

Chapter 5

Electricity

Key points

- Electricity generation (including pumped storage) in the UK increased slightly, from 338 TWh in 2014 to 339 TWh in 2015. Total electricity supply (including net imports) increased by 0.4 per cent to 360 TWh. (Tables 5.5 and 5.1)
- Final consumption of electricity in 2015, at 303 TWh, was broadly the same as in 2014 and at its lowest level since 1995. (Table 5.1).
- Coal's share of generation fell from 30 to 22 per cent in 2015, as generation from coal fell from 100 TWh to 76 TWh; gas's share of generation in 2015 was 30 per cent, broadly similar to 2014, as generation fell slightly by 0.9 per cent to 100 TWh. (Table 5.5)
- Renewables' share of generation increased from 19.1 per cent in 2014 to a record 24.6 per cent in 2015, as a result of increased capacity. (Table 6A, in chapter 6)
- Low carbon electricity's share of generation increased from 39 per cent to a record 46 per cent. This was due to the rise renewables generation but also reflects an increase in nuclear generation (up 10.3 per cent), due to greater availability following outages towards the end of 2014. (Table 5.5)
- Total capacity was 2.7 GW lower at the end of 2015 at 81 GW, with the closure of several stations partially offset by new renewable capacity. (Table 5.6)
- The UK remained a net importer of electricity in 2015, with net imports contributing 5.8 per cent of electricity supply. (Table 5.1)

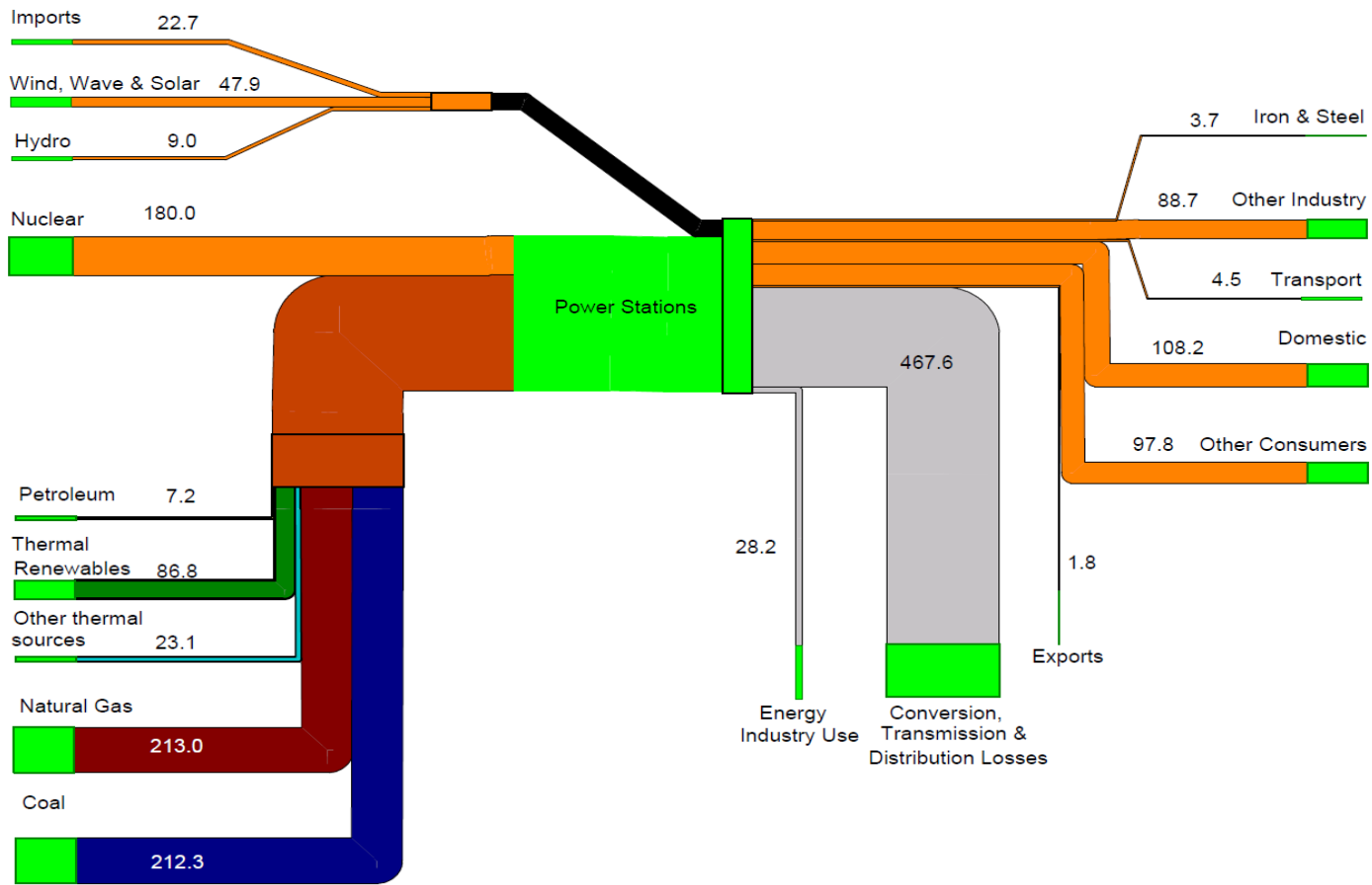
Introduction

5.1 This chapter presents statistics on electricity from generation through to sales, and includes statistics on generating capacity, fuel used for generation, load factors and efficiencies. It also includes a map showing the electricity network in the United Kingdom and the location of the main power stations as at the end of May 2016 (page 127).

5.2 An energy flow chart for 2015, showing the flows of electricity from fuel inputs through to consumption, is included overleaf. This is a way of simplifying the figures that can be found in the commodity balance tables. It illustrates the flow of primary fuels from the point at which they become available for the production of electricity (on the left) to the eventual final use of the electricity produced or imported (on the right) as well as the energy lost in conversion, transmission and distribution.

5.3 Commodity balances for electricity, for each of the last five years, form the introductory table (Table 5.1). Table 5.2 separates out the *public* distribution system for electricity from the electricity generated and consumed by *autogenerators*, using a commodity balance format. Fuels used to generate electricity in the UK in each of the last five years are covered in Table 5.3. Table 5.4 shows the relationship between the commodity balance definitions and traditional Digest definitions of electricity, so that the most recent data can be linked to the long term trends data, which can be found on BEIS's energy statistics website. Table 5.5 shows the relationship between fuels used, generation and supply in each of the latest five years. Tables on plant capacity (Tables 5.6, 5.7, 5.8 and 5.12) and on plant loads and efficiency (Table 5.9) are also included. Table 5.10 lists individual power stations in operation and is supplemented by a table showing large scale Combined Heat and Power (CHP) schemes in the UK (Table 5.11). The long term trends commentary and tables on fuel use, generation, supply and consumption back to 1970 can be found on BEIS section of the GOV.UK website, at: www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

Electricity flow chart 2015 (TWh)



116

Notes:

This flow chart is based on the data in Tables 5.1 (for imports, exports, use, losses and consumption) and 5.5 (fuel used).

1. Hydro includes generation from pumped storage while electricity used in pumping is included under Energy Industry Use.

2. Conversion, Transmission and Distribution Losses is calculated as fuel used (Table 5.5) minus generation (Table 5.5) plus losses (Table 5.1).

Commodity balances for electricity (Table 5.1)

5.4 In 2015, the total UK electricity supply was 360 TWh, broadly the same as 2014. Of this total supply, just over 94 per cent was home produced with the rest from imports, net of exports. For electricity, supply is totally driven by demand – the impacts of improving energy efficiency and overall warmer temperatures, left final consumption in 2015 at its lowest level in a series since 1998 (see paragraph 5.10). Table 5A below summarises the trend in total generation and supply over the last three years.

Table 5A: Electricity generation and supply

	2013	2014	2015
Total Generation (excl. pumped storage)	355,474	335,291	336,356
Total Supply	372,804	358,694	360,034

5.5 In 2015, indigenous production rose slightly by 0.3 per cent on 2014. Of the 336 TWh produced (excluding pumped storage production), 87 per cent was from major power producers and 13 per cent from other generators, while 37 per cent was from primary sources (including nuclear, wind, solar and hydro) and 63 per cent from secondary sources (including coal, gas, oil, bioenergy and non-bio waste).

5.6 **Net imports in 2015 were up by 2.0 per cent on 2014, to a record 21 TWh.** Imports fell by 2.3 per cent whilst exports were down by 35 per cent. In 2015, net imports from continental Europe via interconnectors with France and the Netherlands decreased by 4.3 per cent to 22 TWh, with the France interconnector running at 79 per cent utilisation (down from 85 per cent in 2014) and the Netherlands interconnector running at a record 91 per cent utilisation (up slightly from 90 per cent in 2014). Net exports to the Republic of Ireland fell to under 1 TWh from 2.3 TWh in the previous year. Of this, net exports to the Republic of Ireland in 2015 via the Wales interconnector, which opened in 2012, were down by 56 per cent compared to 2014. Overall exports to the Republic of Ireland accounted for 90 per cent of UK exports in 2015. Net imports contributed 5.8 per cent of electricity supply in 2015 (up 0.1 percentage point on the previous year). Table 5B below shows the UK's net imports via interconnectors during the past three years.

Table 5B: Net Imports via interconnectors 2013 to 2015

	France - UK ¹	Ireland - N. Ireland ²	Netherland - UK ¹	Ireland - Wales ¹	Total
2013	10,302	-45	6,335	-2,161	14,431
2014	14,951	121	7,856	-2,408	20,520
2015	13,838	167	7,999	-1,065	20,938

1. Figures taken from the demand data available on the National Grid website at www2.nationalgrid.com/UK/Industry-information/Electricity-transmission-operational-data/Data-Explorer/.

2. Figures taken from data available on the SEMO website at www.semo.com/marketdata/pages/energysettlement.aspx.

5.7 Electricity generated by each type of fuel is also shown on the second page of Table 5.1. The link between electricity generated and electricity supplied is made in Table 5.5, and is discussed further in paragraphs 5.25 to 5.32.

5.8 Overall electricity demand fell by only 0.4 per cent, from 360 TWh in 2014 to 358 TWh in 2015. Of total demand, 28 TWh (7.9 per cent) was used within the energy industry; 27 TWh (7.7 per cent) was accounted for by losses, and 303 TWh (84 per cent) was final consumption, which was broadly similar to 2014 and remaining at its lowest level in a series since 1998. Electricity demand broadly equals supply, although for a number of reasons there is a small difference which is termed the statistical difference¹.

5.9 Temperatures influence the actual level of consumption especially in the winter months, as customers adjust heating levels in their homes and businesses. The average temperature for the winter months (covering December to February) in 2014-15 was 1.3 degrees cooler than the same

¹ Further explanations of the statistical difference can be found in paragraph 5.91 and in paragraph A.19 of DUKES annex A.

period a year earlier. In 2015, the daily average temperature was 0.6 degrees cooler than in 2014 while the average temperature during the first six months of 2015 was 1.3 degrees cooler than in 2014.

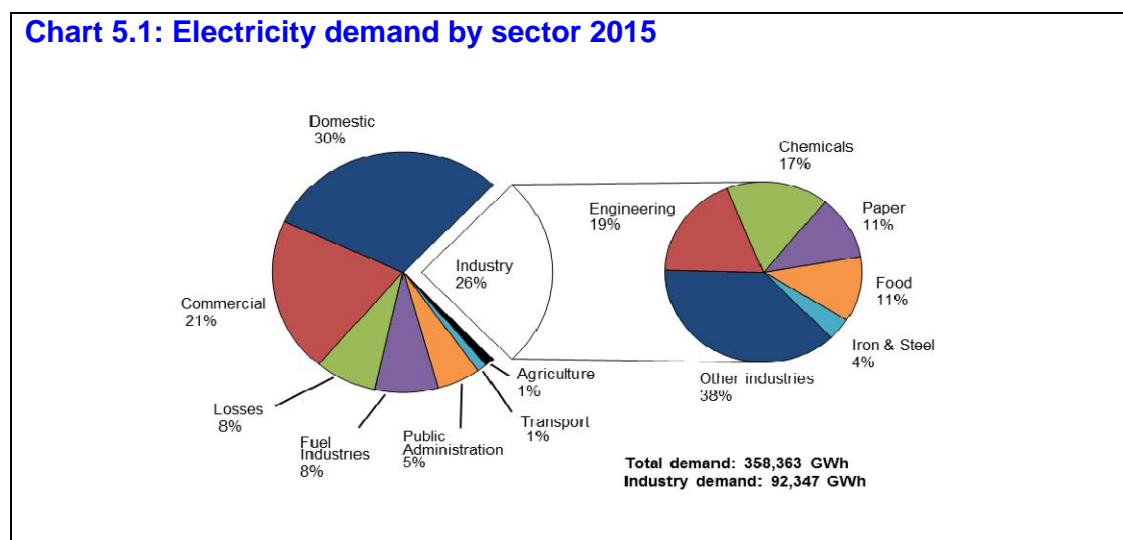
5.10 Despite the slightly cooler temperatures in 2015, domestic consumption dropped slightly by 0.2 per cent, from 108.3 TWh in 2014 to 108.2 TWh. Domestic consumption has generally been declining on account of milder winters and continuing energy efficiency improvements. Commercial sector consumption in 2015 fell by 0.6 per cent, to 74.5 TWh. Agriculture consumption rose by 6.3 per cent, while public administration consumption rose by 3.9 per cent.

5.11 Since 2010 industrial consumption has fallen with a slight decrease in 2015 of 0.4 per cent on 2014, from 92.8 TWh to 92.3 TWh. Iron and steel fell by 2.6 per cent, while the other sectors across the industrial sector fell by 0.4 per cent.

5.12 Consumption in the transport sector fell slightly by 0.6 per cent in 2015, to 4.5 TWh. Of this total electricity consumption in the transport sector, 98 per cent came from rail with the rest from road which increased by 44 per cent to 97 GWh in 2015 as **the number of electric vehicles increased from 20,000 to 29,000²**.

5.13 Industrial consumption accounted for 26 per cent of total demand for electricity, less than the share of consumption by households (30 per cent), with transport and the services sector accounting for 29 per cent. Within the industrial sector, the three largest specified consuming industries are chemicals, food and paper, which together account for 40 per cent of industrial consumption. Taken together, the engineering industries and vehicles accounted for a further 19 per cent of industrial consumption of electricity. The iron and steel sector is also a substantial user of electricity but part of its consumption is included against blast furnaces and coke ovens under energy industry uses. A note on the estimates included within these figures can be found in paragraphs 5.86 to 5.89. Chart 5.1 shows the total demand for electricity in 2015, by final consumer.

Chart 5.1: Electricity demand by sector 2015



5.14 Consumption by the energy industries fell by 0.8 per cent. This was despite an increase in the amount of electricity used in generation, which accounts for 59 per cent of the energy industries' total use of electricity in 2015. This was offset by large decreases in use in the coal extraction and manufacture and blast furnace industries reflecting the decline in production in the steel and coke industries. Additionally, 13 per cent of energy industry use is accounted for by pumping at pumped storage stations (see 'pumped storage' line in Table 5.1), while petroleum refineries are also significant consumers with 17 per cent of energy industry use. Energy industry use as a proportion of total demand was 7.9 per cent in 2015.

² Road use is based on data from the Department for Transport on the number of electric cars (table VEH0203, available at www.gov.uk/government/statistical-data-sets/veh02-licensed-cars) and the number of light goods vehicles (table VEH0403, available at www.gov.uk/government/statistical-data-sets/veh04-licensed-light-goods-vehicles).

5.15 Losses as a proportion of electricity demand in 2015, at 7.7 per cent, were down by 0.3 percentage points on 2014 (8.0 per cent). Losses comprise three components³:

- transmission losses (7.4 TWh) from the high voltage transmission system, which represented about 27 per cent of the losses figure in 2015;
- distribution losses (19 TWh), which occur between the gateways to the public supply system's network and the customers' meters, and accounted for about 69 per cent of losses; and
- theft or meter fraud (just under 1.0 TWh, around 4 per cent).

Commodity balances for the public distribution system and for other generators (Table 5.2)

5.16 Table 5.2 expands on the commodity balance format to show consumption divided between electricity distributed over the public distribution system (PDS) and electricity provided by other generators (largely autogeneration and generation from renewable sources). Major power producers (MPPs) provide the majority of power to the PDS, with the remainder made up of transfers from other generators and net imports. Further information on the definitions of other generators and MPPs can be found in paragraph 5.66. Table 5.2 also expands the domestic sector (to show consumption by payment type) and the commercial sector (to show detailed data beyond that presented in Table 5.1).

5.17 The proportion of electricity supplied by the public distribution system dropped slightly (1 percentage point) to 93 per cent in 2015. Of the electricity supplied by other generators, 43 per cent (19 TWh) was transferred to the public distribution system in 2015, which was almost similar to 2014.

5.18 In 2015, 5.7 per cent of final consumption of electricity was by other generators and did not pass over the public distribution system. This was a slight increase on the 5.0 per cent in 2014. A substantial proportion of electricity used in the energy industries is self-generated (around 24 per cent in 2015). At petroleum refineries the proportion is even higher; in 2015, 72 per cent of electricity consumed was self-generated.

5.19 In 2015, 9.0 per cent of the industrial demand for electricity was met by autogeneration, an increase of 0.4 percentage points on the previous year. Table 1.9 in Chapter 1 shows the fuels used by autogenerators to generate this electricity within each major sector and also the quantities of electricity generated and consumed.

5.20 Of the electricity consumed by the domestic sector in 2015, 20 per cent was reported as being purchased under some form of off-peak pricing structure (e.g. Economy 7). Just under 16 per cent of consumption was through prepayment systems, broadly unchanged from the level in 2014.

5.21 Domestic consumption of electricity produced, and consumed, by households with micro-generation units (such as solar photovoltaic panels) installed is also shown in the table from 2010. The number of these installations has increased sharply since the Great Britain Feed in Tariff (FiT) scheme was launched in April 2010 (see paragraph 6.18 for further information on FiTs uptake). **In 2015, consumption of self-produced electricity by the domestic sector increased by 26 per cent on 2014**, to stand at 1,180 GWh, which was more than fifty times the 23 GWh consumed in 2010. However, self-produced electricity still remains around 1 per cent of domestic consumption.

Electricity fuel use, generation and supply (Tables 5.3 & 5.5)

5.22 In Table 5.3, fuel used by electricity generators is measured in both original units and, for comparative purposes, in the common unit of million tonnes of oil equivalent. In Table 5.5, figures are quoted in a third unit, namely GWh, in order to show the link between fuel use and electricity generated⁴ as well as showing generation from conventional steam stations and from combined cycle gas turbine stations over the most recent five years.

5.23 A historical series of fuel used in generation on a consistent, energy supplied, fuel input basis is available at Table 5.1.1 on the BEIS section of the GOV.UK website and accessible from the Digest of

³ See paragraph 5.78 for further information on the calculation of losses.

⁴ Conversion factors for switching between mtoe, GWh and other units of energy can be found on the inside back cover page.

UK Energy Statistics home page: www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

5.24 **Despite a small increase in generation, fuel used in 2015 fell 2.7 per cent**, from 70.3 million tonnes of oil equivalent (mtoe) to 68.3 mtoe, due to increases in 100 per cent efficient wind and solar generation (where the fuel use is the same as the generation), and a reduction in generation from less thermally efficient coal. Coal use was down by 24 per cent, and gas use down by 2.2 per cent.

5.25 Total electricity generated (including pumped storage) in the United Kingdom in 2015 was 339 TWh, an increase of 0.3 per cent on the 338 TWh in 2014. Major power producers (MPPs, as defined in paragraph 5.67) accounted for 87 per cent of electricity generation in 2015. Generation by MPPs was down 1.7 per cent on 2014, at 296 TWh, while generation by other generators was 16 per cent up on a year earlier, at 43 TWh.

5.26 In 2015 there was a 10.3 per cent increase in generation from nuclear, from 64 TWh to 70 TWh. This was following a decrease in generation in 2014 due to maintenance outages at a number of plants.

5.27 Generation from gas decreased by 0.9 per cent, from 101 TWh in 2014 to 100 TWh in 2015. In 2015, generation from coal decreased 25 per cent, from 100 TWh in 2014 to 76 TWh due to the closure of several power stations and the conversion of a third unit at Drax from coal to high-range co-firing (85% to <100% biomass). Generation by coal in the 'Other Generators' sector had seen a large fall in 2013, due to Lynemouth power station being re-classified as a MPP (following the closure of the aluminium smelter it previously powered).

5.28 In 2015, generation from oil rose slightly to 2.1 TWh, a 12.5 per cent increase on 2014 (which was the lowest level in the last nineteen years), but a fall of 4.6 TWh on 2008's ten year high.

5.29 **Generation by all renewable sources⁵ rose 29 per cent, to 84 TWh, between 2014 and 2015.** Increased capacity in 2015 resulted in overall wind and solar generation⁶ increasing by 33 per cent to 48 TWh. **With rainfall levels in catchment areas during 2015 around 13 per cent higher than 2014, hydro generation increased by 6.7 per cent**, from 5.9 TWh to a record 6.3 TWh. Over the same period, **generation from bio-energy (including biodegradable wastes) rose 30 per cent to 29 TWh**, due to the conversion of third unit at Drax from coal to high-range co-firing (85% to <100% biomass) during 2015⁷. More information on renewable electricity can be found in Chapter 6.

5.30 Table 5.5 also shows electricity supplied data, which deducts stations' own use of electricity from its generation. These data take into account the fact that some stations use relatively more electricity than others in the generation process itself. In total, gross electricity supplied in 2015 was 0.2 per cent higher than in 2014, at 322 TWh. For coal-fired stations it was 25 per cent less, for nuclear it was 10.3 per cent more, and for gas stations it was 0.9 per cent less.

5.31 Chart 5.2 shows the share of 2015 generation by fuel, on an output basis (i.e. the percentage of electricity generated by the fuel), compared with 2014. Further information on this, and the alternative, input basis, of comparing fuel use, can be found in paragraphs 5.74 to 5.75.

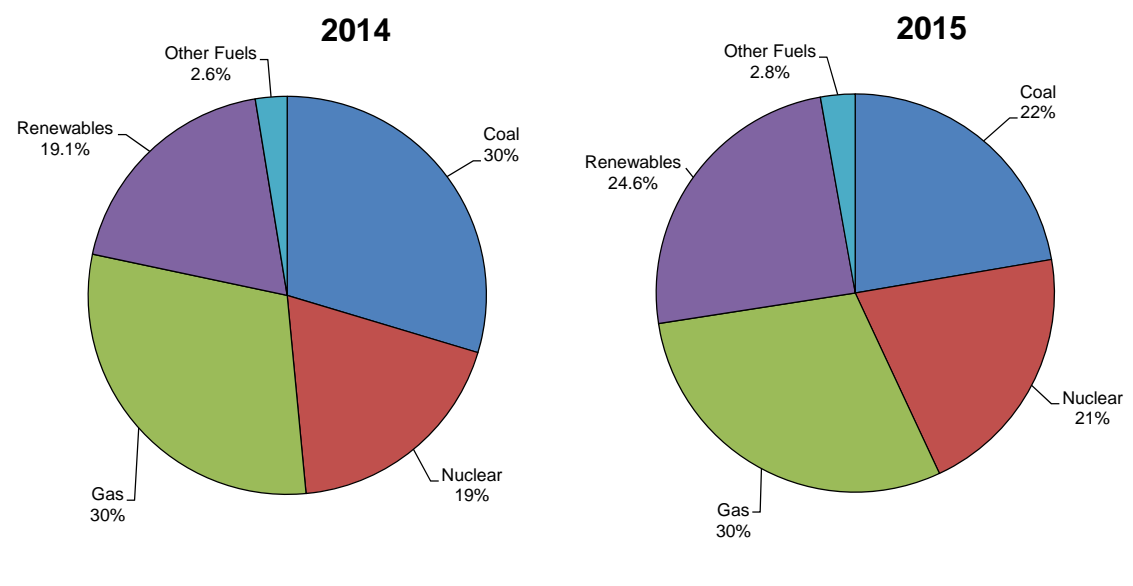
5.32 Gas's share of generation in 2015, at 30 per cent, was 0.3 percentage points lower than in 2014. Coal's share, at 22 per cent, was 7.3 percentage points below that in 2014. Nuclear's 21 per cent share was 1.8 percentage points higher than in 2014. Renewables' share increased from 19.1 per cent in 2014 to a new record 24.6 per cent in 2015. Other fuels, including oil and pumped storage, increased from 2.6 per cent in 2014 to 2.8 per cent in 2015.

⁵ Renewables includes wind, natural flow hydro, solar, wave, tidal and bioenergy (including co-firing).

⁶ Including generation from wave and tidal.

⁷ For consistency with the Renewables chapter (Chapter 6), non-biodegradable wastes (previously included in thermal renewables / bio-energy) have been moved to the 'other fuels' category for 2007 onwards for autogeneration and for 2013 onwards for MPPs. Prior to this, they remain in thermal renewables.

Chart 5.2: Shares of electricity generation, by fuel



Relating measurements of supply, consumption and availability (Table 5.4)

5.33 Table 5.4 shows the relationship between these terms for the latest five years. For the full definitions of the terms used in the commodity balances see Annex A, paragraphs A.7 to A.42.

Plant capacity (Tables 5.6, 5.7 and 5.8)

5.34 Table 5.6 shows capacity, i.e. the maximum power available at any one time, for MPPs and other generators by type of plant. From 2006 onwards, MPP capacities are measured in Transmission Entry Capacity (TEC) terms, rather than Declared Net Capacity (DNC)⁸.

5.35 **In 2015, total capacity of all generators was 80,820 MW, down 3.3 per cent** from the 83,543 MW installed at the end of 2014. MPPs fell by 3,817 MW, from 75,696 MW to 71,879 MW. This was mostly due to the closure of Littlebrook D (in Kent) and Wylfa (in Anglesey), along with Killingholme A and B (both in Lincolnshire) going into Supplemental Balancing Reserve (SBR - stations in SBR are closed but are made available in times of need, e.g. during winter periods when electricity demand is high). Some of this reduction in capacity was offset by the increase in wind capacity (de-rated, see paragraph 5.79), which increased by 394 MW in 2015, along with a 743 MW increase in capacity of renewables other than hydro and wind. The past six years have seen the closure, capacity reduction, full/partial mothballing or conversion to biomass of several large power stations. These are summarised in table 5C below.

⁸ The effect of this change has been to increase the capacity of MPPs by about 2,000 MW in total. A full definition of TEC and DNC is given in paragraph 5.79. Wind, small scale hydro, and solar photovoltaic DNC is de-rated to take into account intermittency. Renewables installed capacity figures are given in table 6.4.

Table 5C: Major Power Producers capacity closed, converted or reduced (as at end of May 2016), since end-2010

Site	Fuel	Status	Previous Capacity (MW)	New Capacity (MW)	Year of closure, capacity reduction or conversion
Fife	CCGT	Closed	123	0	2011
Derwent	CCGT-CHP	Closed	228	0	2012
Shotton	CCGT-CHP	Closed	210	0	2012
Kingsnorth A	Coal/Oil	Closed	1,940	0	2012
Grain A	Oil	Closed	1,300	0	2012
Oldbury	Nuclear ¹	Closed	434	0	2012
Wylfa (Reactor 1)	Nuclear ²	Partially Closed	980	490	2012
Keadby	CCGT	Mothballed	749	0	2013
Kings Lynn	CCGT	Mothballed	340	0	2013
Roosecote	CCGT	Mothballed	229	0	2013
Cockenzie	Coal	Closed	1,152	0	2013
Drax	Coal ³	Partially Converted	3,870	3,225	2013
Drax	Biomass	Partially Converted	0	645	2013
Ironbridge	Coal ⁴	Converted	940	360	2013
Tilbury B	Coal ⁵	Closed	750	0	2013
Didcot A	Coal/Gas	Closed	1,958	0	2013
Fawley	Oil	Closed	1,036	0	2013
Teeside	OCGT ⁶	Closed	45	0	2013
Ferrybridge C	Coal ⁷	Partially Closed	1,960	980	2014
Drax	Coal ³	Partially Converted	3,225	2,580	2014
Drax	Biomass	Partially Converted	645	1,290	2014
Uskmouth	Coal ⁸	Mothballed	363	0	2014
Barking	CCGT	Closed	1,000	0	2014
Littlebrook D	Oil	Closed	1,370	0	2015
Drax	Coal ³	Partially Converted	2,580	1,935	2015
Drax	Biomass	Partially Converted	1,290	1,935	2015
Ironbridge	Biomass	Closed	360	0	2015
Killingholme A	CCGT	SBR ⁹	665	0	2015
Killingholme B	CCGT	SBR ⁹	900	0	2015
Lynemouth	Coal	Mothballed	420	0	2015
Wylfa (Reactor 2)	Nuclear ²	Closed	490	0	2015
Ferrybridge C	Coal ⁷	Closed	980	0	2016
Longannet	Coal	Closed	2,260	0	2016

1. Reactor 2 with capacity of 217 MW closed on 30 June 2011, reactor 1 with capacity of 217 MW closed on 29 February 2012.

2. Reactor 1 closed on 30 April 2012, reactor 2 closed on 31 December 2015 (both with a capacity of 490 MW).

3. Partly converted to biomass. One unit (645 MW) converted to biomass in 2013, a second unit (also 645 MW) converted to biomass in 2014 and a third unit (also 645 MW) converted to high-range co-firing (85% to <100% biomass) in 2015. Overall capacity remains at 3,870 MW (coal 1,935 MW, biomass 1,935 MW).

4. Converted from coal to dedicated biomass in 2013 (at 900 MW), before reducing to 360 MW in April 2014.

5. Converted from coal at 1,063 MW capacity to dedicated biomass at 750 MW capacity in 2011 before closing in 2013.

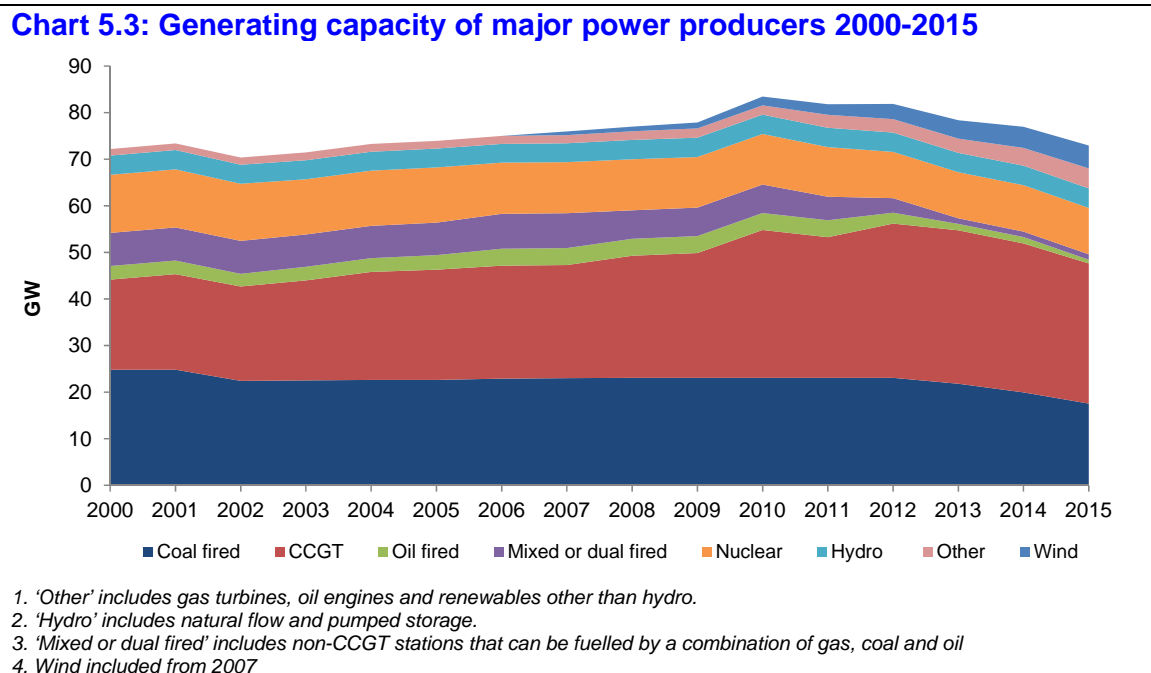
6. Reduced capacity from 1,875 MW (CCGT 1,830 MW / OCGT 45 MW) to 45 MW (OCGT) in 2011 before closing in 2013.

7. Two units (980 MW) closed in April 2014 and the second unit (980 MW) closed in March 2016.

8. One unit (120 MW) closed in April 2013, with the remaining two closing in April 2014.

9. Station placed on Supplemental Balancing Reserve – the station is closed but will be available in times of need, eg. during winter periods when electricity demand is high.

5.36 At the end of 2015, MPPs accounted for 89 per cent of the total generating capacity, 1.7 percentage points down from 2014. The capacity of other generators increased by 1,094 MW (13.9 per cent), with a 769 MW increase in capacity from renewables other than hydro and wind, a 351 MW increase in capacity from solar⁹ and a 145 MW increase in wind capacity. This was partially offset by a net 152 MW decrease in Combined Cycle Gas Turbine (CCGT) stations and a 30 MW decrease in conventional thermal steam. A breakdown of the capacity of the MPPs' plants at the end of December each year from 2000 to 2015 is shown in Chart 5.3.



5.37 Table 5.7 separates the capacities of MPPs geographically to show England and Wales, Scotland and Northern Ireland. In 2015, 83 per cent of the generating capacity in the UK owned by MPPs was in England and Wales, 14 per cent was in Scotland and 3.5 per cent in Northern Ireland. Of the net decrease in UK MPP capacity of 3,816 MW between 2014 and 2015, there was a 3,991 MW fall in England and Wales and a 153 MW increase in Scotland. The capacity in Northern Ireland increased by 22 MW between 2014 and 2015.

5.38 In Table 5.8, data for the generating capacity for generators other than MPPs are shown according to the industrial classification of the generator. For CHP, schemes are classified according to the sector that receives the majority of the heat (as opposed to the sector in which the CHP operator was considered to operate). In 2015, 65 per cent of capacity was in the commercial and domestic sectors, a 6.4 percentage points increase on a year earlier¹⁰. In 2015, the chemicals sector and the oil and gas terminals and oil refineries sector each had 8 and 10 per cent of capacity respectively, while engineering and other metal trades had a 1.9 per cent share and paper, printing and publishing and food, drink and tobacco had a combined share of 11 per cent.

5.39 In addition to tables 5.6-5.8, table 5.12 showing installed capacity, disaggregated by connection type (high voltage or low voltage) and technology, can be found on the BEIS section of the GOV.UK website, at: www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes.

⁹ Includes solar photovoltaic capacity installed under the Feed in Tariff (FiT) scheme. For further information on FiTs, see Chapter 6.

¹⁰ The total capacity of 'Other Generators' fell in 2007 as, from this point, the capacity of major wind farm operators are included under MPPs (see paragraph 5.68). In 2008, Shotton CHP plant was re-classified as a MPP as the electricity generated is now exported to the grid rather than for use in the nearby paper mill. This change in classification led to a fall in capacity in the paper, printing and publishing sector.

Plant loads, demand and efficiency (Table 5.9)

5.40 Table 5.9 shows the maximum load met each year, load factors (by type of plant and for the system in total) and indicators of thermal efficiency. Maximum demand figures cover the winter period ending the following March. With the advent of the British Electricity Trading and Transmission Arrangements (BETTA) (see paragraph 5.54), England, Wales and Scotland are covered by a single network and a single maximum load is shown for Great Britain for 2006 to 2015.

5.41 Maximum load (demand) in the UK (52,735 MW) during the winter of 2015/2016 occurred on 18 January 2016, in the half-hour ending 17:30; this was 2.1 per cent lower than the previous winter's maximum (on 19 January 2015). This occurred at the time of maximum demand in Great Britain (51,100 MW); at this time, Northern Ireland had a load of 1,653 MW. In Northern Ireland, the maximum load occurred on 11 January 2016 at the period ending 17:30 (1,679 MW), which was 5.1 per cent below that of the previous winter.¹¹

5.42 **Maximum demand in 2015/2016 was 72 per cent of the UK capacity of major power producers** (as shown in Table 5.6) as measured at the end of December 2015, a 3.1 per cent increase on 2014/2015.

5.43 In Great Britain, maximum demand in 2015/2016 was 72 per cent of the England, Wales and Scotland capacity of MPPs (Table 5.7). For Northern Ireland, the proportion was 67 per cent (52 per cent in 2015/16). These percentages do not include the capacities available via the interconnectors with neighbouring grid systems nor demand for electricity via these interconnectors.

5.44 Plant load factors measure how intensively each type of plant has been used. The load factor of nuclear stations in 2015 at 75.1 per cent was 6.8 percentage points higher than in 2014, due to planned and unplanned outages at four EDF nuclear stations at the end of 2014¹². The CCGT load factor increased to 31.7 per cent, following a first increase since 2009 in 2014. Between 2014 and 2015, the load factor for coal fired power stations decreased by 10 percentage points, to 37.9 per cent, a record low.

5.45 Load factors for natural flow hydro and wind (as well as other renewables) can be found in table 6.5¹³. **Onshore wind speeds in 2015 were the highest in the last fifteen years**, and up 7.2 per cent (0.6 knots) on 2014. This resulted in the highest onshore wind load factor (on an unchanged configuration basis), at 29.4 per cent, since 1999, and an increase of 3.0 percentage points on 2014. Similarly, offshore wind load factors were at a record 39.7 per cent, 1.9 percentage points up on 2014, reflecting the higher wind speeds and technological advances in newer sites. **The overall wind load factor (on an unchanged configuration basis) was a record 33.3 per cent, higher than the load factor for CCGT stations in 2015.** Rainfall (in the main hydro areas) was 13 per cent higher in 2015 compared to 2014, leading to an increase in the hydro load factor (on an unchanged configuration basis) of 0.9 percentage points, from 38.8 per cent to a five year high of 39.8 per cent in 2015¹⁴. Pumped storage use is less affected by the weather and the load factor fell successively from 2009 to 2011, as lower peak time demand for electricity and lower prices deterred its use. In 2015, the load factor fell by 0.6 percentage points from 2014 to 11.4 per cent.

5.46 Thermal efficiency measures the efficiency with which the heat energy in fuel is converted into electrical energy. Generally, nuclear efficiency has remained between 38 and 40 per cent over the last decade, with a fall of 0.5 percentage points from 2014 to 39.1 per cent in 2015. The efficiencies presented here are calculated using **gross** calorific values to obtain the energy content of the fuel inputs¹⁵.

¹¹ In Great Britain the highest ever load met was 60,118 MW on 10 December 2002.

¹² This is based on the end of year nuclear capacity which does not include Wylfa, which closed at the end of December. With Wylfa included, the nuclear load factor would be 73.4 per cent.

¹³ The load factors presented in table 5.9 use transmission entry capacity (as presented in table 5.6). For hydro and wind, this has been de-rated for intermittency, so is not suitable for calculating load factors. The installed capacity measure used in Chapter 6 has not been de-rated.

¹⁴ For renewables load factors, including the unchanged configuration and standard (average beginning and end of year) measures, see table 6.5

¹⁵ For more information on gross and net calorific values, see paragraph 5.81

Power stations in the United Kingdom (Tables 5.10, 5.11 and 5.12)

5.47 Table 5.10 lists the operational power stations owned by Major Power Producers in the United Kingdom as at the end of May 2016, along with their installed capacity and the year they began to generate electricity. Where a company operates several stations they are grouped together.

5.48 Table 5.11 shows CHP schemes of 1 MW and over for which the information is publicly available. However, it is the total power output of these stations that is given, not just that which is classed as good quality CHP under the CHP Quality Assurance programme (CHPQA, see Chapter 7), since CHPQA information for individual sites is not publicly available.

5.49 In Table 5.10, generating stations using renewable sources are also listed in aggregate form in the “Other power stations” section apart from biomass/waste stations operated by the major power producers, which appear in the main table. For completeness, CHP stations not appearing in the main table are included in aggregate in this section. Details of the interconnectors between England and France, England and the Netherlands, Scotland and Northern Ireland, Northern Ireland and the Irish Republic, and Wales and the Irish Republic are also given in this table. The total installed capacity of all the power stations individually listed in Table 5.10 is 60,235 MW¹⁶.

5.50 Table 5.12 shows capacity of the transmission and distribution networks for Great Britain, Northern Ireland and the United Kingdom as a whole. Transmission network connected capacity for the UK as a whole has reduced each year since 2012 due to closures and conversions of coal, oil and gas plants. These closures have been slightly offset by the increase in renewables capacity, in particular bioenergy which increased by 23 per cent in 2015 due to the conversion of a third unit at Drax from coal to high-range co-firing (85% to <100% biomass). **The capacity of the distribution network has increased each year since 2011** for Great Britain and Northern Ireland, with capacity in 2015 in each around double that of 2011, driven by increasing quantities of embedded solar and wind. In 2015, distribution-connected capacity in Great Britain increased by 25 per cent (4.8 GW) on 2014, with 69 per cent of this increase (3.7 GW) attributable to solar. **In 2015, total installed capacity across all networks in the UK was 96.0 GW, up 1.3 per cent on 2014.** Of all capacity in Great Britain, 74 per cent was estimated to have been connected to the transmission network in 2015, and 73 per cent in Northern Ireland.

Carbon dioxide emissions from power stations

5.51 **It is estimated that carbon dioxide emissions from power stations accounted for 26 per cent of the UK’s total carbon dioxide emissions in 2015.** Emissions vary by type of fuel used to generate the electricity and emissions estimates for all electricity generation for 2013 to 2015 are shown in Table 5D below.

Table 5D: Estimated carbon dioxide emissions from electricity supplied 2013 to 2015^{1,2}

Fuel	Emissions (tonnes of carbon dioxide per GWh electricity supplied)		
	2013	2014	2015 ³
Coal	910	907	920
Gas	384	388	379
All fossil fuels	691	652	618
All fuels (including nuclear and renewables)	449	400	332

1. The carbon intensity figures presented in Table 5D are different to those produced for the Greenhouse Gas Inventory (GHGI). The differences arise due to slightly differing methodologies, including geographical coverage and treatment of autogenerators but principally because the GHGI presents figures based on a 5-year rolling average whereas those in Table 5D are presented as single year figures.

2. The numerator includes emissions from power stations, with an estimate added for auto-generation. The denominator (electricity supplied by all generators) used in these calculations can be found in table 5.5, with the figure for All fuels in 2015 being 318,712 GWh.

3. The 2015 emissions figures are provisional.

¹⁶ The total installed capacity for stations listed in table 5.10 differs from the total in table 5.6, as the latter is on a Transmission Entry Capacity basis, and taken as at the end of 2015. See paragraph 5.79 for more information on the measures of capacity.

Sub-national electricity data

5.52 The collection of data relating to regional and local consumption of electricity began in 2004. For details of the availability of local level electricity (and gas) data see Chapter 4, paragraph 4.17 and the sub-national electricity statistics pages on the BEIS section of the GOV.UK website at:

www.gov.uk/government/collections/sub-national-electricity-consumption-data. A summary of electricity consumption at regional level is given in Table 5E and relates to 2014. The regional data will not sum exactly to the figures given in table 5.4 as the regional data are not based exactly on a calendar year and are obtained via different data sources.

Table 5E: Electricity sales 2014

	Domestic sector sales (GWh)	Number of domestic customers (thousand) ¹	Industrial and commercial sector sales (GWh)	Number of I & C customers (thousand) ¹	All consumers sales (GWh)
North East	4,099	1,200	7,645	83	11,744
North West	11,974	3,146	20,301	240	32,275
Yorkshire and the Humber	8,627	2,347	15,497	182	24,124
East Midlands	7,749	1,999	14,231	161	21,980
West Midlands	9,474	2,377	15,682	197	25,156
East of England	11,016	2,575	15,970	218	26,986
Greater London	13,204	3,456	27,753	403	40,957
South East	16,133	3,759	22,550	336	38,683
South West	10,369	2,465	15,330	255	25,699
Wales	5,182	1,388	11,644	128	16,826
Scotland	10,695	2,730	14,815	212	25,510
Unallocated	648	169	4,737	21	5,385
Great Britain	109,170	27,611	186,155	2,436	295,325
Northern Ireland ²					7,839
Sales direct from high voltage lines ³					3,373
Total					306,537

1. Figures are the number of Meter Point Administration Numbers (MPANs); every metering point has this unique reference number.

2. Northern Ireland data are based on data for electricity distributed provided by Northern Ireland Electricity.

3. Based on estimate provided by Ofgem.

5.53 Table 5F provides domestic electricity market penetration by distribution areas and by payment type. **By the end of March 2016, around 67 per cent of customers were no longer with their home supplier.** Data on the share of supply by the smaller companies are not currently available so the table has not been adjusted for the survey coverage and only contains data from: British Gas, EDF, E.On, RWE, Scottish Power and Scottish and Southern Energy (SSE). As such, the table underestimates non-home suppliers by around 3 percentage points, showing 64 per cent. For all types of domestic customer, it is in the markets in the West Midlands, Yorkshire and the North East of England that new suppliers have had most success. As of the end of 2015, the share of the market not supplied by the home supplier stood at 57 per cent of the credit market, 68 per cent of the direct debit market, and 63 per cent of the pre-payment market.

Table 5F: Domestic electricity market penetration (in terms of percentage of customers supplied) by Public Electricity Supply area and payment type, fourth quarter of 2015

Region	Home Supplier				Other Major Supplier			
	Credit	Direct Debit	Prepayment	All Payment Types	Credit	Direct Debit	Prepayment	All Payment Types
North East	33	25	21	26	67	75	79	74
West Midlands	33	25	24	27	67	75	76	73
Yorkshire	34	26	24	28	66	74	76	72
North West	37	26	29	29	63	74	71	71
Merseyside & N	39	27	38	32	61	73	62	68
Eastern	42	29	29	33	58	71	71	67
East Midlands	40	31	35	34	60	69	65	66
South East	41	32	36	35	59	68	64	65
South West	44	33	40	37	56	67	60	63
London	44	36	41	40	56	64	59	60
South Scotland	44	35	52	41	56	65	48	59
Southern	54	41	47	45	46	59	53	55
South Wales	61	48	63	54	39	52	37	46
North Scotland	72	60	69	64	28	40	31	36
Great Britain	42	32	38	36	58	68	62	64

Source: Quarterly Energy Price Table 2.4.1: Percentage of domestic electricity customers by region by supplier type at www.gov.uk/government/statistical-data-sets/quarterly-domestic-energy-price-statistics

Data is not adjusted to account for survey coverage. The Domestic Fuels Inquiry survey coverage is estimated at around 88 per cent of the domestic energy market. All those not surveyed are with non-home suppliers.

Structure of the industry

5.54 Up to March 2005 the electricity industries of Scotland, Northern Ireland and England and Wales operated independently although interconnectors joined all three grid systems together. From April 2005, under the British Electricity Trading and Transmission Arrangements (BETTA) introduced in the Energy Act 2004, the electricity systems of England and Wales and Scotland have been integrated. The paragraphs below describe the position up to March 2005 but indicate the further changes that have been made under BETTA.

5.55 From the period immediately after privatisation of the industry in 1990, when there were seven generating companies in England and Wales and 12 Regional Electricity Companies distributing and supplying electricity to customers in their designated area, there were many structural and business changes and residual flotations. Competition developed in mainland Britain as follows:

- (a) From 1 April 1990, customers with peak loads of more than 1 MW (about 45 per cent of the non-domestic market) were able to choose their supplier;
- (b) From 1 April 1994, customers with peak loads of more than 100 kW were able to choose their supplier;
- (c) Between September 1998 and May 1999, the remaining part of the electricity market (i.e. below 100 kW peak load) was opened up to competition. Paragraph 5.52 and Table 5F give more details of the opening up of the domestic gas and electricity markets to competition.

5.56 Since the late 1990s, there have been commercial moves toward vertical re-integration between generating, electricity distribution and/or electricity supply businesses. Those mergers that have taken place were approved by the relevant competition authority. Initially the National Grid Company was owned by the 12 privatised regional electricity companies, but was floated on the Stock Exchange in 1995. National Grid (and its predecessors since 1990) has owned and operated the high voltage transmission system in England and Wales linking generators to distributors and some large customers. The transmission system is linked to continental Europe via an interconnector to France

under the English Channel, and since 1 April 2011, to the Netherlands under the North Sea (see Table 5.10). Up to March 2005, the Scottish transmission system was regarded as being linked to that in England and Wales by two interconnectors but under BETTA National Grid also took on responsibility for operating the system in Scotland, to form a single Great Britain transmission network.

5.57 In Scotland, until the end of March 2005, the two main companies, Scottish Power and Scottish and Southern Energy, covered the full range of electricity provision. They operated generation, transmission, distribution and supply businesses. In addition, there were a number of small independent hydro stations and some independent generators operating fossil-fuelled stations, which sold their output to Scottish Power and Scottish and Southern Energy.

5.58 The electricity supply industry in Northern Ireland has been in private ownership since 1993 with Northern Ireland Electricity plc (NIE) (part of the Viridian Group) responsible for power procurement, transmission, distribution and supply in the Province. Generation is provided by three private sector companies who own the four major power stations. In December 2001, the link between Northern Ireland's grid and that of Scotland was inaugurated. A link between the Northern Ireland grid and that of the Irish Republic was re-established in 1996, along which electricity is both imported and exported. However, on 1 November 2007 the two grids were fully integrated and a joint body SEMO (Single Electricity Market Operator) was set up by SONI (System Operator for Northern Ireland) and Eirgrid from the Republic to oversee the new single market. In July 2012, an interconnector between the Irish Republic and Wales began operations.

5.59 In March 2001, the means of trading electricity changed with the introduction in England and Wales of the New Electricity Trading Arrangements (NETA). This replaced the Electricity Pool of England and Wales. These arrangements were based on bi-lateral trading between generators, suppliers, traders and customers. They were designed to be more efficient and provide greater choice for market participants, whilst maintaining the operation of a secure and reliable electricity system. The system included forwards and futures markets, a balancing mechanism to enable National Grid, as system operator, to balance the system, and a settlement process. In April 2005 this system was extended to Scotland under BETTA.

Comparisons of electricity in the European Union in 2014¹⁷

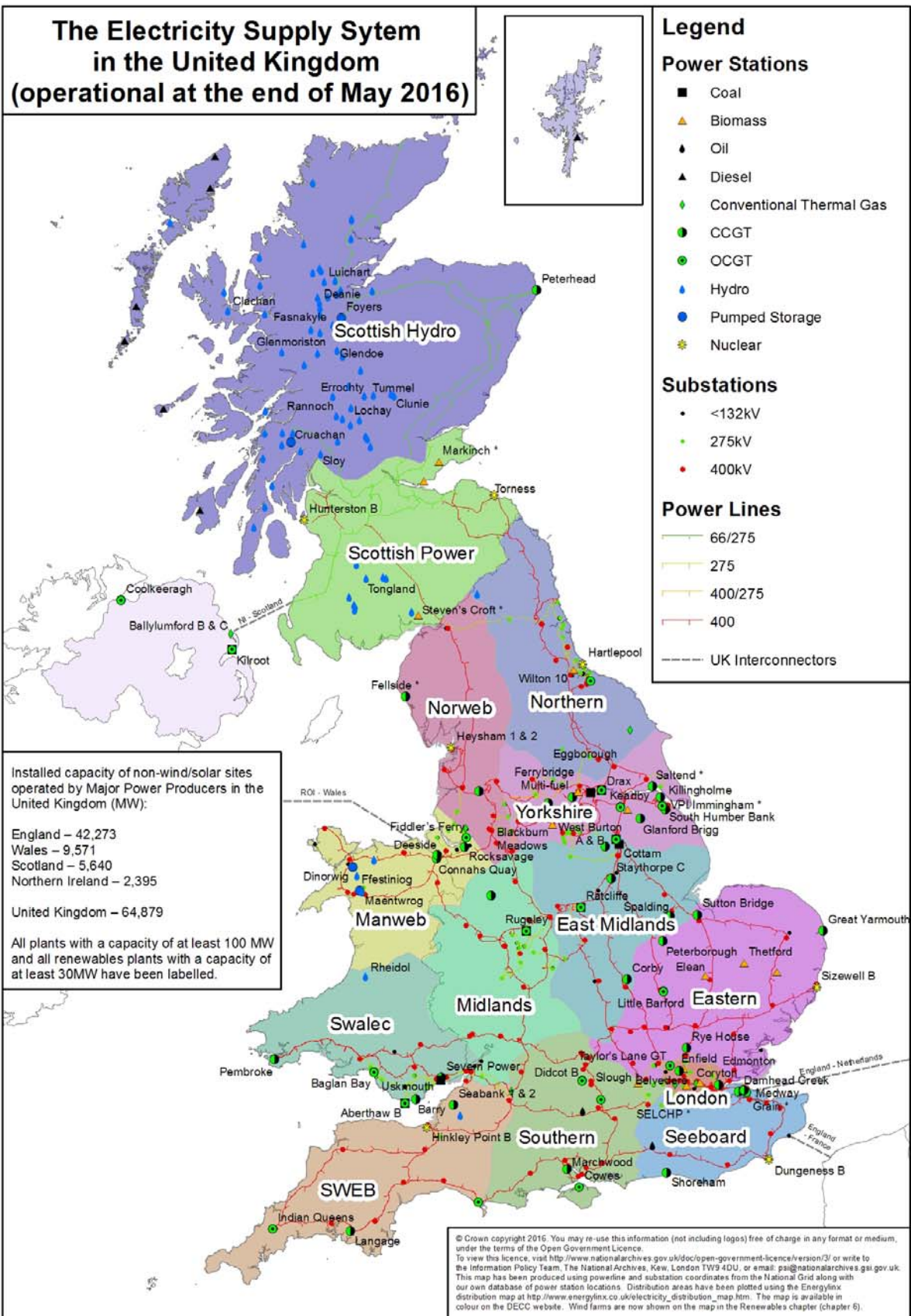
5.60 **The European Union (EU) as a whole generated 3,191 TWh of electricity in 2014. Of this, 11 per cent was generated in the UK.** Germany generated the largest share of electricity in the EU, with 20 per cent. Industry had 37 per cent of EU final electricity consumption, households 29 per cent, services 32 per cent and transport 2 per cent.

5.61 In 2014, the largest sources of the EU's generation were nuclear and coal, with shares of 27 per cent and 25 per cent of total generation respectively and gas 14 per cent. France sources the largest share of its generation from nuclear, with 77 per cent, while 42 per cent of Sweden's electricity is from nuclear. The largest shares of coal in the generation mix are in Germany (with over half coming from lignite/brown coal), with 43 per cent, and Denmark, with 34 per cent. Italy source the largest share of their electricity from gas with 33 per cent of generation in 2014.

5.62 Renewables represented 29 per cent of the EU's generation. Sweden sources 57 per cent of its electricity from renewables (mainly hydro, but also 8 per cent from biomass). Denmark's 58 per cent renewables share comes from wind (41 per cent) and biomass (16 per cent), the highest share of generation from wind in the EU. Spain's 41 per cent renewables share comes mainly from wind (18 per cent) and hydro (15 per cent). Italy had 42 per cent of its generation from renewables, with Germany and France 27 per cent and 17 per cent respectively.

5.63 France's exports, net of imports, were 12 per cent of its generation in 2014, making it the highest net exporter of electricity. For Italy, however, net imports represented 15 per cent of its electricity requirements, making it the highest net importer.

¹⁷ At the time of writing, the latest available data were for 2014. Data from Eurostat, at: <http://ec.europa.eu/eurostat/data/database>



Technical notes and definitions

5.64 These notes and definitions are in addition to the technical notes and definitions covering all fuels and energy as a whole in Chapter 1, paragraphs 1.29 to 1.62. For notes on the commodity balances and definitions of the terms used in the row headings see Annex A, paragraphs A.7 to A.42. While the data in the PDF copy of this Digest cover only the most recent five years, these notes also cover data for earlier years that are available on the BEIS energy statistics web site.

Electricity generation from renewable sources

5.65 Figures on electricity generation from renewable energy sources are included in the tables in this section. Further detailed information on renewable energy sources is included in Chapter 6.

Combined heat and power

5.66 Electricity generated from combined heat and power (CHP) schemes, CHP generating capacities and fuel used for electricity generation are included in the tables in this chapter. However, more detailed analyses of CHP schemes are set out in Chapter 7.

Generating companies

5.67 Following the restructuring of the electricity supply industry in 1990, the term "Major generating companies" was introduced into the electricity tables to describe the activities of the former nationalised industries and distinguish them from those of autogenerators and new independent companies set up to generate electricity. The activities of the autogenerators and the independent companies were classified under the heading "Other generating companies". In the 1994 Digest, a new terminology was adopted to encompass the new independent producers, who were then beginning to make a significant contribution to electricity supply. Under this terminology, all companies whose prime purpose is the generation of electricity are included under the heading "Major power producers" (or MPPs). The term "Other generators" ("Autogenerators" in the balance tables) is restricted to companies who produce electricity as part of their manufacturing or other commercial activities, but whose main business is not electricity generation. "Other generators" also covers generation by energy services companies at power stations on an industrial or commercial site where the main purpose is the supply of electricity to that site, even if the energy service company is a subsidiary of a MPP. Additionally (and particularly since 2010), this category includes generation from the domestic sector.

5.68 The definition of MPPs was amended in 2008 to include major wind farm companies, but this change only applies to data for 2007 onwards. Most generators of electricity from renewable sources (apart from large scale hydro, large scale wind, large scale solar and some biofuels) are also included as "Other generators" because of their comparatively small size, even though their main activity is electricity generation.

5.69 Major wind farm operators have been included under MPPs, for 2007 onwards, in the monthly, quarterly, and annual tables of electricity statistics produced by BEIS. Until then, all generation using wind turbines was excluded from the MPP classification. This was because originally such generation was by small independent companies and collecting data on a monthly basis was prohibitively costly and unnecessarily burdensome on such companies. Similarly, major solar site operators have been included under MPPs for the first time in 2015.

5.70 Generation from wind has now become more concentrated in the hands of larger companies and BEIS has extended its system of monthly data collection to cover the largest wind power companies and, from 2015, solar. The intention is that, in future, any company whose wind generation capacity increases to above 50 MW will be asked to provide monthly data for generation from wind and thus be included in the list of MPPs.

5.71 The inclusion of major wind farm and solar site operators under MPPs affects the majority of the electricity tables in DUKES, with figures for MPPs and the public distribution system increased, and other generators reduced for 2007 onwards due to wind and from 2015 onwards due to solar.

5.72 Major power producers at the end of 2015 were:

AES Electric Ltd, Baglan Generation Ltd, British Energy plc, Coolkeeragh ESB Ltd, Corby Power Ltd, Drax Power Ltd, Eggborough Power Ltd, Energy Power Resources, Ferrybridge Multifuel Energy Limited, Intergen, LondonWaste Ltd, Magnox Ltd, MPF Operations Ltd, Px Ltd, Riverside Resources Recovery Ltd, Semcorp Utilities (UK) Ltd, SELCHP Ltd, Statkraft Energy Ltd, Third Energy Trading Ltd, VPI Immingham LLP.

5.73 Additionally, the following major wind farm companies are included, beginning with data for 2007:

CEP Wind 2 Ltd, Dong Energy, Ecotricity, Eneco Wind UK Limited, Engie, Falck Renewables Ltd, Fred Olsen, Greencoat UK Wind, HG Capital, Infinis, Peel Energy Ltd, Renewable Energy Systems Limited, Statkraft Wind UK Ltd, Vattenfall Wind Power.

Generation from wind farms owned or operated by the following MPPs that had previously been excluded from the MPP category are now included for 2007 onwards:

Centrica Energy, EDF Energy, E.On UK plc, RWE Npower plc, Scottish Power plc, Scottish and Southern Energy plc.

Additionally, the following major solar companies are included, beginning with data for 2015:

Anesco, British Solar Renewables, Cubico Sustainable Investments Limited, Lark Energy, Lightsource.

Types of station

5.74 The various types of station identified in the tables of this chapter are as follows:

Conventional steam stations are stations that generate electricity by burning fossil fuels to convert water into steam, which then powers steam turbines.

Nuclear stations are also steam stations but the heat needed to produce the steam comes from nuclear fission.

Gas turbines use pressurised combustion gases from fuel burned in one or more combustion chambers to turn a series of bladed fan wheels and rotate the shaft on which they are mounted. This then drives the generator. The fuel burnt is usually natural gas or gas oil.

Combined cycle gas turbine (CCGT) stations combine in the same plant gas turbines and steam turbines connected to one or more electrical generators. This enables electricity to be produced at higher efficiencies than is otherwise possible when either gas or steam turbines are used in isolation. The gas turbine (usually fuelled by natural gas or oil) produces mechanical power (to drive the generator) and waste heat. The hot exhaust gases (waste heat) are fed to a boiler, where steam is raised at pressure to drive a conventional steam turbine that is also connected to an electrical generator.

Natural flow hydro-electric stations use natural water flows to turn turbines.

Pumped storage hydro-electric stations use electricity to pump water into a high level reservoir. This water is then released to generate electricity at peak times. Where the reservoir is open, the stations also generate some natural flow electricity; this is included with natural flow generation. As electricity is used in the pumping process, pumped storage stations are net consumers of electricity.

Wind farms use wind flows to turn turbines.

Other stations include stations burning fuels such as landfill gas, sewage sludge, biomass and waste.

Electricity supplied – input and output basis

5.75 The energy supplied basis defines the primary input (in million tonnes of oil equivalent, Mtoe) needed to produce 1 TWh of hydro, wind, or imported electricity as:

$$\text{Electricity generated (TWh)} \times 0.085985$$

The primary input (in Mtoe) needed to produce 1 TWh of nuclear electricity is similarly

$$\frac{\text{Electricity generated (TWh)} \times 0.085985}{\text{Thermal efficiency of nuclear stations}}$$

5.76 Figures on fuel use for electricity generation can be compared in two ways. Table 5.3 illustrates one way by using the volumes of **fuel input** to power stations (after conversion of inputs to an oil equivalent basis), but this takes no account of how efficiently that fuel is converted into electricity. The fuel input basis is the most appropriate to use for analysis of the quantities of particular fuels used in electricity generation (e.g. to determine the additional amount of gas or other fuels required as coal use declines under tighter emissions restrictions). A second way uses the amount of electricity generated and supplied by each fuel. This **output** basis is appropriate for comparing how much, and what percentage, of electricity generation comes from a particular fuel. It is the most appropriate method to use to examine the dominance of any fuel and for diversity issues. Percentage shares based on fuel outputs reduce the contribution of coal and nuclear, and increase the contribution of gas (by three percentage points in 2015) compared with the fuel input basis. This is because of the higher conversion efficiency of gas.

Public distribution system

5.77 This comprises the grid systems in England and Wales, Scotland and Northern Ireland. In April 2005 the Scotland and England and Wales systems were combined into a single grid.

Sectors used for sales/consumption

5.78 The various sectors used for sales and consumption analyses are standardised across all chapters of the 2015 Digest. For definitions of the sectors see Chapter 1 paragraphs 1.56 to 1.60 and Annex A paragraphs A.31 to A.42.

Losses

5.79 The losses component of electricity demand are calculated as follows:

Transmission losses: electricity lost as a percentage of electricity entering the GB transmission system (as reported by National Grid); this is applied to the electricity available figure in DUKES 5.4 (339,651 GWh in 2015).

Distribution losses: electricity lost in distribution as a percentage of electricity entering the distribution system (as reported by the distribution network operators); this is applied to electricity available less transmission losses.

Theft: a fixed percentage of 0.3 per cent is assumed to be stolen from the distribution network. This is applied to electricity available less transmission losses.

Transmission Entry Capacity, Declared Net Capacity and Installed Capacity

5.80 Transmission Entry Capacity (TEC) is a Connection and Use of System Code term that defines a generator's maximum allowed export capacity onto the transmission system. In the generating capacity statistics of the 2007 Digest, it replaced Declared Net Capacity (DNC) as the basis of measurement of the capacity of Major Power Producers from 2006. DNC is the maximum power available for export from a power station on a continuous basis minus any power generated or imported by the station from the network to run its own plant. It represents the nominal maximum capability of a generating set to supply electricity to consumers. The maximum rated output of a generator (usually under specific conditions designated by the manufacturer) is referred to as its Installed Capacity. For the nuclear industry, the World Association of Nuclear Operators (WANO) recommends that capacity of its reactors is measured in terms of Reference Unit Power (RUP) and it is the RUP figure that is given as the installed capacity of nuclear stations.

5.81 DNC is used to measure the maximum power available from generating stations that use renewable resources. For wind and wave and small scale hydro a factor is applied to declared net capability to take account of the intermittent nature of the energy source (e.g. 0.43 for wind, 0.365 for small scale hydro and 0.17 for solar photovoltaics). Further information on this can be found in paragraph 6.115, and at: www.legislation.gov.uk/ukxi/1990/264/made?view=plain

Load factors

5.82 The following definitions are used in Table 5.9:

Maximum load – This is twice the largest number of units supplied in any consecutive thirty minutes commencing or terminating at the hour.

Simultaneous maximum load met – The maximum load on the transmission network at any one time, net of demand met by generation connected to the distribution network. From 2005 (following the introduction of BETTA – see paragraph 5.53) it is measured by the sum of the maximum load met in Great Britain and the load met at the same time in Northern Ireland. Prior to 2005 it was measured by the sum of the maximum load met in England and Wales and the loads met at the same time by companies in other parts of the United Kingdom.

Plant load factor – The average hourly quantity of electricity supplied during the year, expressed as a percentage of the average output capability at the beginning and the end of year.

System load factor – The average hourly quantity of electricity available during the year expressed as a percentage of the maximum demand nearest the end of the year or early the following year.

Thermal efficiency

5.83 Thermal efficiency is the efficiency with which heat energy contained in fuel is converted into electrical energy. It is calculated for fossil fuel burning stations by expressing electricity generated as a percentage of the total energy content of the fuel consumed (based on average gross calorific values). For nuclear stations it is calculated using the quantity of heat released as a result of fission of the nuclear fuel inside the reactor. The efficiency of CHP systems is illustrated in Chapter 7, Table 7D. Efficiencies based on gross calorific value of the fuel (sometimes referred to as higher heating values or HHV) are lower than the efficiencies based on net calorific value (or lower heating value LHV). The difference between HHV and LHV is due to the energy associated with the latent heat of the evaporation of water products from the steam cycle which cannot be recovered and put to economic use.

Period covered

5.84 Until 2004, figures for the MPPs relate to periods of 52 weeks as listed below (although some data provided by electricity supply companies related to calendar months and were adjusted to the statistical calendar). In 2004, a change was made to a calendar year basis. This change was made in the middle of the year and the data are largely based on information collected monthly. The January to May 2004 data are therefore based on the 21 weeks ended 29 May 2004 and the calendar months June to December 2004, making a total of 361 days. In terms of days, 2004 is therefore 1.1 per cent shorter than 2005:

Year	52 weeks ended
2003	28 December 2003
2004	21 weeks ended 29 May 2004 and 7 months ended 31 December 2004
2005 – 2015:	12 months ended 31 December

5.85 Figures for industrial, commercial and transport undertakings relate to calendar years ending on 31 December, except for the iron and steel industry where figures relate to the following 52 or 53 week periods:

Year	53 weeks ended
2003	3 January 2004
	52 weeks ended
2004	1 January 2005
2005	31 December 2005
2006	30 December 2006
2007	29 December 2007
2008	27 December 2008
	53 weeks ended
2009	2 January 2010
	52 weeks ended
2010	1 January 2011
2011	31 December 2011
2012	29 December 2012
2013	28 December 2013
2014	27 December 2014
	53 weeks ended
2015	2 January 2016

Monthly and quarterly data

5.86 Monthly and quarterly data on fuel use, electricity generation and supply and electricity availability and consumption are available on the BEIS section of the GOV.UK website at:

www.gov.uk/government/collections/electricity-statistics. Monthly data on fuel used in electricity generation by MPPs are given in Monthly Table 5.3 and monthly data on supplies by type of plant and type of fuel are given in Monthly Table 5.4. Monthly data on availability and consumption of electricity by the main sectors of the economy are given in Monthly Table 5.5. A quarterly commodity balance for electricity is published in BEIS's quarterly statistical bulletin *Energy Trends* (Quarterly Table 5.2) along with a quarterly table of fuel use for generation, electricity generated, and electricity supplied by all generators (Quarterly Table 5.1). Both these quarterly tables are also available from BEIS's energy statistics web site. See Annex C for more information about *Energy Trends*.

Data collection

5.87 For MPPs, as defined in paragraphs 5.66 to 5.72, the data for the tables in this Digest are obtained from the results of an annual BEIS inquiry, sent to each company, covering generating capacity, fuel use, generation and sales of electricity (where a generator also supplies electricity).

5.88 Similarly, an annual inquiry is sent to licensed suppliers of electricity to establish electricity sales by these companies. Electricity consumption for the iron and steel sector is based on data provided by the Iron and Steel Statistics Bureau (ISSB) rather than electricity suppliers since electricity suppliers tend to over-estimate their sales to this sector by including some companies that use steel rather than manufacture it. The difference between the ISSB and electricity suppliers' figures has been re-allocated to other sectors. A further means of checking electricity consumption data is now being employed on data for 2006 and subsequent years. A monthly inquiry is sent to electricity distributors, as well as the National Grid, to establish electricity distribution and transmission losses. Copies of the survey questionnaires are available in *electricity statistics: data sources and methodologies*, at: www.gov.uk/government/collections/electricity-statistics

5.89 A sample of companies that generate electricity mainly for their own use (known as autogenerators or autoproducers – see paragraph 5.66, above) is covered by a quarterly inquiry commissioned by BEIS but carried out by the Office for National Statistics (ONS). Where autogenerators operate a combined heat and power (CHP) plant, this survey is supplemented (on an annual basis) by information from the CHP Quality Assessment scheme (for autogenerators who have registered under the scheme – see Chapter 7 on CHP). There are two areas of autogeneration that are covered by direct data collection by BEIS, mainly because the return contains additional energy information needed by the Department. These are the Iron and Steel industry, and generation on behalf of London Underground.

5.90 In addition to the above sources, some administrative data is used for renewable generation and capacity in the hands of non-major power producers - this includes data from the Renewables Obligation and Feed in Tariff schemes.

Statistical differences

5.91 Statistical differences are included in Tables 5.1 and 5.2. These arise because data collected on production and supply do not match exactly with data collected on sales or consumption. One of the reasons for this is that some of the data are based on different calendars as described in paragraphs 5.83 and 5.84, above. Sales data based on calendar years will always have included more electricity consumption than the slightly shorter statistical year of exactly 52 weeks.

5.92 Care should be exercised in interpreting the figures for individual industries in the commodity balance tables. Where companies have moved between suppliers, it has not been possible to ensure consistent classification between and within industry sectors and across years. The breakdown of final consumption includes some estimated data. In 2014, for about five per cent of consumption of electricity supplied by the public distribution system, the sector figures are partially estimated.

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5.1 Commodity balances

Electricity

	2011	2012	2013	2014	2015
Total electricity					
Supply					
Production	364,516	360,612	355,474r	335,291r	336,356
Other sources (1)	2,906	2,966	2,904	2,883	2,739
Imports	8,689	13,742	17,531r	23,243r	22,716
Exports	-2,467	-1,871	-3,105r	-2,723r	-1,778
Marine bunkers	-	-	-	-	-
Stock change	-	-	-	-	-
Transfers	-	-	-	-	-
Total supply	373,644	375,450	372,804r	358,694r	360,034
Statistical difference (2)	-631	-570	-997r	-1,210r	+1,671
Total demand	374,274	376,020	373,800r	359,905r	358,363
Transformation	-	-	-	-	-
Energy industry use	28,319	29,156	29,899r	28,387r	28,160
Electricity generation	16,430	17,968	17,856r	16,484r	16,672
Oil and gas extraction	576	565	570	536r	601
Petroleum refineries	4,684	3,793	4,681r	4,873r	4,815
Coal extraction and coke manufacture	929	902	873	741r	549
Blast furnaces	253	369	438	440	344
Patent fuel manufacture	-	-	-	-	-
Pumped storage	3,843	3,978	3,930	3,884	3,711
Other	1,603	1,581	1,551	1,429r	1,468
Losses	28,128	28,905	27,666r	28,651r	27,458
Final consumption	317,827	317,959	316,235r	302,867r	302,745
Industry	102,361	98,175	96,917r	92,764r	92,347
Unclassified	-	-	-	-	-
Iron and steel	3,852	3,376	3,799r	3,787r	3,688
Non-ferrous metals	6,971	5,028	4,430	4,475r	4,401
Mineral products	7,010	6,747	6,726	6,267r	6,053
Chemicals	17,637	17,450	16,525r	15,419r	15,604
Mechanical engineering, etc	7,261	7,072	7,064	6,912r	6,304
Electrical engineering, etc	6,383	6,189	6,172	5,714r	5,971
Vehicles	5,188	5,081	5,067	4,831r	4,814
Food, beverages, etc	11,319	11,137	11,083r	10,644r	10,732
Textiles, leather, etc	2,992	2,910	2,894	2,721r	2,680
Paper, printing, etc	10,904	10,866	10,806	10,735r	10,590
Other industries	21,304	20,828	20,888r	19,866r	20,171
Construction	1,539	1,494	1,464	1,393r	1,339
Transport (3)	4,253	4,263	4,352r	4,504r	4,476
Air	-	-	-	-	-
Rail (4)	4,232	4,236	4,319r	4,437r	4,379
Road (5)	21	26	33	68	97
National navigation	-	-	-	-	-
Pipelines	-	-	-	-	-
Other	211,213	215,521	214,966r	205,599r	205,922
Domestic	111,591	114,667	113,450r	108,324r	108,157
Public administration	18,396	18,903	18,802r	18,502r	19,227
Commercial	77,278	78,081	78,839r	74,928r	74,453
Agriculture	3,948	3,871	3,874	3,844r	4,085
Miscellaneous	-	-	-	-	-
Non energy use	-	-	-	-	-

5.1 Commodity balances (continued)

Electricity

	2011	2012	2013	2014	2015
GWh					
Electricity production					
Total production (6)	364,516	360,612	355,474r	335,291r	336,356
Primary electricity					
Major power producers	86,414	91,711	98,174	95,146	109,913
Nuclear	68,980	70,405	70,607	63,748	70,345
Large scale hydro (6)	4,291	3,898	3,348	4,333	4,578
Small scale hydro	303	272	261	301	328
Wind and solar (7)	12,840	17,137	23,958	26,763	34,662
Other generators	4,142	5,169	7,547r	10,503r	14,593
Nuclear	-	-	-	-	-
Large scale hydro	698	733	678	720	736
Small scale hydro	388	382	418r	538r	647
Wind, wave and solar photovoltaics (7)	3,056	4,054	6,452r	9,245r	13,211
Secondary electricity					
Major power producers	243,141	233,592	223,647	202,794	183,090
Coal	104,797	140,164	130,204	100,158	75,563
Oil	1,074	1,132	745	530	683
Gas	132,753	86,229	82,891	88,871	88,461
Renewables	4,518	6,067	9,285	12,707	17,694
Other	-	-	522	528	689
Other generators	30,818	30,139	26,105r	26,849r	28,760
Coal	3,774	2,992	83r	72r	66
Oil	2,043	1,439	1,321r	1,366r	1,450
Gas	13,767	13,931	12,952r	12,024r	11,574
Renewables	8,435	8,581	8,878r	9,977r	11,695
Other	2,799	3,196	2,871r	3,410r	3,975
Primary and secondary production (9)					
Nuclear	68,980	70,405	70,607	63,748	70,345
Hydro	5,680	5,285	4,704r	5,893r	6,289
Wind, wave and solar photovoltaics	15,896	21,191	30,410r	36,008	47,872
Coal	108,571	143,156	130,287r	100,230r	75,630
Oil	3,117	2,571	2,066r	1,896r	2,133
Gas	146,520	100,160	95,843r	100,895r	100,035
Other renewables	12,953	14,648	18,163r	22,684r	29,388
Other	2,799	3,196	3,393r	3,938r	4,664
Total production	364,516	360,612	355,474r	335,291r	336,356

(1) Pumped storage production.

(2) Total supply minus total demand.

(3) From 2004, non-traction Transport sector consumption is included under 'Transport Services'.

(4) From 2004, this includes light rail and metro systems (eg. London Underground).

(5) Included from 2004.

(6) Excludes pumped storage production.

(7) From 2007, major wind farm companies are included under Major Power Producers, see paragraph 5.68

(8) From 2015, major solar companies are included under Major Power Producers, see paragraph 5.70

(9) These figures are the same as the electricity generated figures in Table 5.5 except that they exclude pumped storage production. Table 5.5 shows that electricity used on works is deducted to obtain electricity supplied. It is electricity supplied that is used to produce Chart 5.2 showing each fuel's share of electricity output (see paragraph 5.31).

5.2 Commodity balances

Public distribution system and other generators

GWh									
	2013			2014			2015		
	Public distribution system	Other generators	Total	Public distribution system	Other generators	Total	Public distribution system	Other generators	Total
Supply									
Major power producers	321,821	-	321,821	297,939	-	297,939	293,003	-	293,003
Other generators	-	33,653r	33,653r	-	37,352r	37,352r	-	43,353	43,353
Other sources (1)	2,904	-	2,904	2,883	-	2,883	2,739	-	2,739
Imports	17,531	-	17,531	23,243r	-	23,243r	22,716	-	22,716
Exports	-3,105r	-	-3,105r	-2,723r	-	-2,723r	-1,778	-	-1,778
Transfers	13,976r	-13,976r	-	16,378r	-16,378r	-	18,733	-18,733	-
Total supply	353,128r	19,676r	372,804r	337,721r	20,974r	358,694r	335,414	24,620	360,034
Statistical difference (2)	-863r	-134r	-997r	-109r	-1,102r	-1,210r	+1,108	-564	+1,671
Total demand	353,991r	19,810r	373,800r	337,829r	22,076r	359,905r	334,306	24,056	358,363
Transformation									
Energy industry use	23,656	6,242r	29,898r	21,540r	6,847r	28,387r	21,323	6,837	28,160
Electricity generation	15,669	2,187r	17,856r	13,957	2,526r	16,484r	13,805	2,867	16,672
Oil and gas extraction	570	-	570	536r	-	536	601	-	601
Petroleum refineries	1,291	3,390r	4,681r	1,218r	3,655r	4,873r	1,343	3,471	4,815
Coal extraction and coke manufacture	796	77	873	665r	76	741	500	49	549
Blast furnaces	-	438	438	-	440	440	-	344	344
Pumped storage	3,930	-	3,930	3,884	-	3,884	3,711	-	3,711
Other fuel industries	1,402	150	1,551	1,280r	150r	1,429r	1,362	106	1,468
Losses	27,644r	22	27,666r	28,634r	17	28,651r	27,454	4	27,458
Transmission losses	6,351	-	6,351	6,509r	-	6,509r	7,394	-	7,394
Distribution losses	20,317	22	20,339	21,124r	17	21,141r	19,063	4	19,067
Theft	1,036	-	1,036	1,000r	-	1,000r	997	-	997
Final consumption	302,690	13,545r	316,235r	287,656r	15,212r	302,867	285,530	17,215	302,745
Industry	89,314	7,604r	96,917r	84,780r	7,984r	92,764r	84,020	8,327	92,347
Iron and steel	2,960	839r	3,799r	2,967	820	3,787	2,974	714	3,688
Non-ferrous metals	3,875	555	4,430	3,721r	754r	4,475r	3,620	781	4,401
Mineral products	6,627	99	6,726	6,159r	108r	6,267r	5,963	89	6,053
Chemicals	14,650	1,875r	16,525r	13,862r	1,557r	15,419r	13,881	1,723	15,604
Mechanical engineering etc	6,955	109r	7,064r	6,798r	114r	6,912r	6,191	112	6,304
Electrical engineering etc	6,166	5r	6,172	5,708r	6r	5,714r	5,965	6	5,971
Vehicles	4,914	154r	5,067r	4,676r	154r	4,831r	4,655	159	4,814
Food, beverages etc	9,782	1,301r	11,083r	9,300r	1,344r	10,644r	9,353	1,379	10,732
Textiles, leather, etc	2,887	7r	2,894	2,714r	7r	2,721r	2,673	7	2,680
Paper, printing etc	9,216	1,590r	10,806	8,857r	1,878r	10,735r	8,774	1,816	10,590
Other industries	19,833	1,055r	20,888r	18,639r	1,227r	19,866r	18,646	1,525	20,171
Construction	1,449	15	1,464	1,378r	15	1,393r	1,324	15	1,339
Transport (3)	4,352r	-	4,352r	4,504r	-	4,504r	4,476	-	4,476
Rail (4)	4,319r	-	4,319r	4,437r	-	4,437r	4,379	-	4,379
Road (5)	33	-	33	68	-	68	97	-	97
Other	209,024r	5,942r	214,966r	198,371r	7,228r	205,599r	197,034	8,888	205,922
Domestic (6)	112,782	668r	113,450r	107,385r	940	108,324r	106,977	1,180	108,157
Standard	76,060	-	76,060	73,067r	-	73,067r	72,641	-	72,641
Economy 7 and other off-peak (7)	18,740	-	18,740	17,083r	-	17,083r	17,353	-	17,353
Prepayment (standard)	13,850	-	13,850	13,144r	-	13,144r	13,007	-	13,007
Prepayment (off-peak) (7)	4,131	-	4,131	4,046r	-	4,046r	3,940	-	3,940
Sales under any other arrangement	-	-	-	43r	-	43r	36	-	36
Public administration	16,041	2,762r	18,802r	15,355r	3,147r	18,502r	15,520	3,706	19,227
Public lighting (8)	1,859	-	1,859	1,855r	-	1,855r	1,895	-	1,895
Other public sector	14,182	2,762r	16,943r	13,900r	3,147r	16,647r	13,625	3,706	17,331
Commercial	76,327r	2,512r	78,839r	71,787r	3,141r	74,928r	70,451	4,002	74,453
Shops	30,272	-	30,272	28,029r	-	28,029r	27,702	-	27,702
Offices	24,864	-	24,864	23,631r	-	23,631r	23,082	-	23,082
Hotels	8,767	-	8,767	8,384r	-	8,384r	8,106	-	8,106
Combined domestic/ commercial premises	2,684	-	2,684	2,395r	-	2,395r	2,347	-	2,347
Post and telecommunications	5,904	-	5,904	5,937r	-	5,937r	5,572	-	5,572
Unclassified	-	-	-	-	-	-	-	-	-
Transport services	3,836r	-	3,836	3,412r	-	3,412r	3,643	-	3,643
Agriculture	3,874	-	3,874	3,844r	-	3,844r	4,085	-	4,085

(1) Pumped storage production.

(2) Total supply minus total demand.

(3) From 2004, non-traction Transport sector consumption is included under 'Transport Services'.

(4) From 2004, this includes light rail and metro systems (eg. London Underground).

(5) Included from 2004.

(6) From 2011, this includes consumption by domestic generators. See paragraph 5.2.1.

(7) Electricity consumed under an off-peak tariff.

(8) Sales for public lighting purposes are increasingly covered by wider contracts that cannot distinguish the public lighting element.

5.3 Fuel used in generation⁽¹⁾

	Unit	2011	2012	2013	2014	2015
Original units of measurement						
Major power producers (2)						
Coal	M tonnes	40.57	53.84	49.84	38.22r	29.18
Oil (3)	"	0.294	0.302	0.186	0.168	0.171
Gas (5)	GWh	277,527	184,307	174,070r	189,695r	185,955
Other generators (2)						
Transport undertakings:						
Gas	GWh	14	13	10	10	6
Undertakings in industrial and commercial sectors:						
Coal (4)	M tonnes	1.2836	1.0641	0.0331r	0.0187r	0.0190
Oil (5)	"	0.38	0.28	0.30r	0.322r	0.34
Gas (6)	GWh	31,548	32,236	30,659r	27,924r	27,022
Mtoe						
Major power producers (2)						
Coal		25.232	33.666	31.310	24.000	18.246
Oil (3)		0.346	0.407	0.239	0.182	0.224
Gas		23.863	15.848	15.065	16.330	15.989
Nuclear		15.626	15.206	15.443	13.850	15.479
Hydro (natural flow) (7)		0.395	0.359	0.310	0.398	0.422
Wind		1.104	1.473	2.060	2.301	2.860
Solar		-	-	-	-	0.121
Other renewables (7)		1.263	1.766	2.221	2.967	3.825
Other fuels (9)		-	-	0.182	0.189	0.235
Net imports		0.535	1.021	1.240r	1.764	1.800
Total major power producers (2)		68.363	69.745	68.071r	61.982r	59.201
Of which: conventional thermal and other stations (10)		28.413	37.721	36.187r	29.880r	25.770
combined cycle gas turbine stations		23.394	15.438	14.891r	16.089r	15.730
Other generators (2)						
Transport undertakings:						
Gas (6)		0.001	0.001	0.001	0.001	0.001
Undertakings in industrial and commercial sectors:						
Coal (4)		0.794	0.661	0.021r	0.012r	0.012
Oil (5)		0.437	0.320	0.350r	0.371r	0.394
Gas		2.713	2.772	2.636r	2.401r	2.323
Hydro (natural flow) (7)		0.093	0.096	0.094	0.108	0.119
Wind, wave and solar photovoltaics		0.263	0.349	0.555	0.795r	1.136
Other renewables (7)		3.362	3.169	2.813r	3.152r	3.636
Other fuels (9)		1.024	1.112	1.414r	1.627r	1.747
Total other generators (2)		8.687	8.479	7.883r	8.466r	9.367
All generating companies						
Coal (4)		26.026	34.327	31.331r	24.011r	18.258
Oil (3)(5)		0.783	0.727	0.588r	0.552r	0.618
Gas (6)		26.577	18.620	17.702r	18.732r	18.313
Nuclear		15.626	15.206	15.443	13.850	15.479
Hydro (natural flow) (7)		0.488	0.454	0.404	0.507r	0.541
Wind, wave and solar photovoltaics		1.367	1.822	2.615	3.096r	4.116
Other renewables (7)		4.625	4.934	5.034r	6.119r	7.461
Other fuels (9)		1.024	1.112	1.414r	1.627r	1.747
Net imports		0.535	1.021	1.240r	1.764	1.800
Total all generating companies		77.050	78.224	75.772r	70.259r	68.333

(1) A monthly update of fuel used in electricity generation by major power producers is given in Table 5.1 of Energy Trends, and a quarterly update of fuel used in electricity generation by all generating companies is given in Table 5.4 of Energy Trends.

(2) See paragraphs 5.67 to 5.73 for information on companies covered.

(3) Includes orimulsion, oil used in gas turbine and diesel plant, and oil used for lighting up coal fired boilers.

(4) Includes coke oven coke.

(5) Includes refinery gas.

(6) Includes colliery methane.

(7) Renewable sources which are included under hydro and other renewables in this table are shown separately in Table 6.6 of Chapter 6.

(8) Includes electricity supplied by gas turbines and oil engines. From 1988 also includes electricity produced by plants using renewable sources.

(9) Main fuels included are coke oven gas, blast furnace gas, and waste products from chemical processes.

(10) Includes gas turbines and oil engines and plants producing electricity from renewable sources other than hydro.

5.4 Electricity supply, electricity supplied (net), electricity available, electricity consumption and electricity sales

	GWh				
	2011	2012	2013	2014	2015
Total supply					
(as given in Tables 5.1 and 5.2)	373,644	375,450	372,804r	358,694r	360,034
less imports of electricity	-8,689	-13,742	-17,531r	-23,243r	-22,716
plus exports of electricity	+2,467	+1,871	+3,105r	+2,723r	1,778
less electricity used in pumped storage	-3,843	-3,978	-3,930	-3,884	-3,711
less electricity used on works	-16,430	-17,968	-17,856r	-16,484r	-16,672
equals					
Electricity supplied (net)	347,149	341,633	336,592r	317,807r	318,712
(as given in Tables 5.5, 5.1.2 and 5.1.3)					
Total supply					
(as given in Tables 5.1 and 5.2)	373,644	375,450	372,804r	358,694r	360,034
less electricity used in pumped storage	-3,843	-3,978	-3,930	-3,884	-3,711
less electricity used on works	-16,430	-17,968	-17,856r	-16,484r	-16,672
equals					
Electricity available	353,371	353,504	351,018r	338,326r	339,651
(as given in Table 5.1.2)					
Final consumption					
(as given in Tables 5.1 and 5.2)	317,827	317,959	316,235r	302,867r	302,745
plus Iron and steel consumption counted as energy industry use	+380	+485	+572	+561	+411
equals					
Final users	318,207	318,445	316,808r	303,428r	303,157
(as given in Table 5.1.2)					
Final consumption					
Public distribution system					
(as given in Table 5.2)	303,765	304,221	302,690	287,656r	285,530
plus Oil and gas extraction use	+576	+565	+570	+536r	+601
plus Petroleum refineries use	+1,357	+1,338	+1,291	+1,218r	+1,343
plus Coal and coke use	+847	+825	+796	+665r	+500
plus Other fuel industries use	+1,489	+1,460	+1,402	+1,280r	+1,362
equals					
UK Electricity sales (1)	308,033	308,408	306,748	291,353r	289,337

(1) A calendar year estimate of the Renewables Obligation percentage can be calculated using the "total generation from sources eligible for the Renewable Obligation" figure from Table 6.4 as the numerator, and this figure as the denominator. Separate electricity sales data for public electricity suppliers are given for England and Wales, Scotland and Northern Ireland in Table 5.5 of Energy Trends on the BEIS website at:

www.gov.uk/government/publications/electricity-section-5-energy-trends

5.5 Electricity fuel use, generation and supply

	Thermal sources							Non-thermal sources				GWh
	Coal	Oil	Gas	Nuclear	Renew- ables (1)	Other (3)	Total	Hydro- natural flow	Hydro- pumped storage	Wind and solar (4)	Total All sources	
	2011											
Major power producers (2) (5)												
Fuel used	293,444	4,023	277,527	181,732	14,685	-	771,411	4,594	2,906	12,840	791,751	
Generation	104,797	1,074	132,753	68,980	4,518	-	312,122	4,594	2,906	12,840	332,461	
Used on works	5,245	161	2,268	6,325	454	-	14,453	16	10	-	14,479	
Supplied (gross)	99,552	913	130,485	62,655	4,064	-	297,669	4,578	2,895	12,840	317,983	
Used in pumping											3,843	
Supplied (net)											314,140	
Other generators (2) (5)												
Fuel used	9,234	5,081	31,548	-	38,021	11,910	95,795	1,086	-	3,056	99,937	
Generation	3,774	2,043	13,767	-	8,435	2,799	30,818	1,086	-	3,056	34,960	
Used on works	204	151	426	-	989	161	1,931	21	-	-	1,951	
Supplied	3,570	1,892	13,341	-	7,446	2,638	28,888	1,066	-	3,056	33,009	
All generating companies												
Fuel used	302,677	9,105	309,076	181,732	52,706	11,910	867,206	5,680	2,906	15,896	891,688	
Generation	108,571	3,117	146,520	68,980	12,953	2,799	342,940	5,680	2,906	15,896	367,422	
Used on works	5,449	311	2,694	6,325	1,442	161	16,383	37	10	-	16,430	
Supplied (gross)	103,122	2,805	143,826	62,655	11,510	2,638	326,557	5,643	2,895	15,896	350,992	
Used in pumping											3,843	
Supplied (net)											347,149	
2012												
Major power producers (2) (5)												
Fuel used	391,530	4,736	184,307	176,846	20,535	-	777,954	4,169	2,966	17,137	802,226	
Generation	140,164	1,132	86,229	70,405	6,067	-	303,998	4,169	2,966	17,137	328,270	
Used on works	7,121	187	1,474	6,456	609	-	15,848	1	10	-	15,859	
Supplied (gross)	133,043	944	84,755	63,949	5,458	-	288,150	4,168	2,956	17,137	312,411	
Used in pumping											3,978	
Supplied (net)											308,433	
Other generators (2) (5)												
Fuel used	7,687	3,720	32,236	-	36,853	12,932	93,428	1,116	-	4,054	98,598	
Generation	2,992	1,439	13,931	-	8,581	3,196	30,139	1,116	-	4,054	35,309	
Used on works	170	106	431	-	1,183	197	2,088	20	-	-	2,108	
Supplied	2,822	1,333	13,500	-	7,398	2,999	28,051	1,095	-	4,054	33,200	
All generating companies												
Fuel used	399,217	8,456	216,543	176,846	57,388	12,932	871,382	5,285	2,966	21,191	900,824	
Generation	143,156	2,571	100,160	70,405	14,648	3,196	334,137	5,285	2,966	21,191	363,579	
Used on works	7,291	293	1,905	6,456	1,792	197	17,935	22	10	-	17,967	
Supplied (gross)	135,865	2,277	98,255	63,949	12,856	2,999	316,201	5,263	2,956	21,191	345,611	
Used in pumping											3,978	
Supplied (net)											341,633	
2013												
Major power producers (2) (5)												
Fuel used	364,141	2,775	175,210	179,601	25,832	2,119	749,678	3,609	2,904	23,958	780,149	
Generation	130,204	745	82,891	70,607	9,285	522	294,254	3,609	2,904	23,958	324,725	
Used on works	6,681	97	1,409	6,474	932	52	15,646	13	10	-	15,669	
Supplied (gross)	123,523	648	81,482	64,133	8,353	470	278,608	3,596	2,894	23,958	309,056	
Used in pumping											3,930	
Supplied (net)											305,127	
Other generators (2) (5)												
Fuel used	239r	4,066r	30,659r	-	32,714r	16,440r	84,118r	1,095r	-	6,452r	91,665r	
Generation	83r	1,321r	12,952r	-	8,878r	2,871r	26,105r	1,095r	-	6,452r	33,653r	
Used on works	4r	97r	402r	-	1,496	166r	2,165r	22	-	-	2,187r	
Supplied	79r	1,224r	12,550r	-	7,382r	2,706r	23,940r	1,073r	-	6,452r	31,466r	
All generating companies												
Fuel used	364,380r	6,841r	205,869r	179,601	58,546r	18,559r	833,796r	4,704r	2,904	30,410r	871,814r	
Generation	130,287r	2,066r	95,843r	70,607	18,163r	3,393r	320,359r	4,704r	2,904	30,410r	358,378r	
Used on works	6,685r	195r	1,810r	6,474	2,429	218r	17,811r	35	10	-	17,856r	
Supplied (gross)	123,602r	1,872r	94,033r	64,133	15,735r	3,175r	302,548r	4,669r	2,894	30,410r	340,522r	
Used in pumping											3,930	
Supplied (net)											336,592r	

5.5 Electricity fuel use, generation and supply (continued)

GWh

	Thermal sources						Non-thermal sources				
	Coal	Oil	Gas	Nuclear	Renewables (1)	Other (3)	Total	Hydro-natural flow	Hydro-pumped storage	Wind and solar (4)	Total All sources
2014											
Major power producers (2) (5)											
Fuel used	279,117	2,112	189,919	161,079	34,503	2,204	668,934	4,635	2,883	26,763	703,215
Generation	100,158	530	88,871	63,748	12,707	528	266,542	4,635	2,883	26,763	300,823
Used on works	5,153	72	1,519	5,845	1,276	53	13,919	29	10	-	13,957
Supplied (gross)	95,005	458	87,352	57,903	11,431	475	252,623	4,606	2,873	26,763	286,865
Used in pumping											3,884
Supplied (net)											282,981
Other generators (2) (5)											
Fuel used	135r	4,311r	27,924r	-	36,660r	18,920r	87,950r	1,258r	-	9,245r	98,452r
Generation	72r	1,366r	12,024r	-	9,977r	3,410r	26,849r	1,258r	-	9,245r	37,352r
Used on works	3r	101r	373r	-	1,814r	207r	2,498r	28	-	-	2,526r
Supplied	69r	1,266r	11,651r	-	8,163r	3,202r	24,351r	1,230r	-	9,245r	34,825r
All generating companies											
Fuel used	279,252r	6,423r	217,842r	161,079	71,163r	21,124r	756,884r	5,893r	2,883	36,008r	801,668r
Generation	100,230r	1,896r	100,895r	63,748	22,684r	3,938r	293,391r	5,893r	2,883	36,008r	338,175r
Used on works	5,156r	173r	1,892r	5,845	3,090r	260r	16,417r	57r	10	-	16,484r
Supplied (gross)	95,073r	1,724r	99,003r	57,903	19,594r	3,677r	276,974r	5,836r	2,873	36,008r	321,691r
Used in pumping											3,884
Supplied (net)											317,807r
2015											
Major power producers (2) (5)											
Fuel used	212,198	2,606	185,955	180,025	44,483	2,738	628,004	4,907	2,739	34,662	670,312
Generation	75,563	683	88,461	70,345	17,694	689	253,435	4,907	2,739	34,662	295,742
Used on works	3,877	88	1,517	6,450	1,777	69	13,779	17	10	-	13,805
Supplied (gross)	71,686	595	86,943	63,895	15,917	620	239,656	4,889	2,730	34,662	281,937
Used in pumping											3,711
Supplied (net)											278,226
Other generators (2) (5)											
Fuel used	137	4,587	27,022	-	42,285	20,312	94,343	1,382	-	13,211	108,936
Generation	66	1,450	11,574	-	11,695	3,975	28,760	1,382	-	13,211	43,353
Used on works	3	106	358	-	2,086	280	2,834	33	-	-	2,867
Supplied	63	1,344	11,215	-	9,609	3,696	25,927	1,349	-	13,211	40,486
All generating companies											
Fuel used	212,336	7,192	212,976	180,025	86,768	23,050	722,347	6,289	2,739	47,872	779,248
Generation	75,630	2,133	100,035	70,345	29,388	4,664	282,195	6,289	2,739	47,872	339,095
Used on works	3,880	194	1,876	6,450	3,863	349	16,612	51	10	-	16,672
Supplied (gross)	71,749	1,939	98,159	63,895	25,525	4,315	265,583	6,238	2,730	47,872	322,423
Used in pumping											3,711
Supplied (net)											318,712

	2011		2012		2013		2014		2015	
	Conv- entional thermal (6)	CCGT	Conv- entional thermal (6)	CCGT	Conv- entional thermal (6)	CCGT	Conv- entional thermal (6)	CCGT	Conv- entional thermal (6)	CCGT
Major power producers (2)										
Generated	111,255	131,886	147,946	85,647	141,114	82,533	114,534	88,259	95,358	87,732
Supplied (gross)	105,345	129,669	139,994	84,207	133,330	81,145	107,945	86,775	89,505	86,256
Other generators										
Generated	20,258	10,560	20,065	10,074	17,805r	8,300r	19,272r	7,577r	21,795	6,965
Supplied (gross)	18,854	10,033	18,480	9,571	16,054r	7,886r	17,152r	7,199r	19,309	6,617
All generating companies										
Generated	131,513	142,447	168,011	95,721	158,919r	90,833r	133,806r	95,836r	117,153	94,697
Supplied (gross)	124,200	139,702	158,474	93,778	149,385r	89,031r	125,097r	93,974r	108,814	92,874

(1) Thermal renewable sources are those included under bioenergy in Chapter 6. Prior to 2007, non-biodegradable wastes are also included.

(2) See paragraphs 5.67 to 5.73 on companies covered.

(3) Other thermal sources include coke oven gas, blast furnace gas and waste products from chemical processes. From 2007, non-biodegradable wastes are also included.

(4) For Major Power Producers, this is wind only; for other generators, this includes solar photovoltaics as well as wave and tidal.

(5) From 2007, major wind farm companies are included under Major Power Producers, see paragraph 5.69.

(6) Includes gas turbines, oil engines and plants producing electricity from thermal renewable sources; also stations with some CCGT capacity but mainly operate in conventional thermal mode.

5.6 Plant capacity - United Kingdom

MW

	2011	2012	2013	2014	2015
				end December	
Major power producers (1)					
Total transmission entry capacity (2)	81,789	81,879	77,169r	75,696r	71,879
Of which:					
Conventional steam stations:					
Coal fired	31,763	28,523	23,141r	21,282r	18,714
Oil fired	23,072	23,072	20,591r	18,732r	17,534
Mixed or dual fired (3)	3,638	2,338	1,370	1,370	-
Combined cycle gas turbine stations	5,053	3,113	1,180	1,180	1,180
Nuclear stations	30,183	33,113	32,967	31,994	30,080
Gas turbines and oil engines	10,663	9,946	9,906	9,937	9,487
Hydro-electric stations:					
Natural flow (4)	1,706	1,651	1,639r	1,643r	1,333
Pumped storage	1,397	1,398	1,399	1,400	1,400
Wind (4) (5)	2,744	2,744	2,744	2,744	2,744
Solar (4)	2,240	3,276	3,947	4,528r	4,921
Renewables other than hydro and wind (6)	-	-	-	-	288
	1,092	1,228	1,426	2,168r	2,911
Other generators (1)					
Total capacity of own generating plant (7)	7,241	7,420	7,430r	7,847r	8,941
Of which:					
Conventional steam stations (8)	2,401	2,464	2,089r	2,110r	2,080
Combined cycle gas turbine stations	2,212	2,244	1,905r	1,813r	1,661
Hydro-electric stations (natural flow) (4)	153	158	163r	169r	180
Wind (4) (9)	541	550	874r	1,079r	1,224
Solar (4)	-	-	488r	922r	1,273
Renewables other than hydro and wind (4) (6)	1,934	2,003	1,911r	1,755r	2,524
All generating companies					
Total capacity	89,031	89,299	84,598r	83,543r	80,820
Of which:					
Conventional steam stations (8)	34,164	30,988	25,230r	23,392r	20,794
Combined cycle gas turbine stations	32,395	35,357	34,872r	33,807r	31,741
Nuclear stations	10,663	9,946	9,906	9,937	9,487
Gas turbines and oil engines	1,706	1,651	1,639r	1,643r	1,333
Hydro-electric stations:					
Natural flow (4)	1,550	1,556	1,561	1,569r	1,580
Pumped storage	2,744	2,744	2,744	2,744	2,744
Wind (4)	2,781	3,827	4,821r	5,606r	6,145
Solar (4)	-	-	488	922	1,561
Renewables other than hydro and wind (4)	3,027	3,231	3,337r	3,923r	5,435

(1) See paragraphs 5.67 to 5.73 for information on companies covered.

(2) See paragraph 5.80 for definition. Data before 2006 are based on declared net capacity.

(3) Includes gas fired stations that are not Combined Cycle Gas Turbines, or have some CCGT capability but mainly operate as conventional thermal stations.

(4) Small-scale hydro, wind and solar photovoltaics capacity are shown on declared net capability basis, and are de-rated to account for intermittency, by factors of 0.365, 0.43 and 0.17 respectively. See paragraph 5.81.

(5) From 2007, major wind farm companies are included under Major Power Producers, see paragraph 5.6.

(6) For Major Power Producers, this includes bioenergy; for other generators, this includes bioenergy, solar photovoltaics, wave and tidal.

(7) "Other generators" capacities are given in declared net capacity terms, see paragraph 5.81.

(8) For other generators, conventional steam stations include combined heat and power plants (electrical capacity only) but exclude combined cycle gas turbine plants, hydro-electric stations and plants using renewable sources.

(9) Falls in capacity in 2007, 2010 and 2012 due to re-classification of capacity to Major Power Producers.

(10) Stations on Supplemental Balancing Reserve, ie. those that are closed but available for times of high demand such as winter, are classed as having zero capacity.

5.7 Major Power Producers Plant capacity - England and Wales, Scotland, and Northern Ireland

	MW				
	end December				
	2011	2012	2013	2014	2015
Major power producers in England and Wales (1)					
Total transmission entry capacity (2)	69,186	68,841	65,021r	63,350r	59,359
Of which:					
Conventional steam stations:	27,247	24,007	19,821	17,962	15,394
Coal fired	19,616	19,616	18,331	16,472	15,274
Oil fired	3,638	2,338	1,370	1,370	-
Mixed or dual fired (3)	3,993	2,053	120	120	120
Combined cycle gas turbine stations	27,985	30,915	30,765	29,792	27,876
Nuclear stations	8,374	7,657	7,617	7,648	7,198
Gas turbines and oil engines	1,316	1,261	1,191r	1,195r	885
Hydro-electric stations:					
Natural flow	141	141	141	141	141
Pumped storage	2,004	2,004	2,004	2,004	2,004
Wind (4)	1,080	1,682	2,110	2,526	2,795
Solar					264
Renewables other than hydro and wind (5)	1,039	1,174	1,372r	2,082r	2,802
Major power producers in Scotland (1)					
Total transmission entry capacity (2)	10,168	10,602	9,630r	9,827r	9,980
Of which:					
Conventional steam and combined cycle gas turbine stations	4,638	4,638	3,442r	3,442r	3,440
Nuclear stations	2,289	2,289	2,289	2,289	2,289
Gas turbines and oil engines	131	131	131r	131r	131
Hydro-electric stations:					
Natural flow	1,257	1,257	1,258	1,259	1,259
Pumped storage	740	740	740	740	740
Wind (4)	1,059	1,493	1,716	1,881	2,006
Solar					7
Renewables other than hydro and wind (5)	54	54	54	86	109
Major power producers in Northern Ireland (1)					
Total transmission entry capacity (2)	2,436	2,436	2,518	2,518	2,540

(1) See paragraphs 5.67 to 5.73 for information on companies covered

(2) See paragraph 5.80 for definition. Data before 2006 are based on declared net capacity

(3) Includes gas fired stations that are not Combined Cycle Gas Turbines, or have some CCGT capability but mainly operate as conventional thermal stations.

(4) From 2007, major wind farm companies are included under Major Power Producers, see paragraph 5.65

(5) Bioenergy only.

5.8 Capacity of other generators

	MW				
	end December				
	2011	2012	2013	2014	2015
Capacity of own generating plant (1) (2)					
Undertakings in industrial and commercial sector:					
Oil and gas terminals and oil refineries	1,050	1,019	1,019	917	874
Iron and steel	315	314	314	314	314
Chemicals	1,018	1,061	815r	767r	714
Engineering and other metal trades	644	644	199r	199r	171
Food, drink and tobacco	428	442	438	457r	464
Paper, printing and publishing	420	467	470	508r	499
Other (3)	3,261	3,371	4,072r	4,581r	5,802
Total industrial, commercial and domestic sector	7,138	7,317	7,327r	7,744r	8,838
Undertakings in transport sector	103	103	103	103	103
Total other generators	7,241	7,420	7,430r	7,847r	8,941

(1) For combined heat and power plants the electrical capacity only is included. Further CHP capacity is included under major power producers in Table 5.6. A detailed analysis of CHP capacity is given in the tables of Chapter 7
Figures may not sum to 5.6 due to rounding.

(2) From 2007, major wind farm companies are included under Major Power Producers, see paragraph 5.65

(3) Includes companies in the commercial sector, and domestic installations

5.9 Plant loads, demand and efficiency

Major power producers ⁽¹⁾

	Unit	2011	2012	2013	2014	2015
Simultaneous maximum load met (2) (3)	MW	57,086	57,490	53,420	53,858	52,753
of which England and Wales	MW					
Scotland	MW					
Great Britain	MW	55,505	55,765	51,811	52,516	51,100
Northern Ireland	MW	1,581	1,725	1,609	1,342	1,653
Maximum demand as a percentage of UK Major Power Producers' capacity	Per cent	69.8	70.2	69.2r	71.2r	73.4
Plant load factor (2) (4)						
Combined cycle gas turbine stations	Per cent	47.8	30.3	28.0	30.5	31.7
Nuclear stations	"	66.4	70.7	73.8	66.6	75.1
Pumped storage hydro	"	12.0	12.3	12.0	12.0	11.4
Conventional thermal and other stations (5)	"	34.7	48.3	52.8r	48.0r	42.5
of which coal-fired stations (6)	"	40.8	56.9	58.1r	50.7r	39.1
All plant (7)	"	42.5	42.0	41.8r	39.9r	40.2
System load factor (8)	"	66.7	66.2	70.8	67.3r	68.2
Thermal efficiency (9)						
(gross calorific value basis)						
Combined cycle gas turbine stations	"	48.1	47.2	47.7r	47.2r	48.0
Coal fired stations	"	35.7	35.8	35.8	35.9	35.6
Nuclear stations	"	38.0	39.8	39.3	39.6	39.1

(1) See paragraphs 5.67 to 5.73 for information on companies covered.

(2) Load met by transmission network, net of demand met by embedded generation. See paragraph 5.82 for definitions

(3) Data cover the 12 months ending March of the following year, e.g. 2015 data are for the year ending March 2016

(4) Load factors for renewable sources, including wind and hydro, can be found in Table 6.5.

(5) Conventional steam plants, gas turbines and oil engines and plants producing electricity from thermal renewable sources.

(6) Includes both coal-fired stations, and dual/mixed fired stations that mainly use coal.

(7) Includes wind (from 2008) and natural flow hydro, using capacity that has not been de-rated for intermittency

(8) Average electricity available as percentage of maximum demand. See paragraph 5.82.

(9) See paragraph 5.83 for definition of thermal efficiency.

5.10 Power Stations in the United Kingdom (operational at the end of May 2016)⁽¹⁾

Company Name	Station Name	Fuel	Installed Capacity (MW)	Year of commission or year generation began	Location Scotland, Wales, Northern Ireland or English region
AES	Ballylumford C	CCGT	616	2003	Northern Ireland
	Kilroot	Coal / oil	540	1981	Northern Ireland
	Ballylumford B	Gas	540	1968	Northern Ireland
	Ballylumford B OCGT	Gas oil	116	1968	Northern Ireland
	Kilroot OCGT	Gas oil	142	1981	Northern Ireland
Beaufort Wind Ltd	Carno	Wind	34	1996	Wales (2)
Braes of Doune Windfarm	Braes of Doune	Wind	72	2007	Scotland (3)
British Energy	Dungeness B	Nuclear	1,050	1983	South East (4)
	Hartlepool	Nuclear	1,180	1984	North East (4)
	Heysham 1	Nuclear	1,155	1984	North West (4)
	Heysham 2	Nuclear	1,230	1988	North West (4)
	Hinkley Point B	Nuclear	955	1976	South West (4)
	Hunterston B	Nuclear	965	1976	Scotland (4)
	Sizewell B	Nuclear	1,198	1995	East (4)
	Torness	Nuclear	1,185	1988	Scotland (4)
British Solar Renewables	Bradensoke Solar Park	Solar	70	2015	South West
	Owl's Hatch Solar Park	Solar	52	2015	South East
Calon Energy	Severn Power	CCGT	850	2010	Wales
	Baglan Bay CCGT	CCGT	520	2002	Wales
	Baglan Bay OCGT	OCGT	32	2002	Wales
	Sutton Bridge	CCGT	819	1999	East
Centrica	Barry	CCGT	235	1998	Wales (5)
	Glanford Brigg	CCGT	150	1993	Yorkshire and the Humber (5)
	Killingholme	CCGT	0	1994	Yorkshire and the Humber
	Langage	CCGT	905	2010	South West
	Peterborough	CCGT	240	1993	East (5)
	South Humber Bank	CCGT	1,310	1996	Yorkshire and the Humber
	Inner Dowsing	Wind (offshore)	97	2009	East Midlands
Lynn	Wind (offshore)	97	2009	East Midlands	
Coolkeeragh ESB Ltd	Coolkeeragh	CCGT	408	2005	Northern Ireland
	Coolkeeragh OCGT	Gas oil	53	2005	Northern Ireland
Corby Power Ltd	Corby	CCGT	401	1993	East Midlands
Cubico Sustainable Investments Limited	Broxted	Solar	32	2015	East
Dong Energy	Barrow	Wind (offshore)	90	2006	North West (6)
	Burbo Bank	Wind (offshore)	90	2009	North West
	Gunfleet Sands 1	Wind (offshore)	108	2010	South East
	Gunfleet Sands 2	Wind (offshore)	65	2010	South East
	Lincs	Wind (offshore)	270	2012	East (6b)
	Walney 1	Wind (offshore)	184	2011	North West (7)
	Walney 2	Wind (offshore)	184	2011	North West (7)
	West of Duddon Sands	Wind (offshore)	389	2014	North West (7)
	Westernmost Rough	Wind (offshore)	210	2015	South East
Drax Power Ltd	Drax - coal units	Coal	1,980	1974	Yorkshire and the Humber
	Drax - biomass units	Biomass	1,980	1974	Yorkshire and the Humber
	Drax GT	Gas oil	75	1971	Yorkshire and the Humber
E.On UK	Steven's Croft	Biomass	50	2007	Scotland
	Blackburn Meadows	Biomass	33	2015	Yorkshire and the Humber
	Castleford	CCGT	56	2002	Yorkshire and the Humber
	Connahs Quay	CCGT	1,380	1996	Wales
	Cottam Development Centre	CCGT	395	1999	East Midlands
	Enfield	CCGT	408	1999	London
	Grain CHP *	CCGT	1,365	2010	South East
	Killingholme	CCGT	900	1993	Yorkshire and the Humber
	Sandbach	CCGT	56	1999	North West
	Thornhill	CCGT	50	1998	Yorkshire and the Humber
	Ratcliffe	Coal	2,000	1968	East Midlands
	Grain GT	Gas oil	55	1978	South East
	Ratcliffe GT	Gas oil	34	1966	East Midlands
	Taylor's Lane GT	Gas oil	144	1979	London
	Camster	Wind	50	2012	Scotland
Tween Bridge	Wind	44	2012	North East	
Humber Gateway	Wind (offshore)	219	2015	North East	
Robin Rigg East	Wind (offshore)	90	2010	Scotland	
Robin Rigg West	Wind (offshore)	90	2010	Scotland	
Scroby Sands	Wind (offshore)	60	2004	East	

⁽¹⁾ For footnotes see page 150

5.10 Power Stations in the United Kingdom (operational at the end of May 2016)⁽¹⁾ (continued)

Company Name	Station Name	Fuel	Installed Capacity (MW)	Year of commission or year generation began	Location Scotland, Wales, Northern Ireland or English region
EDF Energy	West Burton CCGT	CCGT	1,332	2012	East Midlands
	Cottam	Coal	2,008	1969	East Midlands
	West Burton	Coal	2,012	1967	East Midlands
	Barkantine Heat & Power Company *	Gas	1	2000	London
	London Heat & Power Company *	Gas	9	2000	London
	West Burton GT	Gas oil	40	1967	East Midlands
EDF Energy Renewables	Burnfoot Hill	Wind	30	2010	Scotland
	Fallago Rig	Wind	144	2013	Scotland
	Green Rigg	Wind	36	2012	North East
	Longpark	Wind	38	2009	Scotland
	Teesside	Wind (offshore)	62	2014	North East
Eggborough Power Ltd	Eggborough	Coal	1,960	1967	Yorkshire and the Humber
Eneco Wind UK Limited	Lochluchart	Wind	69	2014	Scotland
ENGIE	Deeside	CCGT	515	1994	Wales
	Saltend	CCGT	1,200	2000	Yorkshire and the Humber
	Rugeley	Coal	1,006	1972	West Midlands
	Rugeley GT	Gas oil	50	1972	West Midlands
	Indian Queens	Gas oil / kerosene	140	1996	South West
	Dinorwig	Pumped storage	1,728	1983	Wales
	Ffestiniog	Pumped storage	360	1961	Wales
EPR Ely Limited	Elean	Straw	38	2001	East
	Eye Suffolk	Biomass	13	1992	East
EPR Glanford Ltd	Glanford	Meat & bone meal	13	1993	East
EPR Scotland Ltd	Westfield	Biomass	12	2000	Scotland
EPR Thetford Ltd	Thetford	Biomass	39	1998	East
Falck Renewables Wind Ltd	Cefn Croes	Wind	59	2006	Wales
	Earlsburn	Wind	38	2007	Scotland
	Kilbraur	Wind	68	2008	Scotland
	Millennium	Wind	65	2008	Scotland
	West Browncastle	Wind	30	2014	Scotland
Ferrybridge MFE Limited	Ferrybridge Multi-fuel	Biomass	79	2015	Yorkshire and the Humber
Fred Olsen	Crystal Rig	Wind	63	2003	Scotland
	Crystal Rig 2	Wind	138	2010	Scotland
	Mid Hill	Wind	76	2014	Scotland
	Paul's Hill	Wind	64	2005	Scotland
	Roths	Wind	51	2004	Scotland
	Roths 2	Wind	41	2013	Scotland
Infinis	Dalswinton	Wind	30	2008	Scotland
	Lissett	Wind	30	2007	Yorkshire and the Humber
	Minsca	Wind	37	2008	Scotland
	Slieve Divena	Wind	30	2009	N Ireland
Intergen	Coryton	CCGT	800	2001	East
	Rocksavage	CCGT	810	1998	North West
	Spalding	CCGT	880	2004	East Midlands
Lightsource	Ermine	Solar	32	2015	East Midlands
	Melborn Muncey	Solar	31	2015	East
London Array Ltd	London Array	Wind (offshore)	630	2012	South East ⁽⁸⁾
Londonwaste Limited	Edmonton	Waste	60	1970	South East
Magnox Ltd	Maentwrog	Hydro	35	1928	Wales ⁽⁹⁾
Marchwood Power Limited	Marchwood	CCGT	898	2009	South West ⁽¹⁰⁾
MEAG	Scout Moor	Wind	65	2009	North West ^{(7) (11)}
Px Limited	Fellside CHP *	Gas	180	1995	North West ⁽¹²⁾
Riverside Resource Recovery Limited	Belvedere	Waste	80	2011	South East

^{For footnotes see page 150}

5.10 Power Stations in the United Kingdom (operational at the end of May 2016)⁽¹⁾ (continued)

Company Name	Station Name	Fuel	Installed Capacity (MW)	Year of commission or year generation began	Location Scotland, Wales, Northern Ireland or English region	
RWE Generation UK Plc	Didcot B	CCGT	1,470	1998	South East	
	Great Yarmouth	CCGT	420	2001	East	
	Little Barford	CCGT	749	1995	East	
	Pembroke	CCGT	2,269	2012	Wales	
	Staythorpe C	CCGT	1,792	2010	East Midlands	
	Aberthaw B	Coal	1,586	1971	Wales	
	Aberthaw GT	Gas oil	51	1971	Wales	
	Cowes	Gas oil	140	1982	South East	
	Didcot GT	Gas oil	100	1972	South East	
	Little Barford GT	Gas oil	17	2006	East	
	Markinch CHP	Biomass	65	2014	Scotland	
	RWE Innogy UK Ltd (Part of RWE Npower)	Causeymire	Wind	48	2004	Scotland
		Farr	Wind	92	2006	Scotland
Ffynnon Oer		Wind	32	2006	Wales	
Goole Fields		Wind	33	2013	North East	
Little Cheyne Court		Wind	60	2008	South East	
Middlemoor		Wind	54	2013	North East	
Novar 2		Wind	37	2012	Scotland	
Gwynn y Mor		Wind (offshore)	576	2013	Wales	
North Hoyle		Wind (offshore)	60	2003	Wales	
Rhyl Flats		Wind (offshore)	90	2009	Wales	
Scira Offshore Energy Ltd	Scira (Sheringham Shoal BMU 1)	Wind (offshore)	158	2012	East	
	Scira (Sheringham Shoal BMU 2)	Wind (offshore)	158	2012	East	
Scottish and Southern: Greater Gabbard Offshore Winds Limited	Greater Gabbard	Wind (offshore)	504	2011	East (13)	
Scottish and Southern: Hydro Schemes - Affric/Beaully	Deanie	Hydro	38	1963	Scotland	
	Fasnakyle	Hydro	69	1951	Scotland	
Scottish and Southern: Hydro Schemes - Breadalbane	Lochay	Hydro	46	1958	Scotland	
Scottish and Southern: Hydro Schemes - Conon	Luichart	Hydro	34	1954	Scotland	
Scottish and Southern: Hydro Schemes - Foyers	Foyers	Hydro / pumped storage	300	1974	Scotland	
Scottish and Southern: Hydro Schemes - Great Glen	Glendoe	Hydro	100	2008	Scotland	
	Glenmoriston	Hydro	37	1957	Scotland	
Scottish and Southern: Hydro Schemes - Sloy/Awe	Clachan	Hydro	40	1955	Scotland	
	Sloy	Hydro	153	1950	Scotland	
Scottish and Southern: Hydro Schemes - Tummel	Clunie	Hydro	61	1950	Scotland	
	Errochty	Hydro	75	1955	Scotland	
	Rannoch	Hydro	45	1930	Scotland	
	Tummel	Hydro	34	1933	Scotland	
Scottish and Southern: Island Generation	Arnish	Diesel	10	2001	Scotland	
	Barra	Diesel	3	1990	Scotland	
	Bowmore	Diesel	6	1946	Scotland	
	Kirkwall	Diesel	16	1953	Scotland	
	Lerwick	Diesel	67	1953	Scotland	
	Loch Carnan, South Uist	Diesel	9	1971	Scotland	
	Stornoway	Diesel	24	1950	Scotland	
	Tiree	Diesel	3	1945	Scotland	
Scottish and Southern: Thermal	Medway	CCGT	735	1995	South East	
	Peterhead	CCGT	1,180	1980	Scotland	
	Fiddler's Ferry	Coal	1,961	1971	North West	
	Slough *	Biomass / gas / waste derived fuel	35	1918	South East	
	Chippenham	Gas	10	2002	South West	
	Fiddler's Ferry GT	Gas oil	34	1969	North West	
	Keadby	CCGT	755	1994	Yorkshire and the Humber	
	Keadby GT	Gas oil	25	1994	Yorkshire and the Humber	
	Burghfield	Gas / oil	45	1998	South East	
	Chickerell	Gas / oil	45	1998	South West	
	Five Oaks	Light oil	9	1995	South East	
	Thattham	Light oil	9	1994	South East	

⁽¹⁾ For footnotes see page 150

5.10 Power Stations in the United Kingdom (operational at the end of May 2016)⁽¹⁾ (continued)

Company Name	Station Name	Fuel	Installed Capacity (MW)	Year of commission or year generation began	Location Scotland, Wales, Northern Ireland or English region
Scottish and Southern: Wind	Achany	Wind	38	2010	Scotland
	Drumderg	Wind	37	2008	Scotland
	Fairburn	Wind	40	2009	Scotland
	Gordonbush	Wind	70	2011	Scotland
	Hadyard Hill	Wind	120	2005	Scotland
	Slieve Kirk	Wind	74	2011	Northern Ireland
	Strathy North	Wind	68	2015	Scotland
Scottish and Southern: Wind - Clyde Windfarm (Scotland) Limited	Clyde Central	Wind	113	2011	Scotland
	Clyde North	Wind	108	2012	Scotland
	Clyde South	Wind	129	2011	Scotland
Scottish and Southern: Wind - Griffin Windfarm Limited	Griffin	Wind	189	2011	Scotland
Scottish and Southern: Wind - Keadby Wind Farm Limited	Keadby	Wind	68	2013	Yorkshire and the Humber
Scottish Power: Hydro schemes - Cruachan	Cruachan	Pumped storage	440	1966	Scotland
Scottish Power: Hydro schemes - Galloway	Tongland	Hydro	33	1935	Scotland
Scottish Power: Thermal	Damhead Creek	CCGT	805	2000	South East
	Rye House	CCGT	715	1993	East
	Shoreham	CCGT	420	2000	South East
	Blackburn	CCGT	59	2011	North West
	Pilkington - Greengate *	Gas	10	1998	North West
Scottish Power: Wind	Arecleoch	Wind	120	2010	Scotland
	Beinn an Tuirc 2	Wind	44	2012	Scotland
	Black Law	Wind	124	2005	Scotland
	Harestanes	Wind	136	2013	Scotland
	Mark Hill	Wind	56	2011	Scotland
	Penryddian & Llidiartywaun	Wind	31	1992	Wales
	Whitelee	Wind	322	2007	Scotland
	Whitelee 2	Wind	217	2012	Scotland
Seabank Power Limited	Seabank 1	CCGT	812	1998	South West
	Seabank 2	CCGT	410	2000	South West
Sembcorp Utilities (UK) Ltd	Wilton 10	Biomass	38	2007	North East
	Wilton GT2	Gas	42	2005	North East
	Wilton GT1 *	Gas	42	1952	North East
South East London Combined Heat & Power Ltd	SELCHP ERF	Waste	32	1994	London
Statkraft Energy Ltd	Rheidol	Hydro	56	1961	Wales
Statkraft Wind UK Ltd	Baillie	Wind	53	2013	Scotland
	Berry Burn	Wind	67	2013	Scotland
The Renewables Infrastructure Group (UK) Ltd	Hill of Towie	Wind	48	2012	Scotland
Third Energy Trading Ltd (Formerly RGS)	Knapton	Gas	40	1994	Yorkshire and the Humber
Vattenfall Wind Power	Clashindarroch	Wind	37	2015	Scotland
	Edinbane	Wind	41	2010	Scotland
	Kentish Flats	Wind (offshore)	90	2005	South East
	Kentish Flats Extension	Wind (offshore)	50	2015	South East
	Ormonde	Wind (offshore)	150	2011	North West
	Thanet	Wind (offshore)	300	2010	South East
VPI Immingham LLP	VPI Immingham *	Gas	1,240	2004	Yorkshire and the Humber
Total			73,309		

For footnotes see page 150

Other power stations

Renewable sources and combustible wastes	Other MPP wind onshore	2,317
	Other MPP wind offshore	16
	Other generators wind	2,784
	Other generators landfill gas	1,061
	Other generators sewage gas	216
	Other generators biomass and waste	1,374
	Other MPP hydro	601
	Other generators hydro	302
	Other MPP Solar	1,618
	Other generators solar photovoltaics and wave/tidal	7,357
	CHP schemes listed in Table 5.11	Various fuels
CHP schemes other than major power producers and renewables and those listed in Table 5.11	Mainly gas	1,794

For footnotes see page 150

5.10 Power Stations in the United Kingdom (operational at the end of May 2016)⁽¹⁾ (continued)

Interconnectors

	Capacity (MW)
England - France	2,000
England - Netherlands	1,000
Scotland - Northern Ireland	500
Wales - Irish Republic	500
Northern Ireland - Irish Republic	600

Footnotes

(1) This list covers stations owned or operated by Major Power Producers, apart from non-thermal renewable sites under 30MW capacity (which are included in the database tab); other power stations (including many renewable sites and auto-generators) are included in the sub table on page 151.

(2) Managed by RWE.

(3) Joint venture between Green Coat Capital and Hermes, but operated by SSE.

(4) Now owned by EDF.

(5) Capacity reduced in 2013, with these stations typically now operating as Open Cycle Gas Turbines.

(6) Barrow owned 100% by Dong Energy.

(6b) Lincs Co-owned by Centrica (50%), DONG Energy (25%) and Siemens (25%).

(7) Joint venture with Scottish and Southern Energy (25.1%), OPW (24.8%) and DONG Energy (50.1%).

(8) Co-owned by EON (26%), Dong (25%), La caisse de dépôt et placement du Québec (25%) and Masdar 20%.

(9) Owned by NDA but operated by Magnox Ltd.

(10) Joint venture between SSE and ESB.

(11) Operated by Wind Prospect Operations.

(12) Owned by NDA but operated by Px Limited.

(13) Joint venture with Green Coat Capital, but operated by SSE.

(14) Total capacity is 1,840 MW but because of transmission constraints only 1,180 MW can be used at any one time.

(15) Joint venture with Scottish and Southern Energy and Electricity First Limited.

(16) SYND Holdco is a joint venture between Greencoat and Swiss Life where Greencoat owns 51.6% and Swiss Life owns 48.4%.

* indicates CHP plant

5.11 Large scale CHP schemes in the United Kingdom (operational at the end of December 2015)⁽¹⁾

Company Name	Scheme Location	Installed Capacity (MWe) (2)
A. Pearson And Sons (1949) Ltd	Woodhouse Nurseries	3
A. Pearson Growers Ltd	Europa Nursery - Ash	15
Adm Erith Ltd	Erith Oil Works	14
Agrivert Ltd	Cassington Ad	2
Arjo Wiggins Chartham Ltd	Chartham Paper Mill, Arjo Wiggins Chartham Ltd	6
Atkins Power	Yorkshire Grown Produce Limited - Burstwick	10
Atkins Power	Yorkshire Grown Produce Limited - Newport	4
Balcas Limited	Balcas Limited	3
Balcas Timber Ltd	Balcas Invergordon	9
Barkantine Heat & Power Company	Barkantine, Barkantine Heat & Power Company	1
Basf Performance Products	Water Treatments, Basf Plc	16
Briar Chemicals Limited	Briar Chemicals Ltd	4
British Sugar Plc	Bury St Edmunds Sugar Factory	77
British Sugar Plc	Cantley Sugar Factory	15
British Sugar Plc	Wissington Sugar Factory, British Sugar Plc (CHP 2)	93
Cambridge University Hospitals Foundation Trust	Addenbrookes Hospital	4
Cantelo Nurseries	Bradon Farm	10
Cargill Plc	Cargill Manchester CHP 2	28
Carillion Services Ltd, Ta Carillion Health	Queen Alexandra Hospital	3
Celts Ltd	Levenmouth Waste Water Treatment Works	3
Citywest Homes	Pump House	3
Cleveland Potash Limited	Boulby Mine, Cleveland Potash Limited	13
Cofely District Energy Ltd	The Heat Station (CHP 2)	7
Cofely District Energy Ltd	Mod Main Building, Cofely Limited	5
Cofely District Energy Ltd	Soas Chp, The Boiler House	1
Cofely District Energy Ltd	Icc Energy Centre	3
Cofely District Energy Ltd	Aston University Energy Centre, Aston University	3
Cofely District Energy Ltd	Birmingham Childrens Hospital	2
Cofely District Energy Ltd	Ldec-City Centre And Leicester East	3
Cofely District Energy Ltd	Ldec-Leicester North	2
Cofely IES	Cofely Humber Energy	46
Cofely Ltd	Trafford Park, Kellogg Company Of Great Britain	5
Cofely Ltd	Rampton Hospital	1
Contourglobal Solutions (Northern Ireland) Ltd	Knockmore Hill CHP, Contour Global Solutions (Northern Ireland) Ltd	15
Cyclerval Uk Ltd	Newlincs Efw, Newlincs Development Ltd	3
Cynergin Projects Limited	Villa Nursery Limited	1
Dalkia	Freeman Hospital	4
Dalkia	Royal Victoria Infirmary	4
Dalkia Plc	Lincoln County Hospital	1
Dalkia Utilities Services	Eli Lilly & Co Ltd	10
De La Rue Overton	Overton Mill, De La Rue International Ltd	7
Dow Corning Ltd	Dow Corning Chp	27
Ds Smith Paper Ltd	Kemsley CHP	81
Dsm Nutritional Products (UK) Ltd	Dsm Dalry	46
Eon	Nufarm Uk Limited	5
East Sussex Healthcare Trust	Eastbourne District General Hospital	1
Eco Sustainable Solutions Ltd	Eco Piddlehinton Ad	1
Esso Petroleum Company Limited	Fawley Cogen	316
Energen Biogas	Energen Biogas	2
Enviroenergy	London Road Heat Station	11
Eon	Queens Medical Centre NHS Trust	5
Eon Uk	Citigen CHP, Citigen (London) Limited	16
Ere Developments Ltd	Evermore Renewable Energy	16
Fine Organics Limited	Fine Organics Limited	5
Frimley Park Hospital Nhs Foundation Trust	Frimley Park Hospital	1
G4 Power Grid Ltd	Brookenby Power Station	4
Genzyme Ltd	Genzyme Ltd	1
Glaxosmithkline	Glaxosmithkline Ulverston	2
Glaxosmithkline	Glaxosmithkline Montrose	1
Glaxosmithkline	Glaxosmithkline Irvine	4
Glaxosmithkline	Barnard Castle	2
Glaxosmithkline	Glaxosmithkline, Ware	2
Glaxosmithkline Research & Development Ltd	GSK R & D Ware	4
Glaxosmithkline Research & Development Ltd	Stevenage R&D	4
Great Ormond Street Hospital For Children NHS Trust	Great Ormond Street Hospital	1

For footnotes see page 153

5.11 Large scale CHP schemes in the United Kingdom (operational at the end of December 2015)⁽¹⁾ (continued)

Company Name	Scheme Location	Installed Capacity (MWe) (2)
Heathcoat Fabrics Ltd	Heathcoat Fabrics Limited	1
Helix Agencies Limited	Natural History Museum	2
Helix Agencies Limited	Blackpool Victoria Hospital	1
Iggesund Paperboard (Workington) Ltd	Iggesund Paperboard (Workington) Ltd	50
Imperial College London	South Kensington Campus CHP Plant	9
Inbev Uk Ltd	Samlesbury Brewery, Inbev Uk Ltd	7
Inbev Uk Ltd	Magor Brewery, Inbev Uk Ltd	7
Ineos Chlorovinyls Limited	Ineos Chlorovinyls Limited	10
Ineos Chlorovinyls Limited	Gas Engine Chp	2
Integrated Energy Utilities Ltd	Seaton Energy Centre, Aberdeen Heat & Power	2
Integrated Energy Utilities Ltd	Callendar Park Energy Centre, Falkirk Council	1
Jaguar Landrover	Landrover - Solihull Paint Shop 21	3
Jaguar Landrover	Landrover Group - Solihull North Works	3
James Cropper Plc	James Cropper Plc	7
John Thompson And Son Ltd	John Thompson & Sons Limited	4
Johnson Matthey	Johnson Matthey Enfield	3
Johnson Matthey	Johnson Matthey - Royston	6
Lawrence Automotive Interiors (Vmc) Ltd	Browns Lane, Lawrence Automotive Interiors (Vmc) Ltd	3
London Borough Of Islington	Bunhill Heat And Power	2
Loughborough University	Central Park	2
Medway NHS Foundation Trust	Medway Hospital, Medway Maritime Hospital	1
Mill Nurseries Ltd	Mill Chp, Mill Nurseries	14
Nestle Uk Limited	Nestle York	10
Nhs Grampian	Aberdeen Royal Infirmary	5
North Tees & Hartlepool NHS Foundation Trust	University Hospital Of North Tees	2
Northumbrian Water Ltd	Bran Sands (Biogas)	5
Northumbrian Water Ltd	Howdon Stw	6
Northwood & Wepa Ltd	Bridgend CHP	9
Novartis Grimsby Limited	Novartis Grimsby Limited	8
Peel Utilities Holdings Limited	Media City, Utilities (Media City Uk) Ltd	2
Powell Energy	St. Georges Hospital	4
Preston Board And Packaging Ltd	Romiley Board	1
Reckitt Benckiser	Kwe Hull	2
Reg Bio Power Ltd	Bentwaters CHP	6
Rotherham General Hospital NHS Trust	Rotherham District General Hospital	1
Royal Devon And Exeter Foundation Trust	Royal Devon And Exeter Hospital Wonford	1
Rwe Npower	Basf CHP	98
RWE Npower Cogen Ltd	Markinch CHP	65
Ryobi Aluminium Casting (UK) Ltd	Ryobi	1
Scottish And Southern Energy	Slough Nurseries, G & C Properties	2
Sellafield Ltd	Combined Heat And Power Plant F238	193
Slough Heat & Power Ltd	Slough Power Station	21
Smurfit Kappa Ssk	Smurfit Kappa Ssk Limited	9
Southern Water Services	Ashford Stc	2
Southern Water Services	Millbrook Wtw, Southern Water	1
Southern Water Services	Budds Farm Wtw, Southern Water	2
Springfields Fuels Ltd	Springfields	12
Swansea University	Swansea University	2
Tata Chemicals Europe	Winnington CHP	146
Tate & Lyle Sugars Ltd	Thames Refinery, Tate and Lyle New Scheme	28
Thames Water Utilities Ltd	Maple Lodge Stw	4
Thames Water Utilities Ltd	Long Reach Stw	3
Thames Water Utilities Ltd	Mogden Stw	10
Thames Water Utilities Ltd	Beddington Stw	1
Thames Water Utilities Ltd	Deephams Stw	3
Thames Water Utilities Ltd	Ryemeads Stw	1
Thames Water Utilities Ltd	Oxford Stw	2
Thames Water Utilities Ltd	Crawley Stw	1
Thames Water Utilities Ltd	Reading (Island Road) Stw	1
Thames Water Utilities Ltd	Chertsey STW	1
Thamesway Central Milton Keynes Ltd	Woking Town Centre Phase I	1

For footnotes see page 153

5.11 Large scale CHP schemes in the United Kingdom (operational at the end of December 2015)⁽¹⁾ (continued)

Company Name	Scheme Location	Installed Capacity (MWe) (2)
Thamesway Central Milton Keynes Ltd	Tcmk Phase 1 CHP No 2 Gas Engine	6
Transport For London	Palestra, Transport for London	1
University of Aberdeen	Old Aberdeen Campus	2
University of Birmingham ALTA Estate Services CHP Energy Centre	The University Of Birmingham Scheme Ref 740A	4
University of Bristol	University Of Bristol CHP 2	1
University Of Dundee	University Of Dundee, Main CHP Boilerhouse	4
University Of East Anglia	University Of East Anglia	5
University of Edinburgh Utilities Supply Company	Kings Buildings	3
University of Edinburgh Utilities Supply Company	George Square Energy Centre	2
University Of Liverpool	University Of Liverpool CHP 2	7
University of Southampton	University of Southampton	3
University of Surrey	University Of Surrey	1
University of Sussex	University of Sussex	1
University of Warwick	CHP Boilerhouse (CHP 2), University Of Warwick	4
University of Warwick	Cryfield Energy Centre	4
University Of York	University Of York	3
University of Edinburgh Utilities Supply Company	Holyrood Energy Centre	1
Upm-Kymmene (UK)	Upm Shotton	22
Utilicom Ltd	University College London, Gower Street Heat And Power Ltd	3
Veolia Environmental Services Plc	Sheffield ERF	21
Vinnolit Hillhouse Ltd	Hillhouse International Business Park	5
Vital Energi	Kings Cross - Metro#1	2
Vital Energi	York Teaching Hospital	1
Vital Energi	Cheltenham General Hospital	1
Weetabix Ltd	Weetabix Limited	6
Wessex Water Services Ltd	Bristol Waste Water Treatment Works Scheme A	6
Total (2)		1,954
Electrical capacity of good quality CHP for these sites in total		1,794

(1) These are sites of 1 MW installed electrical capacity or more that either have agreed to be listed in the Ofgem register of CHP plants or whose details are publicly available elsewhere, or who have provided the information directly to BEIS. It excludes CHP sites that have been listed as major power producers in Table 5.10.

(2) This is the total power capacity from these sites and includes all the capacity at that site, not just that classed as good quality CHP under CHPQA.

5.12 Plant installed capacity, by connection - United Kingdom

	MW				
	end December				
	2011	2012	2013	2014	2015
Transmission Network - Great Britain					
Installed capacity (1)	79,478	79,514	73,998	72,213	68,548
Coal (2)	27,231	25,291	20,216	18,353	16,473
CCGT	29,366	32,067	30,805	29,880	29,444
Oil	4,025	2,725	1,370	1,370	-
Nuclear - Magnox	1,197	490	490	490	-
Nuclear - PWR	1,191	1,191	1,198	1,198	1,198
Nuclear - AGR	7,550	7,550	7,685	7,720	7,720
OCGT	1,104	981	1,112	1,076	937
Hydro	1,213	1,213	1,213	1,226	1,228
Onshore Wind	1,557	1,805	2,713	2,747	2,777
Offshore Wind	1,240	2,397	2,721	3,507	3,716
Bioenergy (3)	976	976	1,647	1,817	2,226
Pumped Storage	2,828	2,828	2,828	2,828	2,828
Distribution Network - Great Britain					
Installed capacity (1)	12,401	14,285	15,697r	19,396r	24,175
Coal (2)	593	589	28r	33r	22
CCGT	3,024	3,021	2,546r	2,586r	2,412
Oil	533	468	448r	340r	366
Diesel Engines	134	134	134	138	138
OCGT	169	166	105	90	90
Conventional Thermal Gas	737	766	862r	883r	842
Hydro	457	473	487r	494r	521
Onshore Wind	2,669	3,643	4,221r	5,100r	5,698
Offshore Wind	598	599	975	994	1,388
Bioenergy	2,093	2,160	2,344r	2,693r	2,916
PV	993	1,750	2,846r	5,362r	9,082
Wave/Tidal	2	5	6	7	8
Other Fuels (4)	586	732	695r	675r	694
Transmission Network - Northern Ireland					
Installed capacity (1)	2,395	2,395	2,395	2,395	2,395
Coal (2)	520	520	520	520	520
CCGT	1,024	1,024	1,024	1,024	1,024
OCGT	311	311	311	311	311
Conventional Thermal Gas	540	540	540	540	540
Distribution Network - Northern Ireland					
Installed capacity (1)	428	494	647r	798r	906
Hydro	8	8	9	9	9
Onshore Wind	401	456	582	689r	713
Bioenergy	16	23	28	37r	77
PV	2	6	27r	62r	106
Wave/Tidal	1	1	1	1	1
Transmission Network - Total UK					
Installed capacity (1)	81,873	81,909	76,393	74,608	70,943
Coal (2)	27,751	25,811	20,736	18,873	17,013
CCGT	30,390	33,091	31,829	30,904	30,468
Conventional Thermal Gas	540	540	540	540	540
Oil	4,025	2,725	1,370	1,370	-
Nuclear - Magnox	1,197	490	490	490	-
Nuclear - PWR	1,191	1,191	1,198	1,198	1,198
Nuclear - AGR	7,550	7,550	7,685	7,720	7,720
OCGT	1,415	1,292	1,423	1,387	1,248
Hydro	1,213	1,213	1,213	1,226	1,228
Onshore Wind	1,557	1,805	2,713	2,747	2,777
Offshore Wind	1,240	2,397	2,721	3,507	3,716
Bioenergy	976	976	1,647	1,817	2,226
Pumped Storage	2,828	2,828	2,828	2,828	2,828
of which, good quality CHP	2,087	2,159	2,113	2,141	1,976
Distribution Network - Total UK					
Installed capacity (1)	12,831	14,779	16,343r	20,195r	25,081
Coal (2)	593	589	28r	33r	22
CCGT	3,024	3,021	2,546r	2,586r	2,412
Oil	533	468	448r	340r	366
Diesel Engines	134	134	134	138	138
OCGT	169	166	105	90	90
Conventional Thermal Gas	737	766	862r	883r	842
Hydro	465	482	496r	503r	530
Onshore Wind	3,072	4,099	4,803r	5,789r	6,411
Offshore Wind	598	599	975	994	1,388
Bioenergy	2,109	2,183	2,372r	2,731r	2,993
PV	995	1,755	2,873r	5,424r	9,188
Wave/Tidal	3	7	7	9	9
Other Fuels (4)	586	732	695r	675r	694
of which, good quality CHP	3,872	4,016	3,812r	3,753r	3,716

(1) See paragraph 5.80 for definition

(2) Includes mixed fuel stations (coal/oil, coal/gas) and co-firing coal stations

(3) Includes 48 MW of Slough Heat and Power's mixed fuel capacity (remaining 13 MW included under coal)

(4) Includes coke oven gas, blast furnace gas, other gas/liquid/solid waste and waste heat from high temperature and chemical processes