

Annex A – Technical Notes

Tables 2.1.1 to 2.1.3

A1. The source of the prices in these tables is the Consumer Prices Index (CPI), published by the Office for National Statistics (ONS) and is the fuel components within the CPI. Table A1 below provides the weights within the total index, in parts per 1,000 of the fuel components. The CPI is calculated using prices collected on the second or third Tuesday of each month.

Table A1: Retail price index, fuel component weights

	All items	Domestic fuels	Solid fuels	Gas	Electricity	Liquid fuels	Motor fuels and oil
1996	1,000	45	2	20	22	1	40
2000	1,000	33	1	13	17	2	38
2005	1,000	28	1	12	14	1	27
2010	1,000	47	1	25	19	2	41
2011	1,000	44	1	22	19	2	43
2012	1,000	56	1	32	20	3	46
2013	1,000	48	1	26	19	2	40
2014	1,000	45	1	21	21	2	35
2015	1,000	42	1	20	20	1	34
2016	1,000	35	1	16	17	1	32
2017	1,000	34	1	15	17	1	33

A2. Quarterly data are published three months in arrears. Any revised data are marked with an “r”. Annual data is published in the March edition of QEP. The real terms series in Table 2.1.2 are updated when the GDP deflator becomes available from ONS.

The following notes apply to Table 2.1.1:

A3. **Solid fuels** - Retail prices for the standard grade of household coal and for the smokeless fuel type grade for a boiler/room heater, obtained from local retailers in up to 146 areas throughout the United Kingdom.

A4. **Gas** – average of the major gas companies’ tariffs, plus butane gas.

A5. **Electricity** - average of the major electricity companies’ tariffs.

A6. **Liquid fuels** – Retail prices of domestic kerosene heating oil provided by retailers in up to 146 areas throughout the United Kingdom.

A7. **Motor fuel and oil** – Ultra-low sulphur petrol (ULSP), ultra-low sulphur diesel (ULSD) and motor oil - Retail prices of the different grades of motor spirit and engine oil obtained weekly from oil companies and supermarkets throughout the United Kingdom, with the weekly data averaged to produce a monthly figure.

Tables 2.2.1 to 2.5.2

A8. Tables 2.2.1 and 2.3.1 show the average annual bills split by fixed and variable tariffs and are experimental statistics. Fixed tariff - as the name implies - is the price of a tariff kept fixed for a set period of time. Variable tariffs, on the other hand, are tariffs that are not defined as fixed and include the ‘standard’ variable tariff as well as any other variable tariffs.

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A9. Tables 2.2.4 and 2.3.4 are experimental statistics. They are used in the energy consumption model to calculate household notional energy bills for modelling fuel poverty level in England. These data are not suitable for calculating the average bills of low use consumers. The data reported are an average of the fixed and variable costs across the four quarters in the year. In the calculation, more weights are given to costs in Q1 and Q4, when it is assumed that more electricity and gas are consumed (and hence the price at this time should contribute more to the average). As a result these values should not be used to determine current average bills. For more information see the Fuel Poverty Methodology Handbook on the BEIS website: www.gov.uk/government/publications/fuel-poverty-methodology-handbook

A10. Tables 2.2.3 and 2.3.3 show representative electricity and gas bills, by payment type, in each of the 15 Public Electricity Supply (PES) regions in the UK. The unit cost is the cost to the consumer per unit consumed and is calculated by dividing the bill amount by the number of units consumed (3,800 kWh for electricity, 15,000 kWh for gas). Data on regional electricity and gas bills from 2013 onwards are based on PES regions as opposed to selected towns and cities within the PES regions and the gas Local Distribution Zones (LDZ). This change has been made because most energy suppliers now charge for gas according to the PES area of a household. It is not possible to present historical data on gas bills in this way, as data for the previous years were collected differently. Table A2 maps the selected towns and cities to their corresponding gas LDZ and PES regions.

Table A2: Towns and cities by LDZ and PES area		
	Gas LDZ	Electricity PES area
Aberdeen	Scotland	Northern Scotland
Belfast	n/a	Northern Ireland
Birmingham	West Midlands	West Midlands
Canterbury	South East	South East
Cardiff	Wales	South Wales
Edinburgh	Scotland	Southern Scotland
Ipswich	Eastern	Eastern
Leeds	North East	Yorkshire
Liverpool	North West	Merseyside & North Wales
London	London	London
Manchester	North West	North West
Newcastle	Northern	North East
Nottingham	East Midlands	East Midlands
Plymouth	South West	South West
Southampton	Southern	Southern

A11. Provisional annual data is published in the December edition of QEP, with final data published in March.

A12. Bills and unit costs are based on published prices and include standing charges where applicable. No allowances are made for introductory offers or non-cash benefits that may be available from new suppliers. Both electricity and gas bills and costs reflect the prices of all the suppliers in the survey. This basis is used for all the domestic bills and costs data in Tables 2.2.1 to 2.3.3. The bills shown relate to the total bill including VAT in cash terms received during the calendar year, for the tariff type shown, including all tariff changes and rebates. Averages are weighted by the number of domestic customers. An annual consumption of 3,800 kWh is used for electricity and 15,000 kWh for gas.

A13. The weighted average for all supplier gas bills is based on equivalent tariffs of British Gas and other gas supply companies. From 2007 onwards, due to a methodology change, the estimates are based on bills received during the calendar year. As part of this methodology change, it is now assumed that, of the 15,000 kWh of gas consumed per annum (see A8), 6,000

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kWh are consumed in the first quarter, 3,000 kWh in the second quarter, 1,500 kWh in the third quarter and 4,500 kWh in the fourth.

A14. Tables 2.4.2, 2.4.3 and 2.5.2 show data for the 'Economy 7' tariffs, where a lower unit cost is applied to off-peak (night) consumption. Of the total consumption of 6,000 kWh, off-peak consumption has been considered as 3,000 kWh.

Table 2.6.1

A15. Household final consumption expenditure comprises household expenditure in the United Kingdom on the specified fuels and fuel purchases by foreign tourists. It excludes expenditure on fuels by businesses. VAT was levied on domestic fuels at 8 per cent in April 1994. It was then reduced to 5 per cent in September 1997, and is included in the table from 1994 onwards. For coal, coke and petroleum products it was assumed that all consumers paid VAT from the date of its introduction. For electricity and gas it was estimated that 5 per cent of electricity sales and 4 per cent of gas sales were covered by customers pre-paying their bills to avoid VAT in 1994 and 1995. Figures for total consumers' expenditure are also shown for comparison.

Due to reclassification of the Household Expenditure to conform to the European Systems of Accounts 1995 (ESA 95), COICOP (Classification of Individual Consumption by Purpose) headings have been reviewed.

The following notes apply to Table 2.6.1:

A16. **Solid Fuels** – Household final consumption expenditure on these fuels is based on estimates of inland sales of solid fuels to domestic consumers. Expenditure in Northern Ireland is estimated based on values of colliery despatches of house coal to Northern Ireland.

A17. **Gas** - Personal consumption in the United Kingdom is taken as sales to domestic premises. Estimates of the quantity and value of liquid gases purchased by domestic consumers are provided by the petroleum industry. The average price used is the average revenue per kWh for the public supply sales of gas to domestic consumers.

A18. **Electricity** - Sales from the public electricity supply system to domestic consumers in the United Kingdom plus estimates of the domestic element included in sales to dual use premises. Sales are valued at the average revenue per unit for electricity sold to domestic consumers, which takes into account discounts and lump sum rebates.

A19. **Liquid fuels** (domestic heating and lighting oil) - For fuel oils and heating oils, information is available from the petroleum industry on quantities delivered to domestic consumers. The figures for domestic consumption are then valued using monthly prices collected from oil companies by the department.

A20. **Vehicle fuels and lubricants** (petrol, diesel, LPG, oil and lubricants, brake and other fluids, coolants) – Estimates of the quantity and value of lubricating oil purchased by domestic customers are provided by the petroleum industry. For motor spirit and diesel, estimates of business purchases of the fuels are made and deducted from the total deliveries in order to arrive at purchases by domestic consumers. The figures for domestic consumption are then valued using monthly prices collected by the department from oil companies.

Table 2.6.2

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A21. Figures for Table 2.6.2 are taken from the Expenditure and Food Survey (EFS) conducted by the ONS. The figures are estimates based upon a representative sample of households. The averages in the table have been calculated based on those households consuming the fuels only, i.e. only those households who consumed the specified fuels are included in the calculation of the average expenditure. These estimates therefore differ from those published by the ONS in their "Family Spending" report, where the total of all households is used to calculate the average fuel expenditure. After the 1993 data publication, the survey moved to a financial year basis until 2005/06, but then returned to a calendar year basis from 2006 to 2014. However from 2015, ONS returned back to reporting on a financial year basis for 2015/16, as a result Quarter 1 2015 is not reported in our tables. For ease of comparison, the data on expenditure of fuel as a proportion of total expenditure in Table 2.6.2 are based on all households and not just those consuming fuels.

Tables 3.1.1 to 3.1.4

A22. Prices in those tables are derived from information collected via the Quarterly Fuels Inquiry survey on fuel purchases from a panel of about 600 establishments within the manufacturing industry (excluding electricity generation). The panel consists of companies purchasing fuels in small to large quantities. To maximise the coverage on each fuel type and minimise the burden on business, larger users are surveyed proportionally more than smaller users.

A23. Provisional quarterly data is published three months in arrears, with final data being published six months in arrears. Revised data are marked with "r". Provisional annual data are published in the March edition of QEP, with final annual data published in June. The entire year's quarterly data is reviewed in June to ensure that each of the contributors who supply data have been allocated to the correct size band based upon their actual annual consumption. This means that there can be revisions made to data from Q1 to Q4 at this time.

A24. For each size of consumer the average fuel price (exclusive of VAT) is calculated by dividing the total quantity of fuel purchased into their total value. The "all consumers average" price uses base weighting to weight the prices for each size band according to purchases by businesses in the size band recorded in the 1984 Purchases Inquiry (a large scale survey conducted every 5 years until 1989, and conducted annually for a rotating selection of industries from 1994 to 1999). The weights are reviewed when more comprehensive up-to-date purchases data become available. The size bands for each fuel are determined according to the approximate range of annual purchases covered (see Table A3).

A25. As described above the prices given are representative of market prices. This means that trades, which because of their size or dominance of total consumption, that would produce an unrepresentative price, are excluded. Coal purchased by the iron and steel sector is excluded, as is gas purchased for electricity generation.

A26. For some fuels, the relative size in volume terms of the largest users can result in the weighted average moving more towards the large user price. This is true for gas where, because of the growth in consumption, the weights provided by the 1984 purchases survey may be out of date. Therefore, for some fuels (e.g. gas and gas oil), the median price (the price at which 50 per cent of the prices paid are higher and 50 per cent lower) may be more appropriate than the average price.

A27. From Q1 2010 published coal prices are restricted to only average prices and prices for large consumers due to the small number of companies reporting data. Data for medium fuel oil, liquefied petroleum gases and hard coke were discontinued from Q1 2005, and there were no subdivisions into size bands due to the small number of sites purchasing each of these fuels. The small sample sizes reflect the small overall consumption, relative to the major fuels covered, which meant that, although the prices were still representative, they could be subject to more sample effects than the other fuels (e.g. if a relatively large purchaser switches fuel).

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A28. To enable coal prices to be calculated in common units, companies also record and report the calorific value of the coal they purchase. Conversion factors for fuel oil (both heavy and medium), gas oil, liquefied petroleum gas and hard coke are given in Annex B.

A29. The 10 per cent, median and 90 per cent deciles prices for each fuel are presented in addition to the prices for each size band. The 10 per cent decile is the point within the complete range of prices below which the lowest 10 per cent of those prices fall. Similarly, the 90 per cent decile is the point above which the highest 10 per cent of the prices occur. These values give some indication of the spread of prices paid by purchasers. The deciles and the median are calculated by giving equal "weight" to each purchaser, but are scaled to represent the mix of fuel users by size in the industrial population using those represented by the panel. From Q1 2007, decile information is only published for gas and electricity.

Table A3: Range of annual purchases for the Quarterly Fuels Inquiry

Fuel	Large	Of which:		Medium	Small
	Greater than	Extra large Greater than	Moderately large		Less than
Coal (tonnes)	7,600	..	..	760 to 7,600	760
Heavy fuel oil (tonnes)	4,900	..	..	490 to 4,900	490
Gas oil (tonnes)	175	..	..	35 to 175	35
Electricity (thousand kWh)	8,800	150,000	8,800 to 150,000	880 to 8,800	880
Gas ⁽¹⁾ (thousand kWh)	8,800	..	..	1,500 to 8,800	1,500

(1) Respondents purchasing more than one type of supply (tariff, firm contract and interruptible contract) are treated as separate entities with respect to each type of supply.

Table 3.2.1

A30. The prices for fuels used in electricity generation are collected via a quarterly survey of electricity generators in the United Kingdom which covers companies that produce electricity from nuclear sources plus all companies whose prime purpose is the generation of electricity. The companies are: AES Electric Ltd., Centrica plc., Coryton Energy Company Ltd., Eggborough Power Ltd., E.On UK plc., Fellside Heat and Power Ltd., Fibrogen Ltd., Fibropower Ltd., Fibrothetford Ltd., International Power, Premier Power Ltd., Rocksavage Power Company Ltd., RWE Npower plc., Scottish Power plc., Scottish and Southern Energy plc., SELCHP Ltd., Spalding Energy Company Ltd.

A31. The data reported are the value and volume of fuel purchased during the quarter and may not always reflect the fuel actually used (i.e. there can be stocking and destocking, especially of coal). The prices reported are typically for long-term contracts, with price escalator factors, some of which may have already been implemented. As such, the prices can be higher than those paid by large industrial users who typically negotiate contracts each year.

A32. Provisional quarterly data is published three months in arrears, with final data published six months in arrears. Any revised data are marked with an "r". Provisional annual data is published in the March edition of QEP, with final data published in June.

Tables 3.3.1 and 3.3.2

A33. Data for these indices are taken from a number of sources: electricity data are taken from a monthly survey run by BEIS; gas data are taken from the monthly Producer Price Index (PPI) gas series created by BEIS; coal and heavy fuel oil data are taken from the Quarterly Fuels Inquiry (QFI) survey used to create Tables 3.1.1 – 3.1.4.

A34. Provisional quarterly data is published three months in arrears, with final data being published six months in arrears. Any revised data is marked with an “r”. Provisional annual data is published in the March edition of QEP, with final data being published in June. The entire year’s quarterly data for coal and HFO is reviewed in June to ensure that each of the contributors who supply data to the Quarterly Fuels Inquiry have been placed in the correct size band based upon their annual consumption. This means that there can be revisions made to data from Q1 to Q4 at that time.

A35. The Climate Change Levy (CCL) came into effect in April 2001. The rates were increased in April 2007, 2008 and 2009 and then annually in April of each successive year since 2011. The rates are shown in Table A4:

	Coal	Electricity	Gas	LPG
Apr-2001	£11.70/tonne	0.430 p/kWh	0.150 p/kWh	£9.60/tonne
Apr-2007	£12.01/tonne	0.441 p/kWh	0.154 p/kWh	£9.85/tonne
Apr-2008	£12.42/tonne	0.456 p/kWh	0.159 p/kWh	£10.18/tonne
Apr-2009	£12.81/tonne	0.470 p/kWh	0.164 p/kWh	£10.50/tonne
Apr-2011	£13.21/tonne	0.485 p/kWh	0.169 p/kWh	£10.83/tonne
Apr-2012	£13.87/tonne	0.509 p/kWh	0.177 p/kWh	£11.37/tonne
Apr-2013	£14.29/tonne	0.524 p/kWh	0.182 p/kWh	£11.72/tonne
Apr-2014	£14.76/tonne	0.541 p/kWh	0.188 p/kWh	£12.10/tonne
Apr-2015	£15.12/tonne	0.554 p/kWh	0.193 p/kWh	£12.40/tonne
Apr-2016	£15.26/tonne	0.559 p/kWh	0.195 p/kWh	£12.51/tonne

Tables 3.4.1 and 3.4.2

A36. The prices for gas and electricity consumed by non-domestic users in the United Kingdom are collected via a quarterly inquiry of gas and electricity suppliers. The data reported are the value and volume of energy sold during the quarter in each of the size bands. The average price (excluding VAT) for each size band of consumer is obtained by dividing the total quantity of purchases for each fuel into their total value.

A37. The electricity and gas size bands shown in Tables 3.4.1 and 3.4.2 are defined in terms of the approximate annual purchases of the consumer band, as shown in Table A5. The size bands from Q1 2006 onwards differ slightly from those published previously as the average electricity price from Q1 2007 includes the Extra Large size band. This has introduced a discontinuity in the averages for previous quarters’ series. Also some electricity size bands were renamed in Q1 2008; however the consumptions remained unchanged.

Table A5: Range of annual purchases for the Price Transparency survey

		Annual consumption			Annual consumption
		MWh			MWh
Electricity	Very Small	0 - 20	Gas	Very Small	<278
	Small	20 - 499		Small	278 – 2,777
	Small/Medium	500 - 1,999		Medium	2,778 – 27,777
	Medium	2,000 - 19,999		Large	27,778 – 277,777
	Large	20,000 - 69,999		Very Large	277,778 – 1,111,112
	Very Large	70,000 – 150,000			
	Extra Large	>150,000			

A38. Quarterly data are combined to produce annual average prices by size band which are also published within the table spreadsheet.

Tables 4.1.1 to 4.1.3

A39. The data published are national average prices calculated using prices supplied by all major motor fuel marketing companies. Prior to 1977 prices data were collated from a variety of sources, mainly the published wholesale prices of the oil companies to which retailers' margins were added. The results of various consumers' surveys were also taken into consideration in arriving at a typical price. From January 1995 sales by super/hyper markets are included in the price estimates.

A40. Crude oil prices are shown in Table 4.1.1 as an index based on a "basket" of both indigenous and imported crude oil prices also used as an input, along with other fuel prices, for the Producer Prices Index (PPI) produced by ONS. The index represents the average price paid by refineries for the month and is calculated in pounds sterling on a cost, insurance and freight (cif) basis.

A41. Provisional monthly prices are usually revised in the month following their original publication, with revisions marked with an "r". Provisional annual prices are published in December with revisions made during the following two months as more data become available.

Tables 5.1.1 to 5.10.3

A42. International comparisons are based on data published by international organisations.

A43. Motor fuel prices are taken from the European Commission's 'Oil Bulletin' and converted from euros to pound sterling. Data in these tables show prices of unleaded petrol and diesel in the EU, with and without tax, on or about the 15th of the month, with the UK ranked within the EU 15 and EU 28.

A44. Annual electricity and gas prices in Tables 5.3.1, 5.5.1, 5.7.1 and 5.9.1 are collated and published by the International Energy Agency (IEA) in 'Energy Prices and Taxes'. Prices are shown excluding and including taxes in sterling, with the UK price compared to the IEA median price and ranked within the IEA and G7. Methodology can vary between countries. From December 2013, prices for all IEA countries are shown, rather than for just the EU and G7 countries as previously published.

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A45. The data presented in Tables 5.4.1, 5.6.1, 5.8.1 and 5.10.1 are derived from Eurostat's Statistics in Focus series. Eurostat publishes data on gas and electricity prices around six months after the end of the reference period. Prices are shown excluding and including taxes in sterling, with the UK price compared to the EU 15 and EU 28 median price and ranked within the EU 15 and EU 28.

A46. From 1st January 2008, data are average prices over 6-month periods (January - June and July - December) and each size band covers a range of consumption. Prior to 2008, the data were for a single point in time (1st January and 1st July), and each size band was represented by a single consumption figure. Eurostat's change to the methodology created a discontinuity within the price series. The new methodology prices are published within the original tables, with a clear distinction between old and new data. Whilst prices using the old methodology is not comparable with the new one, the UK ranking and UK price relative to the EU median should be broadly comparable across the old and new data. The size bands for consumers from January 2008 onwards are shown in Table A6.

Table A6: Eurostat size bands

Industrial Electricity	Eurostat size band	Annual consumption (MWh)
Small	Band IB	20 – 499
Medium	Band ID	2,000 – 19,999
Large	Band IE	20,000 – 69,999
Very Large	Band IF	70,000 – 150,000

Industrial Gas	Eurostat size band	Annual consumption (MWh)
Small	Band I2	278 – 2,777
Medium	Band I3	2,778 – 27,777
Large	Band I4	27,778 – 277,777

Domestic Electricity	Eurostat size band	Annual consumption (kWh)
Small	Band DB	1,000 – 2,499
Medium	Band DC	2,500 – 4,999
Large	Band DD	5,000 – 15,000

Domestic Gas	Eurostat size band	Annual consumption (kWh)
Small	Band D1	< 5,557
Medium	Band D2	5,557 – 55,557
Large	Band D3	>55,557

A47. It is important when comparing international prices to bear in mind the impact of the exchange rates (as the data are presented in a common pound sterling basis, the changing level of the pound will cause some changes in the relative prices) and inflation rates in individual countries. The relative strength of the pound in 1997, 1998 and 1999 (e.g. as sterling appreciated by 21 per cent against the German Mark between 1996 and 1999) to some extent will have had an adverse effect on comparisons of UK data with other countries.

A48. For Tables 5.3.1 to 5.10.3, where data is not available, we have estimated the price in relation to the median for that table. A '+' indicates that the price is likely to exceed the median price, '+/-' indicates that the price is likely to be around the median, '-' indicates that the price is likely to be below the median price. This methodology is intended to give a better indication of the UK position when compared with those countries where up-to-date data is not available.

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A49. When determining which tables to use to compare international gas and electricity prices, the 6-monthly Eurostat tables (5.4, 5.6, 5.8 and 5.10) provide prices for different sizes of consumer, and in general have more timely data reflecting changes on a shorter timescale, but comparisons with non-EU countries require the use of the annual IEA tables (5.3.1, 5.5.1, 5.7.1 and 5.9.1). Rankings may differ between the IEA and Eurostat tables.

A50. For 2015 onwards, prices from Eurostat for both domestic and industrial are those that both exclude and include the environmental and social levies and taxes covering the Climate Change Levy, Renewable Obligation support costs, Capacity Market support costs, Contract for Difference support costs, Feed in Tariffs, EU ETS, Assistance for Areas with high Electricity Distribution Costs (AAHEDC) and Smart Meters and Better Billing costs. It is a new methodology which EU countries have to report to Eurostat the environmental and social levies incurred in their prices.

B1: Estimated average gross calorific values of fuels 2015

- (1) Applicable to UK consumption - based on calorific value for home produced coal plus imports and, for "All consumers" net of exports.
- (2) Home produced plus imports
- (3) On an "as received" basis; seasoned logs at 20% moisture content. On a "dry" basis 20.3 GJ per tonne.
- (4) Data reported on an oven dry basis of 20.3 GJ per tonne.
- (5) The calorific value of poultry litter typically ranges on a net basis from 5 GJ/tonne to 10 GJ/tonne depending upon the moisture content of the fuel. For poultry manure, much lower calorific values should be used.
- (6) Average figure based on survey returns.
- (7) On an "as received" basis; at 30% moisture content. On a "dry" basis 18.6 GJ per tonne.
- (8) The gross calorific value of natural gas can also be expressed as 11.031 kWh per cubic metre. This value represents the average calorific value seen for gas when extracted. At this point it contains not just methane, but also some other hydrocarbon gases (ethane, butane, propane). These gases are removed before the gas enters the National Transmission System for sale to final consumers.
- (9) UK produced and imported gas. This weighted average of calorific values will approximate the average for the year of gas entering the National Transmission System. It can also be expressed as 10.908 kWh per cubic metre.
- (10) Calorific value varies depending on the methane content of the gas.

B2: Estimated average gross calorific values of fuels 1980, 1990, 2000, 2010 and 2013 to 2015

	GJ per tonne (gross)						
	1980	1990	2000	2010	2013	2014	2015
Coal							
All consumers (1)(2)	25.6	25.5	26.2	25.8	26.0	26.0	26.0
All consumers - home produced plus imports minus exports (1)	..	..	27.0	27.1	27.0	27.0	27.0
Power stations (2)	23.8	24.8	25.6	24.9	25.2	25.1	25.1
Power stations - home produced plus imports (1)	..	..	26.0	25.8	26.3	26.2	26.2
Coke ovens (2)	30.5	30.2	31.2	30.5	31.8	31.8	31.8
Coke ovens - home produced plus imports (1)	..	..	30.4	30.5	31.8	31.8	31.8
Low temperature carbonisation plants and manufactured fuel plants	19.1	29.2	30.3	30.2	28.5	28.5	28.5
Collieries	27.0	28.6	29.6	29.3	29.0	29.0	29.0
Agriculture	30.1	28.9	29.2	28.0	29.5	29.5	29.5
Iron and steel industry (3)	29.1	28.9	30.7	30.4	30.4	30.4	30.4
Other industries (1)	27.1	27.8	26.7	27.7	26.8	26.7	26.8
Non-ferrous metals	..	23.1	25.1	25.4	25.1	25.1	25.1
Food, beverages and tobacco	28.6	28.1	29.5	28.6	29.4	29.4	29.4
Chemicals	25.8	27.3	28.7	26.7	26.5	26.5	26.5
Textiles, clothing, leather and footwear	27.5	27.7	30.4	29.5	29.5	29.5	29.5
Pulp, paper, printing, etc.	26.5	27.9	28.7	24.1	24.2	24.2	24.2
Mineral products (4)	..	28.2	27.0	27.6	27.8	27.9	27.9
Engineering (5)	27.7	28.3	29.3	29.5	29.5	29.5	29.5
Other industry (6)	28.4	28.5	30.2	32.6	32.6	32.7	32.6
Domestic							
House coal	30.1	30.2	30.9	29.8	30.2	30.1	30.1
Anthracite and dry steam coal	33.3	33.6	33.5	34.7	34.3	34.3	34.3
Other consumers	27.5	27.5	29.2	25.5	26.3	26.4	26.4
Transport - Rail	..	..	..	30.3	30.2	30.2	30.2
Imported coal (1)	..	28.3	28.0	27.9	27.4	27.4	27.4
of which							
Steam coal	..	..	26.6	26.5	26.5	26.5	26.5
Coking coal	..	..	30.4	32.1	31.8	31.8	31.8
Anthracite	..	..	31.2	31.0	31.7	31.7	31.5
Exports (1)	..	29.0	32.0	32.3	32.3	32.2	32.2
of which							
Steam coal	..	..	31.0	31.2	31.2	31.2	31.2
Anthracite	..	..	32.6	33.2	32.6	32.5	32.5
Coke (7)	28.1	28.1	29.8	29.8	29.8	29.8	29.8
Coke breeze	24.4	24.8	24.8	29.8	29.8	29.8	29.8
Other manufactured solid fuels (1)	27.6	27.6	30.8	29.8	29.8	29.8	29.8
Petroleum							
Crude oil (1)	45.2	45.6	45.7	45.7	45.7	45.7	45.7
Liquified petroleum gas	49.6	49.3	49.1	49.2	49.3	49.4	49.3
Ethane	52.3	50.6	50.7	50.7	50.7	50.7	50.7
LDF for gasworks/Naphtha	47.8	47.9	47.6	47.8	47.8	47.7	47.8
Aviation spirit and wide-cut gasoline (AVGAS and AVTAG)	47.2	47.3	47.3	47.4	47.4	47.4	47.4
Aviation turbine fuel (AVTUR)	46.4	46.2	46.2	46.2	46.2	46.3	46.2
Motor spirit	47.0	47.0	47.0	47.1	47.1	47.1	47.2
Burning oil	46.5	46.2	46.2	46.2	46.2	46.2	46.2
Vaporising oil	45.9	45.9	..	..	..	..	..
Gas/diesel oil (8)	45.5	45.4	45.6	45.3	45.3	45.3	45.3
DERV (8)	..	..	..	45.6	45.7	45.7	45.7
Fuel oil	42.8	43.2	43.1	43.3	43.3	43.4	43.4
Power station oil	42.8	43.2	43.1	43.3	43.3	43.4	43.4
Non-fuel products (notional value)	42.2	43.2	43.8	43.1	43.1	43.2	43.0
Petroleum coke (Power stations)	..	..	..	30.9	30.1	30.1	28.6
Petroleum coke (Other)	..	39.5	35.8	35.8	35.8	35.8	35.8
Natural Gas (9)	..	38.4	39.4	40.1	39.7	39.8	41.0

(1) Weighted averages.

(2) Home produced coal only.

(3) From 2001 onwards almost entirely sourced from imports.

(4) Based on information provided by the British Cement Industry Association; almost all coal used by this sector in the latest 4 years was imported.

(5) Mechanical engineering and metal products, electrical and instrument engineering and vehicle manufacture.

(6) Includes construction.

(7) Since 1995 the source of these figures has been the ISSB.

(8) Derv included within gas/diesel oil until 2005.

(9) Natural Gas figures are shown in MJ per cubic metre.

B3: Standard conversion factors

1 tonne of oil equivalent (toe) = 10^7 kilocalories
= 396.83 therms
= 41.868 GJ
= 11,630 kWh

1 therm = 100,000 British thermal units (Btu)

The following prefixes are used for multiples of joules, watts and watt hours:

kilo (k)	= 1,000	or 10^3
mega (M)	= 1,000,000	or 10^6
giga (G)	= 1,000,000,000	or 10^9
tera (T)	= 1,000,000,000,000	or 10^{12}
peta (P)	= 1,000,000,000,000,000	or 10^{15}

WEIGHT

1 kilogramme (kg) = 2.2046 pounds (lb)

1 pound (lb) = 0.4536 kg

1 tonne (t) = 1,000 kg
= 0.9842 long ton
= 1.102 short ton

1 Statute or long ton = 2,240 lb
= 1.016 t
= 1.120 sh tn

1 barrel = 159.0 litres
= 34.97 UK gal
= 42 US gal

VOLUME

1 cubic metre (cu m) = 35.31 cu ft

1 cubic foot (cu ft) = 0.02832 cu m

1 litre = 0.22 Imperial gallons

1 UK gallon = 8 UK pints
= 1.201 U.S. gallons
= 4.54609 litres

LENGTH

1 mile = 1.6093 kilometres

1 kilometre (km) = 0.62137 miles

TEMPERATURE

1 scale degree Celsius (C) = 1.8 scale degrees Fahrenheit (F)

For conversion of temperatures: $^{\circ}\text{C} = 5/9 (^{\circ}\text{F} - 32)$; $^{\circ}\text{F} = 9/5 ^{\circ}\text{C} + 32$

B4: Average conversion factors for petroleum

	Litres per tonne
Crude oil:	
Indigenous	1,199
Imported	1,181
Average of refining throughput	1,192
Ethane	2,730
Propane	1,961
Butane	1,737
Naphtha	1,479
Aviation gasoline	1,408
Motor spirit:	
All grades	1,369
Super	1,359
Premium	1,370
Middle distillate feedstock	..
Kerosene:	
Aviation turbine fuel	1,253
Burning oil	1,250
DERV fuel:	
0.005% or less sulphur	1,194
Gas /Marine diesel oil	1,175
Fuel oil (1% or less sulphur)	
All grades:	1,018
Light:	..
Medium	..
Heavy:	..
Lubricating oils:	
White	1,144
Greases	..
Bitumen	975
Petroleum coke	..
Petroleum waxes	1,184
Industrial spirit	1,247
White spirit	1,251

Note: The above conversion factors, which for refined products have been compiled by BEIS using data from UK Petroleum Industry Association companies, apply to the year 2015. The litres to tonnes conversions are made at a standard temperature of 15°C.

.. Denotes commercially sensitive as too few companies are producing this to be able to report it.

Annex C - Effective rates of duty on principal hydrocarbon oils, 1979 to 2016⁽¹⁾

Pence per litre

Date from which duty effective		Motor spirit ⁽²⁾⁽³⁾					Diesel ⁽²⁾	
		Leaded	Lead replacement	Unleaded	Super unleaded	Ultra low sulphur	Regular	Ultra low sulphur
13 June	1979	8.100	..	..	..	..	9.200	..
26 March	1980	10.000	..	..	..	..	10.000	..
10 March	1981	13.820	..	..	..	..	13.820	..
2 July	1981	..	..	..	..	..	11.910	..
9 March	1982	15.540	..	..	..	..	13.250	..
15 March	1983	16.300	..	..	..	..	13.820	..
13 March	1984	17.160	..	..	..	..	14.480	..
19 March	1985	17.940	..	..	..	..	15.150	..
19 March	1986	19.380	..	..	..	..	16.390	..
17 March	1987	..	..	18.420	..	..	..	..
15 March	1988	20.440	..	..	..	..	17.290	..
14 March	1989	..	..	17.720	..	..	..	..
20 March	1990	22.480	..	19.490	..	..	19.020	..
19 March	1991	25.850	..	22.410	..	..	21.870	..
10 March	1992	27.790	..	23.420	..	..	22.850	..
16 March	1993	30.580	..	25.760	..	..	25.140	..
30 November	1993	33.140	..	28.320	..	..	27.700	..
29 November	1994	35.260	..	30.440	..	..	30.440	..
1 January	1995	36.140	..	31.320	..	..	31.320	..
28 November	1995	39.120	..	34.300	..	..	34.300	..
15 May	1996	..	..	..	37.620	..	..	..
26 November	1996	41.680	..	36.860	40.180	..	36.860	..
2 July	1997	45.100	..	40.280	43.600	..	40.280	..
17 March	1998	49.260	..	43.990	48.760	..	44.990	42.990
9 March	1999	52.880	..	47.210	52.330	..	50.210	47.210
1 October	1999	..	49.210	..	49.210	..	..	..
21 March	2000	54.680	50.890	48.820	50.890	..	51.820	48.820
1 October	2000	..	..	..	..	47.820	..	..
7 March	2001	..	(4)	46.820	(4)	45.820	..	45.820
15 June	2001	..	..	48.820	..	..	..	..
1 October	2003	56.200	..	50.190	..	47.100	53.270	47.100
..	2004	..	(5)	..	(5)	..	..	..
7 December	2006	57.680	..	51.520	..	48.350	54.680	48.350
1 October	2007	60.070	..	53.650	..	50.350	56.940	50.350
1 April	2008	..	..	(5)	..	..	(9)	..
1 December	2008	62.070	..	..	..	52.350	..	52.350
1 April	2009	..	..	..	..	54.190	..	54.190
1 May	2009	63.910	..	..	..	..	..	..
1 September	2009	65.910	..	..	..	56.190	..	56.190
1 April	2010	66.910	..	..	..	57.190	..	57.190
1 October	2010	67.910	..	..	..	58.190	..	58.190
1 January	2011	68.670	..	..	..	58.950	..	58.950
23 March	2011	67.670	..	..	..	57.950	..	57.950

(1) Duty rates remain the same unless otherwise stated.

(2) These fuels became liable to Value Added Tax (VAT) as follows:-

- (i) 10% with effect from 1 April 1974
- (ii) 8% with effect from 29 July 1974
- (iii) For motor spirit 25% with effect from 18 November 1974
- (iv) For motor spirit 12.5% with effect from 12 April 1976
- (v) 15% with effect from 18 June 1979
- (vi) 17.5% with effect from 1 April 1991
- (vii) 15% with effect from 1 December 2008
- (viii) 17.5% with effect from 1 January 2010
- (viii) 20% with effect from 4 January 2011 (Notes continued on following page)

Annex C - Effective rates of duty on principal hydrocarbon oils, 1979 to 2016⁽¹⁾ (continued)

Pence per litre

Date from which duty effective		Aviation gasoline ⁽²⁾	LPG for use as road fuel ⁽²⁾⁽⁸⁾	Fuel oil ⁽⁶⁾	Gas oil ⁽⁶⁾⁽⁷⁾	Kerosene ⁽⁶⁾
13 June	1979	8.100	4.050	0.660	0.660	
26 March	1980	10.000	5.000	0.770	0.770	
10 March	1981	13.820	6.910			
2 July	1981					
9 March	1982	7.770	7.770			
15 March	1983	8.150	8.150			
13 March	1984	8.580	8.580			zero
19 March	1985	8.970	8.970			
19 March	1986	9.690	9.690		1.100	
17 March	1987					
15 March	1988	10.220	10.220			
14 March	1989					
20 March	1990	11.240	11.240	0.830	1.180	
19 March	1991	12.930	12.930	0.910	1.290	
10 March	1992	13.900	13.900	0.950	1.350	
16 March	1993	15.290	15.290	1.050	1.490	
30 November	1993	16.570	16.570	1.160	1.640	
29 November	1994	17.630	33.140	1.660	2.140	
1 January	1995	18.070				
28 November	1995	19.560	28.170	1.810	2.330	
15 May	1996					
26 November	1996	20.840	21.130	1.940	2.500	
2 July	1997	22.550		2.000	2.580	
17 March	1998	24.630		2.180	2.820	
9 March	1999	26.440	15.000	2.650	3.030	
1 October	1999					
21 March	2000	27.340		2.740	3.130	
7 March	2001		9.000			
15 June	2001					
9 April	2003			3.820	4.220	
1 October	2003	28.100				
3 December	2004			4.820	5.220	
6 December	2005			6.040	6.440	
7 December	2006	28.840	12.210	7.290	7.690	
1 October	2007	30.030	16.490	9.290	9.690	
1 December	2008	31.030	20.770	9.660	10.070	
1 April	2009		24.820	10.000	10.420	
1 May	2009	33.340				
1 September	2009	34.570	27.670	10.370	10.800	
1 April	2010	38.350	30.530	10.550	10.990	
1 October	2010		31.950	10.740	11.180	
1 January	2011		33.040	10.880	11.330	
23 March	2011	37.700	31.610	10.700	11.140	

(3) From 14 March 1989 until 20 March 1990, the rate of duty for 2-star and 3-star leaded motor spirit was 21.220 pence per litre.

(4) With the separate duty rate abolished, duty on these fuels is now charged at the rate appropriate to unleaded petrol or ultra low sulphur petrol, dependent upon the sulphur and aromatic content of the fuel.

(5) Duty now charged at the rate appropriate to ultra low sulphur petrol.

(6) For industrial and commercial consumers these fuels became liable to the standard rate of VAT on 1 July 1990 (see note 2), recoverable by the majority of such consumers. These fuels attracted VAT for domestic consumers from 1 April 1994 at an initial rate of 8%. This was reduced to 5% from 1 September 1997.

(7) AVTUR (aviation turbine fuel) attracted the gas oil rate until 18 March 1986 after which it was zero-rated.

(8) From 29 November 1994 this duty is priced in pence per kilogram as the relative calorific values of the different types of road fuel gases are very similar when related to mass (kilogram). The conversion rate for LPG is approx. 1kg = 2 litres.

(9) Duty now charged at the rate appropriate to ultra low sulphur diesel

Annex D – Further sources of information

D1 Energy prices

Energy prices (annual); Statistical Office of the European Communities summarises price information published in the European Commission's Weekly Oil Bulletin, and half-yearly Statistics in Focus on Gas and Electricity prices

Energy Prices & Taxes (quarterly); OECD International Energy Agency

Electricity prices; Eurostat (annual)

Gas prices; Eurostat (annual)

D2 Fuel Poverty

The **2016 fuel poverty statistics report** was published in June 2016, and includes statistics for the number of fuel poor households in 2014. The web reference is:
<https://www.gov.uk/government/collections/fuel-poverty-statistics>

D3 Department of Business Energy and Industrial Strategy publications on energy

All titles can be found on the BEIS website at:
<https://www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy/about/statistics>

Statistical publications

Energy Trends

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

Energy Trends contains quarterly data on production and consumption of overall energy and of the individual fuels in the United Kingdom. Also includes data on foreign trade in fuels.

Digest of UK Energy Statistics (DUKES) 2015

www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

Also available from The Stationery Office and can be ordered through Government Bookshops. DUKES contains annual data on production and consumption of overall energy and of the individual fuels in the United Kingdom. Also includes a commentary covering all the major aspects of energy and gives a comprehensive picture of energy production and use over the last five years with key series taken back to 1970.

UK Energy Sector Indicators

www.gov.uk/government/collections/uk-energy-sector-indicators

This annual publication, previously published in October each year, will no longer be produced. BEIS alerted users to this decision, in October 2015, as well as committing to publishing data not readily available elsewhere in the quarterly statistical publication Energy Trends.

The September 2016 edition of Energy Trends therefore includes articles on competition in electricity and gas supply and international price comparisons, whilst further articles on energy diversity and international comparisons of energy production and use will be published in forthcoming editions of Energy Trends.

Further sources of information

Energy Consumption in the UK

www.gov.uk/government/collections/energy-consumption-in-the-uk

This booklet brings together statistics from a variety of sources to produce a comprehensive review of energy consumption in the UK since the 1970s. It describes the key trends in energy consumption in the UK since 1970 with a particular focus on trends since 1990. It includes an analysis of the factors driving the changes in energy consumption, the impact of increasing activity, increased efficiency, and structural change in the economy, while detailed tables can be found on the internet. The information is presented in five sections covering firstly overall energy consumption, then energy consumption in the transport, domestic, industrial and service sectors.

Energy Flow Chart

www.gov.uk/government/collections/energy-flow-charts , also available from the BEIS publication order line: tel: 0845 504 9188 e-mail: beisteam@beis.ecgroup.net

An annual publication illustrating the flow of primary fuels from home production and imports to their eventual final uses. They are shown in their original state and after being converted into different kinds of energy by the secondary fuel producers.

UK Energy in Brief

www.gov.uk/government/collections/uk-energy-in-brief , also available from the BEIS publication order line: tel: 0845 504 9188 e-mail: beisteam@beis.ecgroup.net

An annual publication summarising the latest statistics on energy production, consumption and prices in the UK.

Sub-National Energy Consumption Statistics

www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics#subnational-energy-consumption-statistics

Sub-National data are published by BEIS to emphasise the importance of local and regional decision making for energy policy in delivering a number of national energy policy objectives.

National Energy Efficiency Data-framework (NEED)

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

BEIS has constructed a National Energy Efficiency Data-framework (NEED) to enable detailed statistical analysis of energy efficiency. The data framework matches the gas and electricity consumption data collected for BEIS sub-national energy consumption statistics and records of energy efficiency measures in the Home Energy Efficiency Database (HEED) run by the Energy Saving Trust (EST), as well as typographic data about dwellings and households.

Green Deal and Energy Company Obligation Statistics

BEIS publishes a range of information relating to the rollout of the Green Deal and ECO policy. This includes number of GD Assessments, number of GD Plans, number of energy efficiency measures installed, data on the amount of GD cashback vouchers issued, data on ECO brokerage, and information on the supply chain. BEIS also publishes quarterly statistics on the levels of wall and loft insulation in Great Britain, along with information on the remaining potential for insulation measures. Data can be accessed on the Internet at:

www.gov.uk/government/collections/green-deal-and-energy-company-obligation-eco-statistics

UK Greenhouse Gas Emissions Statistics

www.gov.uk/government/collections/uk-greenhouse-gas-emissions-statistics

Emissions data are produced by BEIS to show progress against the UK's goals, both international and domestic, for reducing greenhouse gas emissions.

UK Energy and CO2 emissions projections

www.gov.uk/government/collections/energy-and-emissions-projections

The Updated Energy projections (UEP) are published annually by BEIS. They provide updated projections and analysis of energy use and carbon dioxide emissions in the UK. The UEP exercise incorporates all firm environmental policy measures and is based on updated assumptions consistent with the most recent UK Budget announcements.

Policy publications

Annual Energy Statement

The Annual Energy Statement fulfils the commitment in the Coalition Programme for the Government to present an annual statement of energy policy to Parliament. The first statement was delivered to Parliament on 27 June 2010, with subsequent statements delivered on 23 November 2011, 29 November 2012, and 31 October 2013. The latest statement, delivered on 6 November 2014, is available on the internet: www.gov.uk/government/publications/annual-energy-statement-2014

Energy Act 2013

The Energy Act 2013 was given Royal Assent on 18 December 2013. The Act is available on the Internet at: www.legislation.gov.uk/ukpga/2013/32/contents

Energy Act 2011

The Energy Act 2011 was given Royal Assent on 18 October 2011. The Act is available on the Internet at: www.legislation.gov.uk/ukpga/2011/16/contents

Electricity Market Reform (EMR) White Paper

On 12 July 2011 the Government published 'Planning our electric future: a White Paper for secure, affordable and low-carbon electricity'. The White Paper sets out key measures to attract investment, reduce the impact on consumer bills, and create a secure mix of electricity sources including gas, new nuclear, renewables, and carbon capture and storage. The White Paper is available on the internet at: www.gov.uk/government/publications/planning-our-electric-future-a-white-paper-for-secure-affordable-and-low-carbon-energy

Energy Act 2010

The Energy Act 2010 was given Royal Assent on 8 April 2010. The Act is available at: <http://www.legislation.gov.uk/ukpga/2010/27/contents>

The UK Low Carbon Transition Plan

The UK Low Carbon Transition Plan was published on 15 July 2009. The Plan is available on the Internet at: www.gov.uk/government/publications/the-uk-low-carbon-transition-plan-national-strategyfor-climate-and-energy

Energy Act 2008

The Energy Act 2008 was granted Royal Assent on 26 November 2008. The Act is available at: www.legislation.gov.uk/ukpga/2008/32/contents

Climate Change Act 2008

The Climate Change Act 2008 was granted Royal Assent on 26 November 2008. The Act is available on the Internet at: www.legislation.gov.uk/ukpga/2008/27/contents

D4 Energy related websites

The BEIS section of the GOV.UK website can be found at:

www.gov.uk/government/organisations/department-of-energy-climate-change

The energy information and statistics section is at:

www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics

Other Government websites

Department for Communities and
Local Government

www.gov.uk/government/organisations/department-for-communities-and-local-government

Department for Environment, Food
and Rural Affairs

www.gov.uk/government/organisations/department-for-environment-food-rural-affairs

Department for Transport

www.gov.uk/government/organisations/department-for-transport

HM Government Online

www.gov.uk/

HM Revenue & Customs

www.gov.uk/government/organisations/hmrevenue-customs

Northern Ireland Executive

www.northernireland.gov.uk

Ofgem (The Office of Gas and
Electricity Markets)

www.ofgem.gov.uk/

The Scottish Government

www.gov.scot/

The Scottish Parliament

www.scottish.parliament.uk/

UK Parliament

www.parliament.uk/

UK Statistics Authority

www.statisticsauthority.gov.uk/

Welsh Government

<http://gov.wales/>

Other useful energy related web sites

BP

www.bp.com/

British Geological Survey

www.bgs.ac.uk/

BRE (Building Research
Establishment)

www.bre.co.uk/

The Coal Authority

www.gov.uk/government/organisations/thecoal-authority

Energy Institute

www.energyinst.org/home

Energy Networks Association

www.energynetworks.org/

Energy UK

www.energy-uk.org.uk/

Europa (European Union Online)

<http://europa.eu/>

Eurostat

http://europa.eu/index_en.htm

Interconnector

www.interconnector.com/

International Energy Agency (IEA)

www.iea.org/

International Steel Statistics

www.issb.co.uk/

Bureau (ISSB)

National Grid

www.nationalgrid.com/

Oil & Gas UK

www.oilandgasuk.co.uk/

Renewable UK

www.renewableuk.com/

Ricardo - AEA

www.ricardo-aea.com/cms/

The Stationery Office

www.tso.co.uk/

UK-AIR: Air Information Resource

<http://uk-air.defra.gov.uk/>

UK Petroleum Industry Association

www.ukpia.com/home.aspx

United Nations Statistics Division

<http://unstats.un.org/unsd/default.htm>

US Department of Energy

<http://energy.gov/>

US Energy Information

www.eia.gov/

Administration