

Chapter 3: Oil and Oil Products

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Key headlines

Oil formed one-third of total energy demand in 2020 compared to nearly half in 2019. Demand for petroleum products reached a record low in 2020, down 23 per cent compared to 2019 as restrictions from the Covid-19 pandemic limited activity. Most oil demand is typically for transport fuels which were heavily impacted as movement was restricted. The largest contraction was in demand for jet fuel, down 60 per cent on 2019, the lowest level since 1984. Demand for road fuels was also reduced, petrol fell to the lowest level since 1963 and down by 22 per cent on 2019; diesel also fell by 17 per cent.

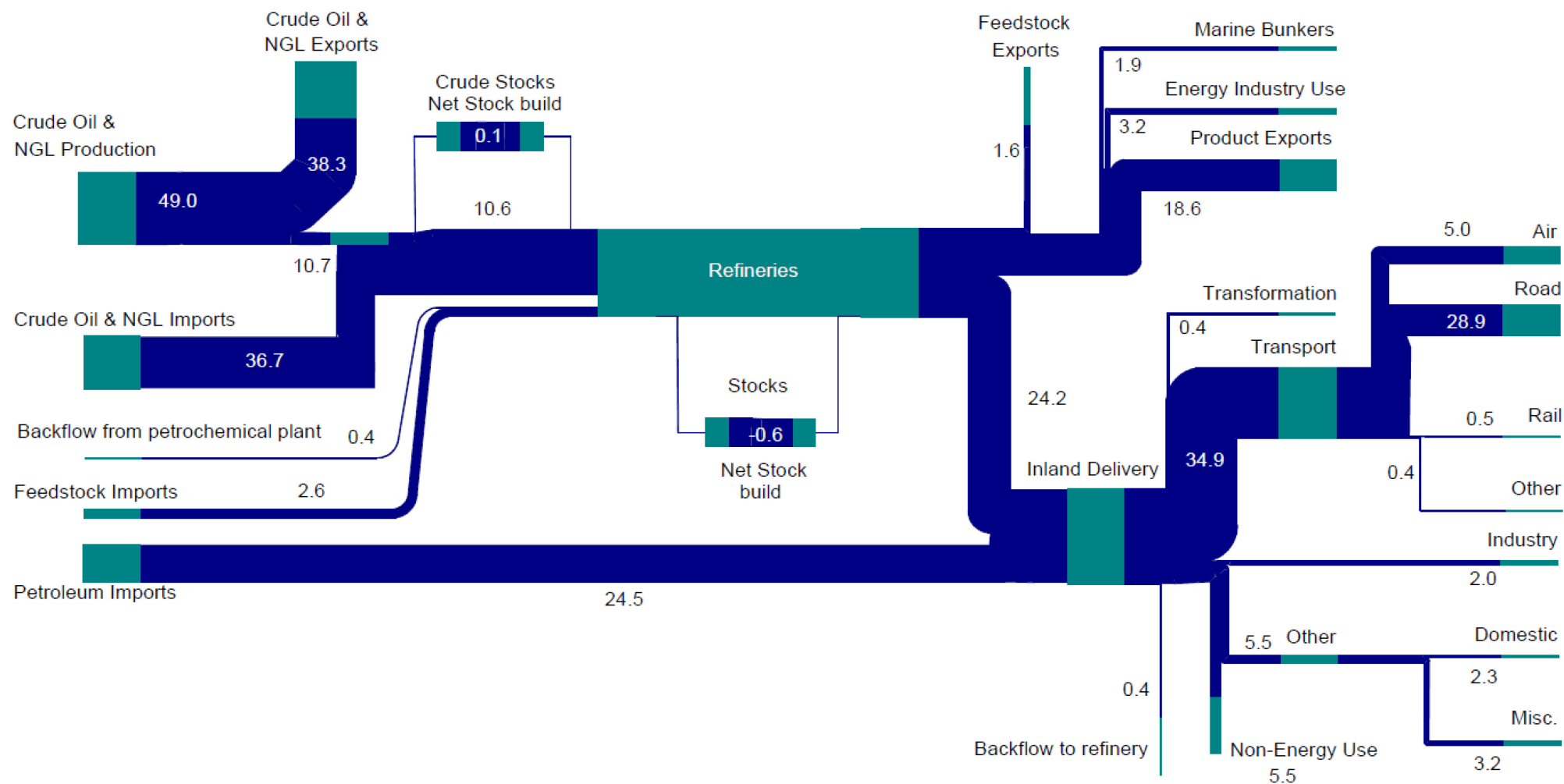
The impact of the Covid-19 pandemic also affected trade. Net imports of petroleum products halved in 2020 as the UK imported less fuel to meet the reduced demand. The UK became a net exporter of primary oils, by 0.5 million tonnes, for the first time since becoming a net importer in 2004.

In 2020 the UK's total production of oil from the North Sea exceeded refinery demand for the first time since 2004. Total demand for primary oils was down 18 per cent on 2019 with refinery production following suit, dropping to its lowest ever level. In contrast production of crude from the UK Continental Shelf (UKCS) retained its 42 per cent share of total UK energy production. Much of this was exported abroad.

Other sectors were also impacted by Covid-19 restrictions. For example, non-energy use fell 9.6 per cent in 2020 compared to 2019 after several years of growth. Conversely, domestic consumption saw an increase of 5 per cent because of low prices early in the year and as more people stayed at home.

The flow chart on the following page shows the movement of primary oils and petroleum products, illustrating how crude oils are supplied and transformed in refineries, and products imported (on the left) to transformation and consumption in the various sectors of the UK's economy (on the right). The widths of the bands are proportional to the size of the flow they represent.

Petroleum flow chart 2020 (million tonnes)

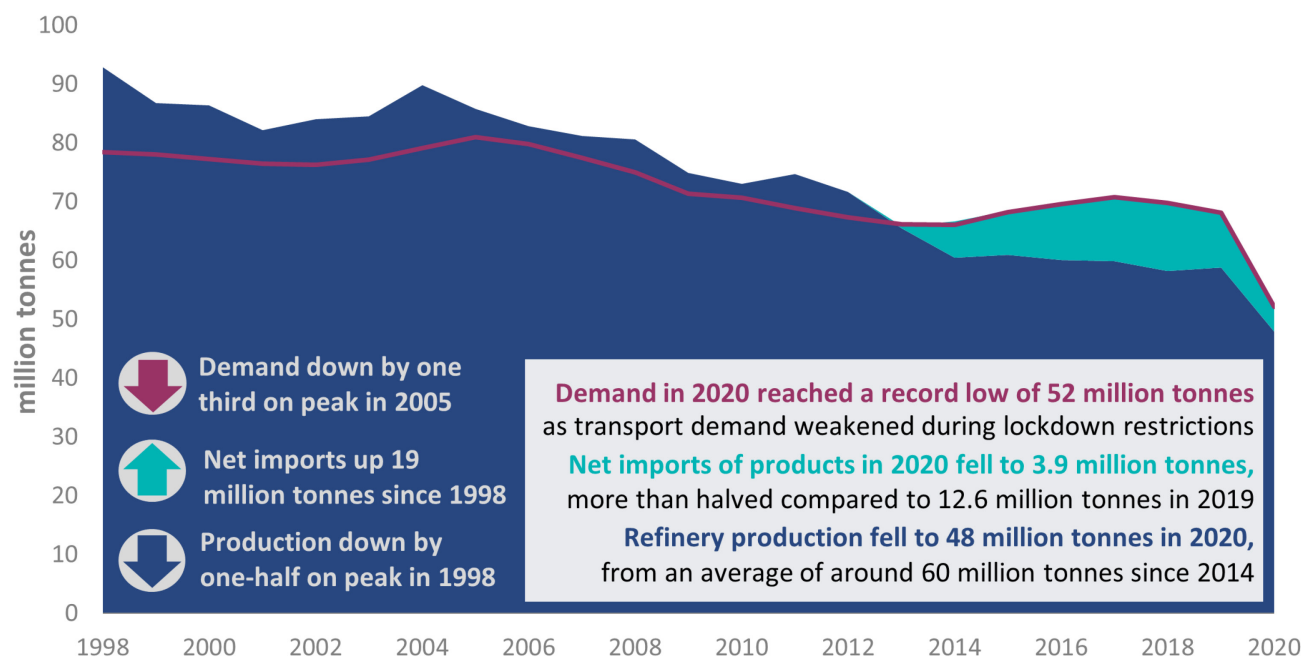


Note:

This flow chart is based on the data in Tables 3.1 and 3.2.
 The numbers on either side of the flow chart will not match due to losses in transformation.
 Biofuels are not included.

Demand for petroleum products reached a record low in 2020, down by 23 per cent compared to 2019. Most oil demand is for transport fuels, lockdown and other restrictions put in place to curb the spread of Covid-19 reduced demand substantially. Overall demand for petroleum products in 2020 was the lowest since 1962 at 52.1 million tonnes (see [DUKES Table Crude oil and petroleum: Production, imports and exports](#)).

Chart 3.1 Supply and demand for petroleum products, 1998 – 2020 ([DUKES Table 3.1](#))



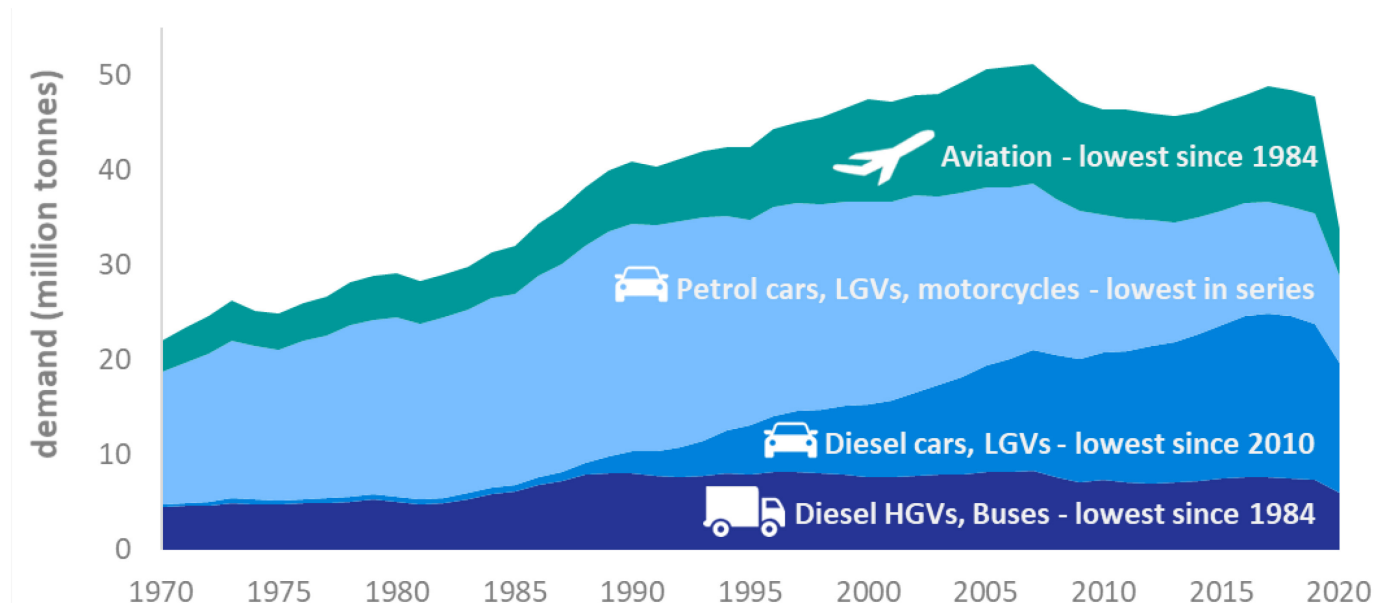
Refinery operators reacted by slowing production in response to the demand destruction brought about by the pandemic, meaning that refinery production also reached a record low of 48 million tonnes in 2020. This was down by more than 10 million tonnes compared to 2019¹. While the UK remained a net importer of petroleum products, with net imports up by 19 million tonnes since 1998, in 2020 there was a sharp fall and net imports dropped by half to just 6.0 million tonnes from 12.1 million tonnes in 2019.

Covid-19 restrictions saw demand for road fuels fall markedly in 2020 compared to 2019. This follows several years of static demand at around 35 million tonnes. In 2020, demand for petrol and diesel fell 22 and 17 per cent respectively compared to 2019. Staggeringly, over the year demand for petrol reached the lowest recorded since 1963 owing to the sharp dip in the second quarter. This was less dramatic for diesel, demand reaching the lowest recorded since 2005. There are several reasons for this disparity; demand for petrol was impacted more than diesel because commercial fleets tend to be diesel-engine vehicles, and these continued to operate during the UK's periods of restricted movement. In addition, there has been slowing growth in the diesel vehicle fleet in recent years following changes to vehicle taxation and diesel vehicles have become more efficient. As 2020 progressed and restrictions were lifted demand continued to recover through the year, reaching near normal levels despite subsequent lockdowns by the end of the year (for quarterly data see [Energy Trends Table 3.4](#)).

Demand for jet fuel was down 60 per cent in 2020 compared to 2019, at just 5.0 million tonnes this was the lowest level since 1984. This was caused by international travel restrictions which remained in place for large parts of the year. Unlike the road fuels, which have shown remarkable signs of recovery, demand for aviation fuel remained flat in 2020.

¹ For further detail on the UK's refineries and nameplate capacity, please see [Table 3A](#) and the map of UK refineries and major import terminals in the [methodology note](#).

Chart 3.2 Annual demand for road and aviation fuels since, 1970 - 2020 ([DUKES Table 3B](#))



The restrictions imposed in response to the pandemic had differing effects on specific sectors. Domestic consumption increased by 5.0 per cent as more people stayed at home due to the pandemic. In addition, low oil prices in early 2020 caused by excess stocks, and an oil price war between Russia and Saudi Arabia, led to a bump in demand early in the year as consumers took advantage of lower prices to fill domestic heating tanks.

Chart 3.3 shows that consumption by industry and other final users decreased by 1.6 per cent, although this masks variation within the subsector. Domestic demand was up by 5.7 per cent, largely because of exceptional demand early in the year during a period of very low prices owing to the collapse of OPEC+ talks. However, industry demand was down by 3.2 per cent and commercial by 5.0 per cent because of closures due to restrictions in place to control the spread of Covid-19.

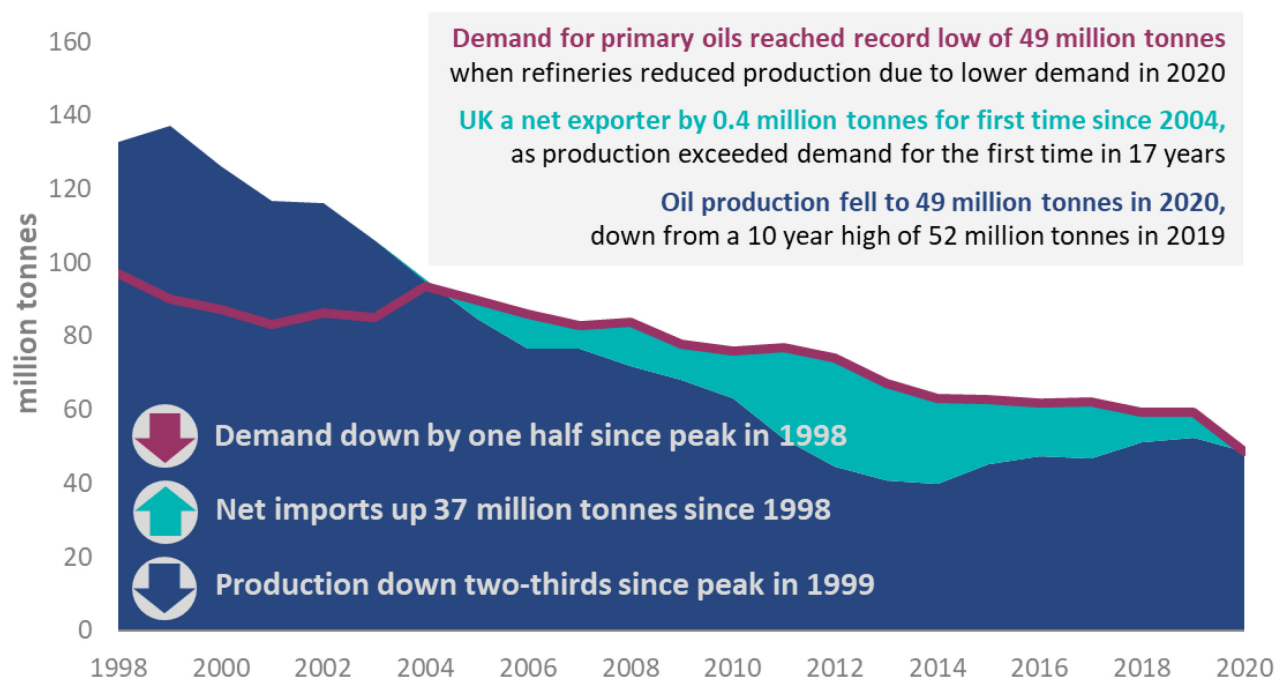
Non-energy use of oil products was down by 9.6 per cent compared to 2019. Use of oil in the energy industry dropped by 15 per cent as demand for generation fell to a record low during a year of record renewables generation.

Chart 3.3 Oil consumption in the UK, 2019 to 2020 ([DUKES Table 3.2 to 3.4](#))



In 2020 the UK's total production of primary oils exceeded refinery demand for the first time since 2004. Demand for primary oils was down by 18 per cent on 2019 whereas production remained relatively robust, down just 7.0 per cent compared to 2019.

Chart 3.4 Supply and demand for primary oils, 1998 – 2020 ([DUKES Table 3.2 to 3.4](#))



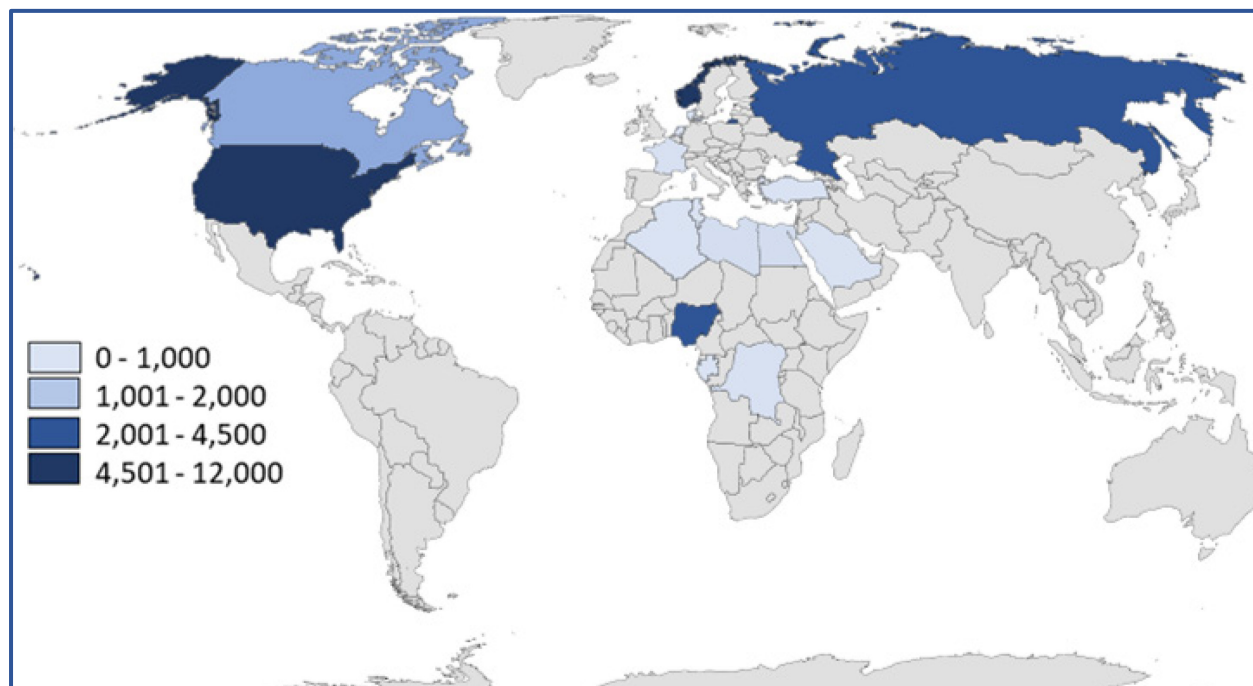
In the longer term, from a peak of 137 million tonnes in 1999 UKCS production of primary oils has dropped by nearly two-thirds to 49 million tonnes in 2020. The UK became a net importer of primary oils in 2005, but net imports fell to a 17-year low in 2020, and the UK became a net exporter for the first time since 2004.

Despite this, the UK remains reliant on imports to meet refinery demand for specific crude blends. UK refineries took receipt of 8.6 million tonnes of crude produced from the UKCS in 2020 (a five-year high, see Energy Trends Table 3.10), this met 18 per cent of refinery demand. This in addition to reduced demand saw imports of crude fall by a quarter in 2020 compared to 2019.

Sources of crude imports are shown in Map 3A; the main source has historically been Norway given its proximity to the UK. Imports from Norway remained stable in 2020 compared to 2019, with Norway providing 34 per cent of total UK imports. However, this stability follows recent sharp decreases; in 2016 Norway provided 62 per cent of UK imports (Table 3.9). Imports from the US remained stable in 2020 at the record set in 2019 of 11.4 million tonnes.

The US share of UK imports reached 32 per cent in 2020 from 26 per cent in 2019 mainly at the expense of imports from Norway and Algeria. Imports from OPEC countries accounted for 13 per cent of the UK's crude imports in 2020 at 4.6 million tonnes, this is almost half the figure for 2019. The UK is a significant exporter of crude oils, and these remained comparatively stable at 36 million tonnes in 2020 compared to 41 and 40 million tonnes in 2019 and 2018 respectively, which followed strong production and favourable price spreads resulting in strong demand for Brent crude from Asia (Table 3.10).

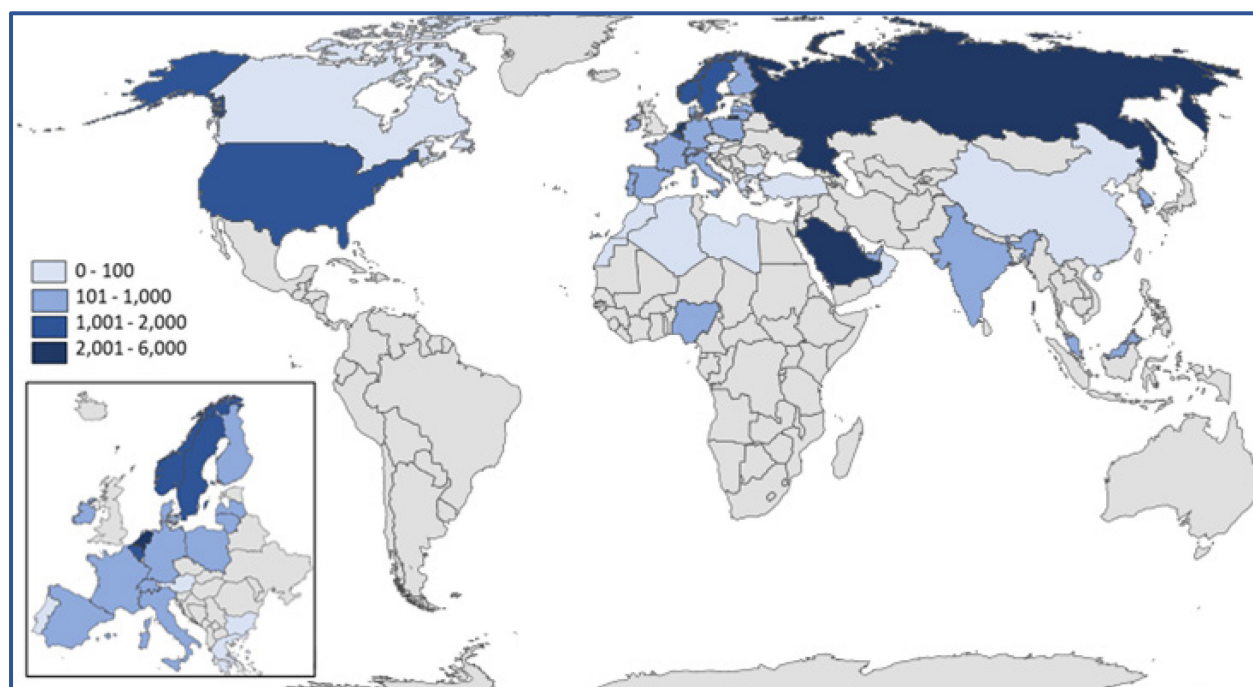
Map 3A Sources of UK crude oil imports 2020 (thousand tonnes, [DUKES Table 3.9](#))



As with crude oil, imports of petroleum products are critically important to meet UK demand.

Despite the Covid-19 pandemic leading to as sharp reduction in imports of petroleum products in 2020, the UK has been a net importer since 2013 and remained so in 2020. In common with many other countries, domestic supply and demand are not matched on a product-by-product basis. The UK's refineries were developed to produce petrol and fuel oil for electricity generation. However, as demand for diesel and jet fuel have increased UK refineries have not been able to keep pace and now produce a surplus of petrol. To balance demand the UK trades widely and is one of the largest importers of jet fuel and road diesel in the OECD, and one of the largest exporters of petrol.

Map 3B Sources of UK petroleum product imports 2020 (thousand tonnes, [DUKES Table 3.9](#))



Map 3B shows the principal product trading partners with the UK. Historically the bulk of products have come via the Netherlands, which acts as a major trading hub (the fuel might have been refined elsewhere in Europe or beyond). Russia, the Netherlands, and Saudi Arabia were large sources of road diesel in 2020; these three countries accounted for 62 per cent of total road diesel imports in 2020.

Another effect of the pandemic has been the impact on emergency reserves of oil. Under international commitments to the International Energy Agency, and until 1 January 2021 the European Union, the UK is obliged to hold oil stocks to offset the impact of significant disruptions to the global oil market. Such disruptions are relatively rare, but since the Arab Israeli war of 1974 there have been three globally co-ordinated releases of oil in response to the Gulf War (1990–1991), Hurricane Rita (2005), and the civil war in Libya (2011).

At the end of 2020, the UK held 14.9 million tonnes of stocks (DUKES Table 3.7). Of this total, 12.8 million tonnes were held for emergency purposes, broadly equivalent to just over 61 days of typical consumption. These stocks have historically been held both in the UK, and overseas under contractual arrangements that allow stocks to be repatriated to the UK if necessary. At the end of 2020, just over 3.8 million tonnes were held in other EU countries, most notably in the Netherlands. However, following the demand destruction brought about in 2020, stocks held in the UK reached a ten year high of 11.1 million tonnes.

Leaving the EU has also had an impact on emergency oil reserves, notably because previously the UK was obligated to hold stocks as a Member State of the EU as well as the International Energy Agency (IEA). However, since 1 January 2021 the UK has no longer been an EU Member State so is now only required to meet the IEA obligation. The level obligation under the IEA accounts for the fact that the UK has significant volumes of offshore production, meaning that since January 2021 companies have been directed to hold less stock than under the EU obligation. Impacts of this on more recent data can be seen in [Energy Trends Table 3.11](#).



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