Chapter 4: Natural Gas

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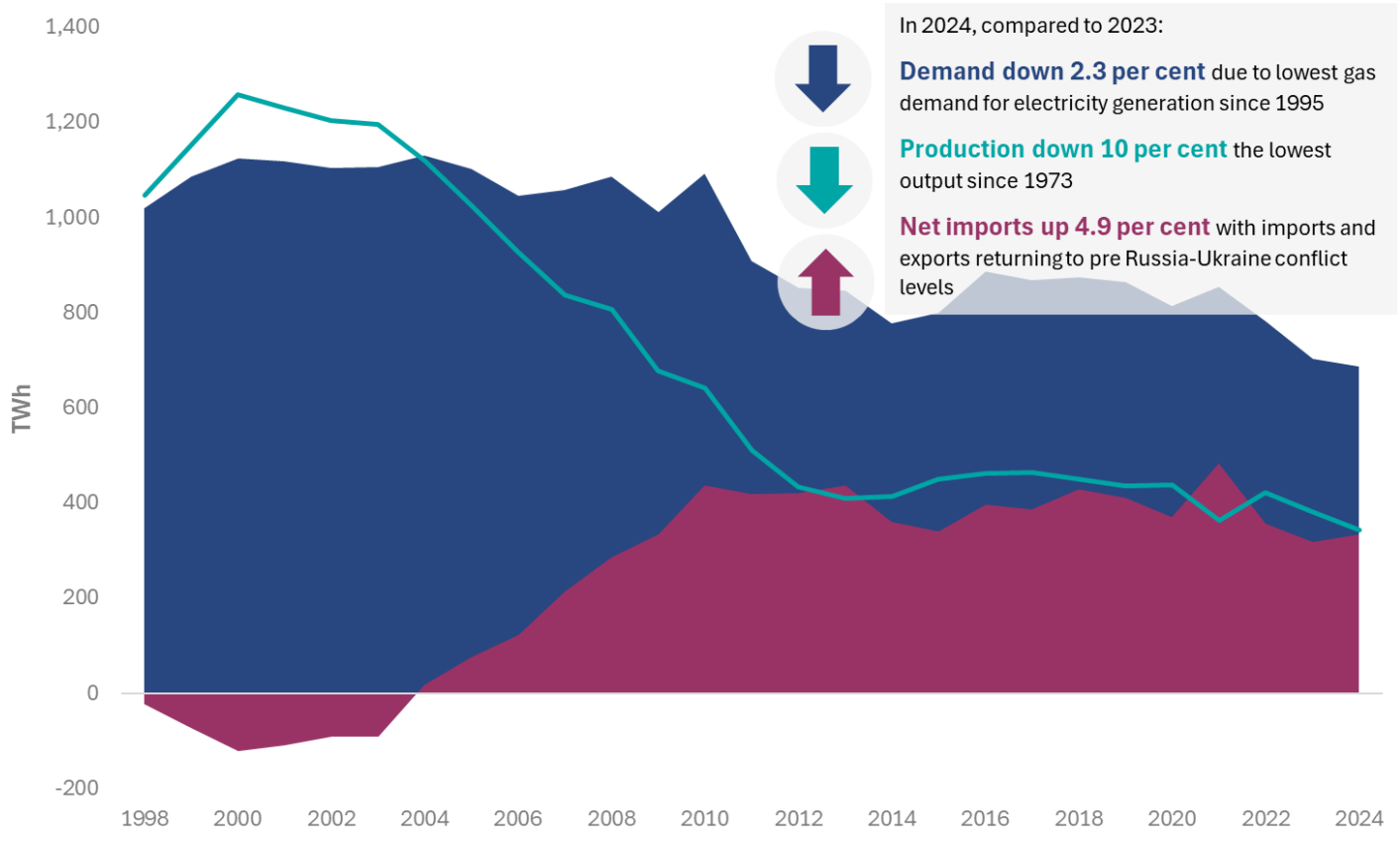
Key headlines

Natural gas production reached the lowest level since 1973. Gas production was down 10 per cent in 2024 on 2023 in line with expected decline of the mature North Sea basin.

Imports and exports of natural gas were down as trade returns to the more 'typical' levels prior to Russia's invasion of Ukraine. Imports and exports fell 8.4 and 33 per cent respectively in 2024 compared to 2023. The decline in gas imports was driven by reduced imports of liquified natural gas (LNG) which fell 47 per cent in the same period. Conversely, pipeline imports from Norway increased by 20 per cent amid record high Norwegian gas production.

Natural gas demand fell in 2024, due to reduced demand for electricity generation; demand fell 2.3 per cent on the 2023 low to the lowest level since 1992. Gas demand for electricity generation fell 14 per cent in the same period; gas demand for generation has been generally falling in recent years with sharp declines in 2023 and 2024, the result of lower electricity demand and increased electricity imports. Conversely, demand in final consumption sectors, such as commercial and domestic, increased with final consumption up 4.3 per cent due to cooler temperatures and potentially indicating some recovery following high prices.

Chart 4.1 Supply and demand for natural gas, 1996-2024 (DUKES Table 4.1)

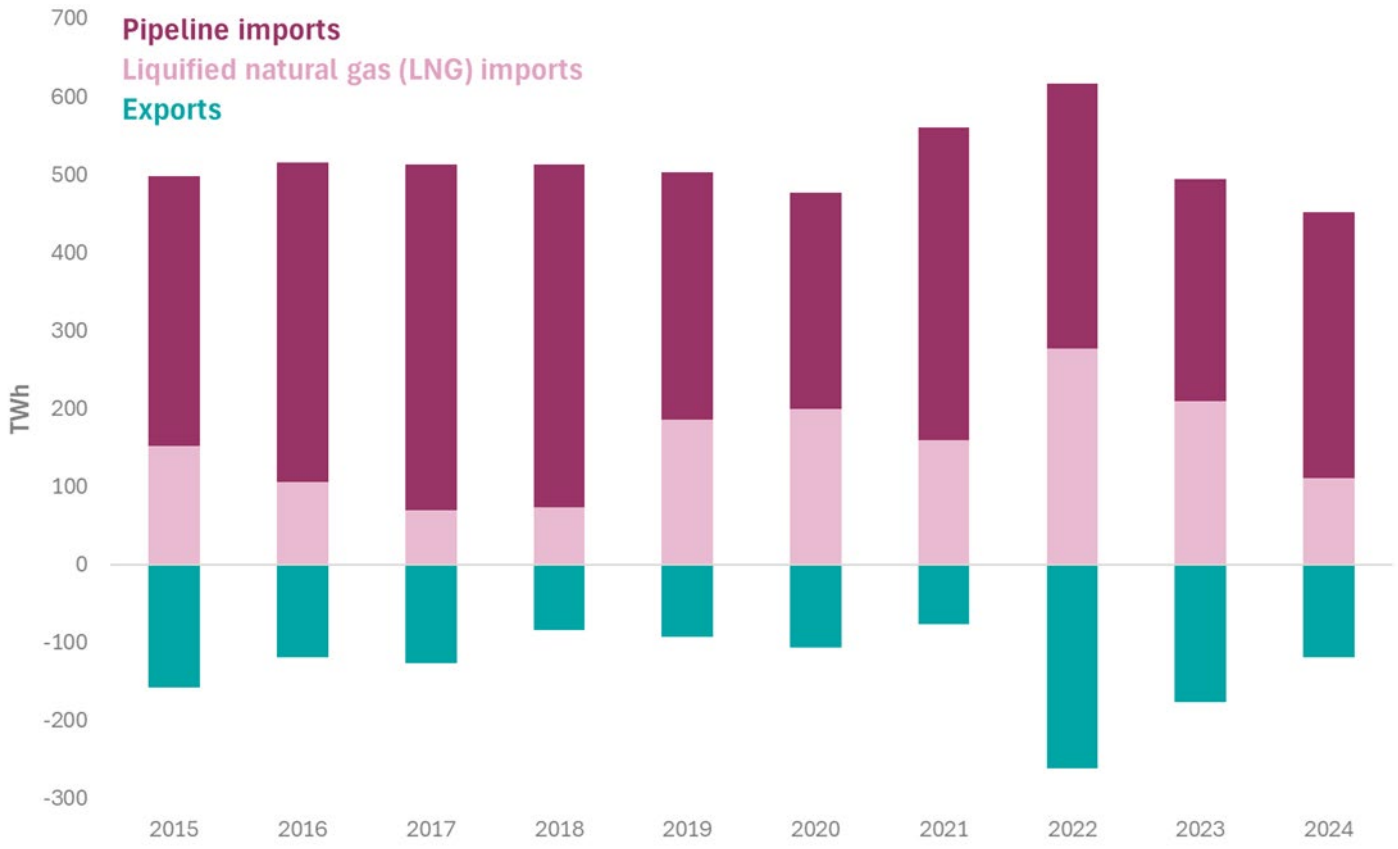


Demand for natural gas fell slightly in 2024, down 2.3 per cent on 2023 which took natural gas demand to the lowest level since 1992. Natural gas demand accounted for 35 per cent of total energy demand in 2024, stable on 2023 (see Chapter 1 for more information).

Production of natural gas reached the lowest level since 1973, down 10 per cent in 2024 on 2023. This continues the downward trend of recent years, in line with declining output from the mature North Sea basin. UK gas production began in the 1970s, peaking in 2000. Subsequently, production generally decreased until 2015 when new fields opened. Production began to decline again in 2019 with a sharp decline in 2021, the result of extensive planned maintenance of the Forties Pipeline System which serves a significant proportion of UK oil and gas production.

Trade in natural gas returned to levels seen before Russia's invasion of Ukraine. Imports and exports decreased but net imports increased by 4.9 per cent accounting for lower production. The UK has been a net importer[1] of natural gas since 2004.

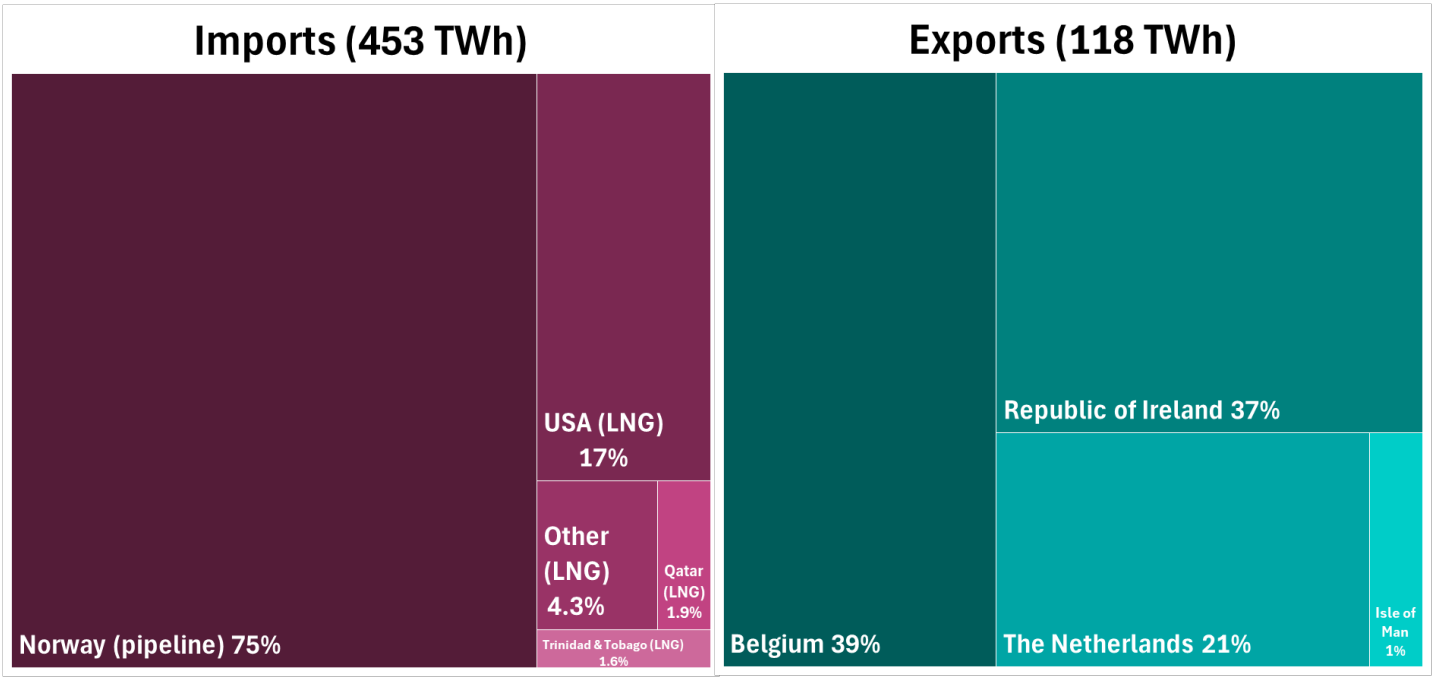
Chart 4.2 Pipeline and LNG imports and exports of natural gas, 2015-2024 (DUKES Table 4.5)



Imports and exports decreased by 8.4 and 33 per cent respectively in 2024 compared to 2023. The reduction in imports was driven by a fall in imports of liquefied natural gas (LNG) which almost halved in the same period. Total gas imports reached record highs in 2022, driven by record high levels of LNG imports. These remained high in 2023 when the UK's substantial LNG regasification capacity and shared infrastructure with mainland Europe was utilised to support efforts to move away from Russian gas. Unlike LNG, pipeline imports increased by 20 per cent in 2024 compared to 2023.

[1] Imports greater than exports

Chart 4.3 Imports and exports of natural gas by country of origin, 2024 (DUKES Table 4.5)



Norway remained the UK's largest import source, accounting for 76[2] per cent of total imports in 2024, up from 58 per cent in 2023. Norwegian imports increased 19 per cent in 2024 compared to 2023. This increase follows record high Norwegian gas production which allowed for a drop in LNG imports, a trend observed across Europe. Norway accounted for almost 100 per cent of pipeline imports as interconnectors with Belgium and the Netherlands were largely used for exports, like in 2023. The UK imports substantial amounts of gas from Norway due to proximity and shared infrastructure in the North Sea.

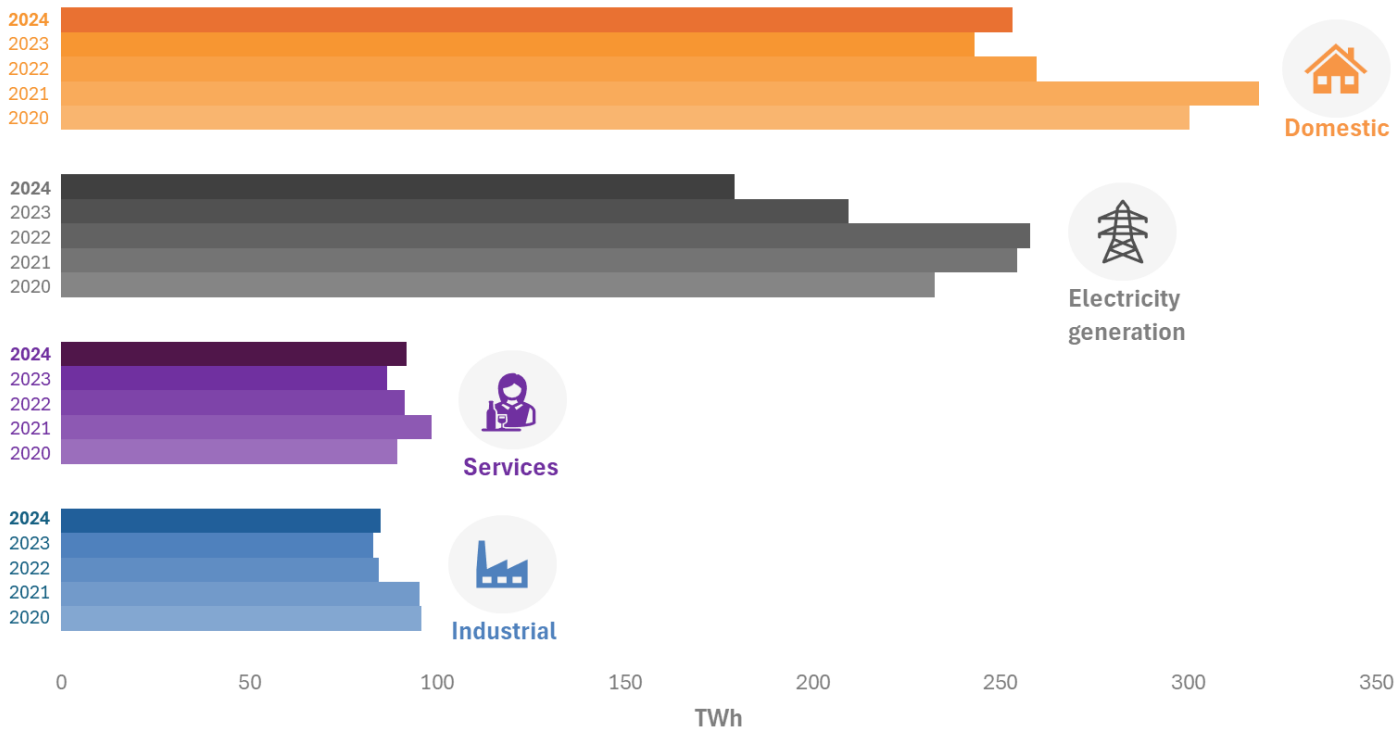
US LNG imports fell 41 per cent in 2024 compared to 2023. Despite this, the US remained the second largest import source and largest source of LNG for the third year in a row, accounting for 17 per cent of total imports. This drop in imports from the US follows substantial imports in 2022 and 2023. Historically, Qatar was the largest import source of LNG to the UK, accounting for nearly 40 per cent of total imports at its peak in 2011. Qatar held this position until 2022, but imports have declined in recent years, with Qatari LNG down a further 71 per cent in 2024 on 2023. Qatar was the third largest import source in 2024 accounting for 1.9 per cent of total imports.

The UK imported LNG from ten countries in 2024, the same as in 2023 and down from a record high of thirteen in 2022. Peruvian LNG imports fell 81 per cent in 2024 compared to 2023, the largest percentage decrease of any country still imported from. LNG imports from other sources including Angola, Norway, Nigeria and Egypt also fell compared to 2023, while LNG imports from Spain fell to zero. LNG imports from Trinidad and Tobago increased by 27 per cent, and the UK imported LNG from Equatorial Guinea in 2024, for the first time since 2019.

Exports to Belgium fell 56 per cent in 2024 compared to 2023, and accounted for 40 per cent of total exports, down from 61 per cent in 2023. Conversely, exports to the Netherlands and the Republic of Ireland both increased by 7.8 per cent and 4.6 per cent respectively in the same period.

[2] 76 including Norwegian LNG imports

Chart 4.4 Sectoral consumption of natural gas, 2020-2024 (DUKES Table 4.1)

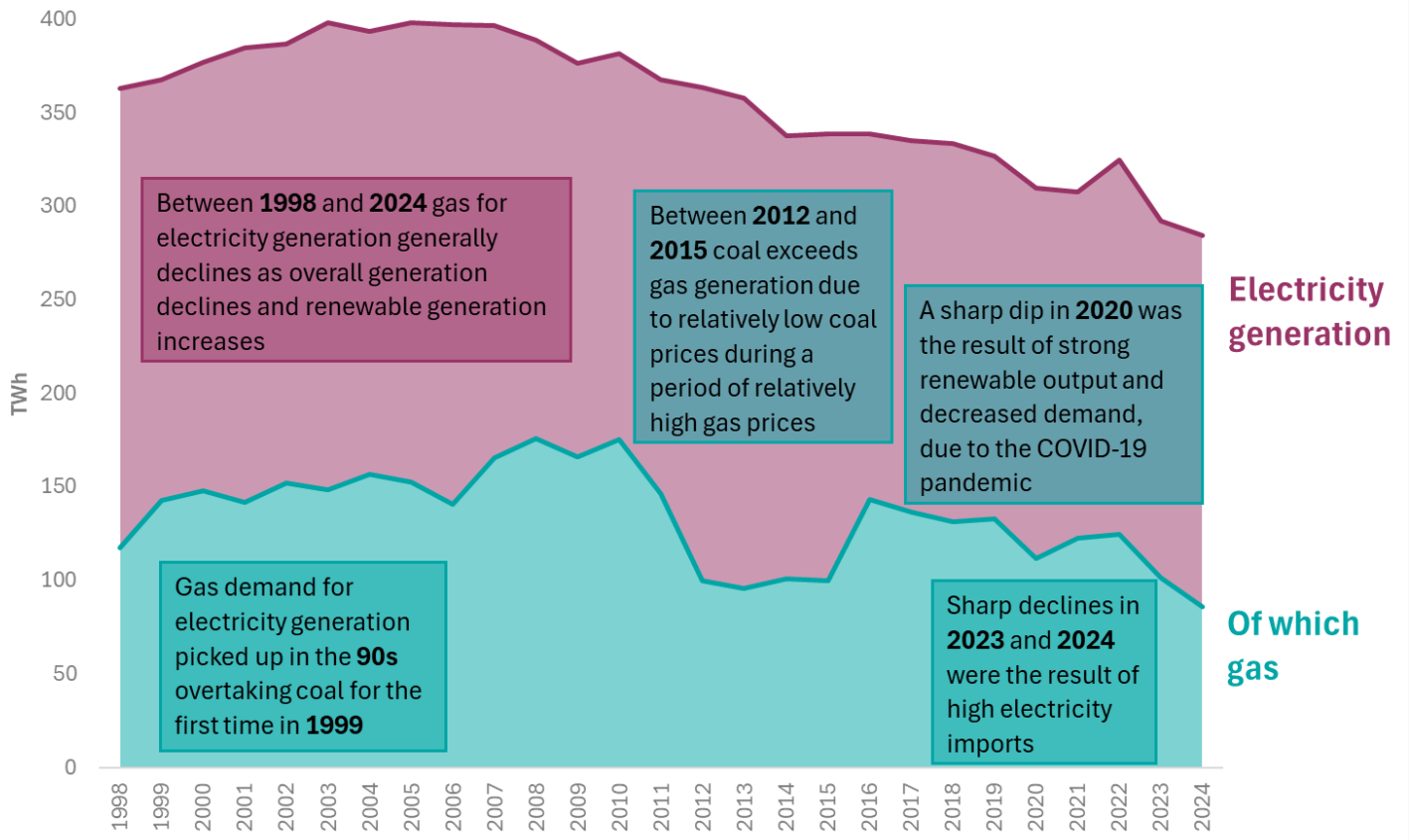


Demand for natural gas decreased slightly, down 2.3 per cent in 2024 on the 2023 low, bringing natural gas demand to the lowest level since 1992. Demand for gas has been declining since 2022 when high temperatures and prices influenced consumer behaviour; this continued into 2023 amplified by a substantial reduction in gas demand for electricity generation. In 2024, decreased demand was driven by another sharp decline in demand for electricity generation. Conversely, demand by final consumers increased, up 4.3 per cent in 2024 compared to 2023.

Demand for domestic (household) consumption increased by 4.1 per cent in 2024 compared to 2023, having been heavily impacted by temperatures and prices in the preceding two years. Despite being up, domestic demand remained below the 2017-2021 average. Demand by the public administration and commercial sectors increased by 6.4 and 5.7 per cent respectively in the same period. Like domestic, demand by these sectors were also impacted by high temperatures and prices in 2022 and 2023. Demand by the services[3] sector was up 6.3 per cent in 2024 compared to 2023 but also remained below the 2017-2021 average. Industrial demand saw a more moderate increase, up by 2.5 per cent in 2024 compared to 2023 potentially indicating some recovery following higher prices. Industrial demand has been generally declining in recent years in line with other fuels and European trends due to improvements in energy efficiency and the decline of traditional fuel intensive sectors.

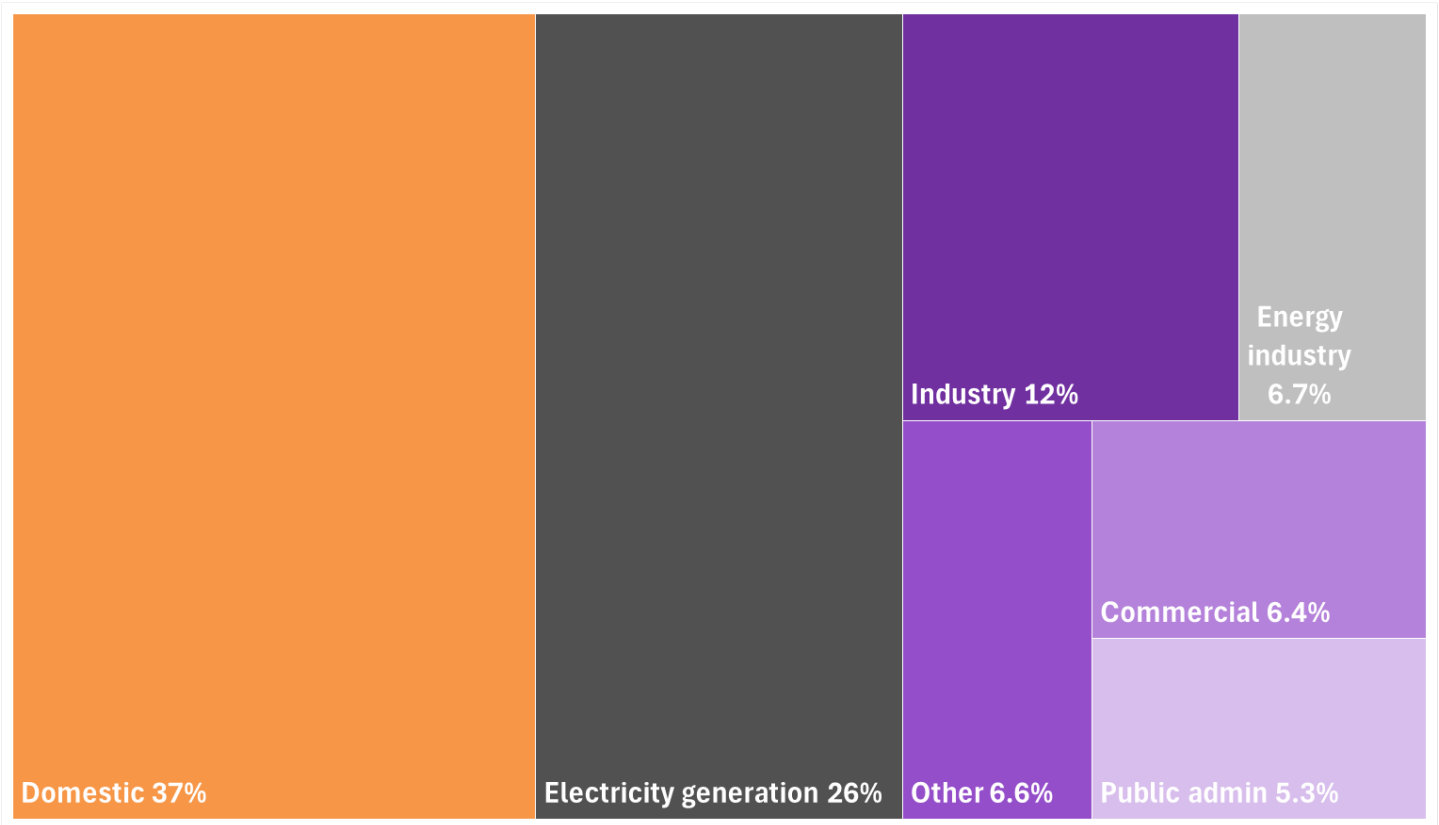
[3] 'Services' combines public administration, commercial and other smaller sectors such as miscellaneous

Chart 4.5 Gas demand for electricity generation, 1998 – 2024 (DUKES Table 5.3)



Between 1998 and 2024 gas demand for electricity generation has been generally declining, as total generation has reduced and renewable generation increased. However, because gas is generally the marginal fuel, demand remains variable and is influenced by numerous factors. Gas demand for generation picked up in the 90s overtaking coal for the first time in 1999. This reversed between 2012 to 2015 when an oversupply in the US reduced coal prices during a period of relatively higher gas prices, making coal more competitive than gas for electricity generation. Since 2016, demand for generation has been steadily declining, with a sharp contraction in 2020 due to strong renewable output and low demand, the latter a result of the COVID-19 pandemic. Sharp declines were also seen in 2023 and 2024 due to increasing electricity imports when high gas prices following the Russia-Ukraine conflict decreased the price differential between generation and imports. For more information about electricity see Chapter 5.

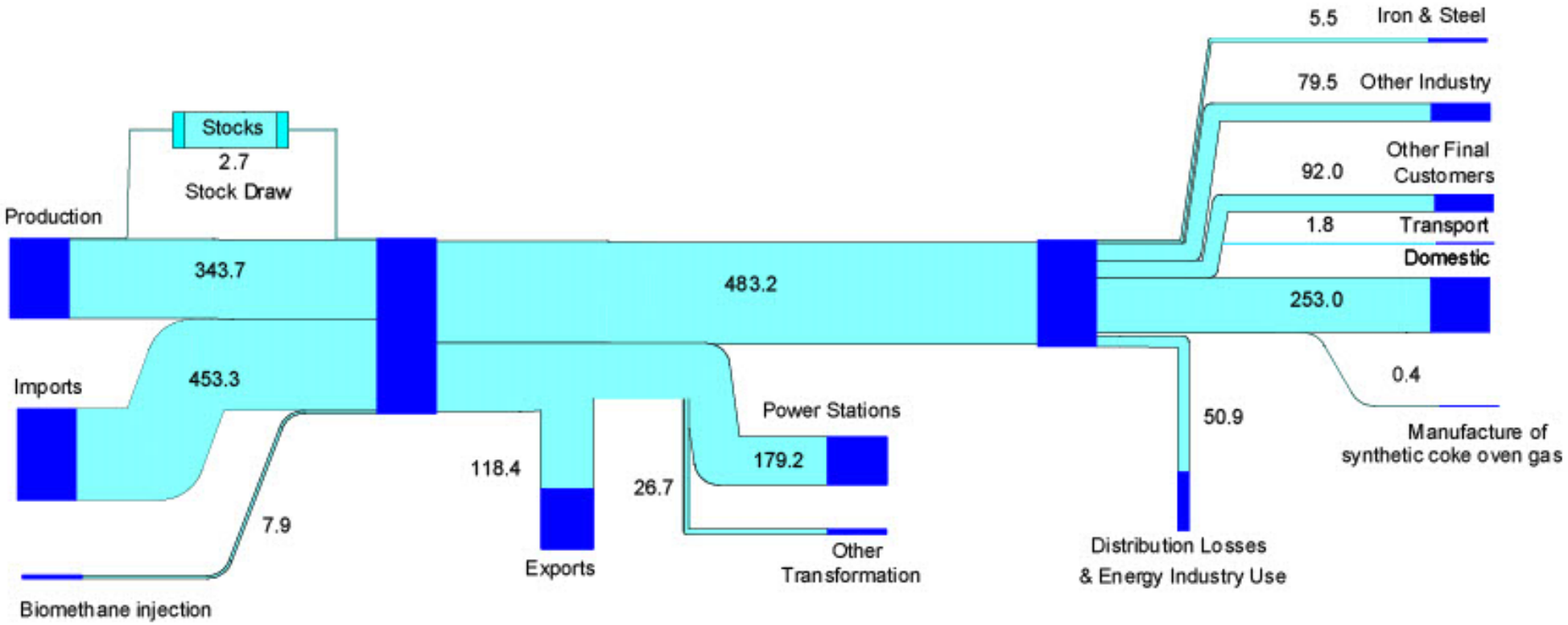
Chart 4.6 Sectoral consumption of natural gas, 2024 (DUKES Table 4.1)



In general gas is used for electricity generation, domestic consumption, and by other sectors (including industry) each making up around a third of demand over the last decade. However, in 2024 gas demand for electricity generation fell whilst demand by final consumers (such as commercial, domestic and industrial sectors) increased, reducing electricity generation's share of total gas demand to 26 per cent.

Natural Gas Flow Chart 2024 (TWh)

The flow chart shows the flows of natural gas from production and imports through to consumption. It illustrates the flow of gas from the point at which it becomes available from indigenous production or imports (on the left) to the final use of gas (on the right), as well as that transformed into other forms of energy or exported. The widths of the bands are proportional to the size of the flow they represent.



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