Department for Business, Energy & Industrial Strategy

Sub-national Electricity and Gas Consumption

Regional and Local Authority, Great Britain, 2018

19 December 2019 National Statistics

This publication provides estimates of annual electricity and weather corrected gas consumption at and below national level in England, Scotland and Wales. Latest estimates are for 2018.

- Comparing electricity consumption to 2017, all regions showed a decrease in their electricity consumption, despite around 148,000 new meter installations across Great Britain.
- Average domestic electricity consumption continued to be lowest in the North East (3,050 kWh per meter) and highest in the East of England (3,984 per meter).
- Since 2005, all regions have shown large reductions in meter point electricity consumption with Scotland showing the highest reduction; 1,500 kWh (25.6%) per meter.
- Domestic gas consumption remained relatively stable across the regions in 2018/19 in comparison with 2017/18.
- Since 2005 all regions have shown large decreases in average domestic gas meter point consumption with the South West and Wales showing reductions of over 7,000 kWh per meter.
- The proportion of homes not connected to the gas grid has remained consistent between 2016 and 2018 at around 14.4% overall.

What you need to know about these statistics

Because readings were not submitted for significant proportion of meters for multiple years prior to 2017, the figures for these years likely underestimate the total gas used. At 2017 there is a methodological change in the timeseries which means the gas consumption is not comparable to previous years. From 2017 onwards the trends are more accurate and comparable over time.

New this year is an interactive energy map which displays electricity consumption, gas consumption, per cent of properties off gas grid, Energy Performance Certificate, Energy Company Obligation and fuel poverty data at various geographic levels (down to postcode). The map can be accessed here: www.domesticenergymap.uk.

The method for estimating the number of properties not connected to the gas grid gas been improved. This publication includes estimates of this for 2015 – 2018 using the new method.

Responsible statistician: Adam Bricknell
Public enquiries: 020 7215 0222
Email: energy.stats@beis.gov.uk
Next publication: December 2020

Contents

1. Introduction

1.1 Background

This document provides commentary on BEIS' sub-national estimates of electricity and weather corrected gas consumption for England, Scotland and Wales. Estimates are based on meter point data provided by the electricity and gas industries from their administrative systems. The most recent estimates are for 2018. In this document "2018" refers to different periods for electricity and gas consumption; more detail on this is given in the electricity and gas chapters.

Estimates are published for domestic and non-domestic users and broken down by Region/Devolved Administration[1] (referred to as regions for the rest of this document) and local authority. Middle layer super output area (intermediate geography zone in Scotland) and lower layer super output area (England and Wales, domestic, only) estimates are available here: https://www.gov.uk/government/collections/sub-national-electricity-consumption-data (for electricity) and https://www.gov.uk/government/collections/sub-national-gas-consumption-data (for gas).

For full details on the methodology, assumptions and data interpretation relating to these statistics, please refer to the Methodology and Guidance document available here: https://www.gov.uk/government/publications/regional-energy-data-guidance-note. Readers are highly advised to familiarise themselves with the material in the booklet before using the data.

For national estimates of domestic consumption, the Digest of United Kingdom Energy Statistics (DUKES) 2019[2] or Energy Consumption in the UK 2019 (ECUK)[3] should be used. Breakdowns of consumption by property attributes and household/business characteristics are available through the National Energy Efficiency Data-Framework (NEED)[4].

1.2 Uses of these statistics

The most significant use of the sub-national consumption data is by local authorities and devolved administrations, other external users including academics and industry. Most commonly data have been used for targeting, to examine trends over time, or assess the effectiveness of carbon reduction and energy efficiency policies and initiatives.

Internally, data are used by BEIS policy colleagues and other analysts to inform policy development and help with monitoring and evaluation of BEIS policies. The meter point gas and electricity data collected for sub-national consumption outputs are also used in NEED.

Feedback from users of these data is welcomed. If you have any queries or suggestions, please contact us at energy.stats@beis.gov.uk. The team which creates this publication may hold user engagement events in the future to understand how they can better meet user

[1] 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 1.2 of the Sub-national methodology and guidance booklet.
[2] DUKES: https://www.gov.uk/government/statistics/digest-of-uk-energy-statistics-dukes-2019
[3] ECUK: https://www.gov.uk/government/statistics/energy-consumption-in-the-uk.,
[4] https://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework.

needs: if you would like to be considered for an invitation to the next event, please email the address with a paragraph on what you use the data for or would use additional data for.

Users are also invited to complete this one minute survey to allow better future publications: https://www.surveymonkey.co.uk/r/92JMDHT

2. Electricity

The data analysed in this document are based on the aggregation of Meter Point Administration Number (MPAN) readings throughout Great Britain obtained from electricity suppliers through their data aggregators. In total there were 31.1 million MPANs in 2018[5]. The estimates presented for 2018 cover the industry defined years:

- Electricity non-half hourly[6] - 31 January 2018 to 30 January 2019
- Electric Half hourly – 01 January 2018 to 31st December 2018

This section looks at electricity consumption by consuming sector (i.e. where a meter profile is categorised as domestic or non-domestic)[7], and geographic area (region and local authority).

Annual data for 2005 to 2018 can be found here:
https://www.gov.uk/government/collections/sub-national-electricity-consumption-data

On-site generation of electricity statistics

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 isn't captured in these statistics. More information on installations of electricity generators in the UK under the Feed-in Tariff can be found here:
https://www.gov.uk/government/collections/feed-in-tariff-statistics

2.1 Total electricity consumption

Total electricity consumption decreased in most regions in 2018, with increases observed in only Yorkshire and the Humber (less than 0.1%) and Scotland (0.2% increase). The East of England and Inner London were the regions with the highest overall decrease with both showing a decrease of over 1 per cent.

The South East consumed the largest proportion of all electricity consumption (13.5 per cent, 37,466 GWh), whilst North East consumed the smallest proportion of all electricity consumption in Great Britain (4.0 per cent, 11,166 GWh). 260 Local Authorities showed a decrease in total electricity consumption in 2018, decreases ranged between 0.1 per cent and 13 percent.

[5] In most cases an MPAN reflects a physical meter point, some MPANs (around 1%) are classified as 'unmetered service' consumption. Unmetered service usually occurs where a physical meter in impractical to install (e.g., motorway lighting).
[6] A non-half hourly (NHH) meter is used for domestic or smaller non-domestic supplies.
[7] Meter profiles 1 and 2 are domestic meters, all other meter profiles 0 and 3 to 8 are non-domestic

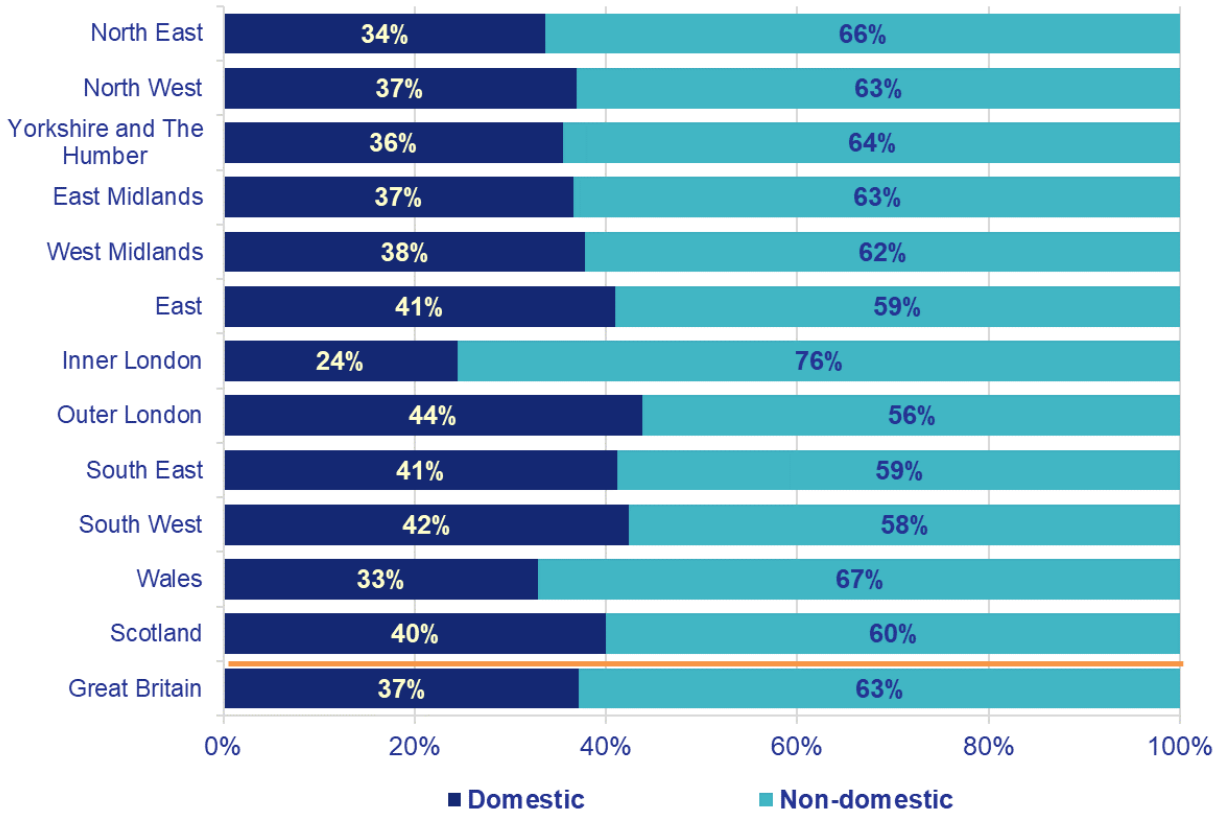
2.2 Domestic electricity consumption

Total domestic consumption

Domestic electricity consumption across the regions was 2.5 per cent lower (102,761 GWh) than in 2017 (105,355 GWh) and 14 per cent lower than in 2005 (119,425 GWh). Factors influencing total domestic electricity consumption include the population and number of households in a region, and the fuel mix used to meet domestic energy demands (for example, households without access to gas are likely to use more electricity for heating).

The non-domestic sector uses the majority (62.9 per cent) of Great Britain's electricity consumption. A breakdown of domestic and non-domestic electricity consumption by region can be seen in chart 1 below. This shows that Inner London has the largest proportion of non-domestic electricity consumption making up 76 per cent of all electricity consumption in this region, whilst Outer London shows the smallest proportion of non-domestic consumption at 56 per cent.

Chart 1: Proportion of domestic and non-domestic electricity consumption by region in Great Britain, 2018



In 2018 there were 28.4 million domestic electricity meters, an increase of 0.5 per cent since 2017. The number of domestic meters does not imply that there are 28.4 million domestic customers in Great Britain. Through the ONS, Welsh and Scottish Government reports there are an estimated 27 million households in Great Britain. The difference is likely to be due to some domestic meters being incorrectly classified and some properties having more than one electricity meter. Household average consumption is available in the accompanying Excel spreadsheet. The number of meters by local authority ranges from 1,176 in the Isles of Scilly to 432,276 meters in Glasgow City.

Average domestic consumption

Chart 2 below shows mean annual domestic electricity consumption per meter in Great Britain was 3,618 kWh in 2018, down 3.0 per cent on 2017 (3,729 kWh) and 26.8 per cent lower than in 2005 (4,602 kWh). The median in 2018 was 2,864 kWh. The difference between the mean and median (772 kWh) is more pronounced for electricity than for gas because of the variety of ways electricity is used in homes (for example, some properties use electricity for heating, while most homes with a gas connection use gas for heating). Chart 3 below highlights that 71 per cent of meters consume between 1,000 kWh and 5,000 kWh of electricity per annum with the domestic mean sitting at 3,618 kWh and the median at 2,846 kWh.

Chart 2: Mean annual domestic electricity consumption (kWh) per meter Great Britain, 2005 to 2018

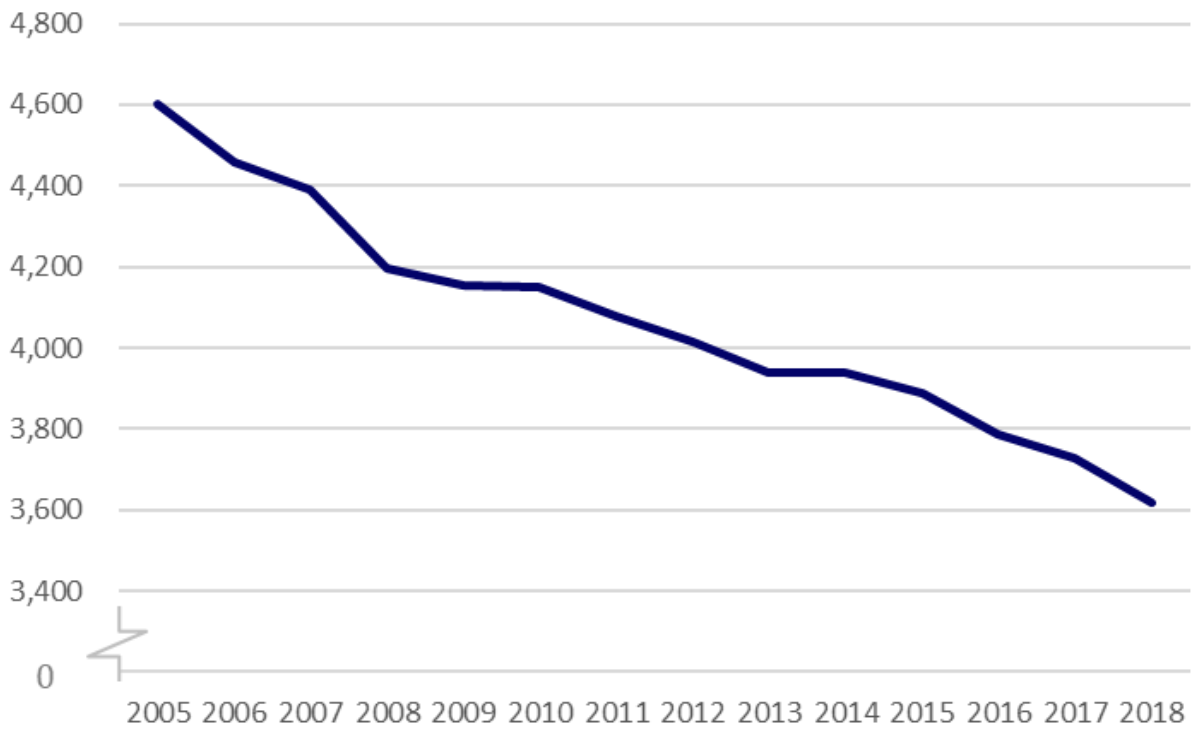
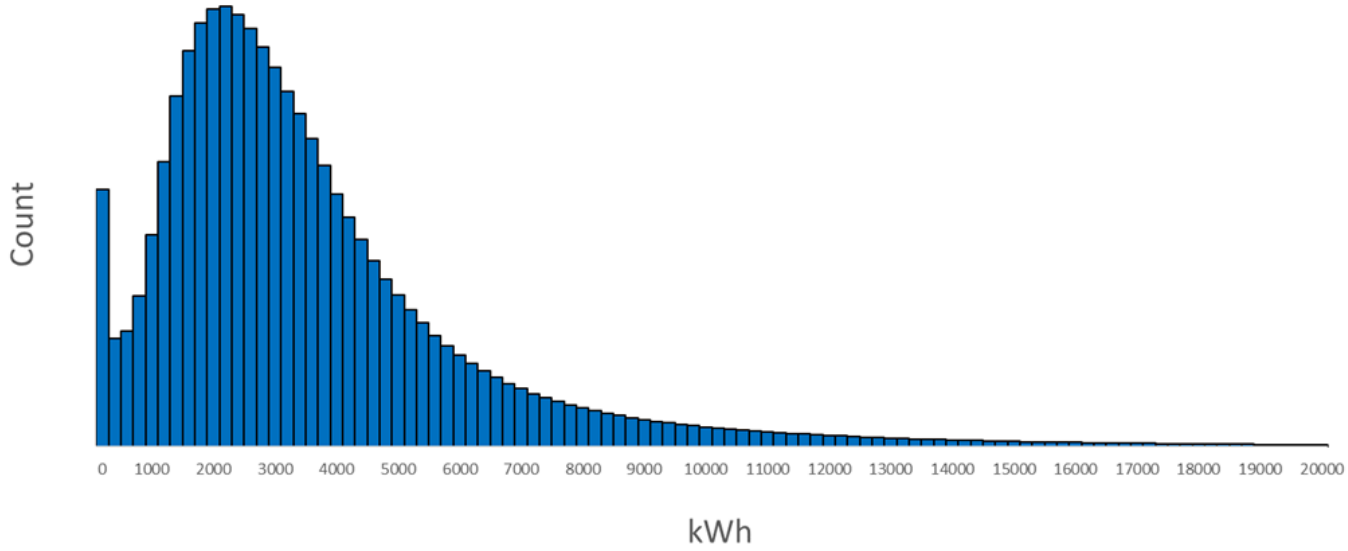


Chart 3: Histogram of domestic electricity consumption for each meter in 2018:



At a regional level, the North East continued to have the lowest mean domestic consumption at 3,050 kWh (median 2,543 kWh). The East continued to have the highest mean and median domestic consumption, 3,984 kWh and 3,067 kWh. Table 1 shows the mean and median domestic consumption per meter in each region in 2018 further broken down by Standard and Economy 7 meters. Economy 7 meters record electricity consumption at two rates, one for daytime and a cheaper rate during the night. Map 1 below shows average domestic electricity consumption per meter by local authority in 2018.

Map 1: Mean domestic electricity consumption per meter by local authority, 2018

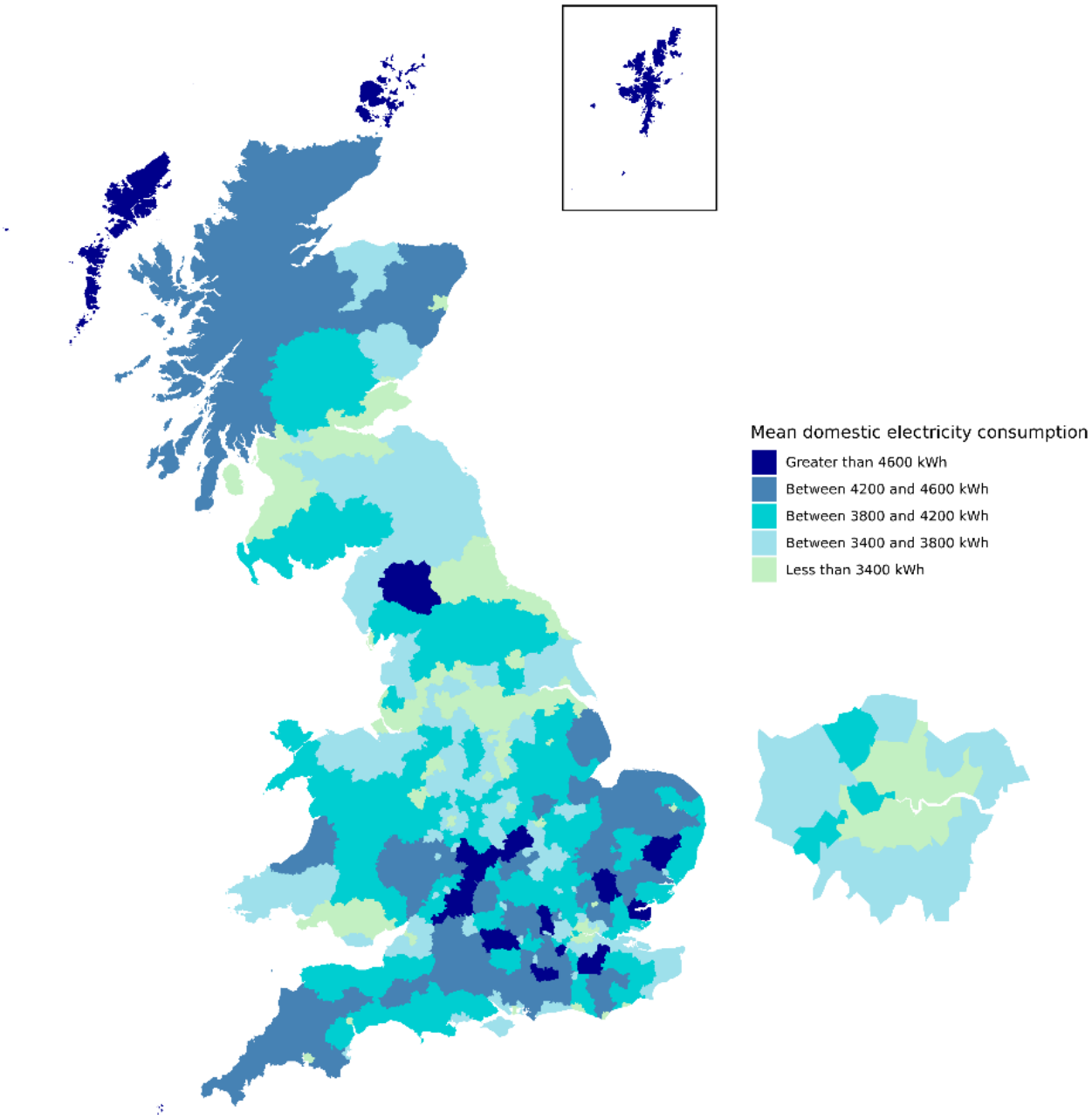


Table 1: Average domestic electricity consumption per meter by region, 2018

	All domestic meters			Standard domestic meters			Economy-7 meters		
	Mean domestic consumption (kWh)	Median domestic consumption (kWh)	Number of domestic meters (thousand)	Mean domestic consumption (kWh)	Median domestic consumption (kWh)	Percentage of domestic meters	Mean domestic consumption (kWh)	Median domestic consumption (kWh)	Percentage of domestic meters
North East	3,050	2,543	1,231	2,955	2,518	95%	4,786	3,573	5%
North West	3,437	2,817	3,253	3,278	2,758	93%	5,607	4,441	7%
Yorkshire and The Humber	3,365	2,711	2,402	3,223	2,664	93%	5,343	4,089	7%
East Midlands	3,639	2,878	2,068	3,313	2,730	70%	4,393	3,295	30%
West Midlands	3,664	2,942	2,461	3,427	2,846	85%	5,015	3,783	15%
East	3,984	3,067	2,667	3,583	2,886	73%	5,097	3,784	27%
Inner London	3,294	2,363	1,535	3,114	2,281	91%	5,132	3,998	9%
Outer London	3,648	2,880	2,055	3,463	2,785	86%	4,744	3,703	14%
South East	3,950	3,055	3,907	3,689	2,930	84%	5,293	4,053	16%
South West	3,883	2,985	2,561	3,508	2,829	86%	6,234	5,146	14%
England	**3,650**	**2,866**	**24,138**	**3,395**	**2,756**	**85%**	**5,121**	**3,863**	**15%**
Wales	**3,421**	**2,783**	**1,421**	**3,231**	**2,723**	**93%**	**6,114**	**4,740**	**7%**
Scotland	**3,443**	**2,715**	**2,813**	**3,218**	**2,655**	**86%**	**4,780**	**3,554**	**14%**
Unallocated	3,444	2,356	29	3,321	2,283	94%	5,420	4,226	6%
Great Britain	3,618	2,846	28,402	3,368	2,743	86%	5,110	3,856	14%

A small number of meters in Great Britain cannot be described as being in a specific area, and are therefore described as 'Unallocated'

Regional reductions in mean domestic electricity consumption per meter between 2005 and 2018 varied between 25.6 per cent in Scotland to 19.2 per cent in the South East. There are several factors which may have contributed to these reductions in consumption, including: weather conditions; energy efficiency improvements[8] such as increased levels of insulation, new boilers and more energy efficient appliances; increased prices[9]; a recession; changes in the building stock; increases in solar photovoltaic self-generation by household, and household composition. It should also be noted that 2005, the earliest point for this analysis, is where the Digest of UK Energy Statistics (DUKES) also recorded a peak in domestic electricity consumption to date[10].

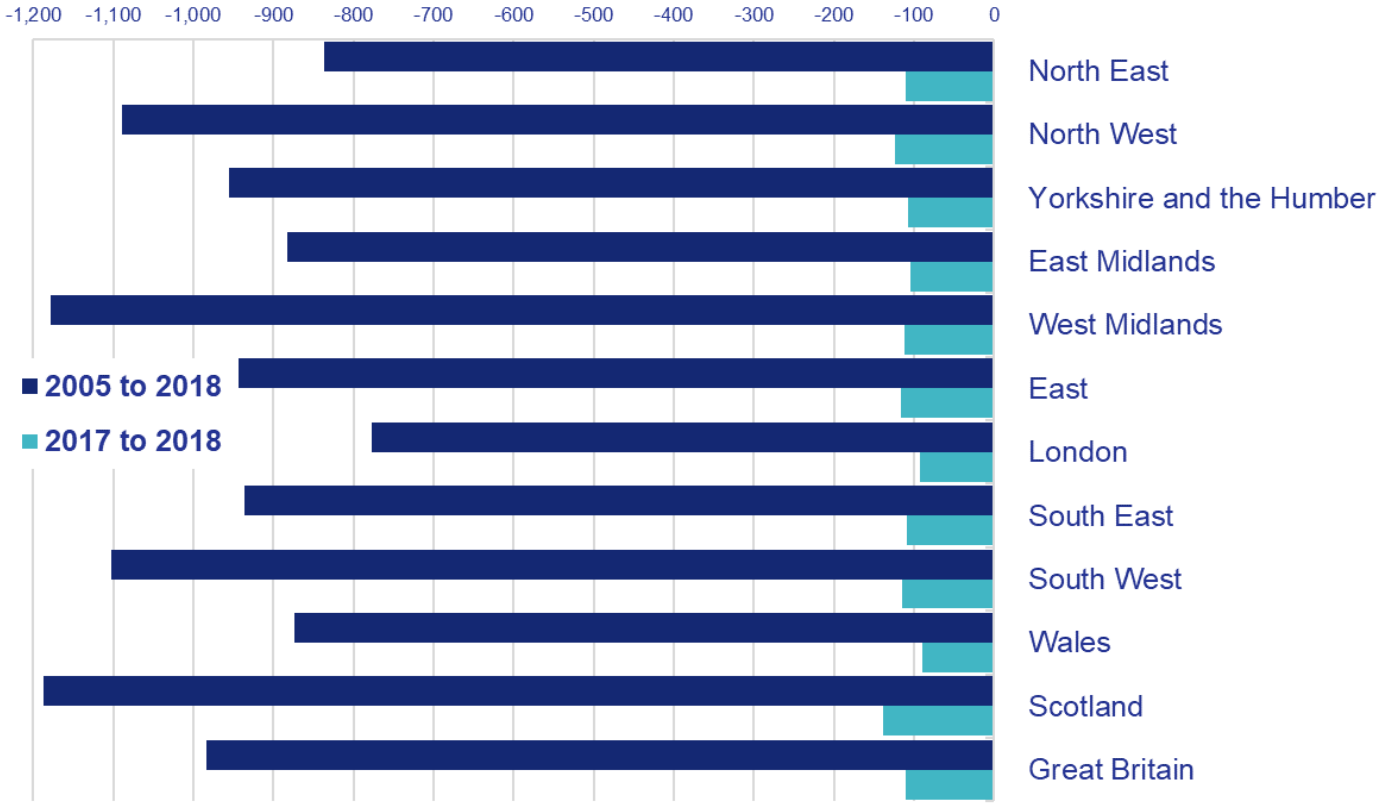
Chart 4 shows the decrease in average domestic consumption by region in 2018 when comparing against both 2005 and 2018. Scotland has seen the largest decrease (25.6 per cent) in average domestic consumption since 2005, Scotland has also saw the largest decrease (3.9 per cent) compared to 2017.

[8] The energy efficiency of the housing stock improved between 2005 and 2017, the average SAP rating of a dwelling increased by 12.6 points from 49.4 to 62. The SAP rating is a measure of the overall energy efficiency of the dwelling. Annex Table 2.6: Mean SAP rating, by tenure, 1996 to 2017: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/834603/2017-18_EHS_Headline_Report.pdf

[9] Between 2007 and 2018, standard domestic electricity prices contained in Quarterly Energy Prices show an increase of 62 per cent (33 per cent in real terms) which is likely to have influenced demand. 'Quarterly Energy Prices' can be accessed here: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/812264/table_221.xlsx

[10] See Table 5.1 of DUKES: https://www.gov.uk/government/statistics/electricity-chapter-5-digest-of-united-kingdom-energy-statistics-dukes

Chart 4: Change in mean domestic electricity consumption per meter, 2005 and 2018



Standard domestic and Economy 7 consumption

In 2018 mean consumption for customers with standard domestic meters was 3,368 kWh (median consumption was 2,743 kWh) compared to 3,462 kWh in 2017 (median of 2,828 kWh). In contrast, households with Economy 7 meters used a larger amount of electricity (5,110 kWh mean consumption, 3,856 median consumption) and are more likely to use electricity to heat their homes and hot water.

The range of consumption differs across different meter types. Mean consumption per Economy 7 meter varied from 4,393 kWh (3,295 kWh median) in East Midlands to 6,234 kWh (5,146 kWh median) in South West, showing a greater range of consumption than for standard meters. Standard meter mean consumption ranged from 3,955 kWh (2,518 kWh median) in North East to 3,689 kWh (2,930 kWh median) in South East. It should be noted that not all customers who have an Economy 7 meter will be on an Economy 7 tariff. However, customers with an ordinary domestic meter cannot be on an Economy 7 tariff. Electricity used for heating purposes will not always be consumed off-peak.

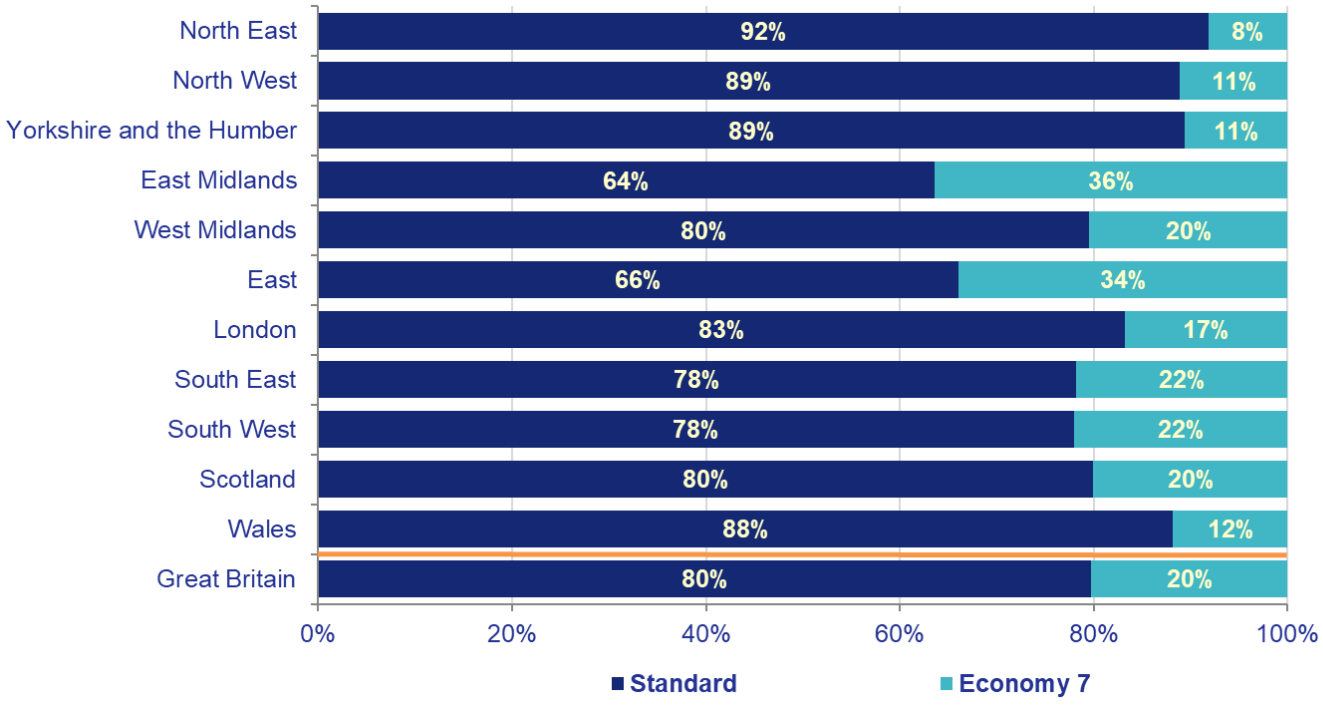
Classifying Economy 7 meters statistics

Meter point administration data is collected from electricity suppliers and includes electricity consumption and profile type. In instances where there are multiple consumption reads for a Metering Point Administration Number (MPAN), these are aggregated per MPAN. The profile type is used to classify a meter as domestic or non-domestic and only profile 2 is used to classify domestic Economy 7 meters, whilst all other profile types are classified as standard meters.

It should be noted that the Economy 7 classification also includes other off-peak tariffs, for example Economy 11 and may include some properties not using electric as their main heating source.

Chart 5 shows the distribution between households with ordinary standard domestic meters and Economy 7 meters at regional level in Great Britain. For Great Britain, 80 per cent of total domestic consumption was attributed to ordinary domestic meters and 20 per cent to Economy 7 meters. However, across the regions the ratio between standard domestic and Economy 7 varied from a 92:8 per cent split in the North East, to a 64:36 per cent split in the East Midlands.

Chart 5: Distribution of total domestic electricity consumption by meter profile, 2018



2.3 Non-domestic electricity consumption

There was an overall decrease of 0.2 percent when combining all regions in Great Britain, some regions showed an increase in non-domestic electricity use.

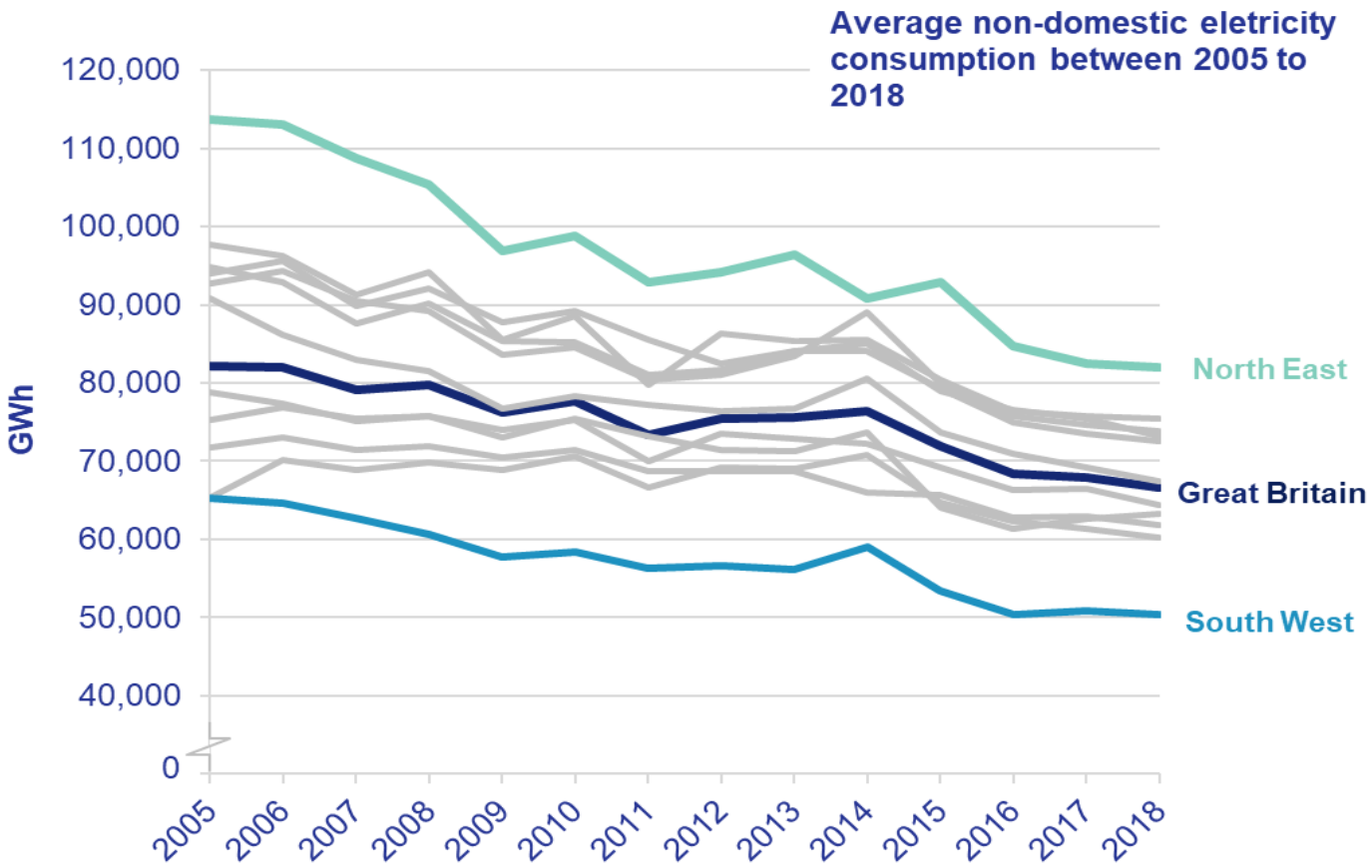
In Scotland non-domestic electricity consumption increased in 2018 by 2.6 per cent to 14,509 GWh from 14,136 GWh in 2017. In comparison Inner London non-domestic electricity use

increased by just under 1 per cent to 15,629 GWh. Overall the region with the largest non-domestic electricity use was the South East (22,034 GWh).

Average non-domestic electricity consumption decreased by 1.9 per cent in 2018 (66,620 kWh) from 67,883 kWh in 2017. As can be seen in chart 6 below, this follows the long-term downward trend in non-domestic electricity consumption, which is 18.9 per cent lower in 2018 than in 2005 (82,129 kWh). The mean electricity consumption ranged from 50,403 kWh in South West to 82,035 kWh in North East, whilst the median electricity consumption ranged from 5,161 kWh in Outer London to 8,264 kWh in the North West. The differences in the mean and median seen for each region and compared to domestic electricity consumption reflect the variety of businesses in these areas.

Average non-domestic electricity consumption has declined in all regions since 2005. The South West has consumed the least and the North East has had the highest average meter point consumption since 2005.

Chart 6: Average non-domestic electricity consumption by region, 2005 to 2018



3. Gas

The data analysed in this document are based on the aggregation of Meter Point Reference Number (MPRN) readings throughout Great Britain obtained as part of BEIS's annual meter point gas data exercise. The estimates for 2018 cover the gas period between mid-May 2018 and mid-May 2019. Due to the gas period coving parts of both 2018 and 2019 this document will be referred to as "2018/19" rather than simply 2018. The same notation will be used for 2017 (2017/18), where the average gas period covers mid-June 2017 – mid-June 2018. These data are weather corrected.

In the domestic sector, gas consumption is predominately used for heating purposes and as a result usage is driven by external temperatures and weather conditions. The weather correction factor enables comparisons of gas use over time, controlling for weather changes. An overview of the weather correction process is available here: https://www.gov.uk/government/publications/overview-of-weather-correction-of-gas-industry-consumption-data. It should be noted that the weather correction process may not adequately compensate for extreme weather conditions where consumers adjust their gas use radically in a short space of time. This may mean that the extreme weather in February and March 2018 was not completely adjusted for in the figures.

This section looks at gas consumption by domesticity classification and geographic area (region and local authority). To distinguish if a meter reading is domestic or non-domestic, the gas industry cut-off point of 73,200 kWh has been used – that is, if a meter consumes less than 73,200 kWh it is defined as a domestic meter, and non-domestic if it consumes 73,200 kWh or more.

The published gas statistics can be found here: https://www.gov.uk/government/collections/sub-national-gas-consumption-data.

Break in trends

Gas meter readings are received by BEIS from Xoserve, who compile these data from gas shippers who receive the data from gas suppliers. If any meter reading doesn't progress through one of these stages, then BEIS' record of the Annual Quantity (AQ) isn't updated and the older AQ is used in the subnational figures.

With the 2016 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 AQs updated in the 2017 gas consumption figures. This large update led to an increase in the total AQ reported in 2017 gas consumption. With the majority of gas meters now providing timely meter readings, the figures from 2017 onwards are a truer reflection of gas consumption.

Because some meters didn't submit readings for multiple years prior to 2017, the figures for these years likely underestimate the total gas used. The figures from 2017 are a break in trends, with the gas consumption not being comparable to previous years.

3.1 Total gas consumption

Total gas consumption decreased in 148[11] local authorities between 2017/18 and 2018/19. The number of meters in an area can change as new properties are built, more homes becoming connected to the gas grid and old properties being demolished. Boundary changes can also affect the number of meters in an area. In addition, assigning a meter to an area within the sub-national gas consumption statistics is also dependent upon the address information for each meter. Improvements in address information may allow more meters to be matched to the correct geographic area rather than remaining 'Unallocated'[12]. This means that an increase in the number of meters in an area may reflect better postcode allocation, rather than an actual increase in the number of meters within the year.

Table 2 shows the changes in gas consumption and number of meters for each region between 2017/18 and 2018/19.

Table 2: Gas consumption in Great Britain by region, 2017/18 and 2018/19

	2017/18 (revised)[2]		2018/19		Percentage Change	
	Total annual gas consumption (GWh)	Number of meters (thousand)	Total annual gas consumption (GWh)	Number of meters (thousand)	Total annual gas consumption (GWh)	Number of meters (percentage)
North East	24,269	1,141	24,195	1,152	-0.3%	1.0%
North West	65,635	2,991	64,920	3,021	-1.1%	1.0%
Yorkshire and The Humber	51,777	2,188	52,283	2,210	1.0%	1.0%
East Midlands	39,424	1,845	39,909	1,871	1.2%	1.5%
West Midlands	46,733	2,186	47,233	2,211	1.1%	1.1%
East	43,903	2,152	45,471	2,182	3.6%	1.4%
Inner London	26,444	1,238	26,570	1,238	0.5%	0.0%
Outer London	34,691	1,843	34,976	1,850	0.8%	0.4%
South East	63,286	3,340	63,944	3,388	1.0%	1.4%
South West	34,240	1,937	34,553	1,965	0.9%	1.5%
England	**430,402**	**20,860**	**434,055**	**21,088**	**0.8%**	**1.1%**
Wales	**24,229**	**1,158**	**24,109**	**1,169**	**-0.5%**	**0.9%**
Scotland	**47,700**	**2,090**	**47,578**	**2,122**	**-0.3%**	**1.5%**
Unallocated[1]	3,403	78	3,375	79	-0.8%	0.8%
Great Britain	505,705	24,188	508,289	24,455	0.5%	1.1%

1- A small number of meters in Great Britain, cannot be described as being in a specific area (0.3 per cent). These meters are therefore categorised as 'Unallocated'.

2 -Revisions to the 2017/18 gas data were applied to individual meter consumption identified as faulty by the data provider

Average total consumption of gas fell in four of the 12 regions between 2017/18 and 2018/19, with the largest decline (1.1 per cent) in the North West. With the exception of the East of England, where consumption grew by 3.6 per cent, gas use remained relatively consistent between 2017/18 and 2018/19 ranging between a decline of 1.1 per cent and an increase of 1.1 per cent across the regions.

In 2018/19, the City of London had the highest local authority mean gas consumption at 252,770 kWh, compared with Torridge (England) which had the lowest mean gas consumption

[11] The local authorities of Orkney Islands, Shetland Islands and Isles of Scilly do not have access to gas.
[12] Unallocated' meters are meters with insufficient address information to assign their consumption to a geographical area

at 12,781 kWh. This reflects the different compositions of these areas, with the City of London having a far higher concentration of large business consumers.

Change in period covered in gas consumption statistics

The summer of 2017 saw the implementation of new gas meter point management and settlement processes, which caused a change in the period covered in gas consumption for gas data for 2016 onwards. For the previous year (2015's gas year) the average meter read period was October 2014 – September 2015. For 2016 it was July 2016 – July 2017, a movement forward of almost 22 months, rather than the usual 12 months. For 2017, it was June 2017 – June 2018, and for 2018 it is May 2018 to May 2019. In summary, the gas consumption periods each year refers to are:

• Prior to 2014: same October – September period as 2014 and 2015

• 2014: October 2013 – September 2014

• 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 (expected): Mid May – Mid May

All references to gas consumption years in this report signify the gas period for that year (e.g.: "gas consumption 2015" refers to consumption of gas between October 2014 and September 2015).

Note that this change brings the mean read date of gas meters ahead of the mean read date of electricity meters by roughly 5 months.

3.2 Domestic gas consumption

Average domestic gas consumption

Overall domestic consumption across all regions has remained relatively stable between 2017/18 and 2018/19.[13] Table 3 shows the average (mean) domestic gas consumption per meter, the total number of domestic meters, total domestic consumption for each region and the median domestic consumption in 2018/19.

[13] The sub-national data is weather corrected, and unadjusted domestic gas consumption estimates (from different sources to those used in this publication) are available in Table 3.03 of Energy Consumption in the UK (ECUK): https://www.gov.uk/government/collections/energy-consumption-in-the-uk. Estimates in Table 3.03 show an increase in overall domestic consumption between 2014 and 2015 (from 278,101 GWh to 292,417 GWh) and average consumption (from 12,404 kWh to 12,962kWh).

Table 3: Mean domestic gas consumption per meter by region, 2018/19

	Number of domestic meters (thousands)	Total domestic consumption (GWh)	Number of domestic meters (thousands)	Total domestic consumption (GWh)	Total annual gas consumption (GWh)	Number of meters (percentage)
North East	1,130	15,380	1,141	15,163	-1%	1%
North West	2,960	39,087	2,989	38,960	0%	1%
Yorkshire and The Humber	2,163	29,960	2,185	29,820	0%	1%
East Midlands	1,825	24,876	1,852	24,925	0%	1%
West Midlands	2,162	29,315	2,186	29,468	1%	1%
East	2,129	29,121	2,159	28,932	-1%	1%
Inner London	1,215	14,101	1,215	14,110	0%	0%
Outer London	1,824	26,739	1,830	26,763	0%	0%
South East	3,300	45,106	3,347	45,361	1%	1%
South West	1,917	22,705	1,945	22,900	1%	1%
England	**20,625**	**276,391**	**20,847**	**276,404**	**0%**	**1%**
Wales	**1,147**	**14,445**	**1,158**	**14,383**	**0%**	**1%**
Scotland	**2,066**	**28,352**	**2,097**	**28,361**	**0%**	**1%**
Unallocated[1]	77	841	74	851	1%	-3%
Great Britain	**23,915**	**320,029**	**24,177**	**319,999**	**0%**	**1%**

1- A small number of meters in Great Britain, cannot be described as being in a specific area (0.3 per cent). These meters are categorised as 'Unallocated'.

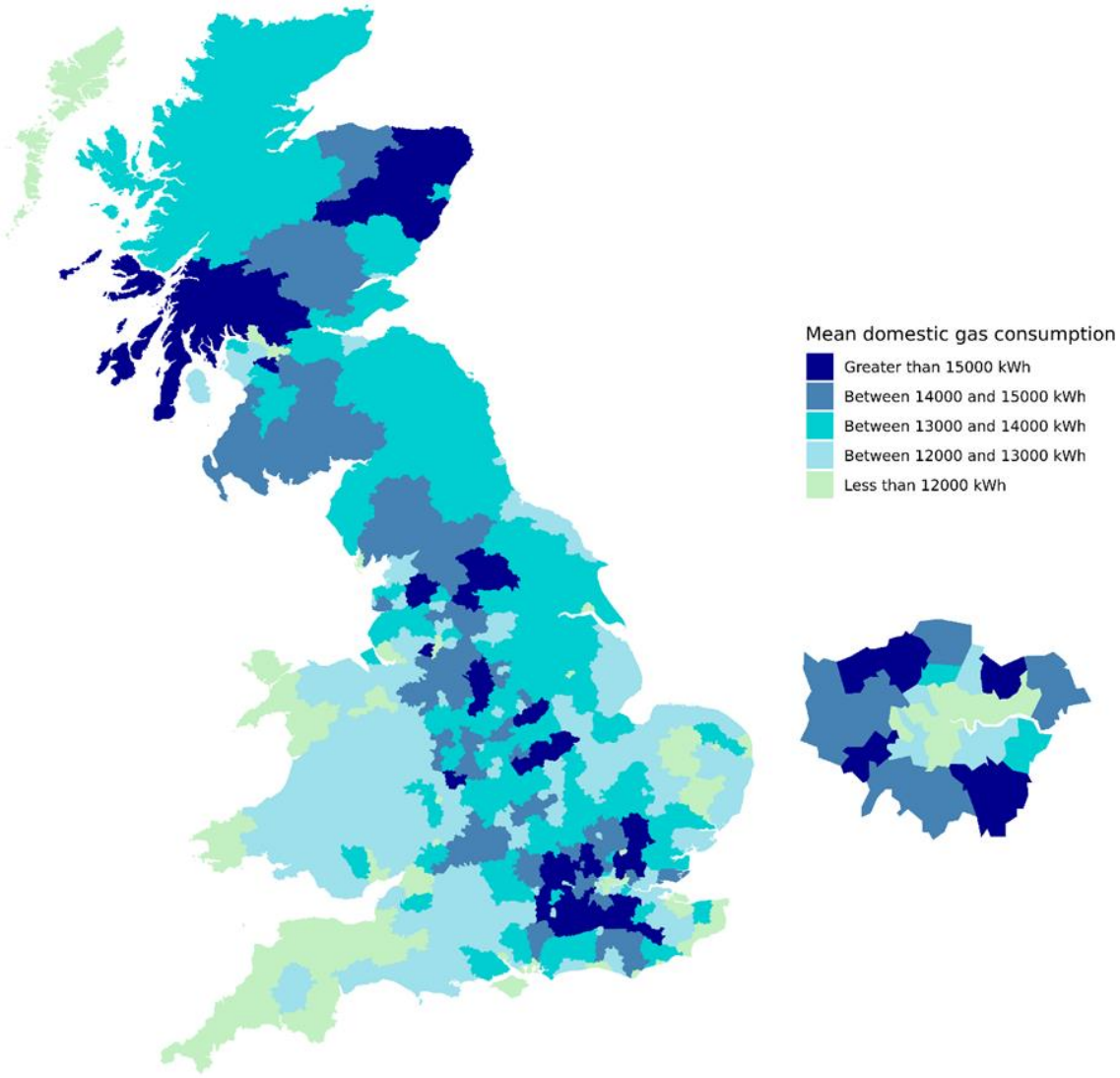
2 -Revisions to the 2017/18 gas data were applied to individual meter consumption identified as faulty by the data provider

Outer London had the highest mean domestic consumption with 14,628 kWh per meter (median consumption of 12,916 kWh), which was on average almost 1000 kWh more per meter than the second highest region Yorkshire and the Humber (mean 13,649 kWh and median 12,272). Inner London has the lowest mean consumption per meter at 11,615 kWh. In general domestic gas consumption increases with various property characteristics, for example houses with more bedrooms or a greater floor area tend to consume more gas.

The South East consumed 14.2 per cent of the UK's total domestic gas, followed by the North West (12.2 per cent). Inner London, Wales and the North East consumed the least; 4.4, 4.5 and 4.7 per cent respectively.

Map 2 shows the mean domestic gas consumption per meter by local authority in 2018/19. South Bucks (South East) had the highest mean gas consumption in 2018/19 at 19,404 kWh compared with the lowest in Tower Hamlets (Inner London) at 9,226 kWh.

Map 2: Average domestic gas consumption per meter by local authority, 2017/18 – requires update



In line with the small decrease observed in 2018/19, mean domestic gas consumption per meter has decreased in all regions, between 2005 and 2018/19[14]. This has ranged from just over 22 percent in London to 40 per cent in the South West. There are many factors which may have contributed to the reductions in consumption including energy efficiency improvements[15], such as increased levels of insulation, new boilers and more energy efficient appliances; increased prices[16]; changes in the building stock and household composition.

[14] Although there is a change in methodology from 2017, this does not impact on the overall trend in domestic gas consumption since 2005 and is consistent with the trend reported in DUKES.

[15] The energy efficiency of the housing stock improved between 2005 and 2014, the average SAP rating of a dwelling increased by 11.0 points from 49.4 to 60.9. The SAP rating is a measure of the overall energy efficiency of the dwelling. Table 13: English Housing Survey Headline Report 2014-15: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/501065/EHS_Headline_report_2014-15.pdf.

[16] Between 2005 and 2015, domestic gas prices contained in Quarterly Energy Prices show an increase of more than 100 per cent (81.3 per cent in real terms) which is likely to have influenced demand. 'Quarterly Energy Prices' can be accessed here: https://www.gov.uk/government/statistics/quarterly-energy-prices-september-2016

Chart 7 shows the decrease in average domestic gas consumption per meter point between 2005 and 2017/18 at regional level. Only Inner London showed a small increase of 0.1 per cent in its mean domestic gas use in 2018/19. All other regions saw a reduction in average meter point gas use, the largest decrease was observed in the North East (2.4 per cent).

Chart 7: Decrease in average domestic consumption per meter point between 2005 and 2018/19

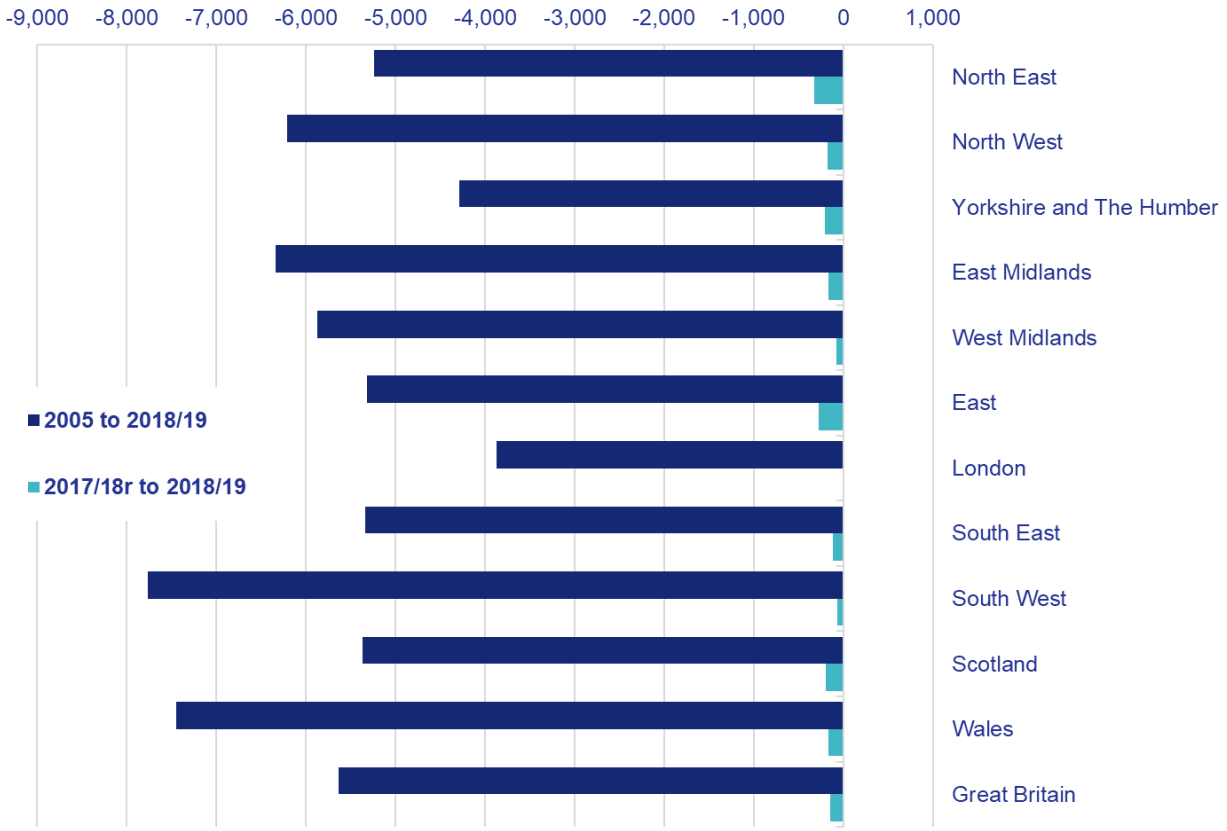


Chart 8 shows the mean domestic gas consumption per meter for South West, Yorkshire and the Humber and Great Britain between 2005 and 2018/19. These regions have been selected as they had the highest and lowest average domestic gas for 2018/19. The average consumption for all other regions in Great Britain was between the lines shown for Yorkshire and the Humber and the South West and all regions followed a similar trend.

Chart 8: Mean domestic gas consumption for selected regions, 2005 to 2018/19

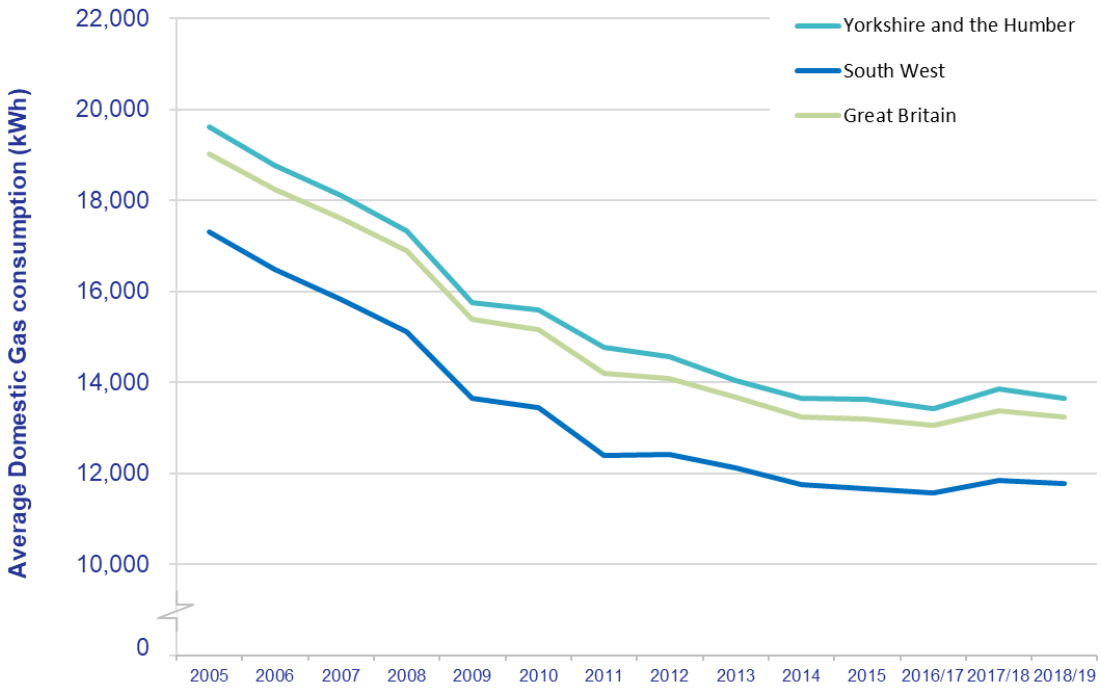
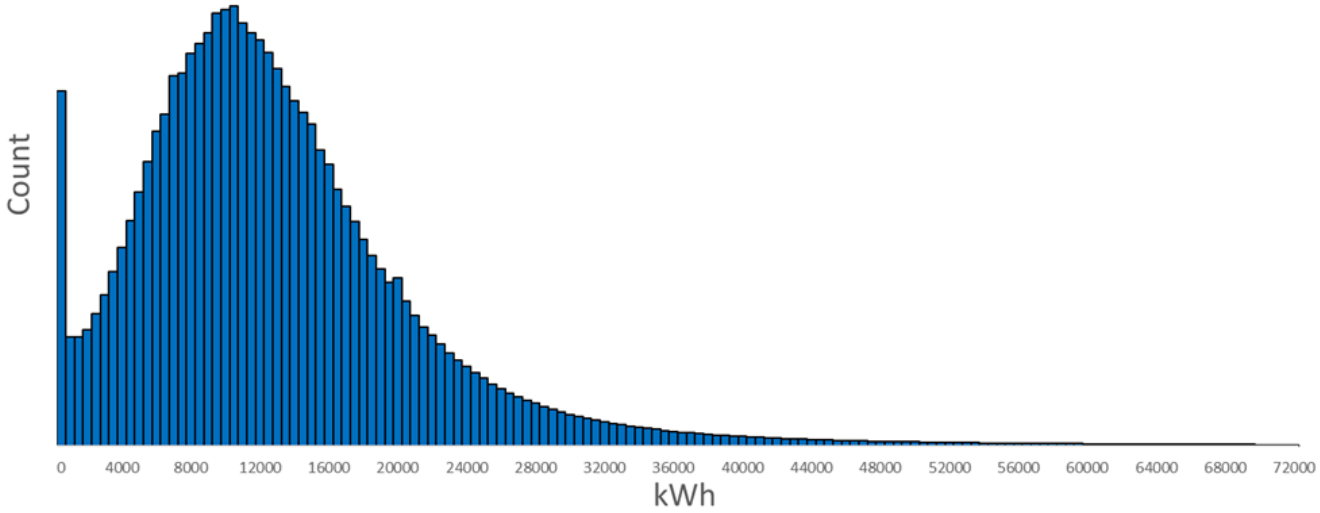


Chart 9 below shows the distribution of annual domestic gas consumption using all domestic meters in England, Scotland and Wales, where the median consumption is 11,700 kWh and the mean is just above 13,000 kWh. Most domestic meters (17.9 million) consume between 4,000 kWh and 20,000 kWh of gas, representing 74% of domestic meters.

Chart 9: Histogram of domestic gas consumption using all meters in England, Scotland and Wales



3.3 Non-domestic consumption

Average non-domestic consumption

Non-domestic consumption increased in 217 local authority areas between 2017/18 and 2018/19. This increasing trend across the regions is different from domestic consumption. There have been increases in average non-domestic gas consumption for some regions since 2005. For example, the East Midlands and West Midlands has seen average gas consumption increase by 15.3 and 12.3 per cent respectively. In contrast the North East has seen a decrease of 10.5 per cent.

Average annual non-domestic gas consumption per meter was 676,140 kWh in 2018/19, 0.8 per cent lower than in 2017/18 (681,593 kWh). As a threshold of 73,200 kWh is used to classify a meter as non-domestic.

Table 4 shows the mean non-domestic gas consumption per meter and total non-domestic consumption in each of the regions. The North West accounted for 13.8 per cent of all non-domestic gas consumption, compared to Outer London and the North East 4.4 and 4.8 per cent respectively. The North West, Yorkshire and the Humber and Scotland had the highest average non-domestic consumptions, reflecting the mix of industry in the regions, and the greater use of gas for industrial purposes.

Table 4: Average non-domestic gas consumption per meter and total non-domestic gas consumption by region, 2018/19

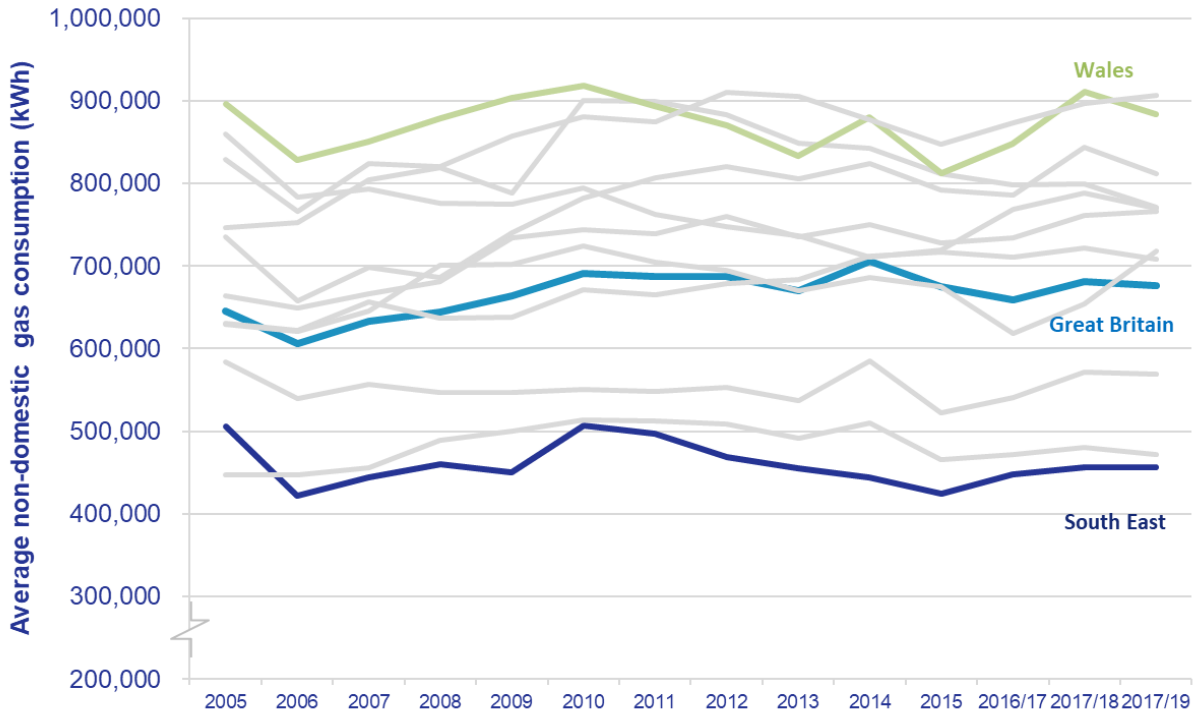
	Number of non-domestic meters	Total non-domestic consumption (GWh)	Average non-domestic consumption (kWh)
North East	11,732	9,032	769,902
North West	31,981	25,961	811,749
Yorkshire and The Humber	24,789	22,463	906,172
East Midlands	19,560	14,984	766,040
West Midlands	25,083	17,765	708,242
East	23,026	16,538	718,244
Inner London	23,240	12,459	536,122
Outer London	20,574	8,213	399,179
South East	40,734	18,583	456,208
South West	20,466	11,653	569,367
England	241,185	157,651	653,652
Wales	11,001	9,725	884,046
Scotland	24,910	19,217	771,440
Unallocated[1]	1,382	1,697	1,228,003
Great Britain	278,478	188,290	676,140

[1] *A small number of meters in Great Britain, cannot be described as being in a specific area (0.8 per cent). These meters are therefore categorised as 'Unallocated'.*

Chart 10 shows the trends in mean non-domestic gas consumption for Wales, the South East, and Great Britain as a whole. In comparison to domestic gas consumption, different trends can be seen for the average annual non-domestic gas consumption between 2005 and 2018/19.

At a local authority level, Selby (Yorkshire and the Humber) had the highest mean gas consumption in 2018/19 at 5,689,216 kWh compared with 196,476 kWh in Elmbridge (South West), which had the lowest mean. It is noteworthy that the median gas consumption in Selby was 134,543, the large difference between the mean and median reflecting the presence of large industrial gas use in Selby.

Chart 10: Average non-domestic gas consumption for selected regions, 2005 to 2018



Unique Sites in gas consumption statistics

In addition to domestic and non-domestic meters, BEIS is now supplied with data on "Unique Sites" (also known as "Non-Standard Sites"). These are high consuming sites which have previously been unreported due to the complexities in their billing arrangements. Up until 2015 Unique Sites had higher total consumption than the rest of the meters in the UK combined.

Due to the implementation of a new system by data suppliers, some sites which were previously considered unique are now entering the main dataset. To ensure consistency in the time series, these are removed from the data in the published tables. At present the unique sites data appears unreliable due to extreme changes in reported annual consumption. Because of this, gas consumption from unique sites is not included in the published tables. If sufficiently accurate data on the consumption of gas at these unique sites can be obtained, it may be published in the future.

3.4 Number of properties not connected to the gas grid

Background

There is no definitive source of information on properties that are off the gas grid. However, BEIS produces estimates of the number of domestic properties without gas based on the

difference between the number of gas meters in each area, as set out earlier in this document, and the number of properties in each area

The published data does not allow the identification of specific properties within an area which are off the gas grid but does allow small geographic areas which have few or no gas meters to be identified. However, there are limitations which should be considered when using these estimates:

- Each gas meter is assigned as domestic or non-domestic based on the gas industry threshold of 73,200 kWh, with all meters with consumption below 73,200 kWh assumed to be domestic. This means that smaller consuming commercial/industrial consumers are allocated 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.

- Some meters cannot be allocated to a local authority due to insufficient or incomplete address information[17]. Approximately 0.3 per cent of domestic meters could not be allocated to a local authority in 2018/19.

- In some cases, incorrect address information may mean meters are allocated to the wrong area. The number of meters which are incorrectly allocated will vary by area.

- In this dataset, there is no differentiation between properties which do not have a gas meter because they are in an area which is off the gas grid and those which are in an area on the gas grid but have a property which is not connected to it (such as inner city blocks of flats).

For these estimates it is assumed that each property always has one gas meter. Occasionally a property may have more than one gas meter, which would again mean the estimates provided are an underestimate of the true value. Off Gas Property Estimates

This year sees an improvement in the estimation of off gas property estimates. This new method uses The Valuation Office Agency (VOA) count of the number of properties registered for council tax in England and Wales[18],[19] at local authority, MSOA and LSOA geographical areas.

The new method is an improvement to the previous method that relied on using the number of households as the population numerator. Household and property estimates are different, as for example, more than one household can live in a single property and a single household can have access to a second home or holiday home.

The new method is more robust as it uses the actual number of properties that are registered for council tax, whereas the old method was an estimate based on household data from the 2011 census.

[17] These meters are included in the overall estimates for Great Britain but are aggregated in the 'Unallocated' row in the sub-national statistics outputs.

[18] VOA data on the number of domestic properties can be accessed here: https://www.gov.uk/government/collections/valuation-office-agency-council-tax-statistics

[19] Property estimates for Scotland were taken from the Scottish Government estimate of households in each local authority. The number of households at the LSOA and MSOA level were scaled using the ratio of total meters in each local authority in the current year.

The new method gives slightly higher off-gas grid estimates.

Estimates of properties not connected to the gas grid

Table 5 below shows the estimated proportion and number of properties that are not connected to the gas network in each region of Great Britain. This data is referred to as '2018/19', the mean latest read data for gas meters was in May 2019, so the data reflects properties not connected to the gas network as of this time. The VOA property data relates to the 2018 calendar year.[20]

The estimate of the percentage of properties not connected to the gas grid in Great Britain is 14.3 per cent, this is 0.2 percentage points decrease from 2017/18. Overall estimates for Great Britain have remained stable between 2015 and 2018, with the number of non-gas properties falling by just over 48,000 properties in this time.

The South West of England has the highest proportion of properties without a gas meter at 23.6%, and the North East had the lowest proportion at 7.3%.

Table 5: Estimates of properties not connected to the gas grid, 2018/19

	Number of domestic gas meters (thousands)	Number of council tax registered properties in 2018 (thousands)	Estimated number of "off gas" properties (thousands)	Estimated proportion of "off gas" properties (percentage)
North East	1,139,403	1,229,340	89,937	7.3%
North West	2,987,039	3,272,730	285,691	8.7%
Yorkshire and The Humber	2,183,221	2,418,530	235,309	9.7%
East Midlands	1,851,799	2,083,780	231,981	11.1%
West Midlands	2,184,188	2,483,580	299,392	12.1%
East	2,158,377	2,674,420	516,043	19.3%
Inner London	1,214,561	1,547,930	333,369	21.5%
Outer London	1,829,125	2,054,820	225,695	11.0%
South East	3,343,097	3,893,760	550,663	14.1%
South West	1,942,702	2,544,270	601,568	23.6%
England	**20,833,512**	**24,203,160**	**3,369,648**	**13.9%**
Wales	**1,156,782**	**1,432,650**	**275,868**	**19.3%**
Scotland	**2,091,073**	**2,477,276**	**386,203**	**15.6%**
Great Britain	**24,081,367**	**28,113,086**	**4,031,719**	**14.3%**

A small number of meters, in Great Britain, cannot be described as being in a specific area (0.3 per cent). These meters are therefore categorised as 'Unallocated' and can not be used to estimate off gas properties.

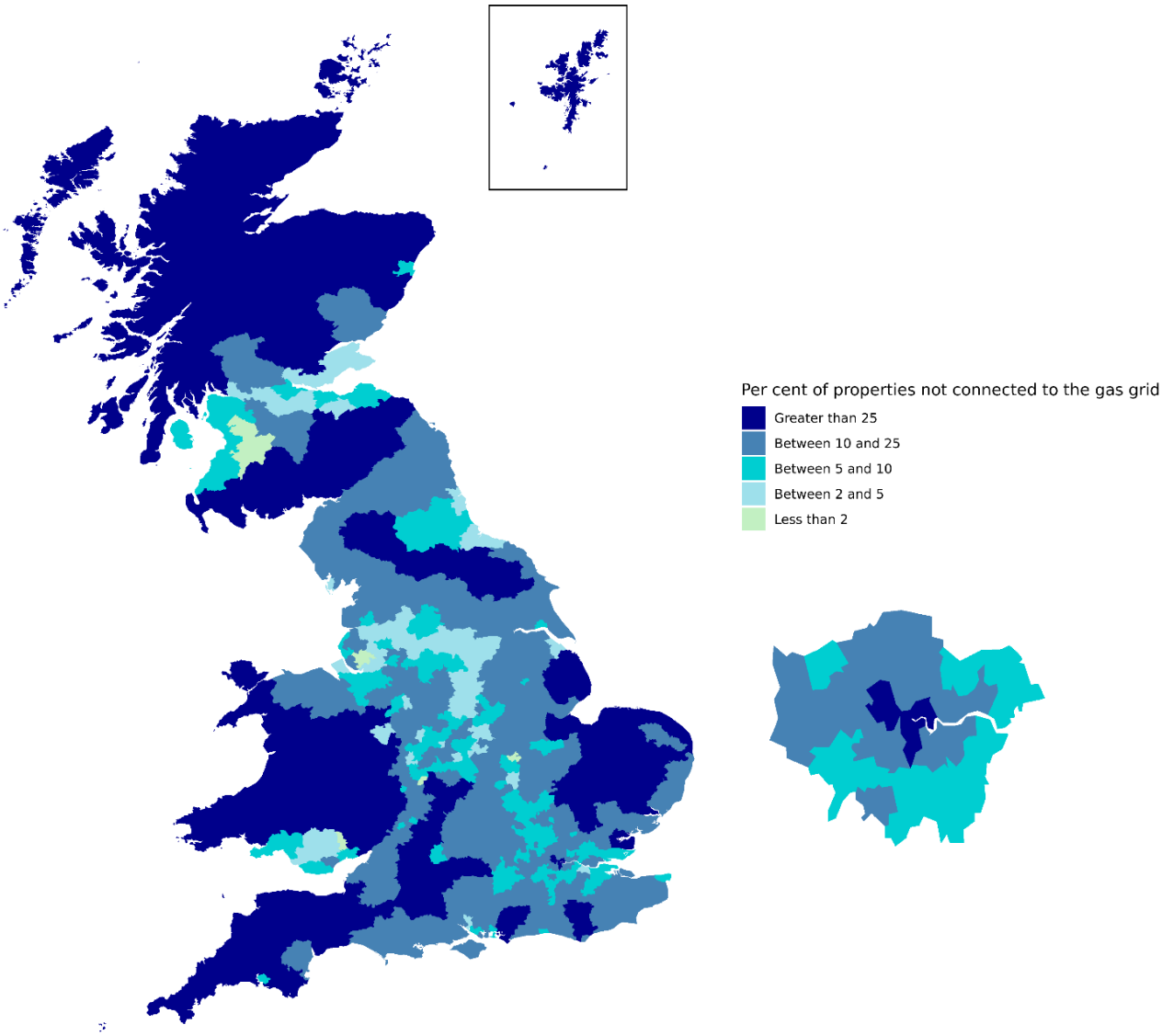
[20] VOA publish the number of houses on the council tax register for each calendar year. Where the gas year is 2017/18 VOA property data relates to 2017, where the gas year is 2016/17 VOA property data relates to 2016.

Map 3 shows how the proportion of properties without a gas meter varies across local authorities in Great Britain.

Estimates for properties off the gas grid at local authority, MSOA and LSOA levels (2018/19) are published at: https://www.gov.uk/government/collections/sub-national-gas-consumption-data.

BEIS have also published an interactive map which displays the distance of off gas properties from the gas network using information on the location of off gas properties and the location of the gas network infrastructure. The map can be accessed here: www.domesticenergymap.uk.

Map 3: Percentage of meters that are off the gas grid by local authority, 2018

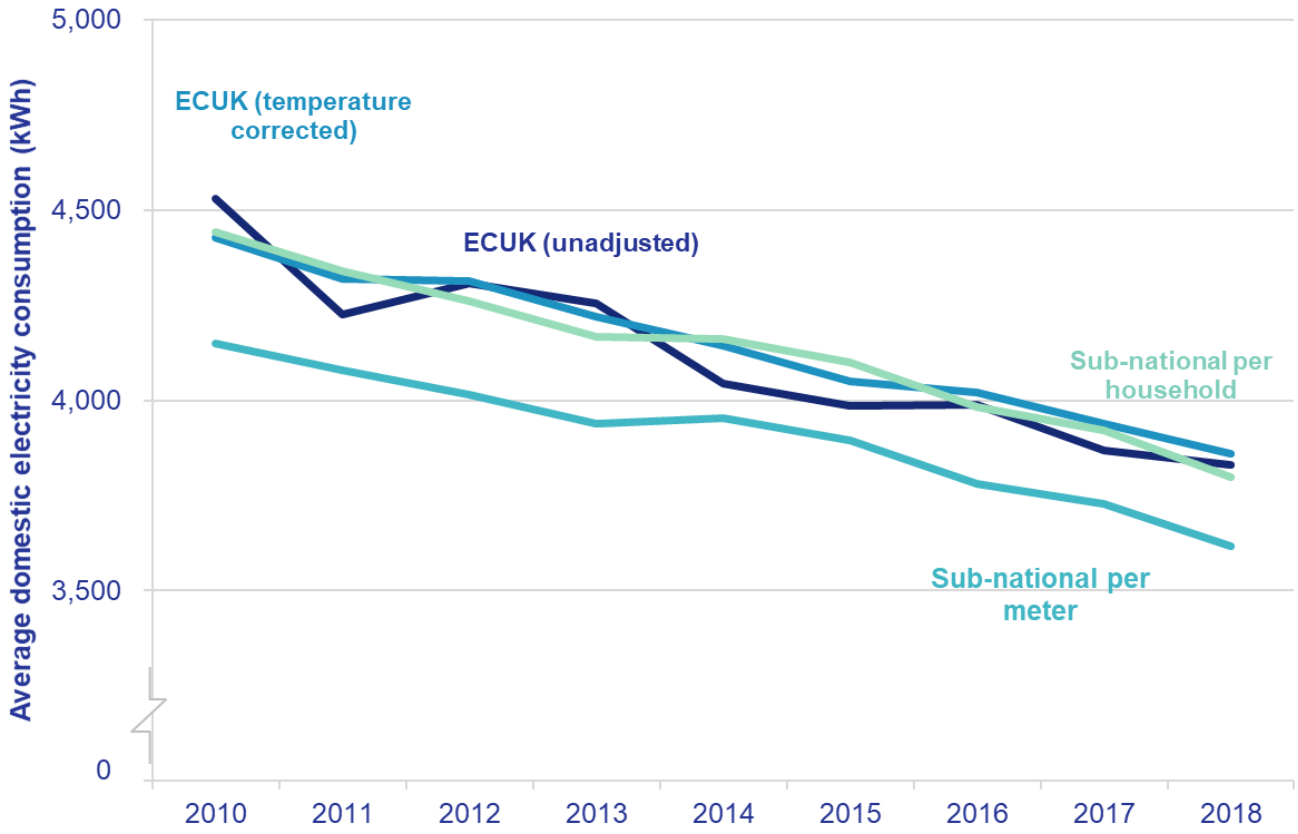


4. Comparison with other sources

4.1 Electricity

A comparison with the average annual domestic consumption per household published in Energy Consumption in the UK (ECUK) Table 3.07 (and based on data from DUKES Table 1.1.5) also shows that the trend over time is consistent for the two sources, see Chart 11.

Chart 11: Comparison of source, average (mean) annual electricity consumption per household, 2008 to 2018

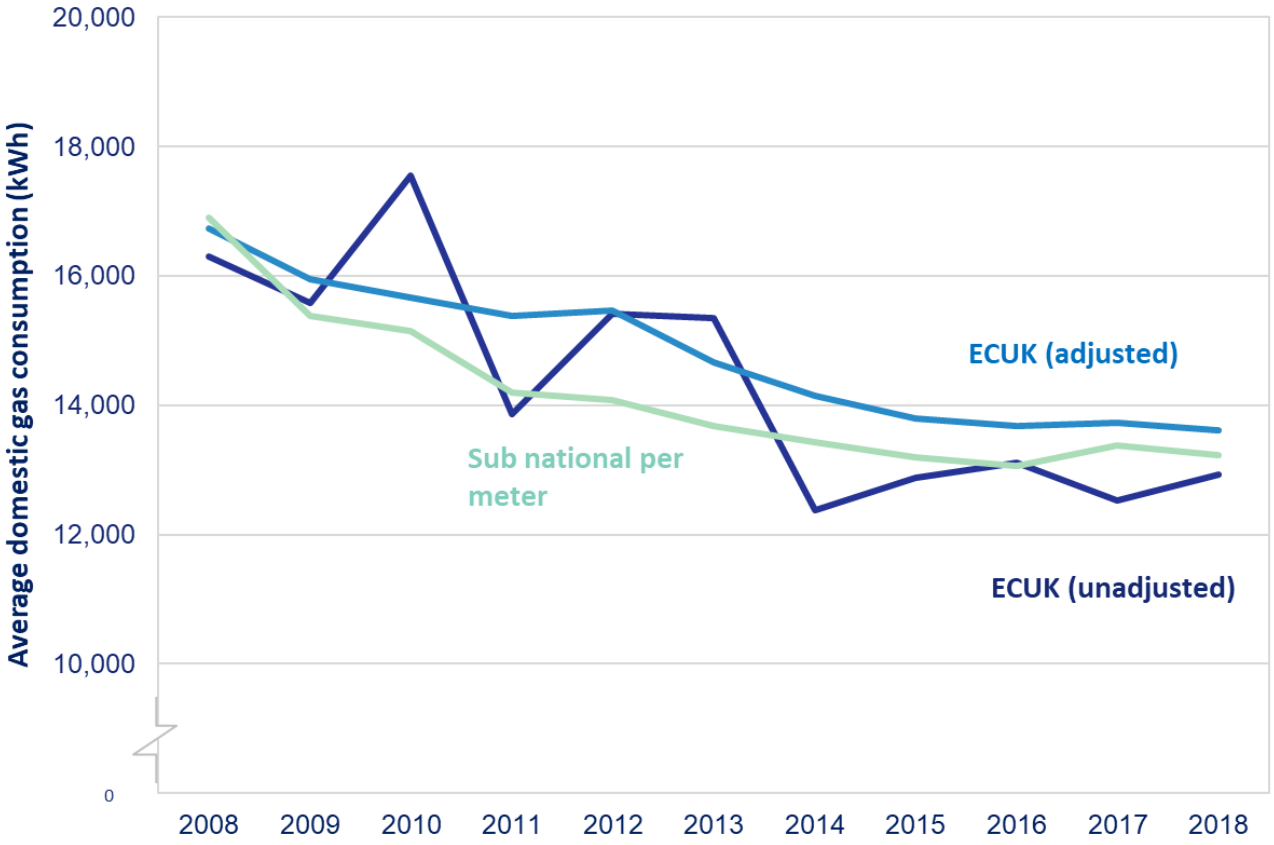


4.2 Gas

BEIS publish estimates of gas consumption in other sources, which can be used to derive estimates of average domestic gas consumption as published in ECUK Table C9 (derived from DUKES Table 1.1.5). Chart 12 below contains estimates between 2008 and 2018.

Weather correction factors and temperature adjustments can cause variability between the estimates. ECUK also measures by calendar year, whereas subnational gas consumption is logged each gas year.

Chart 12: Average domestic gas consumption (kWh), 2008 to 2018[21]



The table shows that – in broad terms – the data series are consistent. The difference between the ECUK and sub-national average domestic gas consumption figures will in part be driven by the different denominators used to calculate the two figures. ECUK data uses the number of billed customers collected by BEIS as part of its survey of gas suppliers, whereas sub-national data uses the number of domestic meters as the denominator. There will be some non-domestic meters included in the sub-national data which may overestimate average consumption, due to the inclusion of some businesses that consume below the 72,300 kWh domestic threshold and are incorrectly classified as domestic.

[21] Note that due to a methodological change sub-national gas consumption from 2017 is not directly comparable to previous years.

Accompanying tables

The following electricity consumption tables accompany this report and are available in Excel format at https://www.gov.uk/government/collections/sub-national-electricity-consumption-data:

Regional and local authority electricity consumption statistics
Middle Super Output Areas electricity consumption
Lower Super Output Areas electricity consumption
Postcode level electricity statistics: 2018 (experimental)
Stacked electricity consumption statistics data

The following gas consumption tables accompany this report and are available in Excel format at https://www.gov.uk/government/collections/sub-national-gas-consumption-data

Regional and local authority gas consumption statistics
Middle Super Output Areas gas consumption
Lower Super Output Areas gas consumption
Postcode level gas statistics: 2018 (experimental)
Stacked gas consumption statistics data

Technical information

For full details on the methodology, assumptions and data interpretation relating to these statistics, please refer to the Methodology and Guidance document available here: https://www.gov.uk/government/publications/regional-energy-data-guidance-note.Readers are highly advised to familiarise themselves with the material in the booklet before using the data.

Definitions

Electricity Meter Profile	Profile 1 – Standard domestic meter Profile 2 – Economy 7 domestic meter Profile 3 – Standard non-domestic meter Profile 4 Economy 7 non-domestic meter Profile 5 to 8 higher consuming non-domestic meters (Profile 5 to 8 are being phased out of use and replaced with Profile 0 meters) Profile 0 non-domestic half-hourly meter
MPAN	Meter Point Administration Number – A unique number to identify individual electric meters
kWh	Kilowatt Hour – the quantity of kilowatts consumed in one hour
MPRN	Meter Point Reference Number – A unique number to identify individual gas meters
Gas Meter Profile	Domestic Meter – a meter that consumes less than 73,200 kWh Non-domestic meter – a meter that consumes more than 73,200 kWh

Further information

Future updates to these statistics

Great Britain:

The next publication of sub-national gas and electric data will be on Thursday 17th December 2020 when 2019 data will be available.

Northern Ireland:

The next Northern Ireland electric and gas data will be on Thursday 24th September 2020 when 2018 electric and 2018/19 gas data will be available.

Related statistics

Gas Statistics:

Comparison to DUKES

It is important to take care when comparing sub-national gas data to data published in the Digest of United Kingdom Energy Statistics (DUKES)[22]. DUKES is an annual BEIS publication which provides a detailed and comprehensive picture of energy production and use over the last five years, with extensive tables, charts and commentary covering all the major aspects of energy.

There are differences in reported gas figures in the sub-national and DUKES publications as DUKES data:

- Are based on a calendar year, whereas sub-national data covers various periods (see section 2.2)
- Are not weather corrected whereas sub-national data have been.
- Covers consumption for the United Kingdom, whereas the sub-national statistics cover Great Britain only.
- Are compiled using a top-down approach, where statistics are gathered by energy companies on a national level, whereas sub-national datasets are compiled using a bottom-up approach, from an initial set of individual MPRN data.
- Include consumption from large power stations in its totals, which are not included in sub-national data
- Comparison to ECUK

There are also points the user needs to be aware of when comparing sub-national data to Energy Consumption in the UK (ECUK)[23]. ECUK is an annual BEIS publication which includes a detailed overview of energy consumption at a UK-wide level.

Differences occur between ECUK and sub-national figures as data in ECUK:

- Are, in many cases, modelled and obtained from secondary analysis performed by BEIS on data from a number of sources, including DUKES.
- Contains a more comprehensive sectoral split than sub-national statistics, and gives information on the end use of the majority of fuels.

Electricity Data

Comparison to sub-national electricity data

Sub-national 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

[22] DUKES can be accessed at the following page: https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes.
[23] ECUK can be accessed at the following page: https://www.gov.uk/government/collections/energy-consumption-in-the-uk.

consumption data are not weather corrected while gas consumption data has a weather correction factor applied to it. 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/IGZ and LSOA level.

For more information on how gas consumption statistics are produced, please see chapter 2.

Comparison to DUKES

It is important to take care when comparing sub-national electricity data to the Digest of United Kingdom energy statistics (DUKES)[24]. DUKES is an annual BEIS publication which provides a detailed and comprehensive picture of energy production and use over the last five years, with extensive tables, charts and commentary covering all the major aspects of energy.

There are differences in reported electricity figures in the sub-national and DUKES publications as DUKES data:

- Are based on a calendar year, whereas 2018 sub-national electricity data cover 31st January 2018 to 30th January 2019.
- Covers consumption for the United Kingdom, whereas the sub-national consumption statistics cover Great Britain.
- Are compiled using a top-down approach, where statistics are gathered by energy companies on a national level, whereas sub-national datasets are created from an initial set of individual MPAN data.
- Include consumption from Central Volume Allocation (CVA) users in its totals, which are not included in the sub-national data (see section 3.1).

Comparison to ECUK

There are also issues when comparing sub-national data to Energy Consumption in the UK (ECUK)[25]. ECUK is an annual BEIS publication which includes a detailed overview of energy consumption at a UK-wide level.

Differences occur between ECUK and sub-national figures as data in ECUK:

- Are, in many cases, modelled and obtained from secondary analysis performed by BEIS on data from a number of sources, including DUKES.
- Contains a more comprehensive sector split than sub-national statistics and gives information on end use for majority of fuels.

Revisions policy

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

[24] DUKES can be accessed on the BEIS website: https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes.
[25] ECUK can be accessed on the DECC website: https://www.gov.uk/government/collections/energy-consumption-in-the-uk.

Uses of these statistics

The most significant use of the sub-national 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 it 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 BEIS policy colleagues and other analysts within the department to inform policy development and help with monitoring and evaluation of BEIS policies. The meter point gas and electricity data collected for sub-national consumption outputs are also the most important input for BEIS's National Energy Efficiency Data-Framework (NEED).

They also form the basis of responses to parliamentary questions and general enquiries.

Users are also invited to complete this one minute survey to improve future publications: *https://www.surveymonkey.co.uk/r/92JMDHT*

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: energy.stats@beis.gov.uk

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

National Statistics designation

National 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 National Statistics was confirmed in June 2014 following a compliance check by the Office for Statistics Regulation[26].

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 BEIS statement of compliance with the Pre-Release Access to Official Statistics Order 2008.

Contact

- Responsible statistician: **Adam Bricknell**
- Email: energy.stats@beis.gov.uk
- Media enquiries: 020 7215 1000
- Public enquiries: 020 7215 0222

[26] Full assessment available here: https://www.statisticsauthority.gov.uk/publication/statistics-on-energy-and-climate-change/

If you need a version of this document in a more accessible format, please email energy.stats@beis.gov.uk Please tell us what format you need. It will help us if you say what assistive technology you use.