

# Global Listed Infrastructure LNG to the rescue

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For financial advisers and qualified/professional/institutional investors only

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The energy crisis in Europe has boosted global demand for LNG

Global listed infrastructure companies pioneered the US LNG industry, investing US\$50 billion since 2010

The energy crisis is providing an opportunity for LNG to secure its role as a transition fuel

With reliability and security of supply increasingly front of mind, US LNG exporters stand to gain market share, underpinning a further US\$50 billion of investment over the next decade

An increased need for natural gas infrastructure will also benefit the broader North American midstream sector

The energy transition and the ongoing Russia-Ukraine war will accelerate global demand for Liquefied Natural Gas (LNG). The mismatch between natural gas producing countries and demand regions, and the need to replace lost natural gas volumes previously sourced from Russia, should present numerous LNG-related investment opportunities for global listed infrastructure companies.

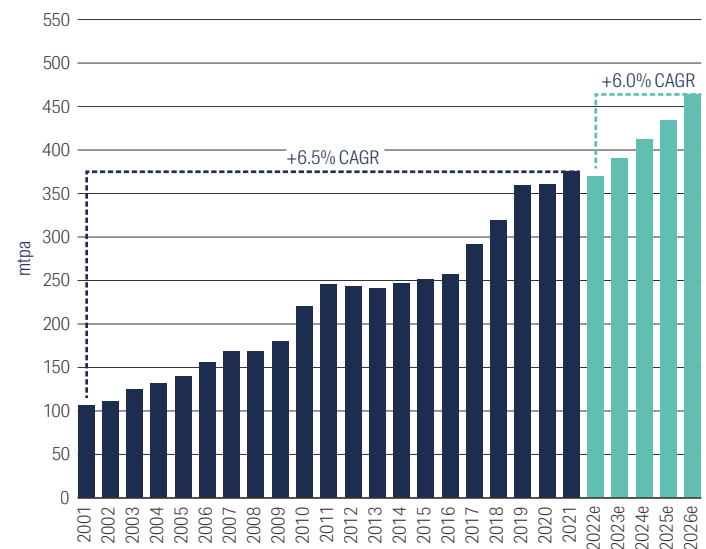
## Global LNG markets

Over the past 20 years, the global LNG trade has increased by ~6.5% pa<sup>1</sup>. This growth has been driven by a larger share of the world's population entering the middle class (ie higher demand from China's urbanisation); along with climate change concerns

that have seen coal generation being replaced by lower carbon<sup>2</sup> and cheaper natural gas. By the end of 2021, there were 39 LNG-importing countries.

From here, we expect that LNG trade volumes will continue to grow, driven by additional European demand; an economic recovery in China once its stringent Zero Covid policies are lifted; and more countries (mostly in Asia) commissioning new LNG infrastructure.

## Global LNG Trade



Source: First Sentier Investors, BloombergNEF as at 30 September 2022  
CAGR: Compound Annual Growth Rate

As demand for LNG has increased, so has the need for associated LNG storage and transportation infrastructure.

The existing global natural gas liquefaction (exporting) capacity<sup>3</sup> stands at 464 mtpa<sup>4</sup>. The US owns the largest asset footprint, accounting for 20% of this total, followed by Australia and Qatar. More than 70% of US capacity is owned by global listed infrastructure companies. Market leaders in this space include Cheniere Energy, Sempra Energy, Dominion Energy and Kinder Morgan<sup>5</sup>.

1. Source: BloombergNEF as at 30 September 2022.

2. Natural Gas emits ~50% and ~30% less CO<sub>2</sub> than coal and oil, respectively.

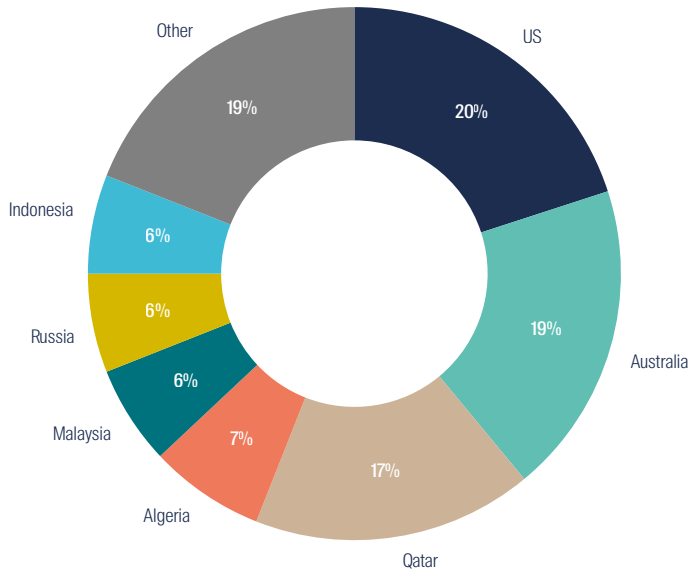
3. Defined as nameplate capacity. Up to September 2022, the utilisation rate was 79%. Excludes projects under construction and/or development.

4. Million tonnes per annum.

5. For illustrative purposes only. Reference to the names of each company mentioned in this communication is merely for explaining the investment strategy, and should not be construed as investment advice or investment recommendation of those companies. Companies mentioned herein may or may not form part of the holdings of First Sentier Investors.

Importantly, global listed infrastructure companies have pioneered US LNG exports by investing over US\$50 billion into the US LNG infrastructure build-out since 2010.

### LNG liquefaction (exporting) capacity per country



Source: First Sentier Investors, International Gas Union Global Gas Report 2022

A further 160mtpa of new liquefaction capacity is currently under construction or development, mostly in the US (42mtpa), Russia (34mtpa) and Qatar (32mtpa). Most of this capacity is expected to be commissioned by 2026/27. This growth is being driven by new and existing players, seeking to benefit from current high global LNG prices. These higher prices are driven by global market supply / demand dislocations. Although we do not expect all of these projects to proceed, the US has the benefit of:

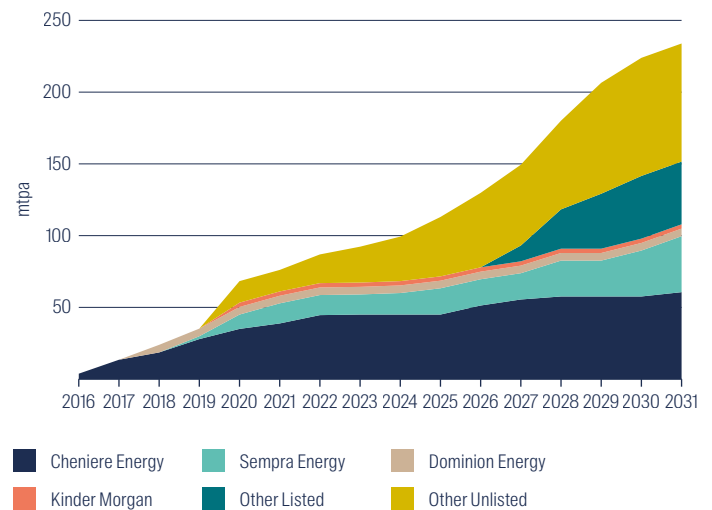
- enormous natural gas resources
- deep/extensive capital markets to fund additional LNG capacity; and critically
- a proven track record of being a reliable and secure counterparty

Many of Russia's planned capacity increases now appear unlikely to be completed, owing to the Western sanctions that have been imposed since its invasion of Ukraine. Australia may also struggle to increase its export capacity as a consequence of its domestic natural gas crises and historic cost over-runs. This means that the US will probably continue to hold the largest liquefaction footprint, increasing its market share to 21% by 2026, followed by Qatar and Australia with 17% and 15% respectively.

Additionally, a further ~100mtpa of LNG projects are being planned in the US alone. Although these planned developments may not all go ahead, the associated US\$100 billion of capex that would be required provides a striking reminder of the huge size of the opportunity facing US companies operating in this sector.

Of this potential US\$100 billion investment, almost US\$60 billion is represented by projects being developed by global listed infrastructure companies. Therefore, we anticipate that listed infrastructure companies will remain a dominant segment of this substantial market, accounting for more than 60% of US-based LNG liquefaction capacity into the future. The investment opportunity is enormous.

### Listed infrastructure companies to maintain the largest market share of US LNG capacity (existing terminals, new capacity under construction and projects being planned)



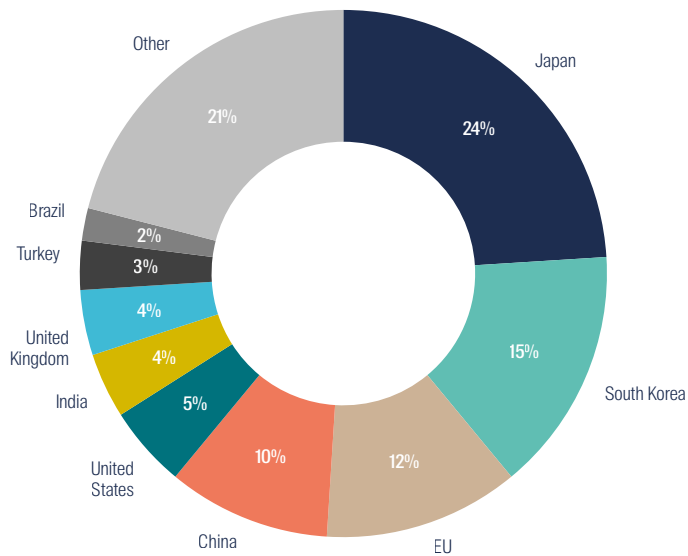
Source: First Sentier Investors as at 30 September 2022

At 902mtpa, the global regasification (receiving) terminal capacity is almost twice as large as the world's liquefaction capacity. Japan owns the largest capacity, followed by South Korea and China.

Interestingly, the US still has 40mtpa<sup>6</sup> of regasification capacity. However these assets have a very low utilisation rate of ~5%, as the US has been an LNG exporter since 2017. Most US regasification (import) terminals have been converted to liquefaction (export) capacity in recent years, reflecting the shift in energy market dynamics and the lower investment intensity of reconverting existing import to export terminals.

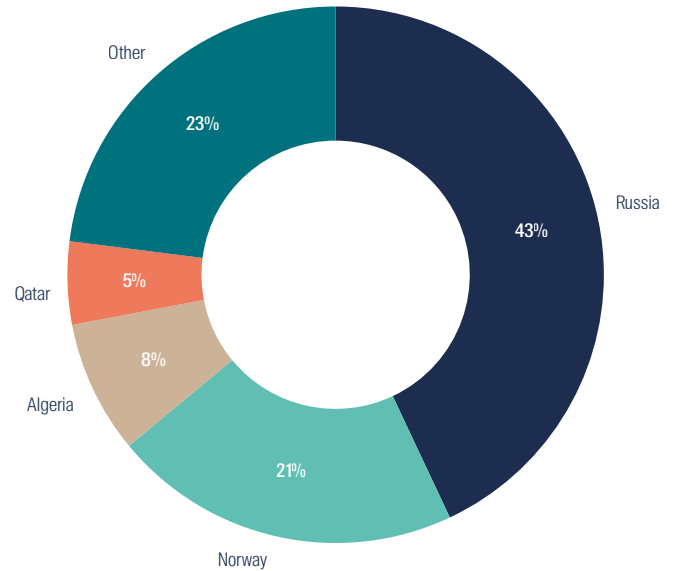
6. Most of the operating capacity is located in Puerto Rico.

### LNG regasification (receiving) capacity per country



Source: First Sentier Investors, International Gas Union Global Gas Report 2022

### % share of Europe natural gas imports, end-2021



Source: First Sentier Investors as at 31 December 2021

## The European energy crisis and the need for more LNG

Natural gas is a key component of the European energy matrix, accounting for ~24% of the continent's energy supply<sup>7</sup>. Importantly, natural gas is the marginal fuel for power generation in Europe, meaning that rising natural gas prices also drive electricity prices higher.

Before Russia's invasion of Ukraine in February 2022, Europe sourced approximately 178 billion cubic meters (bcm) per year (or ~40% of its natural gas needs) from Russia. 160 bcm was imported via pipelines such as Nord Stream I, with a further 18 bcm arriving through Europe's LNG regasification terminals.

Dwindling European natural gas reserves and a new-found resolve by European governments to reduce their dependence on Russian gas, along with Russian export cuts and pipeline disruptions<sup>8</sup>, have created significant opportunities for global LNG suppliers.

The European Commission (EC) has set out a plan to achieve full energy independence from Russia. This action plan, called REPowerEU, aims to reduce Russian natural gas dependency by 100bcm (or two thirds) by the end of 2022, while entirely eliminating Russian imports by 2027.

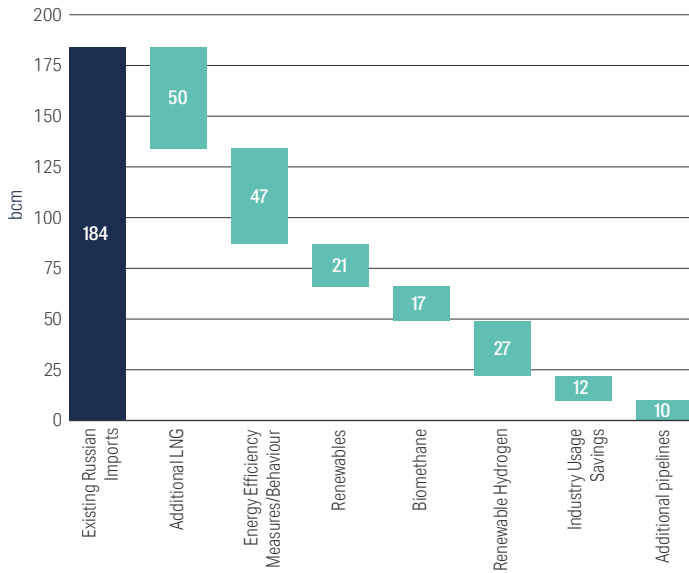
In order to replace these imports, the EC aims to:

- grow LNG imports by 50bcm (including existing and new import terminals)
- increase natural gas imports from non-Russian sources
- accelerate investment in renewables
- increase energy efficiency efforts and push for behavioural changes to reduce consumption
- grow biomethane supply; and
- expand its renewable hydrogen supply

7. Petroleum products, renewables and nuclear energy account for 35%, 17% and 13%, respectively.

8. In September 2022, the Nord Stream I pipeline connecting Russia to Germany suffered leaks and was shut down. Some Western European governments have mentioned "sabotage" as the reason for such leaks.

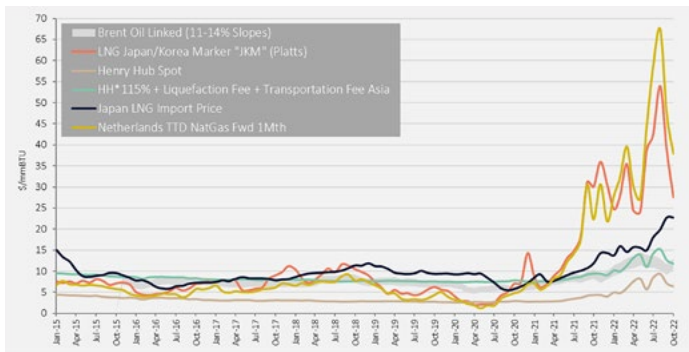
## REPowerEU – an action plan to reduce Russian natural gas imports



Source: First Sentier Investors, BloombergNEF as at 30 September 2022

The EC expects that investments totalling €300 billion will be needed to implement the REPowerEU plan.

## The curtailment of Russian natural gas exports to Europe pushed global LNG prices sharply higher



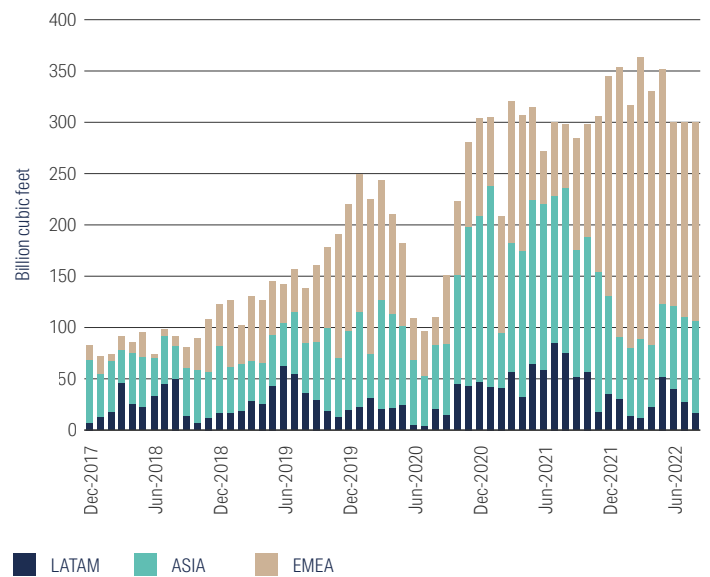
Source: First Sentier Investors, Bloomberg as at 31 October 2022

Europe already has 250bcm of LNG regasification capacity (equivalent to around 185mtpa). However, most of this capacity is located in Spain and the UK, with limited interconnectors to allow surplus natural gas to reach those regions that need it most, such as Germany, Italy and Central Europe.

Six new projects, with a total regasification capacity of 29bcm, are currently being built. Additionally, some countries are chartering or purchasing Floating Storage Regasification Units (FSRUs) for an additional capacity of almost 22bcm. These vessels can be deployed faster and become operational in a shorter timeframe than permanent importation facilities.

To replace 180bcm of Russian natural gas imports will be a herculean task. To put this into context, 180bcm is equivalent to ~130 mtpa of LNG. Currently, the US and Australia, the two countries that export the most LNG, have the capacity to export 93mtpa and 88mtpa, respectively. Therefore, in order to replace Russian imports, there is a need to "create" almost 1.5x the existing export capacity of one of those countries. Interestingly, in the short term, the weakness in the Chinese economy (due to Covid Zero policies and weakening exports due to a slowing global economy) has helped to meet Europe's LNG demand, with some LNG cargoes being diverted from China to Europe. Nevertheless, in the long term, more LNG capacity will be required to meet Europe's demand.

## The US has substantially increased its LNG exports to Europe



Source: First Sentier Investors, US Energy Information Administration as at 31 August 2022

## Contracts

Year to date, there has been an acceleration in LNG offtake agreements. These have reached 70mtpa so far this year, compared to 50mtpa in 2021. This is being driven by buyers racing to sign on long term contracts to secure supply in a rapidly tightening market. The tenor (or contract maturity term) has extended to almost 16 years on average, evidence that LNG suppliers need long term contracts to be able to secure the funding that is needed to build new liquefaction terminals.

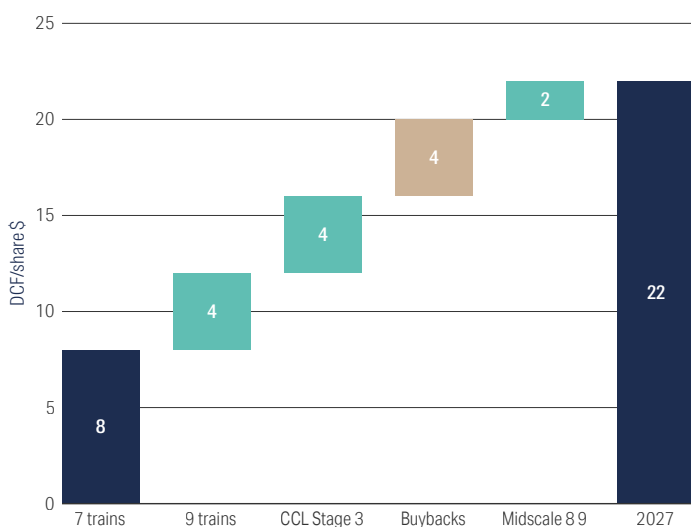
Almost 70% of these new contracts have been executed with US-based LNG producers.

## US listed LNG companies

Of particular interest to our team are three portfolio holdings that own and operate extensive US LNG export infrastructure assets; namely Cheniere Energy, Sempra Energy and Dominion Energy<sup>9</sup>. Another listed infrastructure company with a LNG footprint is Kinder Morgan.

Cheniere Energy is the largest independent US LNG producer, and the only listed pure-play LNG company in the world. It has been a portfolio holding since the second quarter of 2019. Originally a small company with a US LNG import (regasification) terminal, Cheniere foresaw over a decade ago that the nascent shale fracking boom would turn the US from an energy importer to a hydrocarbon exporter. Now with a total liquefaction capacity of 45mtpa, Cheniere alone accounts for almost half of the US' existing LNG export capacity. The company has benefitted substantially from booming LNG prices, as part of its export volumes are sold on spot markets. This has enabled Cheniere to almost double its earnings guidance for 2022.

### Cheniere earnings upgrades from LNG export demands



Source: First Sentier Investors, Cheniere Energy (top end of guidance range) as at 12 September 2022  
 DCF: Distributable Cash Flow  
 CCL: Corpus Christi Liquefaction

It has recently announced plans to expand one of its LNG sites by an additional 10mtpa, as well as developing a further 3.4mtpa. Given its large amount of available land, we expect Cheniere to further expand its capacity beyond 50mtpa.

### Cheniere's Corpus Christi LNG export terminal



Site visit to Cheniere's Corpus Christi assets (November 2022).

Sempra Energy is a regulated utility based in California, which also owns LNG assets in Texas with a total export capacity of 14mtpa. The company is currently building an additional LNG export project in Mexico with a capacity of 3.3mtpa, and has the opportunity to develop a further 21mtpa, including the likely expansion of Cameron LNG Phase 2 and greenfield project Port Arthur LNG.

Large-cap regulated utility Dominion Energy owns a stake in Cove Point LNG Terminal, which has 5mtpa of LNG export capacity in Maryland, on the US east coast. We believe all three companies are uniquely positioned to benefit as this substantial theme in global energy markets plays out.

Kinder Morgan is an energy midstream company whose assets include the Elba Liquefaction facility in Georgia, with a total capacity of 2.5mtpa. Interestingly, in September 2022, Kinder Morgan divested an equity stake in this facility for 13x EBITDA<sup>10</sup>, reflecting the strong fundamentals and appealing value proposition of this type of asset.

9. The companies mentioned here represent a complete list of the stocks held by the portfolio as at 30 November 2022 that own or operate US LNG export facilities.

10. Earnings before interest, taxes, depreciation and amortisation

## The Energy Midstream opportunity

The continuing development of the US LNG industry will also provide an ongoing growth driver to the broader energy midstream sector. Any new LNG terminals that are built will have to be supplied with natural gas. Therefore, new gathering, processing, transportation and storage capacities will need to be developed alongside LNG terminals.

Currently, the US produces around 100 billion cubic feet per day (bcf/d) of natural gas. If the entire 100mtpa of US LNG export capacity currently being developed goes ahead, this will probably increase US natural gas production volumes by more than 15%. Natural gas export volumes would increase from their current 10% to represent almost 20% of US production.

This would likely benefit listed infrastructure companies including Williams, TC Energy, Enbridge Inc., Kinder Morgan and DT Midstream.

## Conclusion

We believe the global LNG industry will accelerate its expansion, driven by increasing European demand (to replace Russian imports) and the energy transition.

US-listed LNG players, developers of LNG capacity since the early 2010s, appear set to benefit from additional investment opportunities at attractive risk-adjusted rates of return. We anticipate more than US\$50 billion of additional capex needs in this space over the next decade.

This will also expand investment opportunities for the rest of the energy midstream complex, as it moves to meet the additional appetite for natural gas exports.



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