



Department for
Business, Energy
& Industrial Strategy

SUB-NATIONAL ELECTRICITY AND GAS CONSUMPTION STATISTICS

Regional and Local Authority



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Executive summary

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 2017.

There has been a change this year in the period covered by gas consumption from October – September in previous years, to June 2017 – June 2018 for “2017”. For more detail of this change see page 16.

This year also sees the publication of data in machine readable “stacked” tables. These include gas and electricity consumption. The data go back to 2005 and are presented in stacked years (meaning that there is a row for each year and each geographic area) designed for users familiar with tools such as R and Python. This is published for local authority, Middle Layer Super Output Area (MSOA) and Lower Layer Super Output Area (LSOA) levels. Feedback on how this is used or can be made more useful for users will be gratefully received.

Also new this year is the publication of de-weather corrected gas consumption at the local authority level for 2016 and 2017 gas periods. As with the stacked tables, feedback on this addition will be much appreciated.

Comparing electricity consumption to 2016, total domestic consumption decreased by 0.8%. This is despite an increase in the number of domestic meters of 0.6% (roughly 160,000), due to a decrease in the average consumption of 1.4%. In total electricity consumption increased by 1.0%, with a 2.1% increase in non-domestic meters accounting for the increase (roughly additional 3,500 meters).

In 2017, total weather corrected gas consumption increased by 3.6 per cent to 504,000 GWh. Both domestic and non-domestic gas consumption contributed to this, with increases of 3.3 and 4.2 per cent respectively. It is likely that this is partially attributable to the extreme weather seen in February and March 2018. The dramatic changes in temperature may not be adequately compensated by the weather correction process, which presumes a lag in consumer behaviour change.

The team which produces this document and the accompanying tables welcome feedback to user needs. You are encouraged to complete this online survey <https://www.surveymonkey.com/r/TZBD8KH> (which will take roughly one minute) and to send any queries to EnergyEfficiency.Stats@beis.gov.uk. The team may also hold user engagement events in the future – if you'd like to be added to the invite list please email the address given with a sentence on what you use the publication for.

1. Introduction

1.1 Background

This document provides commentary on BEIS' sub-national estimates of electricity and gas consumption, and homes off the gas grid, for England, Wales and Scotland. Estimates are based on meter point data provided by the electricity and gas industries from their administrative systems. The most recent estimates are for 2017. The user should be aware that "2017" refers to different periods for electricity and gas consumption. More detail on this is given in the electricity and gas chapters.

Estimates are published from domestic and non-domestic users and broken down by Region/Devolved Administration¹ (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 strongly advised to familiarise themselves with the material in the booklet before using the data.

For national estimates of domestic consumption Table 3.03 of Energy Consumption in the UK (ECUK)² should be used. Breakdowns of consumption by property attributes and household/business characteristics can be found in the National Energy Efficiency Data-Framework (NEED)³ publication.

1.2 Uses of the data

The most significant use of the sub-national consumption data is by Local Authorities and Devolved Administrations, along with other external users including academics and industry. Most commonly data have been used 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.

¹ A region refers to areas previously known as Government Office Regions (GORs), which were the standard statistical reporting geography 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 <https://www.gov.uk/government/statistics/energy-consumption-in-the-uk>.

³ <https://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework>.

Feedback from users of these data is welcomed. If you have any queries or suggestions, please contact us at EnergyEfficiency.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 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.

2. Electricity

The data analysed in this document are based on the aggregation of Meter Point Administration Number (MPAN) readings throughout Great Britain obtained as part of BEIS's annual meter point electricity data collection exercise. The estimates presented for 2017 cover the industry defined years:

- Electricity non-half hourly⁴ - 31 January 2017 to 30 January 2018
- Electricity half hourly – 1 January 2017 to 31 December 2017

This section looks at electricity consumption by consuming sector and geographic area (region and local authority).

Annual data for 2005 to 2017 can be found here:

<https://www.gov.uk/government/collections/sub-national-electricity-consumption-data>

2014 revisions

In the December 2018 update, 2014 data for electricity consumption in Great Britain was revised. This was due to improvements in linking electricity meters to geography data. As a result of this improved method, the number of unallocated meter points decreased, improving the quality of consumption figures⁴ at all geography levels for 2014. This update was applied to 2015 and 2016 in January 2018, with years prior to 2014 being considered for a similar revision.

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 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

In 2017 Great Britain consumed 280,000 GWh of electricity in total (from a total of 30.8 million meters), this was 1.0 per cent more than in 2016 (277,000 GWh from 30.6 million meters). Compared to 2016, total electricity consumption increased in most regions, with an increase of between 0.6 per cent in Wales and 2.4 per cent in Scotland. Inner London was the only region to show a decrease in total electricity consumption since 2016 (1.4 per cent). Table 1 below

⁴ A non-half hourly (NHH) meter is generally used for domestic or smaller non-domestic supplies

shows the total and average electricity consumption by region and section 4 of this document gives a comparison with power consumption published in the Digest of UK Energy Statistics (DUKES).

The South East consumed the largest proportion of all electricity consumption (13.5 per cent, 37,718 GWh), whilst North East consumed the smallest proportion of all electricity consumption in Great Britain (4.0 per cent, 11,210 GWh). 75 Local Authorities showed a decrease in total electricity consumption in 2017, between 0.1 per cent and 9.8 percent decrease.

Table 1: Average total electricity consumption per meter by region, 2017

	Total consumption (GWh)	Mean consumption (kWh)	Median consumption (kWh)	Total number of meters (thousand)
North East	11,210	8,531	2,695	1,314
North West	30,599	8,788	2,997	3,482
Yorkshire and The Humber	22,751	8,786	2,880	2,590
East Midlands	20,625	9,263	3,049	2,227
West Midlands	23,923	8,996	3,112	2,659
East	26,261	9,118	3,248	2,880
Inner London	20,895	11,866	2,526	1,761
Outer London	17,206	7,768	3,033	2,215
South East	37,718	8,922	3,234	4,227
South West	23,571	8,399	3,165	2,806
England	234,758	8,974	3,038	26,161
Wales	14,861	9,601	2,947	1,548
Scotland	24,148	7,993	2,899	3,021
Unallocated	5,910	64,110	2,806	92
Great Britain	279,676	9,074	3,018	30,822

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

2.2 Domestic electricity consumption

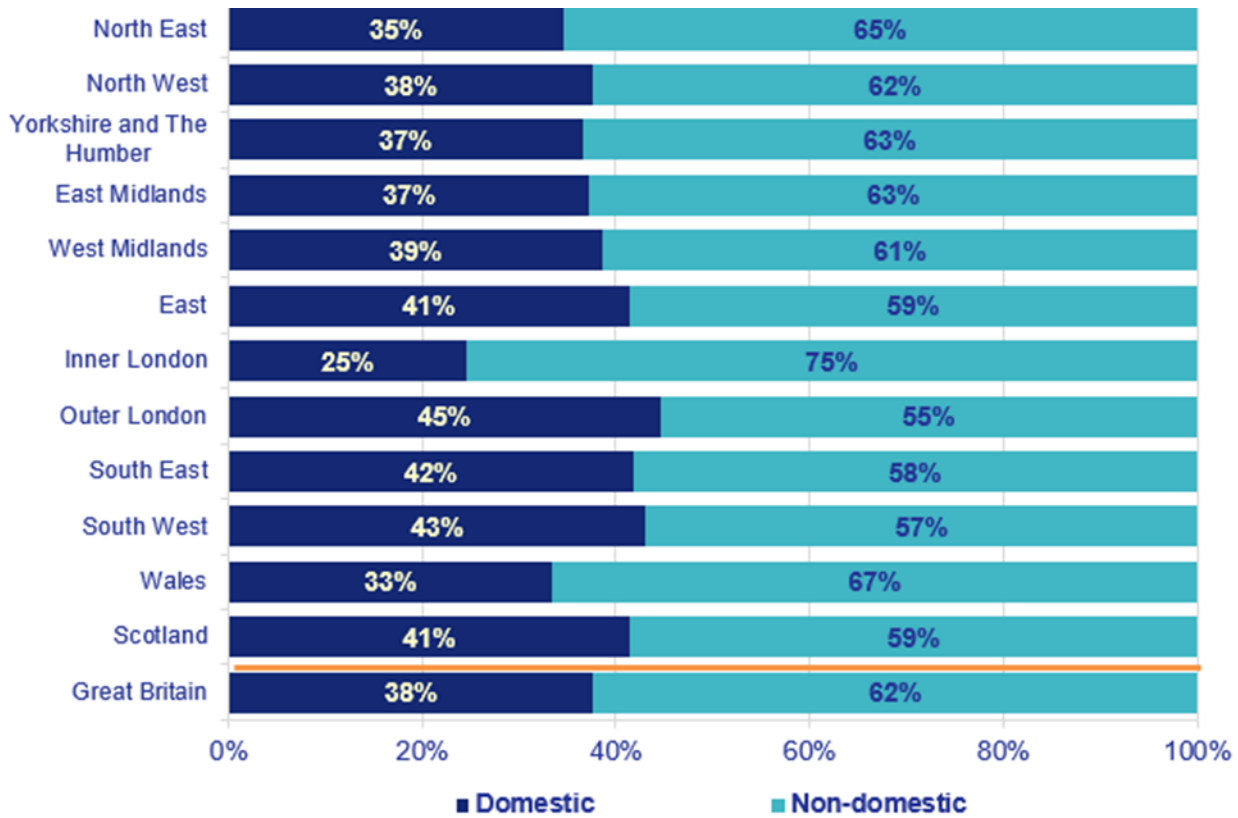
Total domestic consumption

Domestic electricity consumption in Great Britain was 0.8 per cent lower (105,355 GWh) than in 2016 (106,220 GWh) and 11.8 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 more likely to use electricity for their main heating fuel).

The non-domestic sector uses the majority of Great Britain's electricity consumption. Domestic electricity consumption accounts for 37.7 per cent of all electricity consumption in Great Britain.

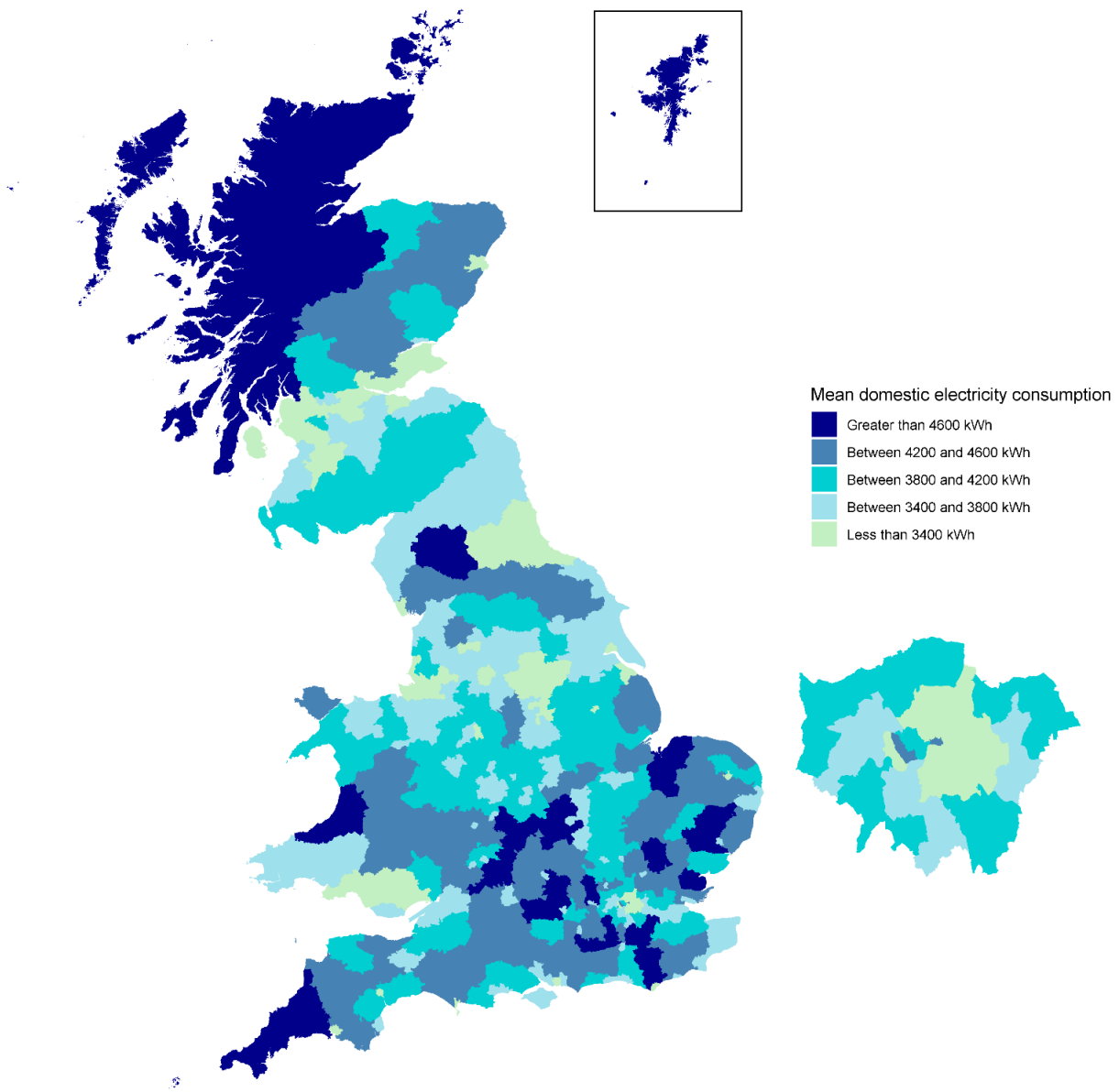
A breakdown of domestic and non-domestic electricity consumption by region can be seen in Chart 1 below. This shows that Inner London uses the largest proportion of non-domestic electricity consumption making up 75.5 per cent of all electricity consumption in this region, whilst Outer London shows the smallest proportion of non-domestic consumption at 55.5 per cent.

Chart 1: Domestic and non-domestic electricity consumption (GWh) by Region in Great Britain, 2017



In 2017 there were 28.3 million domestic electricity meters, an increase of 0.6 per cent since 2016 (28.1 million meters). The number of meters ranged between 1.2 million in the North East to 3.9 million in the South East. Map 1 below shows the mean domestic electricity consumption per meter by local authority in 2017.

Map 1: Mean domestic electricity consumption per meter by local authority, 2017



Average domestic consumption

Chart 2 below shows mean annual domestic electricity consumption per meter in Great Britain was 3,729 kWh in 2017, down 1.4 per cent on 2016 (3,781 kWh) and 19.0 per cent lower than in 2005 (4,602 kWh). The median in 2017 was 2,937 kWh. The difference in the mean and median (792 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). The distribution of consumption across all meters is shown in Chart 3.

Chart 2: Mean annual domestic electricity consumption (kWh) in Great Britain, 2005 to 2017

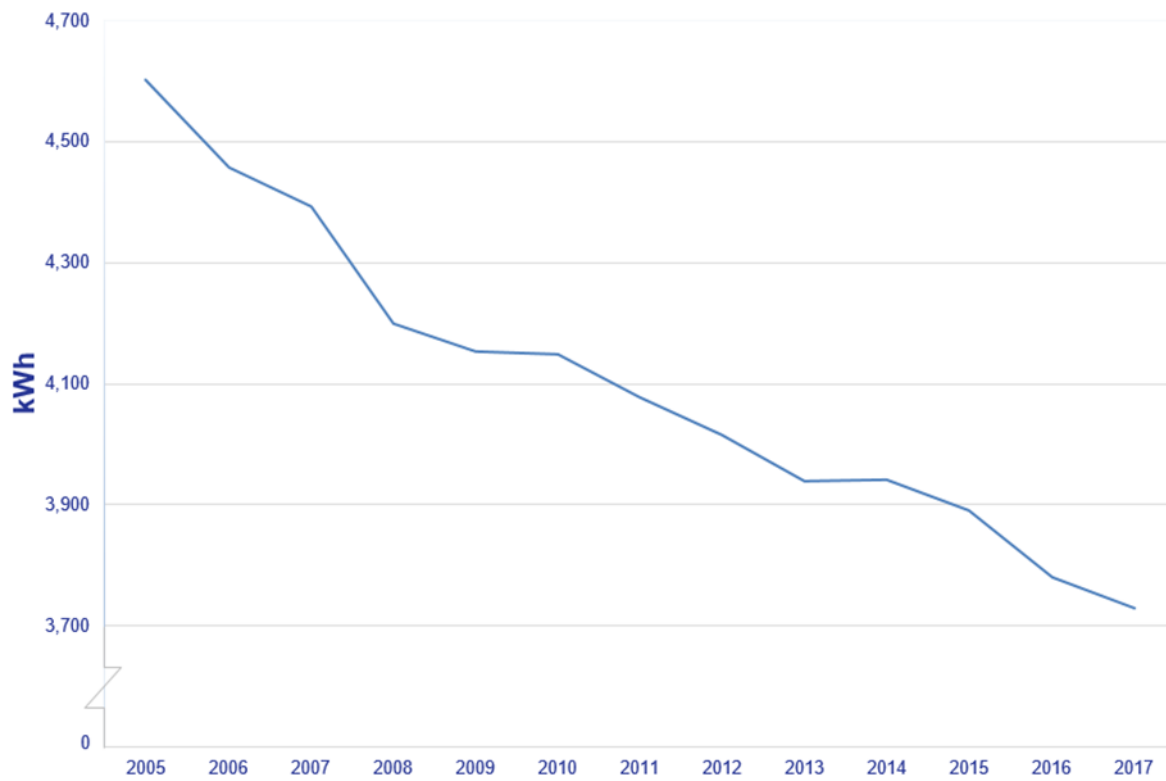
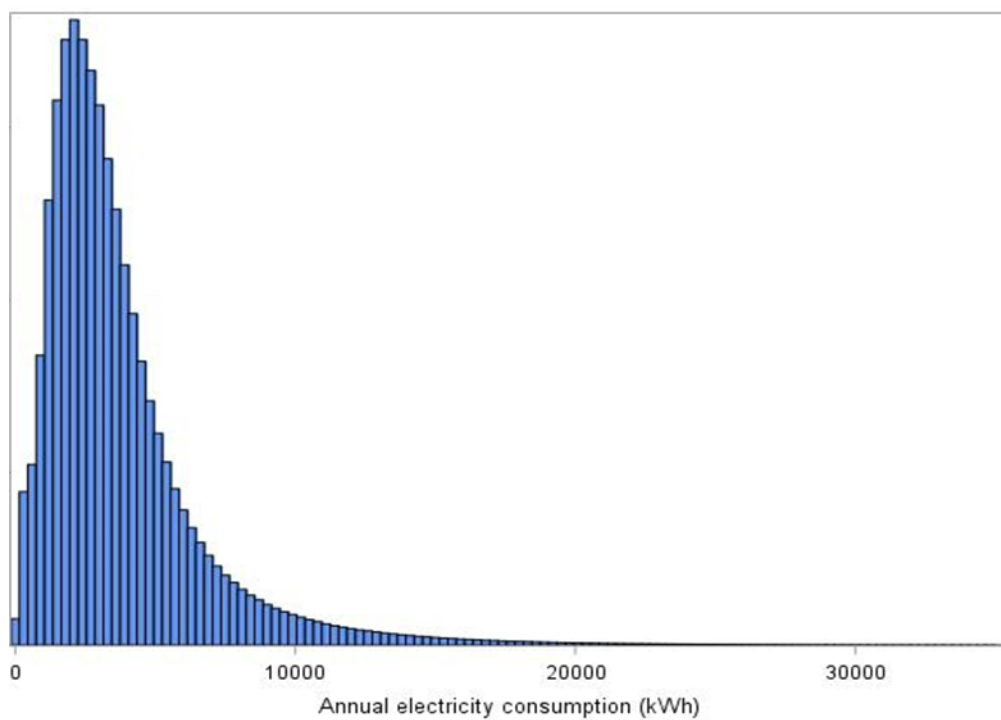


Chart 3: Histogram of Domestic Electricity Consumption per meter in 2017



At a regional level, the North East continued to have the lowest mean domestic consumption at 3,160 kWh (median 2,632 kWh). The East had the highest mean and median domestic consumption, 4,100 kWh and 3,162 kWh respectively. Table 2 below shows the mean and median domestic consumption per meter in each region in 2017 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.

Table 2: Average domestic electricity consumption per meter by region, 2017

	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	3,160	2,632	1,225	3,054	2,602	95%	5,012	3,804	5%
North West	3,561	2,917	3,230	3,387	2,853	93%	5,848	4,652	7%
Yorkshire and The Humber	3,472	2,799	2,393	3,321	2,748	93%	5,499	4,228	7%
East Midlands	3,743	2,964	2,055	3,396	2,808	68%	4,489	3,372	32%
West Midlands	3,776	3,031	2,447	3,524	2,929	84%	5,147	3,886	16%
East	4,100	3,162	2,649	3,675	2,969	72%	5,211	3,877	28%
Inner London	3,373	2,426	1,521	3,187	2,340	91%	5,234	4,100	9%
Outer London	3,751	2,973	2,043	3,558	2,876	85%	4,844	3,793	15%
South East	4,059	3,152	3,878	3,785	3,019	83%	5,401	4,153	17%
South West	3,997	3,073	2,543	3,598	2,909	86%	6,412	5,309	14%
England	3,760	2,956	23,984	3,489	2,841	85%	5,247	3,967	15%
Wales	3,511	2,863	1,415	3,304	2,796	93%	6,337	4,944	7%
Scotland	3,581	2,818	2,795	3,327	2,748	85%	5,026	3,762	15%
Unallocated	3,365	2,469	60	3,213	2,387	93%	5,462	4,511	7%
Great Britain	3,729	2,937	28,254	3,462	2,828	85%	5,250	3,969	15%

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 domestic consumption per meter between 2005 and 2017 varied between a mean of 21.4 per cent in North East England to 28.8 per cent in Scotland. There are several factors which may have contributed to these reductions in consumption, including weather conditions; energy efficiency improvements⁵ such as increased levels of insulation, new boilers and more energy efficient appliances; increased prices⁶; changes in building regulations increases in solar photovoltaic self-generation by household⁷, 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 date⁸.

Chart 4 below shows the decrease in mean domestic consumption by region in 2017 when comparing against both 2005 and 2016. North East has seen the largest decrease (2.7 per cent) compared to 2016.

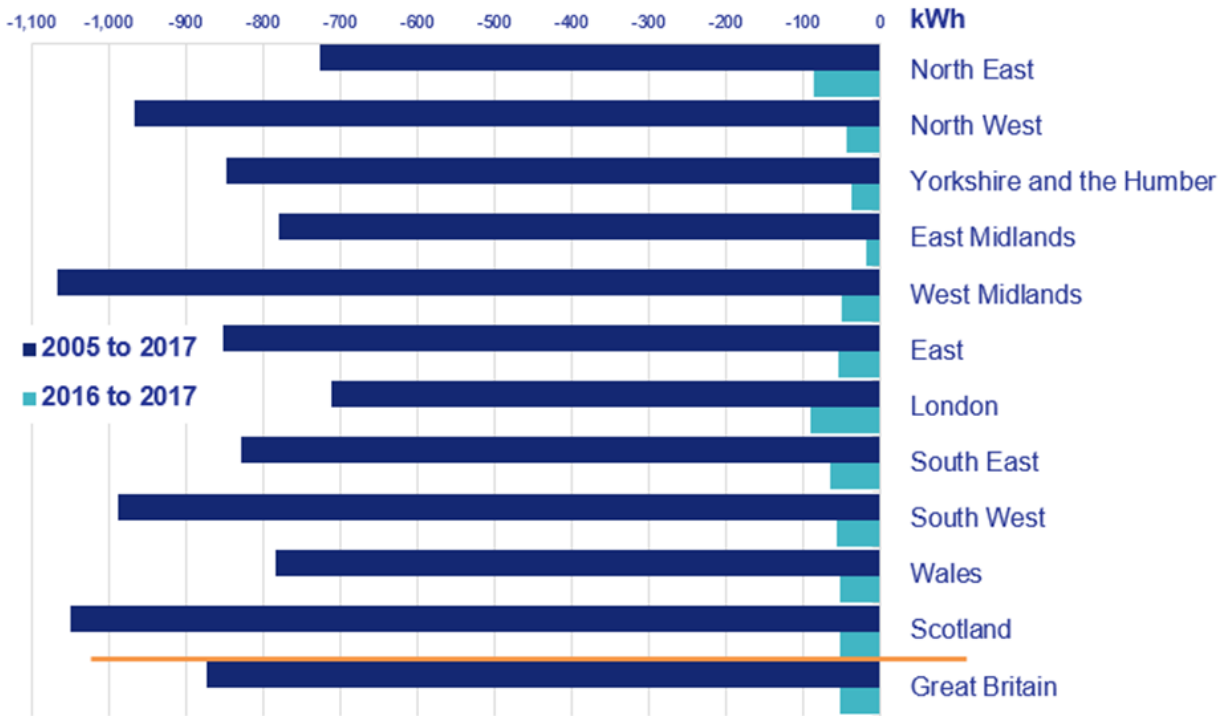
⁵ The energy efficiency of the housing stock improved between 2005 and 2016, the average SAP rating of a dwelling increased by 13 points from 49 to 62. The SAP rating is a measure of the overall energy efficiency of the dwelling. Table 13: English Housing Survey Headline Report 2016-17: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/705821/2016-17_EHS_Headline_Report.pdf

⁶ Between 2005 and 2017, domestic electricity prices contained in Quarterly Energy Prices show an increase of 94.7 per cent (54.3 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-2018>

⁷ The number of Photovoltaic installations under FiTs (Feed-in-Tariff scheme) was up 3 per cent to 5,054.9 MW in the year up until January 2018, see the Monthly feed-in tariff commissioned installations publication: <https://www.gov.uk/government/statistics/monthly-small-scale-renewable-deployment>. These FiTs solar installations make up 39 per cent of all solar capacity from all schemes recorded for this time period. See table 2 of the Solar photovoltaics deployment publication: <https://www.gov.uk/government/statistics/solar-photovoltaics-deployment>

⁸ 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 2017



Standard domestic and Economy 7 consumption

As shown in Table 2, in 2017 mean consumption for customers with standard domestic meters was 3,462 kWh (median consumption was 2,828 kWh) compared to 3,519 kWh in 2016 (median of 2,915 kWh). In contrast, households with Economy 7 meters used a larger amount of electricity (5,250 kWh mean consumption, 3,969 median consumption) and are more likely to use electricity to heat their homes.

The range of consumption differed across the different meter types in 2017. Mean consumption per Economy 7 meter varied from 4,489 kWh (3,372 kWh median) in East Midlands to 6,412 kWh (5,309 kWh median) in South West, showing a greater range of consumption than for standard meters. Standard meter mean consumption ranged from 3,054 kWh (2,602 kWh median) in North East to 3,785 kWh (3,019 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 a standard domestic meter cannot be on an Economy 7 tariff. In some instances electricity used for heating purposes will not be consumed off-peak.

Classifying meters

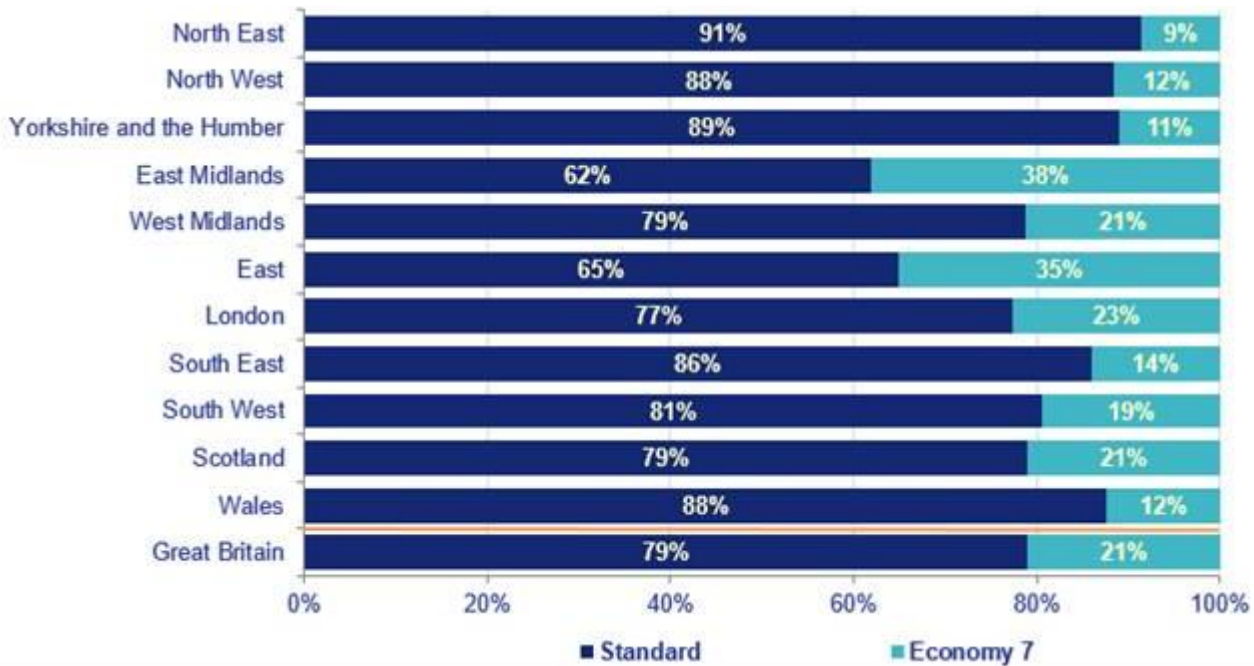
Meter point administration data is collected from electricity suppliers and includes electricity consumption and profile type. In instances where there are multiple consumption reads for a Metering Point Administration Number (MPAN), these are aggregated per MPAN. The profile type is used to classify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

whilst profile 1 meters and profile 3's which meet certain criteria are classified as standard meters. A meter with any other profile is classed as non-domestic,

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 standard domestic meters and Economy 7 meters at regional level in Great Britain. For Great Britain, 79 per cent of total domestic consumption was attributed to standard domestic meters and 21 per cent to Economy 7 meters. However, across Great Britain the ratio between standard domestic and Economy 7 varied from a 91:9 per cent split in the North East, to a 62:38 per cent split in the East Midlands.

Chart 5: Distribution of total domestic electricity consumption by profile, 2017

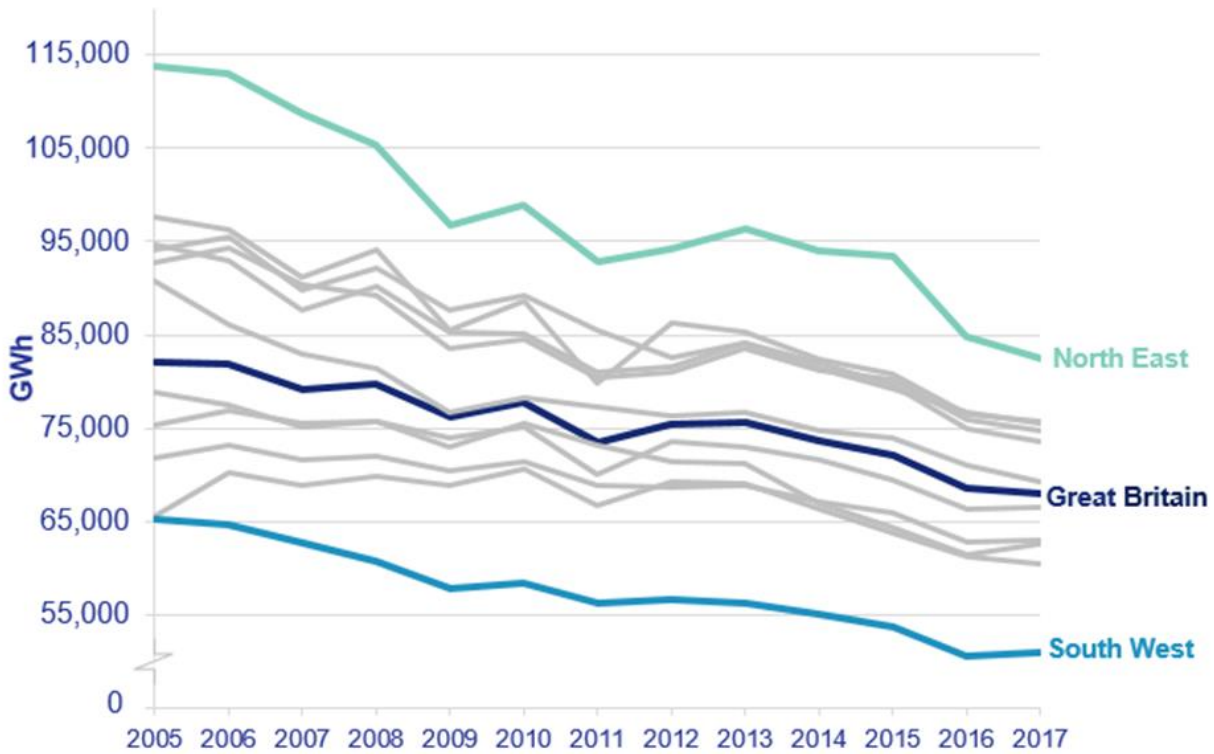


2.3 Non-domestic electricity consumption

Total non-domestic electricity consumption increased in 2017 by 2.1 per cent to 174,322 GWh, from 170,800 GWh in 2016. However, this is a decrease of 13.2 per cent in total electricity consumption since 2005 (200,889 GWh). The increase in 2017 is reflected across all regions, showing an increase of between 1.4 per cent in Wales and 4.8 per cent in Scotland, except for Inner London, which showed a decrease of 1.7 per cent.

Mean non-domestic electricity consumption decreased by 0.8 per cent in 2017 (67,883 kWh, median 8,299 kWh) from 68,460 kWh in 2016. As can be seen in Chart 6 below, this follows the long-term downward trend in non-domestic electricity consumption, which is 17.3 per cent lower in 2017 than in 2005 (82,129 kWh). The mean electricity consumption ranged from 50,903 kWh in South West to 82,534 kWh in North East, whilst the median electricity consumption ranged from 7,041 kWh in Outer London to 9,687 kWh in East Midlands.

Chart 6: Average non-domestic electricity consumption by region, 2005 to 2017



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. A full overview of non-domestic electricity consumption broken down by region is given in Table 3 below.

Table 3: Average non-domestic electricity consumption per meter and number of non-domestic meters by region, 2017

	All non-domestic meters		
	Mean consumption (kWh)	Median consumption (kWh)	Number of non-domestic meters (thousand)
North East	82,534	8,350	89
North West	75,775	9,491	252
Yorkshire and the Humber	73,565	8,939	196
East Midlands	75,467	9,687	171
West Midlands	69,236	8,782	212
East	66,475	9,071	232
Inner London	65,635	5,891	240
Outer London	55,379	7,041	172
South East	62,982	8,359	349
South West	50,903	7,393	263
England	66,408	8,261	2,177
Wales	74,645	7,723	133
Scotland	62,630	9,017	226
Unallocated	175,373	8,246	33
Great Britain	67,883	8,299	2,568

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 2017 cover the gas period between 13th June 2017 and 12th June 2018. Due to this new period for the duration of this chapter the gas period covered in this document will be referred to as "2017/18" rather than simply 2017, which it is referred to as in the accompanying tables. The same notation will be used for 2016 (2016/17), where the average gas period covers mid-July 2016 – mid-July 2017. 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 significantly 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 domestic/non-domestic 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. This means that smaller business premises consuming gas below this threshold will be misclassified.

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

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 is June 2017 – June 2018, and future years are expected to be in this period. 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 onwards (expected): Mid June 2018 – Mid June 2019

All references to gas consumption years in this report signify the gas period for that year (eg: “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.

3.1 Total gas consumption

During 2017/18, the total annual gas consumption in Great Britain, excluding Unique sites was 504,000 GWh (via 24.2 million meters), 3.6 per cent higher than consumption in 2016/17 (487,000 GWh)⁹. This total doesn't include “unique site” meters, which are described on the following page.

Total consumption decreased in 123 local authorities between 2016/17 and 2017/18. The number of meters in an area can change as new properties are built and old properties demolished. Boundary changes can also affect the number of meters in an area. In addition, assigning a meter to an area is 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'. 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 4 below shows the changes in gas consumption and number of meters in Great Britain between 2016/17 and 2017/18 for each region. It shows that there has been an increase in the number of meters for all regions.

⁹ The local authorities of Orkney Islands, Shetland Islands and Isles of Scilly do not have access to gas.

Table 4: Gas consumption in Great Britain by region, 2016/17 and 2017/18

	2016/17r		2017/18		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 (thousand)
North East	23,569	1,130	24,477	1,141	3.9%	0.9%
North West	61,865	2,970	65,823	2,991	6.4%	0.7%
Yorkshire and The Humber	49,739	2,172	51,240	2,188	3.0%	0.7%
East Midlands	37,881	1,825	39,223	1,845	3.5%	1.1%
West Midlands	45,098	2,167	45,648	2,186	1.2%	0.9%
East	41,779	2,130	43,980	2,152	5.3%	1.0%
Inner London	25,845	1,237	26,353	1,238	2.0%	0.1%
Outer London	33,900	1,837	34,751	1,843	2.5%	0.4%
South East	61,734	3,306	63,340	3,340	2.6%	1.0%
South West	32,672	1,914	34,189	1,937	4.6%	1.2%
England	414,082	20,689	429,024	20,860	3.6%	0.8%
Wales	22,737	1,150	24,167	1,158	6.3%	0.7%
Scotland	46,358	2,066	48,133	2,090	3.8%	1.2%
Unallocated ¹	3,403	78	2,951	79	-13.3%	0.8%
Great Britain	486,581	23,983	504,275	24,188	3.6%	0.9%

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'.

Total consumption increased in all 12 regions between 2016/17 and 2017/18, with the largest increase in the North West (6.4%). In Great Britain as a whole, there was an overall increase in consumption of 3.6 per cent.

In 2017/18, King's Lynn and West Norfolk had the highest mean gas consumption of all local authorities at 73,592 kWh (excluding the City of London). This can be compared with Torrington with the lowest mean gas consumption at 12,673 kWh. This reflects the different compositions of these areas, with King's Lynn and West Norfolk having a relatively high proportion of high consuming non-domestic meters. Map 2 shows the distribution of annual gas consumption for each local authority.

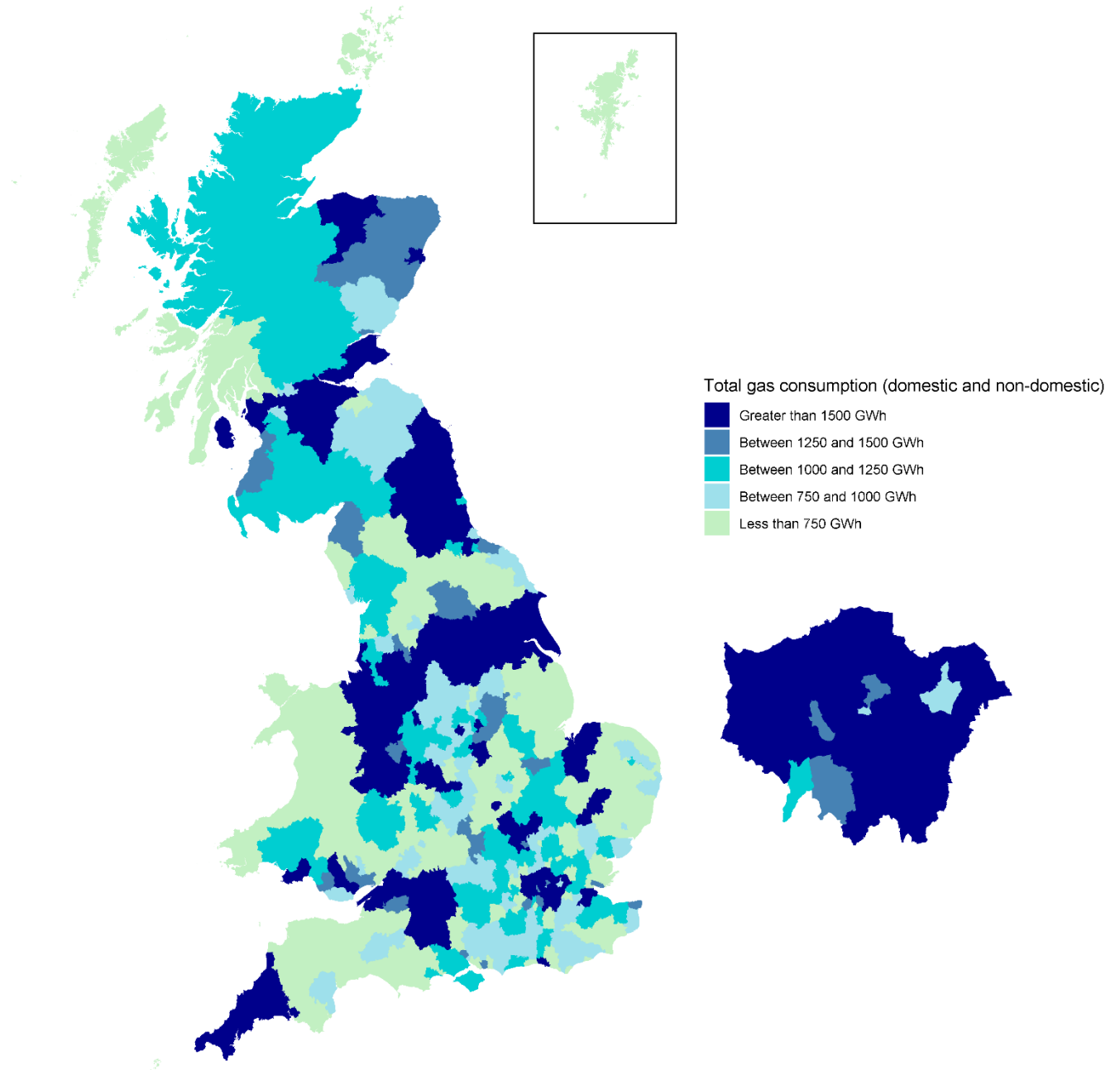
Unique Sites

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.

Map 2: Total annual gas consumption, by local authority, 2017/18



3.2 Domestic gas consumption

Average domestic gas consumption

The mean and median annual gas consumption of domestic meters in 2017/18 were 13,379 kWh and 11,949 kWh respectively, with a total domestic gas consumption of 319,950 GWh. Mean domestic consumption was higher than in 2016/17, by 2.6 per cent.¹⁰ Total consumption was up by 3.3 per cent, which outweighs the 0.85 per cent increase in the number of homes consuming gas. This is a large rise in domestic gas use compared to previous years and could be explained by unseasonal weather conditions. Gas consumption is weather-corrected, however the weather correction process used may not fully account for sudden changes in consumption which can occur with extreme weather, as experienced in the UK during February and March 2018.

Table 5 below shows the average domestic gas consumption per meter, the total number of domestic meters, total domestic consumption for each region and the median domestic consumption in 2017/18.

Table 5: Mean domestic gas consumption per meter by region, 2017/18

	Number of domestic meters (thousands)	Total domestic consumption (GWh)	Mean domestic consumption (kWh)	Median domestic consumption (kWh)
North East	1,130	15,376	13,612	12,530
North West	2,960	39,081	13,205	11,936
Yorkshire and The Humber	2,163	29,957	13,849	12,529
East Midlands	1,825	24,874	13,626	12,424
West Midlands	2,162	29,313	13,558	12,330
East	2,129	29,120	13,677	12,237
Inner London	1,215	14,101	11,602	9,528
Outer London	1,824	26,738	14,661	13,014
South East	3,300	45,051	13,651	11,974
South West	1,917	22,705	11,846	10,458
England	20,625	276,315	13,397	11,970
Wales	1,147	14,444	12,589	11,526
Scotland	2,066	28,349	13,721	12,104
Unallocated ¹	77	841	10,970	9,370
Great Britain	23,915	319,949	13,379	11,949

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'.

Outer London had the highest mean domestic consumption with 14,661 kWh per meter (median consumption of 13,014 kWh), which was over 800 kWh more per meter than the second highest

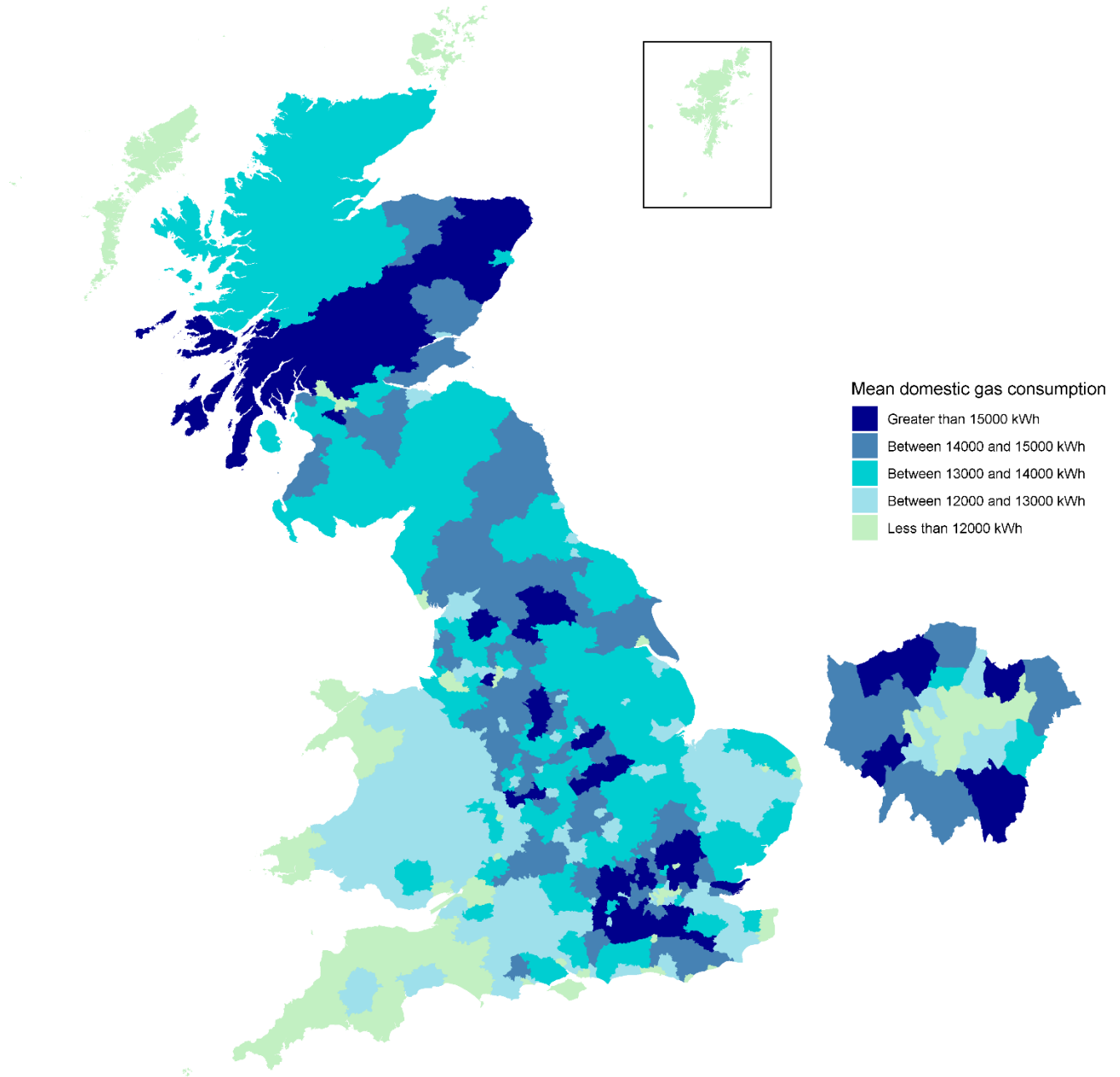
¹⁰ The sub-national data is weather corrected, and unadjusted domestic gas consumption estimates (from different sources to those used in this publication) are available in Table 3.03 of Energy Consumption in the UK (ECUK): <https://www.gov.uk/government/collections/energy-consumption-in-the-uk>

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region (Yorkshire and the Humber). Inner London has the lowest mean domestic consumption at 11,602 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 gas¹¹.

Map 3 shows the mean domestic gas consumption per meter by local authority in 2017/18. South Bucks (South East) had the highest mean gas consumption in 2017/18 at 19,509 kWh compared with the lowest in Tower Hamlets (Inner London) at 9,211 kWh.

Map 3: Average domestic gas consumption per meter by local authority, 2017/18



¹¹ See the National Energy Efficiency Data-Framework (NEED): <https://www.gov.uk/government/collections/national-energy-efficiency-data-need-framework>

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Despite the 3.3 per cent increase in 2017/18, mean domestic gas consumption per meter in Great Britain decreased by 29.7 per cent between 2005 and 2017/18. There many factors which may have contributed to the reductions in consumption including weather conditions, energy efficiency improvements such as increased levels of insulation, new boilers and more energy efficient appliances, increased prices¹², changes in building regulations, and household composition.

Chart 7 shows the decrease in average domestic gas consumption per meter point between 2005 and 2017/18 at regional level. Mean domestic consumption in 2017/18 was higher than 2016/17 in all regions ranging between a 1.3 per cent increase in the South east and a 3.7 per cent increase in Wales.

Chart 7: Increase in average domestic consumption per meter point between 2016/17 and 2017/18

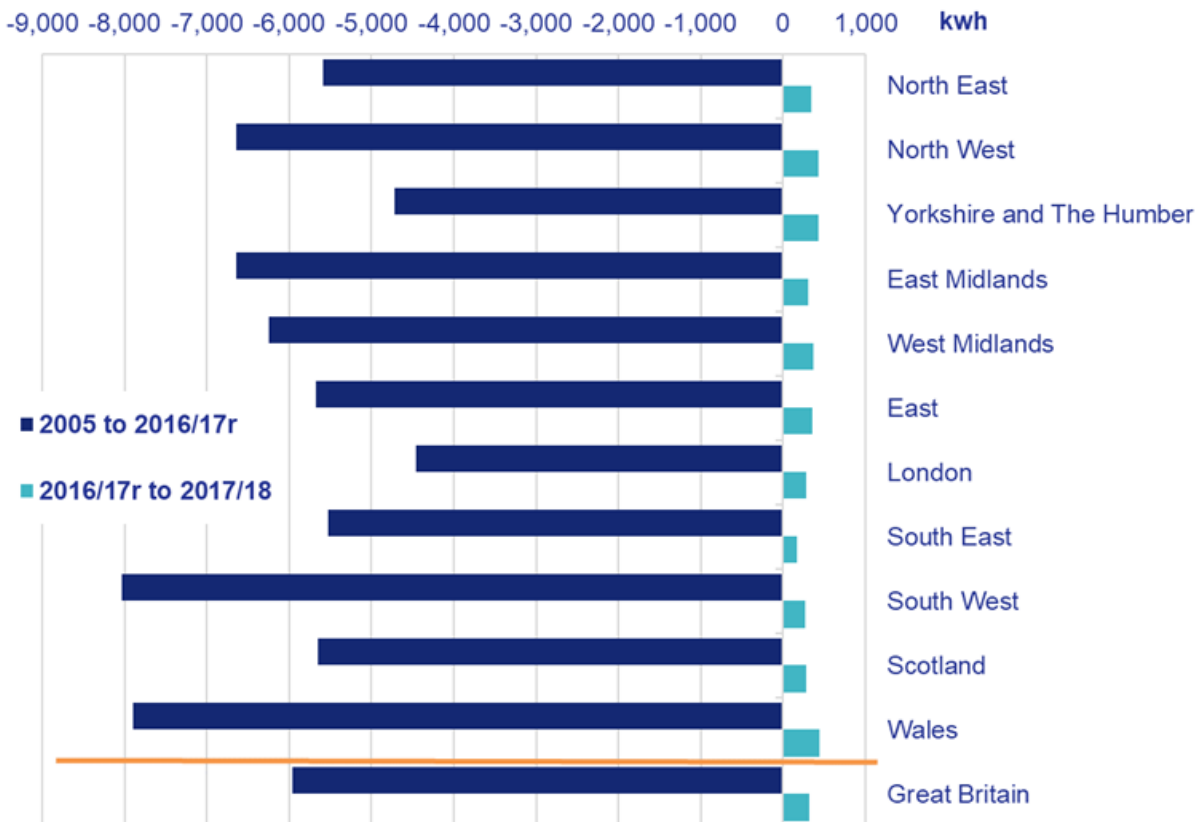


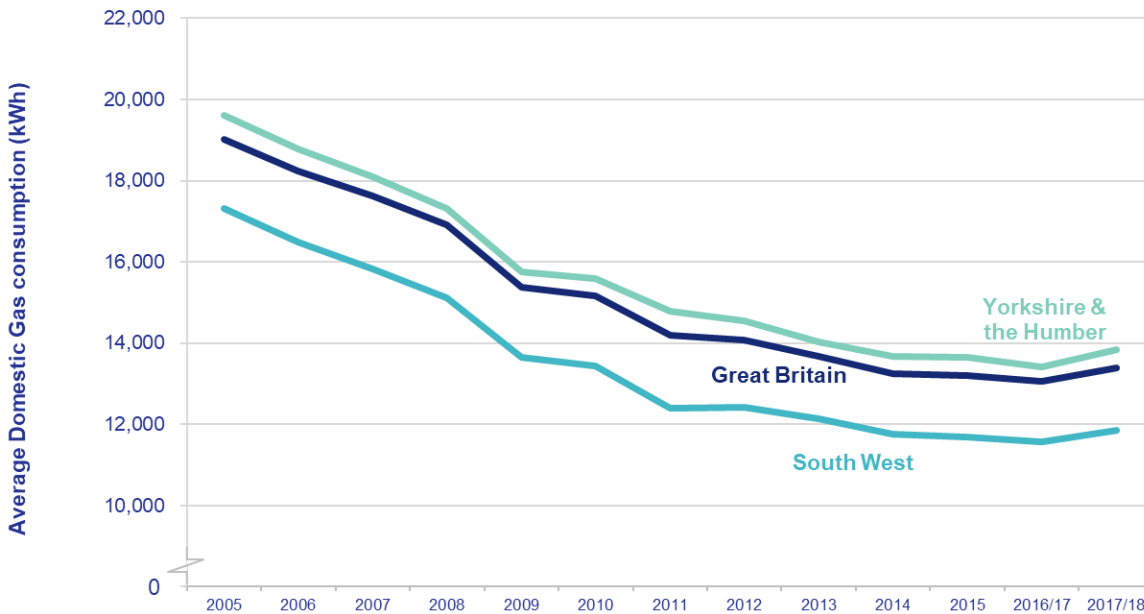
Chart 8 shows the mean domestic gas consumption per meter for South West, Yorkshire and

¹² Between 2005 and 2017, domestic gas prices contained in Quarterly Energy Prices show an increase of 98 per cent (57 per cent in real terms). In comparison to the peak gas price year, the 2017 average gas price has fallen by 16% (20% 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-2018>

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the Humber and Great Britain between 2005 and 2017/18. These regions had the highest and lowest average domestic gas for 2017/18. 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, with an increase in the latest year.

Chart 8: Mean domestic gas consumption for selected regions, 2005 to 2017/18



Distribution of domestic consumption

Chart 9 shows a series of box plots illustrating the distribution of average domestic gas consumption for local authorities within each region. These have been calculated based on mean consumption for each local authority within each region. The inter-quartile range between (the middle 50 per cent of the data) of average domestic gas consumption in local authorities was greatest in the South East (a difference of 3,120 kWh per meter), whereas the inter-quartile range for the Wales was 702 kWh, as indicated by the shorter box.

The whiskers in the chart represent the highest and lowest mean consuming local authority in each region. The local authority with the lowest domestic consumption varies within each region from 9,211 kWh (Tower Hamlets) in England to 12,295 kWh (South Tyneside) in the North East. The largest average domestic consumption per meter varies from 14,144 kWh (Northumberland) in the North east to 19,509 kWh (South Bucks) in the South East.

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Chart 9: Box plot of mean domestic gas consumption for the highest and lowest consuming local authorities, 2017/18

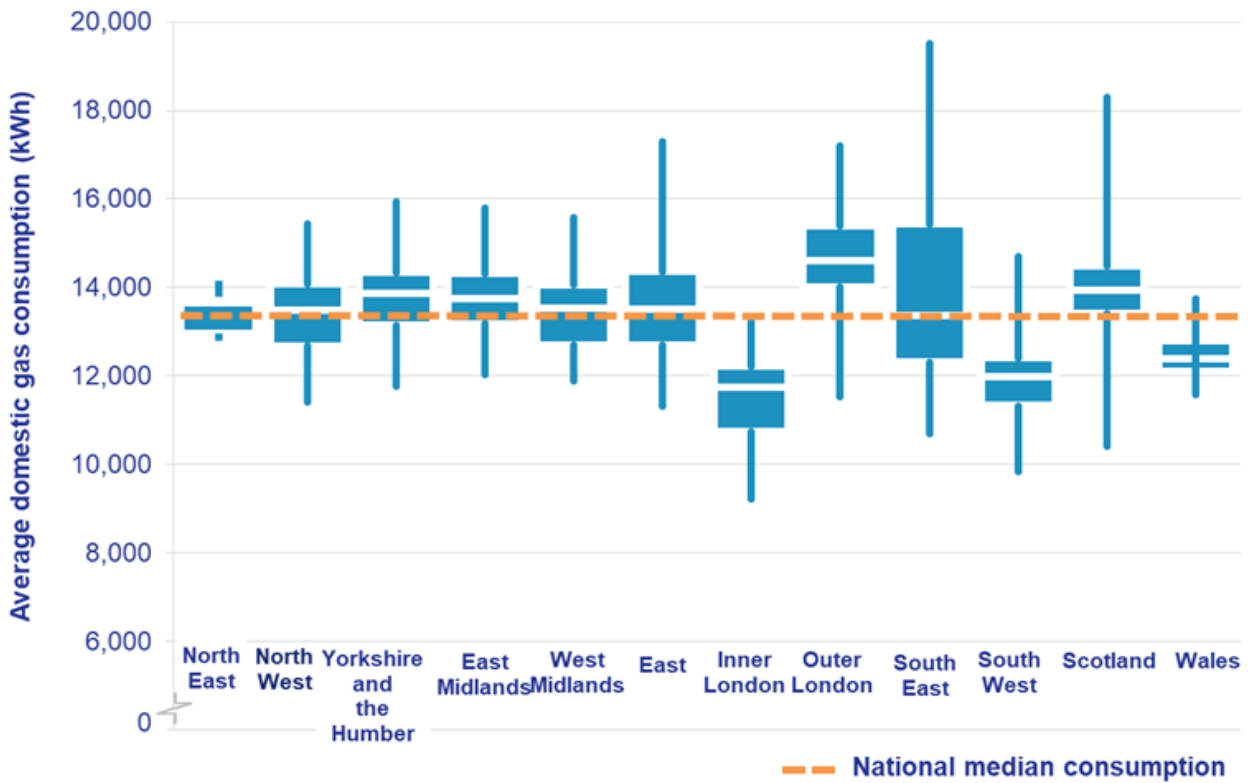
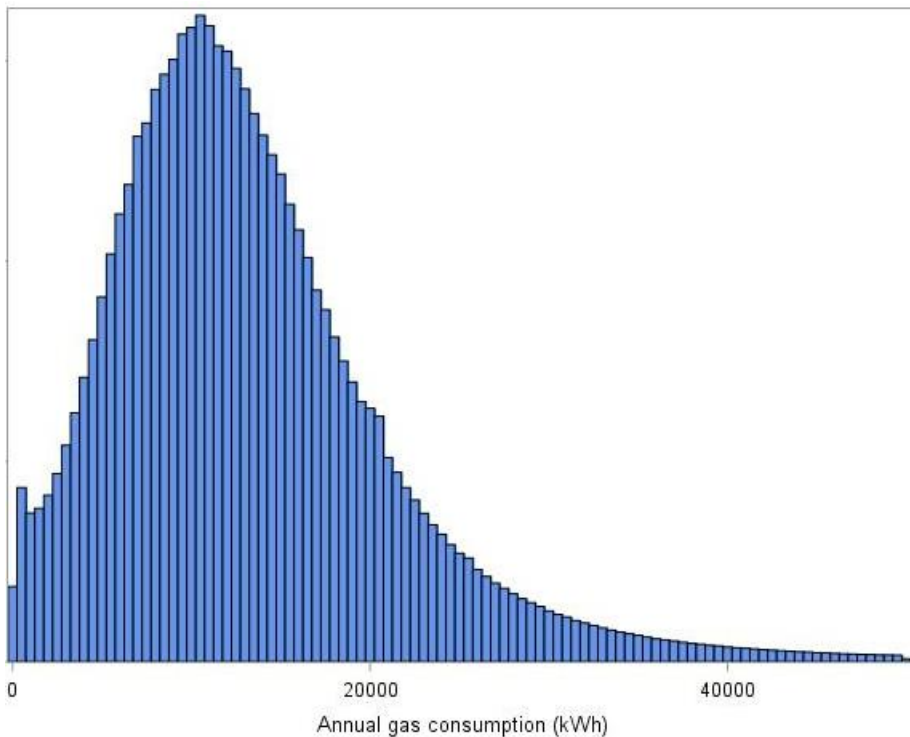


Chart 10 below shows the distribution of annual domestic gas consumption using all domestic meters in England, Scotland and Wales, where the median consumption is 11,700 kWh and the mean is just above 13,000 kWh. Most households (19.8 million) consume between 4,000 kWh and 20,000 kWh of gas (83% of households).

Chart 10: Histogram of domestic gas consumption using all meters in England, Scotland and Wales



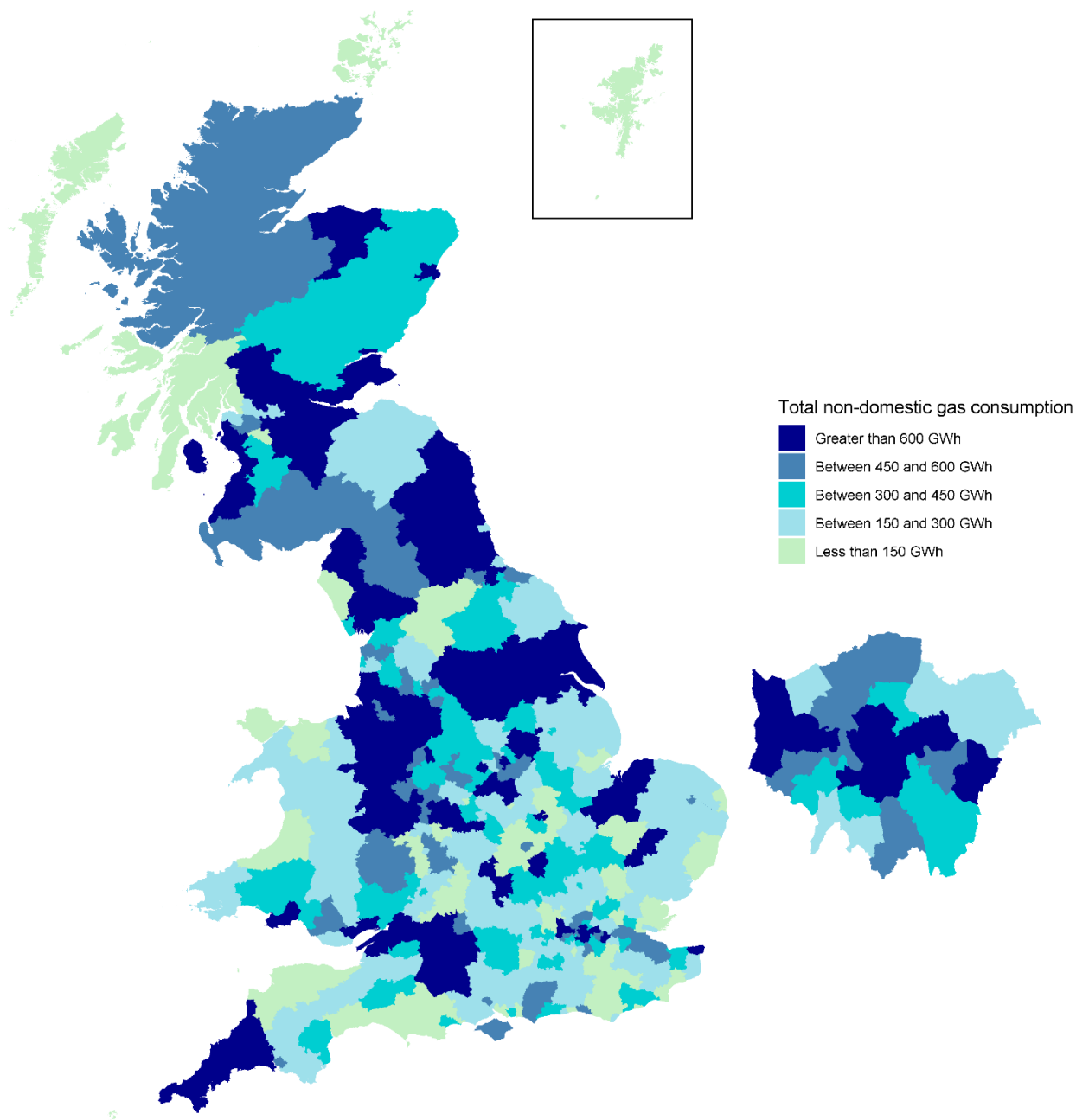
3.3 Non-domestic consumption

Total non-domestic consumption

In 2017/18, total non-domestic annual gas consumption in Great Britain was 184,000 GWh (from 272,000 meters), 4.2 per cent higher than consumption in 2016/17 (177,000 GWh).

Non-domestic consumption decreased in 124 local authority areas between 2016/17 and 2017/18. Map 4 below shows the spread of annual non-domestic gas consumption for each local authority.

Map 4: Total non-domestic gas consumption by local authority, 2017/18



Changes in non-domestic gas consumption at LA and regional levels

Between the years 2015, 2016/17 and 2017/18 there have been considerable changes in non-domestic gas consumption in specific regions, notably Wales, the North West and the East of England (9.2, 10.0 and 8.5 per cent increases respectively between 2016/17 and 2017/18). This is mainly due to considerable changes (over 50 per cent) in

the consumption of high consuming meters (over 500,000 kWh). For example, in the East of England the change between 2016/17 and 2017/18 was 68 per cent attributable to these considerable changes in high consuming meters.

Another causality is very high consuming meters changing their billing system, meaning that the billing (or office) address is recorded as the metered address rather than the actual site address. While there are believed to be relatively few of these, with under 10 being found during analysis, this introduces a level of error into the data which the user should be aware of, particularly when considering large changes at the local authority level.

Finally, some meters have consistently under-reported their consumption in previous years, and the debt which has been built up may be paid off in a single year (which is recorded as a higher metered read for that year). This phenomenon occurs in every year and at the national level the net effect tends to average to zero. However at lower level geographies with a high consuming meter, the change as a proportion of that area's consumption can be considerable.

Mean annual non-domestic gas consumption per meter was 677,000 kWh in 2017/18, 2.7 per cent lower than in 2016/17 (659,000 kWh). With the threshold gas consumption for a meter to be classified as non-domestic being 73,200 kWh, roughly 30,000 meters have crossed the threshold to become non-domestic, and 28,000 meters have moved from non-domestic to domestic, giving a net increase of roughly 2,000 non-domestic meters due to reclassification. This net increase has contributed to an increase in the number of non-domestic gas meters with consumption just above the threshold for non-domestic classification.

Table 6 shows the mean non-domestic gas consumption per meter and total non-domestic consumption in each of the regions. The North West accounted for 13.7 per cent of all non-domestic gas consumption, compared to Outer London and the North East 4.4 and 4.9 per cent respectively.

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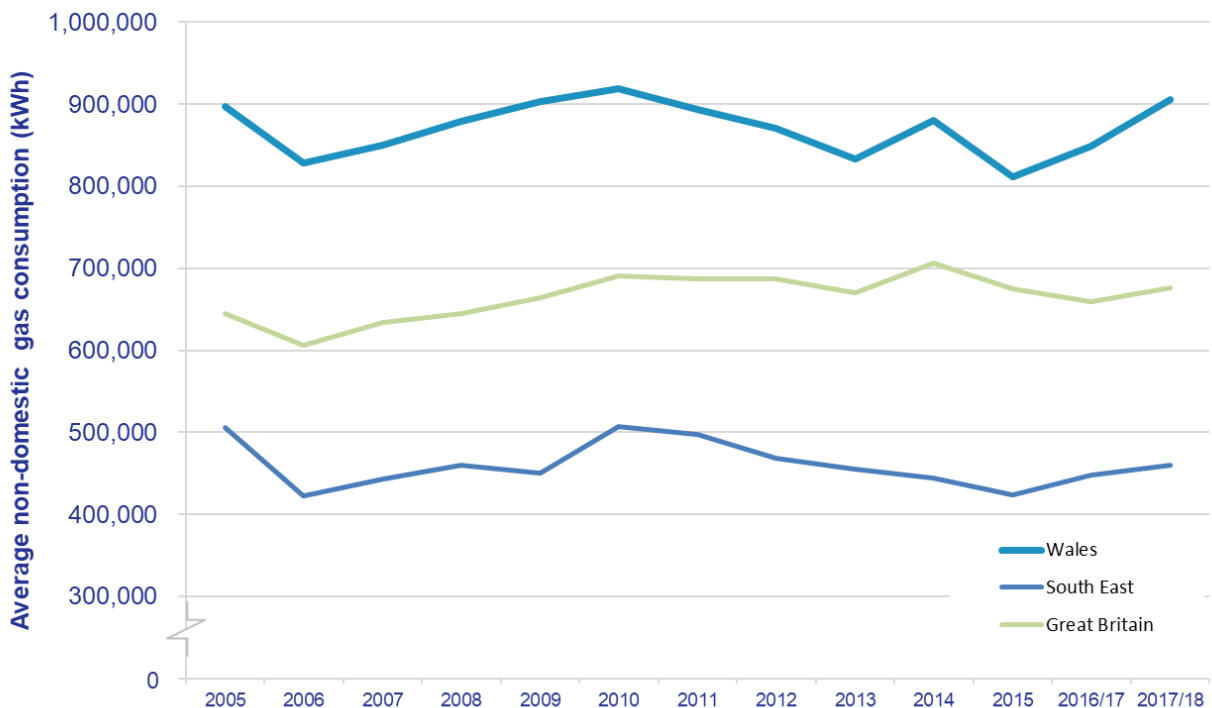
Table 6: Mean non-domestic gas consumption per meter and total non-domestic gas consumption by region, 2017/18

	Number of non-domestic meters (thousands)	Total non-domestic consumption (GWh)	Average non-domestic consumption (kWh)
North East	11	9,101	807,193
North West	31	26,742	849,415
Yorkshire and The Humber	24	21,282	874,275
East Midlands	19	14,348	750,943
West Midlands	24	16,335	676,892
East	23	14,860	658,024
Inner London	23	12,253	540,883
Outer London	20	8,013	408,498
South East	40	18,289	459,484
South West	20	11,484	569,349
England	235	152,709	649,361
Wales	11	9,723	905,522
Scotland	24	19,784	818,600
Unallocated ¹	2	2,110	908,871
Great Britain	272	184,326	676,686

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 11 below 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 2017/18.

Chart 11: Average non-domestic gas consumption for selected regions, 2005 to 2017/18



3.4 Number of households not connected to the gas grid

Background

There is no definitive source of information on households that are off the gas grid. However, BEIS produces estimates of the number of households without gas based on the difference between the number of gas meters in each area. This is calculated at the LSOA levels and aggregated to larger areas.

The published data does not allow the identification of specific households 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 households 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 information¹³. Approximately 0.3 per cent of domestic meters could not be allocated to a local authority in 2017.
- 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.

Estimates of households not connected to the gas grid

Table 7 below shows the estimated proportion and number of households that are not connected to the gas network in each region of Great Britain.

The estimate of the percentage of households not connected to the gas grid in Great Britain is 13.0%. This is a 0.1% decrease from the 2016 figure. England had a lower estimate for the percentage of houses not connected to the gas network than Scotland or Wales. The South West of England has the highest proportion of properties without a gas meter at 20.6%, and the North East had the lowest proportion at 5.8%. Inner and Outer London have seen increases of 0.7% and 0.3% respectively from last year.

¹³ These meters are included in the overall estimates for Great Britain, but are aggregated in the 'Unallocated' row in the sub-national statistics outputs.

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Table 7: Estimated proportion of households not connected to the gas network using 2011 Census data, by region (2017)

	Number of domestic gas meters ² (thousands)	Number of households ³ (thousands)	Estimated number of households not connected to the gas network ⁴ (thousands)	Estimated percentage of households not connected to the gas network (gas meters to number of households) ⁵
North East	1,130	1,157	67	6%
North West	2,960	3,101	213	7%
Yorkshire and The Humber	2,163	2,290	179	8%
East Midlands	1,825	1,982	193	10%
West Midlands	2,162	2,382	255	11%
East	2,129	2,550	448	18%
Inner London	1,215	1,474	270	18%
Outer London	1,824	2,007	201	10%
South East	3,300	3,735	477	13%
South West	1,917	2,375	489	21%
England	20,625	23,054	2,792	12%
Wales	1,147	1,350	226	17%
Scotland	2,066	2,464	486	20%
Unallocated	77			
Great Britain	23,915	26,867	3,503	13%

Map 5 shows how the proportion of properties without a gas meter varies across local authorities in Great Britain.

Estimates for local authority (2017 data) are published at:

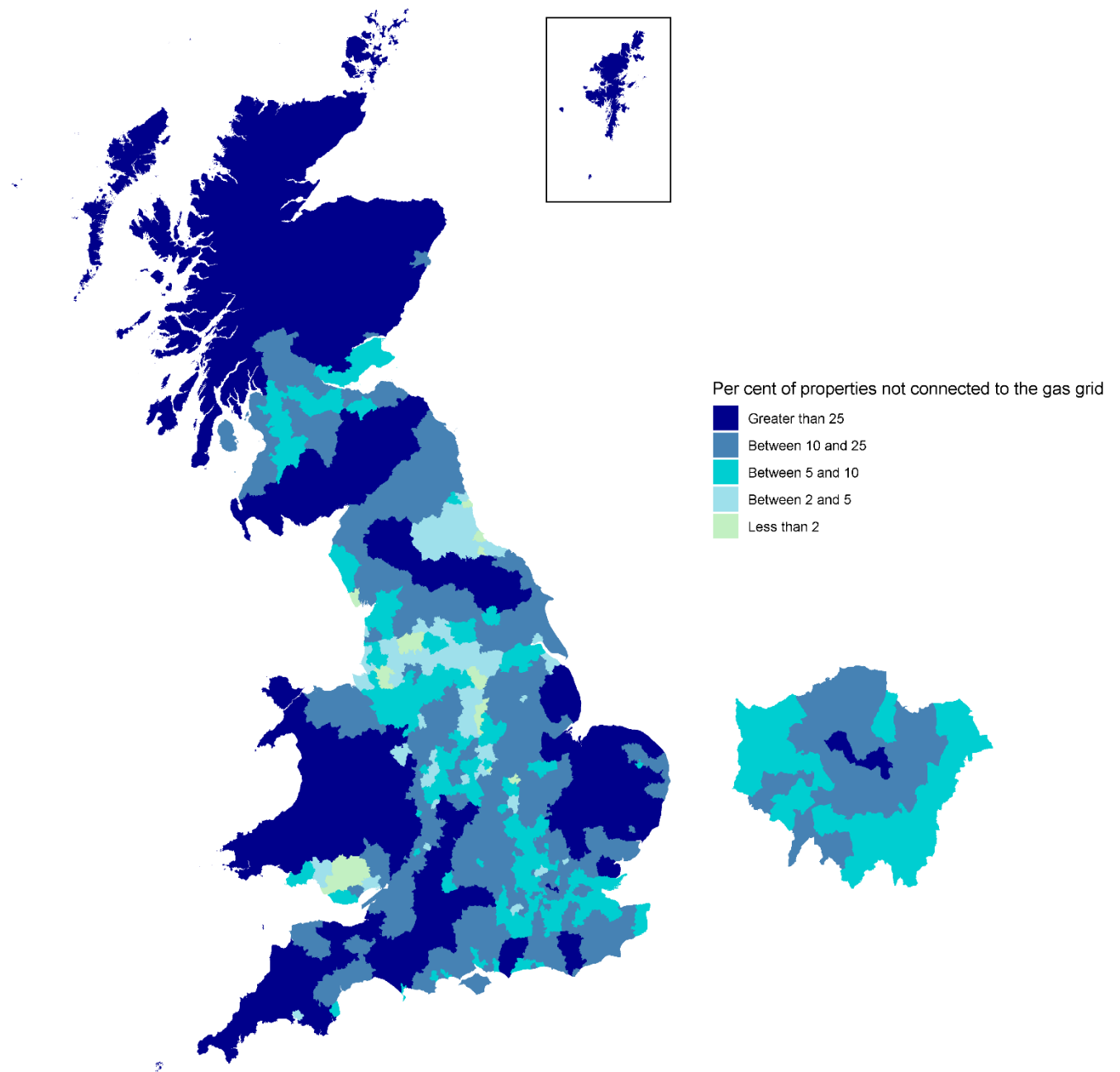
<https://www.gov.uk/government/collections/sub-national-gas-consumption-data>.

Whilst this data is referred to as '2017', the mean latest read data for gas meters was in June 2018, so the data reflects properties not connected to the gas network as of this time.

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. Users should be aware that the map shows data on properties not connected to the gas grid as of 2012. The map can be accessed here:

<https://www.nongasmap.org.uk/>

Map 5: Per cent of properties not connected to the gas grid by local authority, 2017

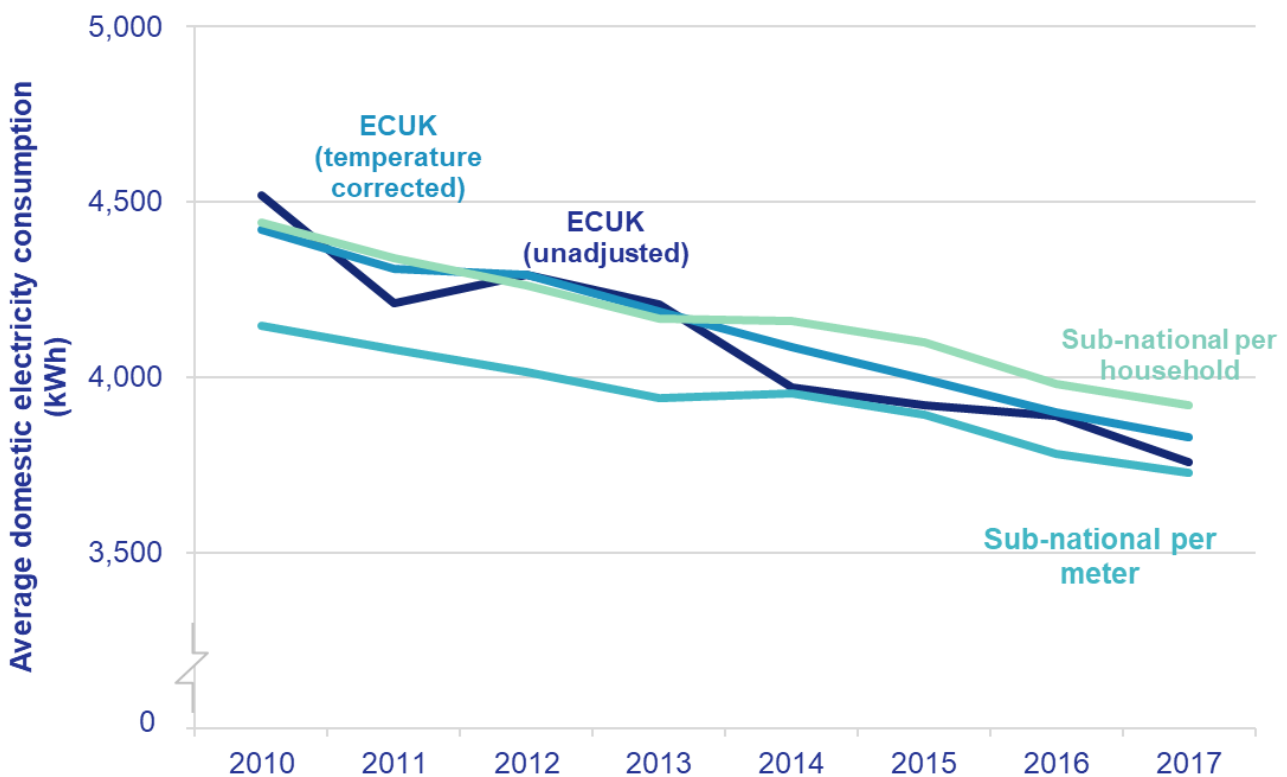


4. Comparison with other sources

4.1 Electricity

A comparison with the average annual consumption per household published in Energy Consumption in the UK (ECUK) Table 3.03 (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 12.

Chart 12: Comparison of source, average (mean) annual electricity consumption per household, 2008 to 2017



A comparison of electricity consumption in 2017 with that published in DUKES Table 5.2 shows similar figures for domestic consumption (105,000 GWh from both sources, with the DUKES figures including 1,400 GWh of estimated consumption generated on site from solar panels). For non-domestic electricity consumption DUKES reports 17% higher total consumption (203,000 GWh against 174,000 GWh). This is because DUKES records electricity use from on-site generation, which is unmetered and therefore unrecorded in the tables which accompany this report. Estimates from DUKES show the non-domestic electricity consumption from on-site generation to be 29,000 GWh.

