



Energy Consumption in the UK (2013)

Chapter 5

Service sector energy consumption in the UK between 1970 and 2012

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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 25 July 2013: <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 2012;
- Service sector energy consumption by **sub-sector** in 2012;
- Service sector energy consumption by **end use and sub-sector** in 2012;
- Service sector energy consumption by **fuel type** between 1970 and 2012; and
- **Factors** affecting service sector energy consumption between 1990 and 2011.

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.

Overall service sector energy consumption trends in 2012

In 2012, energy consumption in the service sector was 19,027 thousand tonnes of oil equivalent (ktoe). This was 2 per cent higher than in 1970, 1 per cent lower than in 1990 and 3 per cent higher than in 2011. 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 efficiencies as set out on pages 6 and 7 of this factsheet. The service sector represented 13 per cent of total final consumption of energy products in the UK.

The service sector can be split down into public administration, commercial, agriculture and miscellaneous. Of the 19,027 ktoe consumed in the service sector in 2012, 10,333 ktoe (54 per

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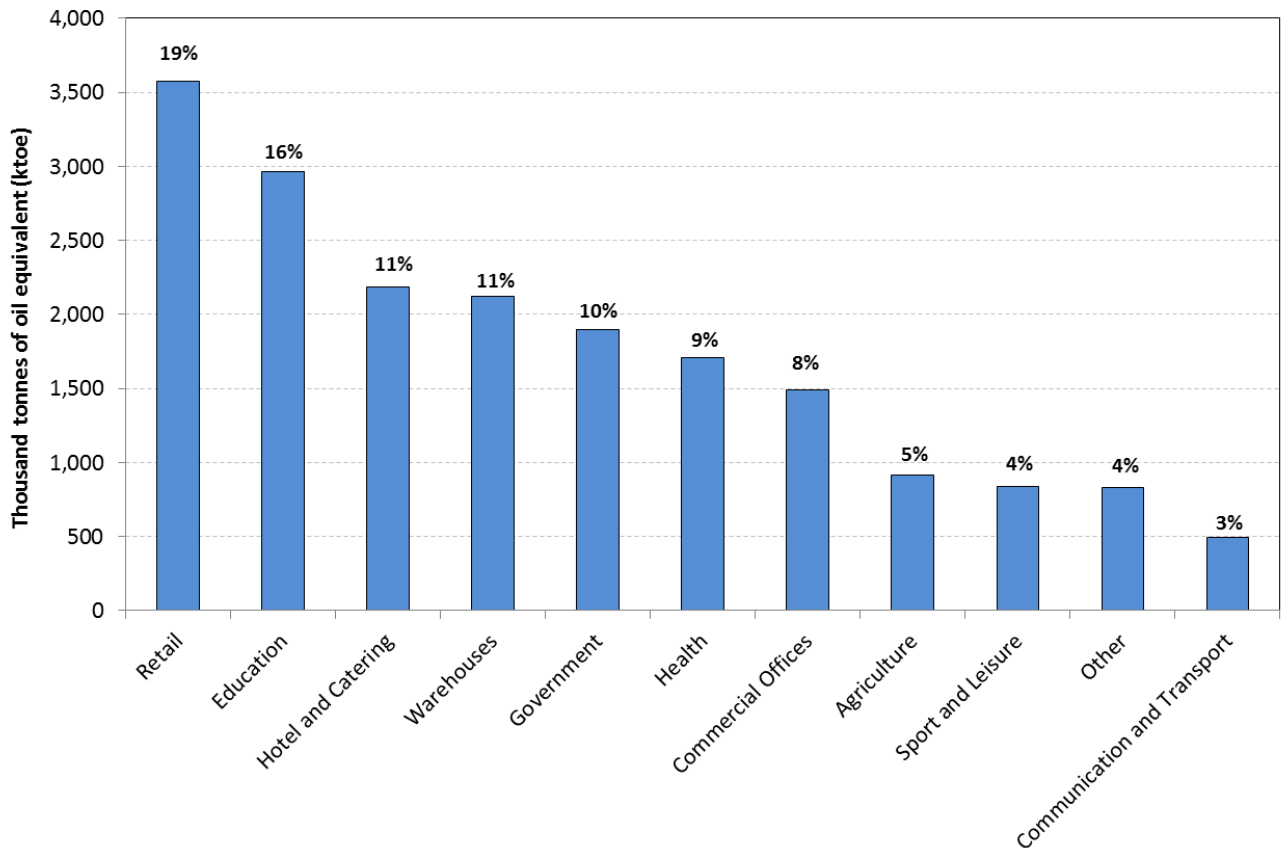


cent) related to the commercial sector, 6,571 ktoe (35 per cent) were attributed to public administration and 914 ktoe to agriculture (5 per cent). The remaining consumption, 1,209 ktoe (6 per cent) is classified as miscellaneous. Generally the analysis contained in this factsheet and the accompanying tables combine commercial and miscellaneous sectors. 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.

Service sector energy consumption by sub-sector in 2012

Chart 1 shows service sector consumption broken down by specific sectors (including agriculture). Service sector energy consumption in the UK in 2012 was highest in the retail (19 per cent), and education (16 per cent); the hotel and catering and warehouses sub-sectors both accounted for 11 per cent of the total.

Chart 1 Service sector energy consumption by sub-sector, UK (2012)



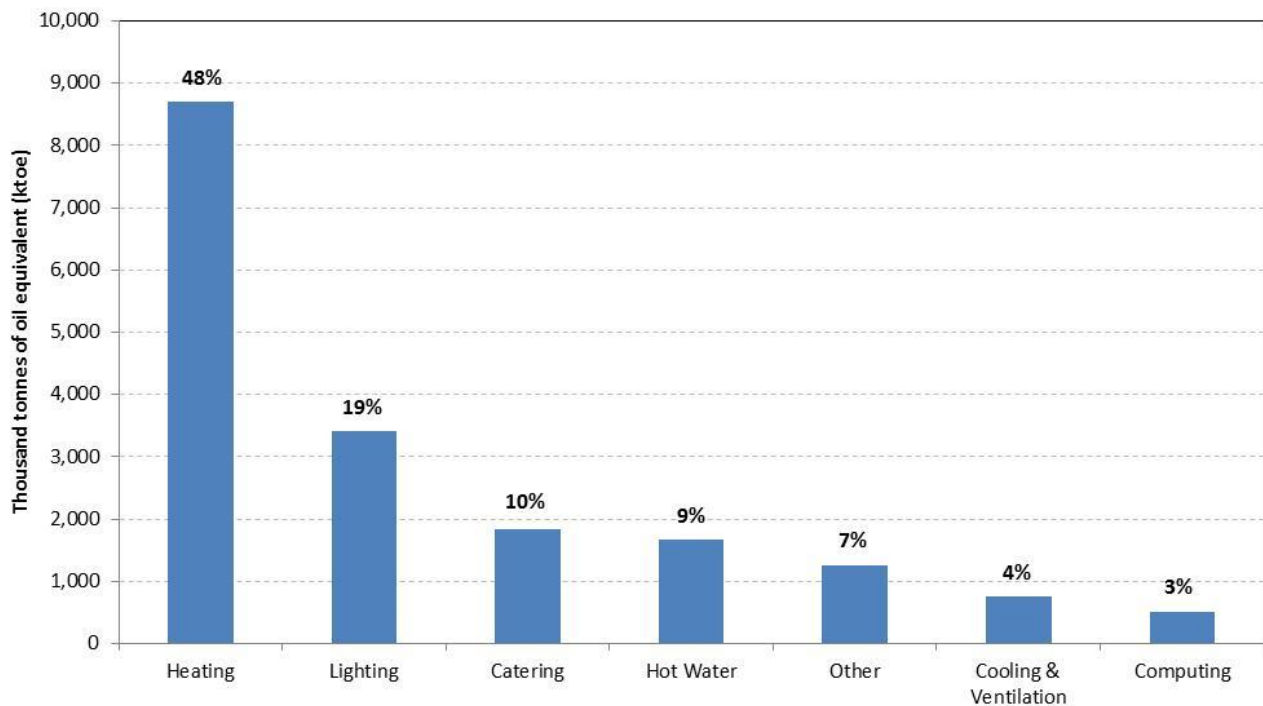
Source: DECC, ECUK Table 5.09



Service sector energy consumption by end use and sub-sector in 2012

Chart 2 identifies how energy was used within the service sector in 2012. It is estimated that 48 per cent of energy consumed in the services sector was for space heating, lighting accounted for a further 19 per cent, followed by catering 10 per cent and hot water 9 per cent.

Chart 2 Service sector energy consumption by end use, UK (2012)



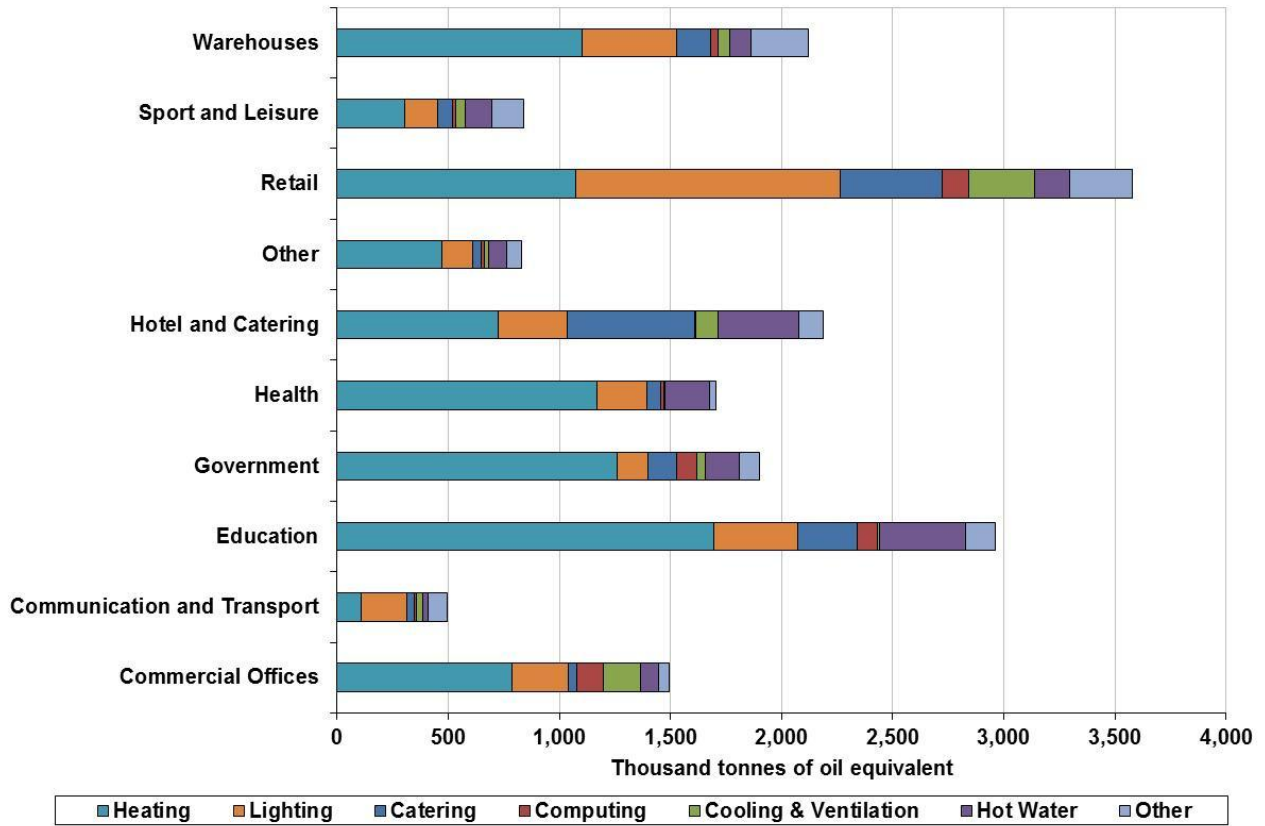
Source: DECC, ECUK Table 5.12

In 2012, of the 8,702 ktoe of total energy consumption used for space heating; of this 1,694 ktoe was for space heating in schools and colleges, 1,261 ktoe was for space heating of government buildings, and 1,170 ktoe for heating in the health sector. The highest commercial sector space heating users were 1,104 ktoe for heating warehouses and 1,074 ktoe for retail sector heating.

Space heating made up the largest share of all energy consumed in all the services sub-sectors (Chart 3), with the exception of the retail and communication & transport sectors, where lighting was responsible for largest share of sub-sector consumption. The retail sub-sector was the largest consumer of energy for lighting, accounting for 35 per cent of all lighting within the services sector. Lighting accounted for 33 per cent of total energy consumption in the retail sub-sector.



Chart 3 Service sector energy consumption by end use and sub-sector, UK (2012)



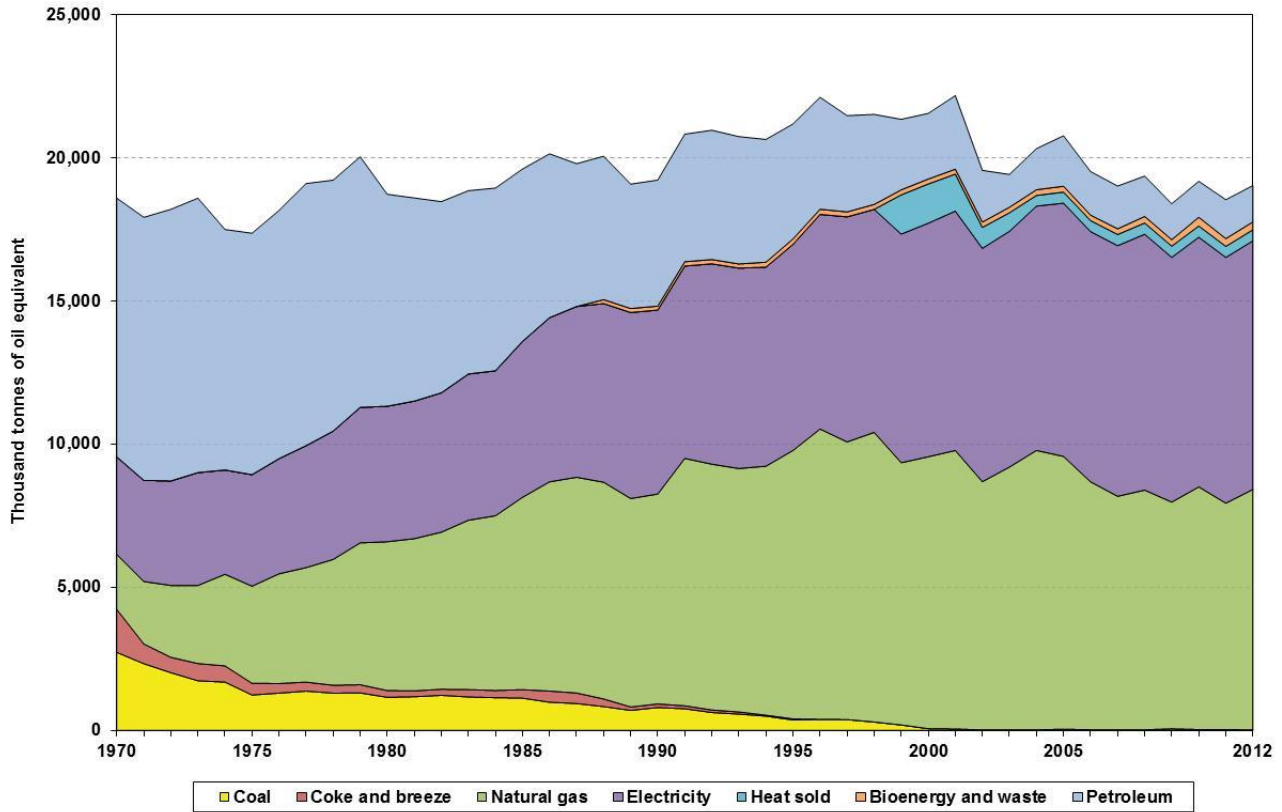
Source: DECC, ECUK Table 5.02

Service sector energy consumption by fuel type between 1970 and 2012

Since 1970, the fuels used within the service sector have significantly changed. Chart 4 shows that in 1970, 49 per cent of 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 44 per cent and 46 per cent respectively of all energy consumed in this sector in 2012. Natural gas is predominately used for space heating and heating water, whilst electricity is used for lighting, space heating, information technology, and catering purposes. Please note that energy consumed for transport purposes is not included.



Chart 4 Service sector energy consumption by fuel type, UK (1970 to 2012)



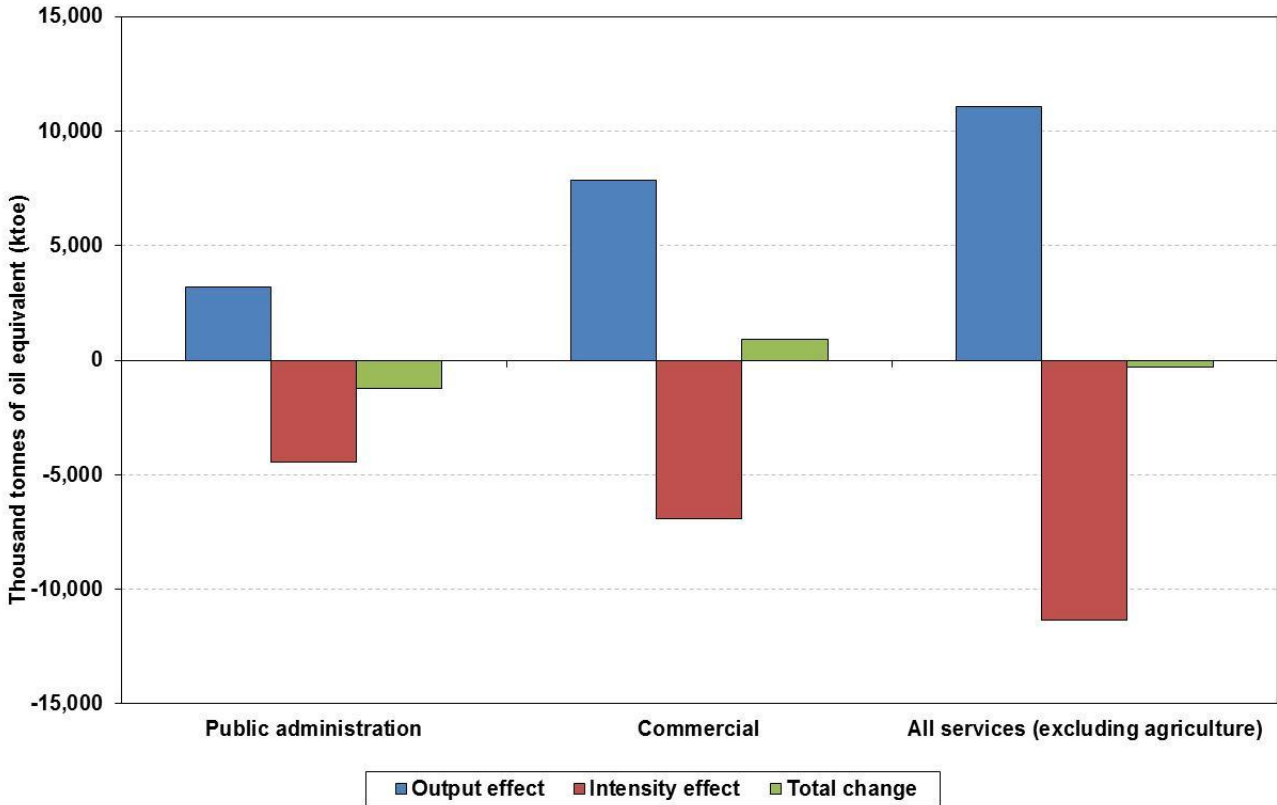
Source: DECC, ECUK Table 5.05

Factors affecting service sector energy consumption

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 5 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.



Chart 5 Factors affecting changes in service sector energy consumption between 1990 and 2011



Source: DECC, ECUK Table 5.17

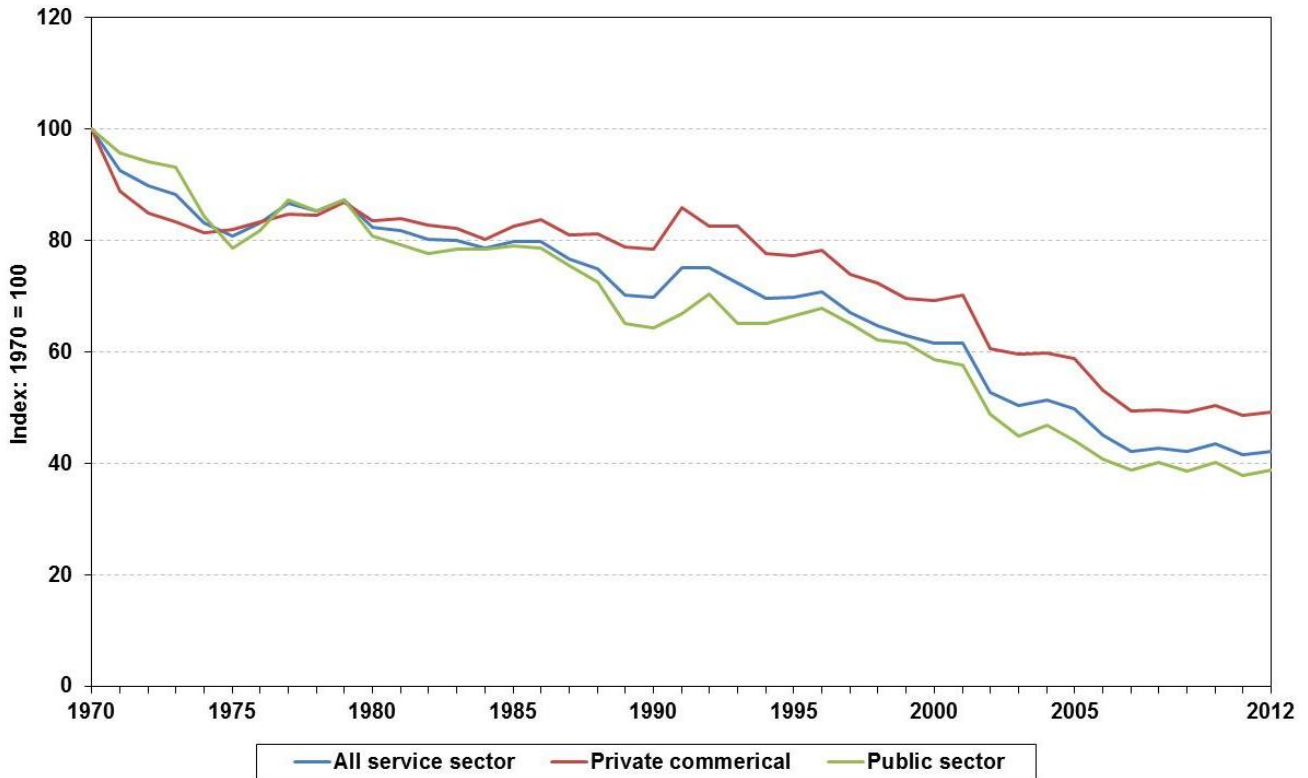
Energy consumption in the public administration and commercial sectors when combined fell by 0.3 million tonnes of oil equivalent between 1990 and 2011. However, it is estimated¹ that if efficiency levels has remained at 1990 levels, energy consumption in these sectors in 2011 (with 2011 level levels of output) would have increased by 11.1 million tonnes of oil equivalent (63 per cent higher). However, due to improvements in efficiency this was offset by 11.4 million tonnes of oil equivalent.

Sixty-one per cent of the energy intensity saving was in the commercial sector with 39 per cent in public administration. However, improvements in efficiency did not outweigh increased consumption from output in the commercial sector which was 7.9 million tonnes of oil equivalent. In contrast, efficiency gains in the public administration sector were greater than output increases.

¹ 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>.



Chart 6 Energy intensities for the whole service sector, private commercial and public sectors, UK (1970 to 2012)



Source: DECC, ECUK Table 5.17/5.18/5.19

Energy consumption per unit of output, fell by 58 per cent between 1970 and 2012 in the service sector as a whole. Over the same period energy intensity fell at a faster rate in the public sector (61 per cent) than the private commercial sector (51 per cent).

New tables included in Chapter 5 of the 2013 edition of ECUK

The following tables are new additions to this chapter of ECUK:

- Table 5.16 Number of appliances owned in UK non-domestic sector 1970 to 2011.
- Table 5.17 Output and intensity factors affecting service sector energy consumption between 1990 and 2011.