

COVID-19



Impact on



Global LNG

By Deepika Lal

Despite the ongoing pandemic, gas/LNG was one of the few commodities that showed growth in the year 2020. The LNG sector adjusted to great demand fluctuations with incredible agility during 2020 and first half of 2021, navigating between huge drops in demand levels at the height of the pandemic lockdowns, through exceptional upward spikes of the winter deep freeze in the beginning of 2021.

Let's take a look at what happened in LNG trade, liquefaction, regasification, LNG and CNG fuelling infrastructure, LNG shipping and its pricing since the beginning of the pandemic.

LNG Trade

The global LNG trade during 2020 increased to 356.1 million tonnes (MT), a small increase of 1.4 MT versus 2019, but another year of consecutive growth in LNG trade despite COVID-19 related impacts on the supply and

KEY GLOBAL STATISTICS	
Global LNG Trade (MT) (2020)	356.1
Liquefaction Capacity (MTPA) (2020)	452.9
Liquefaction capacity under construction (MTPA) (as of Feb 2021)	139.1
Regasification capacity (MTPA) (as of Feb 2021)	850.1
FSRU capacity (MTPA) (as of Feb 2021)	115.5
LNG Fleet (2020) (Number of vessels)	572
Largest exporter	Australia
Largest importer	Japan

demand sides.

This was mostly supported by increased exports from the US and Australia, together adding 13.4 MT of exports. While the largest exporting region continues to be Asia Pacific, Australia overtook Qatar as the largest LNG exporter in the world. However, a significant number of markets exported less volumes in 2020 than they did in 2019, a result of a mix of technical

LNG TRADE BETWEEN REGIONS IN 2020 (MT)

Exporting Region	Asia-Pacific	Middle East	Africa	North America	Former Soviet Union	Latin America	Europe	Reexports Received	Reexports Loaded	Total
Asia-Pacific	84.3	33.9	3.7	12.7	10.7	2.7	-	0.3	1.3	147.1
Asia	46.4	33.1	12.0	6.6	5.8	1.8	-	1.6	-	107.3
Europe	-	21.9	22.4	18.5	12.6	4.0	3.0	0.2	1.1	81.6
Latin America	0.1	0.6	0.7	5.2	0.1	2.2	0.1	0.1	0.2	8.8
North America	0.3	-	0.4	0.8	-	2.6	0.1	0.2	-	4.3
Middle East	-	3.1	1.7	1.0	0.4	0.7	-	0.1	-	6.9
Africa	-	-	-	-	-	-	-	-	-	-
Total	131.2	92.6	40.8	44.8	29.6	14.0	3.2	2.6	2.6	356.1

Source: GIIGNL

The biggest drops in export levels were seen by Trinidad & Tobago and Malaysia. No new markets started exporting in 2020.

issues, demand drops due to COVID-19 related restrictions, commercial challenges due to price developments, and feed gas challenges. The biggest drops in export levels were seen by Trinidad & Tobago and Malaysia. No new LNG exporting countries started exporting in 2020. 20 MTPA additional exporting capacity was added (all in the US).

Asia Pacific and Asia were also the biggest importer importing the most volumes in 2020, together accounting for more than 70% of global LNG imports. The only new importing market in 2020 was Myanmar.

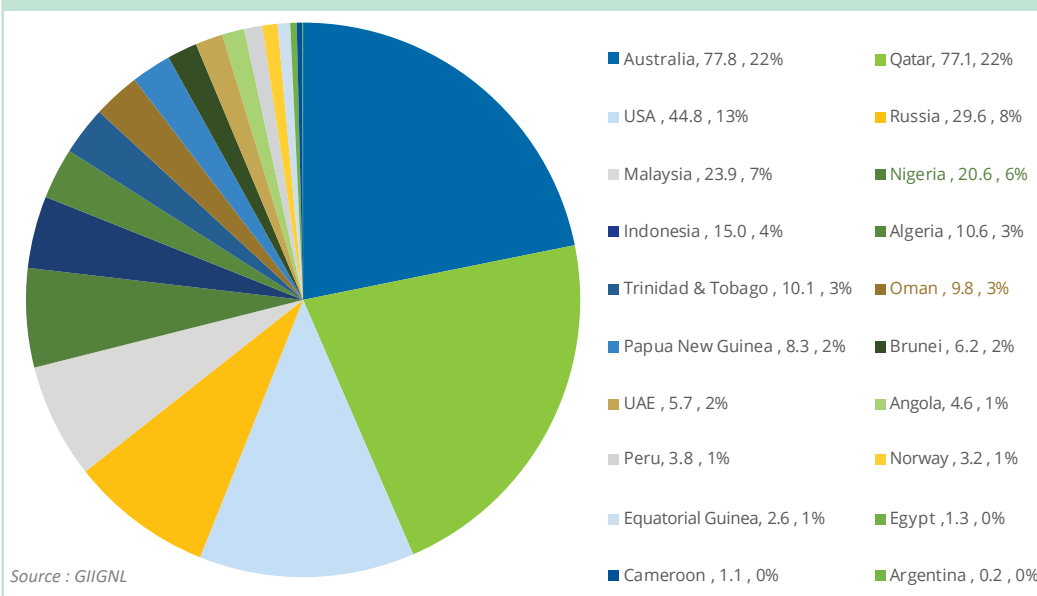
While the industry grew overall, the LNG trade was heavily impacted by COVID-19, as markets and cities across the globe wrestled with lockdowns and a multitude of other disruptions. Significant reductions in levels of economic activity affected demand, which in turn had to be balanced by supply curtailments, a balancing act to reconcile demand shocks with contracting, operational and market dynamics.

The first impact of the virus was felt when Asian LNG imports started to fall towards the end of February 2020, as Japan, China and South Korea experienced lower economic activity.

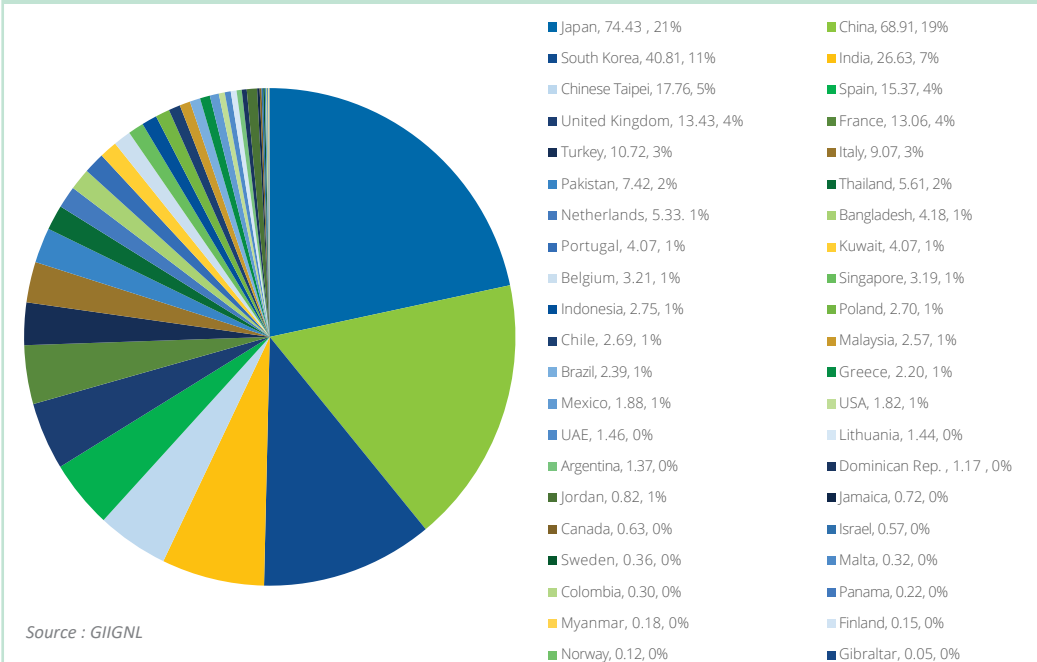
This was against the backdrop of a relatively warm winter and high inventory levels. As China went into lockdowns, many cargoes were diverted to India and South Korea. Supply remained healthy in the first quarter of 2020 as Qatar and Australia maintained production, and US producers still attempted to ramp up output. This excess supply was absorbed by Europe once many Asian markets went into lockdowns, with buyers taking advantage of low prices, substituting some piped gas with LNG. However, Spain, Italy and France – the largest importers in Europe – soon also announced lockdowns. By the end of March, Europe’s storage filled up, and buyers began using flexibility clauses in their US offtake contracts to cancel cargoes for summer deliveries, causing Gulf Coast LNG terminals to cut exports.

Reacting to the effects of COVID-19 on Euro-

LNG EXPORTS & MARKET SHARE BY MARKET (MT)



LNG IMPORTS & MARKET SHARE BY MARKET (MT)



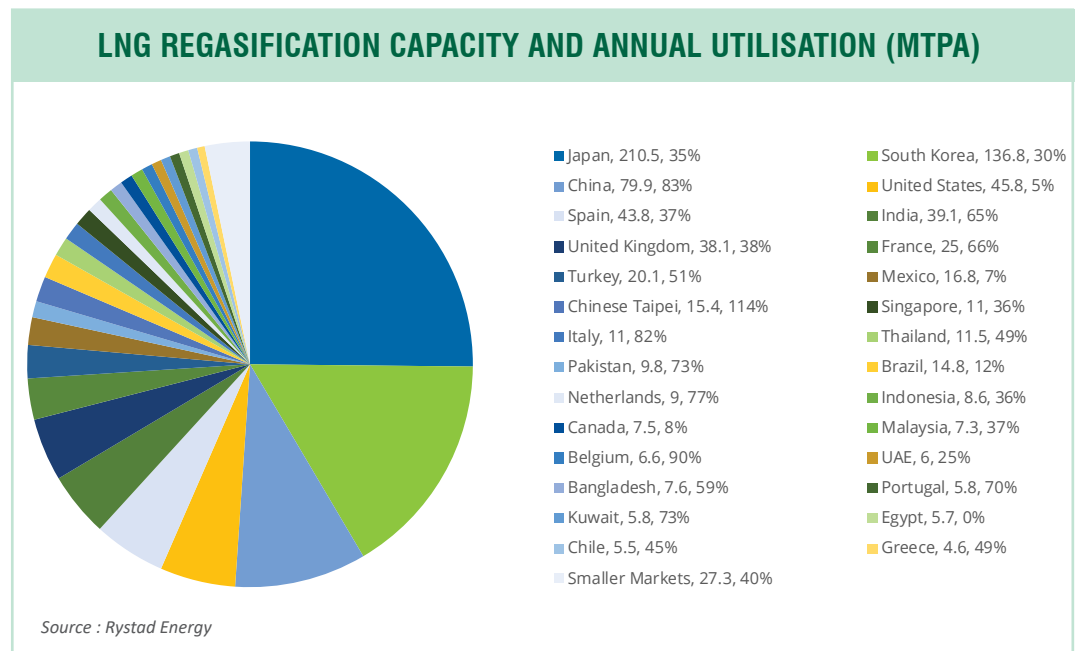
pean and Asian demand, coupled with seasonal demand fluctuations, US LNG exports fell by 70% from May to August. Trade flows towards Asia regained some ground in 3Q 2020 as demand in China and India outweighed a decrease in shipments to Japan and South Korea. This can be attributed to lower overall utilisation rates in the larger importing nations due to an overall drop in global gas demand, allowing for opportunistic buying. Balancing out the pandemic's negative impact on demand, a very cold Northern hemisphere winter, together with a tighter freight market, spawned an LNG supply squeeze towards the end of 4Q 2020.

LNG Regasification

The global regasification capacity increased by 19 MTPA in 2020 to reach a total of 850.1 MTPA as of February 2021. Offshore regasification capacity increased by 5.6 MTPA, bringing the global floating and offshore regasification capacity to 115.5 MTPA as of February 2021. There was 147.3 MTPA of regasification capacity under construction, of which 72.3 MTPA have communicated start-up dates in 2021, some of which is in new importing markets such as Ghana, El Salvador, Vietnam and Nicaragua.

As of February 2021, 39 markets are equipped with LNG receiving capabilities. Myanmar and Croatia joined the ranks of LNG customers most recently. China, Chinese Taipei, India and Myanmar added significant regasification capacity in 2020, totalling 12.9 MTPA.

However, several terminals with planned start-up in 2020 being delayed to 2021. This was largely a direct result of the COVID-19 outbreak, which caused worldwide supply chain disruptions along with potential delays



in investments and permitting processes. The affected projects in India included four large projects in India – the H-Gas LNG Gateway (6.0 MTPA), Jafrabad FSRU (5.0 MTPA), Chhara LNG (5.0 MTPA) and Dabhol LNG 2 (5.0 MTPA) – were delayed by a year each.

LNG Liquefaction

Global liquefaction capacity continued to grow in 2020, adding 20.0 MTPA of capacity (all in the US) last year to reach 452.9 MTPA. However, start-up of several liquefaction trains in Russia, Indonesia, the US and Malaysia were delayed as a result of the pandemic. The average global utilisation rate in 2020 was 74.6%, with December 2020 drawing most attention, as soaring Asian and European LNG prices drove utilisation rates to record heights in certain export markets, such as the US.

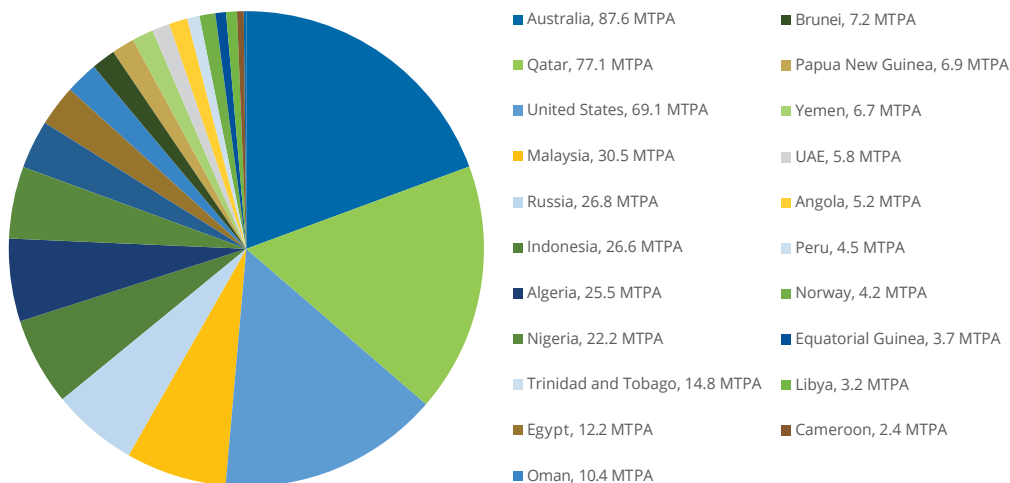
This came on the heels of the preceding period when it appears nearly 160 cargoes were cancelled between April and November 2020, with the majority of these cancellations taking place between June and August – a seasonally softer period for gas demand.

As of February 2021, 139.1 MTPA of liquefaction capacity was under construction or sanctioned for development, but only 8.9 MTPA of that overall capacity increase is expected to come online in 2021.

For much of the year, COVID-19 related

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GLOBAL LNG LIQUEFACTION CAPACITY (MTPA)



Source : Rystad Energy

demand shocks and the oil and gas price environment had a material impact on LNG supply. LNG producers with high short-run marginal costs and flexible contract structures were faced with the decision to shut down individual trains, as liquefaction plants are generally designed to run at close to full capacity. Beyond short-term supply, COVID-19 also severely impacted liquefaction development. Companies delayed

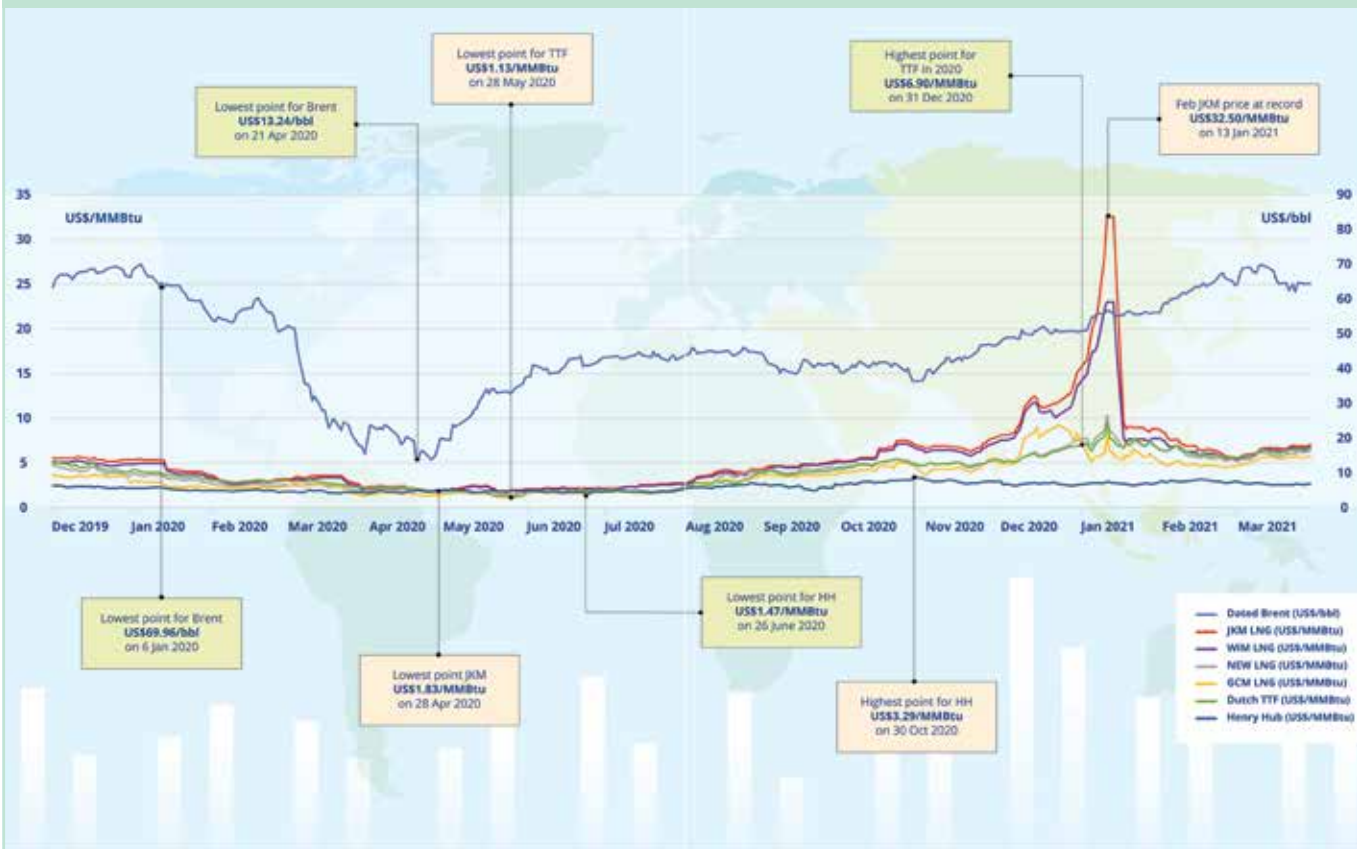
final investment decisions (FIDs) on projects up to 2021 and beyond, due to the uncertain economic climate.

LNG Pricing

Global LNG market pricing experienced a turbulent 2020. Spot prices of cargoes trading in the Atlantic and Asia Pacific basins plummeted to record lows in the first six months of 2020, before reaching record

highs at the start of 2021. Pricing responded to COVID-19 impacts on demand, an initially well-supplied market, and high storage levels in some markets, followed by a cold winter and shipping constraints towards the end of 2020 and beginning of 2021. Prices retreated later in 2021 as buying focus shifted to the March and April shoulder months. Moreover, temperatures warmed and nuclear availability improved in

GAS/LNG PRICE TRENDS





LNG Carrier from Gorgon - Courtesy of Chevron

Japan, while supplies eased out in Asia. Currently, global gas prices are well supported by low storage levels in Europe and strong Asian LNG demand.

LNG Shipping

The LNG shipping fleet added 35 new vessels to the total number of active vessels reaching 572 at the end 2020, including 37 FSRUs and 4 FSUs. The number of LNG voyages, however, only increased by 1%, largely due to demand impact of COVID-19.

It was a challenging business environment for vessel owners and operators in the LNG shipping sector affected by significant demand disruption, subsequent sustained lower charter rates, the increased use of floating LNG storage, a shift towards new ways of working, and delays in newbuild deliveries.

The reduction in global gas consumption led to supply curtailments and hence demand disruption for LNG freight. American exports of LNG became less economic for most companies based on netback pricing, while virus-related market conditions often caused vessels to change course mid-voyage. The consequence of this through the year was cargo cancellations

as LNG players balanced oversupply and uncertain global demand. This translated into material impacts on LNG charter rates for much of 2020.

Charter rates started the year at ~US\$70,000-US\$105,000 per day, trading thereabouts until August 2020. As the Northern Hemisphere experienced colder-than-normal temperatures during the fourth quarter, freight demand and charter rates rebounded, reaching record highs at the end of the year, peaking at ~US\$112,000-US\$177,000.

Operations continued successfully despite extraordinary circumstances in part supported by the emergence of new ways of working in daily operations and amid an acceleration of broader trends such as digitalization and cloud computing. For example, terminal operations and cargo loading and unloading can now take place without human contact between vessel and external crews. Within the realm of digitalization, a shift to acceptance of digital documents has occurred while remote vetting and inspections have become the norm. Cloud-based solutions have also allowed ship engineering training to take place in simulators and through remote learning.

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In shipbuilding too, the steep drop in LNG freight prices caused shipowners to exercise options early in the year to defer delivery of new-builds when available.

Onshore CNG & LNG fuelling infrastructure

As of 2020, the global fleet of natural gas ve-

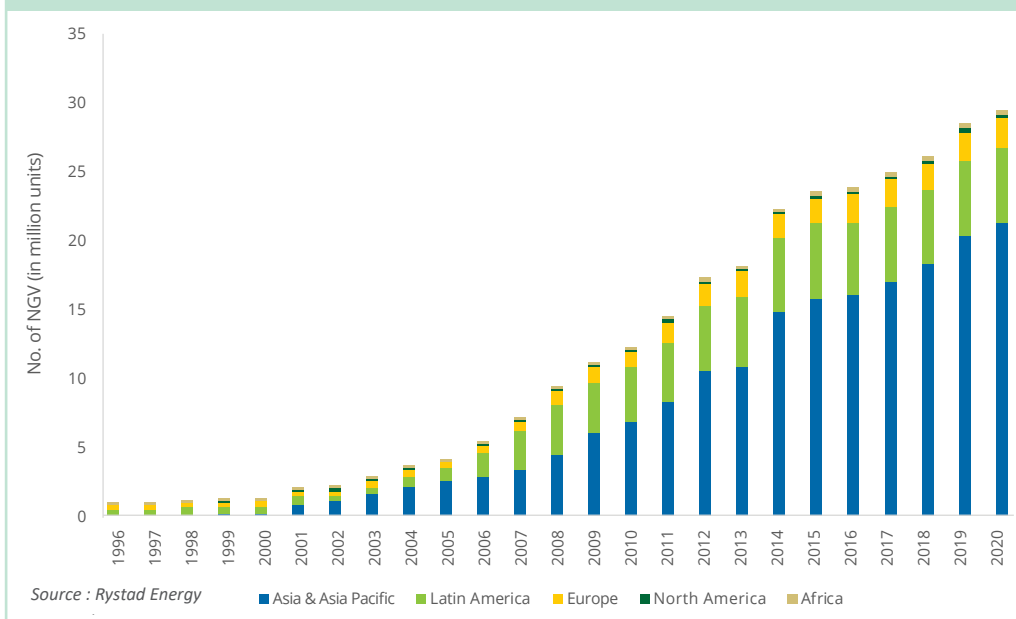
hicles (NGVs) stands at 29.5 million units. Asia & Asia Pacific accounts for the largest share of the NGV market with 21.4 million operational units and a market share of 73%. This is followed by Latin America and Europe, each holding 19% (5.5 million units) and 7% (2.1 million units) market share respectively.

Asia & Asia Pacific experienced an exponential surge in the adoption of NGV in the past two decades, more than doubling its NGV fleet from 2000 to 2010 and recording a remarkable CAGR of 12% between 2010 and 2020. In fact, the top three markets deploy over 50% of the world's NGV fleet. They are, in order, China, Iran and India. The switch from gasoline or diesel to natural gas as an automotive fuel in Asia & Asia Pacific has largely been bolstered by an increasing appetite for cleaner fuels in response to heightened environmental concerns over emissions and air pollution, the need for energy security and economic incentives.

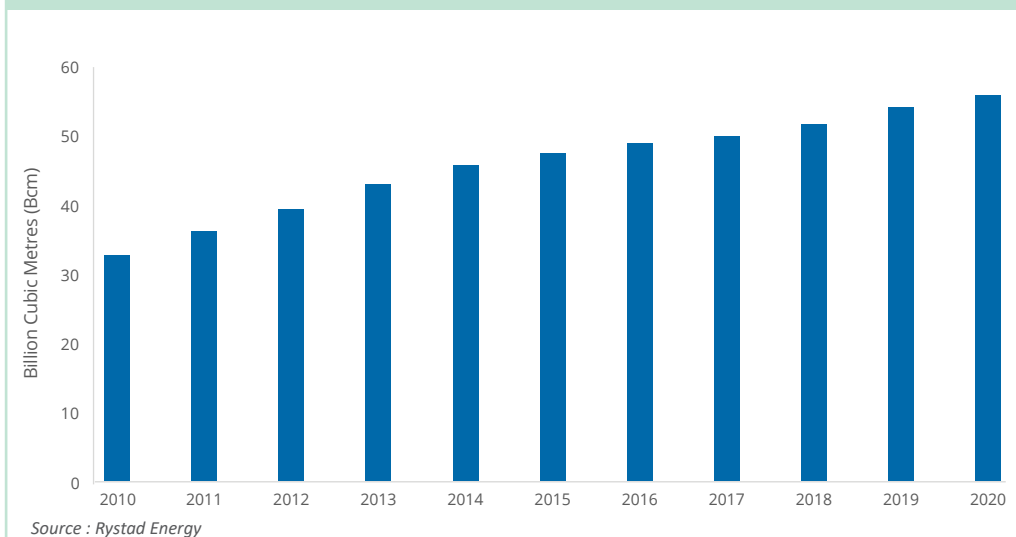
CNG as Transportation Fuel

With the majority of global NGV fleet composed of light-duty vehicles, CNG is currently the primary fuel driving natural gas consumption in road transportation. CNG consumption levels grew to 55.7 BCM in 2020, experiencing a CAGR of 5.4% over the last decade. Global CNG fuel consumption currently arises from a small group of markets in Asia (e.g., China

GLOBAL NGV FLEET BY REGION (1996-2020)



CNG CONSUMPTION AS ROAD FUEL



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and India), Latin America (e.g., Argentina and Brazil) as well as Europe (e.g., Italy), with observed regional differences where urbanized cities with better-connected infrastructure generally consume more CNG as road fuel. The favourable price differential between gasoline and CNG prices has historically been critical in driving NGV penetration and CNG consumption levels.

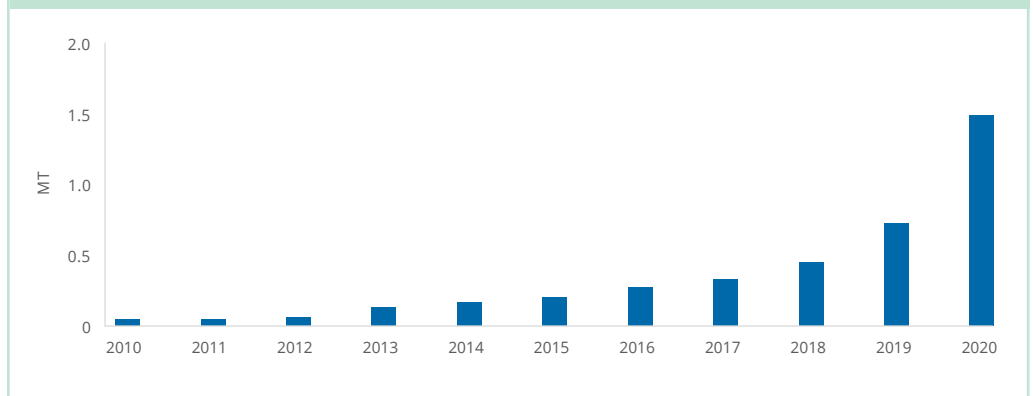
LNG as Transportation Fuel

With stricter international and local environmental regulations as well as emission reduction ambitions, LNG consumption as a marine fuel has accelerated in recent years, achieving a five-fold volume growth in less than five years, reaching 1.5 million tonnes

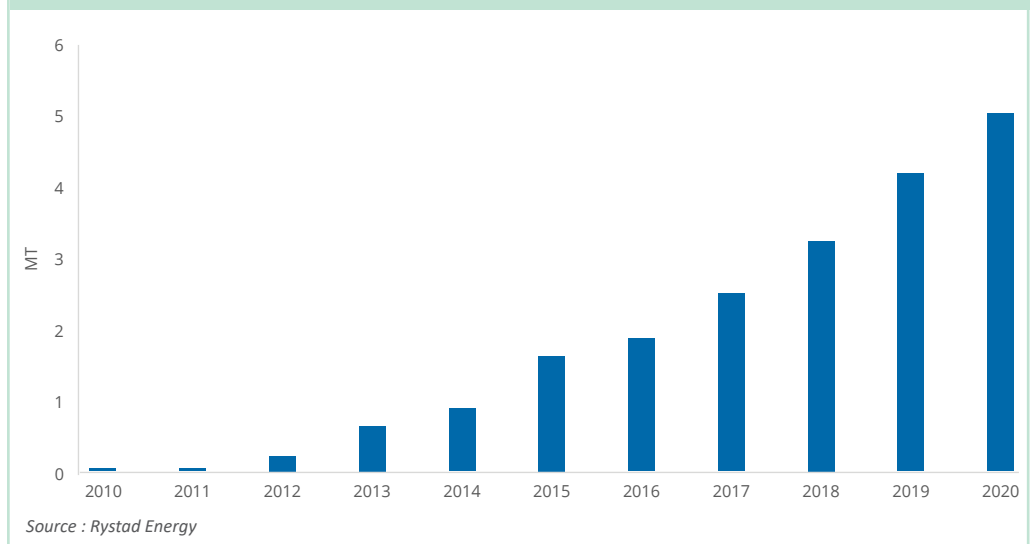
in 2020. With an operational fleet of 175 and order book of over 200, increasing interest in the adoption of LNG-powered vessels is anticipated to drive additional growth in demand for LNG as a marine fuel in the near term.

LNG as road fuel has experienced a surge in demand in recent years, reaching a total of 11.7 million tonnes in 2020. This represents a doubling in consumption level since 2016. LNG as a road fuel is generally used for long-range heavy-duty vehicles. To a large extent, this rapid expansion in fuel consumption owes to strong government efforts in markets across Asia and Europe to switch from diesel-based vehicles to alternatives in a bid to address eroding air quality. China has become the world's largest market for LNG as road fuel since the introduction of LNG as an alternative fuel for heavy-duty vehicles in the early 2010s. Europe

LNG CONSUMPTION AS A MARINE FUEL



LNG CONSUMPTION AS ROAD FUEL



is another demand centre for LNG as road fuel, particularly in the high mileage heavy-duty vehicle sector where alternative fuel technology (e.g., hydrogen fuel cell) has yet to attain comparable levels of technology and commercial readiness. With a growing preference for an LNG-fuelled fleet from haulage, logistics and transportation sectors across European markets such as Belgium, France, and the UK, LNG consumption as a road fuel is anticipated to pick up in the near term. Notably, the number of new registrations for LNG-powered vehicles in Europe increased almost three-fold in 2019 from the previous year.

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Sources:

1. IGU World LNG Report, 2021
2. Various news items