

A Perfect Storm: The Causes and Consequences of the European Energy Crisis

The current developments in the international commodity and energy markets are unprecedented in recent history, the causes little understood, and the consequences far-reaching. The situation is particularly severe in Europe and should serve as a wake-up call for the European Commission and European Union (EU) member states. A sober analysis of the causes and consequences highlights how a lack of security and strategic sovereignty in energy policy undermines economic, environmental and foreign policy goals.

The energy price crisis and its causes

Price volatility is an integral part of energy markets, as prices convey information about the relative scarcity of goods to producers and consumers. While the prices for crude oil and (liquefied) natural gas (LNG) fell strongly in 2020 due to the pandemic-induced contact restrictions; since the middle of 2021 prices for natural gas have risen sharply and reached previously unknown heights. Year on year, European wholesale prices for natural gas increased by 700-800%, trading at the equivalent of 350 USD per barrel of oil. A view to the future markets reveals that prices will remain far above average for at least the coming year.¹ Towards the end of 2021, the prices for natural gas in Europe reached such high levels that even Asian buyers were increasingly outbid, and LNG carriers traded on the spot market set course for Europe and, together with mild weather, provided short-term price relief.² Meanwhile, spearheaded by the Biden administration, there are significant efforts underway to engage with suppliers like Qatar, but also importers like Japan, to provide additional emergency LNG supplies to Europe in case of further supply disruptions.³ These price extremes mainly result from the low filling levels of the European gas storage facilities. Early February 2022, EU storage levels were only slightly above 35% or 393 TWh, far below the average of recent years.⁴

As the Brussels based think-tank Bruegel highlighted, if imports stay low or fall even further and a prolonged heating season elevates demand, Europe could plunge into a real supply crisis.⁵

Since natural gas is essential not only in the electricity sector but also for heat generation and industry, the supply shortage is spreading to all sectors of the economy. Prices in the European wholesale electricity market have multiplied by a factor of 5 and more, and will, according to the European Central Bank's (ECB) estimates⁶, remain high for the foreseeable future. Less extreme, but equally important, is the rise in the price of oil. At the beginning of the year 2021, the price of crude oil was still at 55 USD; at the beginning of 2022, it exceeded the 90 USD mark and, according to numerous experts, is heading towards 100 USD and more.⁷

The causes for the current developments are manifold and complex. The most commonly cited reasons are, on the one hand, the long winter of 2020/21 and the stronger than expected economic recovery in Europe, but also in Asia (especially China), which has led to a higher than anticipated demand for natural gas.⁸ The increasing integration of regional gas markets via LNG led to a situation where Europe and Asia are now competing for the energy carrier. As Europe moved away from long-term purchase contracts with fixed prices and volumes, this is driving up the price. In addition, there are supply difficulties from important LNG swing suppliers and the local production of natural gas at the Dutch Groningen gas field has fallen further.⁹

On the other hand, the elephant in the room is Russia – the main supplier of natural gas to Europe with a market share of roughly 40% EU-wide, and in some member-states close to a 100%.¹⁰ Although there is no indication that Russia does not deliver the volumes specified in its existing agreements with European

customers, it did, and continues to, refuse delivering more than that, even though it could achieve extremely attractive prices on the spot market. The reasons for the lack of additional gas supply are not as clear cut as they might seem at first glance. Gas prices in Europe would drop if Gazprom would deliver more, hence not necessarily leading to higher revenues. Moreover, there is uncertainty surrounding Russia's spare capacity and its ability to serve as a swing supplier to balance heightened demand.¹¹ It should also be noted that in many European countries Gazprom has no legal obligation to maintain minimum storage levels, but is obligated to first serve Russian customers. It is equally not obligated to supply gas on the spot market and has repeatedly warned Europe to shy away from long term contracts.¹²

However, there clearly is also a (geo)political aspect to the situation. A closer look at routes of Russian gas exports to Europe reveals that pipeline imports from Russia via Ukraine (Brotherhood) and Poland (Yamal) have decreased significantly in 2021. However, deliveries via the existing Nord Stream 1, which is fed from the same gas fields as Yamal, as well as via the Turk-Stream pipelines remained constant¹³ and gas exports to Turkey increased.¹⁴ Overall, less gas is flowing from Russia to Europe and preference is being given to pipelines owned by Gazprom. Also, Gazprom's European gas storage is historically, and in comparison to others, remarkably low. Ultimately, Russia has made increased gas supplies conditional on the successful commissioning of the Nord Stream 2 pipeline and the return to long-term supply contracts.¹⁵ These demands come at a time when a Russian military intervention in Ukraine is becoming more likely by the day. Fatih Birol, the Head of the International Energy Agency (IEA), therefore, accuses Russia and Gazprom of exploiting its market power for geopolitical purposes and asserts that Russia is withholding at

least one-third of the possible supplies to Europe, thus emptying its gas storage facilities and undermining the security of supply in Europe.¹⁶ For a long time, the gas market was a buyer's market and liberalised prices brought strong economic benefits to European customers,¹⁷ but in the current situation the market power of Gazprom and the import dependency of Europe is obvious.

Furthermore, there are also deeper causes for this energy crisis which give rise to fears that this crisis reflects a more fundamental problem than just a short-term third-order effect resulting from the economic turbulence of the Covid-19 pandemic. The world is chronically under-investing in its energy supply—upstream investments in oil and gas are only half of what they were in 2014 – while demand for these products has not changed equally and investments in renewables are far from sufficient to substitute them.¹⁸ The relatively low oil and gas prices of recent years, particularly in 2020, combined with the political focus on climate protection and decarbonisation of the energy system made investors and producers reluctant to invest in new projects as the perceived risk of not finding demand increases. In particular, publicly traded western oil and gas companies, the so-called majors, have already adjusted to a less carbon-intensive future. Combined, they now only account for 15% of the world's oil and gas production.¹⁹ As a result of falling investments, the LNG market hasn't grown as strongly as in previous years and producers have little to no spare capacity to compensate for short-term demand increases.²⁰ However, a look at the IEA's various scenarios shows the great level of uncertainty regarding the future demand for fossil fuels. While in the "Net-Zero emissions by 2050" scenario oil demand would need to shrink by 75% compared to 2020 levels, in the stated policies scenario demand will actually increase by 16% over the same time frame. The range for natural gas is similarly wide, with a decline of 56% and a growth of 27% in respective scenarios.²¹ This, combined with the long lead times of energy projects, increases the risk of reoccurring periodic shortages and extreme price volatility as a result of a miscalculation by investors, policymakers and the energy industry

leading to a mismatch between supply and demand. The energy crisis of 2021/22 is a pre-taste of what might await us in the future if the energy transition is handled based on wishful thinking rather than sober analysis. In this context, it is important to point out that in contrast to private western companies, state-owned energy giants like Rosneft, Saudi-Aramco and China National Petroleum Corporation, and also publicly traded but majority state-owned firms like Gazprom, increase their investments into oil and gas production. This already results in a situation where the market share and hence geopolitical influence of some OPEC+ producers increases. This trend is likely to intensify as price volatility during the energy transitions will benefit those who can quickly ramp-up production at low cost and hold the most reserves.²²

Knock-on effects of the energy price crisis

Security of energy supply and affordable prices are the backbones of every state actor and its economy. The consequences of persistently high energy prices are already becoming clear – economically, socially, environmentally as well as geopolitically.

High energy prices threaten the existence of energy-intensive companies and falling profits undermine their ongoing costly decarbonisation efforts. Several European companies already had to shut down their production and are considering relocation²³ while warnings about brownouts and blackouts are increasing,²⁴ and experts consider the economic recovery to be in massive danger.²⁵ Since virtually every product in its supply and value chain is ultimately produced with the help of energy generated from fossil fuels, inflation is intensifying. Even the ECB is now warning of longer-lasting high prices in connection with the energy transformation.²⁶ This in turn has a direct impact on the consumer. Energy prices for the German end-consumer have already risen by 47% in 2021²⁷ – the largest increase ever measured within one year, disproportionately affecting low-income groups.²⁸

The climate and the deployment of renewable energies are also suffering from the high prices of natural gas. Due to reverse

fuel switch (from gas to coal instead of vice-versa), coal celebrated a dirty comeback and experienced record demand and profits worldwide and even in Europe despite unseen prices for CO₂ emission permits in the EU.²⁹ Ironically, also large parts of the renewable energy value chain depend on the cheap availability of fossil fuels and coal-fired industrial mass production in China. There, too, have been energy bottlenecks and the manufacturing of solar panels was severely affected by this.³⁰ For the first time, the costs of solar and wind power increased again, ending years of cost degression.³¹ This reduces their competitiveness, and ultimately undermines the goals of the energy transition.

The current crisis shows how deeply interwoven European foreign and security policy is with fossil fuels. This can be seen, for example, in the rapid increase in food prices. One of the main cost determinants of food prices are fertilisers, made from natural gas-based ammonia. Due to high gas prices, several fertiliser producers have already stopped production and the Food and Agriculture Organization warns of global crop failures as a result.³² A continuing gas price crisis could potentially cause a food crisis – prices are at the same level as at the beginning of the Arab Spring.³³ The violent riots in Kazakhstan at the beginning of 2022, triggered by the curbing of artificially low energy prices, serves as another example showing how fragile societies are and how explosive price increases of everyday products can be. As energy markets are internationally interconnected, low gas storages in Europe, among the largest in the world, also affects other economies. High energy prices lead to high food prices. Both energy and food prices drive up the already high inflation and act like a match being thrown on dry kindling – possibly igniting and fuelling popular discontent caused by cronyism, poor governance and falling standards of living in many emerging markets since the pandemic. Further instability, major unrest or even violent conflicts, and thus renewed large migration movements towards Europe, are plausible scenarios.

The conflict with Russia over Ukraine's sovereignty and the wider European

security architecture has also reached new heights so that a (renewed) partial invasion is becoming increasingly likely. The reasons for this are not part of this paper, but this conflict puts a spotlight on the EU's minor role when it comes to hard power and geopolitics.³⁴ In addition to a lack of military capabilities, strategic vision and political will, foreign policy-making in many EU member states is paralysed by the energy price crisis and gas import dependency. Severe economic sanctions on the energy sector or even an exclusion of Russia from the SWIFT payment system seem like empty threats in the face of the current gas shortage and need of continued imports from Russia. The natural gas crisis in effect might provide the Kremlin with a window of opportunity it would otherwise not have had. This is aggravated by Ukraine's diminishing role as a transit country for Russian gas exports to Europe which could be interrupted in case of major conflict. Ukraine was once the central transit node for European gas supply; however, gas flows have reduced by more than 70%, from 140 bcm in 1998 to merely 42 bcm in 2021. This is for several reasons: on the one hand, Russia has been actively diversifying its transport corridors, notably by building the Blue and TurkStream pipeline via Turkey and the Nord Stream 1 pipeline directly linking itself to its biggest customer – Germany.³⁵ On the other hand, the gas fields of western Siberia are depleting so that focus lies on the more expensive Yamal region – to which also the Nord Stream 2 pipeline is connected,³⁶ of which the commissioning would further weaken Ukraine's cards.

Recommendations for action

Several recommendations can be made given the situation. The focus must be on a return to a healthy balance between sustainability, economic prices, and security of supply – the strategic triangle of energy policy. The shift of attention towards climate protection and sustainability within this triad does not come without its consequences. The knock-on effects of a one-sided focus might in fact undermine support for prioritized goal. High prices and supply shortages are much more immediate concerns for politicians and the public. Hence,

as others have noted: "if climate ambition comes into tension with energy reliability or affordability or the security of energy supplies, climate ambition will lose."³⁷

The expansion of LNG import terminals has greatly diversified Europe's import options and connected major suppliers like the US and Qatar, while investments into reverse gas flow capabilities made it easier to redirect gas on the continent to where it's needed most. Noteworthy exception is Germany, which so far did not build a single LNG terminal.³⁸ However, since Europe buys LNG mostly on the spot market and is generally considered a "market of last resort", only extreme prices lead to LNG finding its way to the continent. Thus, this hedge is only partially effective. Even more so considering that global liquefaction capacity for LNG is nearly fully utilised and many suppliers are bound by fixed long-term agreements with Asian buyers.³⁹ Moreover, the bulk of projected future demand for energy, including LNG, lies in Asia, meaning competition over available supply will further intensify – likely to the detriment of Europe.⁴⁰ Therefore, the role of gas storage facilities must be given greater consideration. Unlike oil, there is no strategic reserve nor are there mandatory minimum filling quantities for natural gas storages in many EU member states. Both could be implemented in the medium term and would contribute significantly to security of supply.⁴¹ In the year ahead, however, Europe will likely struggle to adequately fill its storages as at the end of this year's heating season, storages will likely be at very low levels and prices still high, therefore possibly dragging the crisis into the next winter.

Moreover, the interplay and simultaneous occurrence of various risk factors—a "worst case" scenario—is often a blind spot in the debate on security of supply. While the ENTSO-G regularly performs security of supply simulations and incorporates scenarios where extreme climatic conditions and supply route disruptions via individual countries appear in tandem,⁴² they do not consider a scenario like we are experiencing today—where in addition to the outlined risks, tight global markets did not allow to fill storages to sufficient levels

when entering the winter season and geopolitical actors withholding supply are in play too. Policy-makers seem unprepared for the current situation. The fact that it is the US, and not the European Commission, that is leading the preparation of emergency plans for the European gas supply is quite telling.⁴³ In future foresight and supply security simulations, tight global market conditions and geopolitical risk scenarios should be integrated alongside already assessed factors and emergency plans prepared.

Ultimately, the expansion of renewables, and especially energy efficiency measures in the heating sector and in existing building stock, are an essential long-term lever for reducing dependence on natural gas and shielding oneself from the whims of global markets. In the coming years, however, the accelerated phase-out of many nuclear plants across Europe will likely hamper ambitions to decarbonise the power grid while increasing the importance of natural gas and flexible gas turbines to balance volatile generation from renewables.⁴⁴

In the end, it comes down to Europe lacking strategic sovereignty – also in energy affairs. The lack thereof undermines other objectives in climate, foreign and economic policy, such as stability in the neighbourhood, expansion of renewable energies, and deterrence through the credible threat of sanctions. Sovereignty builds on, but is more than, security of supply, i.e. reliable and affordable energy supply. Rather, sovereignty in energy affairs is achieved when other interests and policy goals can be pursued independently of security of supply considerations.⁴⁵

If the EU and its member states do not address the current crisis appropriately, they will likely fail also in their other undertakings.

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