

PRESS NOTICE



Department for
Business, Energy
& Industrial Strategy



Statistical Press Release

27 July 2017

Digest of UK Energy Statistics 2017

The Department for Business, Energy and Industrial Strategy today releases 4 key publications: the **Digest of United Kingdom Energy Statistics 2017**, **UK Energy in Brief**, **Energy Flow Chart**, and **Energy Consumption in the United Kingdom** providing detailed analysis of production, transformation and consumption of energy in 2016.

DIGEST OF UK ENERGY STATISTICS 2017

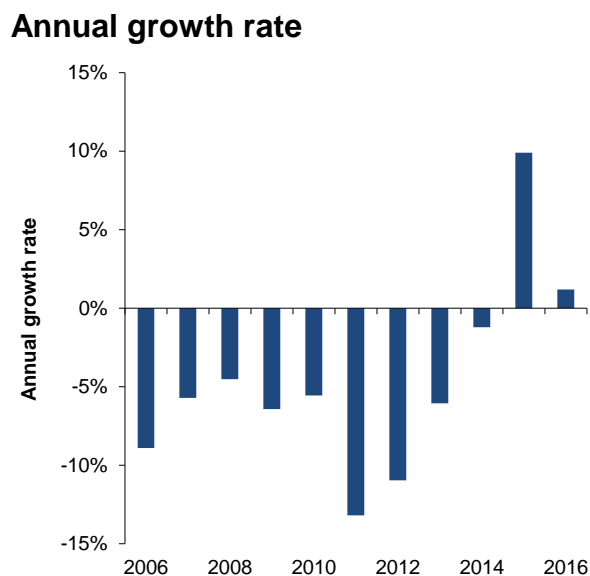
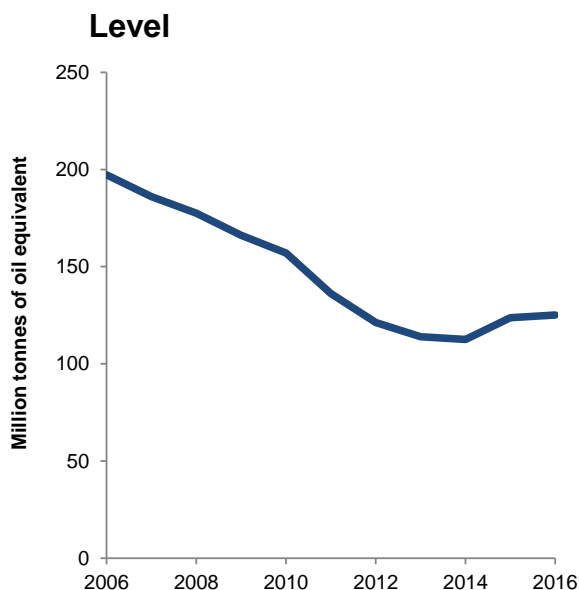
Key points

- **Primary energy production** rose by 1.2 per cent, on a year earlier, as output of oil and gas from the UK Continental Shelf were both up. Low carbon sources including nuclear, wind, hydro and solar photovoltaics all fell, however production of bioenergy increased. Coal output though was down to a record low level.
- **Final energy consumption** rose by 1.6 per cent, as demand for heating increased. On a temperature adjusted basis, final energy consumption was up 0.9 per cent.
- Electricity generated from **renewable sources** in the UK in 2016 decreased by 0.2 per cent on a year earlier, and accounted for 24.5 per cent of total UK electricity generation. Lower rainfall and wind speeds resulted in lower hydro and wind generation, more than offsetting a 16 per cent increase in total capacity compared to 2015. Total renewables, as measured by the 2009 EU Renewables Directive, accounted for 8.9 per cent of total energy consumption in 2016, up from 8.2 per cent in 2015.

Main energy production and trade statistics:

- **Primary energy production** rose by 1.2 per cent in 2016; production though is down 58 per cent from its peak on 1999.

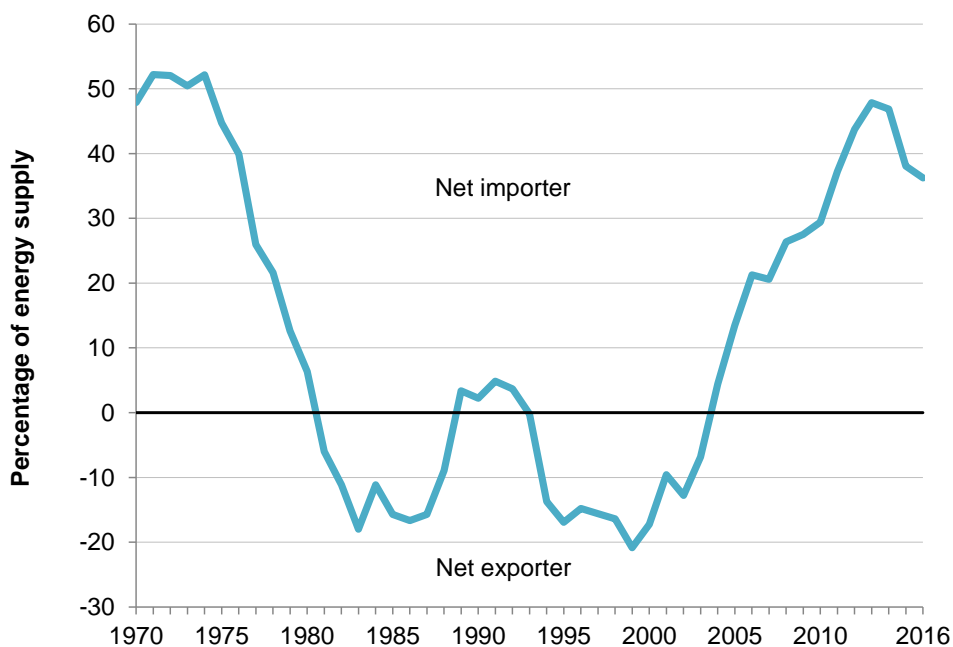
UK production 2006 – 2016



- **Gross natural gas production** increased 2.4 per cent in 2016, continuing the year-on-year increases seen since 2014. This pattern contrasts with the long-term decline in UK natural gas production, which had fallen by an average of 8 per cent from peak production in 2000 to the end of 2013.
- **Crude oil (including NGL) production** in 2016, at 48 million tonnes, increased by 4.8 per cent compared to 2015 due to the opening of new fields and development of older fields. Production is currently around a third of the UK's peak in 1999.
- **Coal production** was down by 51 per cent to a record level in 2016 compared to 2015, following the closure of a number of mines, including the last three remaining large deep mines in 2015 – Hatfield, Thoresby and Kellingley.
- Energy **imports** fell by a further 3.5 per cent in 2016 and are down by 17 per cent on 2013's record level.

- For crude oil the key source was Norway, which accounted for 62 per cent of imports. Crude oil imports fell marginally due to lower demand and the use of indigenous crude as a feedstock in 2016.
 - For gas the key source was also Norway, which accounted for 65 per cent of UK imports, with 9 per cent from the Netherlands. LNG accounted for 23 per cent of gas imports, down from 31 per cent in 2015, with 92 per cent of these imports from Qatar.
 - The UK sources its petroleum products widely, with a range of European countries supplying diesel road fuel. Aviation fuel is also sourced widely with significant volumes from OPEC countries such as Kuwait and Saudi Arabia. The UK remains a net exporter of petrol with 40 per cent of petrol exports shipped to the US.
 - For coal the key source was Colombia accounting for 31 per cent of UK imports, followed by Russia and the US which accounted for 27 and 17 per cent respectively.
- The UK remained a **net importer of energy**, though with a decreased dependency level (imports / energy use) of 36 per cent following stronger performance on the UK's Continental Shelf. In 2016 the UK was a net importer of all main fuels types.

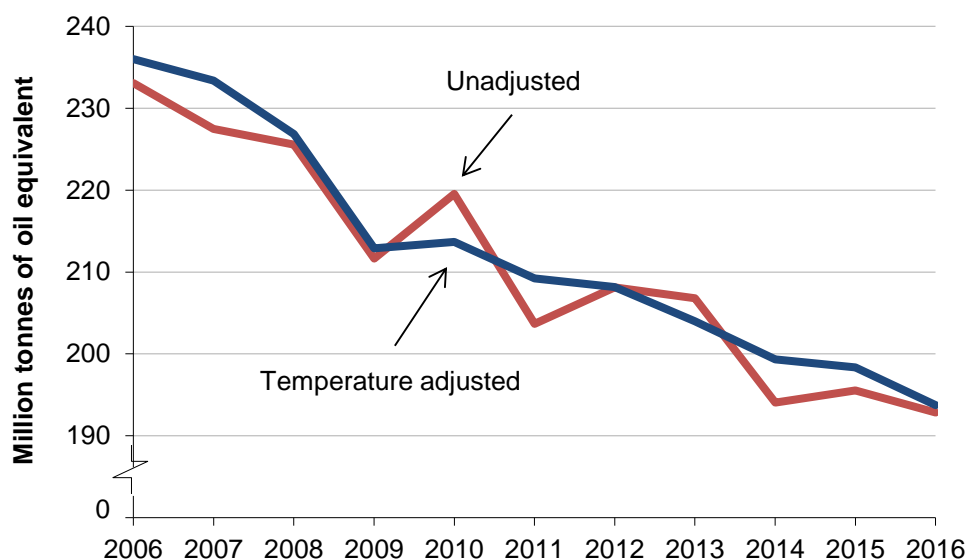
UK import dependency 1970 – 2016



Main energy consumption statistics:

- UK **primary energy consumption** in 2016 fell by 1.4 per cent, but on a temperature adjusted basis, consumption was down 2.3 per cent continuing the downward trend of the last ten years. The fall in 2016 was due to the switch in generation from coal to gas which is more thermally efficient.

Primary energy consumption 2006 - 2016



- **Energy consumption by final users** at 149.0 million tonnes of oil equivalent increased by 1.8 per cent in 2016. Consumption in the domestic sector was up by 3.1 per cent, whilst service sector use up by 2.7 per cent. Industrial use was down by 2.6 per cent. There was increased consumption from transport, which was up 1.9 per cent, likely due to lower pump prices. On a temperature adjusted basis final energy consumption was up 0.9 per cent on 2015 levels.
- **Coal consumption** decreased by 52 per cent in 2016. There was a 59 per cent decrease in **consumption by major power producers** (consumers of 67 per cent of total coal demand). The decline was due to reduced coal-fired capacity due to the conversion of a third unit at Drax from coal and an increase in the carbon price floor, which made coal-fired generation more expensive. Coal accounted for 9 per cent of the electricity generated in the UK in 2016, down from 22 per cent in 2015. The domestic sector accounted for only 3.1 per cent of total coal consumption.

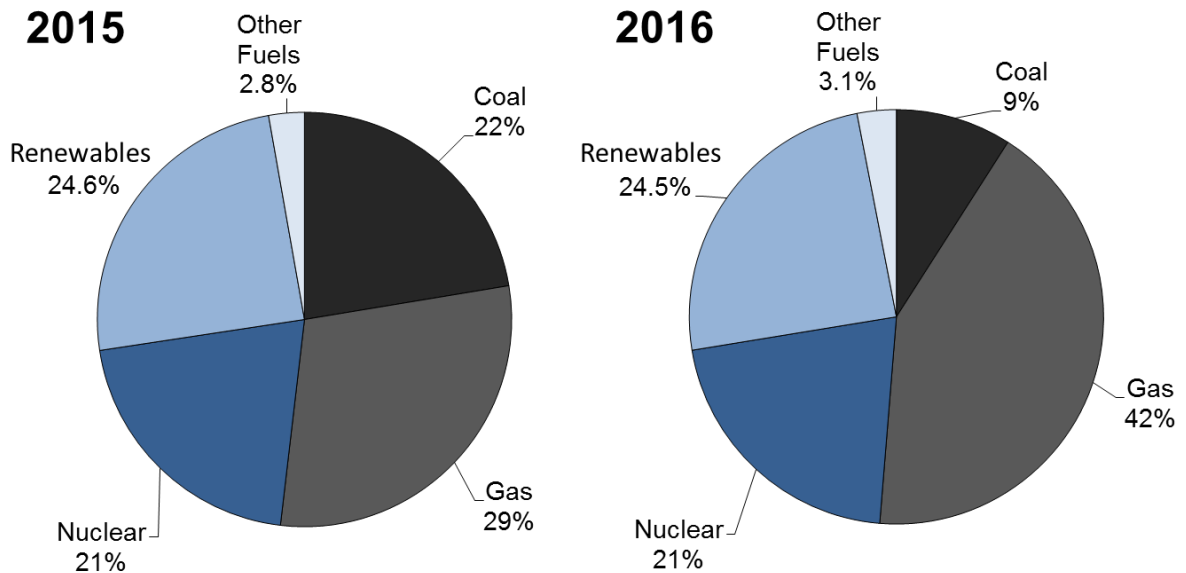


- **Total oil consumption in the UK increased in 2016, the second successive increase following several successive years of falls.** Over 70 per cent of oil is consumed in the transport sector, which showed an increase of 1.9 per cent from 2015. An increase in demand for diesel, combined with reduced contraction in demand for petrol, has driven the overall increase. Demand has likely been affected by low road fuel prices seen in 2016.
- **Consumption of diesel road fuel exceeded the consumption of motor spirit** in 2016 by nearly 13 million tonnes. Up until 2005 motor spirit exceeded diesel road fuel sales; since then a large element of the UK's car fleet has switched to diesel. Petrol consumption has typically been falling by around 3.5 per cent per annum since 2000, but in 2016 reduced by just 1.1 per cent. Over the same period diesel use typically increases by 2.6 per cent per annum, but in 2016 was up 4.2 per cent.
- **Overall gas demand** increased by 12.5 per cent, mainly driven by increased gas usage for power generation up just over 40 per cent on 2015. Domestic demand, which is influenced by temperature, was 4.6 per cent higher than in 2015.

Main electricity generation and supply statistics:

- In 2016, coal-fired generation fell below half of its 2015 level, its share falling from 22 per cent to 9 per cent as the carbon price made coal generation more expensive than gas. Consequently, gas increased its share to 42 per cent of generation. Nuclear and renewable's shares were stable, with renewable's share of generation close to 2015's record high as increased capacity mitigated less favourable weather conditions for generation.

Electricity generation by fuel, 2015 vs 2016



- Electricity generated from renewable sources in the UK in 2016 decreased by 0.2 per cent on a year earlier, and accounted for 24.5 per cent of total UK electricity generation. Lower rainfall and wind speeds resulted in lower hydro and wind generation. Generation from hydro sources fell by 14 per cent, and onshore and offshore wind generation fell by 8.4 and 5.8 per cent respectively. The overall wind load factor was 28.8 per cent, down from the record 33.3 per cent in 2015.
- Installed electrical generating capacity of renewable sources rose by 16 per cent, to 35.7 GW in 2016. For the second year running, solar photovoltaics were the leading technology in capacity terms at 11.9 GW, representing a third of total renewable electrical capacity (the result of a large increase from smaller installations supported by the Feed in Tariff (FiT) and larger schemes supported by the Renewables Obligation). Wind generation capacity increased, mostly a result of an 18 per cent increase in onshore wind capacity which rose to 10.9 GW in 2016.
- There was a 0.8 per cent drop in the **total supply of electricity** in the UK in 2016, to 357 TWh. Indigenous electricity supply was stable while net imports of electricity fell by 16 per cent, to 17.5 TWh. The UK remained a net importer of electricity in 2016.
- **Final consumption of electricity** has been broadly flat since 2014 at 303.8 TWh, near its lowest level since 1995.
- The **domestic sector** was the largest electricity consumer in 2016 (108.0 TWh), while the **industrial sector** consumed 91.8 TWh, and the **service sector** consumed 99.3 TWh. Industrial consumption fell by 1.2 per cent, continuing a downward trend totalling a 20 per cent fall since 2000. Domestic consumption was stable and services consumption rose by 1.1 per cent.

Other energy statistics:

- **Total renewables**, as measured by the 2009 EU Renewables Directive, accounted for 8.9 per cent of total energy consumption in 2016, up from 8.2 per cent in 2015. see article in Energy Trends June 2017 at: www.gov.uk/government/statistics/energy-trends-june-2017-special-feature-article-renewable-energy-in-2016
- In 2016, **Combined Heat and Power (CHP)** capacity stood at 5,571 MWe, a decrease of 159 MWe on 2015.
- In 2016 the energy industries' accounted for 2.3 per cent of **GDP**.
- Provisional BEIS estimates suggest that **overall emissions fell by nearly 30 million tonnes of carbon dioxide (MtCO₂) (7.4 per cent) to 374.1 MtCO₂** between 2015 and 2016, driven by the changes in electricity generation.

ENERGY CONSUMPTION IN THE UNITED KINGDOM

- Final energy consumption excluding non-energy use was 140.7 Mtoe in 2016, 2.2 Mtoe (1.6 per cent) higher than in 2015. This is the second year showing an increase following 2014, the lowest level since prior to 1970).
- Energy consumption in 2016 was 18.7 Mtoe (12 per cent) lower than in 2000 (140.7 Mtoe compared to 159.4 mtoe), and 5.3 Mtoe (3.6 per cent) lower than in 1970.
- In 2016, energy consumption in the **industrial sector** was 23.7 Mtoe, a 2.6 per cent decrease since 2015. Consumption increased in the paper, printing and publishing sub-sector (by 3.7 per cent), food, drink and tobacco (by 0.8 per cent), vehicles (by 1.2 per cent, the chemicals subsector (by 0.5 per cent), electrical & instrument engineering (1.6 per cent), and in the construction sub-sector (an increase of 1.9 per cent). The biggest decrease in absolute terms was in the iron and steel sub-sector which fell from 1.3 Mtoe to 0.9 Mtoe. Overall there was little change in each sub-sectors' share of consumption when compared to 2015, with the largest single share being from the chemical industry accounting for 14 per cent.
- Since 2015, energy consumption in the **transport sector** increased by 1.0 Mtoe (1.9 per cent) to 55.8 Mtoe in 2016. The majority of the increase was in **road transport** which increased by 0.9 Mtoe (2.3 per cent). Consumption in **air transport** also increased from 2015 to 2016 (by 0.8 per cent), with **rail transport** up by 0.6 per cent. Consumption in the **transport sector** peaked in 2007 and has since fallen by 4.0 Mtoe (6.7 per cent). **Road transport** (which accounted for 74 per cent of total transport in 2016) saw the largest fall in absolute terms (a decrease of 1.8 Mtoe) whilst **air transport** fell by 1.3 Mtoe (9.1 per cent). During this period, **rail transport** actually increased; by 2.9 per cent.
- In 2016, **domestic energy consumption** increased by 1.2 Mtoe (3.1 per cent), reflecting slightly lower average temperatures for the year. On a temperature corrected basis, consumption was 0.3 Mtoe (0.8 per cent) lower in 2016. Since 2000, consumption has fallen by 12 per cent despite a 14 per cent increase in the number of households and a 12 per cent increase in the population. Per household, consumption has fallen by 23 per cent since 2000.
- In the **service sector**, energy consumption in the **private commercial sector** increased by 4.8 per cent between 2000 and 2016, in the **public sector** it fell by 28 per cent and by 1.7 per cent in the **agriculture sector**.



NOTES TO EDITORS

1. The **Digest of United Kingdom Energy Statistics 2017**, compiled by the Department for Business, Energy and Industrial Strategy, contains tables and extensive commentary, charts and technical notes. As well as giving new data for 2016 it also presents some revised data for earlier years.

2. The Digest provides a comprehensive account of energy supply and demand in the United Kingdom, with the majority of the tables covering the last five years. The first chapter covers aggregated overall energy statistics, energy balances and the estimated value of fuel purchases. This chapter gives details of the conversion of fuels by the energy supply industries and figures for consumption by final users, with an analysis of consumption by main industrial groups. Other chapters cover the individual fuels and particular topics such as renewable sources of energy and combined heat and power. The Digest also contains annexes on key events in the energy industries in recent years and a glossary of terms.

3. The **Digest of United Kingdom Energy Statistics 2017** is available at: www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes. **UK Energy in Brief**, a summary of the main figures in the Digest, is available at: www.gov.uk/government/collections/uk-energy-in-brief. **The Energy Flow Chart**, a chart showing the UK energy flows of primary fuels from home production and imports to their eventual final uses, is available at: www.gov.uk/government/collections/energy-flow-charts.

4. For this year, BEIS have made available a beta release of an [Application Programming Interface \(API\)](#) that will allow users to download data from DUKES quickly and flexibly. The API released today is an initial version which will be developed over coming months. Comments are welcome to energy.stats@beis.gov.uk.

5. **Energy Consumption in the United Kingdom** brings together statistics from a variety of sources to produce a comprehensive review of energy consumption and changes in efficiency, intensity and output in the UK since the 1970s, with a particular focus on trends since 1990. The updated information is released in tables at: www.gov.uk/government/collections/energy-consumption-in-the-uk

6. **Energy Trends** is a quarterly publication that contains tables, charts and commentary covering all major aspects of energy. It provides a comprehensive picture of energy production and use over recent months and enables readers to monitor trends during the year and complements the annual publications. The latest edition was published on 29 June 2017, and is available at: www.gov.uk/government/collections/energy-trends

7. **Energy Prices** is a quarterly publication that contains analyses of petroleum product prices, industrial energy prices, domestic electricity and gas prices, and international comparisons of energy prices. It contains the information on energy prices that until 2001 was published in the Digest of United Kingdom Energy Statistics. The latest edition was published on 29 June 2017, and is available at: www.gov.uk/government/collections/quarterly-energy-prices



8. In addition to the above statistical publications, the BEIS section of the GOV.UK website also contains key energy data in downloadable spreadsheet format. The spreadsheet format includes data on energy production, consumption, trade and prices and is available in monthly, quarterly and annual time-series format.

9. UK Greenhouse Gas Emissions statistics are also produced by BEIS to show progress against the UK's goals, both international and domestic, for reducing greenhouse gas emissions. These data are available at: www.gov.uk/government/collections/uk-greenhouse-gas-emissions

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