



Department
of Energy &
Climate Change

Energy Consumption in the UK (2014)

Chapter 5: Service sector energy consumption in
the UK between 1970 and 2013

31 July 2014

Energy Consumption in the UK (2014)

Service sector energy consumption in the UK between 1970 and 2013

Statistician

Responsible: Julian Prime

**Prepared by: Sabena Khan
Sam Stadnyk
Emily Wilkes**

Energy Consumption in the UK

EnergyEfficiency.Stats@decc.gsi.gov.uk

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Background

This factsheet provides a brief overview of the trends and some key drivers that have influenced energy consumption within the service sector in the UK since 1970. Analysis is based on data from DECC's annual publication 'Energy consumption in the UK' published on Thursday 31 July 2014: <https://www.gov.uk/government/publications/energy-consumption-in-the-uk>.

This factsheet looks at the change in service sector energy consumption by the following sections:

- **Overall** service sector energy consumption in 2013.
- Service sector energy consumption by **fuel type** between 1970 and 2013.
- **Factors** affecting service sector energy consumption between 1990 and 2012.

This factsheet also contains publication plans for each table and a summary of related DECC publications in the Annex.

Alongside the ECUK series of datasets and factsheets, a [User Guide](#) is also available which provides the reader with an overview of the content of each chapter within ECUK and explains technical concepts and vocabulary. The User Guide is not intended to offer commentary and interpretation of the data. We value feedback on the content of this factsheet and comments, or related queries, should be sent to energyefficiency.stats@decc.gsi.gov.uk.

Key terms used in this document

The following terms have been used frequently in this factsheet and the data tables and have been defined below in order to aid the unfamiliar user in fully understanding the statistics.

- **Primary energy equivalents** - this is the amount of the fuel used directly for consumption in a sector prior to any loss of energy via conversion or transformation process. Therefore, the primary energy equivalent estimates will include any losses incurred during the transformation process and energy used by the energy industry, and will differ from final energy consumption estimates.
- **Final energy consumption (end use)** – this refers to energy consumed by final end users after energy has been transformed, as opposed to primary energy consumption which is energy in its original state.
- **Non-energy use** – this category includes the consumption of energy products which have not been used directly to provide energy. This category includes use for chemical feedstock, solvents, lubricants and road making material.
- **Thousand tonnes of oil equivalent (ktoe)** – this is a common unit of measurement which enables different fuels to be compared and aggregated. A tonne of oil equivalent (toe) is a unit of energy.

A full glossary of terms used within the energy industry has been provided in Annex B of the DECC statistics publication 'Digest of UK Energy Statistics' (DUKES)¹.

¹ DUKES can be accessed here: <https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes>.

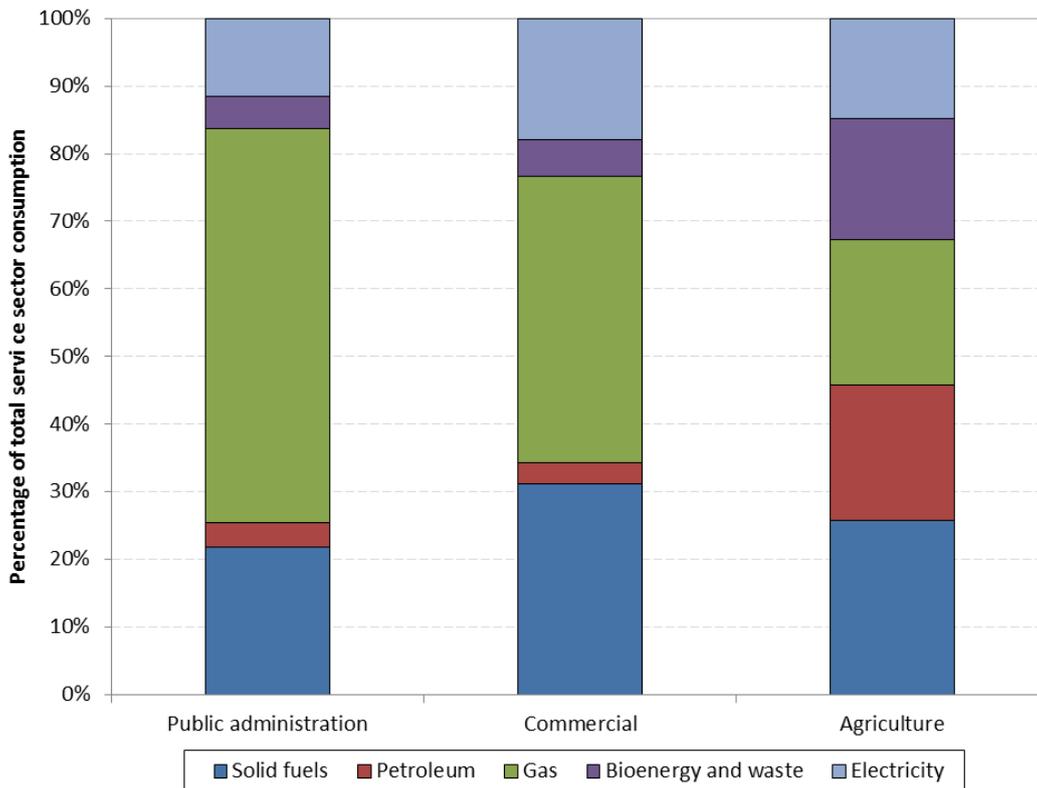
1. Overall service sector energy consumption in 2013

Primary energy consumption

In 2013, energy consumption in the service sector when measured in primary energy terms (ie, the fuels used to produce the energy used) was 39.0 million tonnes of oil equivalent (mtoe). This was 27 per cent higher than in 1970, 3 per cent lower than in 2000 and 0.1 per cent higher than in 2012. Demand for energy in the service sector has changed very little in comparison with the transport, domestic and industrial sectors despite the increased size of the sector, reflecting improved efficiency as set out on pages 8 and 9 of this factsheet. The service sector represented 14 per cent of total final consumption of energy products in the UK.

Chart 1 splits service sector energy consumption on a primary energy basis in 2013 by public administration, private commercial and agriculture sectors (as defined by DUKES²). Agriculture is not considered part of the service sector in economic terms, but is included here for complete coverage of energy use. Commentary has been provided in the factsheet and accompanying tables where agriculture has been excluded.

Chart 1 Service sector primary energy consumption by fuel and sector, UK (2013)



Source: DECC, ECUK Table 5.01

Of the 39.0 mtoe consumed in the service sector in 2013, 27.3 mtoe (70 per cent) was by the commercial sector, 10.1 mtoe (26 per cent) by public administration and 1.6 mtoe by agriculture (4 per cent). The highest consumed fuel in the public administration and commercial sectors

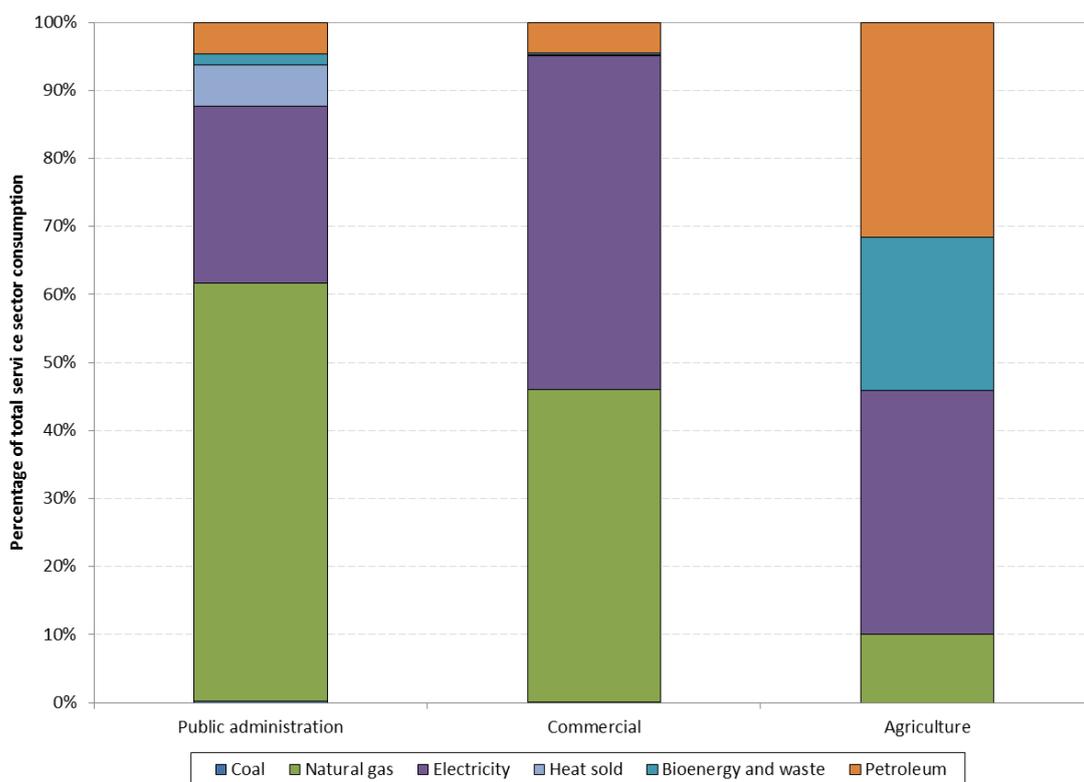
² DUKES can be accessed here: <https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes>.

was gas³ (58 per cent and 42 per cent respectively). Fuel consumption in the agriculture sector was more evenly spread with solid fuels the most consumed at 26 per cent of total consumption.

Final energy consumption consumption (end use)

The service sector final consumption of energy was 21.0 mtoe of energy in 2013. Of this 12.4 mtoe (59 per cent) related to the commercial sector, 6.2 mtoe (30 per cent) to public administration and 0.9 mtoe to agriculture (4 per cent). Consumption not attributed to the commercial, public administration and agriculture sectors is classified as miscellaneous, which amounts to 1.4 mtoe (7 per cent). In most cases, the analysis contained in this factsheet and the accompanying tables combine the commercial and miscellaneous sectors.

Chart 2 Service sector end use energy consumption by fuel and sector, UK (2013)



Source: DECC, ECUK Table 5.06 to 5.09

Tables 5.10 to 5.17 within ECUK contain final energy consumption estimates in the service sector by sub-sector and 2013 estimates will be added in September 2014.

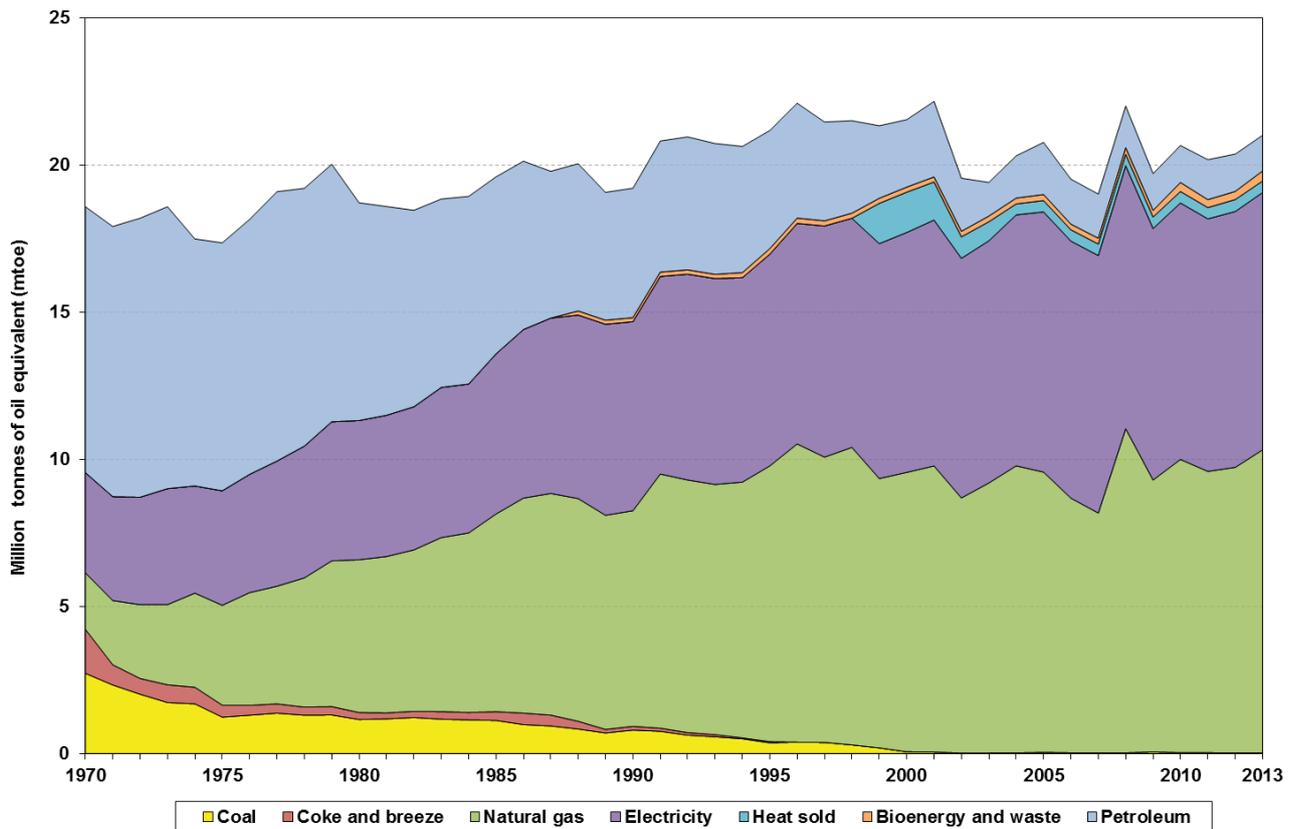
The remainder of this factsheet focusses on end use consumption statistics.

³ There have been methodological changes made to the UK's gas import volumes, energy industry use of gas and the sectoral breakdown of gas consumed in the UK. These changes have been made to data for 2008 onwards, and therefore comparisons of data from 2008 onwards should not be made with earlier data. Further information about the changes can be found at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/323499/Enhancements_to_ET_gas_tables.pdf.

2. Service sector energy consumption by fuel type between 1970 and 2013

Since 1970, the fuels used within the service sector have significantly changed. Chart 3 shows that in 1970, 49 per cent of final energy consumption was from petroleum, with electricity constituting a further 18 per cent, followed by coal 15 per cent. Gradually petroleum and coal use fell, as natural gas and electricity usage increased to dominate energy consumption, making up 49 per cent and 42 per cent respectively of all energy consumed in this sector in 2013. Natural gas is predominately used for space heating and heating water, whilst electricity is used for lighting, space heating, information technology, and catering purposes.

Chart 3 Service sector energy consumption by fuel type, UK (1970 to 2013)



Source: DECC, ECUK Table 5.06

Please note that energy consumed for transport purposes associated with the services sector is not included.

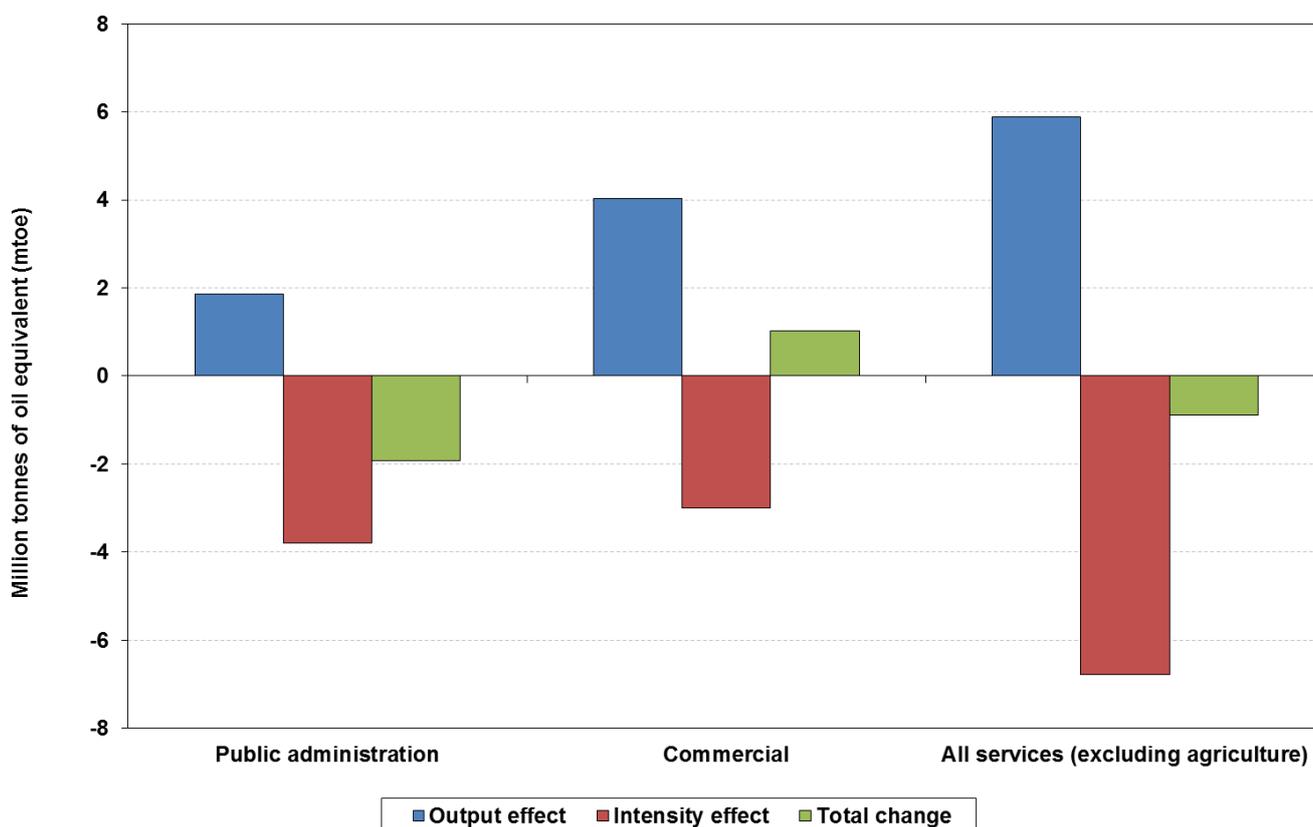
3. Factors affecting service sector energy consumption between 2000 and 2012

The main factors affecting energy consumption in the services sector have been changes in output, structure of the sector, floor area, levels of employment, and technological developments. Chart 4 shows how changes in energy efficiency and structural changes in the services sector have offset changes in energy use related to output.

The output effect is a measurement of the expected change in energy consumption in the service sector as a result of changes in demand for goods or services over time. The output effect does not take into account any changes in energy efficiency or intensity.

In a similar way, the intensity effect refers to the change in energy consumption per unit of output that would be expected if there had been no change in output. Possible reasons for an increase in the intensity effect could be due to improvements in the energy efficiency of products and processes. An increased level of efficiency is shown by a negative intensity value (as can be seen in Chart 4).

Chart 4 Factors affecting changes in service sector energy consumption between 2000 and 2012



Source: DECC, ECUK Table 5.20

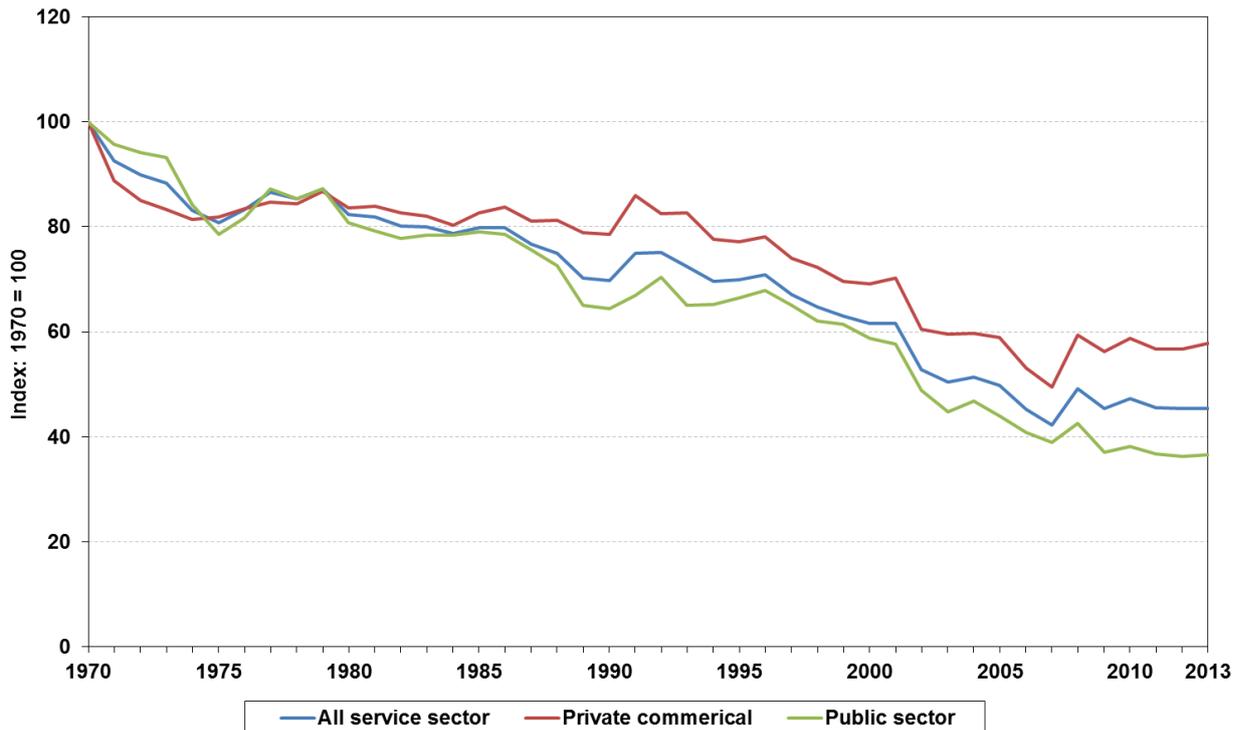
Energy consumption in the public administration and commercial sectors when combined fell by 0.9 mtoe between 2000 and 2012, to 19.4 mtoe. However, it is estimated⁴ that if efficiency

⁴ For further details of the estimation please see Chapter 5 of the User Guide, which can be accessed here: <https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/energy-consumption-in-the-uk>.

levels has remained at 2000 levels, energy consumption in these sectors in 2012 (with 2012 level levels of output) would have increased to 25.3 mtoe (30 per cent higher). However, due to improvements in efficiency this was offset by 6.8 mtoe.

Fifty-six per cent of the energy intensity saving was in public administration with 44 per cent in the commercial sector. However, improvements in efficiency did not outweigh increased consumption from output in the commercial sector which were 4.0 mtoe. In contrast, efficiency gains in the public administration sector were greater than output increases.

Chart 5 Energy intensities for the whole service sector, private commercial and public sectors, UK (1970 to 2013)



Source: DECC, ECUK Table 5.20/5.21/5.22

Energy consumption per unit of output, fell by 55 per cent between 1970 and 2013 in the service sector as a whole. Over the same period energy intensity fell (i.e. improved) at a faster rate in the public sector (63 per cent) than the private commercial sector (42 per cent).

Annex A Publication timetable for ECUK Chapter 5 tables in 2014

Users should note that in this edition of ECUK tables and analysis will be updated on a phased basis, so not all data will be available from the end of July as has been the case in previous editions. Also, where underlying information from the calculations is considered not to reflect the current situation tables will not be updated until more robust information becomes available. The table below illustrates when each table for this chapter will be published.

Table **Publication timetable for ECUK Chapter 5 tables in 2014**

Table number in publication (2013)	Table Name	To be published:
5.01	Service sector energy consumption by fuel in primary energy equivalents, 1970 to 2013	July
5.02	Service sector energy consumption by sub-sector and end use by fuel, in primary energy equivalents 2013	September
5.03	Service sector energy consumption by sub-sector and end use by fuel, in primary energy equivalents 2012	September
5.04	Service sector energy consumption by sub-sector and end use by fuel, in primary energy equivalents 2011	September
5.05	Service sector energy consumption by sub-sector and end use by fuel, in primary energy equivalents 2010	September
5.06	Service sector energy consumption by fuel, 1970 to 2013	July
5.07	Public administration energy consumption by fuel, 1998 to 2013	July
5.08	Commercial energy consumption by fuel, 1998 to 2013	July
5.09	Agriculture energy consumption by fuel, 1998 to 2013	July
5.10	Final energy consumption in the service sector by sub-sector and end use, 2013	September
5.11	Final energy consumption in the service sector by sub-sector and end use, 2012	September
5.12	Final energy consumption in the service sector by sub-sector and end use, 2011	September
5.13	Final energy consumption in the service sector by sub-sector and end use, 2010	September
5.14	Service sector final energy consumption by sub-sector and end use, by fuel 2013	September
5.15	Service sector final energy consumption by sub-sector and end use, by fuel 2012	September
5.16	Service sector final energy consumption by sub-sector and end use, by fuel 2011	September
5.17	Service sector final energy consumption by sub-sector and end use, by fuel 2010	September
5.18	Electricity consumption by certain non-domestic appliances 1970 to 2012	July
5.19	Number of appliances owned in UK non-domestic sector 1970 to 2012	July
5.20	Output and intensity factors affecting service sector energy consumption between 1990 and 2012	July
5.21	Factors affecting service sector energy consumption 1970 to 2013	July
5.22	Energy intensity for the service sector 1970 to 2013	July
5.23	Energy intensity for the private commercial sector, 1970 to 2013	July
5.24	Energy intensity for the public sector, 1970 to 2013	July
5.25	Floor area for service sector buildings in England and Wales, 2000 to 2012	<i>Not updated</i>
5.26	Display energy certificate for each Government Department 2013	July

Annex B Related DECC publications

Energy consumption statistics are also available in:

- **The Digest of UK Energy Statistics (DUKES).**

Much of the data contained in ECUK are based on estimates from DUKES. DUKES is an annual publication which includes tables, charts and commentary covering all the major aspects of energy, it provides a detailed and comprehensive picture of fuel production and consumption during the last three years.

The Digest is also available on the Internet. This includes some additional information including data (available in MS Excel format) from earlier years which are not contained in the printed copy publication. Available from The Stationery Office (0870 600 5522) or www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

- **Energy Trends**

A quarterly publication which includes tables, charts and commentary covering all the major aspects of energy, it provides a comprehensive picture of energy production and use. Available on subscription (together with Quarterly Energy Prices) from DECC (0300 068 5041).

www.gov.uk/government/collections/energy-trends

- **Sub-national consumption statistics**

The sub-national data contain estimates at regional, local authority and MSOA/LSOA (for electricity and gas consumption statistics) geographies. However, it is worth noting that the data are not comparable with DUKES and ECUK due to differing data sources.

A full summary of the sub-national consumption datasets available, alongwith links to relevant datasets, is included on pages 10 and 11 of the sub-national methodology and guidance booklet, which can be accessed here:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/324877/Sub-national_methodology_and_guidance_booklet.pdf.

- **National Energy Efficiency Data-framework (NEED)**

The National Energy Efficiency Data-Framework (NEED) was set up by DECC to provide a better understanding of energy use and energy efficiency in domestic and non-domestic buildings in Great Britain. The data framework matches gas and electricity consumption data with information on energy efficiency measures installed in homes. It also includes data about property attributes and household characteristics.

www.gov.uk/government/collections/national-energy-efficiency-data-need-framework

Comparisons between DUKES, ECUK and sub-national consumption statistics are summarised in Annex C (page 76) of the sub-national guidance and methodology booklet:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/324877/Sub-national_methodology_and_guidance_booklet.pdf.

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Department of Energy & Climate Change
3 Whitehall Place
London SW1A 2AW
www.gov.uk/decc

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