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The Energy Price Crises
A Reality Check for Europe's Green Deal

Marc-Antoine EYL-MAZZEGA
Carole MATHIEU

Key Takeaways

- On its path to carbon neutrality, the European Union (EU) will be exposed to growing energy price volatility and vulnerable to Russian and Chinese pressure on supply and demand.
- For the sake of climate and energy security, the EU must use energy more efficiently and enable an equally attractive framework for investment in renewable energy (REN) and nuclear power.
- The strong dependency on gas imports will persist for at least a decade and the EU must focus on price stability to avoid derailing its climate policy, while actively promoting the deployment of alternative flexibility solutions.
- Introducing carbon price management tools would reduce consumer pain and improve the investment framework for low-carbon products.
- Europe's industry is at risk from too high energy prices and too slow decarbonization, at a time when carbon havens could become the new tax havens.
- The EU should better prepare for future crises and consider the global implications of the energy price crunch.

A Brown, Smoky and Chaotic Recovery

The world is currently undergoing several crises, both temporary and systemic, that are mutually reinforcing. These are challenging the pace of the global recovery and the ability to foster decarbonization efforts. While the Covid-19 pandemic is not over and vaccination rates are uneven, recovery plans have not fully delivered yet. One crisis follows another: the easing of the pandemic has given way to concerns over the greenhouse gas emission disaster of 2021, possibly the second-largest increase in history. The contrast is stark: the recovery was called-up to be green and not reproduce the 2010 upturn. Yet coal, oil and gas are dominating the agenda as governments seek to end shortages and ease price tensions to keep the recovery on track at all costs – including to the climate.

Energy prices are rising, and so are agricultural and mineral commodity prices. Several emerging economies are specifically hit by currency depreciation, the weak dollar, possible sovereign debt crises, a setback in Sustainable Development Goals and insufficient access to cheap finance. Supply chain bottlenecks, forced industrial production cuts in China and looming ones in Europe (in fertilizers and in cars), inflationary risks and social implications, are of high concern. Finally, US-China rivalries are expanding and sharpening, with Taiwan now so much in focus that North Korea, Ukraine, Yemen, Syria, Lebanon, Venezuela are becoming largely marginalized. 2021 is far from being rosy and green.

In addition to the fundamental mismatch between surging demand and disrupted supplies resulting from the Covid-19 crisis, there are many weather-related factors behind the energy price crunch. A colder and longer winter than expected in Europe, North America and Asia increased natural gas and coal consumption, while a historically dry second half of the year is affecting hydropower output in America and the Middle East, compounding the effects of natural gas demand. The deep freeze in Texas in February and the heavy rains in Shanxi coal-producing province in China, as in India, further increased supply constraints. Moreover, low winds have been driving gas and coal fired power generation in Europe.

On the oil front, OPEC+ has been cautious in ramping up supplies, too eager to maximize revenues in letting oil prices rise above $70/barrel. Producers are obviously pleased by this reversal of fate after massive losses in 2020, and they are wary to prevent another fall in prices should the pandemic hit again, should United States (US) supplies bounce back or Iran double its exports following a potential revival of the nuclear deal. Saudi Arabia and Russia are certainly also happy not to listen to White House calls to better supply markets, and unimpressed by US and Chinese stock releases. In such troubled times, further volatility is the likeliest scenario for global energy markets.

Heading into winter in the Northern Hemisphere, the worst-case scenario would be below normal temperatures in a context of tight coal and gas supply margins.

Europe's Vulnerability Exposed, Once Again

For Europe, the reality check is dire: it is a price taker on everything it imports, and it is fundamentally and increasingly dependent on external fossil fuel supplies (97% of its oil, 44% of its coal and 90% of its gas). Furthermore, it has no control or leverage on external factors shaping these markets and can only seek to curtail damages. While a high oil, gas and coal price environment is in principle positive to foster low carbon alternatives, consumers and citizens cannot adapt and adjust instantly to such price shocks. The immediate consequence is social and economic pain rather than change in behavior and investment, which require more a gradual increase in fossil fuel prices.

Progress achieved in energy efficiency, clean mobility and decarbonization of the electricity grid has been too slow and the EU's net energy import dependency reached 60.9% in 2019, the highest level in thirty years.[1] Moreover, the weather plays an increasing role in markets everywhere in the world, because of the growing share of renewables and the impact of climate change on both supply and demand. While it plans for carbon neutrality, Europe remains deeply entrenched in the old world of fossil fuels, for transport, heating but also with fossil fuel electricity generation still accounting for 40% of annual production. The other reality check on Europe is that social acceptance is a make-or-break issue in the energy transition policy equation, and a popular backlash would mean a lost decade for climate action.

Energy will not be cheap, low-carbon and plentiful in the foreseeable future

The US is largely sheltered from the economic consequences of these tensions, whereas Europe is increasingly vulnerable to Russia and China: Russia for its gas export policies and it being a key role in Organization of the Petroleum Exporting Countries (OPEC+); and China for its commodity import levels, as well as for its material and clean technology exports. The US role a as key swing supplier for the global gas market has reached a limit, as its own demand has been soaring, driving Henry Hub prices higher (though they are a fraction of European or Asian prices). The US recovery plan (infrastructure bill) seeks to gain technological leadership and create jobs as a co-benefit or pre-condition of climate action, but industrial competitiveness based on cheaper hydrocarbons remains central to the US growth model.

For the EU, the inevitable lesson is that energy will not be cheap, low carbon and plentiful in the foreseeable future, and the pressure on vulnerable customers and industrial competitivity will intensify. Fundamentally, trillions of euros in low-carbon investments are needed by 2030 and the market alone will not deliver. The climate emergency will require an update of the EU fiscal framework. Yet, additional public spending for the accelerated decarbonization will have to be repaid, and somebody will have to bear these costs.

1. European Commission, "State of the Energy Union 2021 – Contributing to the European Green Deal and the Union's Recovery", Press Release, October 26, 2021, available at: https://ec.europa.eu.

This is where things get uncomfortable and unclear: How can policies enable an orderly transition to carbon neutral energy markets, without being stuck in the undesirable situation shaped by the legacy of the old world and its vulnerabilities, and the incomplete transition to the new system, which in turn comes with new geopolitical challenges?

This briefing memo argues that clarifying the long-term goals and fixing short-term tensions with social redistribution is not enough and that the EU should come up with a bold action plan to manage the transition risks, at the domestic and diplomatic level.

Back to Energy Security Fundamentals

Soaring prices on EU wholesale gas and electricity markets, as well as at gasoline stations, are now progressively translating into higher bills for households and industries. Afraid of social and political discontent, Member States have quickly entered panic mode and 20 of them have decided to introduce emergency measures to soften the price burden for final consumers. Government interventions however always carry the risks of distorting competition in retail markets and undermining the level playing field between national energy-intensive industries. Yet, temporary, and targeted measures are much less disruptive for the European energy and climate policy than the recent calls from France or Spain to simply overhaul the wholesale market design in place since the end of the 1990s; or again Poland and Hungary asking for a revision or postponement of the Fit-for-55 package.

To avoid rash decisions, the European Commission (EC) released a "toolbox" of measures that European capitals can take to respond to the energy price crisis without breaching the internal market rules. In fact, the EC stresses that governments have sufficient leeway to manage the ongoing crisis. Taxes usually represent a third of household electricity or gas bills and the auctioning of carbon allowances is also generating record-high revenues which can be redirected to vulnerable consumers and the most impacted businesses. Moreover, governments and consumers will save costs since market prices are above guaranteed prices for renewables. It is a reassuring message for the short-term, and a call to keep calm and carry on with the EU's Green Deal, pictured as the only lasting solution. The destination is clear and it is about breaking our dependence on external and volatile fossil fuel supplies by using energy more efficiently and stepping up investments in renewables (while the EC remains silent on nuclear power).

Keep calm and carry on with the EU's Green Deal

Yet, the EC's approach is disappointing Southern Member States which are calling for a more interventionist approach. The current situation is ironic in that, for the last five years, the EU electricity market design has been criticized for generating too little revenues and failing to keep enough generation capacities online. Today, the focus has suddenly switched from a structural issue – i.e., the dampening effect of renewables on wholesale prices – to the temporary perception of unfair profits for producers with low operational costs. However, clearing prices above marginal costs are precisely what is needed to trigger market-based investments in capital intensive, low-carbon technologies and to reduce the

need for public support. In addition, shifting away from the marginal cost-pricing methodology amounts to reversing 20 years of efforts to build a functioning internal electricity market, seriously damaging investor confidence and increasing the cost of capital at the worst time for the energy transition. For example, Spain has just missed-managed a major renewable capacity auction as utilities feel regulatory risks are growing. And the alternatives, such as average pricing methodologies, have significant drawbacks in terms of transparency.

To avoid years of regulatory battles, the EU should rather keep its imperfect but workable market design and focus on energy security fundamentals. The dependency on imported fossil fuels will remain a key feature of the EU energy system for a decade or more, so the number one priority is to save energy by facilitating demand-response, deploying the building renovation wave and adopting the ambitious reforms of the Energy Efficiency Directive and Energy Performance of Buildings Directive.

Boosting Flexibility Solutions as an Alternative to Fossil-Fuel Back Up Plants

The uptake of REN and the phase-out of dispatchable coal and baseload nuclear capacities are currently strengthening the role of gas in the EU electricity system as the main backup resource. Its share in yearly electricity production and the average volumes consumed may remain stable or even decrease over time, but gas-fired power generation plants become an indispensable asset at a time when production becomes increasingly more variable and less predictable.

Alternative flexibility solutions remain limited

The EU has recognized that the reliance on gas is not satisfactory from a price, energy security and climate point of view, but available alternative flexibility solutions remain limited. Batteries and hydro-pumped storage can offer an effective hourly storage option, while demand-response providers like electric vehicle fleets are complementary alternatives that may help to navigate daily fluctuations in a power system with high penetration of renewables. More interconnections are also needed at the national and international level, creating supplementary synergies between the different weather patterns in the EU.

The question is whether the EU is doing enough to ensure the deployment of such alternatives. The starting point should be to focus on fully implementing the Clean Energy Package, and in particular the enabling framework for the demand-side response. These measures will not solve the dependence on natural gas in the short term, hence the EU must prepare the market for alternative long-term solutions, including Power-to-X options. Member States need to engage in a collective assessment of their flexibility needs by 2030, and based on these findings, the EU should ensure that the right economic signals are in place for the CO_2-free options to be available on time. Europeans cannot afford to find out there is an adequacy problem when a blackout occurs, which could well be the case

should we have long and cold winters or should there be low wind in the winters of 2022-2023 or 2023-2024, when Germany has shut down its last nuclear power plants.

Betting on All Low-Carbon Power Generation Sources

The EC rightly stresses the need to accelerate the deployment of renewable energy (REN) sources to reduce the role of gas in the energy systems. Through the Fit-for-55 package, the EU is about to raise its REN target from 32 to 40% share of final energy consumption by 2030. The ambition is laudable, but there is a high level of uncertainty as to whether the Europeans will be able to ramp up REN deployments by a factor of 3 to 6, depending on the national situations. The issue is not just about securing the legal and financial framework to attract investments but also to overcome administrative and local acceptance issues. Looking to 2030, the biggest challenges will be about making large land and seabed available more quickly and improving the approval procedures through higher transparency efforts and more engagement with the population, while also ensuring that the necessary grid upgrades take place. Without community-focused development strategies, solar and onshore wind capacity deployments will prove increasingly difficult, and the EU is likely to bet essentially on offshore wind in the North and Baltic Seas. This would represent a significant challenge to transmission system operators and potentially create a risk of single-source over-concentration. The problem of intermittency would be solved more easily with a diversified renewable portfolio and a more balanced geographical distribution.

The EC's silence on nuclear is now a strategic problem

Advocating for a renewable-only future and discarding the nuclear option means taking a risk and potentially losing precious time in the fight against climate change. Higher wholesale electricity prices, the urgent need to phase out coal (notably in Central Europe), the challenges relating to the intermittency of renewables, and the aging of the existing nuclear power station fleet are now strengthening the case for new nuclear investments in Europe. This momentum is backed by the Lisbon Treaty's technological neutrality clause and by the Euratom Treaty. While several Member States continue to oppose nuclear energy, which is their right, the EC's silence on nuclear power is now a strategic problem. Considering the climate emergency and electricity supply security threats, it is the EU's responsibility to enable an investment framework for nuclear energy which would be as attractive as the one defined for renewables, and ultimately let Member States and investors decide on the optimal allocation of their financial resources.

So far, governments have pushed the costs of deploying renewables and closing thermal power plants (or nuclear plants) onto retail consumers, and have sought to exempt large energy intensive industries. With this crisis, it is clear that governments will have to cover these additional costs increasingly from their budgets, as the German example has shown. The trend is clear: less taxation on electricity, more on fossil fuels. But fossil fuels

will be hard and long to displace, and governments have unequal financial capabilities: if Germany choses a path based on renewables only and hydrogen, then it is Germany's right to do so. Maybe this will prove efficient, maybe highly expensive and inefficient, but the jury is still out. But in no way should others have to follow that same path. This means that nuclear power should be recognized in the taxonomy and that the ideological debate over technologies must now urgently come to an end. We do not have the luxury to pick and choose among the low carbon technologies, we need them all, as quickly as possible, and to organize them in a smart and efficient manner.

Ensuring Reliable Gas Supplies for the Next 10-15 Years

The European gas crisis is currently only a pricing crunch without security of supply consequences at this point. The EU liquefied natural gas (LNG) import terminals have proven highly effective in putting a ceiling price on pipeline imports when markets are loose, and reduced pipeline imports from time to time. They offer a physical back up, provided one is willing to pay for costlier spot cargoes when global markets get tighter. This said, pipeline imports remain the dominant supply source and in the context of lowering domestic supplies, EU imports have been growing, and will be high at least in this decade.

Russia has no reason not to continue to maximize its current dominant position even if it manages to commission Nord Stream 2. It can be expected to continue seeking to bypass the Ukraine export route, play with the Yamal-Europe pipeline and pressure the EU as much as contracts allow. It is a fair game. In times of abundant global supplies, Russia's role is diluted. In times of tight global supplies, the EU's vulnerability to Russia grows. And logically, Russia seizes every economic and geopolitical opportunity. Other traditional suppliers such as Norway or Algeria have limited spare capacity to increase pipeline volumes to the EU due to LNG export capacity and reserve constraints. For President Putin, this is the fourth gas wrestling match with the EU in 20 years (2006, 2009 and disputes over the EU gas market liberalization – long-term contracts, TurkStream and competition inquiry). Gazprom coped well with the past three ones, which certainly gives it confidence for the current one.

Huge discrepancies in gas storage levels across Europe

What is concerning from an EU perspective is the huge discrepancies in gas storage levels across the EU Member states. In addition, Gazprom, which owns large storage capacities notably in Germany, has notoriously not filled its storages. This is the case of the largest EU storage site, Rehden in Germany, owned and operated by Gazprom that was filled to 5% of capacity in October, down from 87% a year ago. Regulatory discussion would obviously be needed here to ensure alignment and more efficient use of storage facilities, as envisioned in the forthcoming revision of the gas security of supply regulation. It would also be useful to encourage Chinese and Japanese companies to become more active on

the European gas market, notably to store gas and this way reduce the competing winter drain on LNG supplies in Asia and Europe.

The EU should acknowledge that the dependency on gas, in particular on Russian gas (through pipeline imports and increasingly LNG) will not disappear overnight. The strategy should be to stabilize prices through all means available, knowing that the natural gas market has entered a much more volatile phase. What can it do? In a long-term perspective and as prices are high, Europe should continue to develop its biomethane potential in a cost-efficient and environmentally-sound manner. The issue of gas transit through Ukraine post-2024 remains central. Even if they are strongly reduced, volumes need to be predictable to trigger the necessary investments in the restructuring and modernization of the Ukrainian system. In terms of government intervention, EU-wide joint purchasing strategies do not seem to be politically realistic and economically efficient, but there is obviously room to further streamline storage regulation across European countries and assess if long-term capacity bookings on LNG terminals for example are impeding short-term spot operations, and how this could be addressed.

One thing is sure though: the EU's growing external gas vulnerability is a headache at a time when the EU sought to pressure external suppliers to reduce their methane footprint and finally start tackling fugitive methane emissions. Discriminating among exporters would make sense from a climate policy point of view but will make gas supply security even more problematic.

Ensuring a Steady and Predictable Increase in Carbon Prices

As with the electricity market design, the EU's emission trading system (ETS) has long been criticized for its structural oversupply of allowances and stubbornly low prices. It was only as of 2019 and the introduction of the market stability reserve (MSR) that carbon prices started to pick up, incentivizing coal-to-gas switching in the power sector and improving the business case for renewable energy projects. This upward trend was further supported by growing confidence in the EU climate policy and the adoption of the new -55% net emission reduction target. Higher carbon prices provide the right investment signals and help us deliver on our 2030 targets. Yet, ETS prices have almost doubled since the end of 2020 and such a sudden and massive increase is proving counterproductive, with policy makers now reluctant to go for ambitious reforms as part of the Fit-for-55 package.

The massive increase in carbon prices is counterproductive

Although tensions on the gas market are clearly identified as the dominant factor, carbon prices are still responsible for about a fifth of the recent surge in wholesale electricity prices. The ETS is indeed worsening the spike and exacerbating energy poverty concerns, while the carbon price signal is failing to prevent the ongoing switch to coal as it is simply impossible for power producers to have access to higher gas supplies at a "reasonable" price. In the current situation, very high carbon prices are

affecting the purchasing power of households and the competitiveness of industries with a limited climate gain because the lower-emitting option (gas) is not available in the short-term. In addition, the influx of speculation on the EU carbon market deserves further attention as it may be a secondary factor in the price increase.

The above concerns are not a reason for changing the key parameters of the upcoming ETS reform because the proposed cap on yearly emissions and the corresponding number of allowances released to the market are consistent with the emission trajectory that is needed to fulfil EU's 2030 commitment. Instead of undermining the ambition of the ETS, policy makers should consider strengthening price management tools to cope with a situation like today where the demand for quotas proves to be inelastic to higher carbon prices. Introducing price-based clauses in the functioning of the MSR would be a reassurance for policy makers; their constituencies would be sheltered in the case of future unbearable price spikes. Likewise, a steadily increasing carbon price floor would strengthen investor confidence and facilitate the commercial deployment of low-carbon products.

Grasping the Globally Systemic Implications of the Current Crises

The current crises should be seen as a wake-up call for EU policy makers: Europe's industry is at risk from too high energy prices, too slow decarbonization, and too little protection. This comes at a time when structural changes and digitalization will reduce traditional jobs. Global competition is strengthening further and countries in the Middle East, Russia or the US will gain competitive advantages. There is an urgent need to unlock breakthrough solutions and for this to happen, governments will need to step up their support for industrial sectors directly and indirectly, notably in fostering regulation favoring goods and services with lower carbon footprints.

Urgent need to unlock breakthrough solutions

The second lesson is that the EU must be careful in not running too far ahead on decarbonization without sufficient protection. As the carbon price pressure intensifies, the implementation of the carbon border adjustment mechanism should be accelerated. Most countries in the world have not started their energy transition: at best, they are diversifying their mix and remain in a situation of energy emergency. Oil and coal are here to stay strong for a long time, even if their demand will ultimately decline. In cleaning up European economies, a key challenge is not to simply provoking a large shift in the ownership of assets which would change nothing in terms of global emissions. Fossil fuel subsidies will most likely not decrease as governments seek to protect their populations from the impacts of higher prices. But this will limit investment in alternatives.

2021 marks the revenge of the hydrocarbon producing countries which now have a decade to shift their economies. There will be other chances, but this is their best one. Oil and gas producers, National Oil Companies (NOCs) and International Oil Companies (IOCs) will enjoy a decade of plenty, they will have higher revenues for their

transformation and to increase low carbon investments. In the medium to long term, the continued decrease in upstream investments mean oil and gas prices should remain high and imbalances will continue as peak oil approaches. But this does not mean it will be followed by a decline matching the underinvestment.

While gas will be key to Europe's energy supplies in the coming decade, gas as a tool for flexibility to back up renewables in emerging economies is jeopardized by the current high price environment and the understanding that the low-price environment over the past five years is not the rule. So, who will take new risks of investing in high-cost gas infrastructures and in gas-fired power generation? What is clear though is that emerging economies will further seek to conduct exploration to build on their own oil and gas resources, as Egypt has done, or as Côte d'Ivoire is doing now. Can one blame them for that? Not if one does not provide them with the tools to invest in alternatives. This of course raises the question of money.

As climate finance needs to be ramped up to reach the $100 billion mark, the G7 should get its act together to trigger a massive investment wave into low carbon solutions in India, South Africa, Indonesia notably. These are high potential countries where abating CO_2 comes at much lower costs than in Europe. Lastly, the focus should be on avoiding to lock-in future emissions in Africa related to demographic growth, urbanization, and development: yet that requires supporting clean cement and steel production in Africa.

Marc-Antoine Eyl-Mazzega *is Director of the Ifri Center for Energy & Climate. Prior to joining Ifri, he spent six years at the International Energy Agency (IEA), notably as Russia & Sub-Saharan Africa Programme Manager where he conducted oil and gas market analyses and was responsible for institutional relations with these countries and regions. He also held various other positions, such as at the Robert Schuman Foundation, where he was in charge of a Ukraine observatory.*

Carole Mathieu *is a Researcher and Head of European policies at the Ifri Center for Energy & Climate. Her research areas primarily cover decarbonization policies and the transformation of European energy systems. Prior to joining Ifri, she was a Policy Officer at the French Energy Regulatory Commission (2010-2014).*

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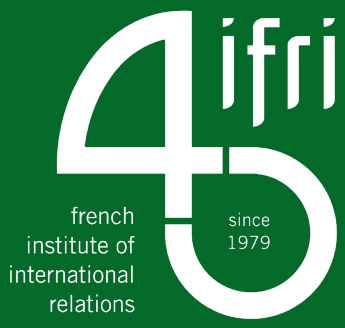

27 rue de la Procession
75740 Paris cedex 15 – France

Ifri.org