

## Geopolitical clouds are disrupting Europe's energy system

### Overview

Russian President Vladimir Putin launched a full-scale invasion of Ukraine on 24 February 2022. The EU and other major Western nations have reacted with a series of unprecedented sanctions against Russia, accusing Putin of bringing war back to Europe. This geopolitical crisis, on top of the ongoing energy-price crisis, raises concerns over the future of the EU's energy system and its energy security. The big question now is **how the EU is going to solve yet another crisis that directly impacts its energy design while pursuing its ambitious climate and energy targets?** Here is our take on the subject.

### Russia's relevance for the EU's energy supply

Let us start at the beginning and look at the EU's routes for natural-gas supply. Pipeline imports of natural gas into Europe come from Russia, Norway, North Africa and Azerbaijan. Statistics indicate that **Russia is the primary supplier of energy to Europe**, making up **41% of its natural gas imports**. As shown in Figure 1, Russia sends gas to Europe through several main pipelines – such as Nord Stream 1, Yamal-Europe and Brotherhood. The rest is covered by Norway, North Africa, Azerbaijan and liquefied natural gas (LNG) import terminals.

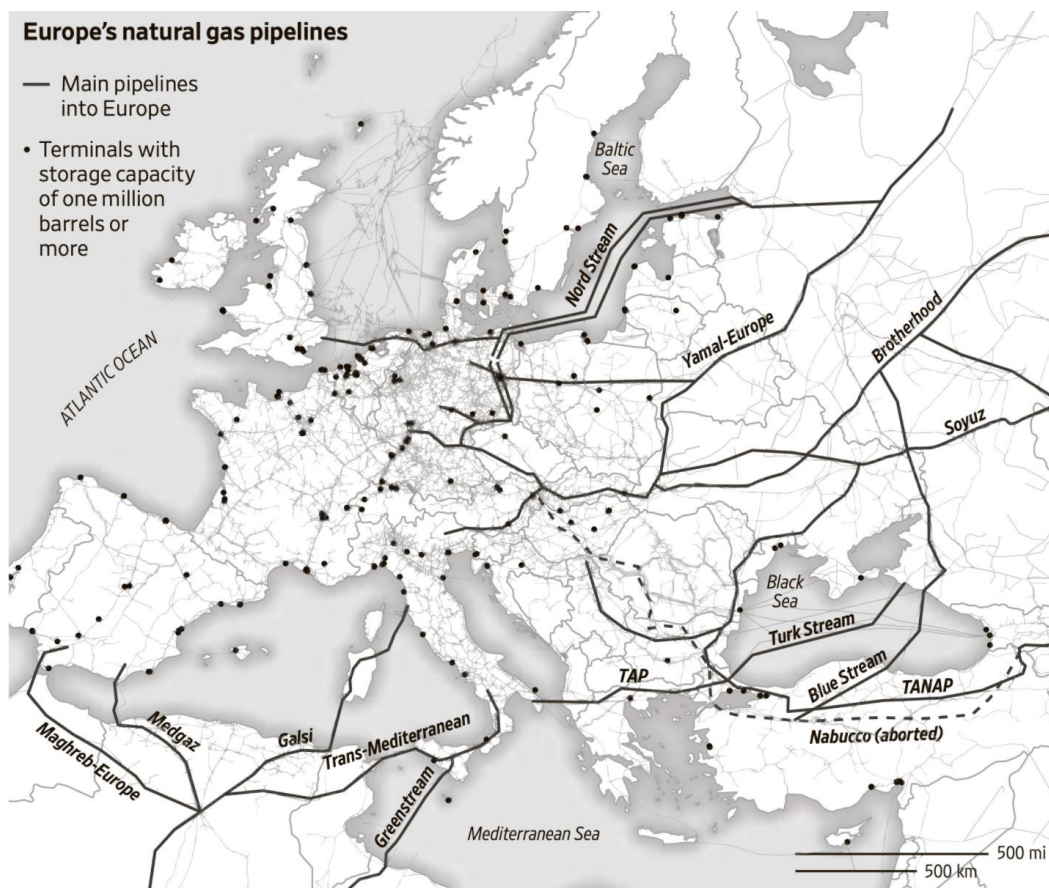


Figure 1. Major natural-gas delivery routes into the European market.

Source: [S&P Global Platts](#)

Russia's position as a top supplier means that many EU nations are reliant on it for energy. However, **the level of dependency on Russian gas is different across Member States**. For example, Sweden barely uses any gas, and none from Russia, while energy dependence on Russia is exceptionally high in eastern Europe, with Slovakia, Hungary, Czechia and Bulgaria nearly entirely or completely dependent on Russian exports. Moreover, in Italy and Germany around half of the natural-gas supplies also come from Russia, as shown in Figure 2.

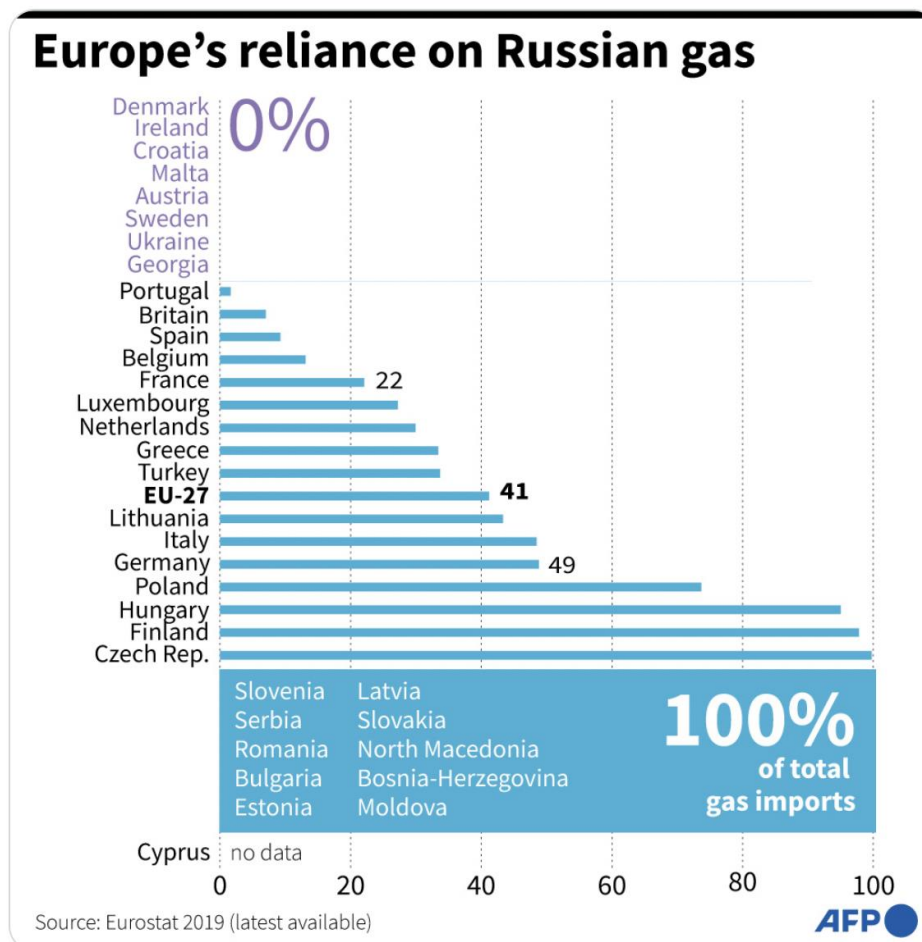


Figure 2: Rate of dependency on Russian gas in different countries. Source: [Eurostat](#)

An analysis by Bruegel also [showed](#) the amount that the **EU pays Russia for gas every day**. On 1 January 2022 the EU paid €190 million for Russian natural gas. On 3 March 2022 the EU transferred €660 million. This shows the **enormous spike in payments since Russia invaded Ukraine**.

**In terms of oil**, Russia [produces](#) close to 11 million barrels per day of crude oil. It uses roughly half of this output for its own internal demand and exports 5 to 6 million barrels per day. **About half of Russia's exported oil – roughly 2.5 million barrels per day – is shipped to European countries, including Germany, Italy, the Netherlands, Poland, Finland, Lithuania,**

**Greece, Romania and Bulgaria.** Nearly one-third of it arrives in Europe via the Druzhba Pipeline through Belarus.

According to [Reuters](#), the **market is currently experiencing serious disruptions to Russian oil exports**. On 2 March 2022, there were countries and companies that refused to import and transport Russian crude oil, and at least 10 tankers failed to find buyers, driving oil prices even higher. Buyers began to look for alternative supplies in an already tight market. Analysts [highlight](#) that **oil shipments are arguably easier to reroute than natural gas**, which has to be super-chilled to liquefy it for ship transport, then converted back to gas at its destination port. That means Russia's crude oil may potentially be easier for European countries to replace and reroute than its natural gas, which relies more heavily on pipeline delivery, depending on market conditions. However, this does not mean that the aftermath of rerouting will positively impact energy prices. The current market situation will directly impact consumers, as **more expensive oil means higher petrol prices**, as well as increased manufacturing costs, leading to **higher prices for many other goods**.

#### **Will Russia cut its energy supply to Europe?**

So far, Russia's state-owned gas company Gazprom said it isn't planning any reduction of gas volume transport to Europe through pipelines in Ukraine. [According](#) to Russian news agency Interfax, gas shipments will remain "large" due to the increased demand by European customers as a reaction to the outbreak of war. There are no sanctions so far imposed on Russia's trade in hydrocarbons, although multiple scenarios can evolve if the war in Ukraine will further escalate: a) it is possible Moscow could suspend gas sales to Europe in retaliation for sanctions, b) the EU will impose new sanctions targeting Russian gas supply, or c) the conflict in Ukraine could damage supply routes.

In regard to the likelihood of suspended gas sales, it is important to highlight that, under the current sanctions regime, such an interruption is highly unlikely. This is because the EU stopped short of including the banks that are in charge of energy payments from the **SWIFT** messaging system, most prominently Gazprombank (Russia's third largest bank by assets). The bloc simultaneously moved in on the Russian Central Bank by banning transactions and freezing assets. The Russian Finance Ministry and its Central Bank reacted on 28 February by **mandating exporters to sell 80% of their FOREX (foreign exchange market) revenues on the market**. [Reuters](#), citing head of investment at Locko Invest, Dmitry Polevoy, estimated that Russian exporters were thus able to supply \$44–\$48 billion per month to support its national currency, the rouble. This means that: a) the limited Swift ban enables Russian resource banks to stand in for the Russian Central Bank, thus stabilising the rouble, and b) as long as resource imports are not targeted and resource banks are excluded from the SWIFT ban, **Russia will hesitate to suspend energy exports as it needs the revenue in dollars to stabilise the rouble and its own economy**.

Regardless of the outcome, it is clear that the **obstacles to replacing Russian supplies are logistical, financial and political**.

### Short-term risks

Russia's invasion has added to the ongoing energy prices crisis and sent shockwaves through the energy markets. On the first day of invasion, **European natural gas prices soared by almost 70%, and crude oil exceeded \$105 a barrel** for the first time since 2014 (for more details see FES JustClimate briefing on energy prices).

One day before the invasion of Ukraine, the Guardian published the [positions](#) of several institutes regarding the EU's gas supply situation. They are all unanimous in their analyses: if Moscow turns off the gas supply, **the EU could collectively cope for a short period of time**. For example, the German Economic Institute is cautiously optimistic in its forecast. "German citizens not being to heat their homes this year is not a realistic scenario," the study's author, Andreas Fischer, told the Guardian. "But European governments have to make sure reserves are topped up again for the next winter." The same position has been shared by analysts at [Bruegel](#), who stated that European commercial-gas storage reserves are roughly 30% full, and some states also have strategic gas reserves. **Most Member States would likely make it to autumn 2022 without severe shortages** through a combination of more withdrawals from these stores, increased liquified natural gas imports and limited demand-side measures such as industrial gas curtailments. But countries such as Bulgaria and Poland that are heavily dependent on Russian gas and poorly connected to their western neighbours would need to significantly reduce their gas demand to manage the situation.

These statements have also been confirmed on the political level by Kadri Simson, the European Commissioner for Energy. Simson [stated](#) the current assessment is that **"the EU can get through this winter safely**. At the moment, gas flows from east to west continue, LNG deliveries to the EU have increased significantly, and the weather forecast is favourable".

### Long-term scenarios

The situation becomes more challenging as Europe looks into the long-term scenarios. [Bruegel](#) modelled three scenarios for Europe to withstand a "first winter without Russian gas":

1. **No Russian gas at all**, which would require the EU to reduce energy demand by 10–15% of the annual total.
2. **Limited Russian imports**, which would see pipelines Nord Stream 1 and Turkstream operate at capacity, while transit through Ukraine and Poland would stop. This would mean that "Gazprom would earn a lot of money" while Europe would still "suffer from a highly volatile gas market."
3. **Average Russian imports without energy sanctions from either side**. Gazprom's long-term contractual obligations (as indicated by 2021 gas flows) would mean EU storage could be "easily replenished" and the scenario would "lead to lower prices".

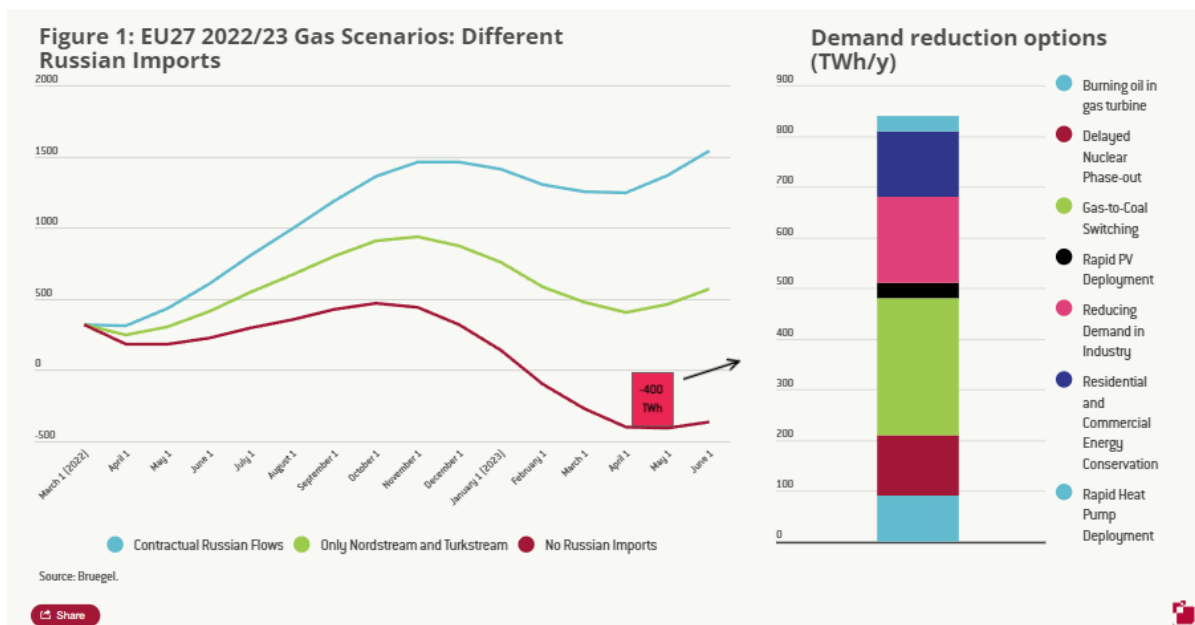


Figure 6. EU 27 Gas Scenarios 2022/23: different levels of Russian imports. Source: [Bruegel](#)

### Short-term alternatives

As reported by [Carbon Brief](#), commentators, analysts and politicians have developed two different narratives around how Europe’s energy system should respond to Russia’s invasion of Ukraine. Both narratives point to **reducing Russia’s grip on European energy supplies**. The first emphasises the need to **exploit domestic fossil-fuel resources** as a means of reducing reliance on Russian exports, while the second argues for **accelerating the shift towards more efficient and cleaner energy supplies** to move away from fossil fuels altogether.

### LNG

In the past few days, there have been a lot of political endorsements for increasing Europe’s LNG supply. This includes the French Energy Minister Barbara Pompili, who [highlighted](#) that “next winter, the Member States and the Commission will step up their coordination to reinforce our capacity for importing LNG, for instance. We will have to use our terminals as best we can, we have to fill those terminals, we have to increase our stocks. And we have to have more trade with exporting producer countries”.

Analysts, on the other hand, are [saying](#) this is **too ambitious and too expensive**. LNG means super-chilled gas, condensed into liquid form and transported by ship and “regasified” at specialist terminals. The entire process from production until actual use is expensive, energy-intensive and hardly climate-friendly. According to analysts at Wood Mackenzie, Europe has the theoretical capacity to import an extra 147 billion cubic metres (bcm) of LNG a year, which seems to be enough to replace Russian pipeline gas entirely. However, Wood Mackenzie’s European gas analyst Graham Freedman said **the switch would take “at least a decade” in practice**, not least due to a lack of onward infrastructure in the right place. Even a temporary

switch would be hugely expensive. Moreover, amidst the European energy prices crisis, **it's an incredibly expensive short-term gap filler.**

Europe's biggest gas market, Germany, has no LNG import terminals. However, in the light of the Russian invasion, Germany started to revise its energy policies. Chancellor Olaf Scholz announced on 28 February that he will push for the construction of the country's first two LNG import terminals as part of its efforts to secure energy supply. *"We made the decision to quickly build two liquefied natural gas terminals, LNG terminals, in Brunsbüttel and Wilhelmshaven,"* Scholz [told](#) parliamentarians in the Bundestag during a special session on Ukraine and Russia. He emphasised that such a terminal could eventually be converted to handle climate-friendly gases: **"An LNG terminal that receives gas today can also receive green hydrogen tomorrow"**. Bulgaria also [expressed](#) its willingness to strengthen the uncompleted Bulgarian-Greek LNG project in Alexandroupoli. The Chair of the Bulgarian Energy and Mining Forum, Ivan Khinovsky, also pointed out that the interconnection between the European countries has progressed much too slowly in the past.

However, even if pragmatism prevails and European companies go on an LNG buying spree, **it takes 3 to 5 years to build a new LNG plant** after the final investment decision has been made.

#### **Will coal and nuclear energy make a comeback?**

Russia also plays an important role in coal imports. In 2020, roughly [a third of its shipments](#) went to Europe. If this volume were to disappear, hard coal would have to be sourced from other countries, such as the USA or Australia.

During the last UN Climate Change Conference in Glasgow, many countries presented more ambitious plans for phasing out coal. At present, doubts are growing as to whether these plans can be adhered to in view of the crisis. The Polish Government questioned the early exit. According to Economics and Climate Minister Robert Habeck (Greens), the German Government is aiming for a slower coal phase-out in the event of a complete supply freeze, as energy security would take priority now. In the long term, however, the future lies in non-fossil energy sources, stated Habeck: "The real path to energy independence is indeed the exit from fossil energies. The sun and the wind do not belong to anyone."

The debate on longer nuclear plant lifetimes and even the expansion of nuclear energy is also likely to intensify now. Here, however, it becomes even more apparent that the current energy crisis cannot be solved with the very time-consuming planning and construction processes.

#### **Next steps: official proposals and communications**

The International Energy Agency (IEA) has [released](#) its **10-Point Plan to the European Union** for reducing reliance on Russian supplies by over a third, while supporting the European Green Deal, with emergency options to go further. Here are the key proposals:

1. Do not sign any new gas supply contracts with Russia
2. Replace Russian supplies with gas from alternative sources

According to the IEA analysis, other suppliers could deliver up to 30 bcm in the short term, one-third of it via existing pipelines and two-thirds as LNG. A prerequisite, however, is that both the EU and supplier countries take action against methane leaks in production and infrastructure.

3. Introduce minimum gas storage obligations  
By 1 October, the EU's gas storage facilities would need to be 90% full to provide sufficient backup for next winter, the IEA said.
4. Accelerate the deployment of new wind and solar projects  
Renewables could generate an additional 35 terrawatt-hours of electricity this year, reducing gas-fired power plant consumption by 6 bcm.
5. Maximise power generation from bioenergy and nuclear  
Higher utilisation of nuclear power plants and biogas plants would save 13 bcm.
6. Enact short-term tax measures on windfall profits to shelter vulnerable electricity consumers from high prices
7. Speed up the replacement of gas boilers with heat pumps  
Replacing gas heaters with heat pumps would save 2 bcm of gas in the first year.
8. Accelerate energy-efficiency improvements in buildings and industry  
Energy efficiency could contribute an additional 2 bcm, but this would require, among other things, increasing the annual renovation rate from 1 to 1.7% of all buildings.
9. Encourage a temporary thermostat reduction of 1°C by consumers  
10 bcm could be saved by lowering the room temperature by 1 degree.
10. Step up efforts to diversify and decarbonise sources of power system flexibility

**This week the European Commission will publish its communication** on how to navigate the energy market within the geopolitical crisis context. Originally due to be published on 2 March 2022, the communication was meant to look at alleviating the impact of continued high energy prices in Europe and how to prevent this in the future. However, the Russian invasion of Ukraine requires the European Commission to rethink and redraft the proposals. It [plans](#) to require countries to fill gas storage to minimum levels ahead of winter and diversify gas supplies. Special attention will be given to the potential of LNG as a short-term solution. Moreover, the Commission also plans to boost renewables and accelerate the roll-out of renewable hydrogen as fast as technically possible, while maintaining the European Union's commitment to become carbon-neutral by 2050.

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