

# Chapter 2: Solid Fuels and Derived Gases

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## Key headlines

**Demand for coal fell in 2022, by 14 per cent to 6.1 million tonnes** compared to 2021. The fuel mix has shifted towards other sources of fuel as coal is being phased out.

**Consumption of coal for electricity generation fell 15 per cent to 2.3 million tonnes in 2022.** Wind generation was up 25 per cent due to higher-than-average wind speeds. Total renewable generation was up by 13 per cent in 2022, while gas and nuclear energy were also up (see Energy Trends table 5.4). Just four coal plants remained operational in the UK throughout 2022. Drax and West Burton had planned to close in Spring 2022 but remained available to ensure security of supply if needed over the winter. Coal use for electricity generation is expected to cease completely by October 2024.

**Production of coal fell to another record low, down 38 per cent from 2021** to 651 thousand tonnes. Surface mining production fell to a record low of 588 thousand tonnes with UK production over the last year being further affected by mine closures and declining demand for coal use. In the last ten years, UK coal production has fallen by 96 per cent.

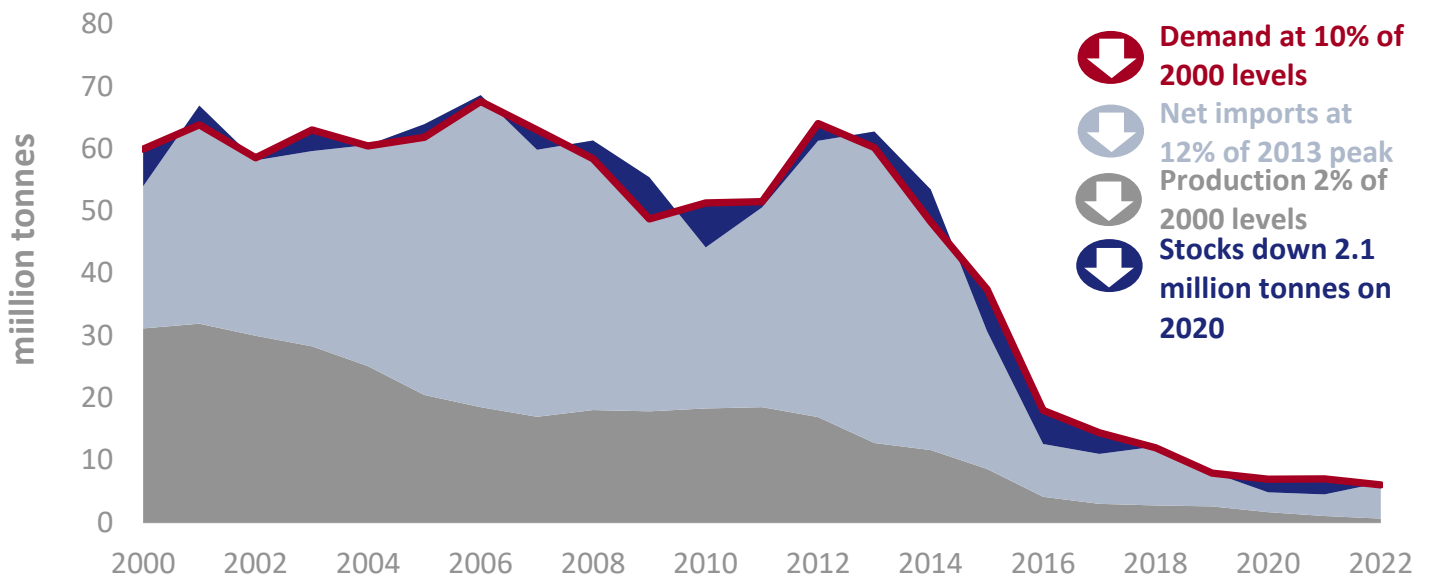
**Coal imports rose 38 per cent in comparison with 2021** to 6.4 million tonnes in 2022 as generators rebuilt stocks in the event that they were called on to secure the electricity supply over winter. In 2022 the USA was the largest exporter of coal to the UK with a share of 39 per cent. This was followed by the Russia with 16 per cent. Russia's proportion of total coal imports had fallen from 43 per cent in 2021. The UK banned Russian coal imports in August 2022.

In 2022, coal comprised 2.4 per cent of UK energy demand, down from 2.7 per cent in 2021. Over a longer period the trend reflects the transition away from coal in the UK's energy mix; coal demand has fallen from a 16 per cent share of UK energy demand in 2000. Most of this coal is used for electricity generation, coke manufacture, or in blast furnaces in the steel industry.

The Sankey diagram at the end of this chapter shows flows of coal from production and imports through to consumption. It is a way of visualising the figures that can be found in the commodity balance for coal in Table 2.4. The chart illustrates the flow of coal from the point of supply (on the left) to its eventual final use (on the right).

**Reduced demand for coal drove a substantial contraction in supply, with UK coal production down 96 per cent in the past ten years.** In 2022, coal production fell to a record low of 651 thousand tonnes, down 38 per cent on 2021 (Chart 2.1).

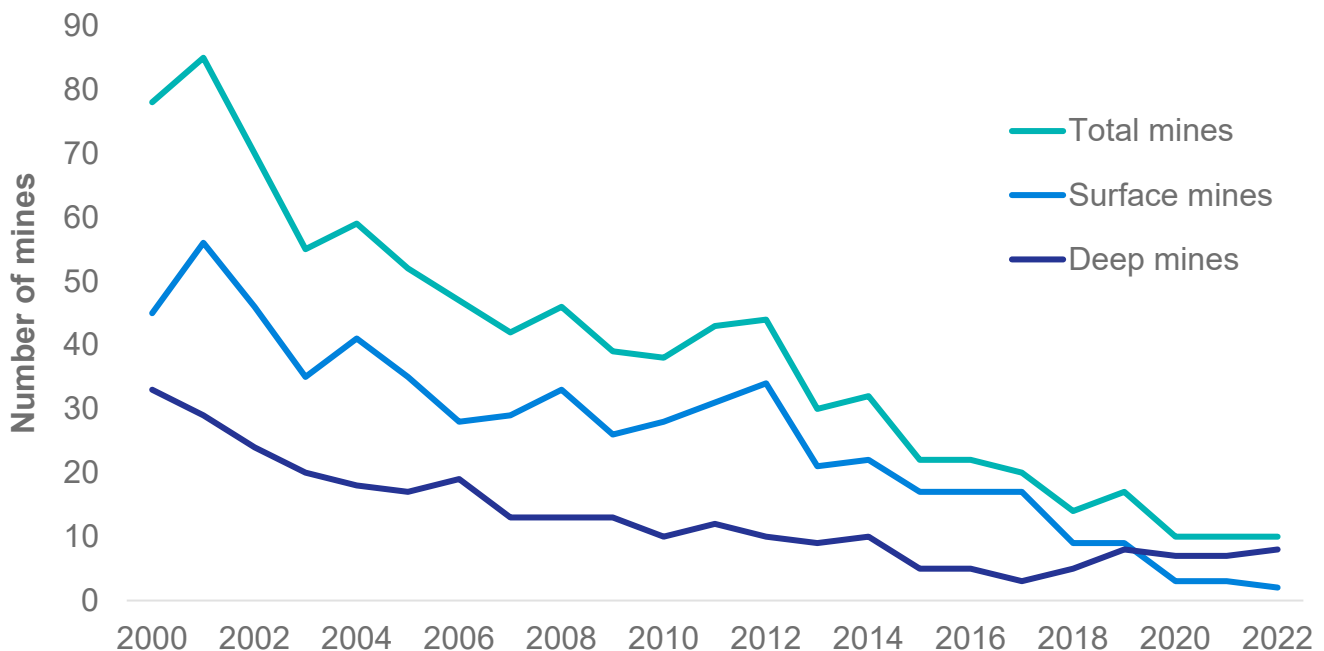
**Chart 2.1 UK coal supply and demand, 2000 – 2022** ([Table 2.1](#))



Deep mined production fell to 63 thousand tonnes and comprised 10 per cent of production in 2022. Eight deep mines remained open and another was under care and maintenance. Six deep mines reported coal production in 2022. This compares to 2015 when deep mined production provided nearly a third of total coal production, and when the last three large deep mines closed – Hatfield, Thoresby and Kellingley.

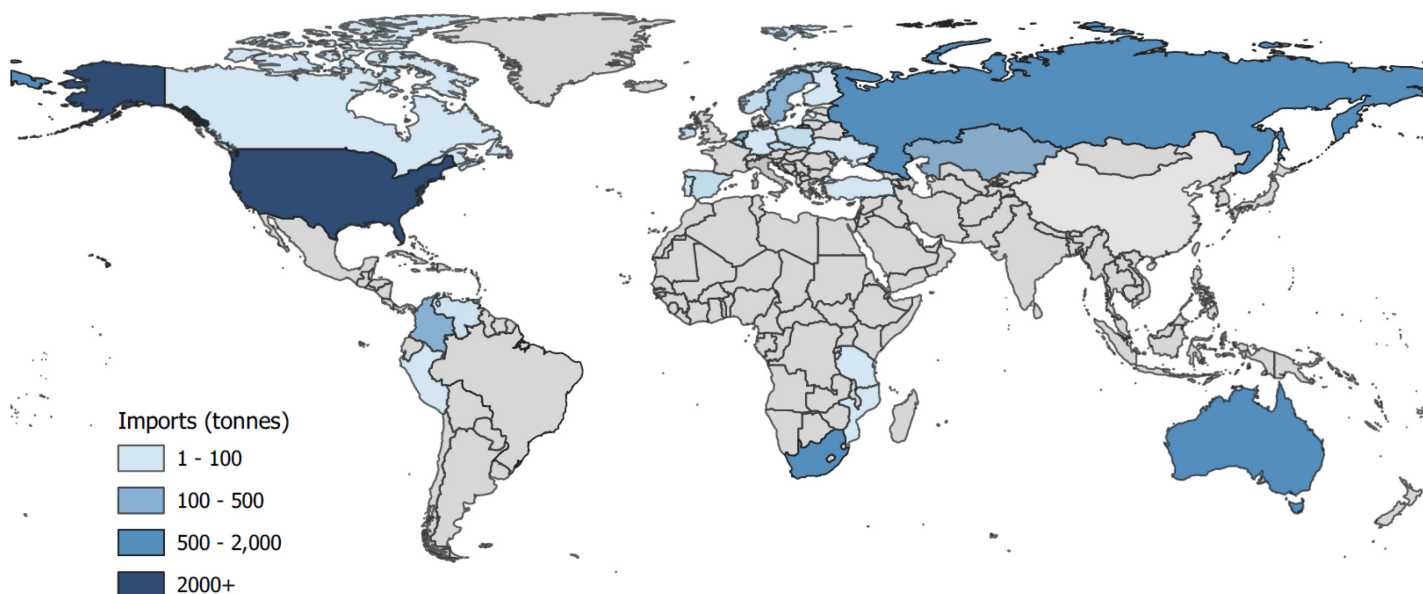
Surface mine production was down 39 per cent to a new record low of 0.6 million tonnes due to mine closures and declining demand for coal use. In 2022 just three surface mines produced coal in the UK.

**Chart 2.2 Number of coal mines producing in the UK, 2000 – 2022** ([Table 2.5](#))



**Net imports of coal also fell substantially, down 88 per cent from the peak in 2013.** This is again a result of the sharp fall in demand for coal. However, in 2022, net imports rose by 66 per cent from 2021 levels to 5.8 million tonnes. This reduction in imported coal occurred at a slower pace than the reduction in domestic production, leading to the proportion of net imports in the UK coal supply increasing over the past 20 years. In 2022 net imports accounted for 92 per cent of the UK's supply. The continued decline in domestic coal production had led to imports increasing in 2022 so generators could rebuild their stocks to be available if needed in the winter.

**Map 2A showing UK Coal Imports in 2022 (thousand tonnes)**



For more detail on coal imports and exports see [DUKES tables 2.7 and 2.8](#)

Steam coal imports were 87 per cent higher at 4.5 million tonnes in 2022 compared to 2021. The USA was the largest provider of UK's steam coal (29 per cent). This was followed by Russia (22 per cent) and South Africa (14 per cent). Steam coal accounted for 71 per cent of total coal imports. Coking coal imports were down 17 per cent at 1.7 million tonnes compared to 2021. The USA was the largest provider of UK's coking coal (65 per cent). This was followed by Australia (19 per cent). Coking coal accounted for 27 per cent of total coal imports.

Russia's proportion of total coal imports have fallen from 43 per cent in 2021 to 16 per cent in 2022. The UK banned Russian coal imports in August 2022. This reflects a decreasing reliance on Russian energy in line with that seen for both oil and gas.

**Coal stocks rose in 2022 after years of decline.** In line with much of what we see with coal, the main change to coal stocks came post 2014 when stocks began to gradually decline and power plants closed. However, coal stocks rose to 1.9 million tonnes in 2022, which was 10 per cent higher than in 2021. This is likely a temporary rise as generators rebuilt their stocks so that coal could be used for electricity if needed during winter 2022/23.

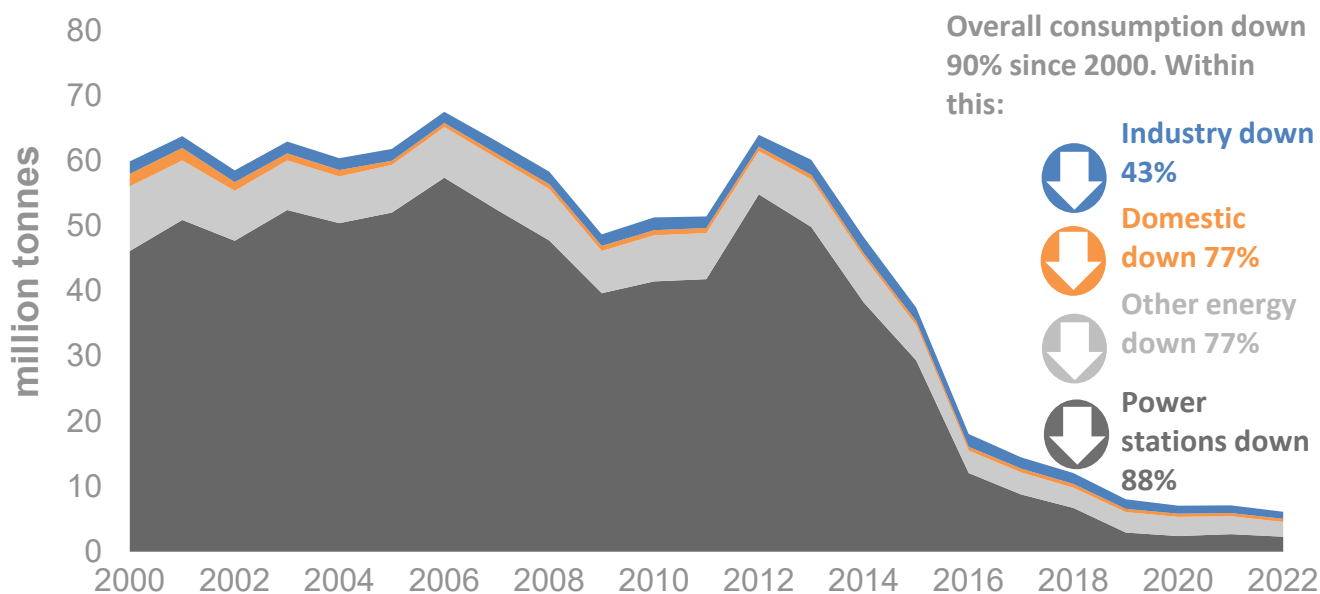
**As of June 2023, the Coal Authority estimates that in total there were 187 million tonnes of economically recoverable coal resources (Table 2.6).** Of the economically recoverable and minable coal resource in current operations (including those in the planning or pre-planning process), 145 million tonnes are in underground mines and 42 million tonnes in surface mines. Overall Scotland had a 46 per cent share of UK current mines and licenced resources, followed by Wales with 34 per cent and England 20 per cent.

The reduction of underground figures is due to the decline of the industry. An additional 2,050 million tonnes of prospects for underground mines and 778 million tonnes of prospects for surface mines were estimated in June 2022. Table 2.6 gives details of the resource assessment by England, Scotland and Wales as at June 2023.

**Demand for coal fell by 14 per cent to 6.1m tonnes in 2022, compared to 2021 (table 2.2).** Much of this decrease was driven by the 15 per cent fall in coal-fired generation to 2.3 million tonnes as other fuels were favoured for electricity generation. Wind generation was up 25 per cent due to higher-than-average wind speeds. Total renewable generation was up by 13 per cent in 2022, while gas and nuclear energy were also up. Final consumption by industry fell by 6.5 per cent, and transformation for coke manufacture and in blast furnaces fell by 19 per cent.

**A decrease in coal generation in 2022 as the trend remains downwards.** A reduction in generation capacity contributed to the downwards trend in coal consumption. Most of the UK’s coal-fired power plants have closed in recent years. Just four coal plants remained operational in the UK throughout 2022. Drax and West Burton had planned to close in Spring 2022 but remained available to ensure security of supply if needed over the winter. Coal use has declined since the early 1970’s as new fuels (gas and renewables) entered the market and coal use for electricity generation is expected to cease completely by October 2024.

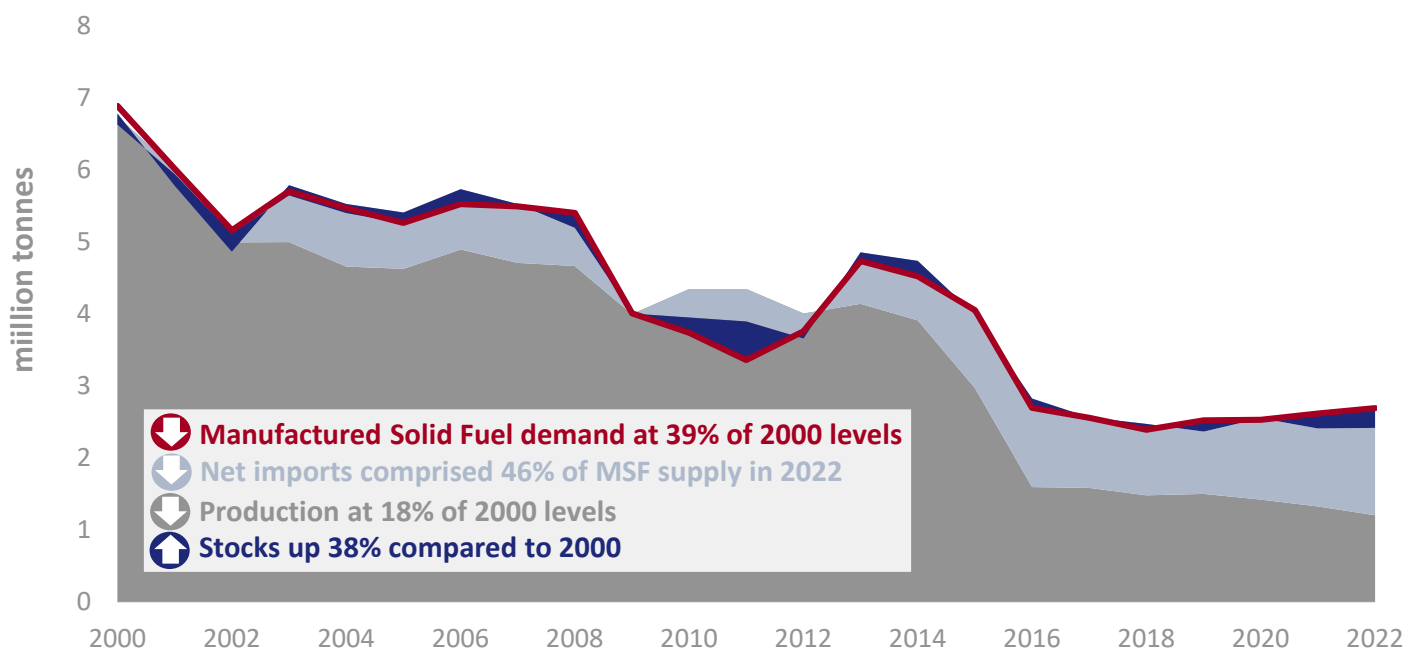
**Chart 2.3 Coal Demand, 2000 – 2022** ([Table 2.2](#))



The iron and steel industry is one of the main non-generation users of coal, for coke manufacture, blast furnaces and direct consumption. In 2022 it used 2.1 million tonnes of coal, less than half of what it used in 2015 (5.2 million tonnes). In terms of total share, it comprised 35 per cent of UK coal consumption in 2022, up from 14 per cent in 2015.

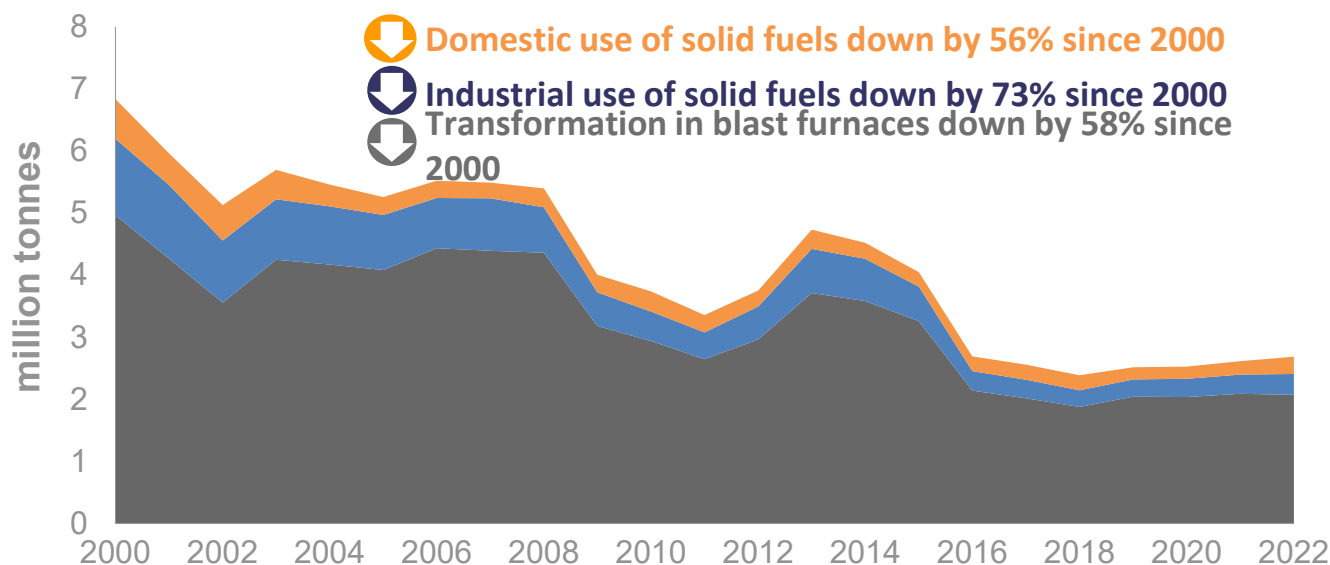
In addition to coal production and consumption, the UK has significant (but decreasing) supply and demand for a range of manufactured solid fuels that are used for domestic, industrial and transformation processes. Coke is the solid product obtained from the carbonisation of coal, principally coking coal, at high temperature and is used for smelting iron and steel.

**Chart 2.4 Total manufactured solid fuels supply and demand, 2000 - 2022 (Table 2.3)**



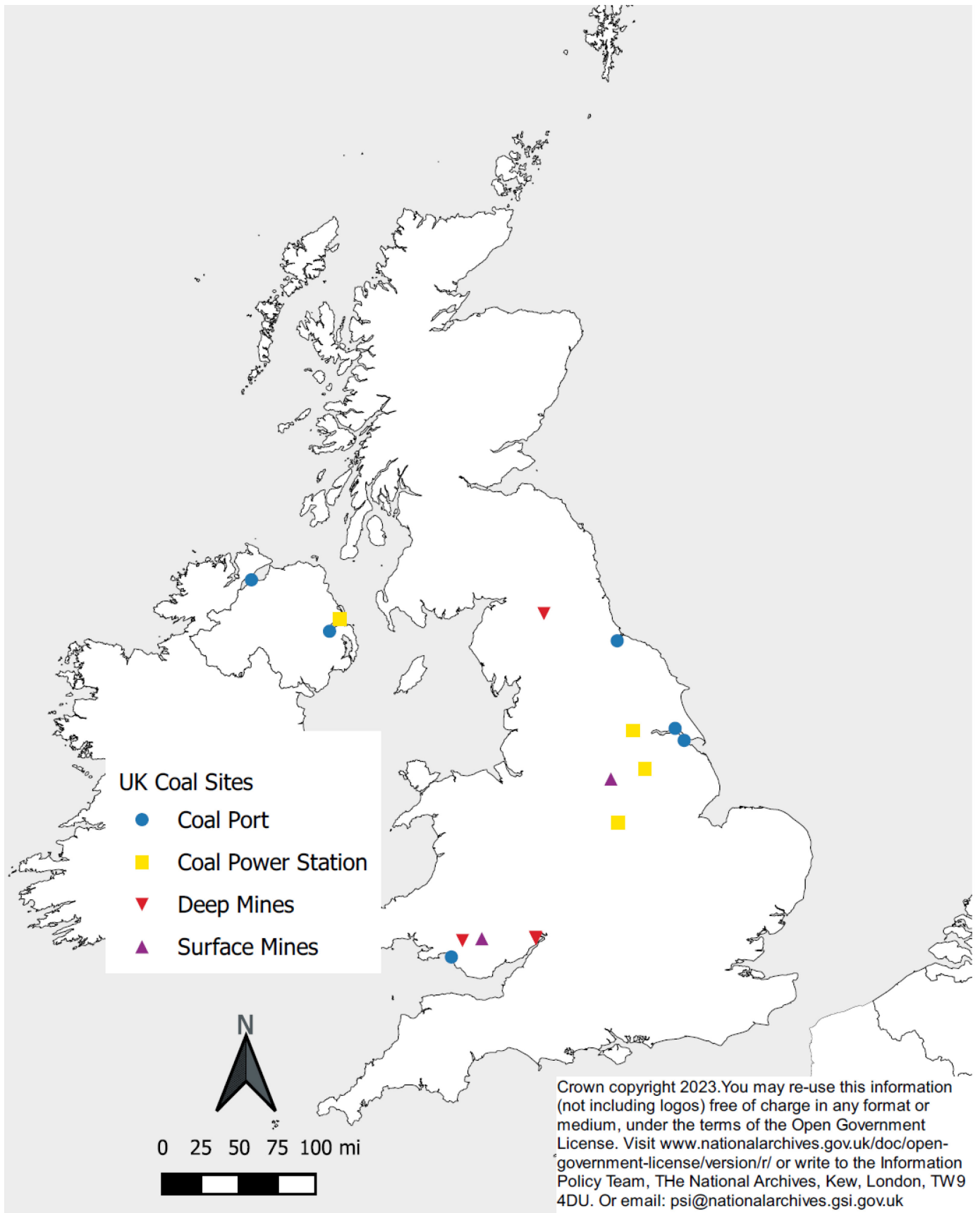
In 2022, indigenous coke oven coke fell by 15 per cent to 0.9 million tonnes compared to 2021 (Chart 2.5). Monckton Coke and Chemicals, the only dedicated coke plant in the UK closed in December 2014. There has been a fall in steel production in the UK since 2015. Notably, SSI steelworks at Redcar ceased production in mid-September 2015 (with the subsequent closure in October). Coke production continues at other sites and is used at steelworks, mainly Port Talbot and Scunthorpe. Coke breeze production rose 13 per cent to 17 thousand tonnes. Other manufactured solid fuels (patent fuels) rose by 21 per cent to 244 thousand tonnes.

**Chart 2.5 Total manufactured solid fuels consumption in the UK, 2000 – 2022 (Table 2.3)**



In 2022, coke oven coke comprised 69 per cent of demand for manufactured solid fuels, with coke breeze at 21 per cent and other manufactured solid fuels at 10 per cent. Almost all coke oven coke and coke breeze in the UK is used in blast furnaces for steelmaking. Volumes have been broadly stable in recent years.

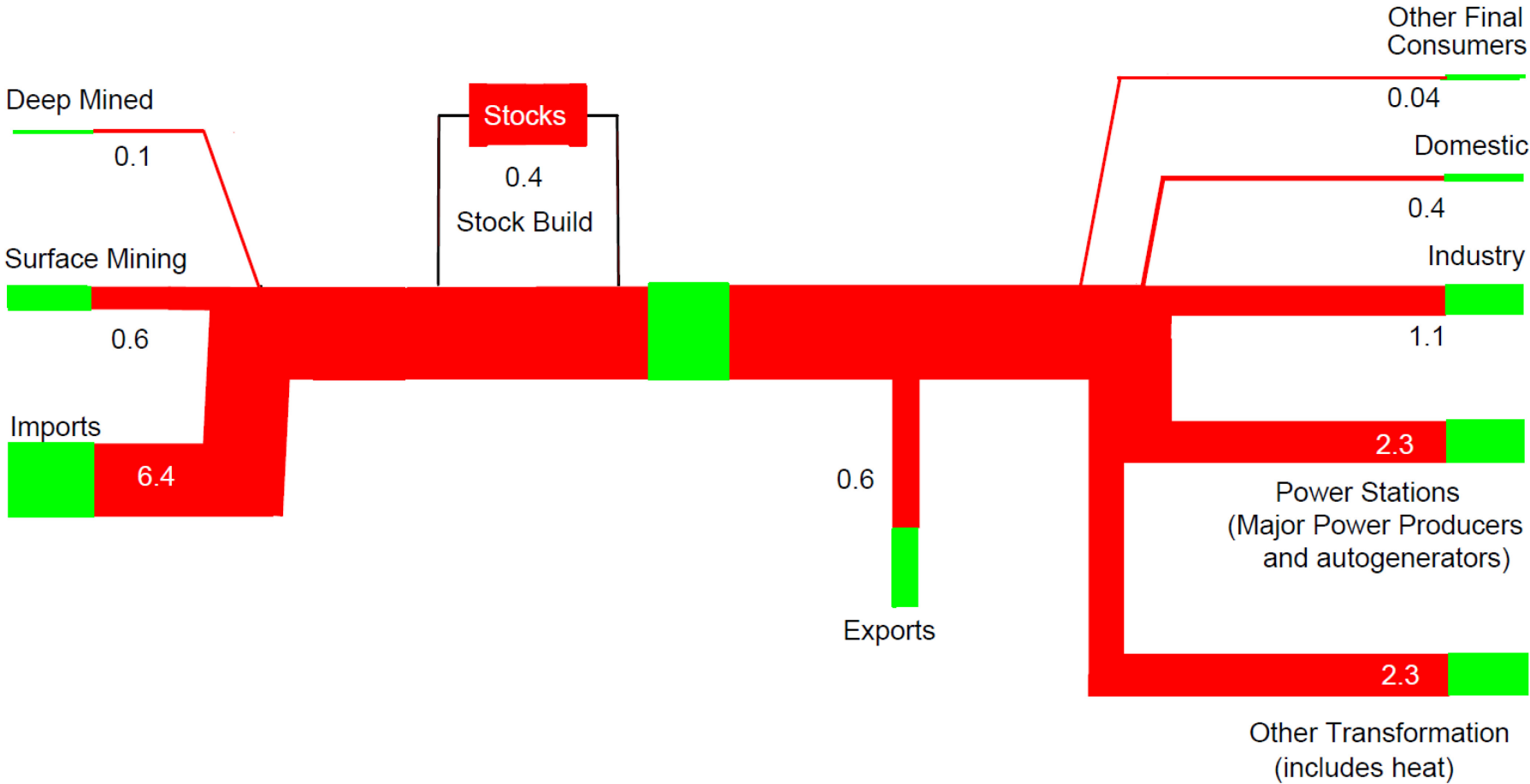
## Map 2B Location of UK coal production sites and ports as at end 2022



### Note:

Only ports that imported more than 10,000 tonnes are shown

# Coal Flow Chart 2022 (million tonnes)



**Note:**  
 This flow chart is based on the data in Tables 2.1 and 2.2.  
 The numbers on either side of the flow chart will not match due to losses in transformation.



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