



Feb-2021 Global LNG Outlook

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The world LNG market dynamics became key in determining the European and the Italian natural gas pricing, with the old continent being a marginal target market compared to Asia.

Before the COVID-19 pandemic, the **LNG** market was expected to oversupply in the short-term. However, new capacity development delays and a faster than expected recovery of the Chinese economic growth rise the risk for the market coming under pressure over the coming years in the event of colder than average winters and/or temporary supply disruptions.

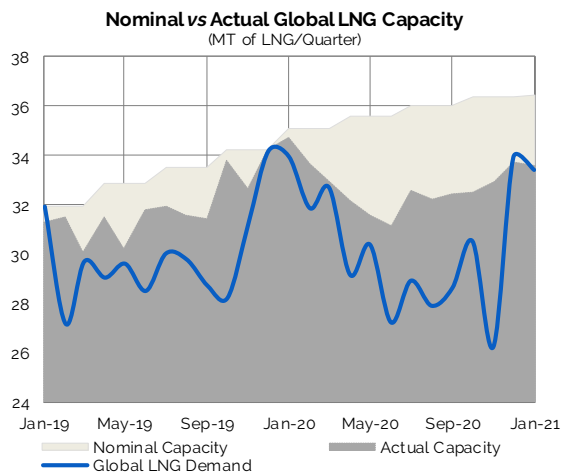
LNG MARKET OUTLOOK: 2021 IS A DEFINING YEAR

While year 2020 investments were hardly hit by the pandemic, with just one FID having been successful, the beginning of year 2021 brings one of the most relevant investment decisions in the LNG market history. The Qatari expansion move will increase pressure on the other producers and their reactions over the coming months is likely to shape the medium-term market equilibrium.

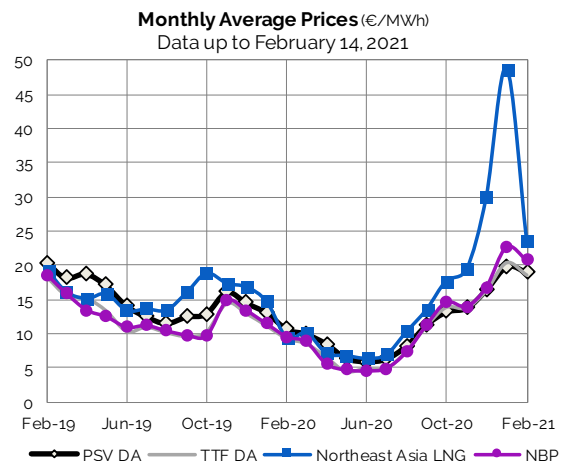
A Turmoiled New Year Kick Off

The LNG price marked a new high in January, with the North East Asia reference having averaged above 48.5 €/MWh. This winter sharp up-move was fuelled by very short-term factors, which are already fading. However, the latter bullish dynamic provides a significant indication on potential futures bullish patterns which may develop should the supply-demand margin remain structurally low.

Colder-than-average winter temperatures in Northeast Asia, compounded by lower nuclear availability in Japan and limits on coal-fired power plants in Korea, boosted Asian LNG demand (and the Chinese one in particular) in early January 2021 (+20% on average year on year).



Source: REF-E Elaborations on Reuters data



Source: Alba and WGI (€/MWh)

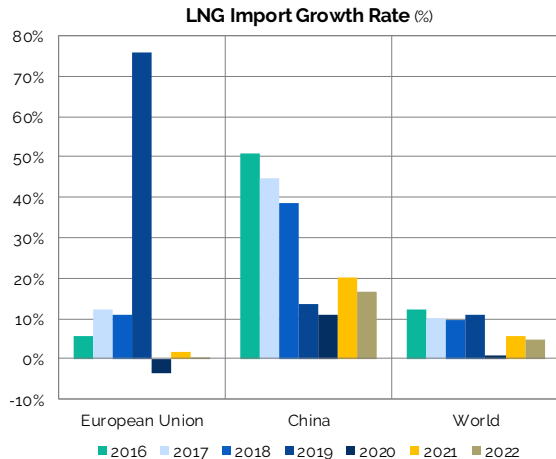
Tightening LNG supply was exacerbated by several outages of regional liquefaction plants (such as the Australian Gorgon LNG) which led to an increase in spot sourcing from more remote suppliers. Longer transatlantic shipments and congestion at the Panama Canal heated charter rates and marked a rally in gas prices.

Many US LNG cargoes have been diverted towards Asian buyers rather than the European ones, who are still facing poor LNG availability. The recent rise in temperatures in North East Asia and the gradual resumption of LNG production in the Pacific areas pushed prices back lower though, with risk for a weakening of the short-term fundamentals and uncertainty on the next pandemic and economic development still weighing.

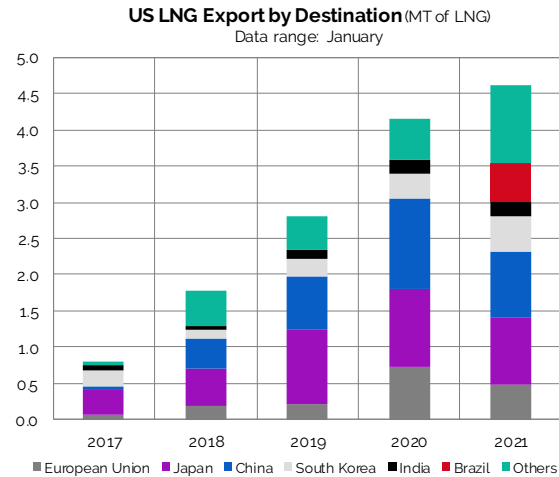
LNG Import-Export and Demand Perspectives

The LNG demand world growth rate fell to 1% in year 2020 from an average growth rate higher than 10% between 2016 and 2019. The European import fell 4%, while the Chinese import grew 11%. The world demand growth is expected to be 6% and 5% in years 2021 and 2022 respectively, with China seen as the main driver.

Emerging markets are also growing. Brazil should drive Latin American LNG demand growth over the coming years (Jan-2021 imports have already exceeded those of the entire 2019 overall). The country faces a combination of low domestic production and significant growth in demand (+ 190% in 2020 compared to 2019), with a new regulatory framework that, since September 2020, promotes market competitiveness. With imports from Bolivia declining amid maturing fields and a lack of investments, the more competitive LNG will likely replace the pipeline supplies.



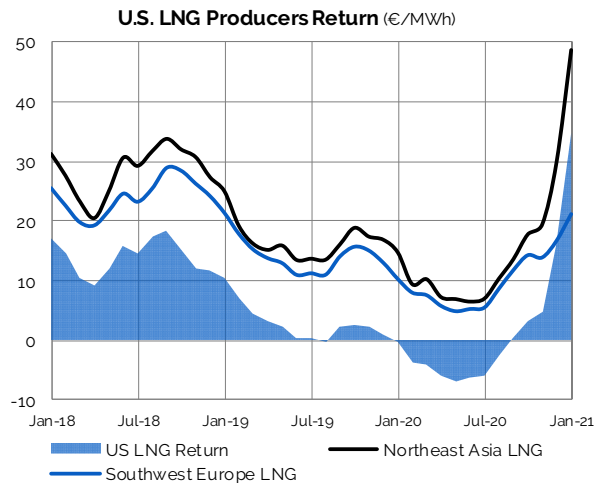
Source: REF-E Elaborations on Reuters data



Source: REF-E Elaborations on Reuters data

Liquefaction Capacity Growth

Global LNG liquefaction capacity rose by around 5% in 2020 compared to 2019, when **the growth rate** was close to 10%. Less than 20 Mtpa of liquefaction capacity was brought on-stream in 2020 (compared to almost 35 Mtpa in 2019, mostly from the US, **Russia**, and Australia). In 2020 in the USA entered in operation the second and third trains of the Cameron LNG, the last trains of the Elba Island facility and the last train of the Freeport LNG plant. At the end of the year, the first production from Petronas' second offshore plant, PFLNG Dua, in Malaysia also started. COVID-19 containment measures combined to low gas prices had a negative impact on both under-construction projects and FIDs, with US producers return having been negative between January and September 2020 (Remuneration of U.S. LNG producers is here calculated by subtracting shipping costs from the LNG reference prices in Southeast Europe and Northeast Asia). A growth rate lower than 5% is expected for 2021.



Source: REF-E Elaborations

Based on available data, almost 300 Mtpa of liquefaction capacity is still in the pre-FID stage. Only the Sempra facility *Energia Costa Azul* in Baja California, Mexico, took the FID in 2020, with first production expected in 2023. The most critical situation comes from the U.S. with almost 150 Mtpa of liquefaction capacity in pre-FID status, most of which expected in 2020 and been delayed due to the pandemic.

Many others are under construction along the Gulf Coast, among which *Calcasieu Pass* (11 Mtpa), *Golden Pass* (almost 16 Mtpa) both starting between 2024 and 2025.

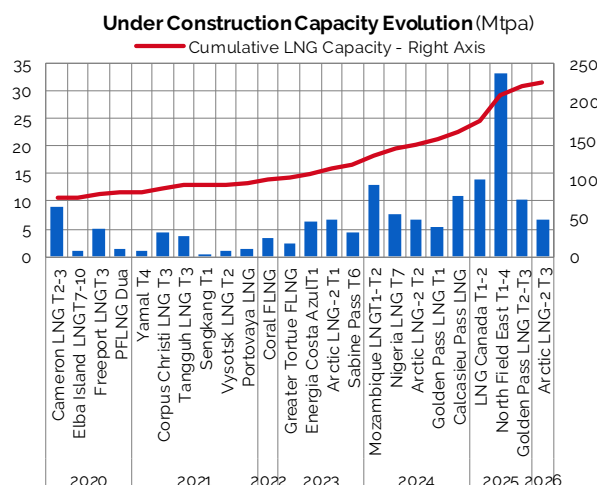
Among producers, Australia has the largest existing liquefaction capacity to date (over 80 Mtpa) but will likely be overtaken by Qatar and United States in the coming years as new capacity is commissioned. However, Qatar maintained its position as the major LNG exporter in 2020 (78 Mt) followed by Australia (77 Mt), USA (48 Mt), Russia (29 Mt) and Malaysia (24 Mt).

Based on recent available news, we expect that the Australian 5 Mtpa Pluto Train 2 Project could reach a FID in 2021 as Woodside expanded its long-term LNG supply agreement with Germany's Uniper which doubled to 2 Mt starting from 2026.

The recovery of Asian demand should support the ongoing Australian investments which could overcome the problems related to the recent *Gorgon LNG* disruptions and the *Prelude FLNG* after almost a year of outage.

In Russia, however, it seems that construction works are proceeding according to plan, except for the temporary suspension of the expansion project of *Sakhalin II* (Train 3).

There are also some projects in standby or cancelled status, mainly for lack of fundings (such as the *Stealthed LNG Kwispaa* facility in Canada for a total of 24 Mtpa or the *Woodside Browse LNG* project of 10 Mtpa in Australia) or in areas subject to a strong geopolitical risk, like the *Bioko LNG* expansion in Equatorial Guinea (4.5 Mtpa).



Source: REF-E Elaborations

Table 1. Liquefaction Projects in Pre-FID Stage

Country	Plant	Expected FID	Expected Start Year	Capacity (Mtpa)
Australia	Pluto LNG T2 (Scarborough)	2021	2025	5
Australia	Darwin LNG (Barossa) T2	2021	2023	6
Cameroon	Cameroon FLNG Expansion	Not Defined	2026	1
Canada	Woodfibre LNG	2021	2025	2
Canada	LNG Canada Expansion T3-4	Not Defined	2026	13
Canada	Kitimat LNG	Not Defined	2027	10
Canada	Goldboro LNG T1-2	2021	2025	10
Canada	Bear Head LNG T1-2	Not Defined	2023	2
Indonesia	Sengkan Expansion T2-4	Not Defined	2026	2
Indonesia	Abadi LNG	Not Defined	2027	10
Mauritania	Greater Tortue FLNG T2	2023	2026	3
Mexico	MPL Puerto Libertad T1-2	2021	2024	12
Mozambique	Rovuma LNG T1-T2	2022	2025	15
PNG	Papua LNG T1-2	2022	2026	9
Qatar	North Field South Expansion T5-6	2022	2027	16
Russia	Baltic LNG T1-2	Not Defined	2025	10
Russia	Obssky LNG T1	2021	2024	5
USA	Texas LNG Brownsville T2	2021	2025	2
USA	Texas LNG Brownsville T1	2021	2024	2
USA	Rio Grande T1-5	2021	2023	27
USA	Port Arthur LNG T1-2	2021	2024	11
USA	Plaquemines LNG Phase-1	2021	2024	10
USA	Magnolia LNG	2021	2026	9
USA	Lake Charles	2021	2025	15
USA	Jordan Cove	Not Defined	2025	4
USA	Gulf LNG Pascagoula T1-2	Not Defined	2025	11
USA	Freeport LNG T4	2021	2026	5
USA	Driftwood LNG T1-2	2022	2025	17
USA	Delfin FLNG	2021	2024	13
USA	Cameron LNG T4-5	2021	2026	8
USA	Annova LNG T1-6	Not Defined	2025	6
USA	Alaska LNG T1-3	2021	2025	20
USA	Delta LNG T1-2	2021	2025	10
Total				299

Source: REF-E Elaborations

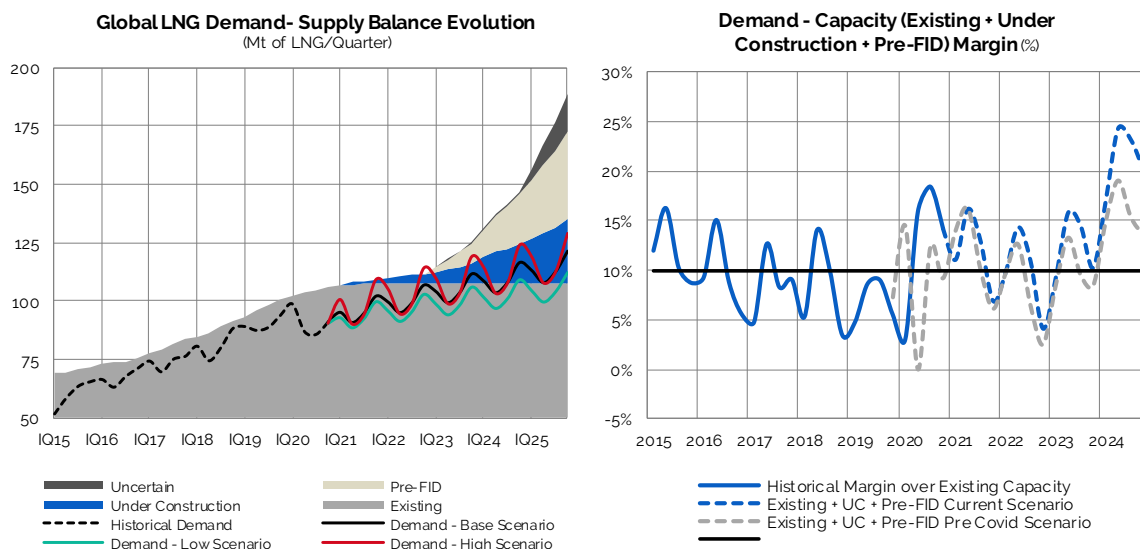
On February 8th, 2021 **Qatar Petroleum took the FID on its North Field East LNG facility**, the first phase of the expansion project that will boost the Qatari liquefaction capacity from the current 77 Mtpa up to 110 Mtpa by 2026. A second phase should follow over the coming years, the *North Field South*, with an increase of a further 16 Mtpa. Qatar is securing a share of the Asian market amid meeting the growing additional demand from emerging importing countries in the Asia-Pacific regions, such as India, Pakistan and Thailand (+10% on average in 2020 compared to 2019).

Qatar has also set itself a target of reducing greenhouse gas (GHG) emissions, including plans to capture and store more than 7mn t/yr of CO₂ from its operations by 2030. The plan is part of a sustainability strategy, act aiming at reducing the emissions intensity of Qatar's LNG facilities by 25pc and of its upstream facilities by at least 15pc and reducing flare intensity across upstream facilities by more than 75pc.

Qatari mega-expansion increases pressure on U.S. producers

The Middle Eastern expansion move would increase pressure on U.S. producers still having many projects in Pre-FID status. Returns for US producers came back into positive territory just recently, supported by the gradual recovery of demand and then benefited from Asian spot prices at record levels over the last weeks. Qatar has lower production costs than those of its major competitors and its perspective competition may take a toll on new liquefaction projects elsewhere.

Demand-Supply Balance



Source: REF-E Elaborations

Source: REF-E Elaborations on Reuters data

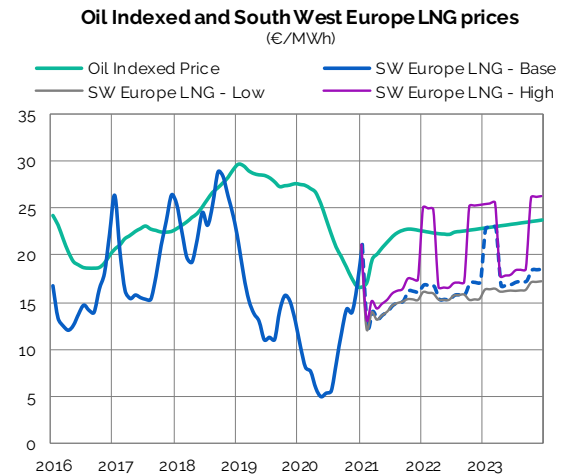
In case of oversupply and low demand, the margin between potential demand and available supply tends to open beyond the historical average value of 10%, as happened last summer. A slight compression of the margin below 5% could be seen in the winter between 2022 and 2023, without reaching a significant level of risk though, under the base case hypothesis of a recovery in demand close to pre-Covid levels and an increase in expected liquefaction capacity (existing, already under construction and pending those FIDs delayed in 2020). Should new investments be delayed further, then a greater margin squeeze would be possible over the same period putting market under pressure

LNG prices

Over demand-supply shortages the LNG price tends to gain correlation with the Oil Indexed formulas, as it happened last January, when the LNG demand was slightly higher than the actual available capacity net of the observed outages.

The lower bound of the SW Europe LNG price is estimated based on the assumptions of a global oversupplied market and consequently a large available margin between demand and supply (Low scenario). The upper bound (High scenario) represents instead a low-capacity scenario (only the existing one) that must face the market demand.

LNG price in the South West Europe area is now settling just below 20 €/MWh and will end up in around 15 €/MWh in 2021 on average, under the base case hypothesis of a gradual demand recovery and projects under construction that proceed according to the producers' plans. However, in the event of supply shortages and/or higher than normal demand, prices may spike up to 25 €/MWh.





DIRETTORE RESPONSABILE

Virginia Canazza

DIRETTORE OSSERVATORIO ENERGIA

Claudia Checchi

COORDINAMENTO

Simona Soci

GRUPPO DI LAVORO

Silvia Checola, Giacomo Ciapponi, Paolo Ciliento, Federico Clementi, Antonio De Paola, Elena Ferri, Tommaso Franci, Ana Georgieva, Valeria Ghirardi, Paolo Marino, Marco Pellegrino, Giorgio Perico, Alejandro Sanchez Ben, Ralph Sassun, Clio Scandola

EDITORE

REF-E srl

Via Gioberti 5 - 20123 Milano
www.ref-e.com - info@ref-e.com

PRESIDENTE

Pia Saraceno

SEGRETERIA, EDITING E GRAFICI

Dalia Imperatori

Tel. +39 02 43441022- Fax +39 02 43441027
E-mail: dalia.imperatori@ref-e.com

SOTTOSCRITTORI

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REF-E SRL

Via Vincenzo Gioberti 5 - 20123 Milano
info@ref-e.com - www.ref-e.com