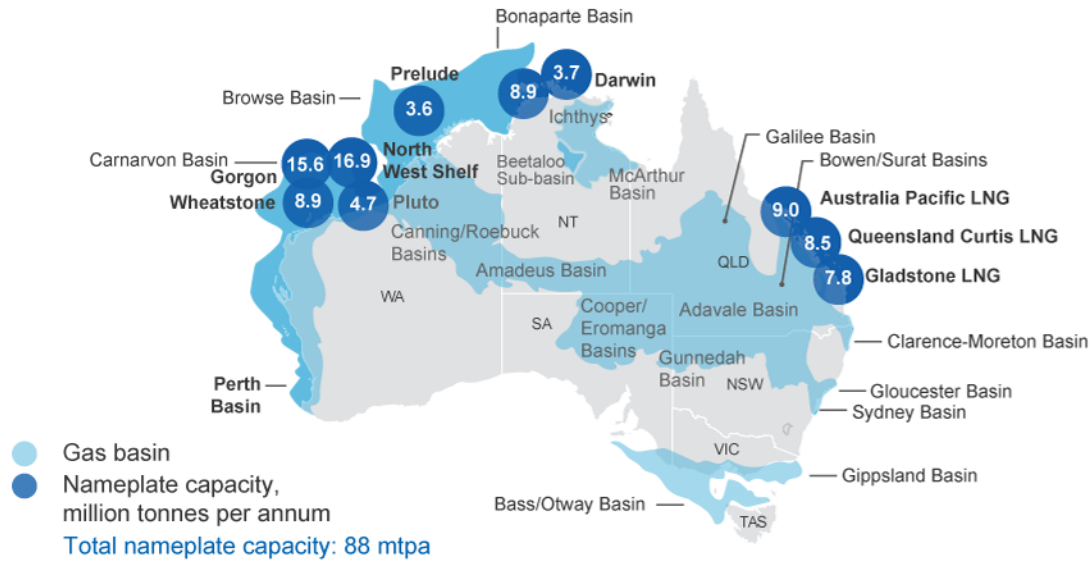


# Gas

## Australia's LNG projects and gas basins



## Gas facts



LNG is produced by cooling natural gas to **-161°C**



**LNG shrinks** to 1/600th the volume of natural gas



Natural gas accounted for **23%** of the 2020 global electricity generation mix



**Over 73%** of global LNG demand came from Asia in 2021

## Global gas use by sector



**40%**  
Electricity



**22%**  
Residential



**20%**  
Industry



**19%**  
Transport

## Australia's LNG



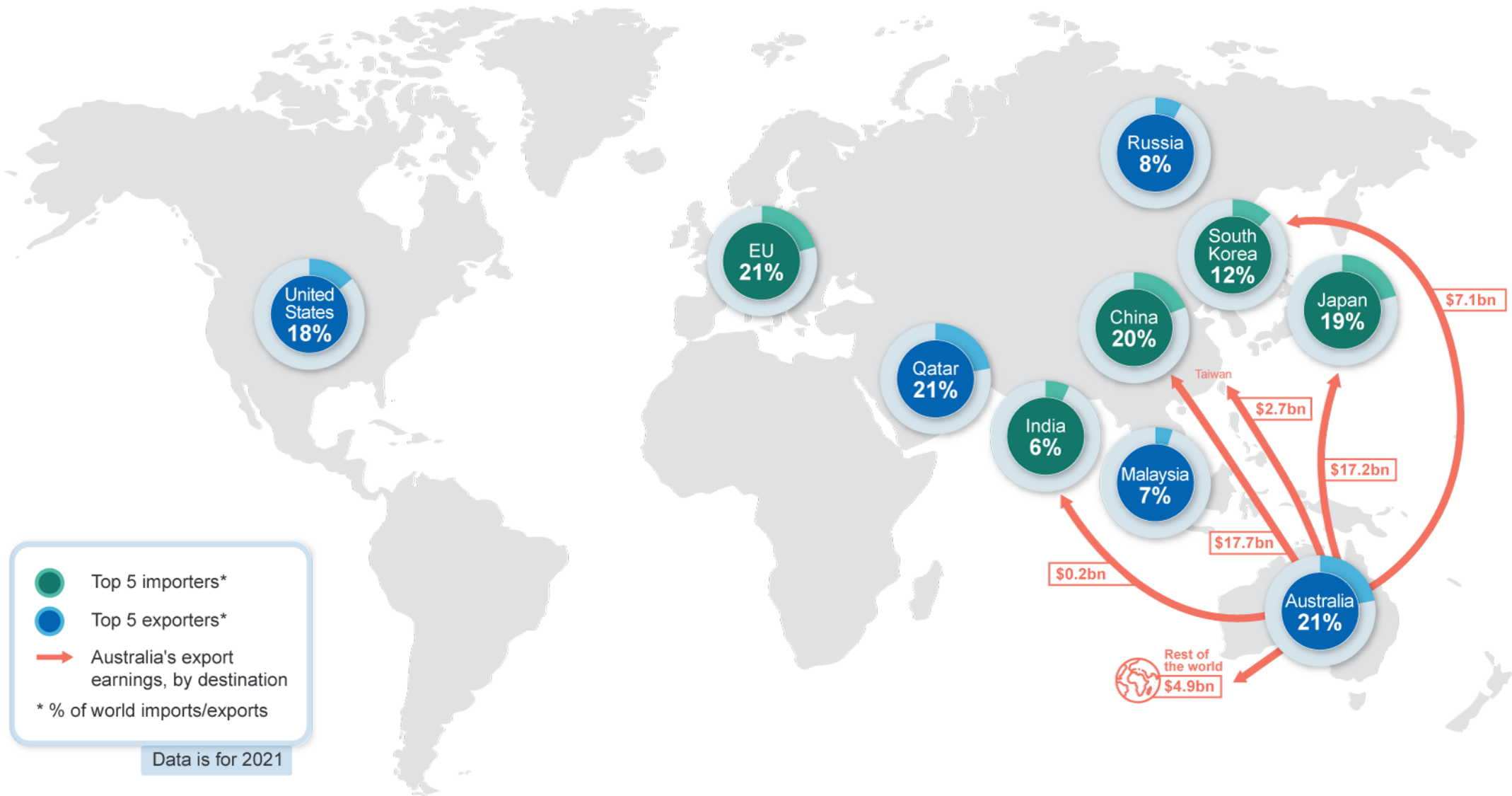
**81m tonnes** exported in 2021, valued at **\$50bn**



**88m tonnes** per annum **total LNG nameplate capacity**



**Around 3/4** sold on **long-term contracts**



## 7.1 Summary

- LNG prices are surging amidst a tight global market. Spot prices for Asian LNG are estimated to have averaged US\$28.38/MMBtu in 2021–22. Asian LNG prices are expected to decline modestly to average US\$25/MMBtu over 2024. Australia’s LNG export earnings are forecast to rise from an estimated \$70 billion in 2021–22 to \$84 billion in 2022–23, driven by rising global energy prices. Earnings will likely then ease back to \$68 billion in 2023–24, as LNG and oil markets reorganise and prices start to decline.
- Australia’s LNG export volumes are forecast to stabilise at around 79–80 million tonnes over the outlook period, after reaching 82.2 million tonnes in 2021–22.

## 7.2 World trade

### Tightness to return sharply after temporary lull

Asian LNG imports generally declined in the first half of 2022. Rising gas prices have led to demand reductions in the Japanese and Korean electricity sectors, while a combination of high spot prices and ongoing COVID-19 lockdowns have reduced gas consumption in China.

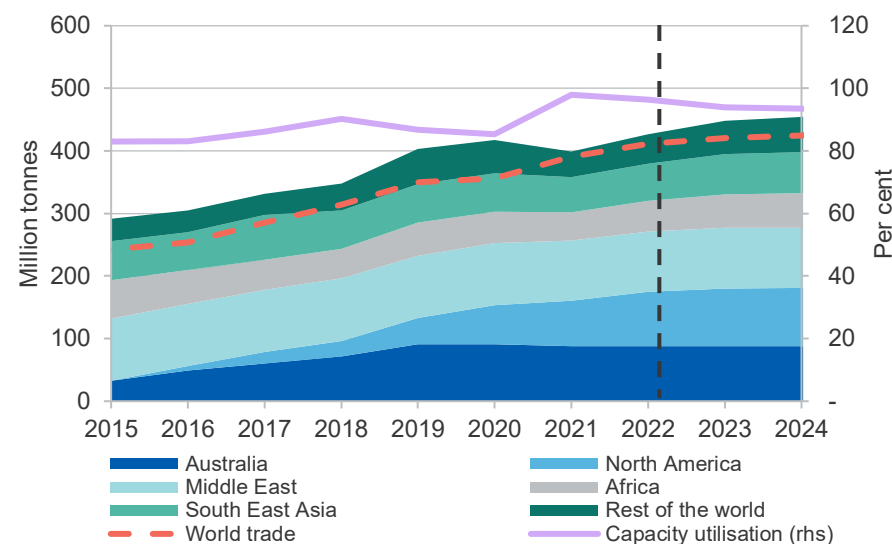
Europe has capitalised on the Asian slump, by importing larger LNG volumes to offset declining pipeline gas supply from Russia. As a result, Europe is forecast to import 116 million tonnes of LNG in 2022, up 54% from 2021. The United States appears to be facilitating the shift from Russian gas already, with roughly three-quarters of all US LNG exports destined for Europe between January and April 2022, compared to 38% in the same period in 2021.

LNG markets are expected to tighten considerably in the second half of 2022, as disruptions to US LNG facilities and Russian pipeline exports weigh heavily on global gas supply. Moreover, a recovery in Asian demand — due to the easing of lockdown restrictions in China or higher demand for gas-powered generation — could place further stress on global LNG markets later this year.

Asian LNG futures markets have priced in large increases in the December quarter 2022 (when the northern hemisphere winter sets in), with forward Asian spot prices reaching US\$35/MMBtu, up 15% from the September quarter 2022 (US\$30.5/MMBtu).

Further out, LNG markets are likely to be very tight through to 2024, as demand growth outpaces growth in supply (Figure 7.1).

**Figure 7.1: LNG demand and world supply, 2018-2027**



Source: Nexant (2022) World Gas Model; Department of Industry, Science and Resources (2022)

## 7.3 World imports

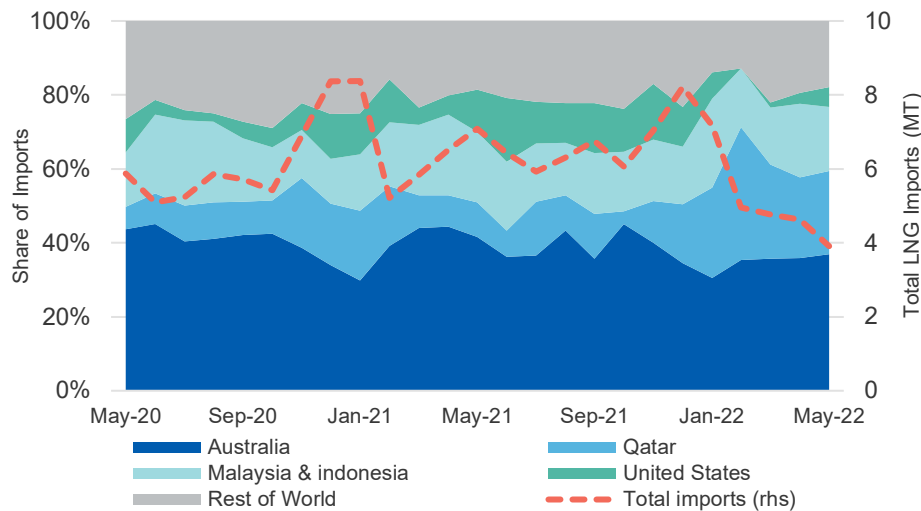
### Chinese imports weighed down by high prices and lockdowns

Chinese LNG imports rose to 80 million tonnes in 2021, representing a 20% year-on-year increase. China now accounts for roughly 21% of global LNG imports, surpassing Japan as the world’s largest LNG importer. However, ongoing COVID-19 lockdowns and higher LNG prices, have dampened demand over the first half of 2022.

On 6 May, President Xi Jinping reiterated the country's strict adherence to a general policy of "Dynamic Zero Covid". The remarks came amidst a total lockdown in Shanghai, where officials were working to stem a COVID-19 outbreak. If sporadic lockdowns continue to some degree in the second half of 2022, this will inevitably weaken Chinese gas demand, especially by industrial users. However, if lockdowns ease in the September and December quarters, Chinese gas demand could surprise on the upside, as manufacturers seek to offset lost production and the government seeks to support industrial activity to stimulate the economy.

According to shipping data, Chinese LNG imports fell by 13% to 16.9 million tonnes in the March quarter 2022, compared to 19.4 million tonnes in March quarter 2021. China also recorded its lowest level of LNG imports for April since 2019 (see Figure 7.2).

**Figure 7.2: Chinese LNG imports by source, 2020-22**



Notes: May 2022 data as of the 24 May

Source: Kpler (2022)

Australian LNG accounted for 39% of China's imports in 2021, with imports reaching approximately 30 million tonnes. However, imports from

Australia fell from 7.1 million tonnes in the March quarter 2021 to 5.6 million tonnes in the March quarter 2022. These figures represent a 21% reduction in Chinese imports of Australian LNG year-on-year.

However, the fall in imports from the US has been even more pronounced. Chinese imports of US LNG declined by 68% year-on-year (from 1.8 million tonnes) to 0.6 million tonnes in the March quarter 2022. Meanwhile, Chinese LNG imports from Russia rose by 77% in the three months following the invasion of Ukraine. Imports were 1.2 million tonnes between March and May 2022 compared to 0.7 million tonnes in 2021.

Shifting price differentials between Asian and European spot markets are largely driving the shift in US LNG exports. Since most US LNG exports are uncontracted, US LNG can quickly be redirected to the highest bidder.

A high degree of uncertainty surrounds the short-term outlook for Chinese gas demand in the second half of 2022, due to the persistence of COVID-19 outbreaks. However, further out, China's LNG demand is expected to grow to 84 million tonnes by 2024, up 6% from 2021 levels. At the same time, high LNG prices are expected to increase China's reliance on domestic production and pipeline imports.

#### Japanese imports show signs of easing

Japanese LNG imports were steady in 2021, at 75 million tonnes — or approximately 20% of global LNG imports. However, imports in the March quarter 2022 were down by 11% year-on-year to 20.6 million tonnes (imports were 23.3 million tonnes in March quarter 2021).

Falling Japanese imports can be attributed to the power sector, where rising nuclear and renewable generation is displacing gas-powered generators. According to figures from the Ministry of Economy, Trade and Industry (METI), Japan plans to reduce LNG's contribution to electricity generation from 38% in 2022 to 27% by 2030, while the nuclear share of generation is targeted to rise from 6.0% to 22%.

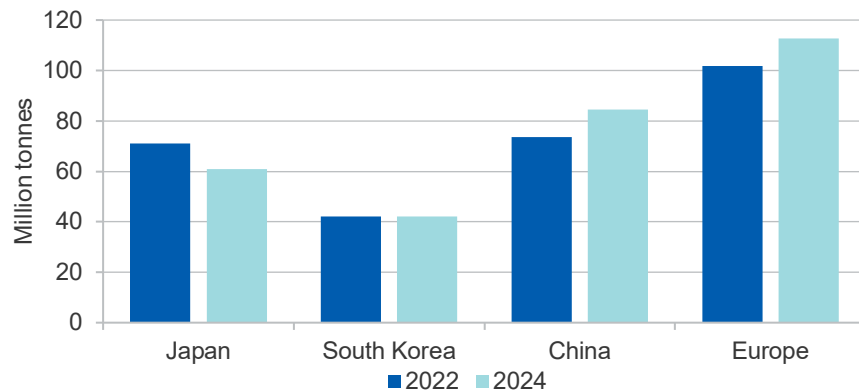
LNG imports are expected to fall to about 70 million tonnes in 2022 and 61 million tonnes by 2024, as the electricity sector shifts away from gas.

### South Korean imports have begun to ease

South Korea's LNG usage reached record levels in 2021, at 46.7 million tonnes, up 13% from 2020. South Korea now accounts for approximately 13% of global LNG imports. However, imports fell by 4.6% year-on-year to 13.4 million tonnes in the March quarter 2022. The lower imports were driven by reduced gas-powered generation demand, as coal-fired power generators increased their output across the country. South Korea's Government had previously asked state-owned coal-fired generators to reduce their output, in order to curb the country's greenhouse gas emissions. However, the restrictions appear to have been lifted in April 2022, amidst record-high global LNG prices.

High gas prices and the construction of new nuclear facilities will restrain growth in South Korean LNG demand. South Korea will complete the construction of a new nuclear reactor (Shin-Hanul 1) and commence operations in the September quarter 2022. Moreover, two additional nuclear units will be constructed over the outlook period (Shin Kori 5 and Shin Hanul 2). These three units will increase South Korea's installed nuclear capacity by 4200 megawatts. As a result, growth in LNG imports is estimated to fall to 42 million tonnes by 2024 (see Figure 7.3).

**Figure 7.3: World LNG demand forecasts**



Notes: Emerging Asia includes India.

Source: Nexant (2022) World Gas Model; Department of Industry, Science and Resources (2022)

### European imports surge amidst Russian invasion of Ukraine

European LNG imports surged by 61% year-on-year in the March quarter 2022, reaching a record 32 million tonnes. This followed weak imports in 2021 (78.8 million tonnes), as a result of LNG supply outages in Norway, Trinidad and Nigeria, and fierce competition from Asia for spot cargoes.

Rising imports in 2022 have been driven by European efforts to reduce dependence on Russian gas, and to refill gas storage inventories before next winter. Europe's vulnerability to Russian supply disruptions was amplified in the June quarter 2022, when Russia imposed a new payment mechanism on European gas buyers.

Several parties have disputed the legality of the new arrangement, arguing that it breaches existing contract conditions and could also violate European sanctions. So far, companies in the Netherlands, Poland, Bulgaria, Finland and Denmark have resisted the new payment mechanism, and Russia's Gazprom has subsequently suspended their contracts. While these suspensions may seem dire, it may technically be possible for these curtailed nations to obtain Russian gas via third-party nations which still access Russian pipeline gas supply.

Amidst such uncertainty, the EU is developing multiple proposals to bolster the regions' energy security and reduce reliance on Russia. The EU is currently drafting legislation to mandate minimum inventories for gas storage facilities before the European winter. The EU will likely require existing storage facilities to reach 90% of their capacity by 1 October each year.

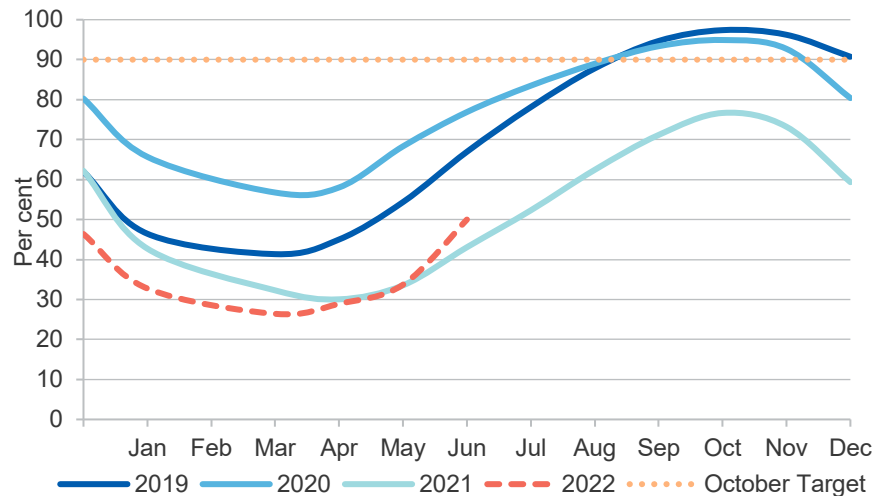
As of 13 June, European storage inventories were approximately 52.6% full (see Figure 7.4). Assuming no major Russian curtailments, Europe should have the ability to reach the 90% storage target before winter. Storage inventories also vary between different European countries, with Polish storage facilities already reaching 94% of capacity as of 31 May 2022 — which will further mitigate the risks associated with Russia's curtailment.

In conjunction with efforts to bolster winter storage, as a part of the region's RePowerEU proposal, the EU aims to cut Russian gas imports by two-thirds in 2022. Central to the proposal is a target to import an additional 36 million tonnes of LNG in 2022 alone.

However, efforts to simultaneously bolster gas inventories and reduce Russian imports face several challenges. Modelling done by the European Network of Transmission Systems Operators for Gas (ENTSO) in April 2022 suggests that most European nations will rely on Russian imports to reach the 80% or 90% storage level target by 1 October, with significant variation amongst Western and Eastern European nations.<sup>1</sup>

According to ENTSOG's modelling, countries in Western Europe face almost no dependence on Russian gas to refill storage inventories; but in Central-Eastern Europe<sup>2</sup>, Russia supplies up to about 85% of volumes needed to meet the 90% target.

**Figure 7.4: European Storage Inventories**



Source: Eurostat (2022)

<sup>1</sup> ENTSOG, Summer Outlook 2022, 11 April 2022

Central-Eastern Europe's dependence on Russian gas stems from infrastructure bottlenecks that limit gas flows from the West to the East, and from the Balkans to Central Europe. In May 2022, the EU announced a plan to tackle these constraints by investing nearly €10 billion over the next eight years in transmission and interconnector pipelines and LNG import facilities.

Infrastructure spending will target southern gas pipeline corridors running through Bulgaria and Romania, to give Central Europe access to gas from Turkey and Greece; an Iberian pipeline corridor that links Portuguese and Spanish LNG import terminals with Italian and German markets; and additional LNG import terminals along the Baltic, Aegean and North Seas.

As a result of the uncertainty over Russian pipeline imports, European LNG imports are forecast to rise by 43% year-on-year, reaching 109 million tonnes in 2022. Imports are expected to peak at 120 million tonnes by 2023, as infrastructure bottlenecks limit the continent's ability to absorb additional LNG imports.

#### Taiwanese imports remain stable

Taiwanese LNG imports rose to 19.8 million tonnes in 2021, on the back of extreme winter conditions. They now account for about 5.2% of global imports. Imports grew by 10% year-on-year to 4.8 million tonnes in the March quarter 2022. Unlike the rest of Asia, Taiwanese demand has been driven by solid growth in gas-powered generation.

In March 2022, Taiwan's electricity grid experienced a problem that required the temporary shut down of the nation's nuclear fleet. This resulted in a sharp rise in the demand for gas-powered generators. The outlook for gas powered generation in Taiwan remains strong since the Government aims to eliminate nuclear energy from the grid by 2025.

Taiwanese LNG imports are expected to stabilise at around 20 million tonnes per year over the outlook period. Beyond the outlook period, import

<sup>2</sup> Central-Eastern European countries include: Poland, Czechia, Slovakia, Hungary, Romania, Croatia and Serbia.

growth will be supported by three new import terminals, expected to come online between 2024 and 2026.

#### Latin American demand falls on rising rainfall

Latin American import volumes have continued to fall so far in 2022, as increased rainfall has filled hydro-electric dams, reducing demand for gas-powered generation. LNG imports came in at only 2.2 million tonnes in the first four months of 2022, down from 14.5 million tonnes in the whole of 2021.

The unexpected surge in imports in 2021 resulted from severe drought conditions that limited the filling of water reservoirs needed for hydroelectric generation. The lower hydro output forced South American power companies to purchase large amounts of LNG to fuel gas-powered generators to compensate for the loss.

The outlook for Latin American demand remains heavily dependent on weather conditions. While higher rainfall in the December quarter 2021 reduced the need for thermal generation in the first half of 2022, any worsening of drought conditions in the middle of 2022 could spike LNG demand once more.

#### India remains price sensitive

Indian LNG imports reached 24 million tonnes in 2021, representing about 6.5% of global LNG trade. However, Indian LNG imports fell by 21% year-on-year in the March quarter 2022, bottoming out at 4.98 million tonnes amidst record high LNG prices. Hot weather and a scarcity of coal, could boost LNG demand in the middle of 2022, as gas-powered generators seek additional fuel amidst a worsening electricity market outlook.

Nevertheless, Indian LNG imports are still forecast to rise from 24 million tonnes in 2021 to 26 million tonnes by 2024. Rising LNG demand is expected to be driven by industrial consumers, particularly fertilizer manufacturers, and city gas users.

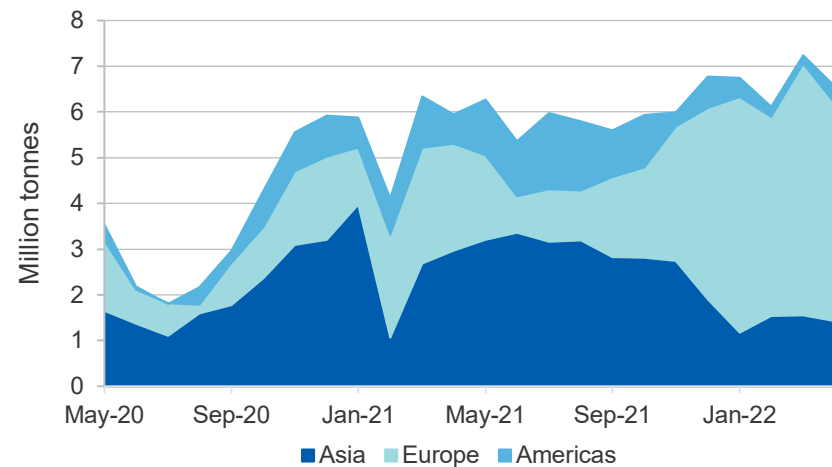
## 7.4 World exports

### US LNG redirected to Europe amidst market reorganisation

United States' LNG exports reached 70 million tonnes in 2021, driven by the ramp-up of existing LNG projects and the commissioning of a sixth additional train at the Sabine Pass. The expansion represents a 46% rise in US LNG exports since 2020, when exports reached 49 million tonnes.

Only 34% of US LNG exports (about 20 million tonnes) were destined for Europe in 2021, with Asia receiving a 48% share (see Figure 7.5). The distribution partially reflects pricing dynamics in 2021, when Asian spot prices consistently achieved a premium over European markets. However, in the March quarter 2022, 74% of all US LNG exports (or around 20 million tonnes) were destined for Europe. These volumes are just below total US annual exports to Europe of 24 million tonnes in 2021. Only 21% of US exports have flowed to Asia over the same period. The reversal in LNG flows comes off the back of commitments by the US government to help lower Europe's dependency on Russian gas.

**Figure 7.5: US LNG exports by destination, 2020-22**



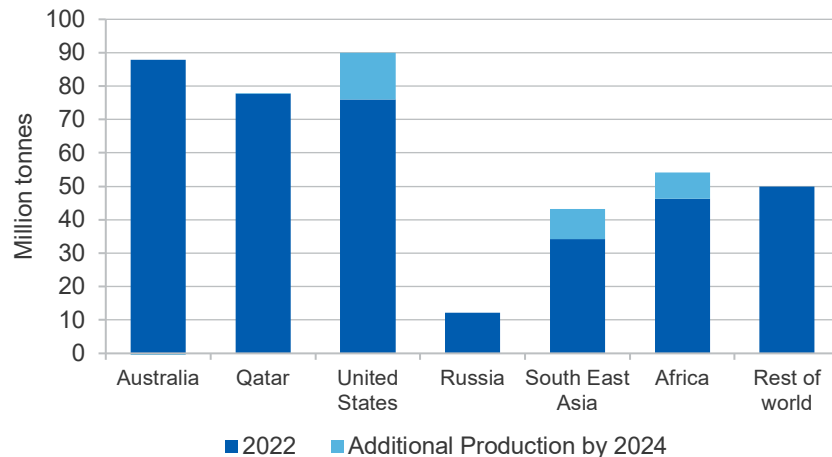
Source: Kpler (2022)

In March 2022, the US Administration agreed to supply Europe with an extra 11 million tonnes of LNG. Larger US exports to Europe have also been aided by record high European spot prices relative to Asia. However, an explosion at the Freeport LNG facility on 8 June 2022 is expected to weigh heavily on US exports in the second half of 2022. The facility, which can produce up to 15 million tonnes of LNG per annum, represents approximately 18% of total US LNG supply. The company is only targeting a partial resumption of operations by late-2022.

The United States is forecast to export 76 million tonnes of LNG in 2022. The fall in US LNG production from Freeport LNG will be partially offset by new facilities at Calcasieu and Sabine Pass. The two facilities are expected to add 12 million tonnes to the United States' nominal liquefaction capacity over the outlook period, which will help lift US LNG production to 90 million tonnes in 2023 and 2024.

No further additions to US LNG capacity are expected until trains at Golden Pass and Plaquemines come online, beyond the outlook period.

**Figure 7.6: Global LNG supply forecasts**



Source: Nexant (2022) World Gas Model; Department of Industry, Science and Resources (2022)

#### Qatar exports stabilise, but larger volumes are on the horizon

Qatari exports remained at 78 million tonnes in 2021, as the nation's LNG facilities continued to operate at peak capacity. Despite high prices and strong global demand for LNG, the Qatari Government has repeatedly stated that Qatar cannot boost supply noticeably in the short term. The volume of Qatari exports was stable in the March quarter 2022, at 19 million tonnes. Exports to Asia and Europe remained largely consistent with the December quarter 2021, with approximately 15.2 million tonnes exported to Asia and around 3.8 million tonnes exported to Europe.

Qatar is expected to expand its export capacity to 107 million tonnes per annum by 2026, facilitated by its North Field South project — which reached FID in late 2021. The LNG project will be the second largest in the world by capacity, and is expected to start commercial production in 2025. Qatar's LNG exports are not expected to rise over the outlook period.

#### Maintenance pressures ease in Nigeria, Trinidad and Norway

A large amount of world LNG capacity was offline in 2021, due to unplanned outages in Nigeria, Trinidad and Norway. These disruptions took about 12 million tonnes of contracted supply offline, and were felt acutely by European buyers — whom the contracts serviced. Alone, these incidents would likely pass without much impact on prices. However, in a very tight global LNG market, these outages acted to amplify price moves.

Trinidad's Atlantic Train 1 was closed indefinitely in mid-2021, due to a feed gas shortage. The shortage caused LNG capacity to fall from 13 to 8 million tonnes between 2020 and 2021. However, capacity is expected to rise to 14 million tonnes over the outlook period, as Shell and BP ramp up offshore operations. Feed gas issues also plagued Nigerian production at Bonny LNG. As a result, the facility's LNG output fell from 21 million tonnes in 2020 to 17.1 million tonnes in 2021. In 2022, LNG capacity is expected to rebound to 19 million tonnes and then gradually lift to 21.3 million tonnes by 2024. In late 2020, a fire at Norway's Hammerfest LNG plant halted production, lowering Norway's LNG capacity from 7 million tonnes in 2019 to zero in 2021. Hammerfest only resumed production in late May 2022, and is forecast to have its capacity fully restored by 2023.



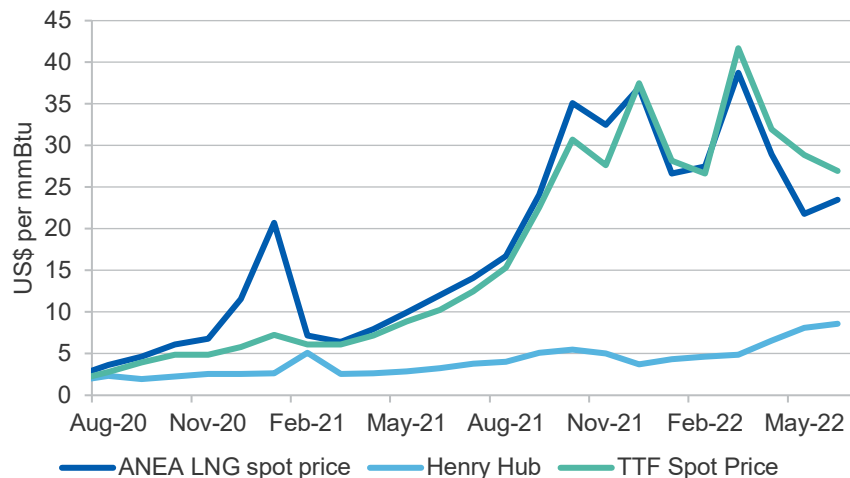
## 7.5 Prices

### LNG spot prices remain volatile amidst global uncertainty

The outlook for Asian spot prices is subject to heightened uncertainty, due to the potential for further Chinese COVID-19 lockdowns and the risk of further curtailments in Russian gas exports to Europe. LNG spot prices were high and volatile in the March quarter 2022, as Asian buyers faced fierce competition from Europe. After averaging US\$26/MMBtu in February, prices spiked to US\$41/MMBtu in March before settling back to average around US\$24.80/MMBtu in the June quarter 2022.

However, a divergence emerged between Asian LNG and European gas prices in the second quarter (see Figure 7.7). For example, in May 2022, spot prices at the Dutch Title Transfer Facility averaged US\$30/MMBtu compared to Asian LNG spot prices of US\$22.24/MMBtu. The divergence can be attributed to a number of factors: price-driven demand destruction in Asia, Chinese COVID-19 lockdowns, and higher demand in Europe — due to the fallout from Russia's invasion of Ukraine.

**Figure 7.7: Global gas and LNG prices, monthly**



Notes: ANEA is the Argus Northeast Asia LNG spot price DES (Delivered Ex Ship), which include shipping and insurance. TTF is the Dutch Title Transfer Facility price.  
Source: Argus (2022); Bloomberg (2022)

The price differential has facilitated the redirection of LNG cargoes away from Asia towards Europe, led predominantly by US LNG exporters (See *World Imports section*). Meanwhile, spot prices in the United States have risen to their highest levels since 2008. Between December 2021 and April 2022, prices at the Henry Hub surged by 76%, from US\$3.76/MMBtu to US\$6.60/MMBtu. The rising US prices come off the back of record LNG exports, and from expectations that natural gas storage levels will be below the five-year average over summer.

Over the outlook period, prices are expected to remain elevated and highly volatile relative to long-run averages. Prices are expected to spike to US\$35/MMBtu in the December 2022 quarter as winter heating demand increases the competition for LNG cargoes and disruptions at the Freeport LNG facility constrain supply. Furthermore, any Russian curtailments of gas exports to Europe will amplify the tight demand and supply balance.

Prices are forecast to remain above long-run averages for the rest of outlook period, as LNG demand outpaces supply. As a result, prices are expected to average US\$28/MMBtu and US\$25/MMBtu in 2023 and 2024, respectively.

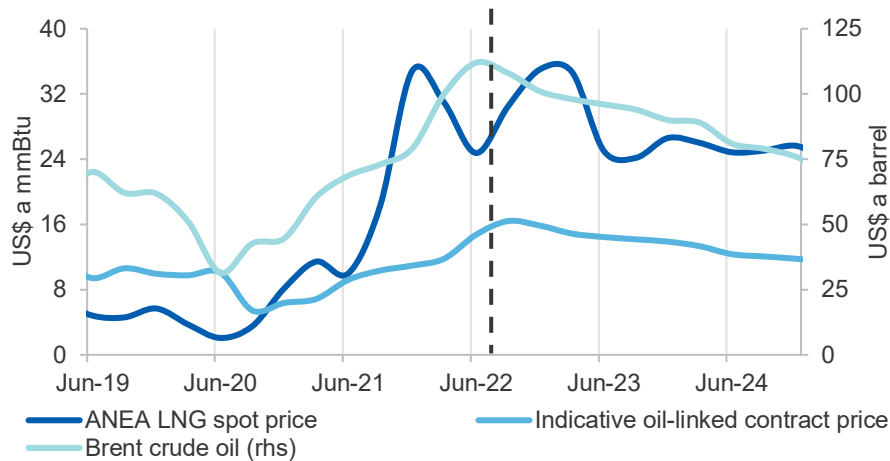
### Spiking oil prices in Q1 2022 flow through to LNG contracts

High oil prices in the first quarter of 2022 will start flowing through to Australian LNG contracts in the June quarter. Around 80% of Australian LNG is sold via long-term contracts that link the price of LNG to the Japanese Customs Crude (JCC) oil price with a three to six month lag—depending on contractual arrangements.

Oil prices reached record highs in the March quarter 2022, following the fallout of Russia's invasion of Ukraine, peaking at US\$134 a barrel on 8 March. (See *Oil chapter*). Brent Prices averaged \$US106 a barrel in April, \$US112 a barrel in May and \$120 a barrel in June (estimate) — with the June quarter average up 64% y-o-y

Over the outlook period, oil-price linked LNG contract prices are expected to peak at levels consistent with oil at US\$105 a barrel in 2022, before falling to US\$95 in 2023 and US\$80 a barrel in 2024 (see Figure 7.8).

**Figure 7.8: LNG spot and contract prices, quarterly**



Notes: ANEA is the Argus Northeast Asia spot price. LNG prices are DES (Delivered Ex Ship). The long-term oil-linked contract price is indicative and is estimated at 14% of the 3-month lagged JCC oil price plus shipping. Source: Argus (2022); Bloomberg (2022); Department of Industry, Science, Energy and Resources (2022)

## 7.6 Australia

### Australia's LNG earnings surge amidst global uncertainty

Australia is estimated to have exported a record \$70 billion of LNG in 2021–22, up from \$30 billion in 2020–21 (and still high compared to \$50 billion in 2018–19 and \$48 billion in 2019–20). In the March quarter 2022 alone, Australian LNG export earnings reached \$17.9 billion, up 114% compared to the March quarter 2021. Higher export earnings have been driven by surging prices, the result of low inventories and the global recovery from the COVID-19 pandemic. The latter has driven increased demand for energy commodities, especially LNG, on Asian spot markets.

In 2022–23, the value of Australia's LNG exports is expected to continue to surge, rising to around \$84 billion as high oil prices — due to the fallout from Russia's invasion of Ukraine — flow through to oil-price linked LNG contracts and as LNG spot prices surge (see Figure 7.9). However,

earnings are expected to ease to \$68 billion in 2023–24, as markets begin to reorganise.

Key sources of uncertainty over the outlook period include the persistence of Chinese lockdowns due to COVID-19 outbreaks — which could lead to lower demand for imported LNG — and the possibility of more Russian curtailments to Europe's gas supplies, further tightening global LNG markets.

### Australia's LNG facilities producing record volumes

Australia exported an estimated 82.2 million tonnes of LNG in 2021–22, up by 4.7 million tonnes on 2020–21. This marks Australia's highest volume of LNG exports for any financial year. The results were largely driven by high LNG prices, which incentivised many LNG facilities to operate at or above capacity for the last 12 months.

Driving the increase has been higher production from the Gorgon LNG facility, which boosted LNG production from 11.3 million tonnes in 2020–21 to an estimated 15.9 million tonnes in 2021–22 (a 42% increase). This production level is over 100% of the facility's nominal nameplate capacity. Ichthys LNG production reached an estimated 9.1 million tonnes in 2021–22, up 18% from 2020–21 when LNG output was 7.7 million tonnes.

In the March quarter 2022, Australian LNG exports dipped to 19.2 million tonnes, down 10% quarter-on-quarter. The result was driven by the suspension of operations at the Prelude FLNG facility and lower output from the Darwin LNG facility — due to the ongoing depletion of the Bayu-Undan field.

On 2 December 2021, Shell's Prelude FLNG facility suffered a total power failure, resulting in a suspension of production. The power failure was triggered by an onboard fire in an electrical equipment area which forced the facility to run on backup diesel generators. After the incident, the off-shore regulator, NOPSEMA, directed Shell to halt all production until specific safety standards were met. The regulator allowed operations to recommence on 21 March 2022.

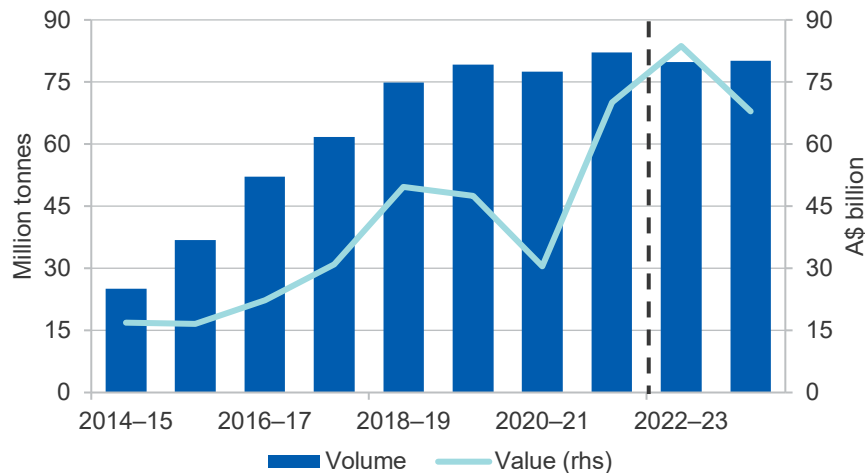
The Bayu-Undan field, which supplies the Darwin LNG plant, is also in terminal decline. Santos announced an FID for an infill drilling program in early 2021, and the program commenced in late July 2021, with initial outcomes better than expected. This program will likely extend output at the Darwin LNG facility until 2023. However, the field decline is beginning to weigh on Darwin’s LNG production, with volumes falling by around 40% to 0.4 million tonnes in the March quarter 2022.

#### Export volumes to ease after record financial year

In 2022–23, Australia’s LNG exports are expected to be 79.8 million tonnes. Several facilities are expected to be impacted by (delayed) maintenance activity, while the depletion of some gas basins will reduce gas supply to other facilities, particularly Darwin LNG.

Ichthys’ LNG is expected to undertake scheduled maintenance on both of its LNG trains throughout July, dampening LNG production for the September quarter. It is estimated that Ichthys has operated at over 100% nameplate capacity in 2021–22, and will need to undergo maintenance to ensure the facility can continue to operate efficiently.

**Figure 7.9: Australia’s LNG exports by Value and Volume**



Source: ABS (2022) International Trade in Goods and Services, 5368.0; Department of Industry, Science and Resources (2022)

QCLNG is also expected to undertake scheduled maintenance on half a train or more between 16 June and 18 July. The maintenance could reduce QCLNG’s output by either 0.2 or 0.4 million tonnes. APLNG will also undertake scheduled maintenance on a whole train between 28 July and 26 August 2022, which will similarly drag production down by an estimated 0.3 million tonnes over the September quarter 2022.

As previously mentioned, output from the Darwin LNG facility is also expected to fall to 1.7 million tonnes in 2022–23, due to field depletion; output is expected to fall even further to 0.5 million tonnes in 2023–24.

After 2022–23, LNG volumes are estimated to settle around 80 Mtpa for the remainder of the outlook period. Larger volumes are not expected to rise until 2026, when Woodside’s Scarborough field and Pluto Train 2 projects come online.

#### Revisions to the outlook

Australia’s nominal LNG export earnings for 2022–23 have been revised up by \$2.7 billion due to higher Asian LNG spot prices. Nominal earnings for 2023-24 have also been revised up by \$8 billion due to higher forecast oil prices and spot prices in 2023.

**Table 7.1: Gas outlook**

World	Unit	2021	2022 <sup>f</sup>	2023 <sup>f</sup>	2024 <sup>f</sup>
JCC oil price <sup>a</sup>					
– nominal	US\$/bbl	70.3	105.3	94.5	79.8
– real <sup>h</sup>	US\$/bbl	76.0	105.3	92.0	75.9
Asian LNG spot price <sup>g</sup>					
– nominal	US\$/MMbtu	18.6	30.3	27.6	25.4
– real <sup>h</sup>	US\$/MMbtu	19.9	30.3	26.9	24.1
Gas production <sup>s</sup>	Bcm	4,229	4,207	4,289	4,358
Gas consumption <sup>s</sup>	Bcm	4,246	4,262	4,323	4,404
LNG trade <sup>ds</sup>	Mt	391	411	421	425
Australia	Unit	2020–21	2021–22 <sup>f</sup>	2022–23 <sup>f</sup>	2023–24 <sup>f</sup>
Production <sup>b</sup>	Bcm	160	160	162	162
– Eastern market	Bcm	57.0	54.3	53.9	53.2
– Western market	Bcm	86.7	91.7	92.7	93.3
– Northern market <sup>c</sup>	Bcm	16.1	13.7	15.1	15.8
LNG export volume <sup>d</sup>	Mt	77.4	82.2	79.8	80.2
– nominal value	A\$m	30,477	70,150	83,698	67,982
– real value <sup>e</sup>	A\$m	31,782	70,150	80,832	62,565
LNG export unit value <sup>g</sup>					
– nominal value	A\$/GJ	7.5	16.2	18.7	14.5
– real value <sup>e</sup>	A\$/GJ	7.8	16.2	17.8	13.4
– nominal value	US\$/MMBtu	5.9	12.4	14.7	11.7
– real value <sup>e</sup>	US\$/MMBtu	6.1	12.4	14.0	10.8

Notes: **a** JCC stands for Japan Customs-cleared Crude; **b** Production includes both sales gas and gas used in the production process (i.e. plant use) and ethane. Historical gas production data was revised in the June quarter 2017 to align with Australian Petroleum Statistics; **c** Gas production from Bayu-Undan Joint Production Development Area is not included in Australian production. Browse basin production associated with the Ichthys project is classified as Northern market; **d** 1 million tonnes of LNG is equivalent to approximately 1.36 billion cubic metres of gas; **e** In 2021–22 Australian dollars; **f** Forecast; **g** 1 MMBtu is equivalent to 1.055 GJ; **h** In 2022 US dollars; **r** Average annual growth between 2022 and 2024 or 2021–22 and 2023–24; **z** Projection.  
Source: ABS (2022) International Trade in Goods and Services, 5368.0; Department of Industry, Science, Energy and Resources (2022); Company reports; Nexant (2022) World Gas Model.