Energy Trends and Energy Prices publications are published today 29 March 2018 by the Department for Business, Energy and Industrial Strategy. The publications cover new data for the fourth quarter of 2017 and thus provisional annual data for 2017. This press release focuses mainly on the 2017 annual data.

Energy Trends covers statistics on energy production and consumption, in total and by fuel, and provides an analysis of the year on year changes. Energy Prices covers prices to domestic and industrial consumers, prices of oil products and comparisons of international fuel prices.

The key points from 2017 are:

- Total energy production was 0.4 per cent higher than in 2016. This increase, though modest, is the third in successive years, and was mainly due to rises in bioenergy and wind, solar and hydro. Gas output rose slightly, up 0.3 per cent, and together with oil accounts for over 70 per cent of UK production. Coal output fell to a record low level, whilst output from oil and nuclear also fell, albeit slightly. The output from bioenergy and wind, solar and hydro is now nearly 10 times higher than coal, notable when coal was the higher in 2012.

- Total primary energy consumption for energy uses was 1.3 per cent lower than in 2016. However, when adjusted to take account of weather differences between 2016 and 2017, primary consumption fell by 0.2 per cent.

- Final energy consumption (excluding non-energy use) was 1.0 per cent lower than in 2016. On a seasonally and temperature adjusted basis it is estimated to have risen by 0.5 per cent with rises in industrial consumption and increased transport demand offsetting falls in the domestic and services sector. Seasonally adjusted final consumption is down 10 per cent on 2007.

- Of electricity generated in 2017, gas accounted for 39.7 per cent whilst coal accounted for only 6.7 per cent. Renewable electricity generation was 98.9 TWh in 2017, a record high, and up nearly a fifth, due to increased capacity and higher wind speeds. Renewables’ share of electricity generation is 29.4 per cent, second only to gas. Nuclear remains broadly steady at 20.9 per cent.
Renewable electricity capacity was 40.5 GW at the end of 2017, a 13.3 per cent increase (4.8 GW) on a year earlier.

Low carbon electricity’s share of generation increased from 45.7 per cent in 2016 to a record high of 50.4 per cent in 2017, driven by increased renewable capacity and more favourable weather conditions.

Average annual household energy bills (based on fixed consumption of 3,800 kWh per annum for electricity and 15,000 kWh per annum for gas) across all payment types in 2017 increased by £13 (up 1.1 per cent to £1,249) compared to 2016. Average electricity bills were £33 higher, whereas gas bills were £20 lower.

Based on average household consumption, combined energy bills fell by 3.1% in cash terms (£1,112 in 2017) and fell by 5.1% in real terms (£990 in 2017 (2010 prices)).

Other highlights from 2017 include:

- Imports in 2017 were 0.9 per cent higher than in 2016, whilst exports rose by 4.4 per cent. As a result, net import dependency fell back from 36.2 per cent to 35.8 per cent.

- Crude oil & NGL production was lower by 2.0 per cent than in 2016. In the year to November 2017 production had been stable, but the Forties Pipeline closure in December 2017 resulted in a fall in crude production of one-fifth that month.

- Natural gas production was 0.3 per cent higher than in 2016. Gas exports were 8.8 per cent higher, whilst imports were 1.8 per cent lower; net imports fell 4.1 per cent on 2016.

- Coal production was 27 per cent lower than in 2016, and at a record low level, due to a number of mines not operating due to restoring and some other mines producing less coal as they are coming to the end of production. Imports of coal in 2017 were at a similar value to 2016. Coal stocks fell and were 40 per cent lower, as a result of generators using more stocks for electricity generation while purchasing less coal from the UK coal mines.

- Gas demand was 2.6 per cent lower than in 2016, driven by less use of gas in electricity generation, whilst electricity consumption was 1.9 per cent lower due to the warmer weather.

- Electricity generation in 2017 fell by 1.0 per cent, from 339.4 TWh a year earlier to 335.9 TWh, with falls in generation from coal and gas offset by an increase from renewables, primarily wind generation.

For more detailed information on methodology, quality assurance and use of the data, please refer to the methodology notes available by energy sector on the BEIS section of the GOV.UK website at: www.gov.uk/government/organisations/department-for-business-energy-and-industrial-strategy/about/statistics
The March 2018 edition of Energy Trends also includes articles on:

- Domestic energy bills in 2017: The impact of variable consumption
- The contribution of reversible air to air heat pumps towards the Renewable Energy Directive
- Experimental statistics on heat networks

The following statistics are also published today 29 March 2018, by the Department for Business, Energy and Industrial Strategy:

- Greenhouse Gas emissions, 2017 provisional figures

- Solar Photovoltaics deployment, February 2018
Total Energy - Production

- Total production in 2017 was 125.8 million tonnes of oil equivalent, 0.4 per cent higher than in 2016. This increase, though modest, is the third in successive years, and was mainly due to rises in output from bioenergy and wind, solar and hydro which more than offset the decline in UK coal production and reduced output from oil and nuclear.

- Production of oil fell by 1.9 per cent despite increased NGLs production, whilst gas rose by 0.3 per cent. Oil and gas production levels in December 2017 were significantly lower than in December 2016 due to the closure of the Forties Pipeline System for repair.

- Production of bioenergy & waste rose by 11.6 per cent between 2016 and 2017.

- Primary electricity output rose by 4.5 per cent between 2016 and 2017, within which nuclear output fell by 1.9 per cent due to outages in the fourth quarter of 2017, whilst output from wind, solar and natural flow hydro rose by 26 per cent to a record high level, due to increased wind and solar capacity, as well as higher wind speeds.

- Production of coal fell by 27 per cent, to a new record low.

Total energy quarterly tables ET 1.1 – 1.3 are available on the BEIS section of the GOV.UK website at: [www.gov.uk/government/statistics/total-energy-section-1-energy-trends](http://www.gov.uk/government/statistics/total-energy-section-1-energy-trends)
TOTAL ENERGY: 2017

Total Energy – consumption\(^{(1)}\)

When examining seasonally adjusted and temperature corrected annualised rates:

- Total inland consumption on a primary fuel input basis was 193.5 million tonnes of oil equivalent in 2017, 0.2 per cent lower than in 2016.

- Between 2016 and 2017 coal consumption fell by 16.8 per cent, to a record low and gas consumption fell by 0.1 per cent as electricity generators made more use of renewable sources; oil consumption rose by 0.7 per cent.

- Bioenergy and waste consumption rose by 4.8 per cent, whilst primary electricity consumption rose by 3.1 per cent, driven by increased use of renewables, primarily wind and solar.

Final energy consumption (excluding non-energy use) was 1.0 per cent lower than in 2016, with rises in the industry and transport sectors offset by falls in the domestic and services sectors. Domestic consumption fell by 4.0 per cent. On a temperature corrected basis, final energy consumption rose by 0.5 per cent, with domestic consumption up 0.1 per cent.

Total energy quarterly tables ET 1.1 – 1.3 are available on the BEIS section of the GOV.UK website at: [www.gov.uk/government/statistics/total-energy-section-1-energy-trends](http://www.gov.uk/government/statistics/total-energy-section-1-energy-trends)
Provisional figures for 2017, as a whole, show that coal production fell to a new record low of 3.0 million tonnes, 27 per cent down on 2016 due to further contraction of surface mining. The last three deep mines in operation closed in 2015, and one of the large surface mines has not produced since April 2017.

Imports of coal at 8.5 million tonnes were virtually identical to the level of imports in 2016. Imports in 2016 were at their lowest in 34 years due to lower demand from electricity generators.

Total demand for coal in 2017 was 14.4 million tonnes, 20 per cent lower than in 2016, with consumption by electricity generators down by 28 per cent (-3.3 million tonnes), a new record low.

Total stocks at the end of the fourth quarter of 2017 were 4.9 million tonnes (a new record low). This was a 25 per cent decrease when compared to the third quarter of 2017 and 40 per cent lower than the fourth quarter of 2016 (8.3 million tonnes).

Coal quarterly tables ET 2.1 – 2.4 are available on the BEIS section of the GOV.UK website at: www.gov.uk/government/statistics/solid-fuels-and-derived-gases-section-2-energy-trends
## OIL: 2017

### Production and trade of crude oil and NGLs

<table>
<thead>
<tr>
<th>2017</th>
<th>Percentage change on a year earlier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Million tonnes</td>
<td></td>
</tr>
<tr>
<td>Primary oil production</td>
<td>46.9</td>
</tr>
<tr>
<td>Primary oil demand</td>
<td>60.2</td>
</tr>
<tr>
<td>Net imports (primary oil)</td>
<td>15.0</td>
</tr>
<tr>
<td>Net imports (oil products)</td>
<td>10.1</td>
</tr>
<tr>
<td>Refinery production</td>
<td>62.5</td>
</tr>
<tr>
<td>Petroleum demand</td>
<td>69.5</td>
</tr>
<tr>
<td>- Motor spirit (including biofuels)</td>
<td>12.6</td>
</tr>
<tr>
<td>- DERV fuel (including biofuels)</td>
<td>25.5</td>
</tr>
<tr>
<td>- Aviation turbine fuel</td>
<td>11.8</td>
</tr>
</tbody>
</table>

- Indigenous production of primary oils (crude, NGLs and feedstocks) decreased by 2.0 per cent (1.0 million tonnes) compared with 2016, following two years of growth. Without the disruption to the Forties Pipeline in December 2017 crude oil production would have been stable on the year before. Oil production stands at just under 47 million tonnes, just over a third of the peak production recorded in 1999.

- Overall demand for primary oils in 2017 was stable on 2016 as refinery production was also stable. Net imports of petroleum products were 10.1 million tonnes in 2017.

- Transport final demand increased by 0.8 per cent, driven by an increase in demand for aviation turbine fuel, and a moderate uplift in road fuel demand. In contrast to industrial and domestic demand for fuel, transport demand has remained robust with strong demand from aviation and commercial and other road users.

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Oil quarterly tables ET 3.1 & 3.2 and 3.4 – 3.6 are available on the BEIS section of the GOV.UK website at: [www.gov.uk/government/statistics/oil-and-oil-products-section-3-energy-trends](http://www.gov.uk/government/statistics/oil-and-oil-products-section-3-energy-trends)
GAS: 2017

Production and trade of natural gas

- Gross gas production was relatively flat on last year, growing by just 0.3 per cent in comparison to 2016. This figure includes gas from the Rough facility, which is currently drawing down on the last available reserves in preparation for closure.

- Gas imports were 1.8 per cent lower than in 2016 with liquefied natural gas (LNG) imports decreasing by more than one-third. In contrast pipeline imports rose by 8.2 per cent. Exports increased by 8.8 per cent as exports to Belgium increased by nearly one-third.

- Gas demand was down 2.6 per cent compared to 2016, with demand for gas used for electricity generation decreasing by 3.6 per cent as a result of an increase in low carbon electricity sources such as renewables and nuclear. Similarly demand for final consumption was down by 3.0 per cent, with domestic and other final users down 4.6 and 2.5 per cent respectively. These decreases were driven by warmer temperatures throughout the year, apart from January and December, in comparison to 2016.

- December 2017 saw the arrival in the UK of the first LNG cargo from Russia, which was then re-exported. A Russian cargo that arrived in January has entered UK stocks. Initial volumes from this cargo have entered UK supply and will continue to do so over coming months. In January 2018, volumes of LNG from Russia entering supply equated to 0.3 per cent of total imports (see Table 4.4). The principal source of gas imports for the UK are Norway and Qatar.

Gas quarterly table ET 4.1 is available on the BEIS section of the GOV.UK website at: www.gov.uk/government/statistics/gas-section-4-energy-trends
Gas and coal generation accounted for 6.7 per cent and 39.7 per cent of generation respectively, as fossil fuelled generation was offset by higher renewable generation. Production favoured gas over coal, due to the carbon price per GWh being lower for gas.

Low carbon generation (nuclear and renewables) accounted for a record high of 50.4 per cent of generation in 2017. This was due to large increases in renewable generation, which was up 18.8 per cent; making up 29.4 per cent of electricity generated. With nuclear generation decreasing by 1.9 per cent.

Total electricity generated in 2017 dropped 1.0 per cent compared to last year, whilst imports fell 15.6 per cent, resulting in total available electricity being 1.2 per cent lower than in 2016.

Fuel used by generators in 2017 was 1.8 per cent lower than in 2016, as the fuel mix shifted to non-thermal renewables.

Final consumption of electricity decreased by 1.9 per cent in 2017. Domestic use fell by 2.6 per cent. This was mainly due to warmer temperatures in 2017 (+0.3 degrees on average)

Electricity quarterly tables ET 5.1, 5.2 & 5.6 are available on the BEIS section of the GOV.UK website at: www.gov.uk/government/statistics/electricity-section-5-energy-trends
Renewable electricity generation was a record 98.9 TWh in 2017, an increase of 18.8 per cent on a year earlier. Offshore and onshore wind generation rose by 27 per cent and 37 per cent respectively, with higher wind speeds and increased capacity. Generation from solar photovoltaics increased by 10 per cent, to a record 11.5 TWh, due to increased capacity. Hydro generation rose by 10 per cent, to 5.9 TWh. Generation from bioenergy was up by 5.9 per cent on 2016, to a record 31.8 TWh.

Renewables’ share of electricity generation was a record 29.4 per cent in 2017, an increase of 4.9 percentage points on a year earlier.

Renewable transport: liquid biofuels accounted for 3.1 per cent of petrol and diesel consumed in road transport in 2017, almost equivalent to 2016’s share.

Renewables quarterly tables ET 6.1 – 6.2 are available on the BEIS section of the GOV.UK website at: www.gov.uk/government/statistics/energy-trends-section-6-renewables
### MAIN POINTS FOR THE FOURTH QUARTER OF 2017

#### Electricity generated

<table>
<thead>
<tr>
<th>Q4 2016</th>
<th>Q4 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil and Other</td>
<td>Oil and Other</td>
</tr>
<tr>
<td>3.1%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Coal</td>
<td>Coal</td>
</tr>
<tr>
<td>9.4%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Gas</td>
<td>Gas</td>
</tr>
<tr>
<td>45.3%</td>
<td>39.4%</td>
</tr>
<tr>
<td>Nuclear</td>
<td>Nuclear</td>
</tr>
<tr>
<td>20.3%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Renewables</td>
<td>Renewables</td>
</tr>
<tr>
<td>22.0%</td>
<td>30.2%</td>
</tr>
</tbody>
</table>

- Total energy production was 1.3 per cent higher than in the fourth quarter of 2016.
- Total primary energy consumption for energy uses fell by 0.8 per cent. However, when adjusted to take account of weather differences between the fourth quarter of 2016 and the fourth quarter of 2017, primary energy consumption also fell by 0.8 per cent.
- Final energy consumption (excluding non-energy use) fell by 0.5 per cent compared to the fourth quarter of 2016, with domestic consumption down 3.1 per cent reflecting the warmer weather in October and November 2017. On a seasonally and temperature corrected basis it is estimated to have risen by 0.7 per cent, with domestic consumption down 0.8 per cent.
- Of electricity generated in the fourth quarter of 2017, gas accounted for 39.4 per cent, whilst coal accounted for 9.2 per cent. Nuclear generation accounted for 18.2 per cent of total electricity generated in the fourth quarter of 2017.
- Renewables' share of electricity generation increased from 22.0 per cent in the fourth quarter of 2016 to 30.2 per cent in the fourth quarter of 2017, reflecting higher renewable generation and slightly lower overall electricity generation in the fourth quarter of 2017.
- Low carbon electricity's share of generation increased from 42.3 per cent in the fourth quarter of 2016 to 48.4 per cent in the fourth quarter of 2017, due to a large rise in renewables generation compared with 2016 Q4.

DOMESTIC PRICES: QUARTER 4 2017

Fuel price indices in the domestic sector in real terms

<table>
<thead>
<tr>
<th>Consumer price index fuel components in real terms (1) 2010=100</th>
<th>2017 Q4</th>
<th>Percentage change on a year earlier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid fuels</td>
<td>104.3</td>
<td>+0.8</td>
</tr>
<tr>
<td>Gas</td>
<td>109.0</td>
<td>-1.7</td>
</tr>
<tr>
<td>Electricity</td>
<td>126.0</td>
<td>+9.5</td>
</tr>
<tr>
<td>Liquid fuels</td>
<td>86.6</td>
<td>+10.4</td>
</tr>
<tr>
<td>Total domestic fuel</td>
<td>117.6</td>
<td>+4.5</td>
</tr>
</tbody>
</table>

(1) Deflated using the GDP implied deflator. The original source of the indices is ONS.

- The price paid for all domestic fuel by household consumers rose by 4.5 per cent in real terms between Q4 2016 and Q4 2017, and by 1.4 per cent between Q3 and Q4 2017.
- Domestic electricity prices, including VAT, in Q4 2017 were 9.5 per cent higher in real terms than in Q4 2016.
- The price of domestic gas, including VAT, fell by 1.7 per cent in real terms between Q4 2016 and Q4 2017 and by 0.4 per cent between Q3 and Q4 2017.

Switching levels

- The number of transfers made within the domestic electricity market increased by 4.9 per cent between Q4 2016 and Q4 2017, with an estimated 1,361,000 electricity transfers being made in Q4 2017. Since Q4 2016, gas transfers have increased by 16 per cent to 1,162,000 transfers in Q4 2017. These transfers represent around 4.8 per cent of customers for electricity and 5.0 per cent of customers for gas in the domestic market.

Domestic prices tables are available on the BEIS section of the GOV.UK website at: www.gov.uk/government/collections/domestic-energy-prices
DOMESTIC ENERGY BILLS: 2017

Average domestic gas and electricity bills (cash terms)

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2017</th>
<th>Percentage change, cash terms</th>
<th>Percentage change, real terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas (3)</td>
<td>£650</td>
<td>£630</td>
<td>-3.1</td>
<td>-5.0</td>
</tr>
<tr>
<td>Electricity (4)</td>
<td>£586</td>
<td>£619</td>
<td>5.7</td>
<td>3.6</td>
</tr>
<tr>
<td>Total (5)</td>
<td>£1,236</td>
<td>£1,249</td>
<td>1.1</td>
<td>-1.0</td>
</tr>
</tbody>
</table>

(1) Average annual bills for domestic customers weighted by the proportion of customers on the different payment methods, which include standard credit, direct debit and pre-payment meter. Bills relate to the total bill received in the calendar year and are in cash terms.

(2) To estimate the percentage change in real terms bills were deflated using the GDP (implied) deflator.

(3) Gas bills are based on an annual consumption of 15,000 kWh.

(4) Electricity bills are based on an annual consumption of 3,800 kWh.

(5) The average total gas and electricity bill presented should be taken as broadly indicative only. It is not based on individual customers, but is simply the sum of the averages for electricity and gas.

- The average standard electricity bill in 2017 has increased by £33 (5.7 per cent) since 2016, from £586 to £619. However, the average 2017 gas bill across all payment types has decreased by £20 (3.1 per cent), from £650 to £630. Overall, the average bill rose by £13. These bills are based on standard consumptions of 3,800kWh per year for electricity and 15,000kWh per year for gas.

- The average combined bill for prepayment fell by £84, from £1,334 in 2016 to £1,250 in 2017, making credit the most expensive method of payment at £1,363. Direct debit is still the cheapest method of payment, with a combined bill of £1,209, £41 cheaper than prepayment.

- For actual annual consumption levels, the average bill fell by £36 (3.1%) in cash terms to £1,112 in 2017. Despite the price effect resulting in a £13 rise in bills, this was outweighed by average consumption falling, which has the effect of reducing bills by £49.

- For the period January to June 2017, UK prices for domestic electricity for medium consumers including taxes were the fifth lowest highest in the EU15. UK domestic gas prices for medium consumers including taxes were the second lowest in the EU15.

Domestic prices tables are available on the BEIS section of the GOV.UK website at: www.gov.uk/government/collections/domestic-energy-prices
Industrial fuel price indices in real terms including the Climate Change Levy

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Index 2010=100</th>
<th>2017 Q4</th>
<th>Percentage change on a year earlier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal</td>
<td>86.3</td>
<td></td>
<td>+4.5</td>
</tr>
<tr>
<td>Heavy fuel oil</td>
<td>85.7</td>
<td></td>
<td>+8.7</td>
</tr>
<tr>
<td>Gas</td>
<td>98.2</td>
<td></td>
<td>+2.1</td>
</tr>
<tr>
<td>Electricity</td>
<td>113.2</td>
<td></td>
<td>+2.6</td>
</tr>
<tr>
<td>Total fuel</td>
<td>106.1</td>
<td></td>
<td>+3.3</td>
</tr>
</tbody>
</table>

(1) Deflated using the GDP implied deflator. Includes estimates of the average Climate Change Levy (CCL) paid.

- Average industrial gas prices including CCL were 2.1 per cent higher in real terms in Q4 2017 compared to Q4 2016, and prices excluding CCL were also 2.1 per cent higher.

- Average industrial electricity prices including CCL were 2.6 per cent higher in real terms in Q4 2017 compared to Q4 2016 and prices excluding CCL were 2.9 per cent higher.

- Average coal prices including CCL were 4.5 per cent higher in real terms in Q4 2017 compared to Q4 2016 and prices excluding CCL were 5.0 per cent higher. Prices for heavy fuel oil (not subject to CCL) were 8.7 per cent higher in real terms than a year ago.

- For the period January to June 2017, UK prices for medium industrial electricity consumers including taxes were the third highest in the EU15. UK prices for medium industrial gas consumers including taxes were the second lowest in the EU15.

Industrial prices tables are available on the BEIS section of the GOV.UK website at:
www.gov.uk/government/collections/industrial-energy-prices
Typical retail prices of road transport fuels

- Crude oil prices, the key driver of petrol and diesel prices, followed a slow downward trend in the first half of 2017 but since July prices have increased steadily reaching $69 per barrel in January 2018 before falling down to around $65 in mid-March 2018.

- In mid-March 2018, a litre of unleaded petrol was on average 119.1 pence per litre, 0.2 per cent lower than a year earlier and 16 per cent lower than the high of April 2012.

- In mid-March 2018, diesel was on average 123.0 pence per litre, 0.5 per cent higher than a year earlier but 17 per cent lower than the high of April 2012.

- In February 2018, the average UK retail prices for petrol were the tenth highest in the EU. UK diesel prices were the third highest in the EU.

Retail prices of petroleum products | Mid-March 2018(1) | Percentage change on a year earlier
--- | --- | ---
Unleaded petrol (2) | 119.1 | -0.2
Diesel (2) | 123.0 | +0.5

(1) Prices are for ultra low sulphur versions of these fuels.
(2) Prices are provisional estimates.

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Notes to editors
1. More detailed figures of United Kingdom energy production and consumption and of energy prices, for the fourth quarter of 2017 and 2017 as a whole are given in the March 2018 editions of ENERGY TRENDS and ENERGY PRICES respectively, the Department's statistical bulletins on energy, published on 29 March 2018.


3. Articles featured in Energy Trends are also available on the BEIS section of the GOV.UK website at: www.gov.uk/government/collections/energy-trends-articles