

## **The energy prices crisis and the green transition, quo vadis Europa?**

## The perfect storm

In 2021, wholesale EU electricity prices have risen by more than 200%. As winter approaches, they look set to rise further, with potentially devastating impacts on Europe's economic recovery and on the political destiny of the Green Deal policies of the Bloc.

Rising energy prices and consequent higher electricity bills for European consumers are not issues that can remain confined to the energy market discussion. Clean electrification is indeed increasingly described by policymakers and stakeholders as the backbone of the EU decarbonisation strategy and a key enabler of the EU green transition. The very success of the EU energy transition in the next decades will be therefore largely assessed against the Bloc's capacity to provide clean electricity at affordable prices to households and businesses.

In a report published last year, BNEF indicates that direct and indirect electrification of transport, buildings and industry has the potential to deliver a 60% reduction in carbon emissions across Europe by 2050<sup>1</sup>. Electricity is described also by Mckinsey <sup>2</sup>as the key catalyst for the EU energy transition. According to the consulting company, 47% of EU GHG emissions reduction by 2030 will be achieved through large-scale electrification. The share slightly declines to 44% for the period 2030-2050, when demonstrated but not yet mature technologies like CCS would be rapidly scaled up.

Most scenarios considered in the EC Communication on Stepping up Europe's 2030 climate ambition show the share of electricity increasing from around 22% today to around 50% of total energy demand<sup>3</sup>. However, this will require adding around 75% more generating capacity by 2050 to meet increased energy demand, which is expected to double in countries like UK and Germany<sup>4</sup>. Increasing energy demand will put additional pressure on the power sector in the forthcoming years.

Against this backdrop, a correct understanding of the nature of the ongoing crisis and its interrelation with the EU path to decarbonisation is crucial. Particularly, the key question is whether the current increase in prices should be treated as a one-off event arising from

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<sup>1</sup> <https://about.bnef.com/blog/electrification-can-cut-emissions-of-transport-buildings-and-industry-in-europe-by-60-by-2050/>

<sup>2</sup> <https://www.mckinsey.com/business-functions/sustainability/our-insights/how-the-european-union-could-achieve-net-zero-emissions-at-net-zero-cost>

<sup>3</sup> Climate Target Plan, Impact Assessment, p. 57

<sup>4</sup> Bnef, op. cit.

a combination of temporary supply & demand dynamics or rather as a structural feature of European energy markets connected to more fundamental policy choices of the green transition.

## The immediate causes of the current price spikes

Some observers have been quick to blame the ETS and the high price of allowances in Europe for the ongoing spike in European electricity prices. However, at a closer look, it appears that the rise in electricity prices has occurred with carbon prices remaining relatively flat since May<sup>5</sup>. Commission estimates – corroborated by other analyses<sup>6</sup> - indicate that ETS prices are responsible for about 1/5 of current price developments<sup>7</sup>. Rather, the power price jump is closely tracking global fluctuations in natural gas supply & demand, which in turn heavily impact the EU market, where gas bills have increased by more than 250% since January.

Current price spikes do not result from a single “shock event” on the demand or supply side. They are instead the product of a combination of supply and demand factors that have made energy markets very tight. In today’s globally interconnected gas markets, shocks that would have previously remained local or regional have now global ramifications. EU energy markets are much more exposed to global dynamics and have consequently suffered from broader developments in international commodity markets, where a basket of oil, coal and gas costs 95% more than in May at the time of writing.

After a COVID-induced 5% drop in 2020, global energy demand has bounced back, encouraged by the recovery of the global economy. According to projections by the International Energy Agency (IEA), gas demand is likely to rebound by 3.6% across 2021. At the same time, growth in the LNG market this year has been well below the annual growth rate of 2015-2019<sup>8</sup>, due both to lower-than-expected production by key suppliers and to the drop in oil prices registered in 2014-2016, which significantly discouraged new investments in LNG export capacity. As a result, gas storage levels have run dangerously low in several countries. Oil inventories are only 94% of their usual level, Gas storage levels at European facilities have dropped by 20.5% year-on-year from January through September of this year and Indian and Chinese coal below 50%.

<sup>5</sup> Some estimates attribute to CO2 costs around 20% of the current electricity price increase

<sup>6</sup> <https://www.bde.es/f/webbde/SES/Secciones/Publicaciones/PublicacionesSeriadas/DocumentosOcasionales/21/Files/do2120e.pdf>

<sup>7</sup> [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_21\\_5204](https://ec.europa.eu/commission/presscorner/detail/en/ip_21_5204)

<sup>8</sup> <https://www.kpler.com/flows?web=1&wdLOR=cECC6058F-EF2A-E24F-8E87-B608AA764082>

A significant rebound in industrial output has been coupled by higher-than-expected gas demand for residential heating due to a cold winter<sup>9</sup> and by an increased use of air conditioning due to heat waves during the summer. Strong carbon prices encouraging coal-to-gas switching further contributed to strengthen demand for natural gas in the second quarter of the year<sup>10</sup>.

In this environment, Europe competes with Asia for gas supplies and tends to act as a market of last resort, where LNG cargoes are redirected when global demand is weak and the market is loose. This year, competition between Asian importers and Europe to secure LNG cargoes has driven a global LNG price rally, with Asian LNG prices surging to the highest of records since 2009 to lure LNG suppliers. China's LNG imports have grown by 22% throughout August – in parallel with a nationwide coal supply crunch and power outtages – absorbing 80% of the growth in global LNG supply<sup>11</sup>. At the same time, Europe has seen its imports falling 20%.

Other local factors have also contributed to Europe's energy crisis. Maintenance and rebuilding of natural gas infrastructure in Russia and Norway diminished storage capacity. Gas production levels in the North Sea have been recently declining, and several gas fields in the Netherlands are slated to close in the forthcoming years. Production in the Dutch largest field – Groningen – is due to stop as early as mid-2022. These dynamics have reinforced the EU's dependency on gas imports, primarily from Russia and Norway. At the same time, the North Sea registered a slowdown in wind-driven electricity production, due to historically-low wind speeds levels.

Moreover, recent reforms to the design of electricity and gas markets have made Europe increasingly vulnerable to supply and demand shocks. The process of market liberalization – culminated with the Third Energy Package – has supplanted the old model based on state-owned integrated energy companies with a more open and competitive market with market-based supply prices. Additionally, starting in 2009 and encouraged by a global gas oversupply, an abundance of supply options and a significant drop in prices, EU gas importers pushed to revise the pricing models of their long-term gas import contract with Gazprom, largely abandoning the oil-linked prices. This strategy,

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<sup>9</sup>Overall EU gas demand by 7.6% in the first quarter of 2021, see [https://ec.europa.eu/info/news/quarterly-market-reports-confirm-globalised-nature-gas-market-1st-quarter-2021-2021-jul-08\\_en](https://ec.europa.eu/info/news/quarterly-market-reports-confirm-globalised-nature-gas-market-1st-quarter-2021-2021-jul-08_en)

<sup>10</sup> <https://www.cedigaz.org/quarterly-report-q2-2021-international-natural-gas-prices/>

<sup>11</sup> <https://www.reuters.com/markets/commodities/asias-big-3-lng-buyers-ramp-up-november-imports-europe-struggles-russell-2021-11-22/>

which paid off with a gas market characterised by low demand and abundant supply, could now cost to the EU an estimated \$30 billion this year<sup>12</sup>.

## Different reactions across Europe: revolution or business as usual?

Faced with this unprecedented price surge, EU Member States have responded in different ways. Spain, one of the countries more heavily affected, tried to reduce electricity bills for end-consumers by intervening decisively in the market, using the *excess remuneration* of non-emitting electricity production facilities when the price of gas exceeds €20/MWh. Italy recently approved significant tax cuts to help poorer households.

In a non-paper initially circulated in early October, Spain called for a radical overhaul of the EU wholesale electricity market, receiving the initial backing of France, Greece, Romania and the Czech Republic<sup>13</sup>. Under the current system of marginal pricing, the final price of electricity is often set by the most expensive fuel required to meet expected demand, which is usually natural gas. Spain proposed to calculate the total electricity prices as an average price of all the energy sources used in a country's mix. Madrid claims that this change would allow consumers to benefit from the increasing penetration of renewables in the energy mix.

France also called for decoupling electricity prices from the gas market and showed support for a comprehensive review of the EU gas and power market, which – according to Paris – currently prevents France from taking full advantage of its nuclear dominated energy mix<sup>14</sup>. Moreover, Spain proposed to set a maximum cap on the price of electricity produced by natural gas as well as to establish a centralised European platform for purchases to shield Europe from fluctuations in international energy markets. Madrid went as far as to suggest that countries should be “allowed to adapt the electricity price formation to their specific situations (mix, resources, level of interconnections), which would de facto spell the end of the common energy market.

Other nine member states – Austria, Denmark, Germany, Estonia, Finland, Ireland, Luxembourg, Latvia and the Netherlands – took a more cautious approach and warned

<sup>12</sup> <https://www.wsj.com/articles/europes-push-to-loosen-russian-influence-on-gas-prices-bites-back-11635327001>

<sup>13</sup> <https://www.euractiv.com/wp-content/uploads/sites/2/2021/10/Spanish-Annex-20210920-Non-Paper-on-Energy-markets.pdf>

<sup>14</sup> <https://www.reuters.com/business/energy/france-urges-review-eu-gas-power-markets-2021-09-30/>

against measures “that conflict with the internal gas and electricity market [...] and ad hoc reform of the wholesale electricity market”. The group advocates for measures aimed at strengthening the integration of EU markets, with the objective of achieving the EU target of 15% electricity interconnection by 2030.

The intra-EU debate on energy prices has also seen a third camp, mostly composed of coal-reliant central and eastern European member states, which blames the EU carbon market and the policies connected to the EU Green Deal. In a non-paper circulated before the 21-22 October EU summit, Poland called for a revision or postponement of “all elements of the Fit for 55 package that can have a negative impact on the energy price”.

The Commission, on its part, does not see EU energy market design and the marginal pricing model as the main culprit of the current situation and defended the existent pricing system. Its October 13<sup>th</sup> Communication on energy prices included a toolbox that Member State can use to confront the immediate consequences of the current spike in prices and strengthen their resilience against future shocks. The toolbox comprises short term measures to protect more vulnerable consumers and businesses as well as longer-term structural actions to boost market resilience and renewables penetration into the grid. In the medium term, the Commission considers stepping up investments in renewables and a more careful management of gas storage as the best insurance for future shocks.

It therefore appears that the diversity of views within the EU about the underlying causes of energy price developments and of the ideal course of action to deal with them reflects deeper divergences concerning how the EU should transition towards a carbon neutral economy. On the other hand, changing the rules of the game in EU power markets without a correct understanding of the root causes of the recent instability would be ill-advised and could eventually be detrimental for the EU energy security and its path towards carbon neutrality.

## **Where do we go from here?**

Demand and supply contingencies in the commodity market and some inherent characteristics of the EU electricity market design have certainly contributed to the present crisis. However, it is worth asking to what extent current price instability is just the symptom of a transitory market imbalance or rather a likely recurrent feature of this phase of the green transition.

Should we be currently faced by a one-off shock due to the conjunction of the quick post-Covid economic recovery, bad weather and a global temporary supply crunch, relying on market forces to correct current imbalances while addressing the most immediate social consequences would appear as the most sensible option. On the other hand, if recent price developments are also the result of the ongoing and profound transformation of the EU energy systems, policymakers should address these root causes to ensure an orderly and sustainable transition towards the green economy.

In the past, fossil fuel producers would have reacted to current price signals and buoyant demand by increasing production. Today, however, they are under huge pressure to shift away from fossil fuels and shrink upstream capital spending. The last IEA World Energy Outlook published in October claims that after 2021 no investment in Oil & Gas projects is needed and calls to triple clean energy investment by 2030. However, the same IEA admits the risk of a worrying future investment gap, whereby “investment spending on fuels appears caught between two worlds: neither strong enough to satisfy current fossil fuel consumption trends nor diversified enough to meet tomorrow’s clean energy goals<sup>15</sup>”.

According to some observers, the current scepticism vis-à-vis any new investment in natural gas projects may prove problematic. While the popularity of gas as a bridge fuel has considerably decreased in Europe, it remains strong in heavily coal-reliant Asia, where it is still indispensable for a sustainable exit from coal. Moreover, gas is useful to maintain the stability of the electricity grid with a high penetration of intermittent renewables in an intermediate phase, where grids’ interconnection has not been ultimate and energy storage deployment is still limited.

As we are reminded by the current crisis, it is often natural gas that sets power prices, even in markets where most of electricity is produced through renewables or nuclear with zero marginal cost. A prolonged period of gas undersupply and consequent higher electricity bills could be politically fatal for the popularity of the energy transition.

In the current European energy environment, switching from expensive gas to other baseload resources is difficult. Investments in nuclear power generation have lost political traction in many member states and suffer both from the opposition of green parties across the EU and recent cost overruns in the construction nuclear plants<sup>16</sup>. On the other hand, resuming coal power generation is not only undesirable for the climate,

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<sup>15</sup> <https://www.iea.org/reports/world-energy-investment-2021/executive-summary>

<sup>16</sup> <https://www.ft.com/content/fbc43de5-d3ae-49fd-9f5f-9e84f1db508d>

but it is also increasingly economic unfeasible due to ever higher carbon prices and to recent waves of coal plant closures across Western Europe.

Ultimately, the hope is that investments into the electricity grid will provide operators with the necessary flexibility to deal with the intermittency renewable power even in the absence of significant baseload power. Similarly, more renewables into the system will lessen the EU dependency on gas, thus lowering supply crunch concerns, and strengthen the EU energy sovereignty making it more impervious to external shocks.

At present, however, the risk of volatile energy prices is concrete. If nothing, the current crisis shows that, at least in the short and medium term, fossil fuels will continue to play an important role in the energy transition<sup>17</sup>. While climate policies are showing effective in tackling hydrocarbon supply by discouraging further investments, addressing demand is proving harder. As the market for hydrocarbons shrinks and businesses are reluctant to engage in further investment, supply-demand imbalances could become more frequent.

It can be argued that high energy prices simply reinforce the case for the EU to quickly shift away from fossil fuels and speed up the green transition. However, this does not come without significant political and economic risk. Policymakers would be wise to look closely and without prejudices at the role that gas and nuclear – at least when currently operating plants are considered - can play to smooth the green transition in the medium term. As the current debate in several member states is showing, the economic and social sustainability is not an optional feature of the trajectory towards net zero, but rather a critical precondition for its political and social acceptability.

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<sup>17</sup> <https://www.iea.org/reports/net-zero-by-2050>