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1 Introduction

matically impacting long-term contracts that form the basis of much EU-Russia LNG trade. Under a full 'EU embargo' scenario, sanctions on Russian LNG would force companies to declare force majeure on long-term contracts and no Russian LNG would enter the EU.

A fourth approach, 'EU embargo with EU Energy Platform', would see the bloc tear up the existing trade structure and return to the table as one entity to negotiate. This could be done through the new EU Energy Platform for joint purchasing of gas⁶, which might make offers to purchase limited volumes of Russian LNG, which would be phased out over time, depending on the situation in Ukraine. This approach could be complemented by the introduction of a price cap on Russian LNG imports that rely on EU or G7 services, including trans-shipments, vessels and shipping insurance.

To assess the options, we begin by providing an overview of the growing role LNG (including from Russia) plays in Europe's gas mix. We assess the impacts on the EU of an end to Russian LNG imports, by evaluating quantitatively the impact on gas balances and storage, to identify whether the EU would manage without Russian LNG. In investigating the impacts on Russia, we discuss the nature of LNG exports from Russia to the EU, which are characterised by long-term contracts and the multi-nationally owned Yamal liquefaction plant. Finally, we discuss the impacts of the options available to the EU on global LNG markets and Russia.

2 The growing importance of LNG

Increased LNG imports, alongside domestic demand reduction, prevented the European Union from running out of natural gas during the peak of the energy crisis in 2022. Together, these measures enabled a remarkably smooth transition away from the EU's historically largest supplier – Russia. Russian pipeline exports made up about 40 percent of the EU's total gas supply prior to the invasion of Ukraine, but today account for less than 10 percent. In the year from 1 April 2022 to 31 March 2023, the EU imported 950 terawatt hours (TWh) less of Russian pipeline gas than in the previous 12-month period. The EU made up for the shortfall by boosting imports from other sources and reducing demand (Figure 1).

Figure 1: Changes in EU gas imports and demand, 1 April 2022 to 31 March 2023, compared to the previous 12-month period (April 2021 to March 2022)

In 2022, the EU's imports of LNG increased 66 percent year-on-year. The largest proportion of this growth came from the United States, while Russia is currently the second largest provider of LNG to the EU, though far behind the US. In the first quarter of 2023, Russian LNG exports to the EU were 51 TWh, accounting for 16 percent of LNG supply and 7 percent of total natural gas imports.

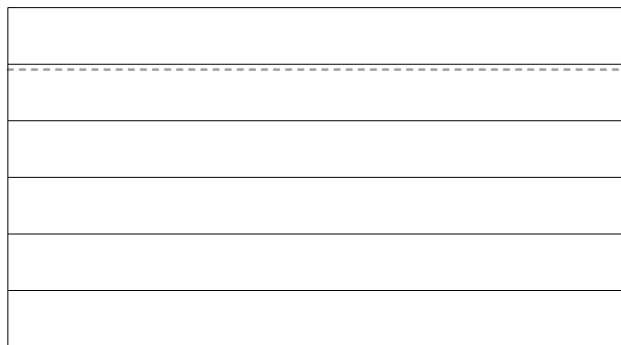


3 EU gas balances without Russian LNG

In the *EU embargo* scenario, all Russian LNG would stop flowing to the EU. This might also be the case in the *EU Energy Platform* scenario, and might happen irrespective of EU decisions if Russia chooses to block exports. We therefore assess the impact of an immediate halt to Russian LNG supplies by modelling the evolution of EU gas balances and storage, performing a separate analysis for the Iberian Peninsula and the rest of the EU (EU25). Scenarios begin with actual gas storage of 746 TWh in the EU25 and 36 TWh on the Iberian Peninsula as of 1 June 2023. We make assumptions about natural gas imports, with and without Russian LNG, based on the most recent flows (see Annex 2).

In our baseline scenario, demand reduction would continue to be 15 percent below the pre-year average. This is in line with the March 2023 Council of the EU agreement to maintain a 15 percent demand reduction target until March 2024⁷, and recent observations of actual demand reductions (McWilliams and Zachmann, 2023). Figures 4 and 5 show our results.

Figures 4: EU25 gas storage evolution with and without Russian LNG



Source: Bruegel.

Figure 4 shows that the EU25 will be well able to fill storage facilities over the summer months without any Russian LNG, with the only consequence being a slight postponement of the moment when storage reaches full capacity. While stored volumes will deplete at a marginally faster rate, the EU25 will also not face a substantial additional challenge to manage the winter of 2023-24.

It is notable that under both scenarios, storage would reach maximum capacity before winter months start to see draws on storage. The EU would be able to prepare better for winter 2023-24 if it had greater storage capacity. One area for exploration in this respect is the extent to which gas storage sites in western Ukraine could be used for storing excess gas that would benefit both the EU (largely eastern regions) and Ukraine.

⁷ See Council of the EU press release of 28 March 2023, <https://www.consilium.europa.eu/en/press/press-releases/2023/03/28/member-states-agree-to-extend-voluntary-15-gas-demand-reduction-target/>.

Figure 5: Iberian Peninsula gas storage with and without Russian LNG

Source: Bruegel.

For the Iberian Peninsula we assess three scenarios. Again, all scenarios assume that the 15 percent demand reduction target is met. In scenario A, all imports remain the same as they have in the past months (including Russian LNG), and the draining of gas storage facilities over the winter would be at typical levels, with the Peninsula comfortably managing.

4 Russian LNG exports without the EU

In any scenario in which Russian LNG stops flowing to the EU, the impacts on global markets and Russian revenues will depend on Russia's ability to redirect cargos. If Russia is not able to redirect cargos, the extra demand from the EU in the market will have the effect of pushing up global LNG prices in a competition for a temporarily tighter supplies of global LNG.

In 2022, Russian LNG exports to the EU amounted to 197 TWh, or 44 percent of Russia's total LNG exports. Exports to China accounted for a further 20 percent, and the rest of the world 36 percent. Figure 6 shows the evolution of these shares over the past three years.

Figure 6: Russian LNG exports by destination

were still feasible in a scenario in which direct Russian LNG trade with the EU ends. Russia is also developing its own abilities for trans-shipment via domestic ports, including Murmansk.

Figure 7: Transportation of LNG from Yamal terminal to buyers

Source: Bruegel based on Natural Gas World, 'Project Spotlight: ARC7 LNG Carriers [LNG Condensed]'; 13 January 2021, <https://www.naturalgasworld.com/project-spotlight-arc7-lng-carriers-lng-condensed-83812>.

BOX 1: Status of EU-Russian LNG trade

Exports to the EU from Russia mainly depart from the Yamal LNG terminal. The terminal has an export capacity of 16.5 million tonnes LNG per annum (235 TWh). The ownership of the terminal is a joint venture between Novatek (50.1 percent), Total Energies (20 percent)¹², China National Petroleum Cooperation (20 percent) and the Silk Road Fund (9.9 percent). Over 90 percent of the exports from the Yamal terminal are covered by long-term contracts (Table 2). To attract this foreign investment into the Yamal LNG terminal, the Russian government provided a temporary exemption for exports from export duty and mineral extraction taxes. Firms that export from the terminal do pay a 34 percent tax on profits (Corbeau, 2023).

Table 2: Yamal long-term offtake agreements (TWh)

Total	226
Total Energies	57
Naturgy	36
Shell	13
Gazprom	43
Novatek	36
CNPC	43
Spot	9

Source: Yermakov and Sharples (2021). Note: contracts typically run until between 2038 and 2045.

¹²

e terms of these contracts are not publicly available, and therefore we do not have infor-

Corbeau, Anne-Sophie (2023) 'Implications of EU Restricting Russian LNG,' *Energy Explained Blog*, Center on Global Energy Policy, 5 April, available at <https://www.energypolicy.columbia.edu/implications-of-eu-restricting-russian-lng/>

Yermakov, V. and J. Sharples (2021) 'A Phantom Menace: Is Russian LNG a Threat to Russia's Pipeline Gas in Europe,' OIES Paper NG 171, *Of the Institute for Energy Studies* available at <https://www.oxfordenergy.org/wpcms/wp-content/uploads/2021/07/Is-Russian-LNG-a-Threat-to-Russia's-Pipeline-Gas-in-Europe-NG-171.pdf>

