

Chapter 5: Electricity

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Key headlines

Electricity demand was higher in 2025 at 323 TWh, up 1.2 per cent compared to 2024. Demand remained notably below the pre-pandemic levels of 2019.

Domestic consumption increased compared to 2024 (up 2.6 per cent) but remains below pre-pandemic levels. Domestic consumption fell sharply in 2022 and in 2023 but has increased year on year since then. **Commercial consumption also increased by 1.5 per cent while industrial consumption fell by 2.0 per cent in 2025 to 76.7 TWh, the lowest level since 1983.** This is in line with energy efficiency improvements and a move from traditional manufacturing to higher value processes.

Electricity generation increased by 2.6 per cent, as increased demand and high electricity exports increased the need for UK generation. In 2025 imports were slightly higher than in 2024 but exports increased substantially to the second highest value on the published data series, increasing the need for UK-based generation.

Renewable generation increased by 5.9 per cent from 2024, reaching a new record high of 153.0 TWh, driven by record high generation from wind, solar and bioenergy. There was a particularly large percentage increase in solar generation, up by 34 per cent to 20.1 TWh, the highest value on the published data series and more than twice the 2015 value.

Fossil fuel generation increased by 4.1 per cent in 2025 to 94.9 TWh though remained at a historically low level, marking the first full year with no generation from coal. In 2025, almost all fossil fuel generation came from gas, as coal generation ceased completely during 2024.

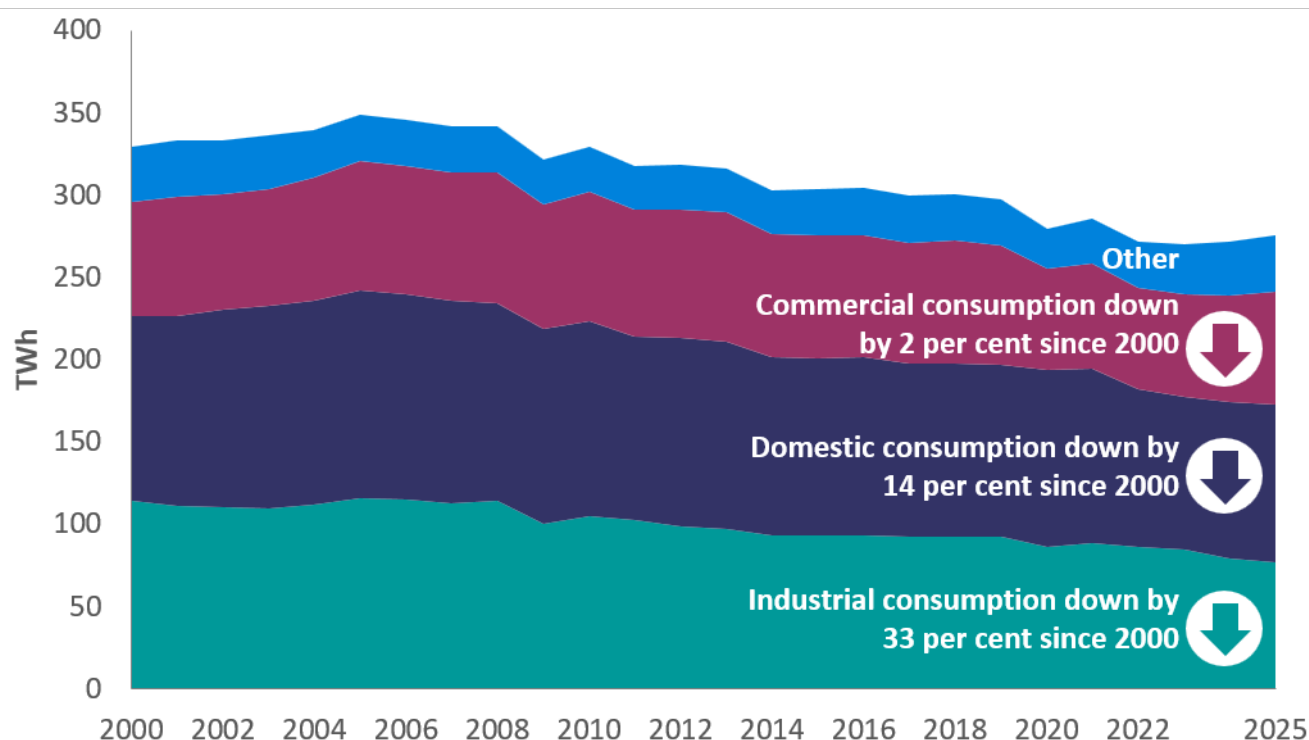
Renewable sources accounted for 52.1 per cent of generation in 2025, exceeding a share of 50 per cent for the second time in the published data series. The share of generation coming from low carbon sources (nuclear plus renewables) fell slightly to 64.3 per cent in 2025, 0.4 percentage points lower than the record high share seen in 2024 as the share from nuclear decreased.

De-rated renewable capacity increased 2.8 per cent to 27.7 GW, driven by increases in offshore wind and solar capacity. Wind capacity increased by 1.5 per cent to 14.1 GW with a 1.5 per cent increase for onshore wind and a 3.2 per cent increase for offshore wind, including Moray West and NNG sites. De-rated solar capacity also saw an increase of 12 per cent to 3.7 GW.

Electricity demand was higher in 2025 at 323.0 TWh, up 1.2 per cent compared to 2024. Average temperatures were similar overall between 2024 and 2025 but cooler in the first quarter of the year. Electricity demand remains notably below pre-pandemic levels of 2019.

Final consumption also rose to 275.5 TWh, a 1.7 per cent increase compared to 2024. 'Final consumption' refers to electricity consumption by end users, excluding electricity consumed in the process of generation or by fuel industries and transmission or distribution losses.

Chart 5.1 Electricity consumption by sector, 2000 to 2025 (DUKES Table 5.1)



Domestic consumption rose to 96.2 TWh in 2025, a 2.6 per cent increase compared to 2024 but remains below pre-pandemic levels. Domestic consumption fell sharply in 2022 following high energy prices and warm temperatures and fell again in 2023 but has increased year on year since then. Despite the increases, domestic consumption in 2025 was 7.1 per cent below 2019. Over the longer time series some of the drop can be attributed to improved energy efficiency of lighting and appliances.

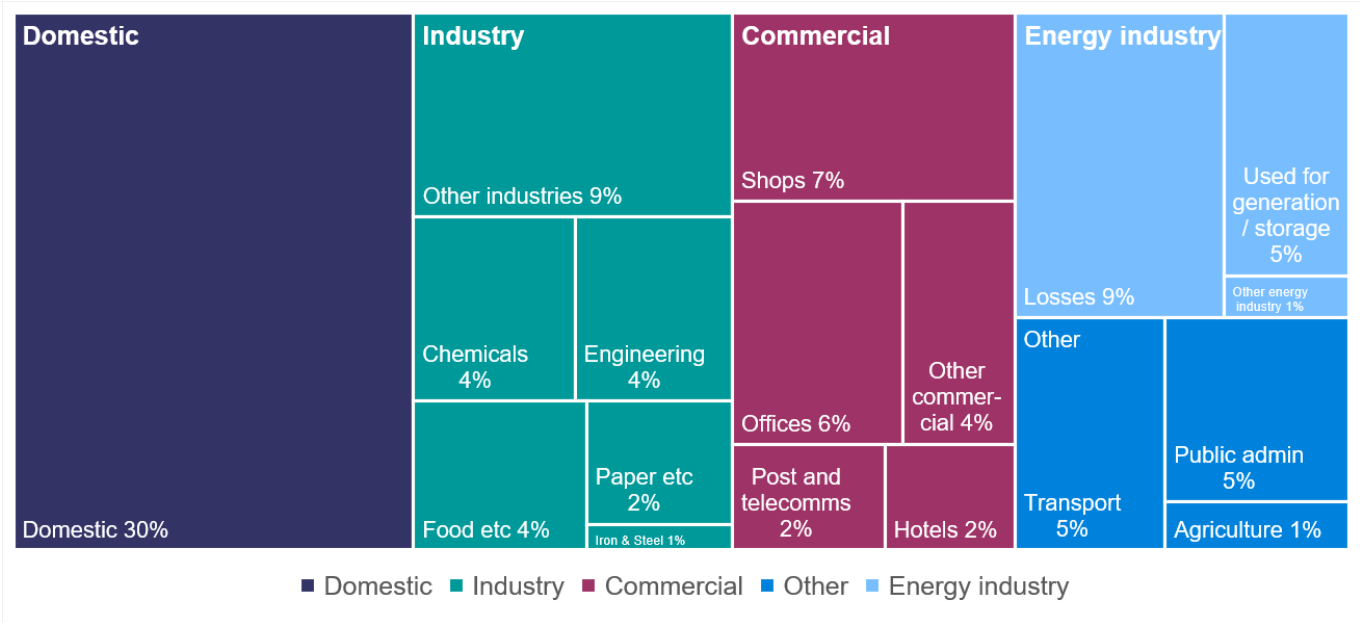
Commercial consumption increased by 1.5 per cent from 2024 to 67.9 TWh in 2024. As with the domestic increase above, this reflects cooler temperatures in the first quarter of 2025, increasing electricity demand for heating.

Whilst data centres are not yet separately identified in our main data collections, DESNZ analysis of electricity meter data indicates that **data centres accounted for an estimated 4.5 TWh of electricity consumed from the grid in Great Britain in 2024**, up from 1.3 TWh in 2020. For more detail see: [Data centre electricity consumption in Great Britain, 2020-2024](#). Data centre electricity consumption is included within the Post and Telecommunications sector in DUKES table 5.2, within the wider Commercial sector.

Industrial consumption fell by 2.0 per cent in 2025 to 76.7 TWh, the lowest level since 1983. This is the fourth consecutive year where industrial consumption has fallen. In common with many other European countries, industrial consumption has contracted over time. Energy efficiency improvements and a move from traditional manufacturing to higher value processes such as pharmaceuticals have contributed to the reduction over the longer-term.

Total electricity demand is larger than electricity consumption. This is because total demand also accounts for electricity consumed in the process of generation or to produce fuel for generation, as well as for electricity lost in transmission or distribution from where it was generated to where it was consumed. The full breakdown of electricity demand is shown below.

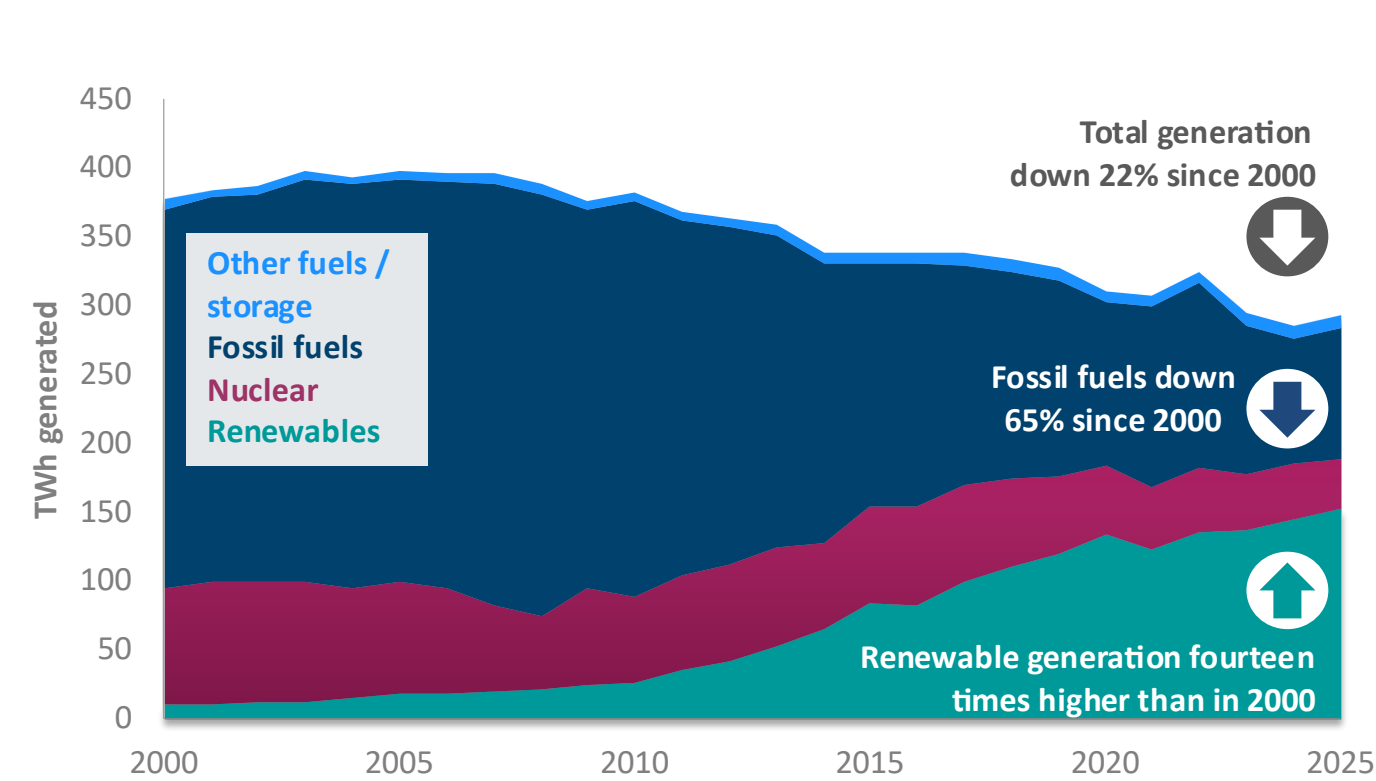
Chart 5.2 Share of total electricity demand split by sector, 2025 ([DUKES Table 5.2](#))



Domestic users accounted for the largest share of total electricity demand (29.8 per cent), a similar share to 2024. Industrial consumption made up 23.7 per cent, which is 0.8 percentage points lower than 2024's share (24.5 per cent), while commercial consumption accounted for 21.0 per cent, 0.1 percentage points higher than in 2024.

Electricity generation increased by 2.6 per cent, as increased demand and high electricity exports increased the need for UK generation. Electricity generation measures what is generated while electricity supply measures what was supplied to consumers, excluding the electricity used in the process of generation or consumed on site by the generator. Total electricity supplied plus imports matches with demand as electricity is supplied until demand is met. Demand for electricity is usually met by UK generation and supplemented with imports from Europe when price differentials are favourable. In 2025 imports were similar to 2024 but exports increased to the second highest value on the published data series, increasing the need for UK-based generation.

Chart 5.3 Electricity generated by fuel, 2000 to 2025 ([DUKES Table 5.6](#))



In line with increased UK demand, electricity generation rose to 293.6 TWh in 2025, up 2.6 per cent compared to 2024. Major Power Producers (MPPs) generated 232.8 TWh, up 1.5 per cent compared to 2024, while generation from autogenerators and other generators had a larger percentage increase, up 7.2 per cent to 60.7 TWh. The share of generation from MPPs decreased by 0.9 percentage points to 79.3 per cent.

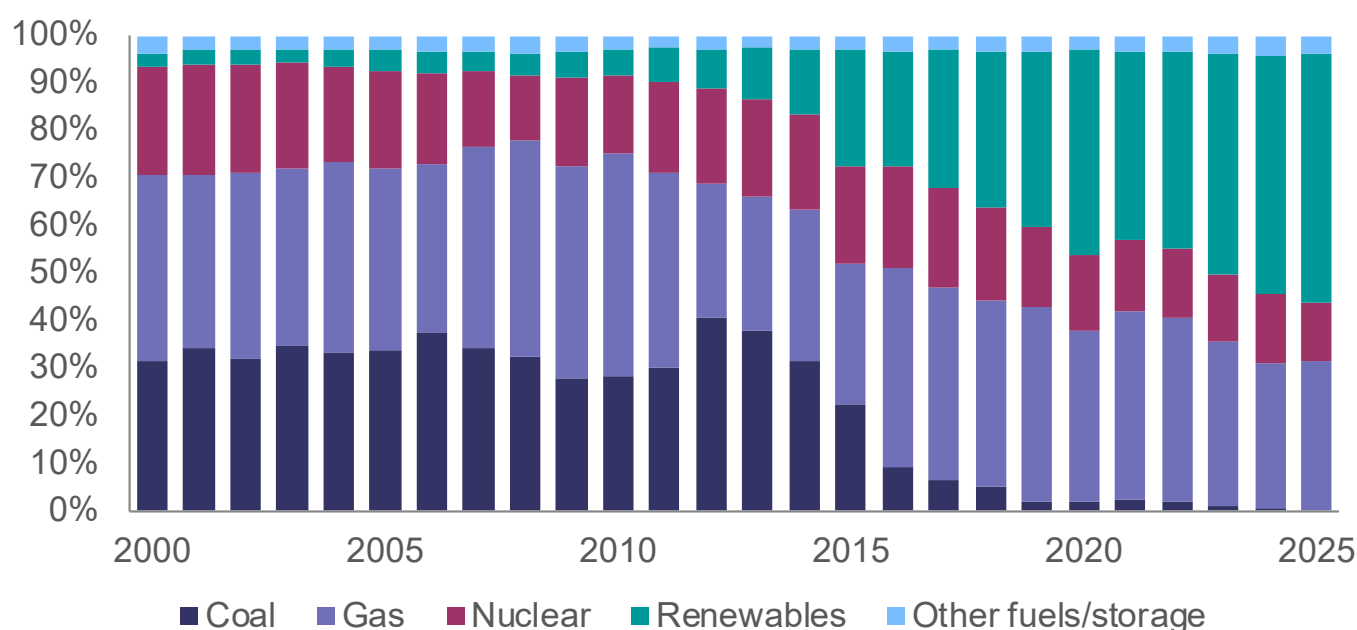
Renewable generation increased by 5.9 per cent from 2024, reaching a new record high of 153.0 TWh, driven by record high generation from wind, solar and bioenergy. Wind generation increased by 3.4 per cent on 2024 levels, to 86.4 TWh. This was driven by higher capacity as average wind speeds were lower than in 2024. Generation from bioenergy rose by 2.2 per cent to 41.0 TWh, as key bioenergy sites were utilised more heavily than in 2024. There was a particularly large percentage increase in solar generation, up by 34.2 per cent to 20.1 TWh, the highest value on the published data series and more than twice the 2015 value. This came as solar capacity increased substantially and the UK also experienced unusually high average daily sun hours. Hydro was the only renewable technology with decreased generation, down by 6.0 per cent to 5.4 TWh.

Fossil fuel generation increased by 4.1 per cent in 2025 to 94.9 TWh though remained at a historically low level, marking the first full year with no generation from coal. Similar levels of fossil fuelled generation were last seen in the mid-1950s when electricity demand was a third of today's requirement and over 95 per cent fuelled by coal and oil-fired generation. In 2025, almost all fossil fuel generation came from gas, which increased 6.6 per cent to 93.2 TWh. Coal generation ceased in 2024 with the closure of the UK's last coal-fired power plant, Ratcliffe-on-Soar in September 2024, meaning that 2025 was the first year on the published data series with no generation from coal. Oil generation fell by 2.5 per cent to 1.7 TWh.

Nuclear generation fell by 12 per cent in 2025, down to 35.9 TWh, the lowest level since the 1980s. This was due to outages at the remaining nuclear power stations which included outages for refuelling as well as planned and unplanned maintenance.

As well as absolute generation, it is also useful to consider the overall shares of generation, which are less affected by changes in demand. This allows trends in different fuels to be examined, including the share of electricity generated from low carbon sources.

Chart 5.4 Shares of electricity generation by fuel, 2010 to 2025 ([DUKES Table 5.6](#))



Renewable sources accounted for 52.1 per cent of generation in 2025, exceeding a share of 50 per cent for the second time in the published data series. The share of generation from renewables increased by 1.6 percentage points compared to 2024 levels. While most renewable technologies had a similar share as in 2024, the share for solar increased by 1.6 percentage points to 6.9 per cent of total generation, driving the

increase in renewable share. Wind generation continued to account for more than a quarter of total generation with a 29.5 per cent share in 2025.

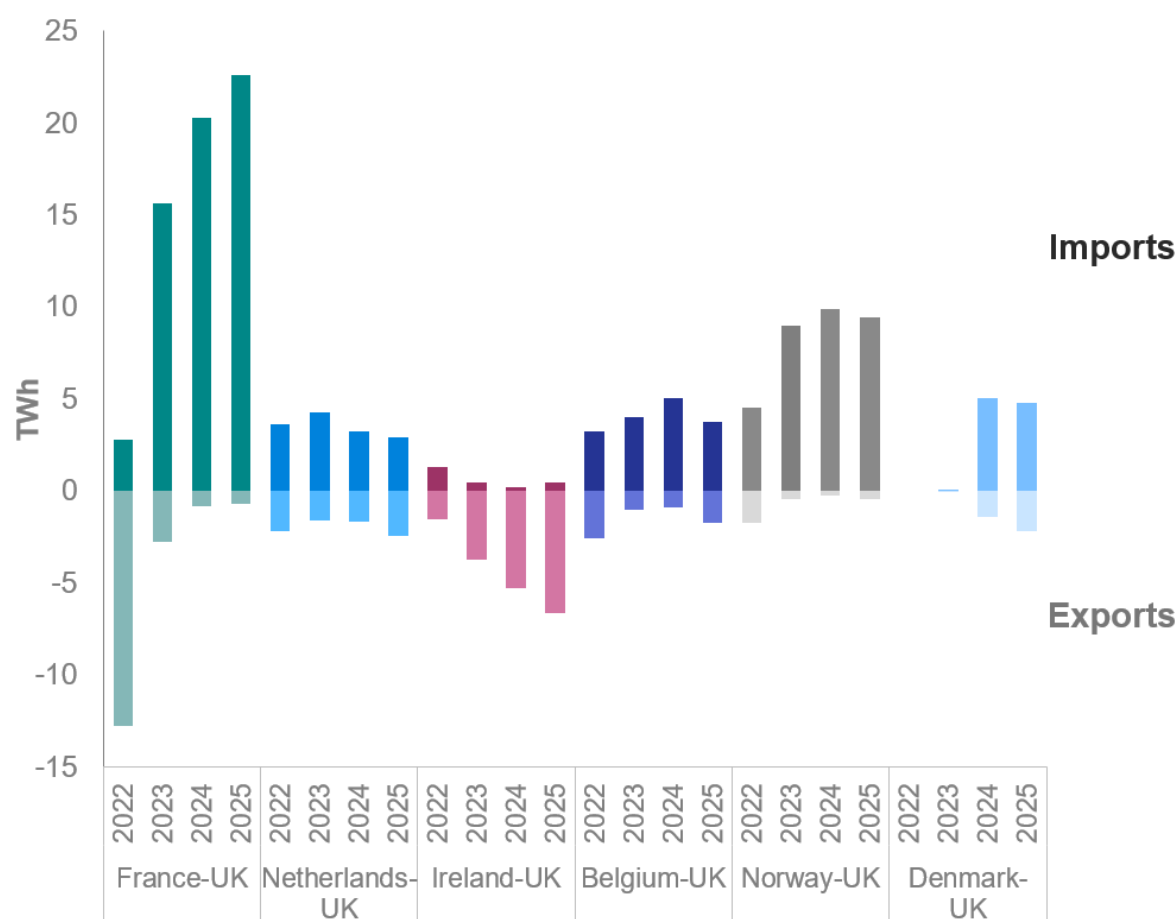
The share of generation from fossil fuels increased 0.4 percentage points to 32.3 per cent, just above 2024's record low. Despite the increase, fossil fuels represented less than a third of total generation for the second year in a row. Almost all of this was gas generation which had a 31.8 per cent share of generation.

Nuclear generation accounted for 12.2 per cent of generation in 2025, down 2.0 percentage points from 2024. This came as outages restricted generation at the UK's remaining nuclear plants. The share of generation coming from low carbon sources (nuclear plus renewables) fell slightly to 64.3 per cent in 2025, 0.4 percentage points lower than the record high share seen in 2024.

The total fuel used for electricity generation decreased by 1.0 per cent in 2025 to 46.9 million tonnes of oil equivalent (Mtoe). This was despite a 2.6 per cent increase in UK generation over the same time period because of the growth in non-thermal renewables which do not incur conversion losses¹. Fuel used for electricity has fallen 25 per cent since 2015. Trends in fuel used broadly mirror those in electricity generation, with a decrease in fossil fuel use, and increases in fuel used for bioenergy and assumed fuel used by wind and solar generators. Gas continues to dominate the UK generation mix, with 16.5 Mtoe used in 2025, with coal use ceasing completely in 2025.

¹ For wind, hydro and solar, in line with [international reporting standards](#), primary production of energy is defined as extraction of energy products in a useable form from natural sources, such as mined coal or electricity generated by a wind turbine (and not, e.g. the wind that blows across the UK). Under the IEA's conventions, for hydro, wind and tidal the primary output is simply the gross electricity generated. Solar PV is treated similarly as a measure of simple gross output rather than the solar radiation input into the panels. For nuclear, the heat content of the steam leaving the reactor for the turbine is used as the primary energy form. Therefore, for wind, tidal, hydro and solar, the fuel used is assumed the same as the electricity generated, unlike thermal generation where conversion losses are incurred. Therefore, for example, if one unit of electricity produced from coal is switched to wind, the fuel used will show a fall from around three units (as coal's thermal efficiency is around one-third) to one unit.

Chart 5.5 Electricity imports and exports by country, 2022 to 2025 ([DUKES Table 5.13](#))



Net imports fell by 11 per cent from 2024 to 29.7 TWh, the second highest value within the published time series. This came as total imports increased to the highest value on the published data series, up 0.4 per cent to 43.9 TWh, but this was offset by a 38 per cent increase in exports to 14.2 TWh. 2025 saw second greatest level of electricity exports, only beaten by 2022 when exports were unusually high due to widespread outages in the French nuclear fleet.

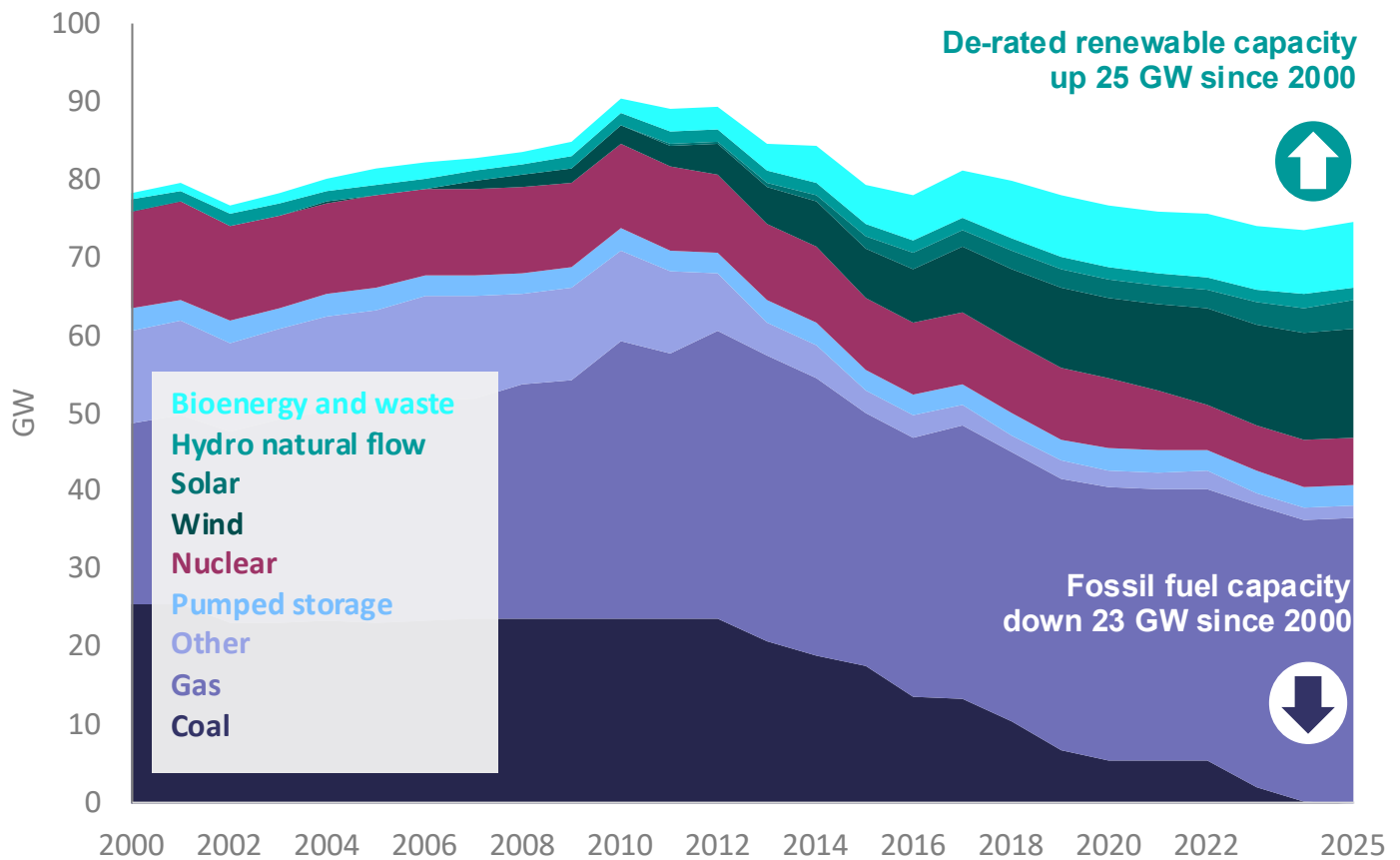
The UK was a net importer from all interconnected countries except the Republic of Ireland, which is connected to the UK through land connections from Northern Ireland and a subsea interconnector cable from Wales. The France-UK interconnectors accounted for 21.9 TWh of net imports, followed by Norway-UK with net imports of 9.0 TWh. The Denmark-UK interconnector completed its second full year of operation with net imports of 2.5 TWh, while Belgium-UK had net imports of 2.0. Imports and net imports from France were at record levels in 2025, with imports from Norway remaining high but slightly below 2024.

More electricity was exported to the Republic of Ireland than was imported from there to the UK, leading to net exports from the UK. The Ireland-Wales interconnector saw net exports of 4.5 TWh, and the Northern Ireland-Ireland interconnector contributed 1.6 TWh of net exports to the total.

UK electricity is generated from a range of technologies and fuels are used at different times in response to demand and changes in weather. Monitoring capacity along with load factors (the proportion of potential generation that is realised in the year) can highlight how the capacity is being used to monitor the security of electricity supply.

In this section, wind, small scale hydro and solar PV capacity is de-rated to account for intermittency, to enable direct comparison with conventional fuels which are less dependent on the weather. Total installed capacity figures (not de-rated) are available in [DUKES Table 5.12](#).

Chart 5.6 De-rated capacity of UK electricity generation assets by fuel, 2000 to 2025 (DUKES Table 5.7)



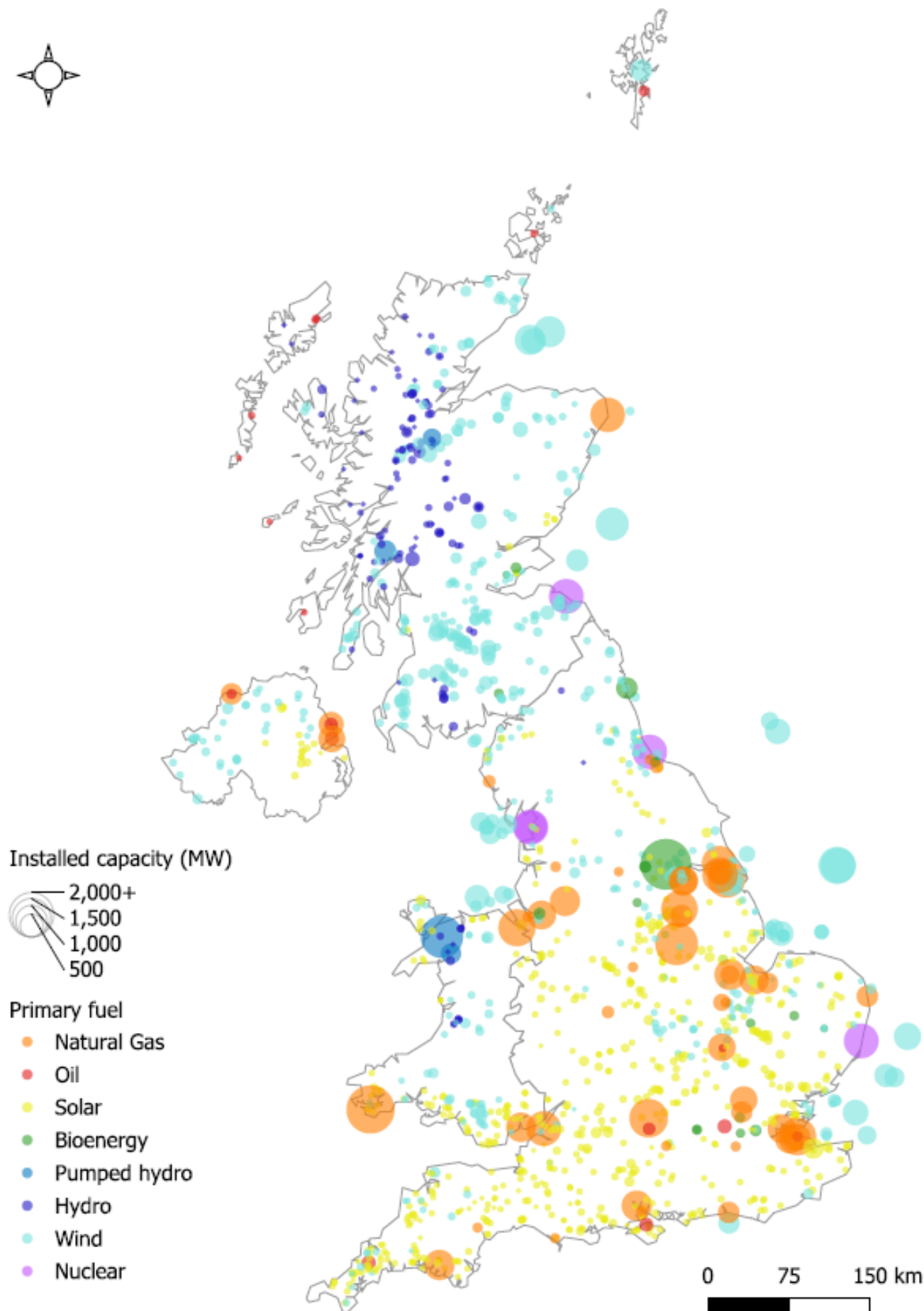
Total de-rated generation capacity increased to 74.5 GW in 2025, up 1.3 per cent compared to 2024. This is the first year that de-rated capacity has increased since 2017. There were no substantial changes in fossil fuel capacity or nuclear capacity, so the increases were predominantly in renewable technologies.

De-rated renewable capacity increased 2.8 per cent to 27.7 GW, driven by increases in offshore wind and solar capacity. Wind capacity increased by 1.5 per cent to 14.1 GW with a 1.5 per cent increase for onshore wind and a 3.2 per cent increase for offshore wind, including Moray West and NNG sites. De-rated solar capacity also saw an increase of 11.6 per cent to 3.7 GW.

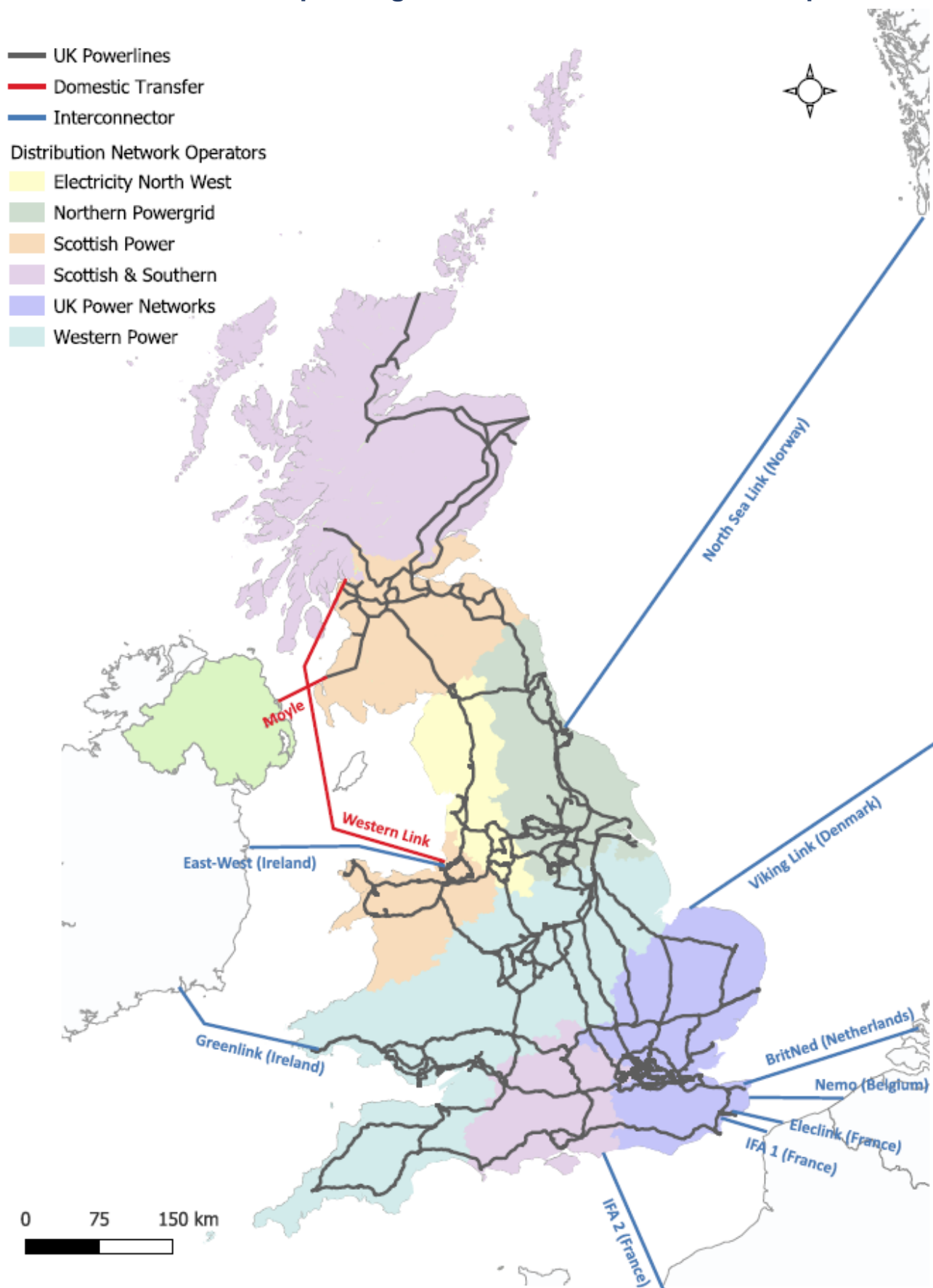
Peak demand in winter increased to 51.5 GW, up by 8.8 per cent compared to the equivalent figure in 2024. As Major Power Producer (MPP) capacity was similar across 2024 and 2025, the peak represented 83 per cent of MPP capacity, 6 percentage points higher than 2024.

Major Power Producers' power plants were more intensively deployed than they were last year, with a load factor of 36.2 per cent (DUKES Table 5.10). Load factors indicate the proportion of the time the plant is producing electricity and increased by 1.4 percentage points compared to 2024, in line with higher generation by Major Power Producers. Load factors vary by technology, with nuclear stations the highest at 64.0 per cent and the lowest being pumped storage hydro at 7.4 per cent. Full load factors for renewable generation are given in [DUKES Table 6.3](#).

Map of Major Power Producers in the UK (operational May 2026)



UK Distribution Network Operating Areas and GB Power Lines Map

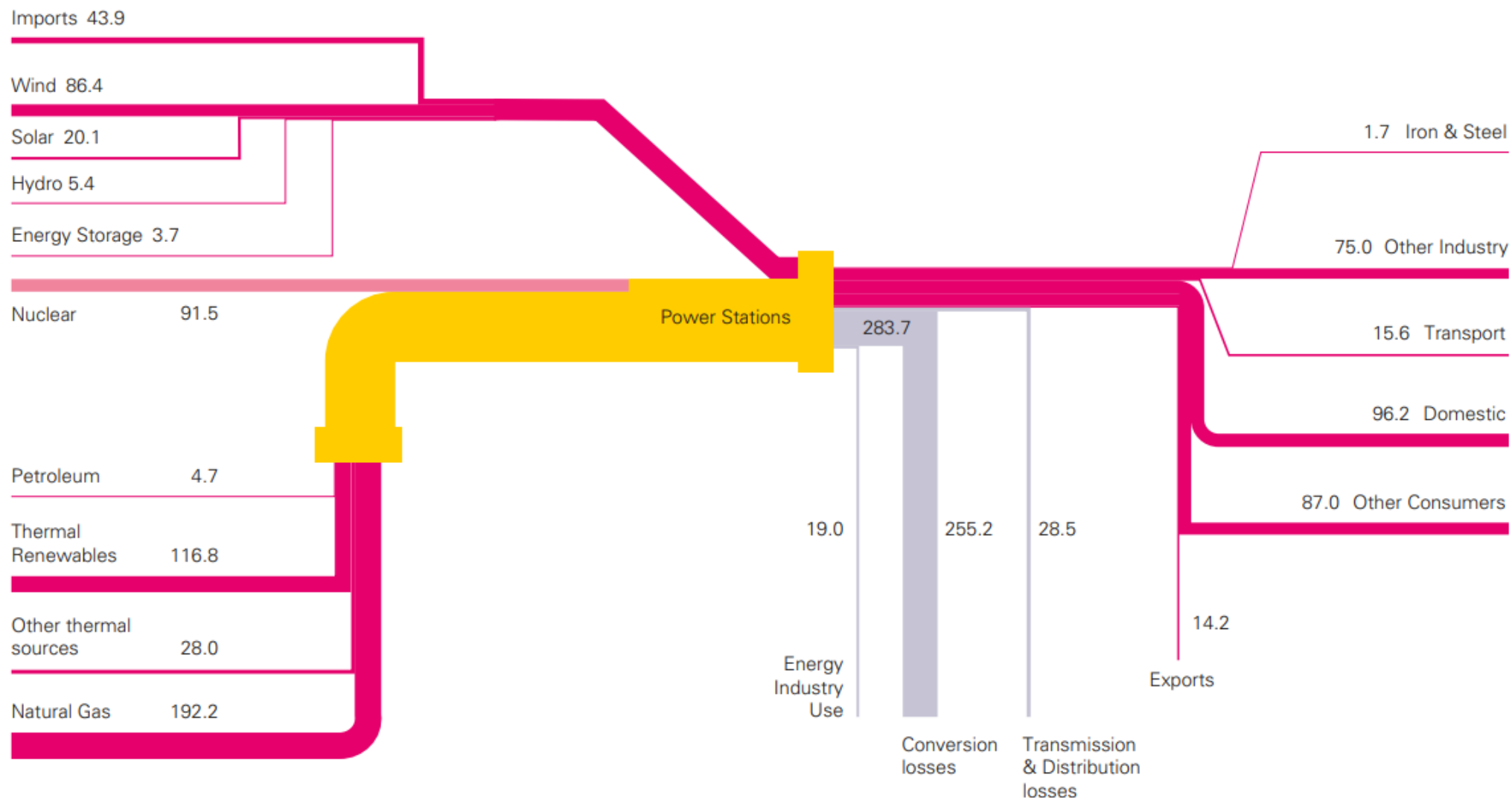


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Trade connections are representations of the route, not the actual locations of cables.

Data sources: National Grid Transmission Network (www.nationalgrid.com/uk); DESNZ Distribution Network Operator Data; DESNZ Country Boundary Data.

Electricity Flow Chart 2025 (TWh)



Notes on flow chart

This flow chart is based on the data in Tables 5.1 (for imports, exports, use, losses and consumption) and 5.6 (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 are calculated as fuel used (Table 5.6) minus generation (Table 5.6) plus losses (Table 5.1).



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