

Chapter 1: Energy

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Key headlines

Energy production rose by 3.1 per cent compared to the record low level of 2021. Oil production fell to a record low level and remains down by 28 per cent on pre-pandemic (2019) levels. Gas output rose by 16 per cent, nuclear output rose by 4.6 per cent despite reduced operational capacity, but coal reached another record low. Wind, solar and hydro output rose to a record high level due to increased capacity and more favourable weather conditions.

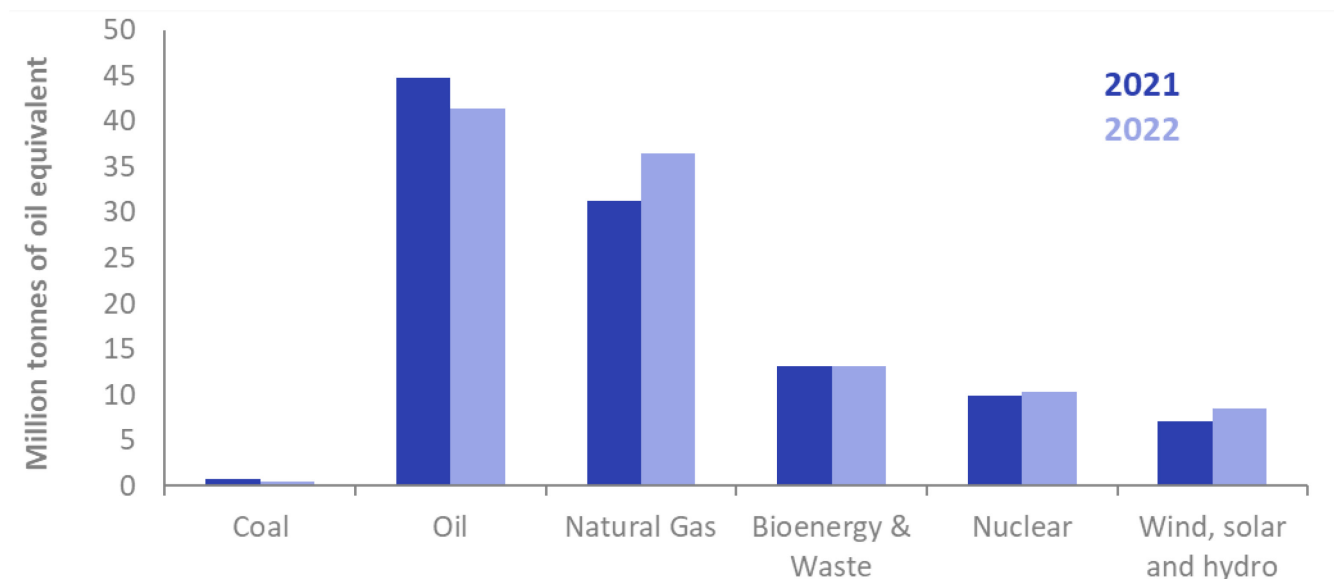
Energy consumption in 2022 remained low, down 0.9 per cent on 2021 and down 11 per cent on 2019. Consumption levels in 2022 fell for all sectors except for transport due to warmer weather as well as the impact of higher prices towards the end of the year; industrial sector consumption fell by 3.8 per cent to a record low level.

Transport demand increased 15 per cent compared to last year but remains 11 per cent below pre-pandemic (2019) levels. **Aviation fuel demand almost doubled in 2022**, but is 21 per cent below 2019 levels, whilst petrol and diesel consumption in 2022 was broadly similar to 2019 averages.

Net imports fell by 2.6 per cent. Imports increased by 11 per cent with gas imports at a record high level, and exports increased by 24 per cent with gas and electricity exports at record high levels, with the **UK a net exporter of electricity for the first time in over 40 years. The UK has played a key role in supplying gas to Europe as it looks to move away from Russian gas.** The UK's net import dependency stood at 37.3 per cent.

The bulk of the UK's energy imports, over 90 per cent, comprise oil and gas and **Norway is the UK's primary supplier of energy imports.** The largest share of oil imports arrives from the US, whilst Norway provides the largest share of gas imports. **Russian imports of oil and gas reduced significantly in 2022** and ceased by the end of the year, and accounted for 2.6 per cent of total imports down from 9.6 per cent in 2021.

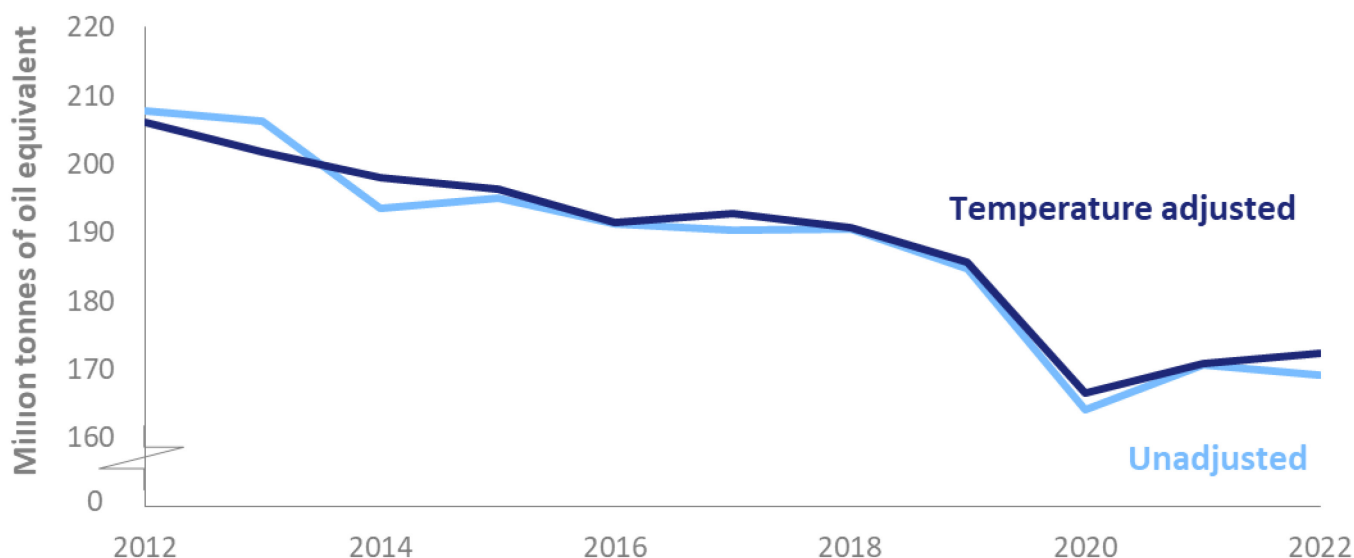
Chart 1.1 Production by fuels, 2021 and 2022 ([DUKES table 1.1](#))



In 2022 total production was 110.2 million tonnes of oil equivalent, 3.1 per cent higher than the record low level of 106.8 million tonnes of oil equivalent in 2021. Production levels for all fuels except coal, oil and bioenergy & waste are up on 2021, with **oil output at a record 21st century low level.** UK production had fallen year on year since 2018 before the rise in 2022, and production is now 63 per cent below the peak recorded in 1999.

In 2022 coal production fell by 39 per cent to a record low level, whilst production of oil fell by 7.6 per cent to a record low level, with output down by 28 per cent on pre-pandemic (2019) levels, conversely production of natural gas rose by 16 per cent and is down just 3.0 per cent on pre-pandemic levels. Production of bioenergy and waste fell marginally, whilst nuclear output rose by 4.6 per cent despite operational nuclear capacity having decreased following the closure of Hunterston B in January 2022 and Hinkley Point B starting the defueling phase from August 2022. Wind, solar and hydro output rose by 21 per cent to a record high level due to increased wind and solar capacity and more favourable weather conditions. In 2022 the average wind speed was 8.5 knots, 0.7 knots higher than in 2021, and there were 4.9 sun hours per day in 2022, 0.8 sun hours higher than in 2021.

Chart 1.2 Primary energy consumption, 2012 to 2022 ([DUKES tables 1.1 and 1.1.4](#))

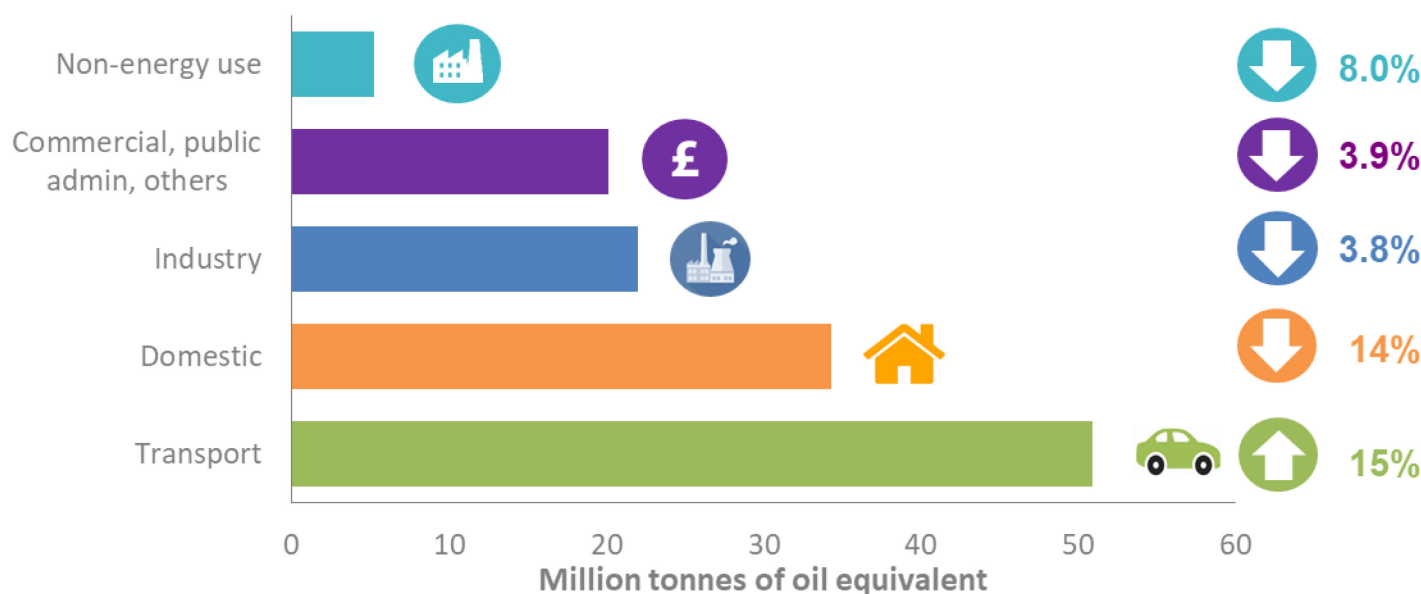


In 2022 total primary energy consumption was 169.2 mtoe, 0.8 per cent lower than in 2021, with record high temperatures and higher energy and other prices a key factor in the reduced consumption levels.

Primary energy consumption includes use by consumers, fuel used for electricity generation and other transformation. On a seasonally adjusted and annualised rate that removes the impact of temperature on demand, consumption was 172.3 mtoe, 0.9 per cent higher than in 2021.

In 2022 total primary energy consumption levels fell for all fuels except oil. Consumption of oil rose by 11 per cent, with sales of petrol and diesel broadly similar to pre-pandemic (2019) levels, and aviation fuel sales up significantly on 2021. Consumption of coal and other solids fell by 9 per cent due to limited demand from electricity generators, whilst natural gas consumption fell by 8.6 per cent as electricity generators made more use of renewable sources and households reduced consumption for heating due to higher energy and other prices and warmer temperatures. Consumption of bioenergy & waste fell by 1.5 per cent. Primary electricity consumption fell by 3.3 per cent, within which nuclear rose by 4.9 per cent, wind, solar and hydro rose by 21 per cent, but net imports fell significantly as the UK reverted to being a net exporter of electricity for the first time in more than 40 years.

Chart 1.3 Final energy consumption by sector, 2022 ([DUKES table 1.1](#))



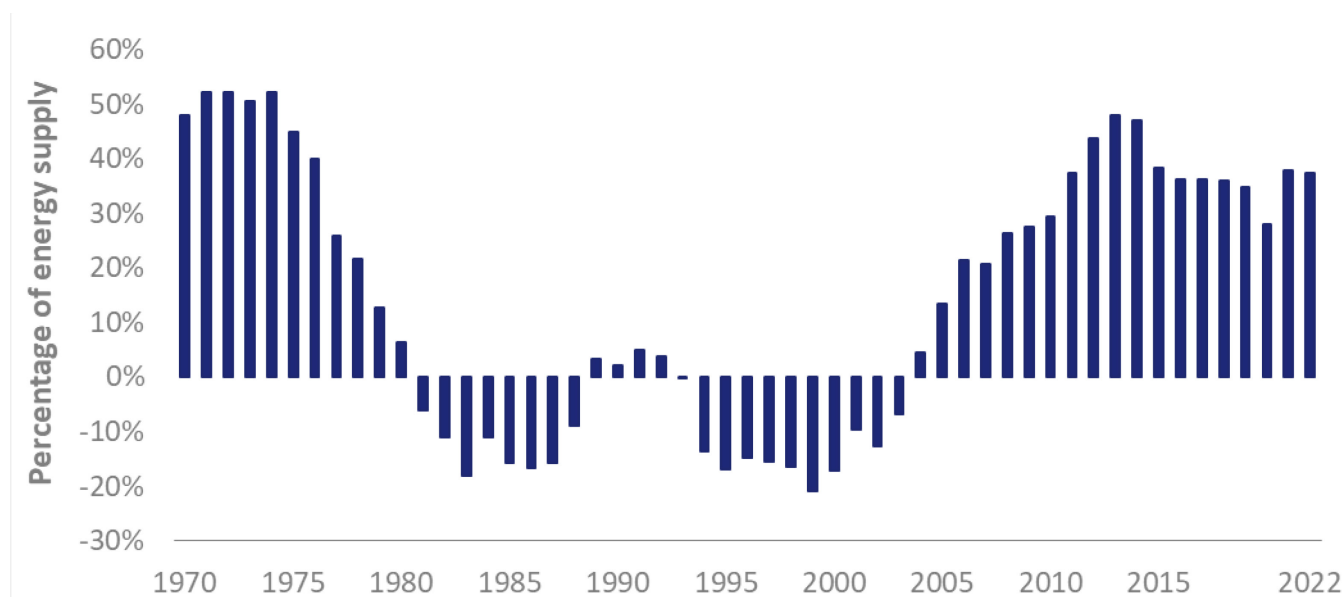
In 2022 total final energy consumption including non-energy use was 132.6 mtoe, 0.9 per cent lower than in 2021, and 10 per cent lower than pre-pandemic (2019) levels.

Consumption levels in 2022 all fell except for transport due to warmer weather as well as the impact of higher energy and other prices towards the end of the year.

Domestic sector consumption fell by 14 per cent due to average temperatures in 2022 reaching a record high as well as changes in consumer behaviour arising from higher prices. Transport sector consumption rose by 15 per cent, with road transport (petrol and diesel) consumption rising by 3.0 per cent and air consumption almost doubling on 2021 levels but remaining 21 per cent below pre-pandemic (2019) levels. Industrial sector consumption fell by 3.8 per cent to a near record low level and service sector consumption fell by 3.9 per cent with the impact of higher energy and other prices likely a key factor in the reduced consumption levels.

Final energy consumption excluding non-energy fell by 0.6 per cent, whilst on a temperature corrected basis consumption rose by 1.6 per cent (the latter mainly due to increased transport demand (up 14 per cent) as consumption in all other sectors fell on a temperature corrected basis with domestic consumption falling by 7.9 per cent and industrial consumption falling by 3.2 per cent.

Chart 1.4 Net import dependency, 1970 to 2022 (DUKES table 1.1.3)



In 2022 net import dependency was 37.3 per cent¹, 0.6 percentage points lower than in 2021.

Imports in 2022 at 147.8 mtoe were 11 per cent higher than in 2021, but still 18 per cent lower than their peak in 2013. Gas imports were at a record high level, up 10 per cent on 2021. Pipeline imports fell 15 per cent as the interconnectors to Belgium and the Netherlands were used to export rather than import for the majority of the year, but LNG imports rose 74 per cent to a record high level; the UK's substantial LNG regasification infrastructure has meant that it operated in 2022 as a land-bridge for increased imports, mainly from Qatar and the US, which were then exported to mainland Europe to help reduce its dependence on Russian gas.

Exports in 2022 at 81.9 mtoe were 24 per cent higher than the record low level of 2021, with both gas and electricity exports at record high levels. Electricity exports increased almost five-fold, with the UK a net exporter for the first time in over 40 years to help meet demand in France from reduced nuclear output there.

Net imports at 65.9 mtoe were 2.6 per cent lower than in 2021 and accounted for 37.3 per cent of consumption in 2022, down from 37.9 per cent in 2021.

Despite net imports falling, the UK increased its use of fossil fuels. The main fossil fuel sources in the UK are coal, gas and oil. In 2022, the share of primary energy consumption from fossil fuels increased to 78.5 per cent from 78.1 per cent in 2021, whilst that from low-carbon sources increased to 20.7 per cent from 19.6 per cent in 2021 due to increased nuclear and renewables output.

¹ Net imports as a proportion of primary supply (including an addition for the energy supplied to marine bunkers).



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