

Supply of Liquefied Natural Gas in the UK, 2022

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Key headlines

In 2022, European demand for Liquefied Natural Gas (LNG) surged as countries looked to move away from Russian gas. European imports rose 71 per cent on 2021, leading to high global prices. Conversely, Asian imports fell by 7 per cent due to high spot prices for cargoes and depressed gas demand in China.

Qatar, Australia, and the USA were the largest exporters of LNG in 2022. Record US LNG exports were used to meet high global demand as new infrastructure came online. Increased US liquefaction capacity has enabled exports to more than double in the past three years.

UK LNG imports hit a record high of 25.6 bcm in 2022, up 74 per cent on the previous year. The UK holds significant regasification infrastructure, which meant the UK was used as a land-bridge for increased natural gas exports to Europe, while supporting domestic gas demand.

The US supplied half of the UK's LNG in 2022, ending Qatar's 13-year period as the largest LNG import source to the UK. Increased global demand led the UK to source cargoes from further afield, with Peruvian imports more than doubling on the previous year.

Introduction

Over the past few decades, Liquefied Natural Gas (LNG) has become an increasingly important method of moving natural gas to market. LNG refers to natural gas which has been cooled to approximately -160°C , changing its state from gas to liquid. This means it can be transported by ship, as the volume is around 600 times smaller than the gaseous state. Therefore, it provides an effective means of transportation where established pipeline infrastructure does not exist or is not viable. Once at its destination, LNG is regasified and used in the same way as natural gas which has not been liquefied.

The increased importance of LNG for global gas supply is reflected in year-on-year increases in global liquefaction capacity. This is partly due to a depletion of easily accessible natural gas reserves. The UK has three LNG import terminals with a capacity of 48 bcm per year. In the UK, LNG imports have gained importance in ensuring a secure and diverse gas supply portfolio following a decline in indigenous production.

In 2022, global LNG imports hit another record high with market growth boosted by record European demand. Russia's invasion of Ukraine in February 2022 led Europe to reduce their pipeline imports of Russian natural gas, increasing demand for alternative sources of gas supply to meet domestic needs and fill historically low storage inventories.

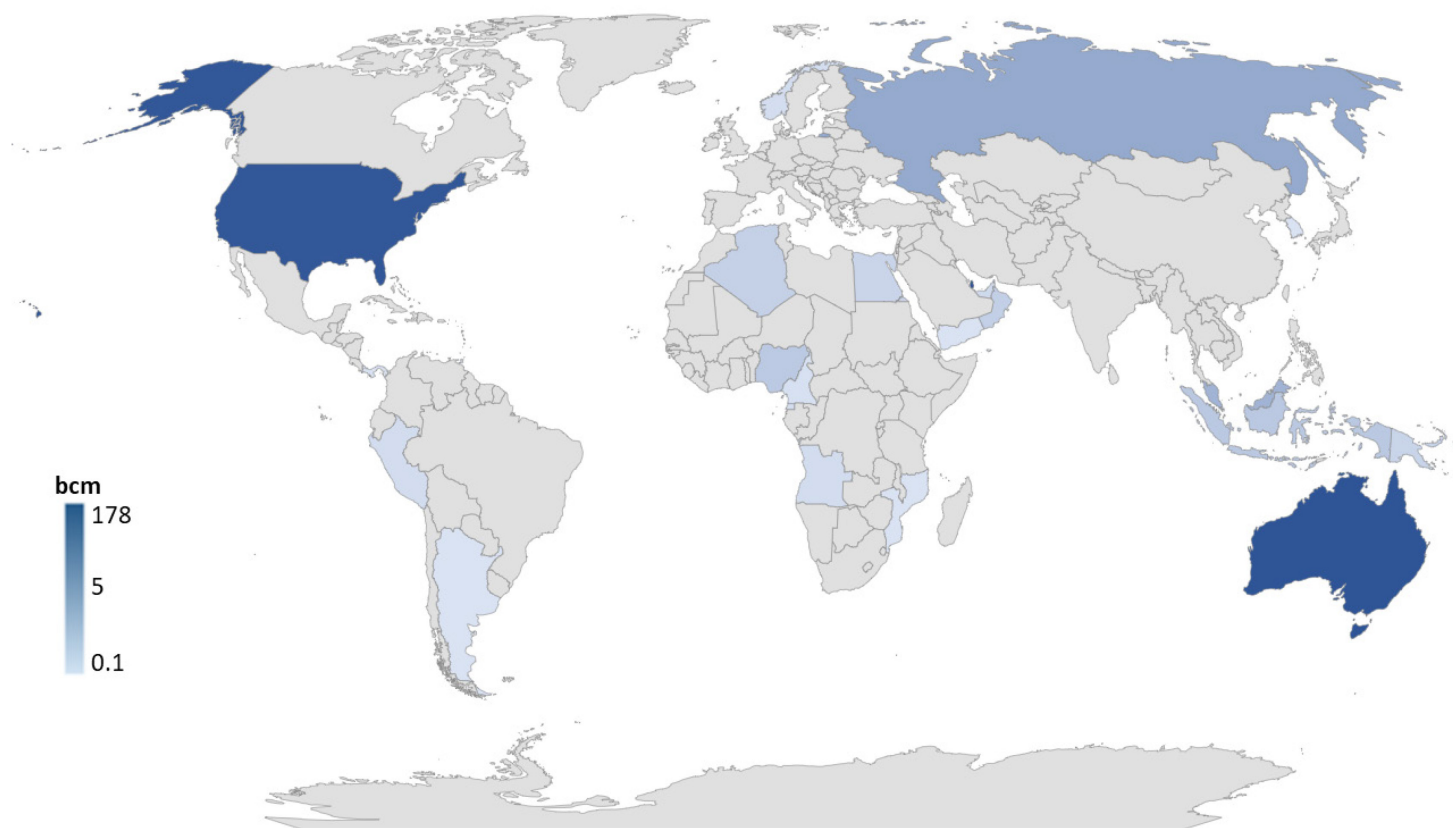
The aim of this article is to provide analysis of LNG supply to the UK (1) within the context of global LNG markets (2)

(1) UK and Europe data was sourced from the International Energy Agency (IEA) and Energy Trends: <https://www.gov.uk/government/statistics/gas-section-4-energy-trends>

(2) Global data was sourced from the Independent Commodity Intelligence Services (ICIS)

Global LNG Trade

Map 1: Global exporters of LNG by volume, 2022

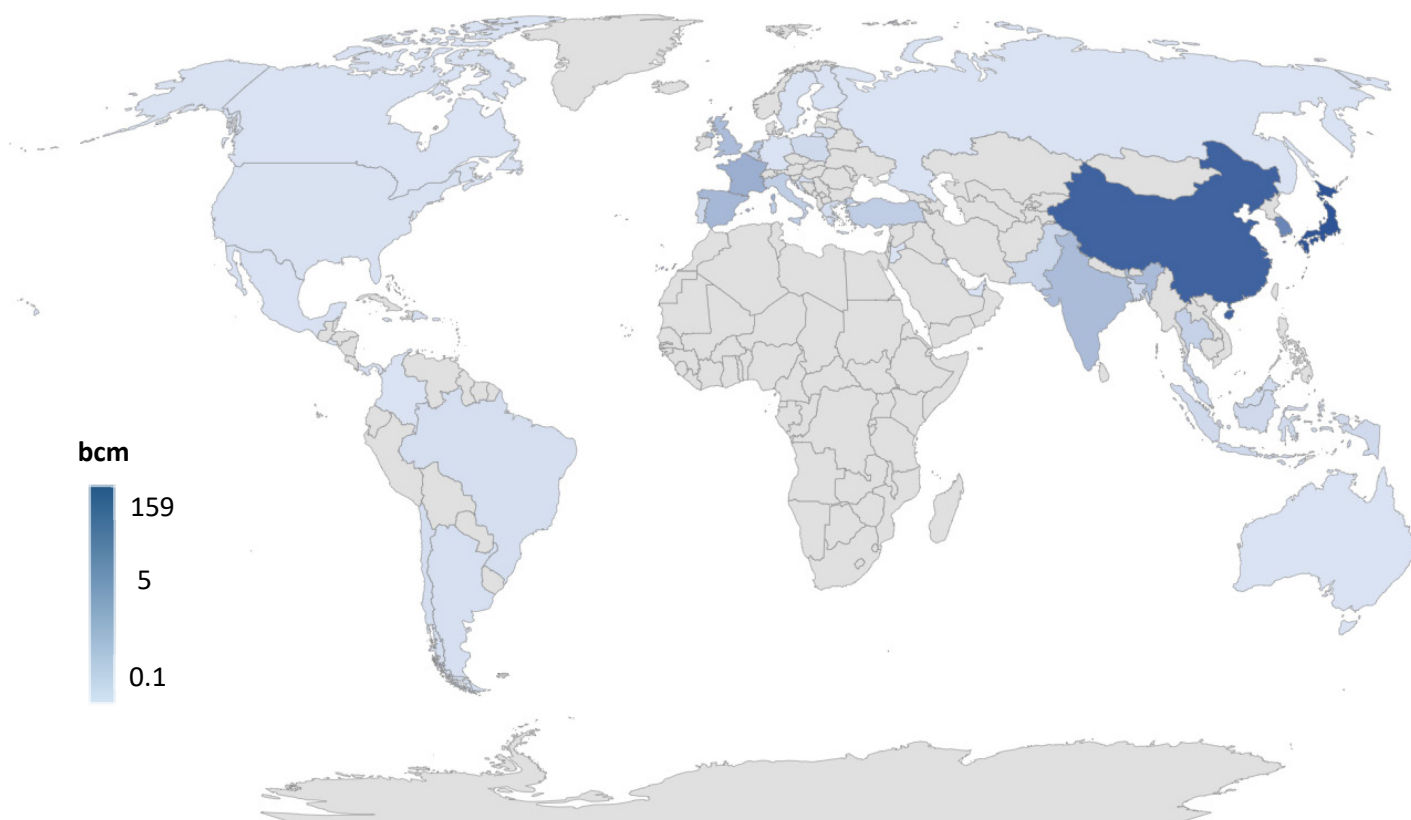


Map 1 shows global exporters of LNG. In 2022, Qatar, Australia and the United States were the largest exporters of LNG, supplying 60 per cent of the global market. Qatar and Australia are established LNG exporters whereas the US has seen substantial growth in liquefaction capacity in recent years. In the last three years, US LNG exports have more than doubled and, in 2022, were up 10 per cent on the previous year. In the first half of 2022, the US became the largest global exporter as new infrastructure came online and facilities operated close to maximum capacity to meet a surge in European demand. However, this was not sustained into the second half of the year as a fire at Freeport, a major export facility, reduced capacity.

Other major LNG exporters were those with large natural gas reserves, including Russia, Malaysia, Indonesia, and Nigeria. Europe is not a major exporter of LNG, accounting for just 0.7 per cent of global exports in 2022. The UK does not produce LNG but is able to re-export imported LNG – this is called reload. However, the last reload was in 2018.

Whilst LNG can be traded flexibly outside of existing pipeline supply routes, factors such as shipping costs and boil-off mean that proximity to the market plays some role in trade.

Map 2: Global importers of LNG by volume, 2022



Map 2 shows global importers of LNG in 2022. Historically, Asia has represented the largest LNG market, driving global growth in demand by being prepared to pay high prices for cargoes. Europe has played a vital role in balancing the global market, with substantial storage capacity allowing for high import levels when prices are low, even during periods of low demand.

In 2022 this dynamic reversed, as European LNG demand surged leading to high global gas prices. Europe became the premium market for LNG as countries paid high prices to replace supply from Russian pipelines and fill historically low natural gas storage inventories. European countries imported almost 30 per cent of total LNG traded, with France and Spain breaking into the top five largest importers globally, which have historically all been Asian.

Despite this Asia remained the largest market for LNG, receiving more than double the volume of European imports in 2022. Furthermore, Japan, China, and South Korea retained their positions as the three largest global importers. However, demand was muted in 2022, falling approximately 7 per cent in comparison with the previous year. China ranked as the second largest global LNG importer, dropping from the top spot in 2021. This followed 'zero Covid' policies which restricted gas demand across 2022, contributing towards Chinese LNG imports falling by one fifth. Emerging Asian gas markets, such as India, Pakistan, and Bangladesh, also saw substantial falls in imports due to high spot prices for cargoes.

Chart 1: LNG imports to Europe, split by key importers, 2017 to 2022

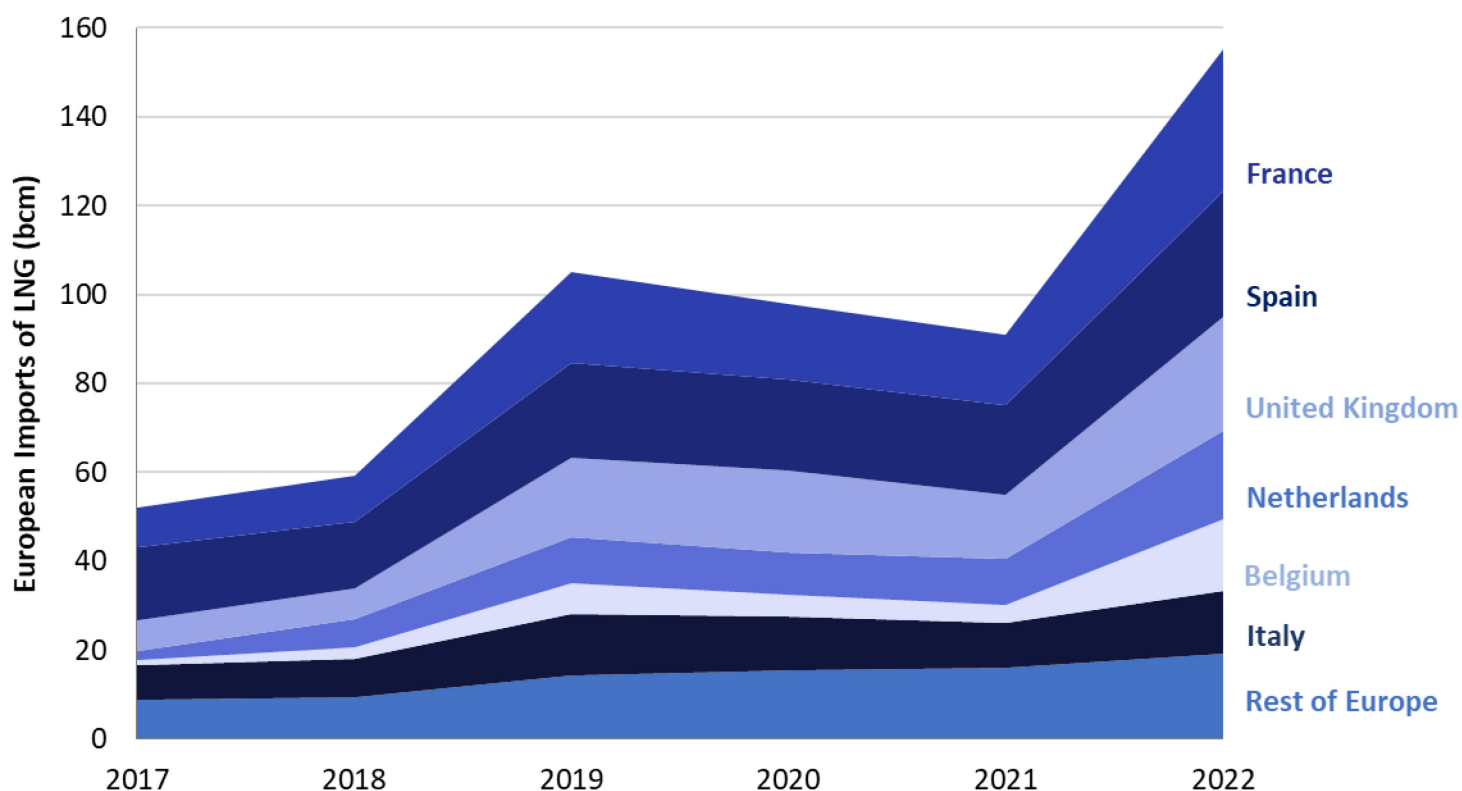


Chart 1 shows LNG import volumes for the six largest European importers.

In 2022, LNG imports to Europe increased by 71 per cent in comparison with the previous year, reaching a record high of 155 bcm. France, Spain, and the UK were the largest importers, accounting for over half of total European LNG imports.

Importing LNG is reliant on access to sufficient regasification capacity. European LNG terminals are mostly found in Western Europe, with the three largest importers each having access to substantial LNG infrastructure. Once LNG has been regasified, it can enter the traditional pipeline networks which connect Europe.

In 2022, major European LNG terminals were used to meet domestic demand and boost imports to other European countries as they looked to move away from Russian gas. France became the largest European LNG importer, with imports doubling in comparison with 2021. This was due to increased domestic gas demand following extensive nuclear outages and reflects France's pipeline connections with European countries with high gas demand, such as Germany.

This use of LNG infrastructure to feed European pipelines translated into large increases in natural gas exports for LNG importers. For example, natural gas pipeline exports from France more than doubled in 2022, in comparison with the previous year.

UK Gas Overview

Chart 2: Summary of UK Natural Gas Use, 1995 to 2022

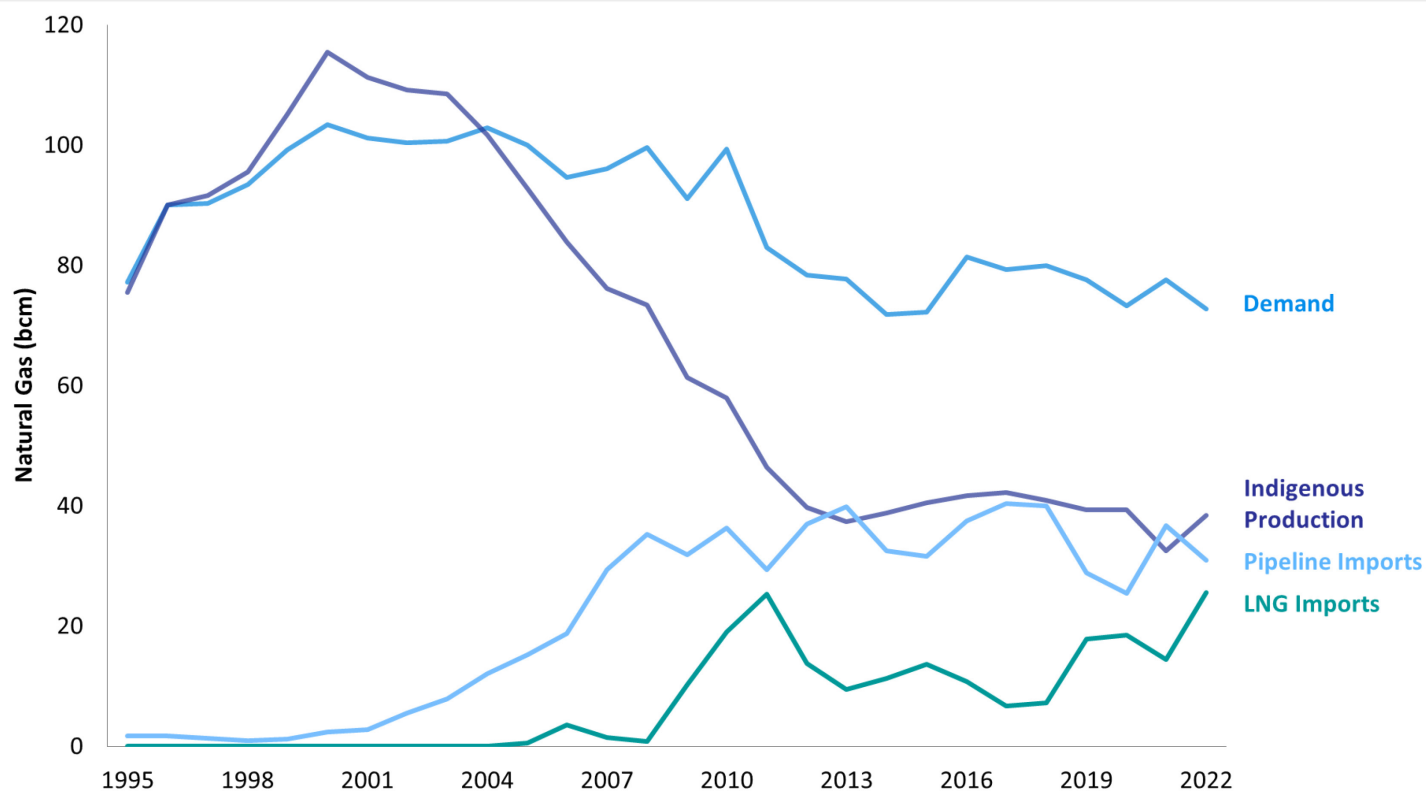
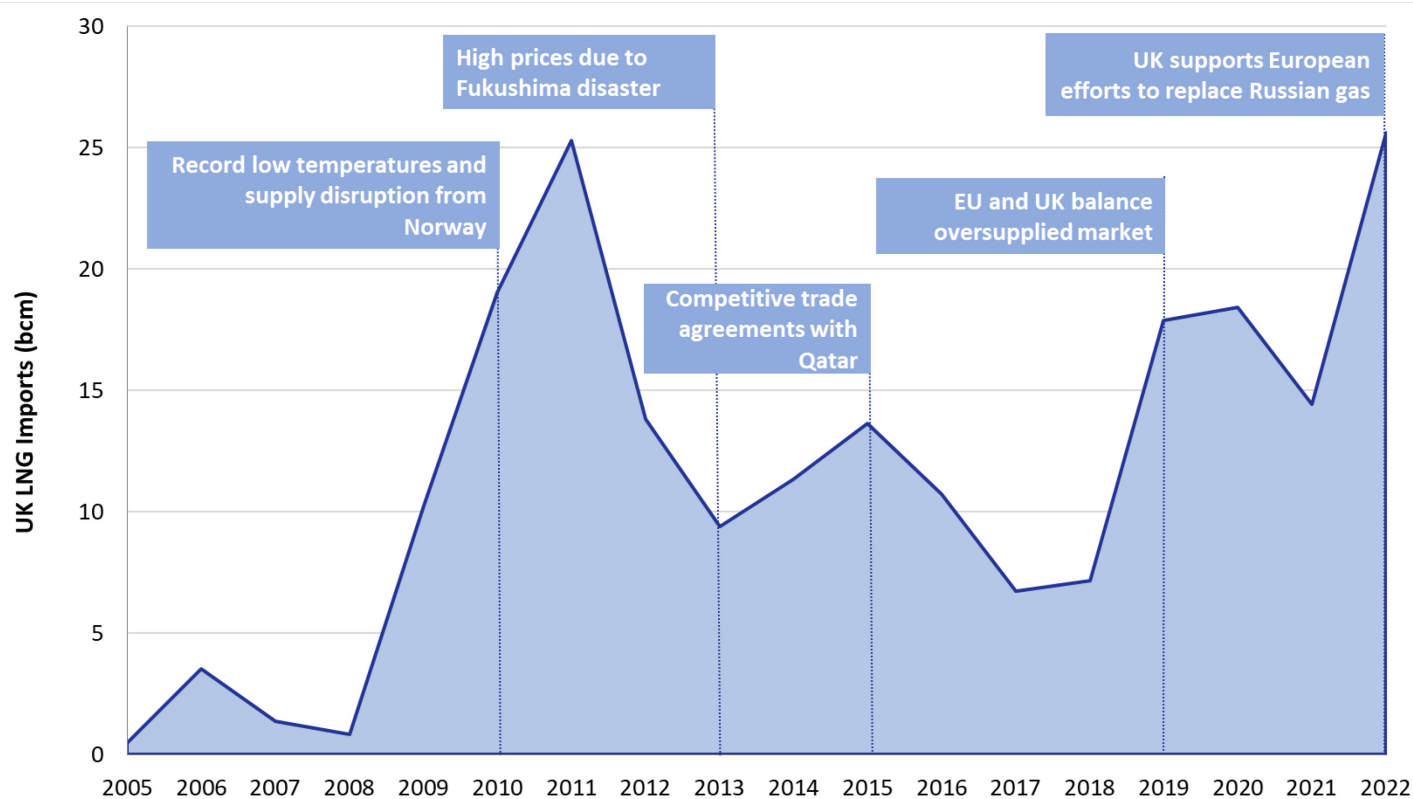


Chart 2 shows components of UK gas supply and demand from 1995 to 2022.

The UK produces natural gas from the UK Continental Shelf (UKCS), which is then transported inland via pipeline to meet domestic demand, with volumes also traded internationally. Indigenous production exceeded demand between 1997 and 2003 when the UK was a net exporter of gas. Following this, indigenous production declined until stabilising in 2013, at around a third of the 115 bcm peak in 2000. Indigenous production fell again in 2021 due to infrastructure maintenance postponed from 2020, but recovered in 2022.

As indigenous production has declined, imports have increased to meet demand. The UK began importing LNG for commercial use in 2005. Imports of LNG were minimal until 2008, following which they increased rapidly before peaking in 2011. Since then, LNG imports have fluctuated. Historically, natural gas imports by pipeline and of LNG have been negatively correlated, meaning that as pipeline imports fall, imports of LNG increase, and vice versa.

Chart 3: UK LNG imports, 2005 to 2022



2010 to 2011

Chart 3 shows that UK imports of LNG increased rapidly from 2008, peaking in 2011 at 25.3 bcm. In 2011, LNG accounted for 46 per cent of natural gas imports and 31 per cent of demand. This was the result of record low temperatures and disruption to pipeline supply due to industrial action in Norway. On peak demand days during the winter of 2010/11, LNG was the second largest source of natural gas, behind stock draws, making it more important than pipeline imports to meet demand.

2013

After the 2011 peak, LNG price increases led to a rapid decline in imports until 2013. Price rises were associated with the Tōhoku earthquake and tsunami in 2011 which caused the Fukushima disaster. In Asia, LNG was used as an emergency fuel to meet demand, as nuclear capacity was reduced over safety concerns. This led to the creation of an LNG spot market, and subsequent changes to the global market structure.

2014 to 2015

Following this, changes to UK LNG imports have been heavily influenced by markets. The 2014/15 bump in imports is linked to sale and purchase agreements (SPAs) with Qatar and oversupplied Asian markets. These contractual agreements can be mutually beneficial. For example, Qatar Petroleum invested in UK LNG infrastructure, including the South Hook LNG terminal, which in turn agreed to import Qatari LNG.

2019 to 2020

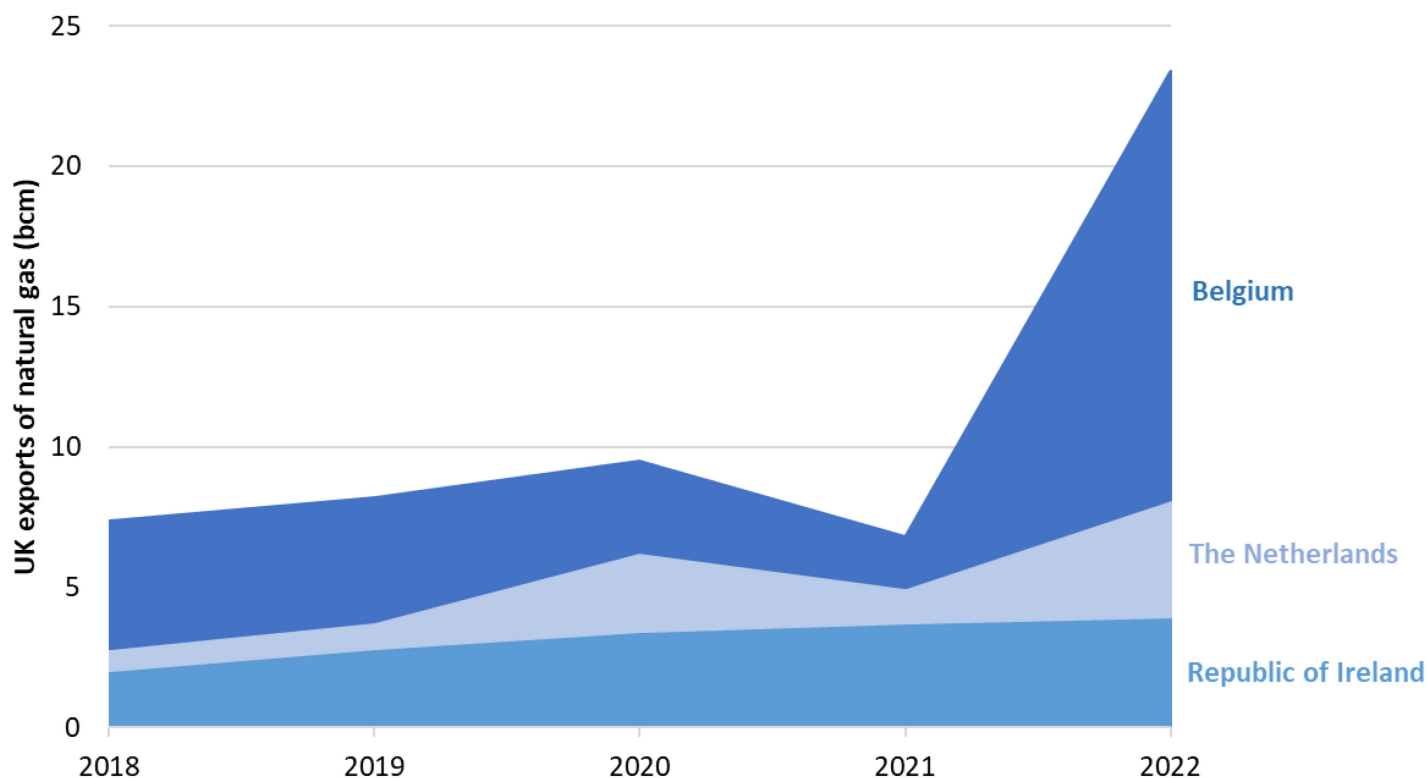
In 2020, LNG imports peaked again at 18.4 bcm - just under three quarters of the 2011 peak. In 2019 and 2020 the UK played a key role in the European 'LNG sink', which saw steep increases in LNG imports across Europe to balance the global LNG market as spot prices reached record lows. This was the result of an oversupplied market, and then a fall in demand as lockdowns were imposed to curb the spread of Covid-19.

2022

In 2022, LNG imports to the UK reached a record high of 25.6 bcm, rising 74 per cent on the previous year. LNG imports accounted for 45 per cent of natural gas imports across the year, and 35 per cent of demand. UK

LNG infrastructure was utilised to allow the UK to act as a land-bridge to increase natural gas imports to mainland Europe as it pivoted away from Russian gas.

Chart 4: UK Natural Gas Exports, 2018 to 2022



The UK also exports a small volume of natural gas to the Isle of Man, which has been excluded from this chart.

As shown in Chart 4, UK exports reached 23.5 bcm in 2022 - over three times greater than that recorded in 2021 and 47 per cent higher than the previous peak in 2011.

The UK has significant LNG regasification capacity spread across three terminals: Isle of Grain, South Hook and Dragon. The UK also has two interconnectors with mainland Europe, allowing bidirectional trade with Belgium and the Netherlands. This infrastructure allowed the UK to act as a land-bridge for increased imports into the European pipeline system during 2022. Though the interconnectors allow trade both to and from the UK, they were predominantly used for exports throughout the year. The Belgian interconnector was only used for exports from the UK between February and December, and exports accounted for 99.7 per cent of total trade flows across the interconnector in 2022.

In addition to exports to the European mainland, the UK exports considerable volumes of natural gas to the Republic of Ireland, with smaller volumes going to the Isle of Man.

Chart 5: UK monthly LNG imports, 2017 to 2022

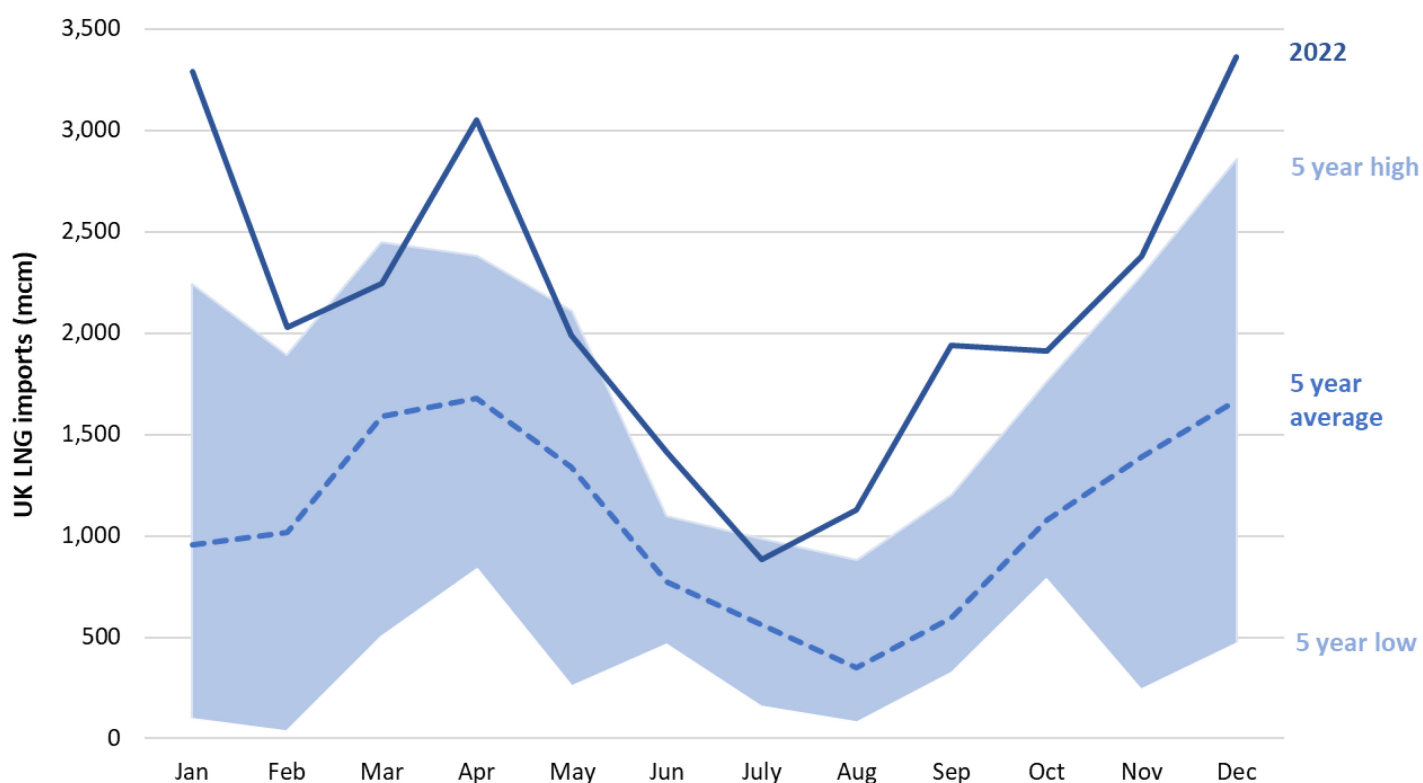


Chart 5 shows monthly imports of LNG across 2022, as well as the five-year average and range of LNG imports per month (using data from 2017 to 2021).

LNG import trends tend to show a seasonal pattern, characterised by high demand in winter months due to increased gas consumption for heating, followed by month-on-month reductions in demand through spring and summer and an increase in demand through autumn. In 2022, LNG imports to the UK continued to show a seasonal pattern but were consistently elevated in comparison to the five-year average. Average LNG imports across 2022 were almost double the average across the last five years, with monthly LNG imports in 2022 exceeding the five-year-high for nine out of twelve months.

UK LNG imports in 2022 began more strongly than usual but spiked again in April 2022 at just over 3 bcm, as Europe looked to source natural gas from a greater variety of sources following Russia's invasion of Ukraine in February 2022. The summer and autumn months saw an accelerated increase, as European demand increased to fill historically low stock levels ahead of winter.

UK LNG Import Sources

Chart 6: UK import sources as a percentage of total LNG imports, 2017 to 2022

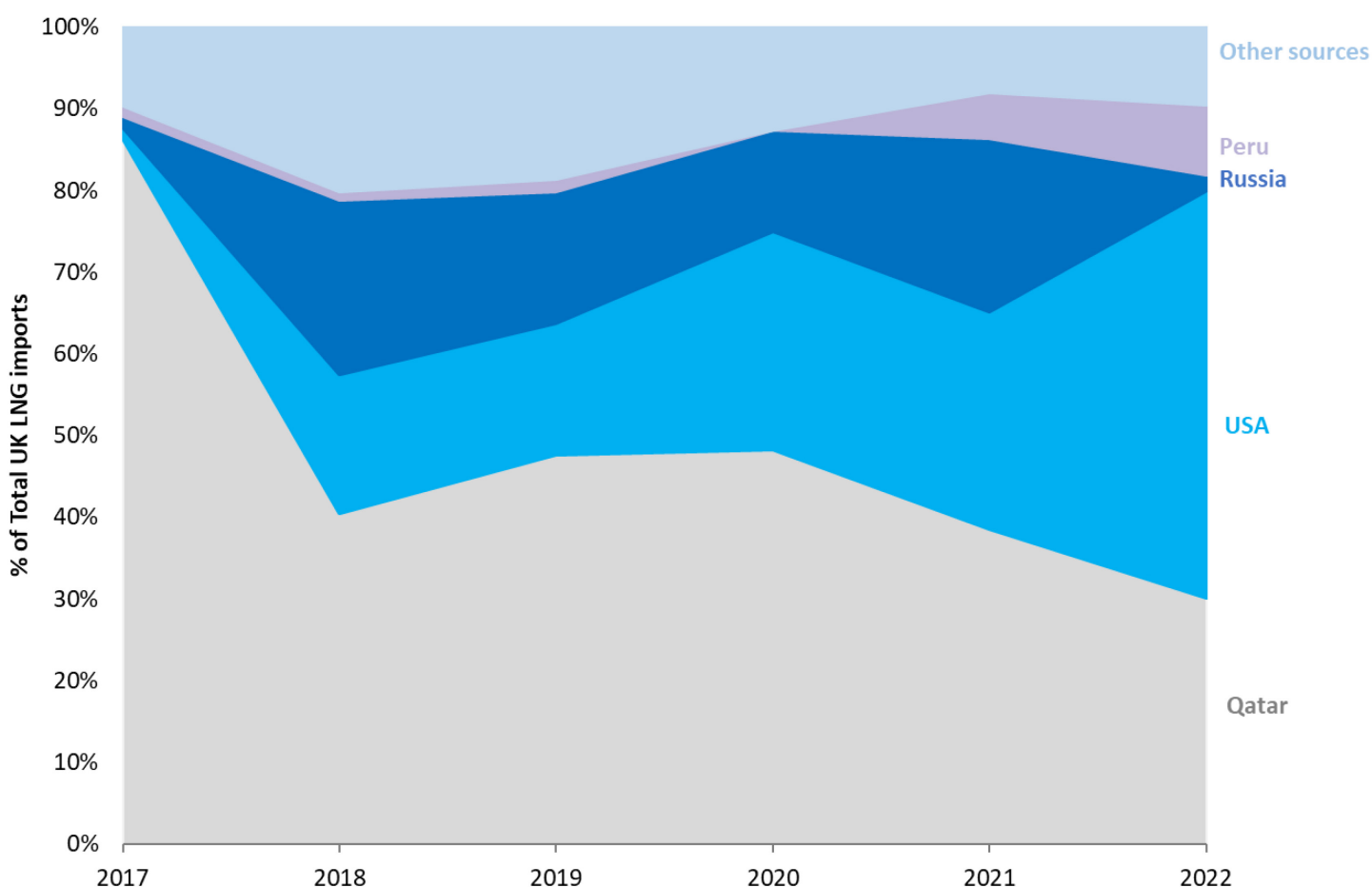


Chart 6 shows UK import sources as a percentage of total LNG imports.

In 2022, the USA replaced Qatar as the largest import source to the UK. US LNG imports accounted for half of total LNG imports in 2022, having only accounted for 1 per cent five years prior. US imports to the UK more than tripled in 2022 compared with 2021, reflecting substantial growth in US liquefaction capacity and the surge in European demand.

Since 2009, Qatar has been the largest import source to the UK, reflecting a strong trading relationship between the two countries. However, in 2022, Qatar accounted for 30 per cent of UK LNG imports, down from 39 per cent in 2021 and the lowest share since 2008. This follows a decline in the Qatari share since the 2012 peak, when they reached 98 per cent of total LNG imports. This is in line with increased global liquefaction capacity and the end of several major Qatari contracts, allowing a diversification of import sources.

Sanctions on Russian commodities came into effect towards the end of 2022, but prior to this the oil and gas industry saw significant self-sanctioning where traders voluntarily sought alternatives to trading with Russia. The UK did not receive any Russian LNG cargoes from April 2022 onwards, resulting in a fall in the share of Russian LNG imports from 21 per cent in 2021, to 1.9 per cent in 2022.

Record high imports saw the UK source cargoes from a diverse range of sources such as Peru, Chile, and Oman. The UK imported 8.6 per cent of total LNG imports from Peru, with the volume of imports received more than doubling on the year before.

Summary

The UK gas supply mix is comprised of natural gas from indigenous production and imports. Some of these imports arrive as Liquefied Natural Gas (LNG). The UK began commercially importing LNG in 2005, initially peaking in 2011 when it accounted for just over a quarter of total gas supply. Since 2011, import volumes have been closely linked to economic factors. Historically, Asia has represented the largest LNG market, paying a premium for cargoes and influencing European, including UK, imports.

However in 2022, new LNG market dynamics were established as European demand for LNG increased 71 per cent amid high global gas prices. Europe became the premium market as countries looked to move away from Russian imports and fill historically low natural gas storage inventories. Though Asia remained the largest market for LNG, demand fell by 7 per cent due to reduced natural gas demand in China and high spot prices for cargoes.

Global exports grew to match the surge in demand, primarily driven by record US exports as new liquefaction capacity came online. The three largest exporters remained as Qatar, Australia, and the USA, and accounted for 60 per cent of total exports across the year.

In 2022, UK LNG imports hit a record high of 25.6 bcm, representing 45 per cent of UK natural gas imports. The UK holds significant LNG infrastructure, which was used as a land-bridge for increased natural gas exports to Europe, alongside meeting domestic gas demand. This led to record natural gas exports to Europe at 23.5 bcm - over 3 times greater than that seen in 2021.

The USA replaced Qatar as the largest import source to the UK, supplying half of the UK's LNG imports. Following Russia's invasion of Ukraine, the share of UK LNG imports from Russia fell to 1.9 per cent in 2022, down from 21 per cent in the previous year. Increased demand for LNG also led the UK to source more cargoes from further afield, for example Peru.

Major commentators are projecting these new market dynamics will persist into 2023. European demand is projected to reach a new high as new import infrastructure comes online. Asian demand is also likely to grow, as Covid-19 restrictions in China ease and long-term LNG contracts commence. Meanwhile, US exports are expected to fuel global export growth, driven by the reopening of the Freeport terminal.



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