

THE EUROPEAN DEPENDENCE ON RUSSIAN GAS AND THE IEA 10-POINT PLAN

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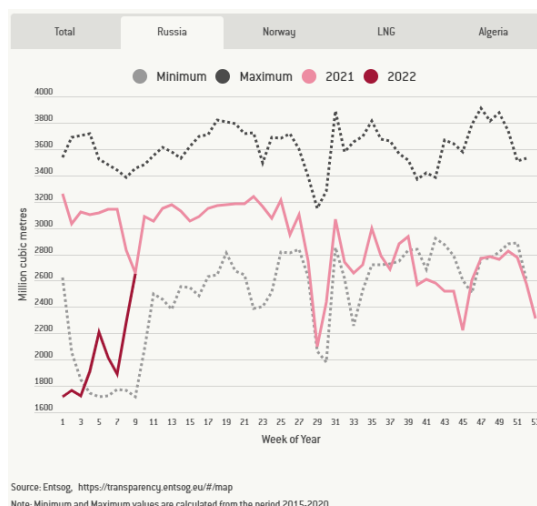
*Financial markets, European politicians and EU citizens are getting increasingly nervous about utilities' gas exposure to the ongoing Russia/Ukraine crisis. In this note we describe (i) **the European dependence on gas supply volumes from Russia**, (ii) **the scenario of a Russian gas curtailment** and (iii) **how Europe could try to adapt to this new reality**.*

- In 2021, Russia exported 155 billion cubic meters (bcm) of gas to the European Union (roughly 90% pipeline gas and roughly 10% Liquefied natural gas [LNG]) accounting for around 45% of EU gas imports and close to 40% of its total gas consumption.



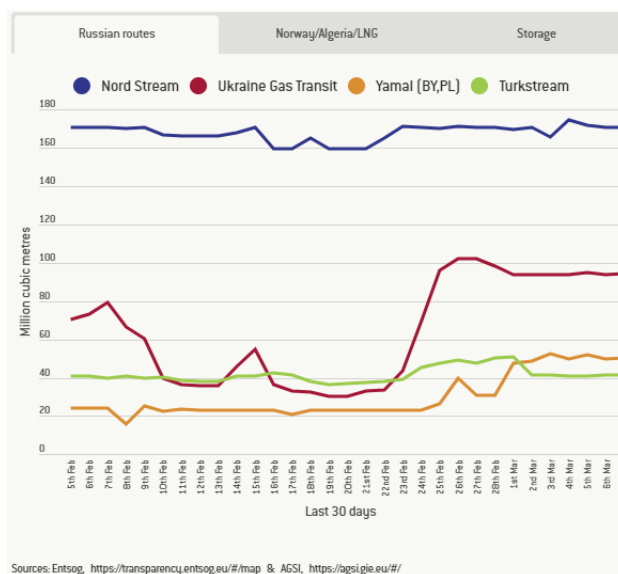
Source: Bruegel, March 2022

- Whilst imported Russian gas volumes to Europe have been on the lower side of historical data since the second half of 2021, we cannot say that these volumes really crashed until now:



Source: Bruegel and Entso-g, March 2022

- The Nord Stream 1 pipeline, which runs below the Baltic sea, is the main route for Russian gas to reach Europe:



Source: Bruegel and EntsoG.eu, March 2022

What are the consequences of a potential sharp decline in, or a halt to, Russian gas imports in Europe?

Although the Russian gas imports to Europe remain largely unaffected for now, this is no certainty for the (near) future. Indeed, on March 7, 2022, after a European ban on the Nord Stream 2 pipeline, Russian Deputy Prime Minister Alexander Novak warned in a statement on state television: “we have every right to take a matching decision and impose an embargo on gas pumping through the Nord Stream 1 pipeline.” He added that “so far we are not taking such a decision, but European politicians with their statements and accusations against Russia push us towards that¹.”

Because of a potential sharp decline in Russian gas imports or as a result of any war damage to the existing pipeline (which runs through Ukraine), we can expect:

- Gas curtailment measures imposed to selected consumers to ensure gas and electricity where they are most needed.
- Gas and power prices could be capped, and State-backed tariff deficit schemes put in place (i.e., a catch up of lost revenues with a time lag) to protect utility companies.

It is very difficult to assess the financial consequences of such a scenario for utility companies. The eventual financial fallout depends on **these companies’ actual exposure to the gas market prices** (that have skyrocketed). In some cases, a utility company might need to buy back the volumes that Russia no longer delivers. However, established hedging policies or the existence (/absence) of “Material Adverse Change” clauses in the contracts between the utility company and its clients can reduce the negative impact of a Russian gas disruption. The latter measure in particular allows utility companies not to deliver the contractual volumes due to exceptional circumstances.

The gross volume of the Russian gas supply is a way to assess utility companies’ risk levels. Estimates and company press releases show the following exposures to the Russian gas supply risk: roughly 200TWh for Fortum/Uniper, approximately 110TWh for Engie, roughly 20TWh for Orsted, 7.5TWh for RWE, whilst E.ON and Iberdrola declare that they have no direct exposure to Russia and source gas from wholesale markets.

¹ Source: Reuters, March 7, 2022 [[link](#)]

Reducing Europe's dependence on Russian gas

Europe's reliance on imported gas from Russia has been highlighted by Russia's invasion of Ukraine. **It is the perfect example of a "tail risk"**. Unfortunately, we have been keenly aware of this risk for a long time: Indeed, Europe's dependence on gas imports from a politically sensitive country like Russia is nothing new. Unfortunately, Europe [...]

- [...] has somewhat increased its dependency by reducing its own domestic production: the Netherlands decided to reduce and end their gas production due to rising outcry over the danger of local earthquakes caused by its gas production in Groningen.
- [...] has done very little to address this dependency over the years due to the relative cheapness of pipeline imported gas from Russia versus alternative sources such as more costly shipped LNG for which Europe is in competition with potential buyers from all over the world.

Progress towards Europe's net zero ambitions will bring down European gas use and imports over time. But today's crisis raises the specific question about current imports from Russia and what more can be done to limit our reliance on Russian gas.

In the short term, Russia's use of its natural gas resources as an economic and political weapon shows Europe **needs to act quickly**. The continent needs to ready itself for a 2023 winter with considerable uncertainty regarding its gas supplies. **The EU is working on a plan to cut Russian gas use** by around two thirds (roughly 100 bcm) in 2022². This would imply importing in the region of just 50-60 bcm from Russia, down from 155 bcm in 2021, which was already a year of low flows. The plan relies heavily on LNG imports, as well as other sources of pipeline-imported gas from places like Azerbaijan and Africa. With regards to LNG, the EU counts on 50 bcm of additional imports to Europe, which adds to the existing LNG market tightness with only limited supply-side increases. This will likely further push gas prices upwards.

The IEA 10-point plan

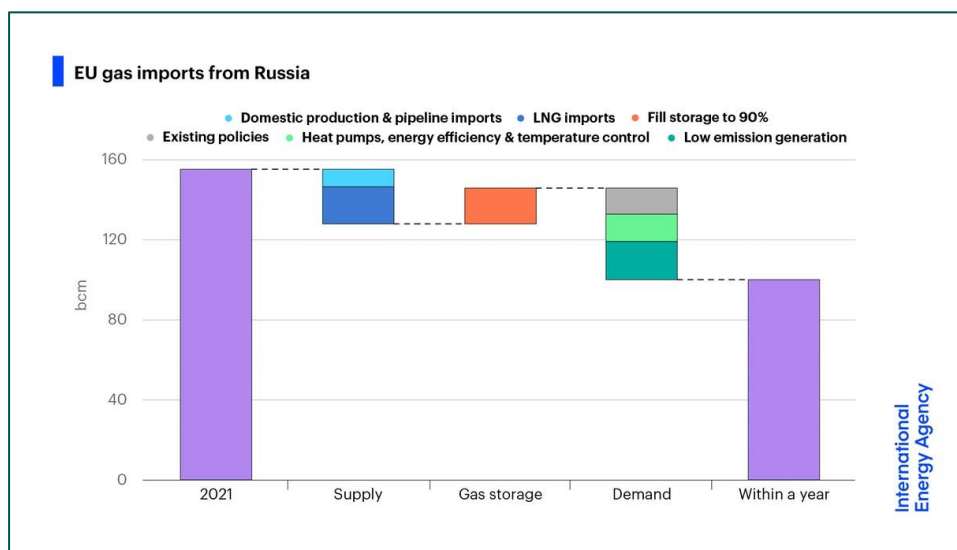
In the short- to medium- and long-term, and given the amounts at stake, **reducing EU dependence on Russian gas goes beyond seeking alternative sources of gas supply**. It includes increased reliance on alternatives to gas applications throughout a number of sectors (including power generation). In March 2022, the International Energy Agency (IEA) presented a 10-Point plan to this effect:

1. No new gas supply contracts with Russia.
2. Replace Russian supplies with gas from alternative sources.
3. Introduce minimum gas storage obligations.
4. Accelerate the deployment of new wind and solar projects.
5. Maximise existing dispatchable low-CO2 sources: bioenergy/nuclear.
6. In the short term, protect vulnerable consumers from high gas and electricity prices: the EU is currently discussing potential measures that aim at de-correlating the power prices from the gas prices.
7. Accelerate the replacement of gas boilers with heat pumps.
8. Accelerate energy efficiency improvements in buildings and industry.
9. Encourage a temporary thermostat adjustment by consumers.
10. Step up efforts to diversify and decarbonise sources of power system flexibility.

Importantly, these proposed measures are fully consistent with the EU's Green Deal and its Fit-for-55 packages, **paving the way for further emission reductions** in the years to come.

The combined effect of these measures reduces European gas demand by roughly 50 billion m³ (i.e., a third of its consumption in 2021).

² Source: Bloomberg, March 8, 2022 [[link](#)]



Source: International Energy Agency, March 2022

The IEA analysis notes that other avenues are available to the EU if it wishes or needs to reduce its reliance on Russian gas even quicker but ... these come with significant economic and environmental trade-offs. The major near-term option would **involve switching away from gas consumption in the power sector** via increased use of Europe's remaining coal-fired power plants or by using oil (though the oil supply could also potentially be in trouble in case of an international ban on Russian oil) within existing gas-fired power plants.

Can coal substitute Russian gas?

According to a research paper titled "Europe's gas problem", published by Barclays, if EU coal-fired power stations ramped up their utilisation rate to 70% from the current 34%, it would replace about half of all Russian gas imports³. However, **sourcing the coal would be both costly and challenging**, requiring a reversal of the decline in European domestic production plus significant growth from other key jurisdictions. If Europe wants to substitute gas for coal, then a further 250 million tons (mt) of extra non-Russian coal would be needed (Barclays's estimate). There were 970mt of traded thermal coal in 2020, with 21% going to China. Clearly, a demand rise of 250mt is significant. Sourcing incremental volumes and replacing Russian thermal coal imports into Europe would not be easy, as **the global market remains constrained** due to a lack of investment over the past decade. Europe would also face stiff competition from Japan and South Korea. Both countries could face similar pressure to diversify away from Russia. Potential sources of coal exports include Australia, South Africa, Colombia, and the US. However, each of these are limited by their ability to rapidly increase near-term supply due to supply constraints, such as flooding and rail constraints in Australia for example. We could also see a supply response from domestic production in Europe due to higher prices and what looks like a hypothetical policy shift towards coal, but this may take several years given the recent lack of investment in new supplies. European coal production was 268mt in 2020, down from 367mt in 2016.

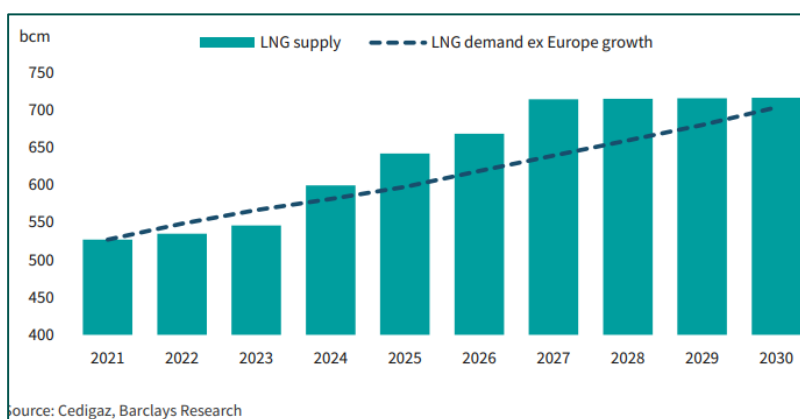
Finally, **carbon markets would potentially need to be suspended** (there have already been calls for this by the Polish government) because the increase in coal use would go hand in hand with increased carbon demand and, therefore, rising carbon prices. This would thus lead to both rising power prices from a shortage of gas, coupled with rising carbon prices to limit coal.

Given that **these coal/oil alternatives to gas are not aligned with the European Green Deal**, they are not included in the 10-Point Plan described above. They would undoubtedly be costly from an economic and environmental point of view.

³ Source: Barclays, March 9, 2022 [[link](#) - requires subscription]

Can LNG substitute Russian gas?

Europe has considerable quantities of regas facilities that allow to transform liquid gas (LNG) into its initial gaseous form. **The largest regas facilities are in Spain, the UK, Italy, France and Turkey.** These facilities ran at around 45% capacity in 2021, when Europe imported 107bcm of LNG, with 18bcm coming from Russia. Europe has a total capacity of 238bcm. So, in theory, the continent has a nearly-150bcm spare capacity of LNG, ex Russia. This could make up for the significant potential shortfalls of pipeline gas⁴. However, LNG imports through the whole year will be hampered by a potential lack of storage facilities to take up summer volumes. In January 2022, utilisation rates have increased to 80%, with high European gas prices diverting Asian-bound cargoes. Consequently, spare capacity has now fallen to 47bcm (this includes 18bcm of Russian LNG, so 65bcm ex Russian LNG). The only region with significant spare capacity is Spain, with 70% of the total. **Gas markets remain tight**, and there is limited LNG liquefaction and cargo capacity worldwide. Global LNG liquefaction is at roughly 520bcm. Finding a further 100bcm+ to supply Europe will be extremely hard. LNG vessels will not increase until new capacity arrives in 2025, with the potential for 50-75bcm additional supply. This relies on the timely start-up of projects in Canada, Qatar and Mozambique as well as... a Russian Arctic LNG project.



Source: Cedigaz, Barclays Research, March 2022

In the medium term, **several additional regas infrastructures will be constructed in Europe** (in Germany and potentially in Sicily for example) to accommodate higher LNG imports. Additional cross-border pipelines will also be needed to allow for LNG vessels to deliver their gas to Spanish ports and then transport it across Europe.

Can nuclear energy substitute Russian gas?

While nuclear power generation accounts for approximately 25% of Europe's electricity mix and 15% of the continent's overall energy requirements, **there is a large divide between individual countries.** For example, France derives around 70% of its electricity needs from nuclear power. This is in contrast to countries like Italy, which closed all its plants in 1990, and Germany, which is aiming to close its last nuclear reactors by 2022.

In the context of dependency on Russian gas, we can see **a renewed debate around nuclear power generation in Europe** in terms of energy diversification and benefits in terms of energy transition (minimal emissions). Countries such as Italy⁵ and the Netherlands⁶ are reconsidering the possibility of nuclear power. Let's bear in mind that these countries represent some of Gazprom's key export markets. In Eastern Europe, nuclear is and remains a key technology, and has already led to substantial improvements in these historically carbon-heavy countries. To this effect, Slovakia is currently constructing new reactors, while Bulgaria, the Czech Republic, Hungary, Poland and Romania have indicated that they will follow suit. However, considering the very long lead times of new large-scale reactors (10 years at the very least) and the projected increase in electricity

⁴ Source: Barclays, March 9, 2022

⁵ Source: Politico, January 5, 2022 [\[link\]](#)

⁶ Source: Politico, December 15, 2021 [\[link\]](#)

demand over the next decade, **a significant and rapid shift in energy policies would be required for nuclear to support the transition away from Russian gas.** The likely inclusion of nuclear into the EU Taxonomy can be seen in that context.

Can renewable energies substitute Russian gas?

The main energy policy implications for the EU and other European countries will be **an even bigger focus on increasing renewable infrastructure.** This is not only because most renewables are now cheaper than fossil-fuel power or nuclear energy, but also thanks to Europe's ample resources. Essentially, Europe has the ability to install enough additional renewable infrastructure and replace its entire reliance on Russian energy imports. However, **this ambition will face several hurdles:**

- A key issue of renewables builds in the past has been long planning and permit processes. European governments should look into lowering these bureaucratic obstacles for new renewable equipment.
- Bottlenecks in raw material supply, particularly for solar.
- The increased cost of raw materials (steel, solar cells, etc).

In conclusion, the Russian war in Ukraine has put the "tail risk" of European dependence on Russian gas at the forefront. Adapting to this situation will not be simple and will require **a huge (and much-needed) effort from European States, corporates and citizens.**

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