

Domestic energy bills in 2015: The impact of variable consumption

Summary

In 2015 actual combined gas and electricity bills fell by around 2 per cent on 2014. These actual bills combine the price of energy with the amount of energy consumed. Actual gas bills decreased by around 2 per cent as the price falls outweighed the effect of increased gas consumption. The increase in gas consumption in 2015 compared to 2014 was a result of cooler average temperatures. Standard electricity bills based on actual consumption also fell by around 2 per cent as both prices and consumption fell slightly. Total electricity consumption continued to fall following the overall trend seen in previous years.

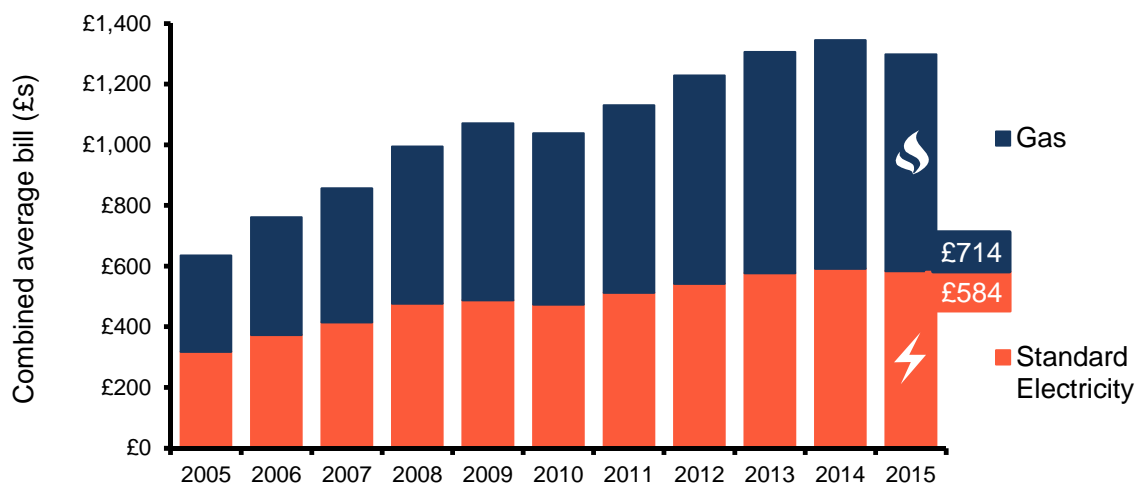
Introduction

The bills paid by households are dependent on several factors, the most important aspects being the cost per unit of electricity and gas and the number of units that are consumed. Both pricing and consumption are equally important in determining the actual cost of consumer bills. In some years, for example 2014, unit prices increased, however, a warm winter resulted in lower consumption, and as a result the bills actually paid by households were reduced.

Price Changes

DECC publishes estimates of annual domestic electricity and gas bills in its Quarterly Energy Prices (QEP) publication. These bills are based on quarterly pricing information collected from energy suppliers. They are calculated using standard annual consumption assumptions of 3,800kWh for standard electricity, 6,000kWh for Economy 7 electricity, and 15,000kWh for gas. These assumptions allow for price comparisons between years, removing the impact of weather and energy efficiency measures. Average Combined bills between 2005 and 2015 are shown in Chart 1.

Chart 1: Domestic energy bills based on fixed consumption levels 2005-2015¹



In 2015 there was both a slight fall in electricity prices on 2014 along with a more substantial fall in gas prices of around 5 per cent. This fall in gas prices was due to all six major domestic energy suppliers decreasing their gas prices in early 2015 as the price of wholesale gas fell.

¹ Gas data within this article refers to Great Britain unless otherwise stated. Electricity bills and consumption figures are based on UK data.

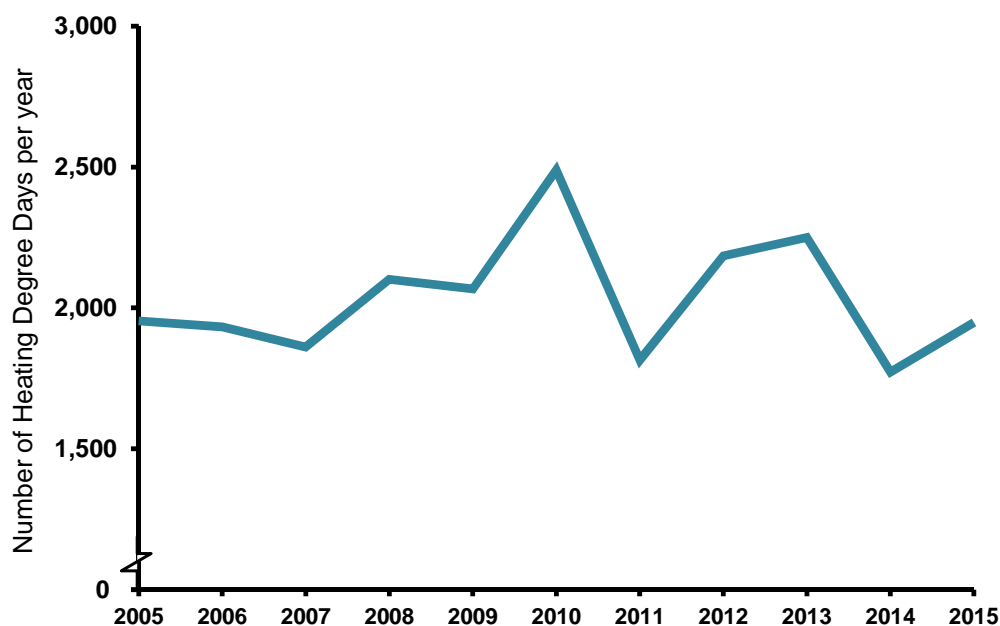
Special feature - Domestic energy bills in 2015

The prices that are already published in QEP use fixed consumption levels to allow for comparison of prices over time. These also reflect changes in payment methods, so price growth is lower than the Consumer Price Index (CPI)² as more households switch to paying by direct debit and are therefore benefitting from lower prices. The bills that are actually paid by consumers are affected by the price paid for the energy, and the amount of energy used. This consumption element varies year on year as a result of weather conditions across and energy efficiency measures implemented by UK households.

Weather

Weather conditions affect the amount of energy consumed as people will consume more energy during a colder year to heat their homes. Heating Degree Days (HDDs) are used to reflect how weather influences the energy used to heat homes. They are calculated relative to a base temperature (DECC use 15.5°C), so if a day has an average (of the maximum and minimum) temperature of 10°C, the HDD for that day will be 5.5. If the daily average temperature exceeds the base temperature, the HDD for that day will be 0. The HDDs are summed for each month and published in Table 7.1 of Energy Trends. Average temperatures in 2015 were colder than 2014 resulting in a 10 per cent increase in the total number of heating degree days (see Chart 2 below). However, 2015 was still warmer than several recent years and had 10 per cent fewer heating degree days than the long term annual average from 1981 to 2010.

Chart 2: Heating Degree Days 2005-2015



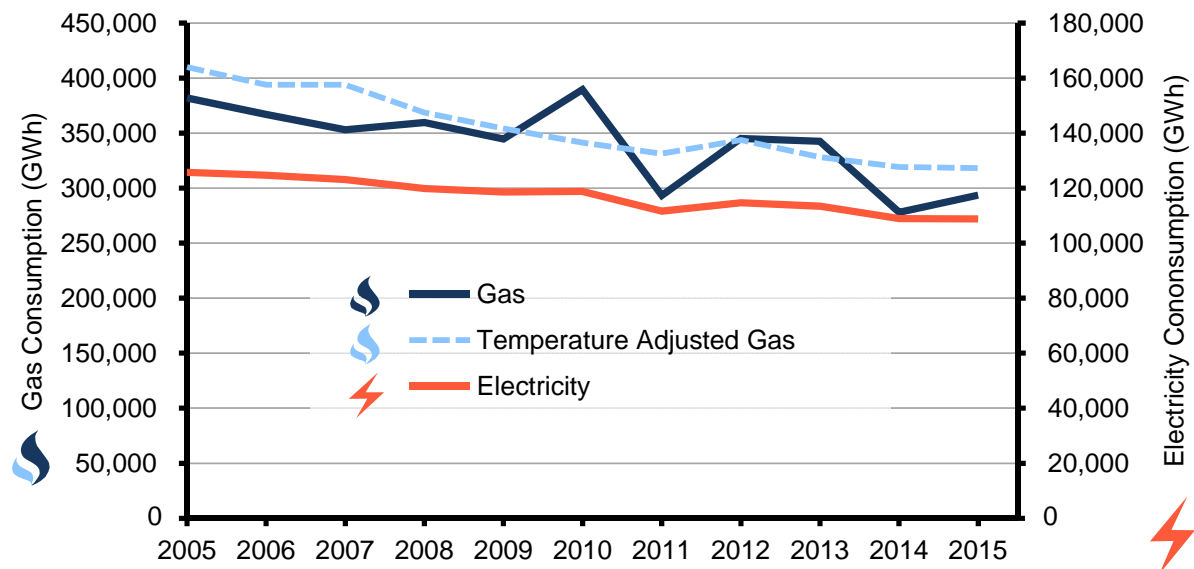
² CPI is produced by ONS and re-published by DECC as part of QEP in table 2.1.1-2.1.3 www.gov.uk/government/statistical-data-sets/monthly-domestic-energy-price-stastics .

Annual Domestic Energy Consumption

Variation in consumption is greater for gas than electricity as a result of variation in the demand for heating. DECC estimates that in 2013, 77 per cent of domestic gas use was for space heating, compared to only 22 per cent for electricity.³ As a result, the degree to which changes in electricity consumption will be attributable to weather patterns will be much smaller than for gas, as far fewer households use electricity for heating compared to other purposes.

Quarterly data on energy consumption is published in tables 4.1 (Gas) and 5.2 (Electricity) of Energy Trends. The data is collected from a variety of sources - supplier surveys, DECC administrative systems, data modelling – and is combined to provide quarterly and annual figures. Chart 3 shows the trends in energy consumption in the UK from 2005 to 2015. Data is temperature and seasonally adjusted by DECC so that a better idea of the underlying trend can be observed. Although this period has seen some large fluctuations in annual energy consumption (particularly for gas), the trend is of generally falling consumption between 2005 and 2015. This is likely to be as a result of a number of factors, which include price changes, weather patterns, and increased household energy efficiency in the form of greater insulation and increased efficiency of boilers, lighting, and appliances.

Chart 3: Annual domestic energy consumption in the UK: 2005-2015 (GWh)⁴



Actual Average Annual Consumption

As previously stated, for the bills produced in QEP, consistent average consumption levels are used (3,800 kWh for standard electricity, 6,000kWh for E7 and 15,000 kWh for gas) to allow comparison of the price changes. However, actual bills are affected by the consumption and therefore table 1 below shows the actual average household consumption for each given year between 2010 and 2015. These are calculated by dividing total energy consumption figures shown in Chart 3 by DECC estimates of customer numbers on each fuel type.⁵ The average consumption of standard electricity has slightly decreased since 2014, whereas average electricity consumption

³ Energy Consumption in the UK: Table 3.05

⁴ Electricity consumption figures include both Standard Electricity and Economy 7 Electricity customers.

⁵ DECC estimates that in 2015 there were 24 million domestic Standard electricity customers and 3.8 million Economy 7 electricity customers in the UK, and 22.8 million domestic Gas customers in Great Britain. These figures are based on data collected through the Domestic Fuel Inquiry, and other sources.

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for E7 consumers has increased. Households are typically E7 consumers when electricity is used for heating so that storage heaters can be used at night time for a cheaper rate. The consumption has therefore increased, similarly with gas, due to the colder weather and a greater demand for heating in 2015.

Table 1: Average annual household consumption in kWh 2010-2015⁶

	Standard electricity	E7 electricity	Total electricity	Gas
2010	4098	6227	4423	17783
2011	3840	5849	4134	13307
2012	3900	6116	4216	15577
2013	3842	5983	4077	15235
2014	3655	5546	3905	12401
2015	3620	5652	3901	12883
Growth 2014 - 2015	-0.9%	1.9%	-0.1%	3.9%

Annual Domestic Energy Bills based on Actual Consumption

Since 2010, bills based on actual consumption, have varied due to price changes and gas consumption. The highest combined bill was in 2013 at £1,322, bills have decreased each year and actual bills for 2015 were lower than 2014. This is despite the increase in gas consumption due to the colder weather as the price decreases have outweighed this resulting in a second consecutive year of actual bills decreasing for gas. For standard electricity, actual bills also fell due to slight decreases in both costs and consumption on 2014. Overall, the fall in both gas and electricity bills resulted in a decrease, compared to 2014, in average bills using actual consumption for 2015 by 2.1 per cent to £1,184.

Table 2: Average energy bills on actual consumption

	Standard Electricity	Gas	Total
2010	£508	£652	£1,159
2011	£518	£559	£1,077
2012	£554	£708	£1,262
2013	£583	£739	£1,322
2014	£572	£638	£1,210
2015	£559	£625	£1,184
Change (2014-2015)	£-13	£-13	£-25
% Change	-2.2%	-2.0%	-2.1%

User Feedback

Please send any comments or queries regarding this analysis to the contact details below:

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⁶ Total domestic consumption figures are available in DUKES tables 4.2 (Gas) and 5.3 (Electricity).