

FUTURE OF LNG MARKET: SHORTAGE OR OVERSUPPLY?

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Overview

The global economy is cautiously walking away from the shadow of the unprecedented challenge of the COVID-19 pandemic. We are observing a reset of the world energy outlook for the longer term and an accelerated energy transition towards a less carbon-intensive energy mix, which envisions a cleaner, environmentally more friendly future.

LNG might be the last great opportunity in the oil and gas industry. LNG trade has been historically showing remarkable development over the past two decades with over 3.5 times growth, ramping up from 103 million tonnes (mt) in 2000 to 356 mt by the end of 2020. COVID-19 impact on LNG trade was severe, especially in Q2 and Q3 2020, due to massive lockdowns and multiple various disruptions across the globe. However, by end of 2021, LNG trade grew to its record number, mostly driven by Asia's steady demand and underlying global economic recovery.

Though the overall LNG market was much more robust compared with the oil market through the course of the pandemic, there were significantly increased volatility in traded volumes and extreme turbulence in spot prices. Late 2021 recorded extreme highs in spot prices in Atlantic and Asia Pacific basins, replacing the record lows of early 2020 in a blink of an eye. Better than anticipated post-Covid-19 economic recovery in 2021 and two colder winter seasons in a row – 20/21 and 21/22 – were behind the natural gas demand upsurge. The natural gas supply was not able to balance out as it experienced many planned and unexpected outages. Hereby, the 2H 2021 continued living through a period of extremely high prices exacerbated closer to the 2021 end in major demand markets of Asia and Europe.

In less than 2 years the expert community shifted from a strong oversupply of LNG markets view in the medium term to the strong anticipation of considerable undersupply/shortage in the LNG markets. The short- and mid-term natural gas supply-demand tightness is anticipated to prevail throughout 2022-2024 due to a number of factors: first and utmost, geopolitical tensions driven by the Russian-Ukrainian crisis and the European energy crisis as a consequence, second, the pace of post-COVID recovery with the development of new variants as well as vaccination rollouts.

While exacerbating Russian-Ukraine geopolitical tension is hitting Russia's energy exports by complicating the financing and logistics of existing deals and the European Union (the EU) is seeking to limit Russian gas flows, Russia supplies around 40% of the EU's natural gas and in 2021 it exported 155 bcm¹ of gas to Europe. The EU's REPowerEU plan² (Plan) aiming at reducing dependence on Russian gas by 2/3 (or 100 bcm) by 2022 end is conflicting with the EU's goal to replenish its gas storage up to 80% by November the 1st, 2022. Replacing a significant amount of Russian gas will be exceedingly complicated for the EU. Amid the EU debates on further sanctions on Russian gas and oil, seeking to diversify gas supplies, ramping up the LNG imports, Russia has been developing ties with China, the world's top energy consumer, and other Asian countries.

Russian gas industry will be negatively impacted by the potential loss of the European gas market, whilst the road to Asia will be long and challenging. It will take at least a decade for Russia to scale up its gas exports to Asia. It will also imply significant capital expenditure, technological robustness, especially for further LNG deployment, and the profit margins might not be the same as in the case of a giant European market, where economies of scale and comprehensive costly export infrastructure are already in place. Rapid gains might be obtained by 2025. In total, by 2025, Russia could be delivering 60 - 80 bcm to China and Asia due to Power of Siberia full capacity ramping up to 38 bcma by 2025 and rerouting around 12 bcma of Yamal LNG. Arctic LNG T1 could also introduce an additional 9 bcm for the Asian market. After 2025, this path might require more investment and time. Gazprom signed a 10 bcma contract with CNPC for gas supplies from Sakhalin, potentially starting by 2025/2026. The Arctic LNG T2,T3 might be postponed into 2025-2030 due to the sanctions, especially the 5th EU sanctions package, limiting the use of liquefaction technologies for Russian liquefaction projects. Their start-up could provide 18 bcm of LNG to Asia. The real game-changer would be the 50 bcma Power of Siberia 2 pipeline, connecting West Siberia's fields to China and building the interconnector between Russia's western and eastern pipeline infrastructure. In the best case, Power of Siberia 2 may be launched after 2030, allowing Russian gas supplies to ramp up to

¹ <https://www.rystadenergy.com/newsevents/news/press-releases/a-perfect-and-unavoidable-storm-LNG-supply-crisis-will-make-landfall-in-winter-2022/>

² https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511

Asia to their 2021 levels to the EU. In total, beyond 2030, Russia could be delivering 160 - 180 bcm to China and Asia, comparable with its export volumes to Europe.

So, it is considered very timely to undertake a study enabling to elaborate on the revised LNG supply-demand balance outlook up to 2040 while checking on major developments related to the LNG future infrastructure developments (LNG liquefaction and regasification facilities).

Methods

The underlying study of global LNG trade is to use calibrated data generated by the GECF Global Gas Model (GGM) up to 2040 in order to determine LNG trade flows and to provide guidance on the undersupply (shortage) /oversupply of LNG in the global natural gas markets over the medium and long term, and their consequent impact on prices.

The use of GGM will enable finding out how the LNG trade flows change based on the timing of the project schedules and capacity going as planned with implemented the project schedules announced. GGM is a unique long-term energy forecasting model, representing the most comprehensive and granular view of natural gas markets available. The GGM is capable of producing a comprehensive energy balance of 136 country-level forecasts with over 85 regional and economic aggregations, spanning 35 fuels over 37 sectors, through to 2050. Energy and natural gas demand forecasts are derived from a set of scenario assumptions, based on 100 indicators that represent macroeconomic and energy price data. The core engine of the GECF GGM is the Global Gas Trade Model, which matches gas supply and demand curves for all modelled countries and solves for global gas prices and trade flows. Gas exports are forecasted over the infrastructure network, which spans 637 liquefaction plants, 813 regasification plants, and more than 4,500 gas pipeline and shipping routes. Data on annual contracted and delivered volumes is based on more than 1000 company-to-company contracts.

Results

The results will highlight key challenges and opportunities for the natural gas producing countries and their respective LNG flows given the marginal cost of production and geopolitical constraints resetting the European natural gas demand pattern and corresponding supply mix. It also considers and evaluates outcomes of the potential increase/decrease in the natural gas demand, allowing the gas-producing countries to benefit out of the inter-fuel competition (replacing coal, etc.) given the downward price response as an outcome of the oversupply or an upward price move in the case of observed shortage/undersupply of LNG in the market over the projected timespan (up to 2040).

Conclusions

The results of the underlying study are of crucial importance for major stakeholders of the natural gas industry (IOCs, NOCs, international banks and other financial institutions, governments, etc.) in their activity of carrying out economic and investment decisions pertaining to various upstream and midstream projects. In the world of growing uncertainty induced by the COVID-19 and post-COVID recovery as well as the European energy crisis as a consequence of the Russian-Ukrainian geopolitical conflict in the short to mid-term and longer-term global energy transition challenge, it might prove instrumental to have a better insight into the global natural gas demand-supply balance and, as a consequence, to shed light onto the LNG trade supply-demand outlook.

References

- Okogu, Bright (2006). "Issues in Global Natural Gas: A Primer and Analysis". IMF Working Paper No. 02/40.
- Cayrade, Patrick (2004). "Investments in Gas Pipelines and Liquefied Natural Gas Infrastructure. What is the Impact on the Security of Supply?" Beicip Franlab - Energy Department.
- Moore, Michal, and Hackett, David, and Noda, Leigh, and Winter, Jennifer, and Karski, Roman, and Pilcher, Mark (2014). "Risky Business: The Issue of Timing, Entry and Performance in the Asia-Pacific LNG Market" SPP Research Paper No. 7-18.
- GECF. Global Gas Outlook 2020. Global Gas Outlook 2019.
- Fazeliyanova, Galia (2021) " Post-COVID-19 Recovery of LNG Market: What's Next?" Expert Commentary. GECF.
- GIIGNL. Annual Report 2021. The LNG Industry. Annual Report 2022. The LNG Industry.
- BP Statistical Review of World Energy 2020.
- Robertson, Bruce (2021). Gas and LNG Price Volatility To Increase in 2021. Gas/LNG. January 2021. Institute for Energy Economics and Financial Analysis. <http://ieefa.org/wpcontent/uploads/2021/01/Gas-and-LNG-Price-Volatility-To-Increase-in-2021-January-2021.pdf>
- GIIGNL. The LNG Industry 2012. https://giignl.org/sites/default/files/PUBLIC_AREA/Publications/giignl_the_lng_industry_2012.pdf