic)
- Lower Layer Super Output Areas electricity consumption (domestic)
- Stacked electricity consumption data (domestic and non-domestic)
- Postcode level electricity consumption (domestic).

The following <u>gas consumption tables</u> accompany this report:

- Regional and local authority gas consumption (domestic and non-domestic)
- Middle Layer Super Output Areas gas consumption (domestic and non-domestic)
- Lower Layer Super Output Areas gas consumption (domestic)
- Stacked gas consumption data (domestic and non-domestic)
- Postcode level gas consumption (domestic).

The following <u>estimates of domestic properties not connected to the gas network tables</u> accompany this report:

- Regional and local authority estimates of domestic properties not connected to the gas network
- Parliamentary constituency estimates of domestic properties not connected to the gas network
- Middle Layer Super Output Area estimates of domestic properties not connected to the gas network
- Lower Layer Super Output Area estimates of domestic properties not connected to the gas network.

Technical information

For full details on the methodology, assumptions and data interpretation relating to these statistics, please refer to the <u>Methodology and Guidance booklet</u>. Users are highly advised to familiarise themselves with the material in the booklet before using the data.

Related statistics

Comparison between subnational electricity and gas data

Subnational electricity and gas consumption statistics use varying methodologies to compile the datasets and cover different time periods. A key difference to bear in mind is that electricity consumption data are not weather corrected while gas consumption data have a weather correction factor applied to them. Despite these differences, the combined electricity and gas figures provide a good indication of overall annual household energy consumption in Great Britain at local authority, MSOA/IZ and LSOA/DZ level.

Comparison to Energy Trends (Quarterly) and DUKES (Annual)

<u>Energy Trends</u> and the <u>Digest of United Kingdom Energy Statistics</u> (DUKES) provide a detailed and comprehensive picture of energy production and use, with extensive tables, charts and commentary covering all the major aspects of energy.

There are differences in reported electricity and gas figures in the subnational and Energy Trends/DUKES publications as Energy Trends/DUKES data:

- Are based on different time periods Energy Trends is quarterly and DUKES is aligned to calendar years. Subnational electricity estimates cover the calendar year for halfhourly data, but an annual period starting on 31 January for non-half hourly data (see section 2 for details). The subnational gas year starts in mid-May (see section 3 for details).
- Covers consumption for the United Kingdom, whereas the subnational consumption statistics cover Great Britain.
- Are compiled using a top-down approach, where statistics are gathered by energy companies on a national level, whereas subnational datasets are created from aggregating the consumption figures for individual electricity and gas meters.
- Include electricity consumption from Central Volume Allocation (CVA) users and electricity generated and consumed onsite in its totals, which are not included in the subnational data.
- Include gas consumption from large power stations in its totals, which are not included in subnational data.
- Does not include weather correction for gas consumption, whereas subnational gas data are weather corrected.

Comparison to ECUK

Energy Consumption in the UK (ECUK) is an annual DESNZ publication which includes a detailed overview of energy consumption at a UK-wide level.

Differences occur between ECUK and subnational figures as data in ECUK are, in many cases, modelled and obtained from secondary analysis performed by DESNZ on data from several sources, including DUKES. ECUK contains a more comprehensive sector split than subnational statistics and gives information on end use for majority of fuels. ECUK estimates cover the calendar year, whereas Subnational estimates use different time periods (see Energy Trends/DUKES section above for details).

Further information

Future updates to these statistics

Great Britain:

The next publication of subnational electricity and gas data will be in December 2025 when 2024 data will be available.

Northern Ireland:

The next publication of Northern Ireland electricity and gas data will be in December 2025 when 2024 data will be available.

Revisions policy

The <u>DESNZ statistical revisions policy</u> sets out the revisions policy for these statistics, which has been developed in accordance with the UK Statistics Authority <u>Code of Practice for</u> <u>Statistics</u>.

Uses of these statistics

The most significant use of the subnational consumption data is by local authorities and devolved administrations for targeting and monitoring a range of carbon reduction and energy efficiency policies. For example, they have told us they use these statistics to:

- identify areas with high consumption to identify reasons and target measures.
- enable more effective deployment of renewable energy schemes by knowing where energy is consumed.
- estimate the proportion of energy reduced or replaced through local sustainable energy projects.
- help identify areas off the gas grid.
- establish a baseline consumption figure to set targets for reduction.
- enable more efficient targeting of investments and interventions.
- help in planning to improve the energy efficiency of homes.

Other external users include academics and members of industry who use the data for a variety of purposes. Most commonly, data has been used to examine trends over time or assess the effectiveness of energy efficiency initiatives.

Internally, data are used by DESNZ policy colleagues and other analysts within the department to inform policy development and help with monitoring and evaluation of DESNZ policies. The meter point gas and electricity data collected for subnational consumption outputs are also the most important input for the <u>National Energy Efficiency Data-Framework</u> (NEED). They also form the basis of responses to parliamentary questions and general enquiries.

User engagement

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 this statistical release are welcomed and should be sent to the <u>Energy Efficiency Statistics mailbox</u>.

The DESNZ statement on <u>statistical public engagement and data standards</u> sets out the department's commitments on public engagement and data standards as outlined by the <u>Code</u> <u>of Practice for Statistics</u>.

Official Statistics designation

Accredited Official Statistics status means that our statistics meet the highest standards of trustworthiness, quality and public value, and it is our responsibility to maintain compliance with these standards.

The continued designation of these statistics as Accredited Official Statistics was confirmed in September 2018 following a <u>compliance check</u> by the Office for Statistics Regulation. The statistics last underwent a <u>full assessment</u> in 2014.

Pre-release access to statistics

Some ministers and officials receive access to these statistics up to 24 hours before release. Details of the arrangements for doing this and a list of the ministers and officials that receive pre-release access to these statistics can be found in the <u>DESNZ statement of compliance</u> with the Pre-Release Access to Official Statistics Order 2008.

Contact

Responsible statisticians: Hiten Shah and Paulina Baig Email: <u>energyefficiency.stats@energysecurity.gov.uk</u> Media enquiries: 020 7215 1000



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