

Russia's war on Ukraine: Implications for EU energy supply

Russia is the largest exporter of oil, natural gas and coal to the EU. Already before the crisis, natural gas prices had increased significantly. The current crisis is likely to have a major impact on price levels in Europe. The EU will need to see how to increase its energy independence, using some of the building blocks of the Green Deal.

State of play

According to the European Commission quarterly [gas market report](#), the share of Russian pipeline gas in EU gas imports was 41 % in the third quarter of 2021. Oil and gas are particularly important for Russia, funding just over a third of its [federal budget](#) in 2021 (RUB9.1 billion out of RUB25.3 billion total revenue).

The European Union's dependence on energy imports has increased in recent years due to lower domestic production of non-renewable energy (coal, gas, oil and nuclear), combined with stable energy demand. In [2020](#), the EU imported well over half (57.5 %) of its energy, ranging from 97.6 % for Malta to 10.5 % in Estonia. In terms of energy source, 97 % of oil and petroleum products, 83.6 % of natural gas, and 35.8 % of solid fossil fuels were not produced by the EU, but had to be imported.

With the [Green Deal](#), the EU has already implicitly taken steps to reduce this dependency – albeit over a long period, stretching at least until 2050, when the EU wants to be climate-neutral, as set out in the [2021 European Climate Law](#). With EU climate policy aimed at rapidly reducing carbon emissions, many EU Member States have already announced that coal will be or is already being phased out for electricity production. At the same time, the EU increased the [share of renewables to 22.1 %](#) of energy consumed in 2020, two percentage points more than anticipated. However, natural gas in particular is often regarded as a necessary source of energy for the transition period, thanks to its being cleaner than coal and its ability to provide a flexible buffer in case of a shortfall in renewable energy due to lack of sunshine or wind.

Russian gas is transported to Europe via [pipelines](#). Soviet-era pipelines via Belarus and Ukraine have been complemented by Nord Stream (2011/2012) and Turkish Stream (2020). The share of gas transit via Ukraine, which accounted for over 60 % of Russia's [pipeline deliveries](#) to the EU and United Kingdom in 2009, fell to 25 % in 2021. Nord Stream and its recent sister pipeline [Nord Stream 2](#) run underneath the Baltic Sea to Germany, bypassing eastern Europe. Each has a capacity of [55 billion cubic metres of gas per year](#). Nord Stream 2 is fully built, but not authorised for operation (see below). Nord Stream 1 is owned and operated by [Nord Stream AG](#), headquartered in Switzerland. Russia's Gazprom owns a 51 % stake in the project, while the rest is owned by German, Dutch and French energy companies. Nord Stream 2 is owned and operated by [Nord Stream 2 AG](#), with Gazprom as the sole shareholder and western European energy companies as financial investors.

Natural gas prices in Europe rose considerably during the second half of 2021, already well before the current crisis in Ukraine, not least due to a strong surge in post-pandemic demand. On 21 December 2021, prices reached a peak of €180 per megawatt-hour, having hovered below €50 per megawatt-hour throughout the summer. This came in the wake of comparatively low levels of natural gas storage.

EU response (in coordination with partners)

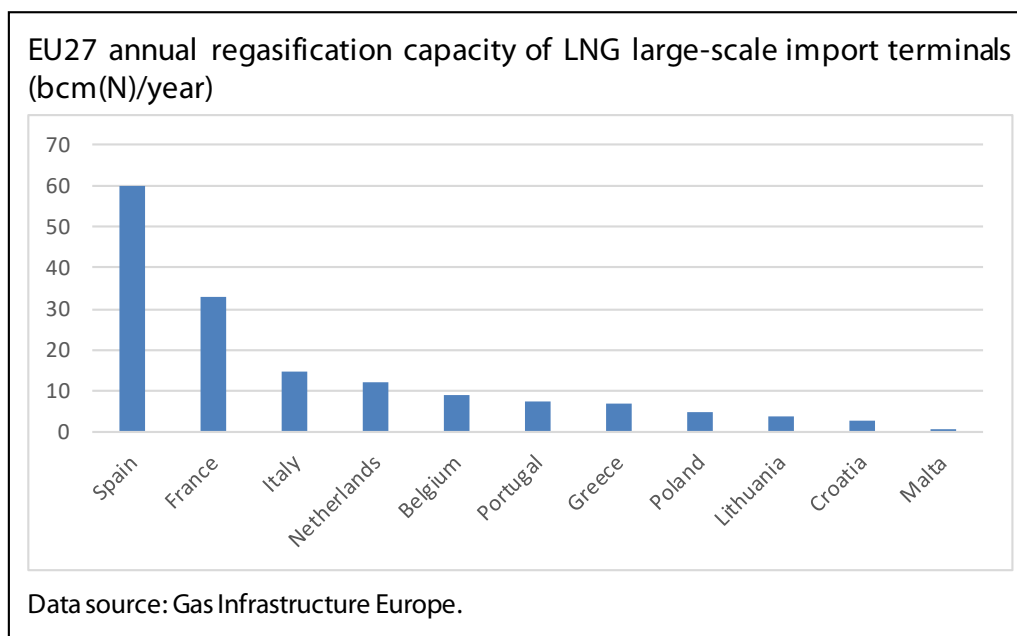
On 22 February 2022, on the eve of Russia's invasion of Ukraine, the German government announced [suspension of the authorisation process for Nord Stream 2](#), by withdrawing the supply security report previously submitted to its national regulator, the *Bundesnetzagentur*. As of 27 February 2022, Russian gas is still flowing towards Europe, but the future of Europe's gas supply from Russia could become uncertain, whether due to a politically-motivated interruption of deliveries, uncertainty over energy payments under the [sanctions imposed on Russia](#), or damage to the Ukraine pipelines due to fighting.

Possible further developments

The energy mix used in a country is a national competence and current events might lead some Member States to prioritise a particular energy source or prolong the lifespan of power plants otherwise scheduled for closure.

Given potentially continuing uncertainty over Russia's oil and gas supplies to Europe, the EU will need to accelerate moves towards diversifying its supply and increasing its energy independence. These steps could focus on the following building blocks, some of which also align with the EU's efforts to combat climate change and are part of the Green Deal:

- **Gas storage** should be maximised before the onset of the next winter. This poses the question of a possible strategic reserve. Gas market rules are currently undergoing revision in the European Parliament in the form of the December 2021 '[gas markets and hydrogen package](#)', which includes the proposed revision of the EU gas regulation and EU gas directive.
- Should Russian natural gas supplies be shut off, **liquefied natural gas** (LNG) will likely play a key role, as other producers such as Norway or the Netherlands cannot significantly increase their production. The EU27 currently has a total annual LNG import capacity of [156 billion cubic metres \(bcm\)](#) (see table). The biggest share of this capacity lies in Spain, but the Iberian Peninsula's connection to the rest of the European gas grid is limited. Other major LNG importers include France, Italy, the Netherlands and Belgium.



- **Renewable energy:** While EU Member States are free to decide on their energy mix, key policy tools at EU level include the proposed revision of the [Renewable Energy Directive](#). The European Commission is proposing to increase the target for the 2030 share of renewable energy, such as biomass, wind or solar power, from the current 32 % to 40 % of final energy consumption. The draft act is now under negotiation in the European Parliament. Even with a higher share of renewables, a flexible non-renewable electricity generation capacity will likely be necessary to cover prolonged periods without wind or sunshine.
- **Energy efficiency:** To rapidly lower demand for Russian oil and gas, the EU also needs to decrease overall energy consumption. The current Energy Efficiency Directive envisages 32.5 % energy savings by 2030, compared with a business-as-usual scenario. A [new proposal](#) tabled by the European Commission last year and under consideration in the European Parliament seeks to increase this goal by a further 9% in energy savings.
- **Infrastructure:** supply policies need to be matched by infrastructure allowing electricity and gas to flow unhindered in the European market. The adequacy of the plans for electricity and gas interconnections should be reassessed in the light of emerging supply risks.

