

Chapter 2: Solid Fuels and Derived Gases

Chris Michaels

0300 068 5050

coalstatistics@beis.gov.uk

Key headlines

Demand for coal fell by 11 per cent in comparison with 2019 to 7.1 million tonnes in 2020. This decrease was driven by a drop in consumption by electricity generators, as coal-fired generation is phased out of the UK energy mix.

Consumption of coal for electricity generation fell to a record low, down 20 per cent from 2019 to 2.3 million tonnes in 2020. This decline reflected a lower overall demand for generation in the face of Covid-19 pandemic, the closure of two coal-fired generation plants in March 2020 and included a record time spent using coal-free electricity generation in the Spring of 2020.

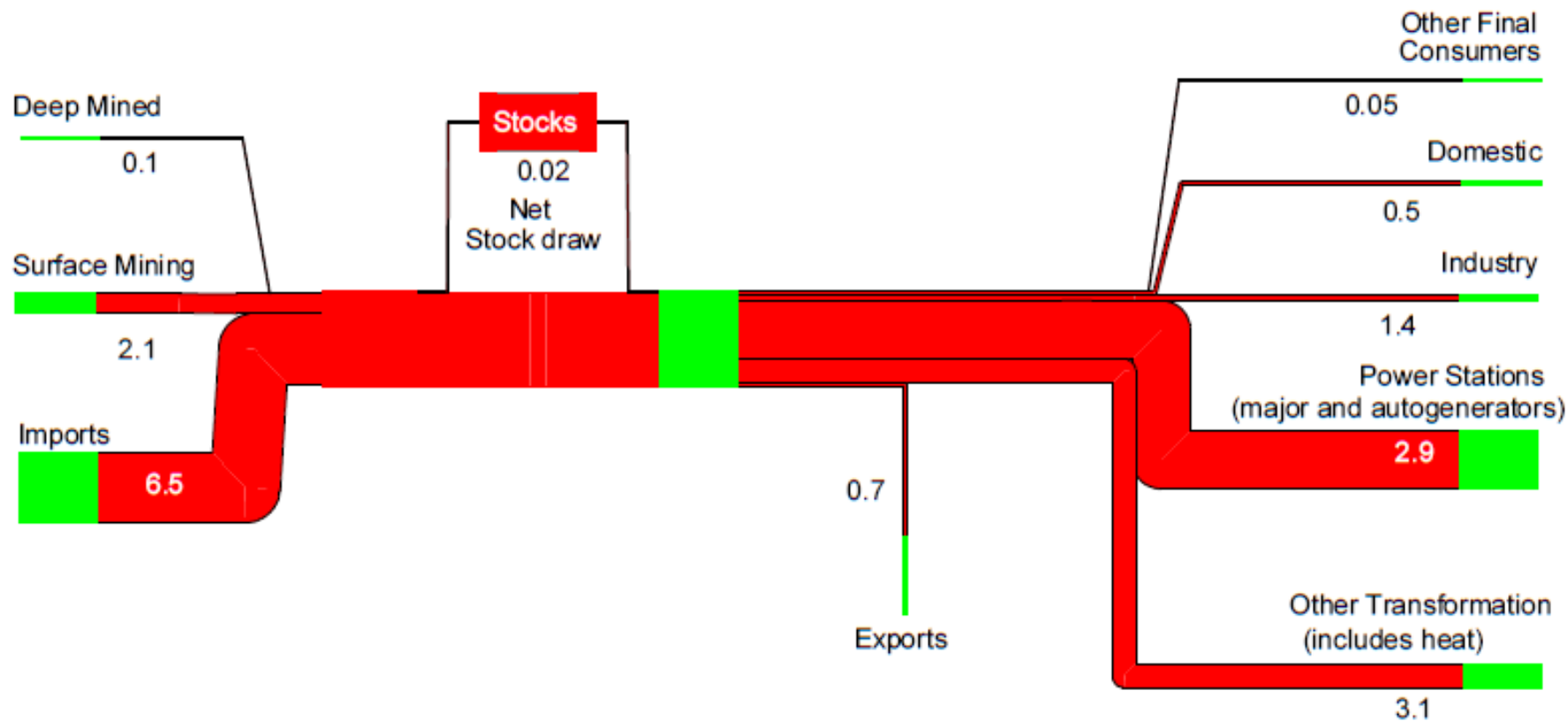
Production of coal fell to another record low, down 35 per cent from 2019 to 1.7 million tonnes. Surface mining production fell to a record low of 1.6 million tonnes due to mine closures, restrictions in coal mines due to Covid-19, bad weather and a flood in one of the mines as well as the falling demand for coal by electricity generators. In the last ten years, UK coal production has fallen by 91 per cent.

Coal imports fell 27 per cent in comparison with 2019 to just 4.5 million tonnes in 2020. Net imports accounted for 45 per cent of supply in 2020. Three countries accounted for 79 per cent of total coal imports: Russia (36 per cent), the USA (22 per cent) and Venezuela (21 per cent).

In 2020, coal comprised 2.9 per cent of UK energy demand, up slightly from 2.8 per cent in 2019 as demand for other fuels contracted more sharply due to the Covid-19 pandemic. 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 chart on the next page shows flows of coal from production and imports, through to consumption. It is a way of simplifying 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).

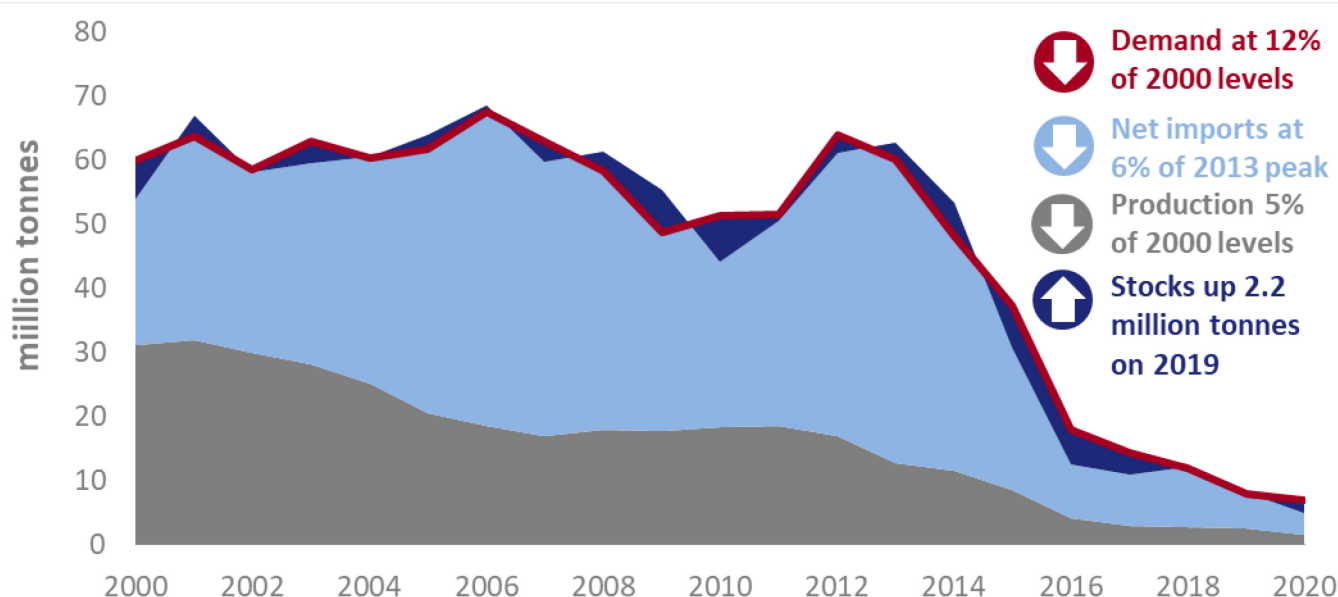
Coal Flow Chart 2020 (million tonnes)



Note:
This flow chart is based on the data in Tables 2.1 and 2.4.
The numbers on either side of the flow chart will not match due to losses in transformation.

Reduced demand for coal drove a substantial contraction in supply, with UK coal production down 91 per cent in the past ten years. In 2020, coal production fell to a record low of 1.7 million tonnes, down 35 per cent on 2019 (Chart 2.1). In that period just under a quarter of demand was met by domestic production, 45 per cent by net imports and 31 per cent was drawn from stocks.

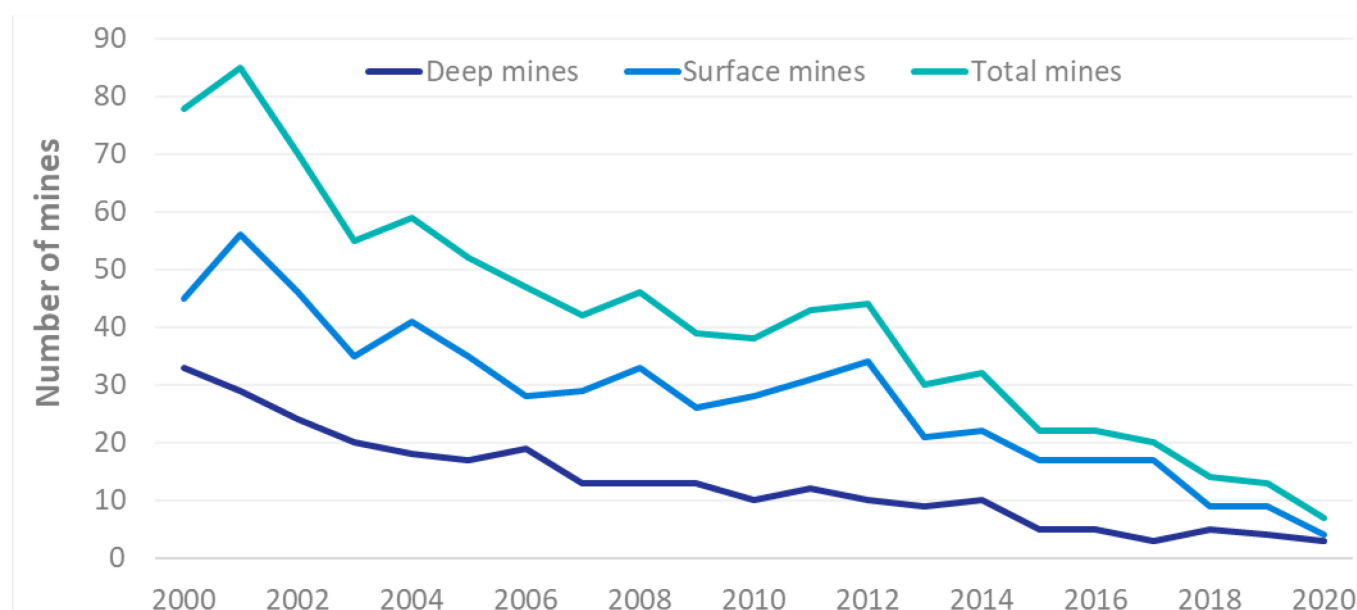
Chart 2.1 UK coal supply and demand, 2000 – 2020 ([Table 2.1](#))



Deep mined production rose to 107 thousand tonnes, mainly due to Aberpergwm colliery increasing production, and was 6.4 per cent of total production. In 2015 deep mined production provided nearly a third of total coal production. This was the year that the last large three deep mines in operation closed - Hatfield, Thoresby and Kellingley. There were no further closures of deep mines in 2020 with nine remaining open, of which two were under care and maintenance. Three deep mines reported coal production in 2020.

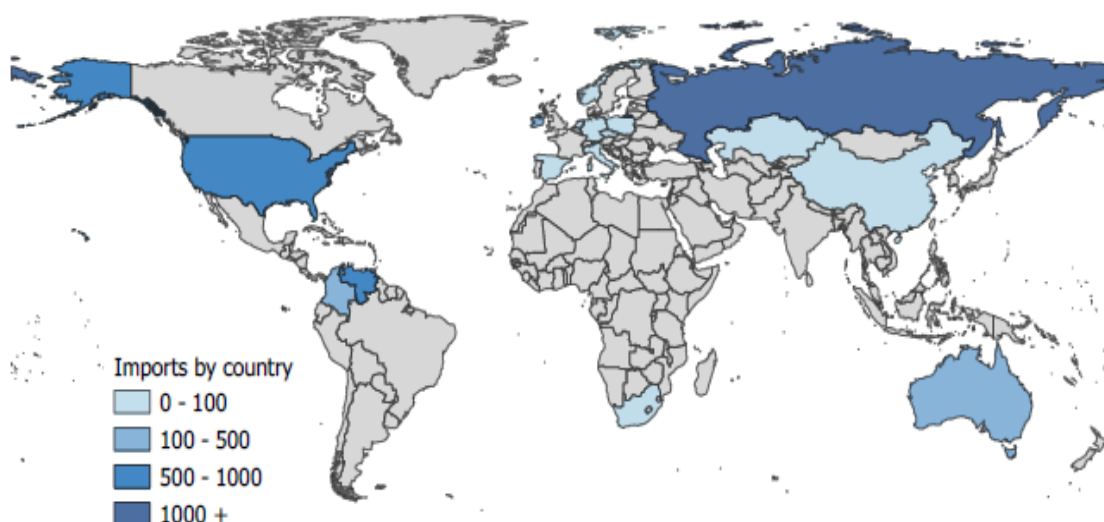
Surface mine production was down 37 per cent, to a new record low of 1.6 million tonnes due to lower demand for electricity generation, restrictions in coal mines due to Covid-19, bad weather and a flood in one of the mines. Six surface mines closed in 2020, with just four remaining.

Chart 2.2 Number of coal mines producing in the UK, 2000 – 2020 (Table 2.7)



Net imports of coal also fell substantially, down 91 per cent from the peak in 2013. This is again a result of the sharp fall in demand for coal. In 2020, net imports fell by 27 per cent from 2019 levels to just 4.5 million tonnes. However, this reduction in imported coal has 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 2020 imports accounted for 45 per cent of the UK's supply, up 7 percentage points from the proportion in 2000.

Map of UK Coal Imports in 2020 (thousand tonnes)



For more detail on coal imports and exports see DUKES table G.2.

<https://www.gov.uk/government/statistics/dukes-foreign-trade-statistics>

Steam coal imports were 39 per cent lower at 2.4 million tonnes in 2020 compared to 2019. In 2020 Venezuela became the highest supplier of steam coal imports for the first time rising from 126 thousand tonnes in 2019 to 968 thousand tonnes. There was also a decrease of steam coal imports from Russia of 47 per cent. Steam coal imports from Colombia fell by 86 per cent. Venezuela (40 per cent) Russia (37 per cent) in 2020 represented 77 per cent of steam coal imports. Steam coal accounted for 53 per cent of total coal imports.

Coking coal imports were down 5.5 per cent at 2.1 million tonnes compared to 2019. The decrease was mainly due to the fall of 24 per cent from Australia.

Coal stocks continued to decline year-on-year. In line with much of what we see with coal, the main change to coal stocks came post 2014 when stocks began to decline each year and power plants closed. Coal stocks fell to 3.2 million tonnes in 2020, which was 41 per cent lower than in 2019.

As of June 2021, the Coal Authority estimates that overall there are 3,814 million tonnes of coal resources, including prospects (Table 2.8), down 2.4 per cent from 3,906 million tonnes assessed in June 2020. Of the economically recoverable and minable coal resource in current operations (including those in the planning or pre-planning process) 986 million tonnes is in underground mines and 46 million tonnes in surface mines. Overall England had a 84 per cent share of UK current mines and licenced resources, followed by Scotland with 9 per cent and Wales 7 per cent.

In prospects, there were 2,050 million tonnes suitable for underground mining and 778 million tonnes suitable for surface mining. Table 2.8 gives details of the resource assessment by England, Scotland and Wales as at 22 June 2021.

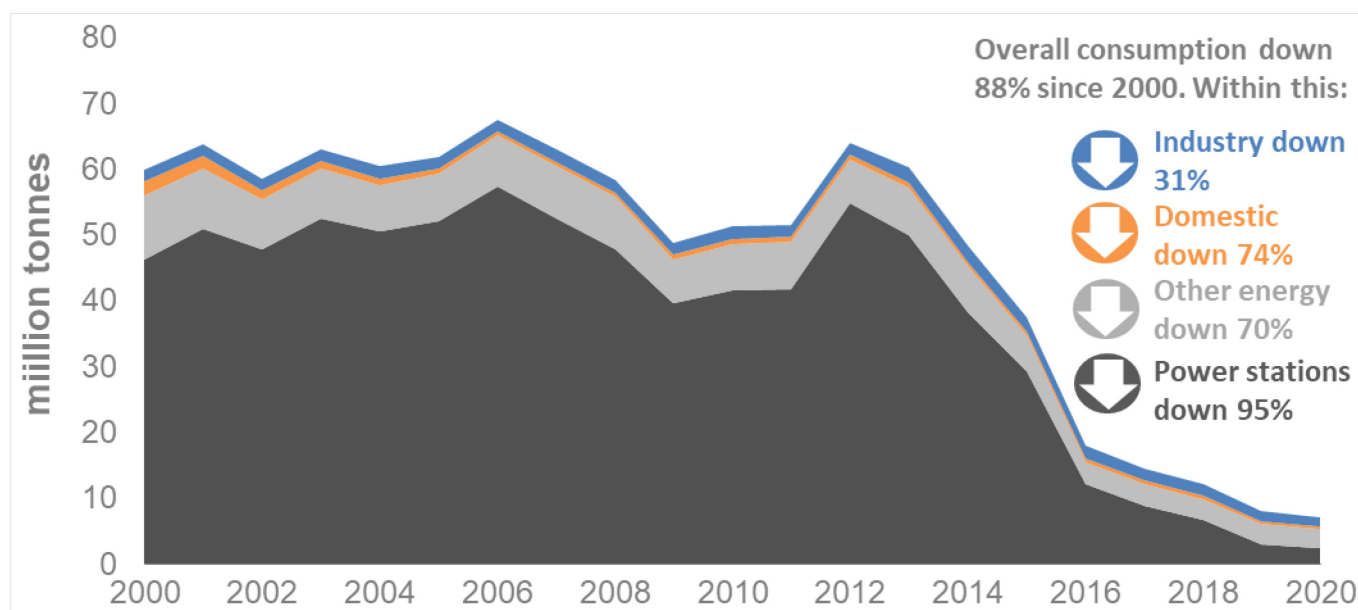
Demand for coal fell by 11 per cent to 7.1m tonnes in 2020, compared to 2019 (table 2.4). Amongst this, demand for coal for electricity generation fell by 20 per cent, final consumption by industry fell by 9 per cent, and transformation for coke manufacture and in blast furnaces fell by 6 per cent.

The Covid-19 pandemic led to a significant fall in demand for electricity, and therefore a fall in demand for coal from power stations for coal-fired generation. Restrictions began on 23rd March 2020 and resulted in closures across the private and public sector, with wide scale closures of schools, shops, offices and industrial facilities.

During this period, Great Britain set a record for its longest coal-free period of generation, with no coal-fired electricity being produced for 67 days from 10th April 2020. On 16th June, one of the remaining coal-fired power stations came briefly back online during maintenance work, adding power to the national grid. However, there was no coal-fired electricity on the GB grid for a further 55 days from 18th June to 12th August 2020. The period without coal-fired generation ended in August, as coal-fired generators were required due to maintenance outages in nuclear plants, low wind speeds, and as gas-fired generators struggled to generate at their maximum capacity in unusually high temperatures. Great Britain operates on a separate electricity network to Northern Ireland, where some coal generation continued during this period. However, coal-fired generation remained less economically favourable due to low gas prices and higher carbon pricing.

A reduction in generation capacity contributed to the downwards trend in coal consumption. There have been multiple closures of coal-fired power plants in recent years, and March 2020 saw the closures of Fiddlers Ferry and Aberthaw B. This trend appears set to continue in the coming years, with plans to phase out the remaining four coal-fired power plants in the UK by 2024. Coal use has declined since the early 1970's as new fuels (gas and renewables) entered the market, and 2020 saw an increase in renewable electricity generation, with favourable weather conditions for increased wind generation.

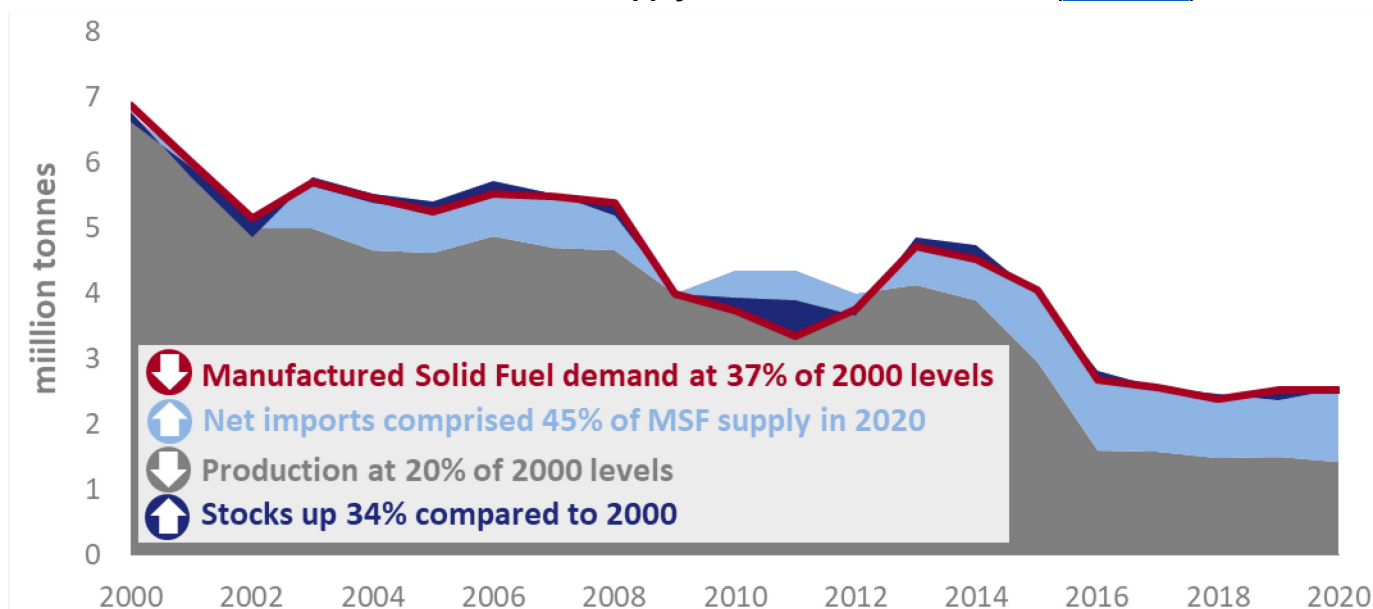
Chart 2.2 Coal consumption, 2000 – 2020 ([Table 2.4](#))



The iron and steel industry is one of the main non-generation users of coal. In 2015, it used 5.2 million tonnes compared to 2.8 million tonnes in 2020 (47 per cent drop). In terms of total share, it comprised 14 per cent of UK coal consumption in 2015, and 39 per cent in 2020.

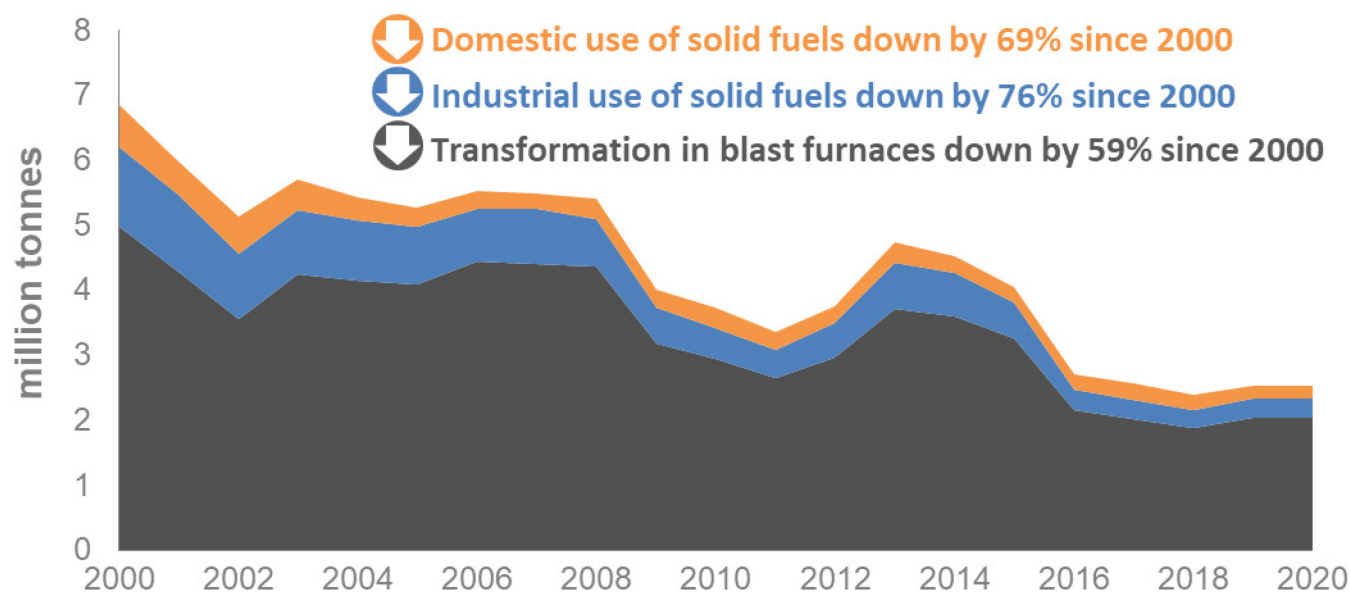
In addition to coal production and consumption, the UK has significant (but decreasing) supply and demand for a range of manufactured solid fuels that are used for domestic, industrial and transformational processes. Coke is the solid product obtained from the carbonisation of coal, principally coking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

Chart 2.3 Total manufactured solid fuels supply and demand, 2000 - 2020 ([Table 2.5](#))



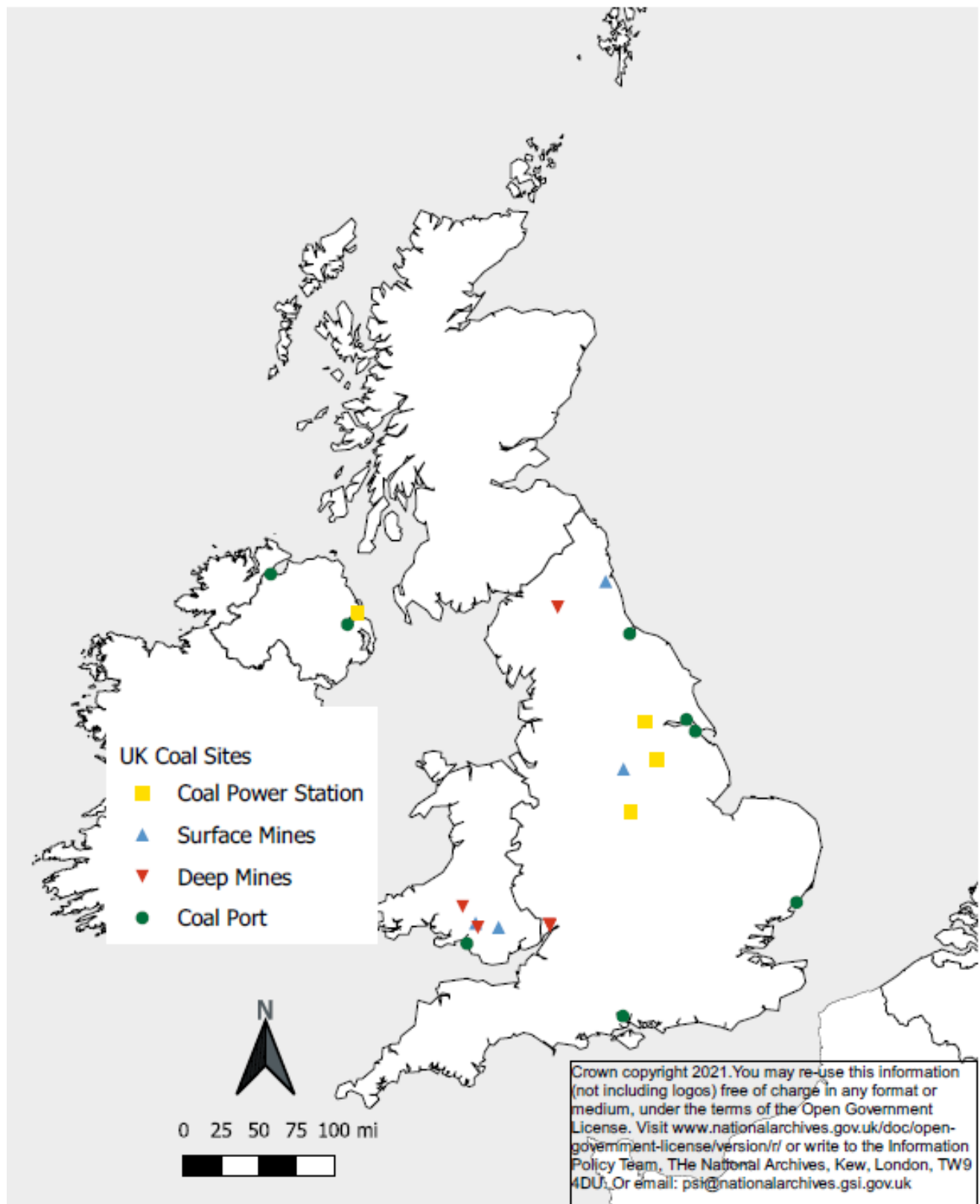
In 2020, indigenous coke oven coke fell by 7.2 per cent to 1.2 million tonnes compared to 2019 (Chart 2.5). It has been relatively stable in the last four years. Monckton Coke and Chemicals, the only dedicated coke plant in the UK closed in December 2014. There has been a fall in steel production in the UK since 2015. Notably, SSI steelworks at Redcar ceased production in mid-September 2015 (with the subsequent closure in October). Since then coke has still being produced and used at steelworks, mainly Port Talbot and Scunthorpe. Coke breeze fell 16 per cent to 16 thousand tonnes. Other manufactured solid fuels (patent fuels) rose by 8.8 per cent to 198 thousand tonnes.

Chart 2.4 Total manufactured solid fuels consumption in the UK, 2000 – 2020 ([Table 2.5](#))



In 2020, coke oven coke comprised 69 per cent of demand for manufactured solid fuels, with coke breeze at 23 per cent and other manufactured solid fuels at 8 per cent. Almost all coke oven coke and coke breeze in the UK is used in blast furnaces for steelmaking. As the iron and steel industry is a critical industry it was less impacted by the Covid-19 pandemic and volumes have been broadly stable in recent years.

Map 2A Showing location of UK coal production sites and ports as at end 2020





© Crown copyright 2021

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3 or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third-party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available from: <https://www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes>

If you need a version of this document in a more accessible format, please email energy.statistics@beis.gov.uk

Please tell us what format you need. It will help us if you say what assistive technology you use.