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Europe Unplugged: can we give up Russian gas?

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Europe Unplugged: can we give up Russian gas?

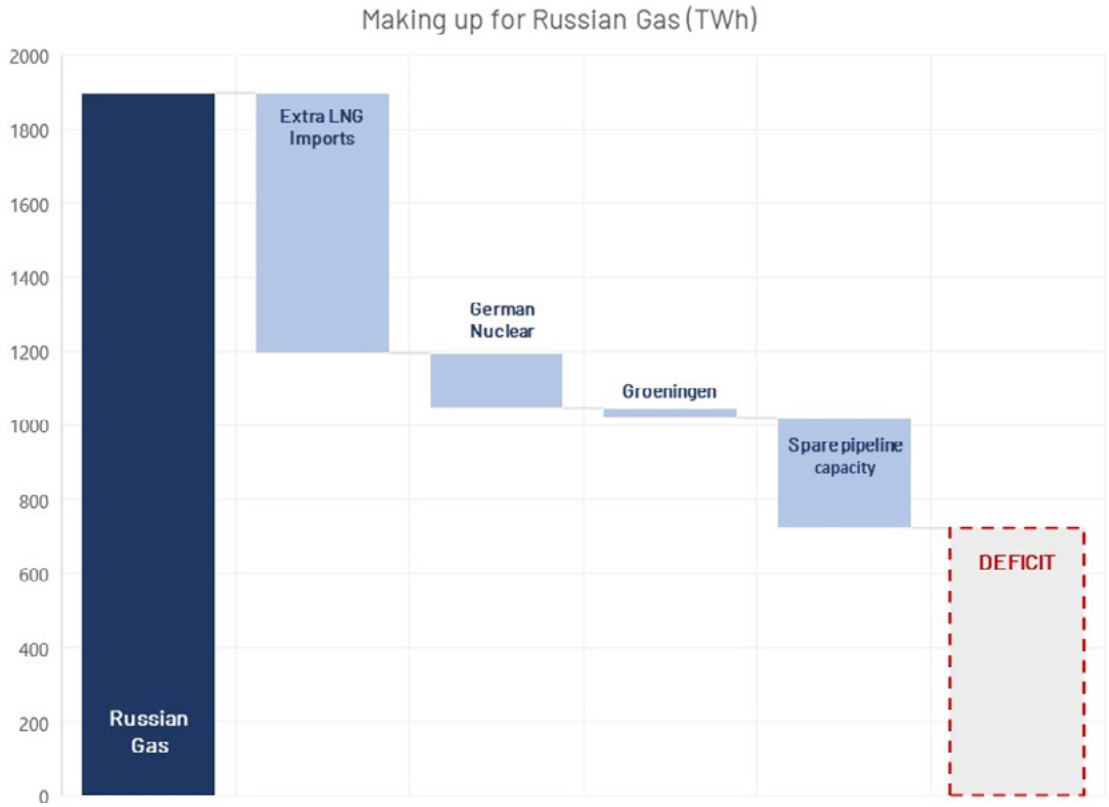
Over the past two years, European leaders have made ample use of war metaphors to rally citizens in the face of the Covid-19 pandemic. Today, Europe faces a real war at its eastern border. The aggression undertaken by Russia against Ukraine is a dramatic wake-up call for European security. The latest sanctions imposed by Europe and its allies on Russia – particularly those targeting the reserves held by the Central Bank of Russia – constitute a structural change in the game and may be met by Moscow with retaliation on gas supply. While current sanctions are expected to exempt energy flows from Russia to the West, the conflict should alter our strategic thinking about energy geopolitics.

Europe's limited gas production has declined by 20% over the past 20 years, and today about 60% of the EU's total energy needs are met with imports from foreign producers. Russia has historically been the EU's largest supplier of natural gas – accounting for ~38% of the EU's total gas imports in 2020. Dependence is not equally spread, however. With gas accounting for 45% of all energy imports and Russia providing 95% of imported gas, Hungary is by far the EU country most exposed to the risk of a Russian gas cut-off. Larger EU economies like Germany and Italy – which source respectively 65% and 43% of their gas imports from Russia – would also bear significant pain.

Can we unplug from the geopolitical shackle of Russian gas? Dependence is not equally spread through Europe.

Can we 'unplug' from the geopolitical shackle of Russian gas? Under optimistic assumptions, we find

Figure 1



Source: Algebris based on Eurostat, Bruegel, others

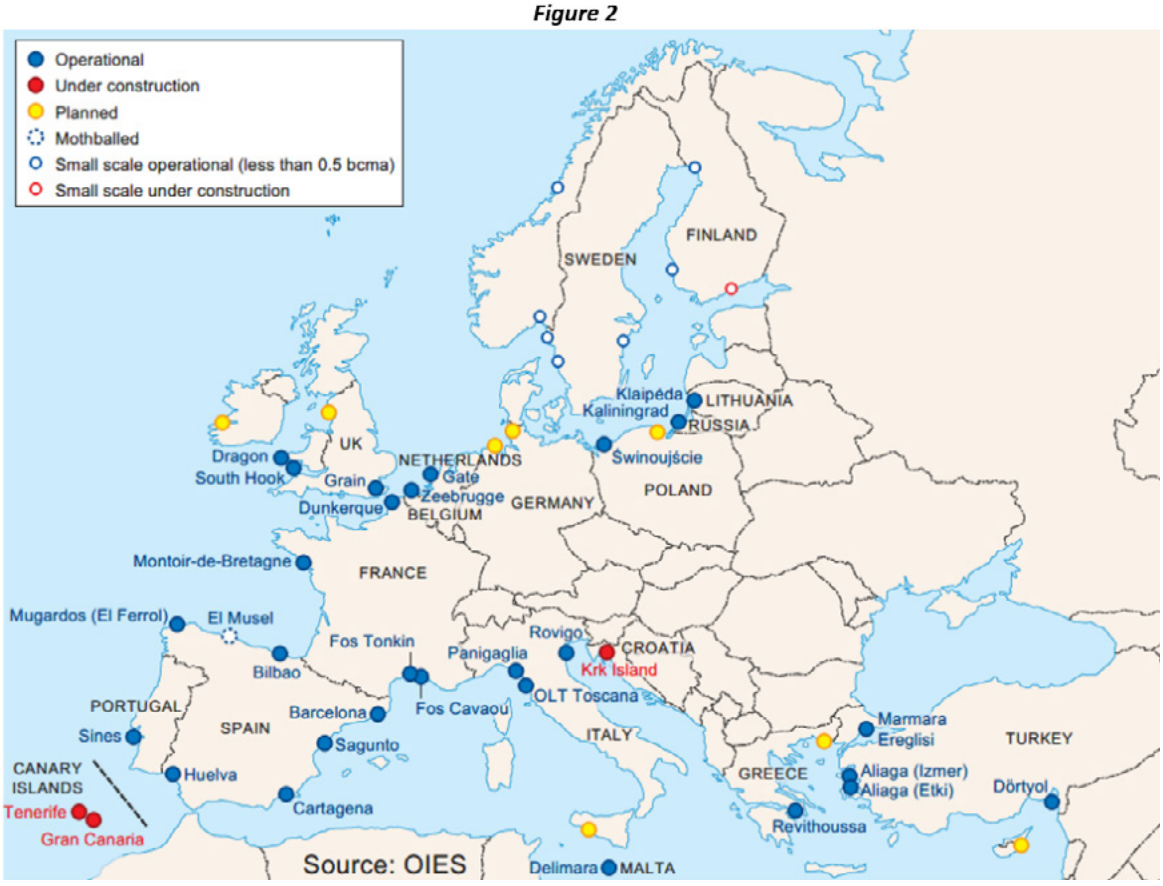
that Europe could possibly cover up to 62% of energy needs tied to Russian gas from other sources – albeit at high economic and political cost (Figure 1). The remaining energy deficit of ~721 TWh would exhaust gas reserves in ~5 months (at average consumption rates). If Europe is serious about breaking free from Russian gas – as we think it should be – the operation requires a strategic energy plan.

Limited Substitution...

Europe' Liquefied Natural Gas (LNG) imports have increased significantly after the 2014 war in Crimea. Import volumes of US LNG in 2019 had increasing sixfold compared to the previous year – almost closing the gap with Russian imported LNG. Volumes have increased further following a squeeze in Russian gas supply in the last months of 2021 and early 2022. LNG is therefore one obvious option for substitution – but one that is in practice significantly more complex than it appears.

LNG is first turned into liquid state to be transported, and then "re-gassed" at terminals – usually located near the coast – a before it can be used for heat and power purposes. Europe has plenty of idle capacity in its LNG terminals, which could theoretically reach a maximum import capacity of 1,900 TWh – allowing to replace Russian flows entirely. Yet, the European LNG infrastructure would hardly allow for a widespread substitution of Russian gas with LNG in the short run (Figure 2). LNG terminals are very unevenly distributed across Europe, and pipelines were not designed for gas to flow eastward. Spain and Portugal host seven LNG terminal, with an import capacity of 40 TWh per month, but transporting LNG to the rest of Europe would therefore be very challenging.

Figure 2



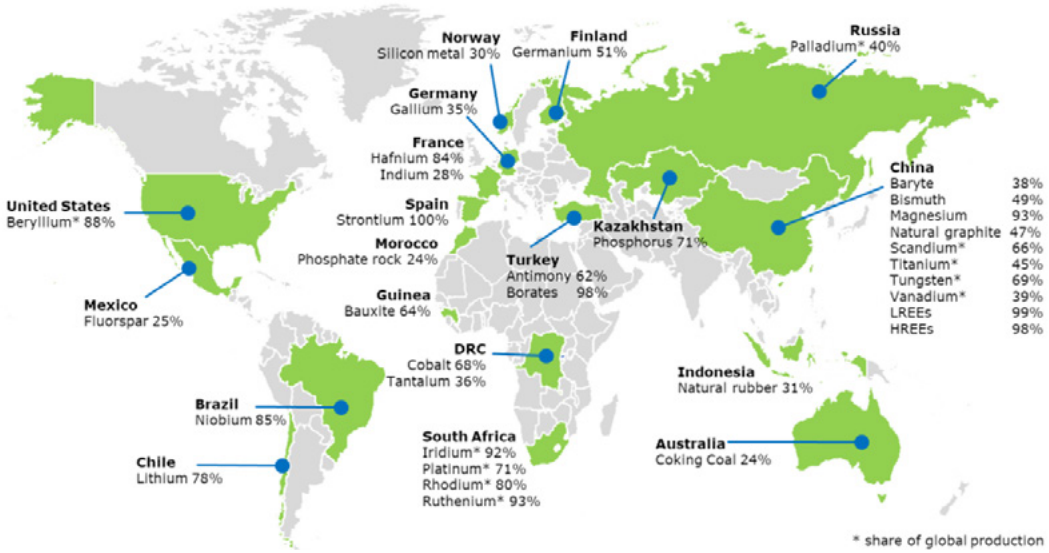
Source: Oxford Institute for Energy Studies

...At very high Prices...

On top of physical constraint, there are important market-based limitations to LNG substitution. About 20% of LNG imported by Europe comes from Russia and availability of additional LNG on the market is relatively limited. The biggest exporters of it are America, Australia and Qatar – who are all already exporting at or near full capacity. Expanding liquefaction and export capacity would take too long for easing Europe's short-term pain, so the only way to obtain additional LNG imports would be to outbid for LNG cargoes originally destined for elsewhere – namely Asia, which accounts for three-quarters of global LNG imports. As around 70% of LNG globally is traded on the basis of contracts that run for ten years or longer, capacity is locked in for long and Europe would be competing with other buyers for a small share of the market.

This scarcity would put significant upward pressures on LNG prices – in line with what we have seen happening at the end of December 2021, when LNG cargoes were attracted to Europe by historically high prices. Based on benchmark Dutch futures, the historical average of European gas prices over the 2004-2019 period has been around 20 EUR per MWh. Paying for an additional 1300 TWh of LNG imports at 'normal' market prices would translate into an annual cost of approximately 26 billion euro for the EU as a whole. The price reached at the end of 2021 – when Russian gas flows to Europe hit their lowest – was a historical high of 180 EUR per MWh. Paying for the extra LNG imports at those market conditions would increase the cost to more than 200 billion euro. Assuming a less dramatic increase of the price to 125 EUR per MWh – in line with the increased observed after the EU sanction imposed on 25th February 2022 – the cost of paying for 1300 TWh of LNG would set at around 162 billion euro, a six-fold increase compared to historical rates.

Figure 3



Source: European Commission, Study on the EU's list of Critical Raw Material (2020)

This spike in gas prices would now be an isolated shock but rather come together with similar dynamics across the oil market – already showing signs of pressure in view of increased logistic and insurance prices from the military developments in Eastern Europe – and more generally commodity markets. Russia and Ukraine together account for a quarter of global wheat exports and a fifth of

corn sales, while Russia is also a major supplier for strategic raw materials and commodities such as aluminum, nickel, iron ore and palladium. As the war intensifies, we expect logistical complexities to exert upward pressure on shipping and insurance premiums across all these products.

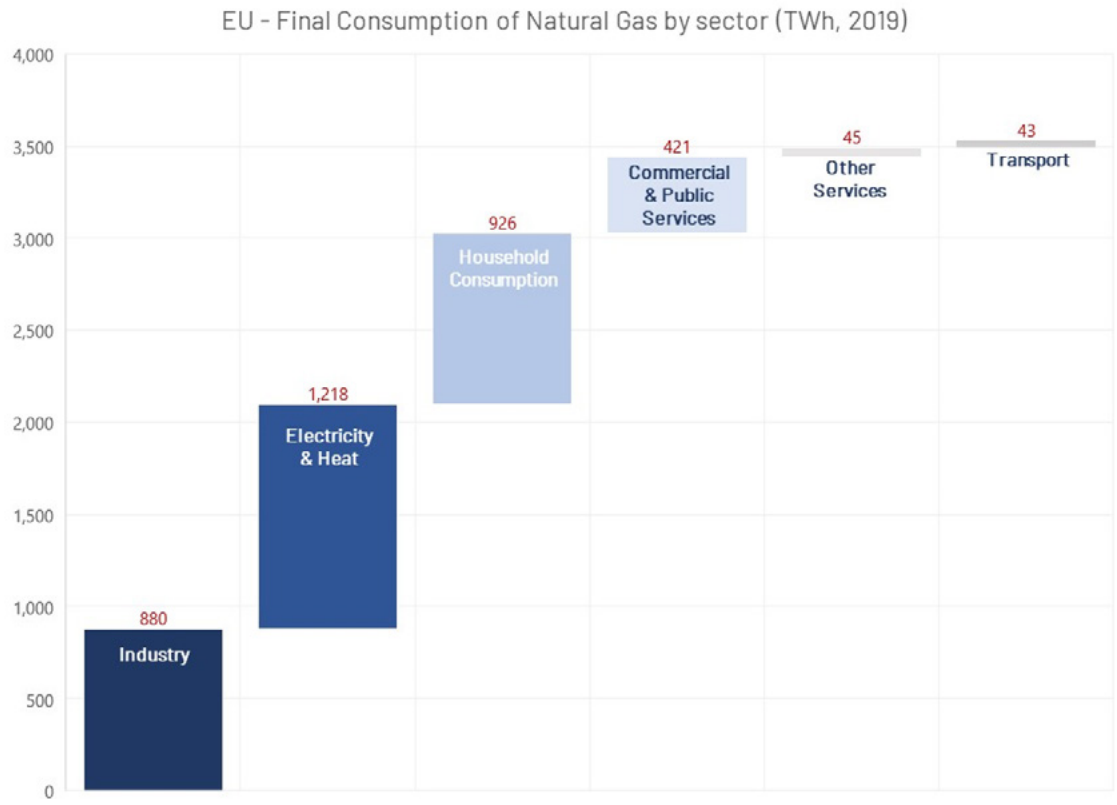
We estimate the combined effect of these prices shocks to the EU Consumer Price Index inflation to be around 1.4%. Numbers for the largest individual EU economies are similar, with Germany, Italy and France experiencing higher inflation of 1.4%, 1.3% and 0.9% respectively. Absent EU-wide price support, we believe some EU member states who are most exposed to a squeeze in Russian gas supply Figure 5) could lack the fiscal space to afford it.

...with Inelastic Demand

Europe's final consumption of natural gas amounts to ~3500 TWh annually. Imported Russian gas (153 billion cubic meters) covers approximately 46% of that consumption, in energy terms. What would happen if we unplugged that completely and/or if Russia where to completely stop supply?

The largest share – about a third of total final consumption – is accounted for used for producing electricity and heat. This is an area where *some* room would seem to exist for doing without Russian gas, although at a significantly higher cost. We estimate that revoking the closure of German nuclear power facilities and ramping up gas production at Groningen could substitute for 150 TWh of gas – but both options would come with a significant economic cost and are politically charged. What could deliver more significant results would be increasing LNG imports and utilizing spare pipeline capacity – but as discussed above, these options are all but immediately feasible and would come at significantly higher prices.

Figure 4



Source: Algebris based on Eurostat

Another politically difficult option, discussed here, is that of reversing the 100 TWh decline in coal-fired power generation since 2019 – which could save more than 200 TWh of gas quickly. While this would clearly be a transitory measure – aimed as a bridge until a long-term increase in renewable capacity is achieved – this choice would be incoherent with current EU climate policy and hence might elicit political opposition. At the same time, increased emission from coal would need to be offset with on the EU ETS, which will anyway come at a very high price. Switching some electricity production from gas to oil has also been proposed as an *extrema ratio*, but it does not yield sizeable saving in terms of the gas Europe needs to meet its consumption (and feasibility may be limited by the fact that Russia is also a major oil producer).

The industrial sector, which accounts for approximately 25% of final gas consumption has little room to diversify in the short term. Over the past few months, the number of producers announcing production curtailment in response to skyrocketing energy prices has been increasing across gas-intensive industries such as steel and aluminium and chemicals. Households' consumption – which accounts for an additional quarter of total gas final consumption across the EU – is likely to be inelastic in the short term, although some savings could come from energy conservation initiatives (such as lowering thermostats, more attention to electricity consumption etc.).

Overall, we estimate that under very optimistic assumptions the EU would be able to cover at best around 60% of the energy consumption currently served by Russian gas through alternative sources. This would leave a gap of ~720 TWh towards normal EU final energy consumption. Increasing energy efficiency in residential buildings and offices would allow massive savings in the household sector's reliance on gas, but even though sizeable resources have been earmarked to this as part of the EU Next Generation package this is obviously not feasible in the immediate short term. Ramping up renewable energy capacity – also at the centre of the EU climate strategy – would certainly help breaking free of the gas curse. But even assuming that the speed of annual solar PV deployment is doubled from around 15 TWh to 30 TWh per year, covering the Russian gas deficit we estimated would still take more than 20 years.

Moving Forward

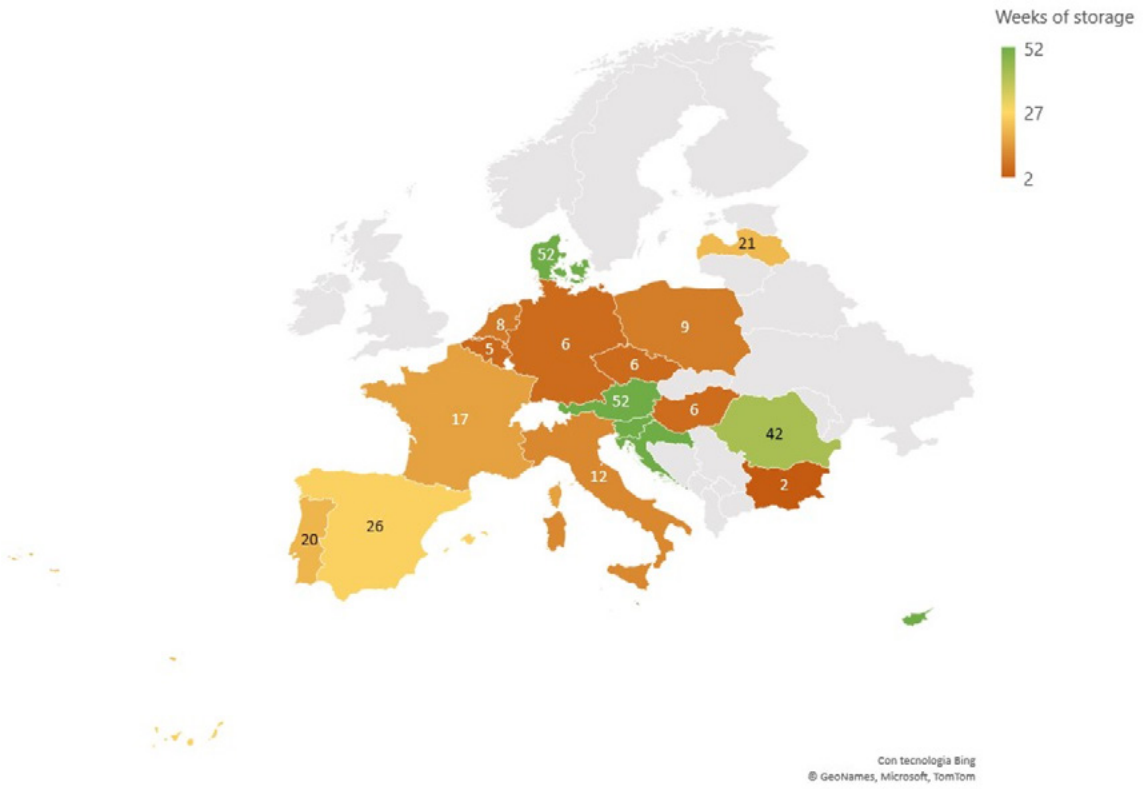
Over the past two years, European leaders have made ample use of war metaphors to rally citizens in the face of the Covid-19 pandemic. Today, Europe faces a real war at its eastern border. The aggression undertaken by Russia against Ukraine has triggered economic sanctions of unprecedented proportion from the EU – including a freeze on the Central Bank of Russia's international reserves as well as Russia being cut off the cross-border payment system SWIFT. So far, energy transactions between Russia and Europe are not prohibited by the existing sanctions. The exclusion of Russia from SWIFT would not per se prevent Russia from receiving payment for oils and gas, and hence would not constitute an event of *force majeure* on existing contracts. Russian gas could therefore keep flowing towards Europe – although it is likely that Russia will decide to reduce supply of this key commodity as a counter-sanction, to crack up the pressure on the EU.

This notwithstanding, it is hard to overstate the extent to which the military escalation constitutes a wake-up call for Europe. Continued dependence on Russian gas is clearly incompatible with the often-proclaimed goal of EU strategic autonomy. Breaking away completely from Russian gas seems however hardly feasible for Europe in the short term. Under some very optimistic assumptions about

the feasibility of alternative sources, the EU would face a gap towards its normal energy consumption that would exhaust gas reserves in approximately 5 to 6 months.

Figure 5

Weeks of storage without Russian gas imports



Source: Algebris based on Eurostat data

After that, getting by without Russian gas would necessarily require reducing energy demand from industrial production and/or households' consumption. These imply sizable economic and political costs that most EU member states would hardly be able to shoulder on their own. To keep Europe together in the vital need of unplugging the shackle of Russian gas, we therefore think the EU should urgently agree on an energy security joint plan.

This should feature the absolute prioritization of residential energy efficiency initiatives and the fast track of renewable capacity projects, all while building the infrastructure needed to exploit the full potential of LNG terminal and diversifying as much as possible away from Russia in the short term through additional LNG imports and utilization of spare capacity. There is no doubt that this will be extremely costly, and solidarity will be needed. We believe that EU financial support should therefore be provided to the countries that are most dependent on Russian gas (Figure 4), to mitigate rising energy bills. As that it serves a common strategic goal, we believe that this support should be financed through common EU debt issuance – following the blueprint of Net Generation EU – and underpinned by increased own resources.

When faced with the common catastrophe of Covid-19, Europe rose to meet the challenge – embracing solidarity as the guiding principle of its action. The challenge we face now is equally existential and no less urgent. It should elicit the sentiment, as it is about our future as Europeans.

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