

Supply of Liquefied Natural Gas in the UK, 2021

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Key headlines

Global Liquefied Natural Gas (LNG) exports grew in 2021, with the major exporters being Australia, Qatar and the USA. US LNG exports hit a record high, rising almost 50 per cent on 2020 due to continuing expansion in liquefaction capacity.

Asia remained the key global LNG market. A cold winter in the region increased Asian LNG demand in Q1 2021 and constrained the global supply of LNG cargoes. The growth in demand also led China to overtake Japan as the largest global importer of LNG.

In 2021, UK LNG imports fell in comparison with those recorded in 2020 as prices reached record highs. LNG accounted for 17 per cent of the gas supplied to the UK through production and imports, down from 22 per cent in 2020.

The UK was the third largest LNG importer in Europe in 2021. Qatar was the largest import source to the UK, accounting for 39 per cent of LNG imports, with a further quarter of imports coming from the USA. Increased Asian demand also led the UK to source cargoes from further afield, for example Peru.

Introduction

This article provides analysis of UK trends in trade of Liquefied Natural Gas (LNG) (1), within the context of global markets (2).

Over the past few decades, LNG has become an increasingly popular method of moving natural gas to market. LNG is natural gas which has been cooled to approximately -160°C , changing its state from gas to liquid. This enables transportation of gas by ship, as the volume is significantly reduced compared to the gaseous state. Therefore, it provides an alternative means of transportation where pipeline infrastructure does not already 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 LNG market is one of the fastest growing commodity markets globally, partly due to a depletion of easily accessible natural gas reserves. The increased importance of LNG for global gas supply is reflected in continuing investment in liquefaction infrastructure.

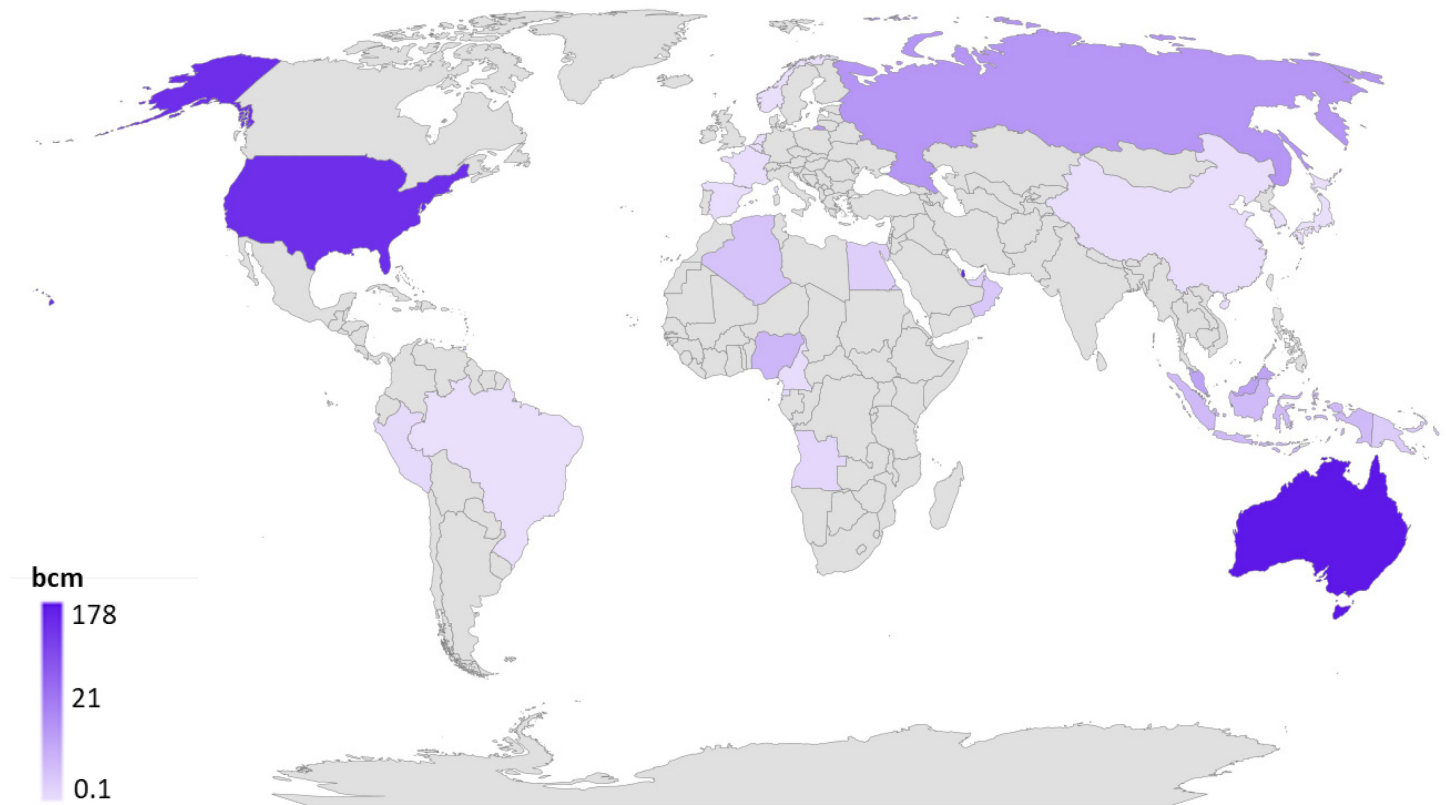
(1) UK and European data sourced from the International Energy Agency (IEA) and [Energy Trends](#).

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

The UK has imported LNG commercially since 2005, supporting a secure and diverse gas supply portfolio following a decline in indigenous production. The UK was the third largest European importer in 2021, behind Spain and France. However, European countries import much less LNG than the major global players, which are predominantly in Asia. Europe has played an important role in global LNG markets by holding significant storage capacity, which can balance markets during periods of low price or demand.

Global LNG trade

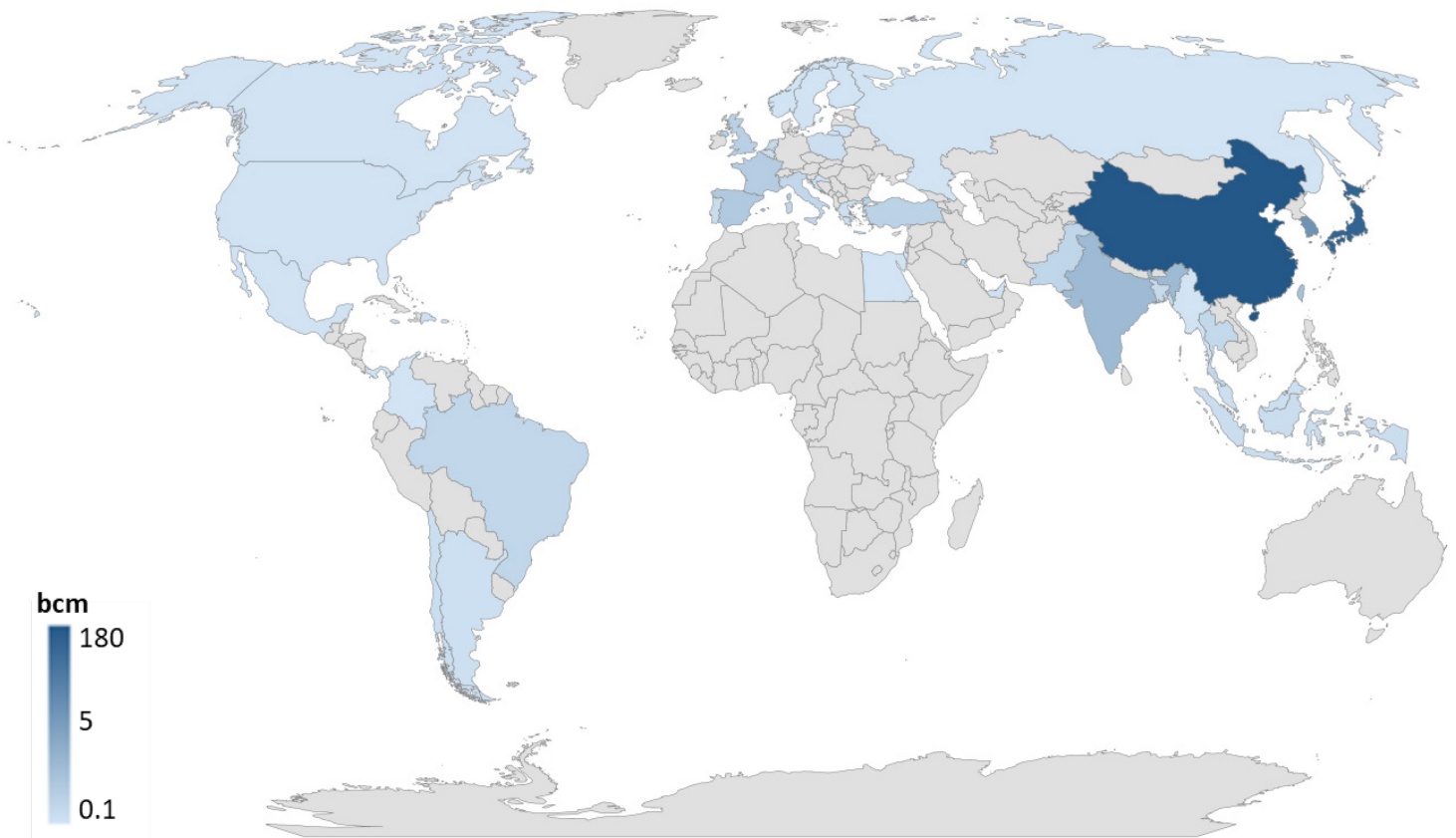
Map 1: Global exporters of LNG by volume, 2021



Map 1 shows global exporters of LNG. In 2021, Australia, Qatar and the USA were the largest exporters of LNG. Global LNG exports increased in 2021, primarily driven by a rapid expansion in supply from the USA. US LNG exports hit a record high, up close to 50 per cent on 2020, due to continuing expansion in liquefaction capacity. This trend is expected to continue, with the US projected to be the world's largest LNG exporter in 2022. Other major exporters are those with large natural gas reserves, including Russia, Malaysia, and Nigeria.

Europe is not a major exporter of LNG; accounting for just 0.6 per cent of global exports in 2021. The UK does not have gas liquification capacity but has historically re-exported imported LNG – this is called reload. 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. A good example of this is Australia, which supplied 36 per cent of Japanese imports in 2021, whereas the UK has only ever received one cargo from Australia.

Map 2: Global importers of LNG by volume, 2021



Map 2 shows global importers of LNG in 2021. Asia remained the largest market; the top five global importers were China, Japan, South Korea, India and Taiwan. Asian LNG imports increased on 2020, largely due to increased demand for heating during a notably cold winter. China overtook Japan as the largest importer of LNG which reflects recent policy changes in China that encourage the use of gas rather than coal in key sectors. Outside of the top five importers, there are several emerging markets in Asia including Pakistan, Thailand, Kuwait and Singapore, who are looking to LNG as a stable source of supply as their economies grow.

Chart 1: Top five Asian and top five European (including Turkey) importers, by import volume in 2021

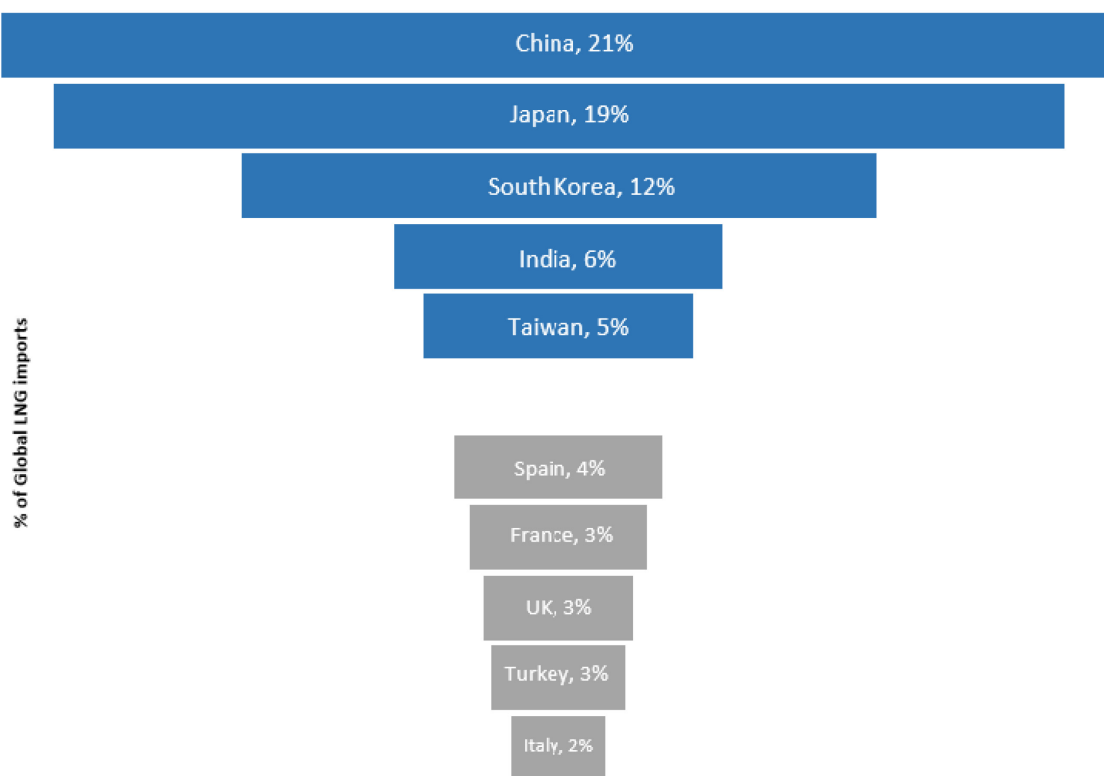


Chart 1 shows the top five Asian and European importers of LNG in 2021. As more cargoes were directed to Asia, imports to Europe fell compared with 2020. The UK was the third largest European importer of LNG, following Spain and France, however, demand in Europe is substantially lower than in Asia. In 2021, the top five European importers imported less than a quarter of that imported by the top five Asian importers.

UK Gas overview

Chart 2: Summary of UK Natural Gas supply and demand, 1993 to 2021

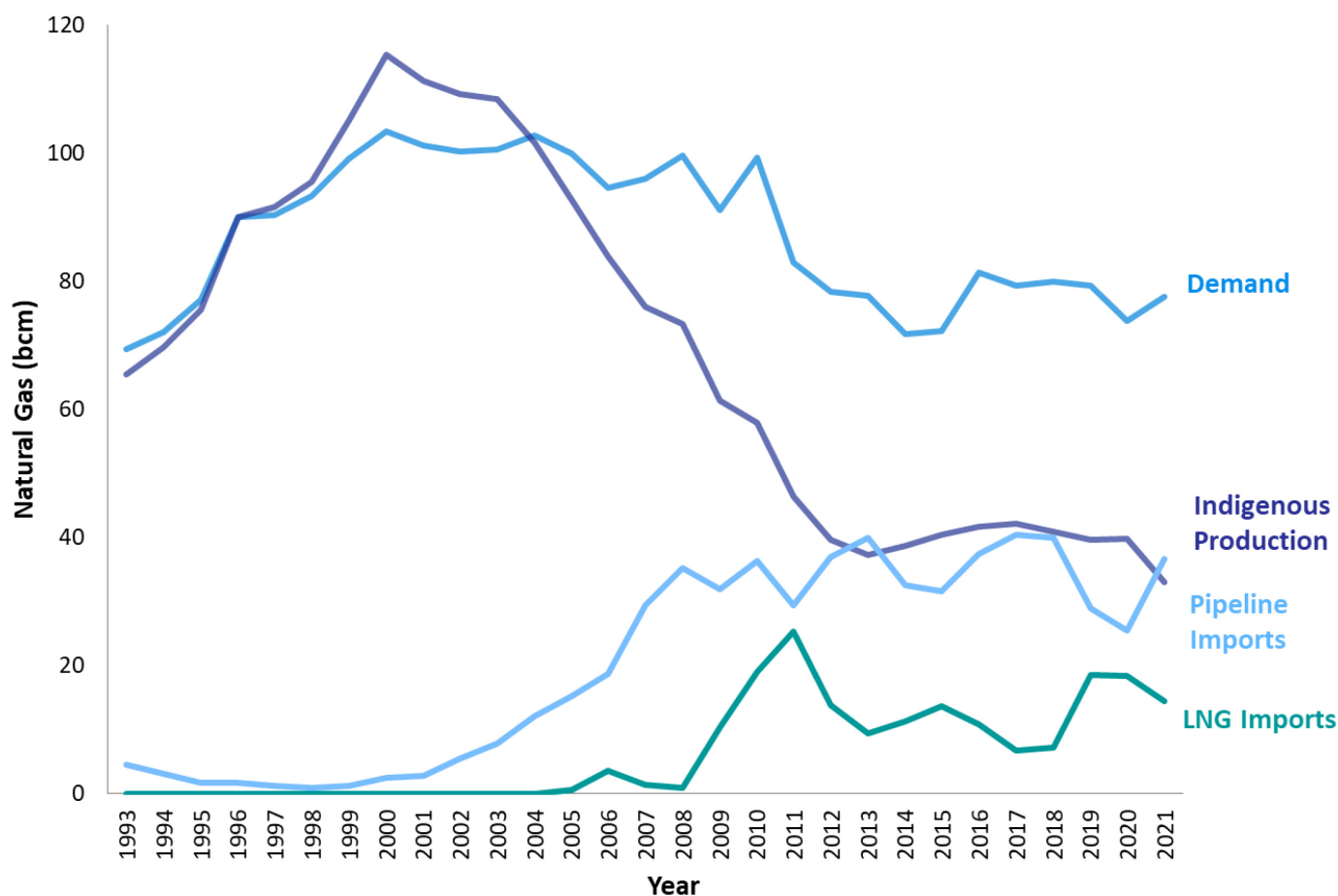


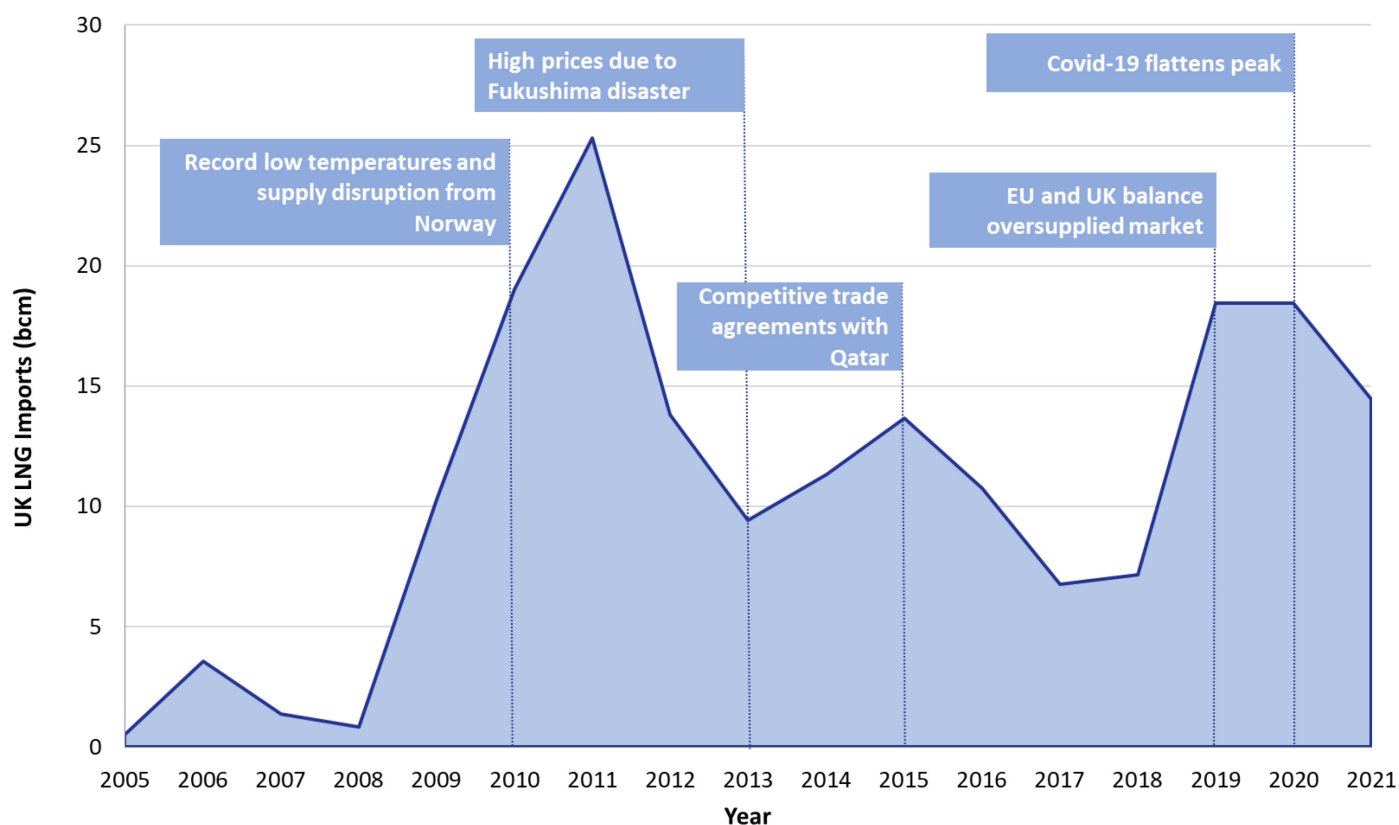
Chart 2 shows components of UK gas supply and demand from 1993 to 2021. The UK produces natural gas from the UK Continental Shelf (UKCS), which is then transported inland via pipeline. Indigenous production exceeded demand between 1997 and 2003 when the UK was a net exporter of gas. Following this, indigenous production declined and subsequently stabilised in 2013, at around a third of the peak. Since 2004, demand has also declined but at a slower rate than production. This means the UK must import natural gas to meet demand.

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, when 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. The UK continues to export some natural gas by pipeline, this tends to be seasonal.

In 2021, indigenous production hit a record low, down 17 per cent in comparison with 2020. This was largely the result of an extensive summer maintenance schedule, which saw shutdowns at several major terminals. Demand increased by 5 per cent compared with 2020 lows, when extensive restrictions to curb the Covid-19 pandemic, alongside strong performance from renewable electricity generation, suppressed gas consumption.

UK LNG Imports

Chart 3: UK LNG imports, 2005 to 2021



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 peak was the result of record low temperatures and disruption to pipeline supply due to industrial action in Norway.

2013

After the 2011 peak, LNG price increases resulted in a rapid decline in imports until 2013. These price increases 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 following 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 supply and purchase agreements (SPAs) with Qatar. 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

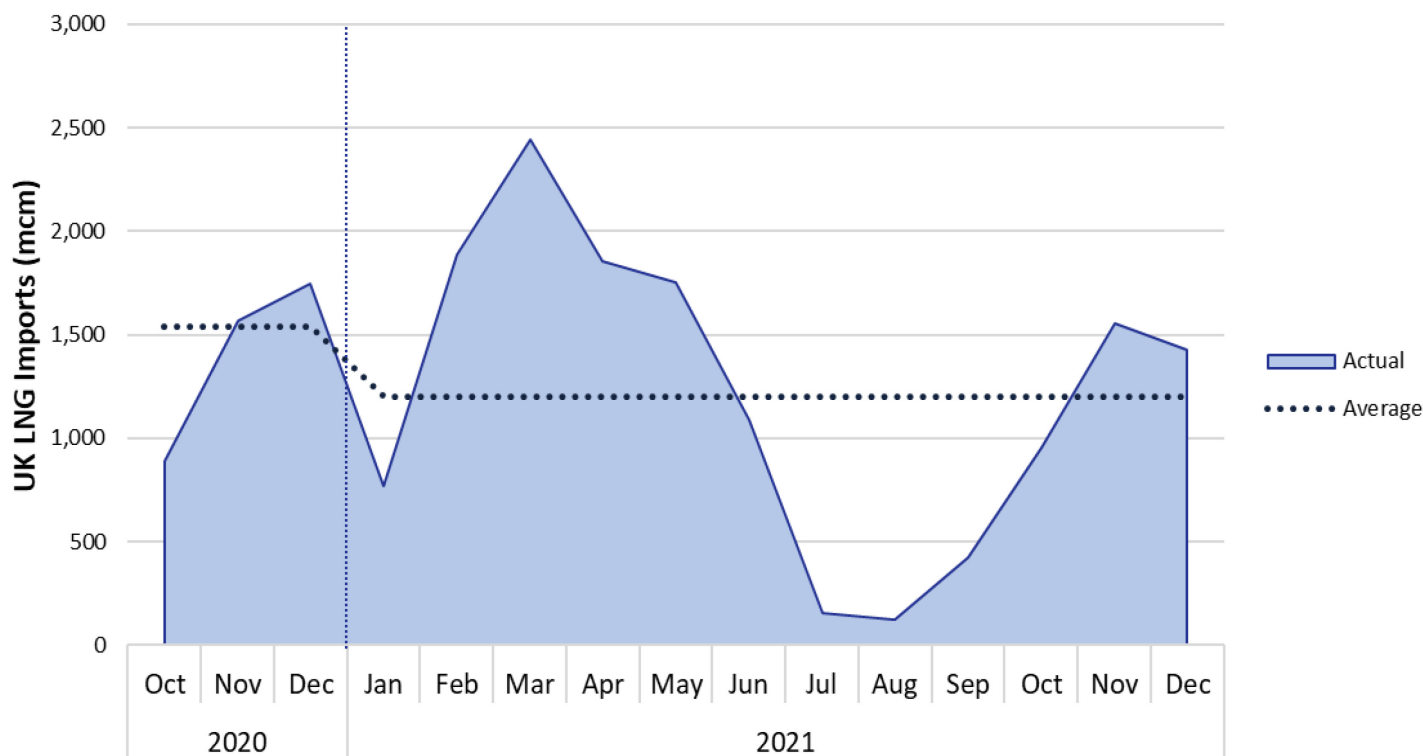
In 2019, LNG imports peaked again at 18.5 bcm - just under three quarters of the 2011 peak. The UK played a key role in the European 'LNG sink', which saw steep increases in LNG imports across Europe to balance global LNG (Chart 4). This boom in imports was the result of an oversupplied market. Warm weather in Asia reduced demand whilst new projects in Qatar, the USA and Russia increased supply. LNG spot price reached record lows and Europe played the role of balancing the market.

2020 to 2021

Moving into 2020, lockdowns imposed to curb the spread of the Covid-19 pandemic reduced demand for natural gas, particularly in key Asian markets. This led to a decline in LNG prices which buyers in Europe took

advantage of, sustaining the 2019 peak. In 2021, the UK imported 14.4 bcm of LNG, accounting for 28 per cent of natural gas imports and 17 per cent of the gas supplied to the UK through production and imports. This represented a fall in LNG imports in comparison with 2020. Chart 4 shows 2021 UK LNG imports by month, uncovering the seasonal variations within the annual figure.

Chart 4: UK LNG monthly imports, October 2020 to December 2021



LNG imports to the UK remained largely seasonal throughout 2021. This is 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.

There was a sharp drop in UK LNG imports in January 2021, following increased Asian demand due to cold weather. This led to low global LNG availability and an unprecedented spike in spot LNG prices, reducing cargoes to the UK.

Furthermore, the drop in import volumes throughout the summer months of 2021 was particularly pronounced in comparison with recent years. This again reflected global market conditions, as demand accelerated faster than expected following the lifting of pandemic restrictions, and gas supply experienced constraints, leading to record high gas prices.

UK LNG Import sources

Chart 5: UK import sources as a percentage of total LNG imports, 2016 to 2021

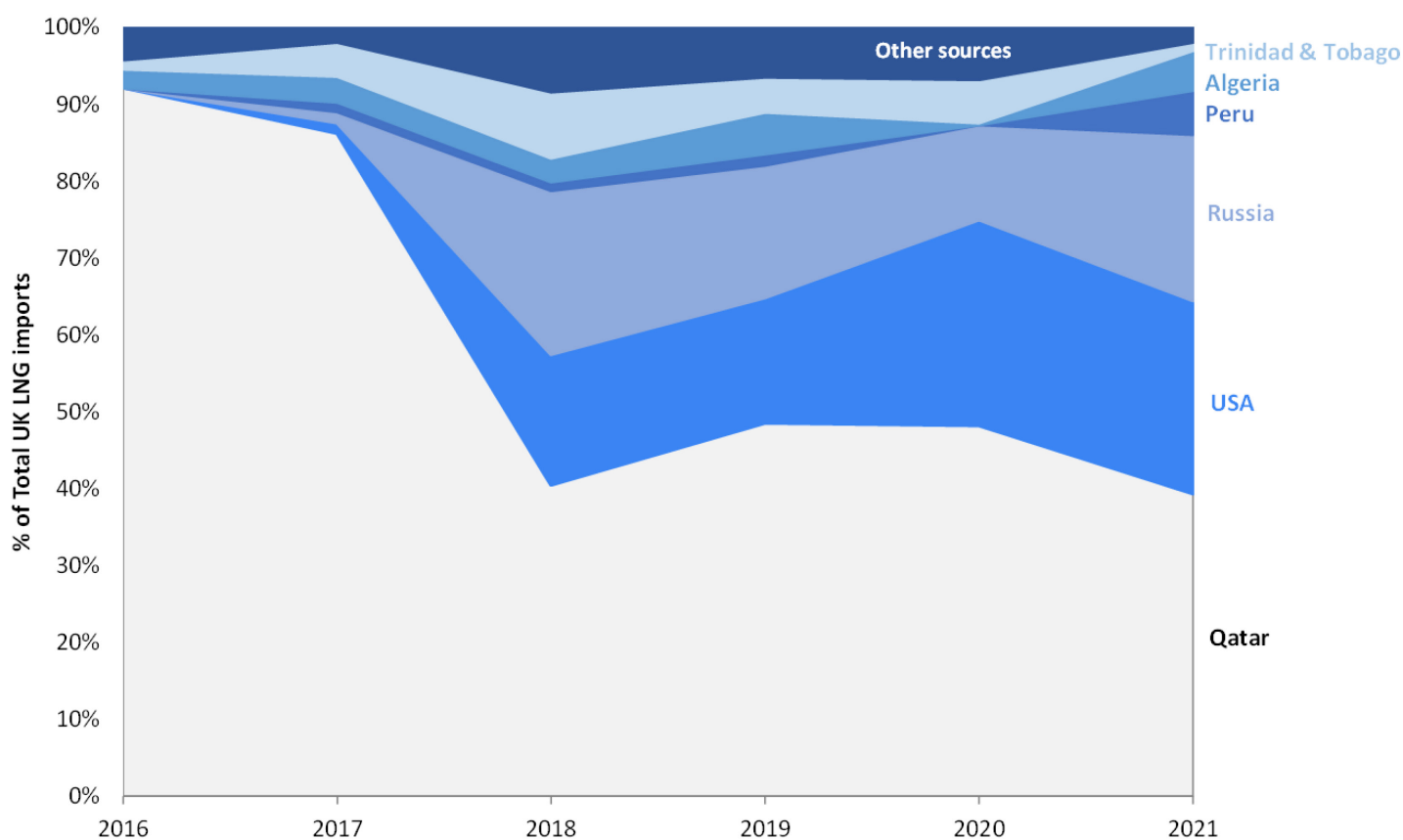


Chart 5 shows UK import sources as a percentage of total LNG imports. In 2021, Qatar was the largest import source to the UK, providing 39 per cent of UK LNG imports. This maintains Qatar's position as the dominant import source since 2009, reflecting a strong trading relationship between the two countries.

The Qatari share has declined since the 2012 peak when imports from Qatar 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. This has allowed for a diversification of import sources, also shown in Chart 5. For example, in 2005 the UK only imported LNG from Algeria and Trinidad and Tobago. In 2021, the number of LNG import sources was nine, slightly lower than the peak of twelve in 2019.

Since 2018, imports from the USA and Russia have increased considerably. By 2021, US imports reached 25 percent of LNG imports and 4 percent of supply, and Russian imports reached 22 percent of LNG imports and 4 per cent of supply. However, following Russia's invasion of Ukraine the UK will end all dependency on Russian coal and oil by the end of 2022, and end imports of gas as soon as possible thereafter. Recent data shows a notable decline in Russian LNG volumes in recent months (see Energy Trends Table 4.4 for further information).

In 2021, increased demand in Asian markets led European countries to secure LNG cargoes from a more diverse range of sources, including those further afield. For example, the UK imported 6 per cent of total LNG imports from Peru, greater than all previous years combined.

Summary

The UK gas supply is comprised of natural gas from indigenous production and imports. Some of these imports arrive as Liquefied Natural Gas (LNG). The UK began importing LNG in 2005, reaching a peak in 2011 when it accounted for just over a quarter of total gas supplied to the UK through production and imports. Since 2011, LNG imports have been largely linked to economic factors. Asia is a major consumer of LNG hence Asian markets tend to influence European including UK imports.

In 2021, Asia remained the largest global LNG market. China increased their reliance on LNG for heating, and overtook Japan as the largest global importer of LNG. Furthermore, a cold winter in Asia increased the region's demand, consequently reducing availability elsewhere.

In the UK, LNG accounted for 17 per cent of supply (production + imports) in 2021, down from 22 per cent in 2020. Qatar continued to be the largest import source, accounting for 39 per cent of total LNG imports. Increased Asian demand for LNG led the UK to source cargoes from further afield, for example Peru.

Global LNG exports grew in 2021, with the major exporters being Australia, Qatar and the USA. US LNG exports hit a record high, increasing by almost 50 per cent on 2020 due to continuing expansion in liquefaction capacity.

Major commentators are projecting a decline in global natural gas demand in 2022, due to even higher gas prices following Russia's invasion of Ukraine in March. However, the International Energy Agency (IEA) are projecting global LNG trade will reconfigure, with Europe overtaking Asia as the major market for LNG in 2022.



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