EU energy

Europe's push to plug its energy gaps

Infrastructure 'pinch points' are making it more difficult for the EU to move away from Russian oil and gas

Andy Bounds in Brussels, **Harry Dempsey** in London and **Ian Mount** in Madrid
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Sanctions on Russia and a Covid lockdown in China have reduced freight volumes in Rotterdam, Europe's busiest seaport. But one cargo is booming: liquefied natural gas.

Importing more LNG is a priority as the EU tries to cut its reliance on gas supplied from Russia, intending to starve Moscow of funds for its war in Ukraine. But Rotterdam's LNG terminal is fully booked. Work to expand is under way but will not be quick.

"LNG is a challenge. It will provide us with the most restrictions of all the goods we import," said port chief executive Allard Castelein. "You can't build a [LNG] tank overnight."

Meanwhile 1,500km away, Spain has a different capacity problem. The country has more than enough LNG terminals: one is even mothballed. What is missing are enough pipelines to get gas to markets that need it in central Europe. A plan to build another link to France, the Midcat pipeline, has been stalled for years.

More links between France and Spain

Sources: Entsog; FT research
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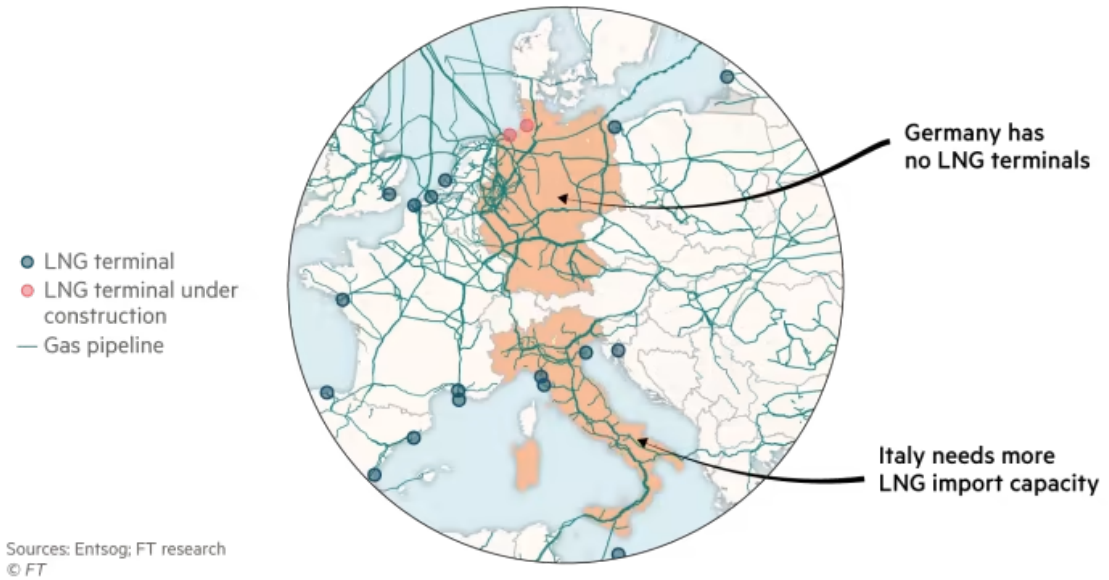
Spain accounts for much of the EU's LNG import capacity, with six operating import terminals. But getting gas around Europe is difficult with only two pipelines across the Pyrenees to France, capable of handling barely one-tenth of LNG import capacity. Regulators rejected another pipeline, known as Midcat, in 2019 as too expensive. Madrid has renewed calls for its construction.

"Spain would like to import and contribute to the security of Europe . . . We'd love to send gas to Romania but how can we if it doesn't even make it to Perpignan [on the French side of the border]?" said Gonzalo Escribano, director of the energy and climate change programme at the Elcano Royal Institute in Madrid. "We have [fewer] gas connections with France than with Algeria."

All over Europe, examples abound of similar pinch points and infrastructure gaps — betraying the problems the continent faces as it wrestles with how to cut its reliance on Russia, which provides 40 per cent of the EU's gas needs.

Many exist because for decades the EU relied on Russian gas flowing from east to west while private energy providers had little incentive to build surplus capacity. Now more attention is being paid to how to secure LNG from places such as the US and move energy from west to east and to landlocked central and eastern states.

Create more LNG capacity in Germany and Italy



Germany has no LNG terminals yet is one of the countries most dependent on Russian gas. It would also be a natural gateway for other landlocked European countries to get LNG. Germany has leased four ships to regasify LNG, some of which should be operational by the end of the year, before conventional land-based facilities are completed in 2025 and 2026.

On Wednesday, the European Commission will unveil a €195bn plan aimed at providing remedies, emphasising the need for more renewable energy, lower consumption and reliable alternative suppliers. But the plan will also mark an attempt by Brussels to knit together the EU's energy infrastructure in a more cohesive way, eliminating bottlenecks and ending delays to projects such as the Midcat pipeline.

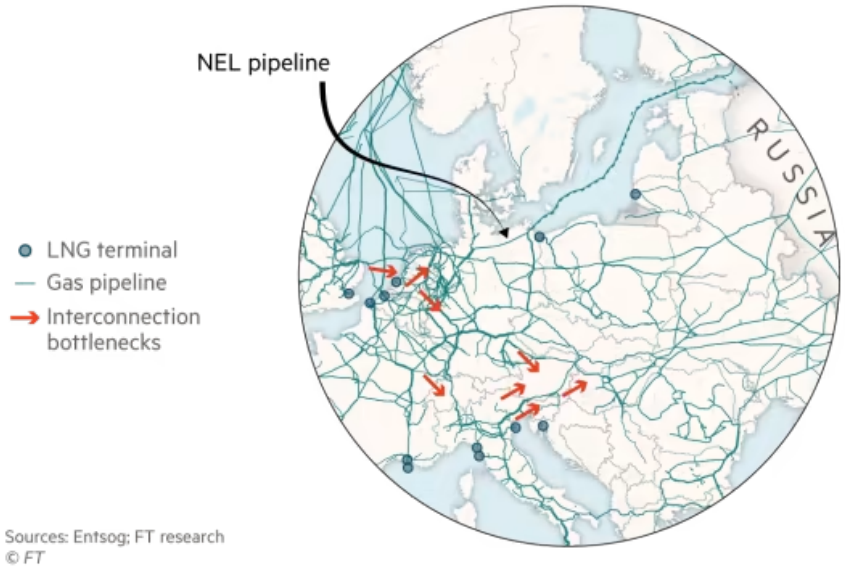
"If we had made these interconnections when they were agreed [with France in 2014 and subsequently], Europe would not now be in this situation of dependency [on Russia]," said Portugal's prime minister António Costa when he met counterparts from Italy, Spain and Greece in Rome in March.

Deficiencies in physical infrastructure leave some EU member states highly vulnerable to an end to Russian supplies. Concerns in Hungary, whose oil comes entirely from Russia and which complains it has few alternatives, are holding up EU attempts to phase in an embargo on all Russian crude.

Reliance on gas is just as painful. LNG import terminals in Rotterdam, Zeebrugge and Dunkirk are nearly at capacity and flows of gas from France to Germany and the Benelux countries are constrained.

"In case of no Russian gas, western countries cannot provide additional gas to the eastern European countries since there are limited capacities in that direction," said the European Network of Transmission System Operators for Gas in a recent report.

Modify pipelines to flow in reverse towards the east



Much of Europe's pipeline network is tailored to pump Russian gas from east to west. The EU has tried since 2009 to improve west-to-east gas infrastructure but the European Network of Transmission System Operators for Gas says

The European Network of Transmission System Operators for Gas says infrastructure limitations in the north-west and south of Europe would prevent additional gas flowing to central and eastern Europe if Russia were to cut off gas supplies.

A further obstacle to gas flows from France to Germany is that Germany's transmission network does not accept gas that has been odorised, which makes it safer for consumers detecting leaks but can introduce impurities.

Analysts say most projects to eliminate choke points will take years. Among the quickest options are floating facilities to turn LNG back into gas; and adding compressors to existing pipelines so gas can flow in a different direction. In the longer run, better infrastructure to turn Turkey into an LNG hub and bring more Azeri gas and Greek LNG imports to south-eastern Europe would help. So would building storage and interconnectors with the UK.

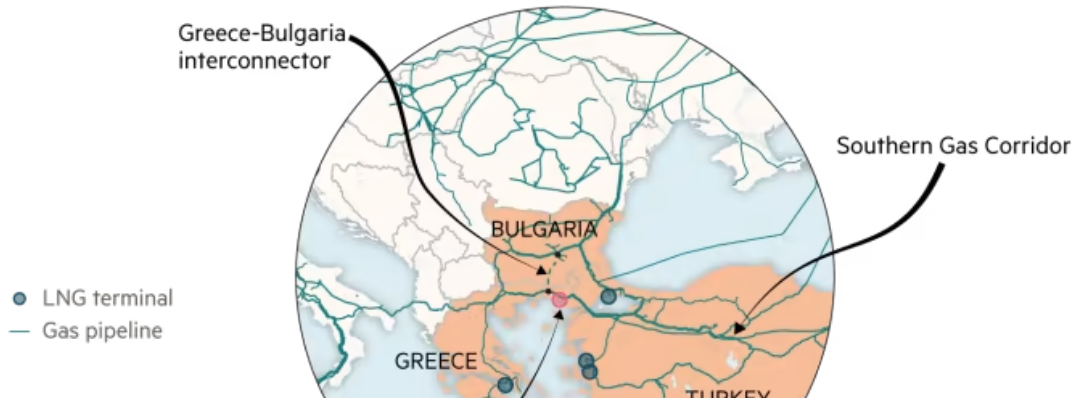
In Spain Arturo Gonzalo, chief executive of transmission company Enagás, said that with accelerated approval the new Midcat pipeline could be completed in 30 months and cost no more than €600mn for a pipe to handle hydrogen and natural gas.

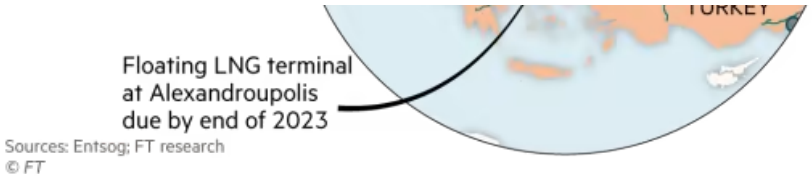
"We are developing the technical work with our French equivalent so that, if [both] governments decide, we can begin with the most speed possible," he said.

Jonathan Stern, research fellow at the Oxford Institute for Energy Studies, said many projects being reconsidered have been planned for years but rejected as not commercially viable when assessed against cheap Russian gas supplies. That assessment has now changed.

"There has been a revolution in the way governments have been thinking about infrastructure. Competition and free markets lose out when energy security is high on the agenda," said Massimo Di Odoardo, vice-president of global gas and LNG research at Wood Mackenzie.

Improvements in 'southern gas corridor'





Improvements here would help to bring more gas from Azerbaijan and LNG imports from Turkey into south-eastern Europe. The Greece-Bulgaria interconnector is due to start operating from October, which would help Bulgaria cope without Russian gas.

Legacy pipelines to carry Russian gas from Bulgaria to Turkey exist, and these could be reversed with agreement between the two countries.

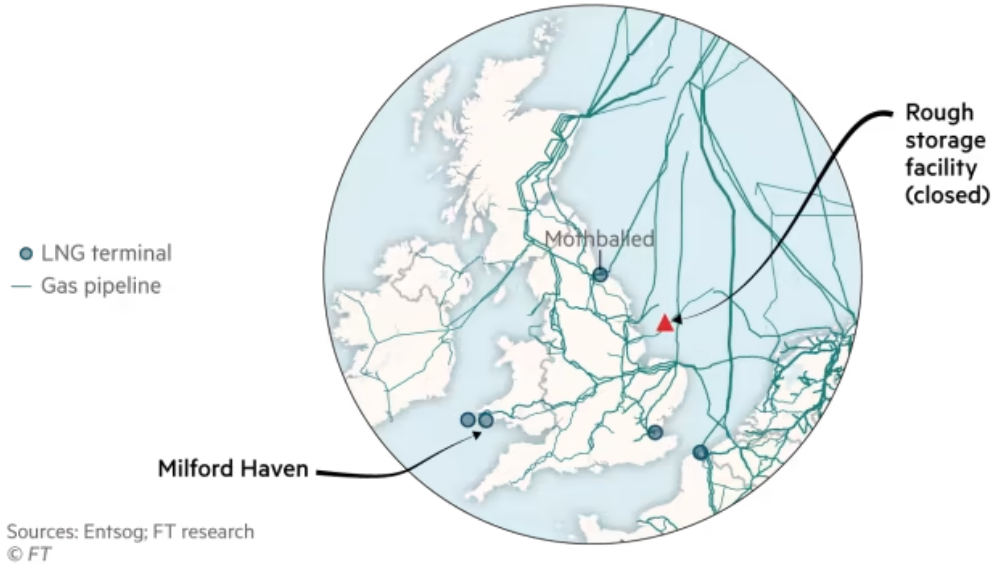
A floating LNG terminal at Alexandroupolis in northern Greece is supposed to be operational by the end of 2023 to connect to TAP and feed gas to Bulgaria and other countries.

Brussels has loosened state-aid rules to allow governments to help fund projects that will connect countries and it is prepared to put part of the EU's budget into projects, too.

Marco Alverà, an energy entrepreneur and former chief executive of Snam, the Italian gas grid operator, said the cost of the necessary infrastructure appeared small against what the region paid for energy in the six months of winter because of price rises.

"Who should pay for it is a non-issue when you put it into context of how much you're paying for energy," he said.

Make better use of capacity in the UK



The UK can act as a bridge to get LNG supplies into Europe. However, insufficient pipeline capacity and gas storage in the UK are preventing supplies from import

terminals in Milford Haven from getting to mainland Europe. The transit bottleneck has been exacerbated by the closure in 2017 of the Rough storage terminal in the North Sea.

Some are critical of a rush to build infrastructure in Europe. "We should stop and do an analysis — what infrastructure do we have? what can be used more and improved? — instead of going crazy building, building and building," said Ana Maria Jaller-Makarewicz, analyst at the Institute for Energy Economics and Financial Analysis. "There's a lack of planning as a whole continent together."

There is also doubt over whether investment in infrastructure to move oil and gas more easily around Europe is consistent with the EU's determination to decarbonise the economy. The EU's plans call for a short-term gas spike followed by a long-term decline as it seeks to reach net zero carbon emissions in 2050.

Simone Tagliapietra, senior fellow at Brussels-based think-tank Bruegel, said private investors did not want to invest in "stranded assets" that might be redundant almost as soon as they are built.

"It's impossible to replace all Russian gas molecules with others. In the event of a full Russian cut-off, countries would be forced to ration gas for certain industries," he said.

Even as Rotterdam port's chief executive Castelein tries to find ways to import more LNG, he is also looking to a different energy future for the EU — pointing out plans for electrolyser parks to produce hydrogen and biofuel plants to replace the coal yards and oil refineries.

"Fifty per cent of our throughput is fossil-fuel-based," said Castelein. "The transition we have to go through is unprecedented."

Graphics by Liz Faunce. Additional reporting by Peter Wise in Lisbon