

Chapter 4: Natural Gas

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Key headlines

UK gas demand continued to fall in 2023, down 10 per cent on 2022, consumption was at the lowest level since 1992. This fall was due to a substantial decline in gas demand for electricity generation and continued lower demand from consumers.

Gas demand for electricity generation was down 20 per cent in 2023 compared to 2022 reaching the lowest level in a decade due to lower electricity demand and increased electricity imports.

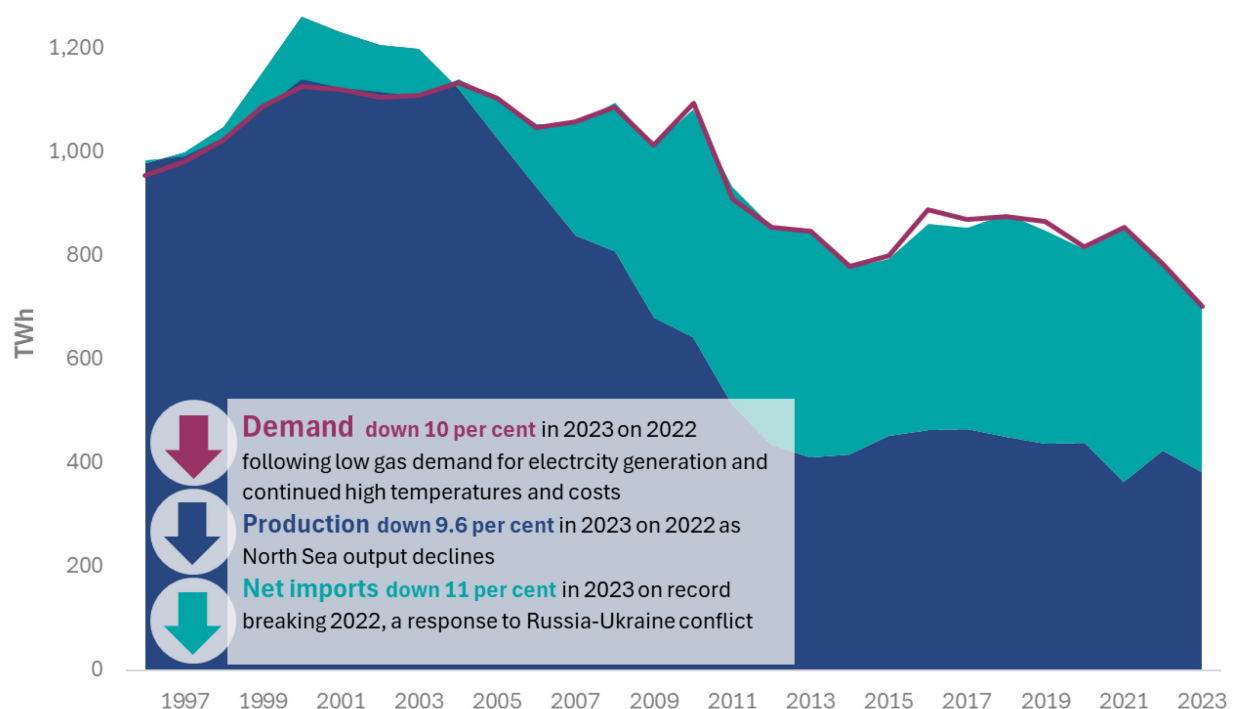
Demand from domestic consumers continued to fall, down by 8.5 per cent in 2023 compared to 2022. This followed a 19 per cent drop in 2022 compared to 2021 the result of record high temperatures and high energy and other costs which continued in 2023. Domestic demand reached lows last seen in the 70s when coal was the predominant household fuel. Demand by other sectors stayed flat on 2022 lows when industry and businesses adapted to higher gas prices.

Imports and exports were down compared to record highs in 2022 when trade patterns changed as a result of the Russia-Ukraine conflict. Unlike 2022 when high exports to Europe were facilitated by increased imports into the UK, 2023 saw imports return to more typical levels and higher than normal exports were facilitated by low UK demand.

The US remained the second largest import source behind Norway, after overtaking Qatar in 2022. Liquefied Natural Gas (LNG) imports fell but remained substantial, the US increasing in the share of total LNG imports as its liquification capacity grows.

Gas production fell 9.6 per cent in 2023 compared to 2022, just 4.5 per cent higher than the record low in 2021 when substantial infrastructure was shut down for maintenance.

Chart 4.1 Supply and demand for natural gas, 1996-2023 ([DUKES Table 4.1](#))



Demand for natural gas continued to fall in 2023 making up 36 per cent of total energy demand. This was only slightly lower than 2022 as total energy demand reached a record low in 2023 (see Chapter 1 for more information). Demand for natural gas is met through production and imports.

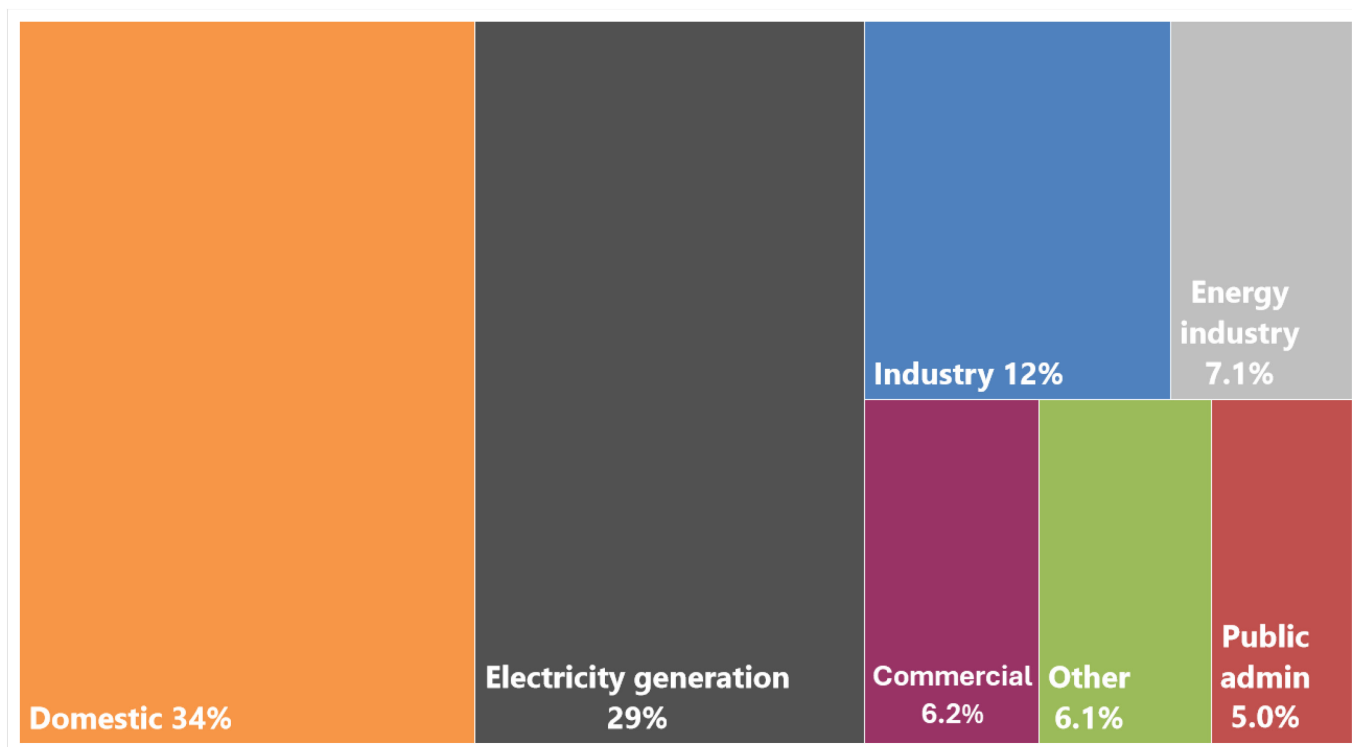
UK production of natural gas fell in 2023, down 10 per cent compared to 2022 as North Sea output declines. Production remained just above the 2021 record low caused by extensive maintenance. Indigenous production has been equivalent to around half of demand for over a decade, reaching 55 per cent in 2023 due to notably low demand. Natural gas made up 33 per cent of total energy production in 2023, stable on 2022 as total energy production fell to a record low (see Chapter 1 for more information).

For more information on oil and gas reserves see [Reserves and Resources report as at end 2022](#).

Whilst substantially smaller in scale than natural gas production, biomethane injections into the grid increased by 11 per cent in 2023 compared to 2022 as new production facilities came online (see Chapter 6 for more information).

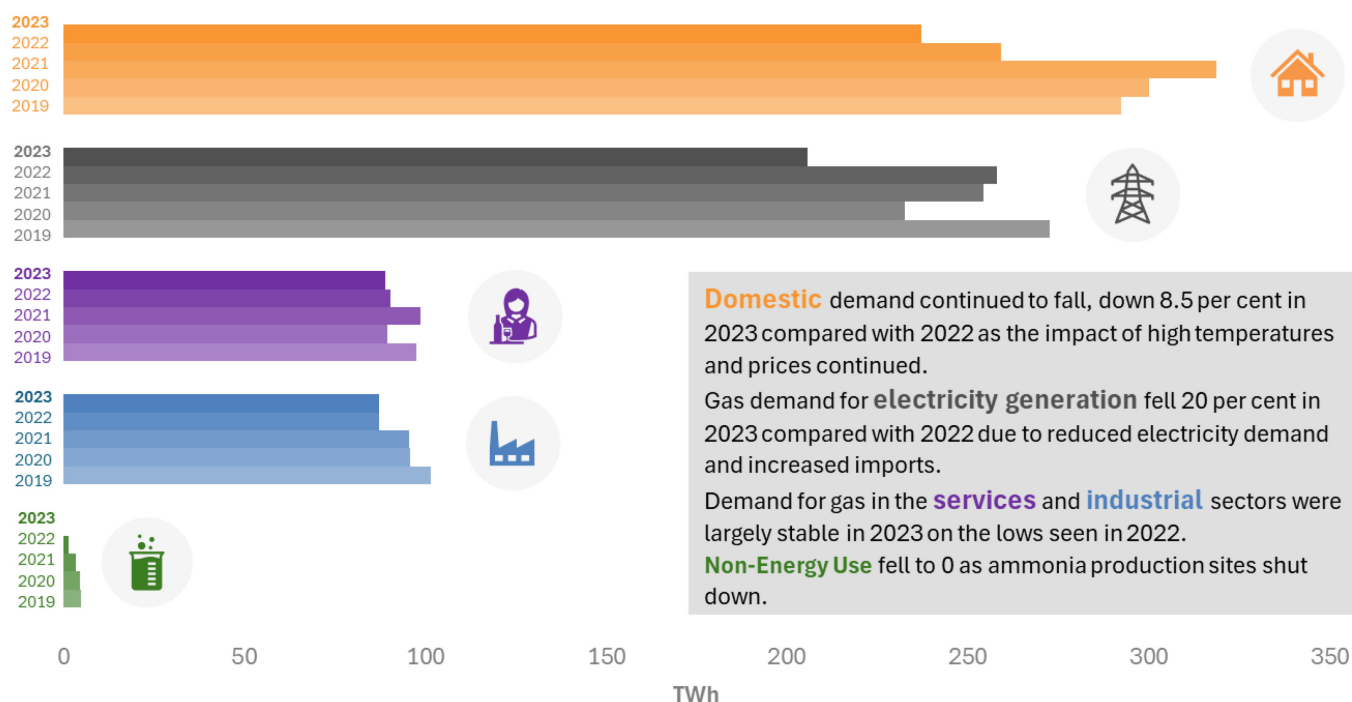
In 2023, net imports fell by 11 per cent with substantial drops in both imports and exports compared to record highs in 2022. The UK has been a net importer (imports greater than exports) of natural gas since 2004.

Chart 4.2 Sectoral consumption of natural gas, 2023 ([DUKES Table 4.1](#))



Demand for natural gas fell by 10 per cent in 2023 compared to 2022. This was largely driven by a substantial fall in gas demand for electricity generation. Gas is used across many sectors in the UK. In general gas used for electricity generation, domestic consumption, and by other sectors (including industry) each make up around a third of demand. Domestic consumption fell by 8.5 per cent in 2023 compared to 2022 whilst demand in other sectors was generally flat on 2022 lows. Demand by final consumers was down nearly 20 per cent in 2023 on longer term trends (2011-2021).

Chart 4.3 Sectoral consumption of natural gas, 2019- 2023 (DUKES Table 4.1.1)



Gas demand for electricity generation fell by 20 per cent in 2023 compared to 2022. This large drop was the result of reduced demand for electricity and record high levels of electricity imports (see Chapter 5 for more information).

Domestic demand decreased by 8.5 per cent in 2023 compared to 2022, to levels not seen since the early 1970's. 2022 saw record high temperatures and record high gas prices resulting in domestic consumers changing their behaviour, and a 19 per cent reduction in domestic consumption compared to 2021. In 2023, temperatures were similar to the highs seen in 2022, this further reduction more likely attributable to high energy and other household costs. Domestic use of gas includes space and water heating, as well as gas powered appliances such as ovens and hobs.

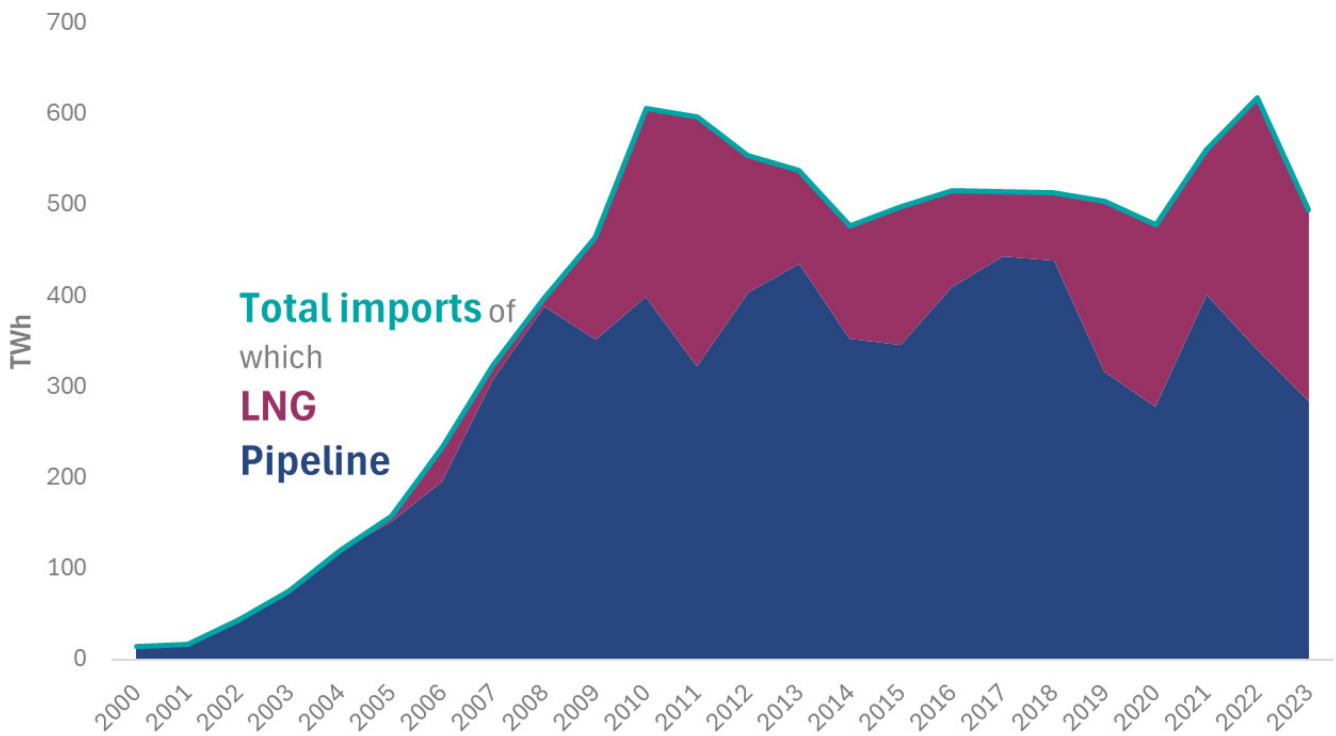
Industrial demand was stable in 2023 on 2022s record low¹. Industrial demand has declined following the Covid-19 pandemic and high gas prices from the end of 2021. This reduction in industrial demand has been seen throughout industrial subsectors, albeit to different extents.

Services which includes commercial and public administration sectors was also largely stable in 2023 on 2022. Demand for gas by services sectors also responded to high prices reaching lows similar to those seen during the pandemic when many businesses were closed. Commercial and public administration sectors consumption of gas fell 0.9 and 1.6 per cent respectively in 2023 compared to 2022.

Gas demand for non-energy use (ammonia production) fell to 0 in 2023 as remaining ammonia production sites were permanently closed¹.

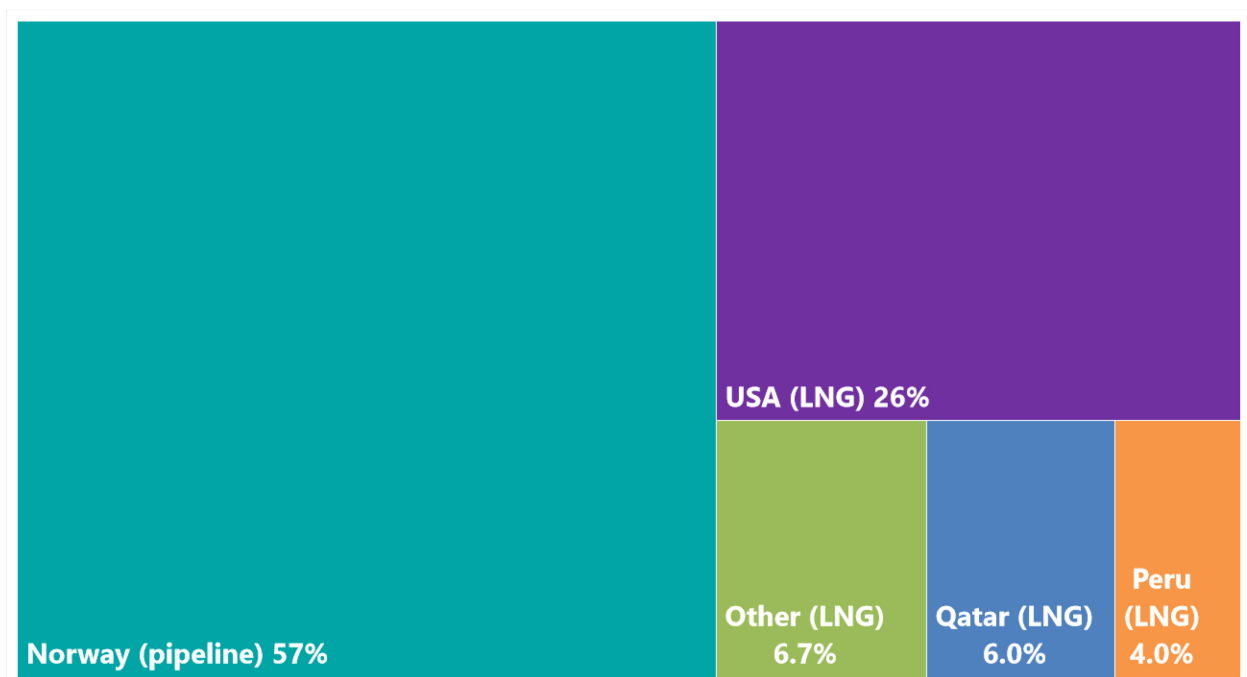
¹ Industrial and non-energy demand has been revised, see [Methodology changes to Oil, Gas and Electricity balances](#) for more information

Chart 4.4 Imports of natural gas, 2000-2023 ([DUKES Table 4.5](#))



Natural gas imports fell by 20 per cent in 2023 compared to record highs in 2022. Trade in 2022 reached record highs when the UK supported European efforts to move away from Russian gas. Pipeline and liquefied natural gas (LNG) imports fell by 17 and 24 per cent respectively. LNG imports peaked in 2022 when substantial regasification infrastructure meant the UK acted as a land bridge increasing exports to the continent.

Chart 4.5 Imports of natural gas by country of origin, 2023 ([DUKES Table 4.5](#))



Norway² remained the UK's largest import source in 2023 accounting for 57 per cent of total imports, equivalent to 40 per cent of demand. The UK imports substantial amounts of gas from Norway due to proximity and shared infrastructure in the North Sea. Despite this, Norwegian imports fell 16 per cent in 2023 compared to 2022 in line with reduced demand. The UK also imports gas by pipeline from Belgium and the Netherlands, however these interconnectors³ continued to be used largely for exports throughout 2023 with imports from both falling to record lows.

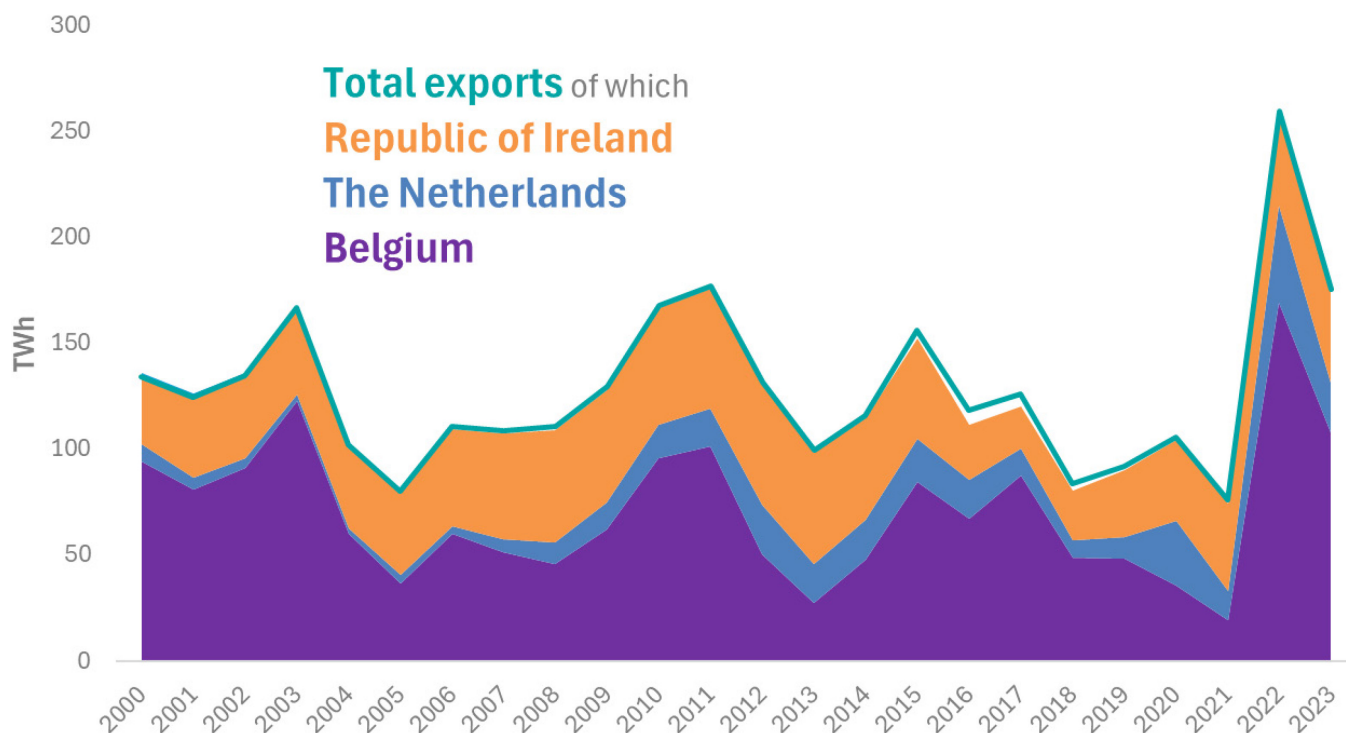
The US remained the second largest import source and largest source of LNG for the second year in a row. US imports of LNG made up 61 per cent of total LNG imports (up from 50 per cent in the previous year), 26 per cent of total imports and were equivalent to 18 per cent of demand. Historically, a large proportion of LNG has come from Qatar, peaking at 98 per cent of total LNG imports in 2011. Qatar remained the second largest LNG import source, but imports continued to fall with Qatari LNG accounting for just 14 per cent of total LNG imports in 2023. These changes reflect increased liquification capacity in the US and Qatar primarily focusing on long-term supply to the Asian market.

The UK imported LNG from ten countries in 2023, down from a record high of thirteen in 2022. Peruvian imports remained high but fell compared to 2022 with increased imports from other sources including Angola, Trinidad and Tobago and Egypt. Imports of LNG from Chile, Oman and Russia (following sanctions) dropped to zero in 2023. Prior to the Russia-Ukraine conflict the UK imported LNG from Russia with the last cargo received in March 2022.

² Norwegian pipeline imports only

³ Interconnectors are pipelines which can be used to import or export gas

Chart 4.6 Exports of natural gas, 2019-2023 (DUKES Table 4.5)

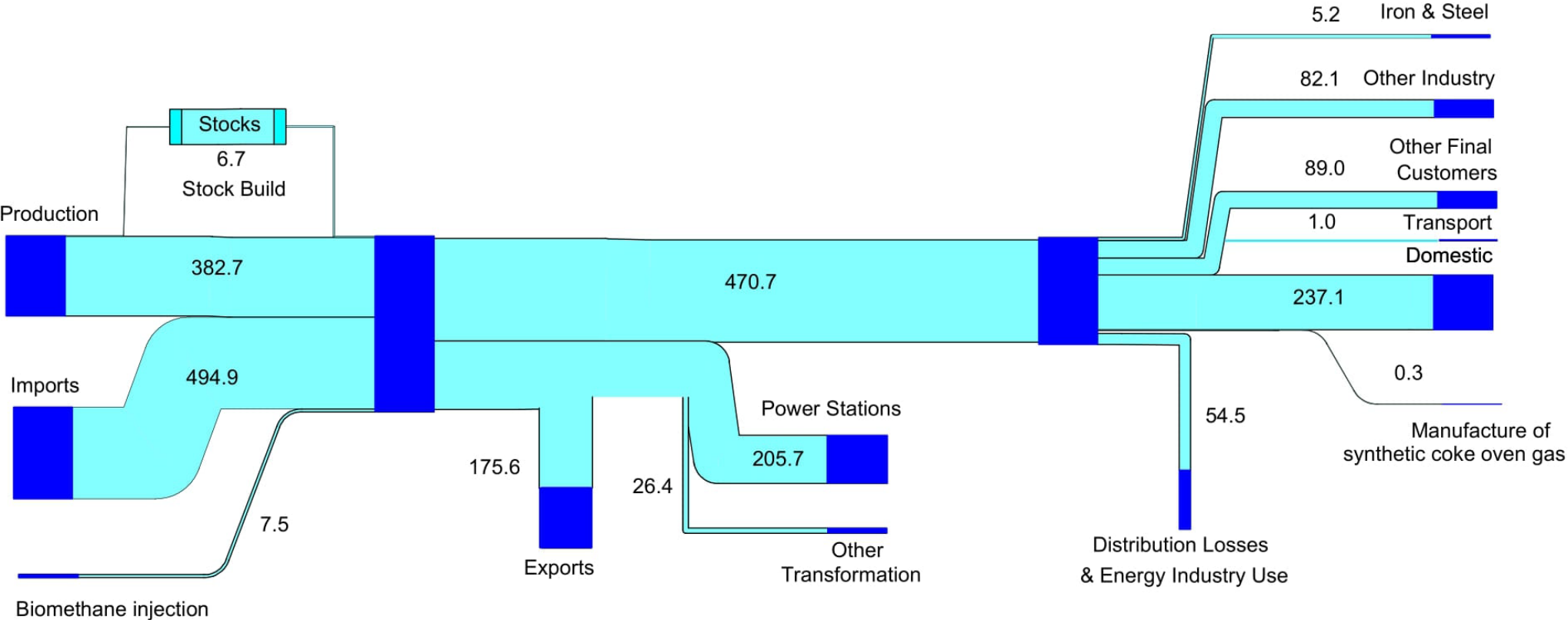


Note the gap between exports to the Republic of Ireland, Netherlands and Belgium and total exports is due to exports to the Isle of Man and LNG reloads.

Natural gas exports decreased 32 per cent in 2023 compared to record highs in 2022. Trade in 2022 reached record highs when the UK utilised substantial LNG regasification capacity and shared infrastructure with mainland Europe to support efforts to move away from Russian gas. Despite this drop, exports remained large and substantially higher than the post 2010 average. In 2023, exports were facilitated by declining UK demand rather than high imports as in 2022. Exports to mainland Europe (Belgium and the Netherlands) fell 36 and 49 per cent respectively. The UK also exports gas to the Republic of Ireland and Isle of Man.

Natural Gas Flow Chart 2023 (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.



This flow chart is based on data that appear in Table 4.1, excluding colliery methane.



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