

ENERGY & CLIMATE

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# HIGH ENERGY PRICES

## RUSSIA FIGHTS BACK ?

#EUGREENDEAL  
#CLIMATECHANGE  
#ENERGYTRANSITION  
#FAIRTRANSITION  
#ENERGY



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### Executive Summary ■

High energy prices this summer have hit individuals and economies hard, the world over. The European Union (EU) faces gas and electricity prices that are especially soaring. By way of a response, there has even been an unexpected switch from gas to coal for power generation.

The authors of this paper have identified this situation as a series of retaliatory acts (i) by the free market where prices are governed by the supply-demand balance; (ii) by natural gas, whose share of the energy mix is not falling fast enough to offset the decline of domestic production and reduce emissions, (iii) by Russia who uses gas as a weapon to achieve geopolitical goals in Ukraine and to score points against the European Union; and (iv) by the energy transition, which requires much more investment in energy efficiency and renewable generation if it is to reach climate neutrality by 2050.

The authors recommend a number of steps that national and EU decision-makers can take, not only to address these four retaliatory acts but also to turn them into opportunities to create a future that is in line with their climate objectives.

## INTRODUCTION ■

Since September 2021, energy prices have hit the headlines everywhere in the world, daily. The early months of Covid saw prices tumble but nobody seemed to notice. There were no complaints about cheap petrol, gas or electricity. But the strong economic recovery that followed has exposed shortcomings in every sector, from containerships transporting goods to the chips needed for car manufacturing. Entire factories have ground to a halt and the resulting scarcity has pushed up prices. This situation has also affected energy prices: first **crude oil (80\$/barrel vs 52\$ at the beginning of the year) then natural gas (see figure 8) and coal followed; and eventually, electricity.**

Looking at these higher commodity prices in depth, and particularly natural gas in Europe, the picture becomes more nuanced. **The present situation could be seen as a series of past decisions coming back to bite us;** and this should help us to think about how to build a better future.

**Four acts of retaliation** may be identified:

1. **The market fights back.** Commodity prices in our economy are set by the tightness between supply and demand. During the COVID lockdowns, many individuals had less opportunity to spend money. Consequently they now have higher savings that they consider disposable. **Demand exceeded supply and prices went up.** Should governments want to influence prices by regulating them, somebody will have to pay the bill at the end of the day and it is usually the taxpayer for the benefit of suppliers.
2. **Natural gas fights back.** While it remains a polluting fossil fuel with CO2 and methane emissions, gas has been presented as the least damaging short-term substitute for coal and lignite (and even nuclear in those countries that were desperate to phase out this low carbon electricity). It is also the best possible partner for electricity generated by variable wind and solar, in the absence of seasonal storage solutions and demand-side flexibility. **Gas has successfully filled the gap, grabbing a substantial market share. Last year this stood at 25% of the EU primary energy mix. Gas demand is rampant worldwide** while supply is limited as a consequence of the pandemic which hit production and also chilled final investment decisions for some major projects upstream.
3. **Russia fights back.** This is more a European issue. **The EU's main oil, gas and coal supplier is the Russian Federation.** The EU's Green Deal sent a clear message to Russia: we will reduce our imports drastically over the coming years. This was one of the arguments used against NordStream 2: that the pipeline is redundant now<sup>1</sup>. While aware that high prices would destroy demand, one may not exclude that **President Putin could be taking a longer-term view of the future than the short-sighted ambitions of Europe's democratically elected politicians.** According to this view, he may count on support from very close allies who share his view, such as the former German chancellor, Gerhard Schröder<sup>2</sup>; and the most emitting German industries which depend heavily on natural gas and are reluctant to accelerate decarbonisation.
4. **The energy transition fights back.** The expression "energy transition" here is used to describe the shift to a climate-neutral world, from a system that emits gigatons of green-

house gases (GHG) yearly. **Today, polluting fossil fuels still comprise more than 70% of the EU's energy mix. Achieving climate-neutrality by 2050 requires a social, a technological and an economic revolution.** Companies and individuals alike have to change dramatically not only how they live but also what energy infrastructure they invest in. But the generation in charge today, and the politicians representing them, are not bold enough to adopt the binding measures needed to change behaviour of this kind. For instance, **what people say about the importance of cutting demand bears no relation to the speed and the size of the steps they are taking to change their way of life. This contradiction comes at a price.** Investments in energy efficiency and renewable energy are far too low to make the objectives credible. In other words, progress in energy efficiency and renewable energy have been too small and too slow to protect us from the 2021 fossil fuel price crisis.

In a nutshell, **today's energy prices have been inflated by the underlying elements of supply and demand, pumped up further by geopolitical factors, and all topped off with the contradictions between EU climate neutrality objectives and the current decisions and actions of Europe's governments, companies and most of their voters.**

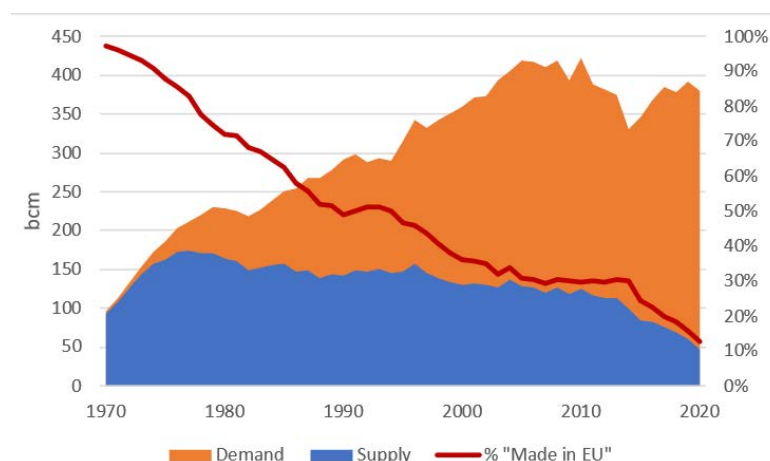
To help elucidate today's natural gas price phenomenon, **we propose to formulate 15 questions and provide some answers.**

## 1 ■ WHICH NATURAL GAS PRODUCERS SUPPLY THE EU?

Natural gas emerged as a significant energy source in the 1960s and what is now the EU was then producing the gas it consumed, mainly owing to the Netherlands. With the increase of demand and domestic supply peaking by the end of the 1980s the gap for gas imports widened. In 2021, **domestic EU production represents about a tenth of the demand at the EU-27 level (Figure 1).**

Slowly but surely the **EU became more dependent on "foreign" supply**, even if demand started to stabilise from 2008. With the announced closure of the major Dutch Groningen field in 2022<sup>3</sup>, this dependency is going to become more critical in the years to come.

FIGURE 1 ■ Historical EU-27 gas supply-demand and EU dependence



Source: BP Statistical Review of World Energy 2021

**The top gas suppliers to EU are Russia (around 40% of EU demand), Norway (around 30%) and Algeria (less than 10%)<sup>4</sup>.**

The EU's dependence on **Russian gas supplies comes with three main concerns:**

**First**, the Russian company **Gazprom enjoys a pipeline export monopoly**, preventing other Russian producers such as Novatek or Rosneft from using Russian pipes to export to the EU.

**Second, its market share is close to 40%.** Article 102 of the Treaty on the Functioning of the EU states "Any abuse (...) of a dominant position within the internal market (...) shall be prohibited. Such abuse may, in particular, consist in limiting production to the prejudice of consumers". For the European Commission (EC), "in the case of lower market shares (below 50%), dominance is more likely to be found in the market share range of 40% to 50% than below 40%, although also undertakings with market shares below 40% could be considered to be in a dominant position."<sup>5</sup> On top of that, **Gazprom is the only producer that always invests in spare capacity making it de facto the producer of last resort. It can provide, if it so chooses, the marginal molecule needed to avoid a blackout.**

**Third, Gazprom is an instrument of the Russian president, supporting his geopolitical interests in many EU member states**, especially Hungary and Bulgaria; **and in other neighbouring countries such as Ukraine, Moldova and former Yugoslavia, notably Serbia.** This gas diplomacy stuck out like a sore thumb in the debates about the NordStream 2 pipeline across the Baltic Sea and the Turk Stream pipeline across the Black Sea. Designed to circumvent Ukraine, they represent a serious geopolitical concern for the EU. It has failed to bring all its members to a common position<sup>6</sup> with regard to the long-term moves that Russia is making to weaken Ukraine and to set the EU member states against each other.

**Gazprom is the only storage operator in Russia (with an obligation to fill storage by early November) and a major storage operator<sup>7</sup> in the EU.** Gazprom is the only foreign producer having storage in the EU; its use of storage could differ slightly from some domestic gas utilities that have to serve residential customers. By contrast, Gazprom can use inventory for smoothing transit hiccups and/or trading. **It did not fill its EU storage in the summer** but it seems to have changed its mind as this paper was being written.

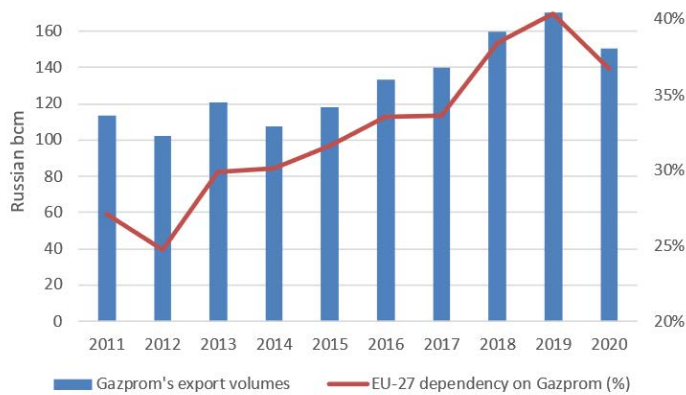
Russia is regularly accused of using natural gas as a political weapon. Today, given the lack of a common EU position, competition law is the biggest weapon in the EC's armoury where Gazprom is concerned. However, it remains an ex-post tool, not a silver bullet. Record prices are in fact a massive wealth transfer. **At today's prices, EU is paying an extra €9billion/month<sup>8</sup> to Gazprom with 30% going directly to the Russian budget as an export duty tax...** and without even considering the corporation tax payable on these windfall profits.

**Norway**, the second biggest supplier, is part of the European Economic Area and a NATO member. And it shares EU values. **Almost all Norway's gas output is piped to EU and the UK.** But for the last decade **its output has not changed much**, nor is it expected to rise much from now on.

**Algeria struggles to export gas because it gives priority to power generation demands at home.** At the same time it does not have a true renewable energy policy which could free up more gas for export. Finally, gas transit through Morocco to Spain was stopped on 1st November 2021.<sup>9</sup>



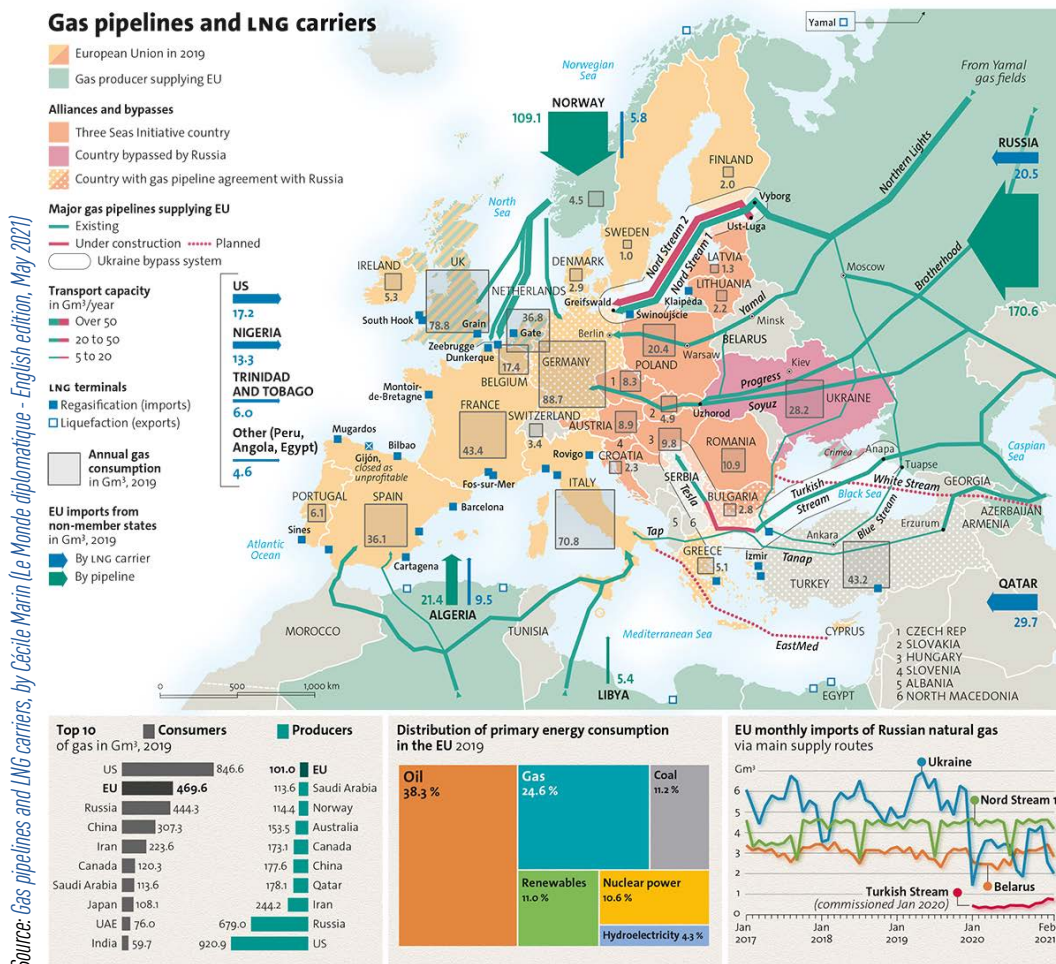
FIGURE 2 ■ Gazprom exports to Europe



Source: Gazprom Export, BP Statistical Review of World Energy 2021

## 2 ■ WHAT ROUTES ARE USED TO SUPPLY NATURAL GAS AND HOW HAVE THEY CHANGED OVER THE LAST 10 YEARS?

FIGURE 3 ■ Map of the existing gas routes



Source: Gas pipelines and LNG carriers, by Cécile Marin (Le Monde diplomatique - English edition, May 2021)

While historically only a small number of suppliers used to deliver gas to the EU, **the last decade has seen an exponential development of liquefied natural gas (LNG) trade:** transported by ships from all over the world, it helped bringing new competitors to the EU market, changing the pricing rules for the temporary benefit of consumers who had been paying oil-indexed prices for LNG. **LNG allowed a very diversified portfolio of suppliers** from Qatar and the USA, Australia and a growing number of African countries. But as has been seen from time to time and particularly now, LNG goes to the highest bidder and this is very often an Asian consumer. Europe is the market of last resort for LNG, which gives piped gas the ultimate advantage.

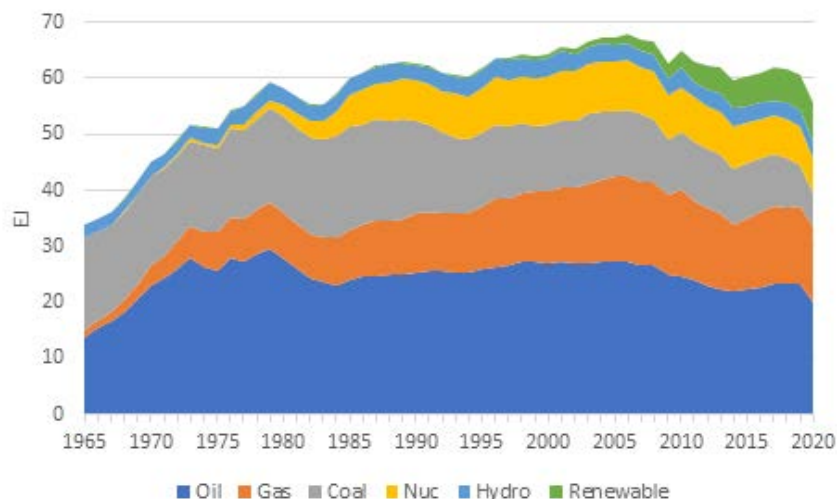
For the last decade, **the EU's most effective guarantor of security of gas supply has been the diversification of sources and routes.** Reverse flows have been made possible on most pipelines and many new interconnections have been built between most of the member states, including between the Baltic States and Finland which once were entirely reliant on Russian gas. This came at a cost: major investments in the internal EU pipelines and LNG terminals were funded so each member state could enjoy at least three different sources of gas. **Most of these investments were channelled through the EU's Connecting Europe Facility in order to build these so-called Projects of Common Interest (PCI).**

The series of PCIs was one consequence of the major disruption of Russian gas supply in January 2009 which affected half the EU member states and threatened a humanitarian crisis in Slovakia and Bulgaria, in particular. **Despite all these diversification initiatives Gazprom, which has the lowest cost of supply, saw its market share grow from 25% to 40% in that decade...**

### 3 ■ WHO ARE THE MAIN CONSUMERS OF GAS IN EU?

**Gas accounts for 25% of the EU's total primary energy demand.** As the least polluting fossil fuel (but CO<sub>2</sub> and methane remain major concerns for the fight against climate change), gas has seen its market share in the EU grow steadily, all the more so thanks to the phase out of nuclear and/or coal in some major countries like Germany<sup>10</sup>. **Energy efficiency and renewable sources have progressed sufficiently to limit the growth of natural gas, but not yet enough to allow for a reduction of gas demand;** while oil, coal and nuclear are being phased out.

FIGURE 4 ■ EU-27 Primary energy mix (1965-2020)

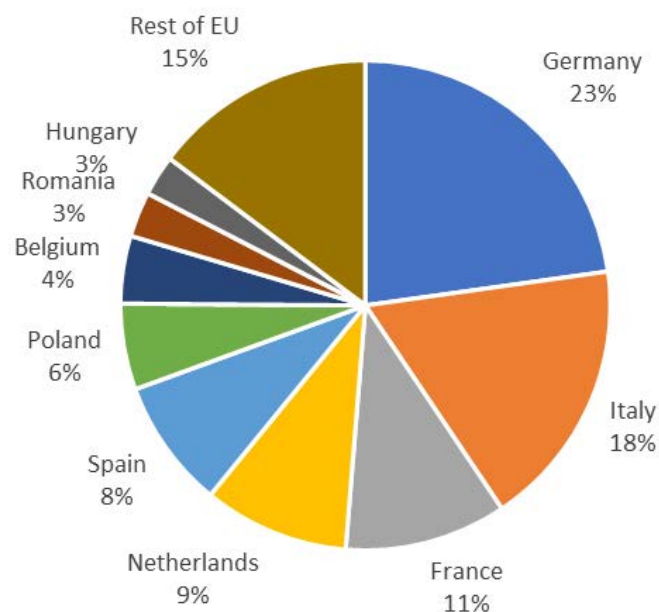


Source: BP Statistical Review of World Energy 2021.

Interestingly gas also has 25% of the world's primary energy mix, while in the US, thanks to lower gas prices relative to coal, it enjoys a much higher share: 34%. This tends to show that **the easiest way for an energy transition is a switch from coal to gas and then from gas to renewables. The US has done the coal-to-gas switch, while the EU is further advanced, particularly in power generation where renewable energy already accounts for between 35% and 40% of the mix<sup>11</sup>.**

**At member state level, the ratios of fuels in the electricity mix may vary considerably.** At one extreme, Poland still uses coal for more than 70% of its electricity; in France, nuclear holds that percentage; while in Germany, coal and lignite are about 24% of the mix<sup>12</sup>. The EU's electricity generation fuels mix is shown in Figure 10.

**FIGURE 5 ■ 2020 split of gas consumption between EU-27 member states**



Source: BP Statistical Review of World Energy 2021.

**Gas remains essential for industry, representing about 35% of the sector's energy consumption.** It has already replaced coal in many instances but in its turn it too must be replaced in the coming years. In the medium term, **hydrogen** appears today to be the main substitute, preferably green (i.e. produced from water by a wind or solar powered electrolyser). There could be other options that **keep gas in the mix as long as the producers adapt their business model and take care of the CO2 emitted by their customers. That means investing massively and urgently in carbon capture and sequestration (CCS) to make gas viable.**

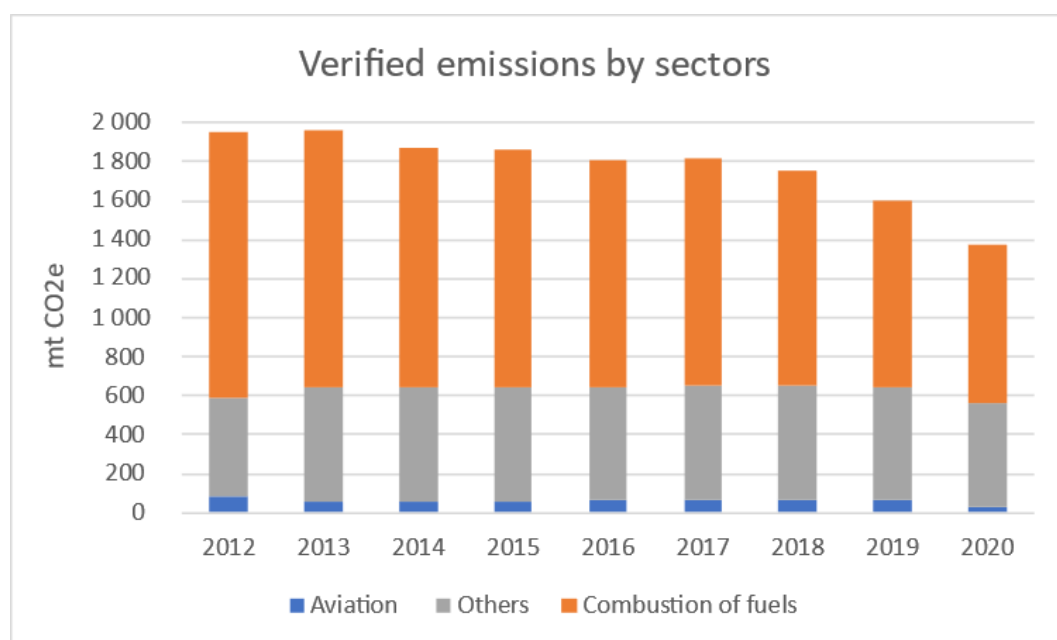
**Heating and cooling are sectors where clean alternatives should be deployed more rapidly than today and where energy efficiency is key<sup>13</sup>.** Here the renovation of buildings is coming into play and it should be accelerated without delay, being enabled by EU and national recovery plans. But renovation at a large scale is also facing bottlenecks, such as the unavailability of materials, an under-qualified workforce, limited access to long-term funding and the disruption it will cause. Not many householders are prepared to pay heavily in order to suffer the inconvenience and damage to their lives and homes while heat pumps are installed, for example. So costly work will almost always be put off.

## 4 ■ WHAT ARE THE GREENHOUSE GASES PRODUCED BY NATURAL GAS AND WHAT DO THEY REPRESENT IN THE EU EMISSIONS?

**Natural gas emits carbon dioxide and methane. Methane** emissions were ignored for years before becoming a major concern a few years ago. It **is about 30 times worse** for the climate than CO<sub>2</sub>.

The EU Emissions Trading Scheme (ETS)'s verified emissions show that **power generation/combustion of fuels have declined steadily** between 2012 (the end of ETS Phase 2) and 2020 (the end of ETS Phase 3) **thanks to the electricity sector** having to pay for most of its allowances. Other sectors, such as a large portion of industrial users, did not make any contribution to the CO<sub>2</sub> emissions reduction as they receive most of their allowances free<sup>14</sup>. The alternative to this generosity is the risk of major industries losing out to competitors in less regulated countries where the emissions would be even higher. Or so the official justification has it. This process is summarised as 'carbon leakage.'

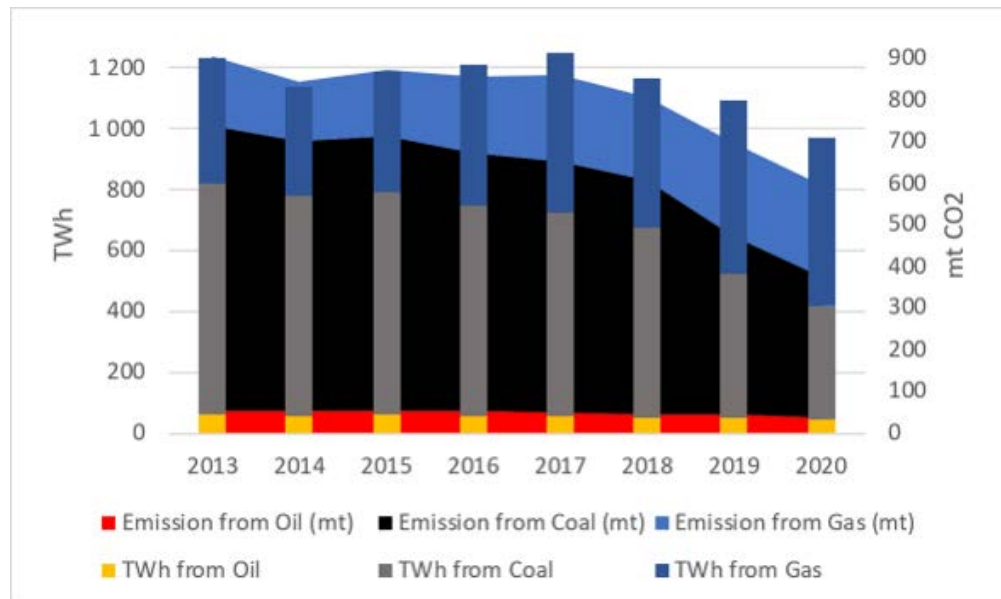
**FIGURE 6 ■ Emissions by sector (EU-28)**



Source: EU Emissions Trading System (ETS) data viewer — European Environment Agency (europa.eu)



FIGURE 7 ■ EU-27 power generation and associated emissions



Source: BP Statistical Review of World Energy 2021, [thierrybros.com](http://thierrybros.com).

In 2020, power generation accounted for 44% of total verified emissions. Gas-fired power generation accounted for 16% of the EU verified emissions. This graph shows the advantage of the coal-to-gas switch in terms of emissions reduction. Gas is also used in other sectors (residential) that still are not part of the EU carbon market, ETS (please see Q 6).

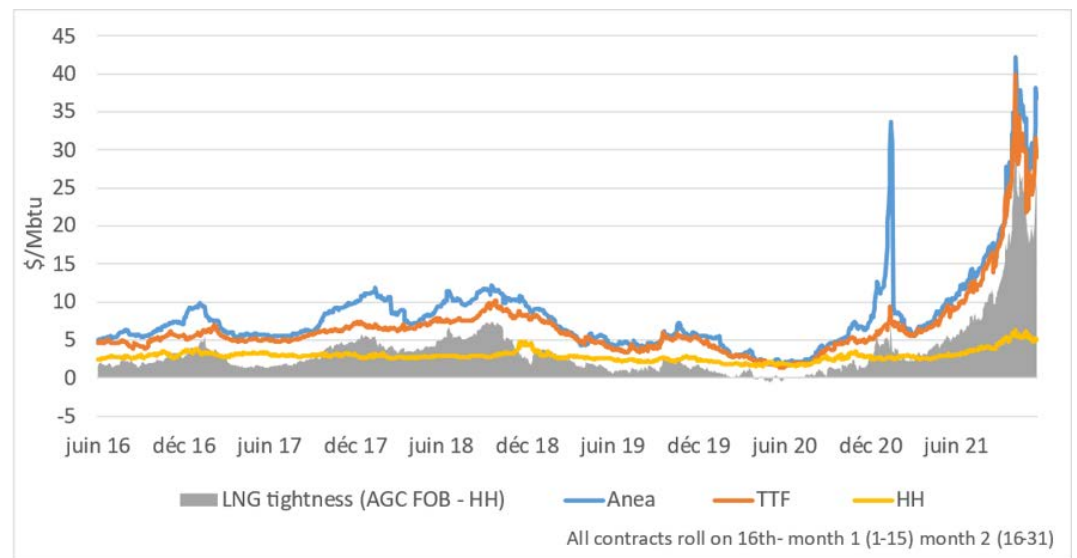
## 5 ■ HOW IS THE GAS PRICE SET IN EUROPE AND IS IT DIFFERENT IN NORTH AMERICA AND ASIA? WHAT HAS BEEN THE EVOLUTION OF THIS PRICE DURING THE LAST FIVE YEARS?

**Gas was originally sold under long-term oil-indexed contracts.** This concept was first implemented by the Dutch to sell their Groningen gas in the 1960s. The principle allowed the buyer to secure supply and the seller to secure cash flow to invest upstream using an average price of oil for an agreed period (with a small discount to encourage take-up of this relatively new fuel). The risks were shared between the buyer taking a price risk laid off against captive customers and the seller taking a volume risk. The price included delivery to the buyer's border and being linked to oil, it allowed hedging. With the gas market growing and the subsequent opening of the European market, gas started to be traded as a commodity and its link to oil weakened. In the early 2000s, the EC started to question the rationale of those long-term contracts. The sellers defended their long term contracted volumes as far as possible, in order to justify new investments. On the other hand, **sellers realised that oil indexation was less and less acceptable to buyers, and the pricing formula started to move from "stable" oil indexation (meaning following the volatility of the oil barrel) to more flexible and seasonal gas spot pricing.**

In Europe today, there are still baseload long-term contracts (mostly gas indexed) complemented by spot volumes in winter, depending on the weather. If supply cannot meet demand, then we enter a situation like today's.

As explained, **the price of gas is now set by the supply-demand balance where storage levels may also play an important role as seen today**. Gas is not as easy to transport or store as oil, hence **three regional markets developed**. North America is an export market while the EU and China, Japan and India in Asia are importing markets. The price level is therefore very different: US month-ahead prices (Henry Hub) are much lower than their Asian (such as Anea, the Argus Media short term delivery assessment) and European equivalents (the Dutch Title Transfer Facility, TTF). This leads to **competitive issues for industry** and the economy in general. Asia and Europe are also in competition when gas supply is scarce, as it is today: the marginal LNG carrier will go either to Asia or Europe depending on which is the most profitable market.

**FIGURE 8 ■ Global gas market price evolution over the years**



Source: Argus Media, [thierrybros.com](http://thierrybros.com)

The above index measures the tightness of the global gas market. **After negative prices briefly in summer 2020, we have now reached a record, exceeding \$30/mn Btu or €90/MWh for this index showing how fast the world has moved from an oversupply to a gas crunch.**

## 6 ■ WHAT ARE THE MAIN FACTORS INFLUENCING THE GAS MARKET IN EUROPE?

**The price of a commodity in a free market is set by supply, demand and storage level.**

Today we face a **revival of global gas demand**, first in China and then elsewhere as we gradually come to live with Covid. However, production has also been negatively affected by lower capital expenditure in the last few years and by the postponement of maintenance programmes owing to Covid.

**For how much longer will we have to use fossil fuels before we can replace them on our journey to our 2050 net zero carbon objective?**

The green narrative dissuaded some oil and gas producers from increasing upstream capex, while demand has now returned to pre-Covid level. The discussion on the inclusion of natural gas investments in the taxonomy of environmentally friendly investments is timely.

In the meantime, **the solution depends on our willingness to reduce our energy consumption and invest in clean alternatives to fossil fuels.**

After the Covid excursion, consumption patterns are back to 2019 levels<sup>15</sup>. The EU ETS managed to reduce CO2 emissions from power generation. Its proposed extension to other sectors such as buildings and road transport might however have a negative impact on the poorest part of the population<sup>16</sup> as it aims to establish a new carbon price that will be free from any control.

As volatility is an issue for individuals and policy-makers, it is also important to understand that more intermittent electricity production will also increase price volatility unless storage solutions can accommodate the swings. The lack of wind this year has made room for more back up from gas.

The country that best managed to reduce its CO2 under the EU ETS between 2013 and 2019 (excluding Covid) was the UK (-48%) thanks to its Carbon Floor Support<sup>17</sup>, compared with only -16% for the EU-27. This clearly shows that this tool is working for reducing CO2 emissions, but it also means that **energy prices may sharply rise if investments in clean alternatives and energy efficiency are not made, which is the case in many countries.** As energy demand rises sharply with the recovery, the situation might only worsen.

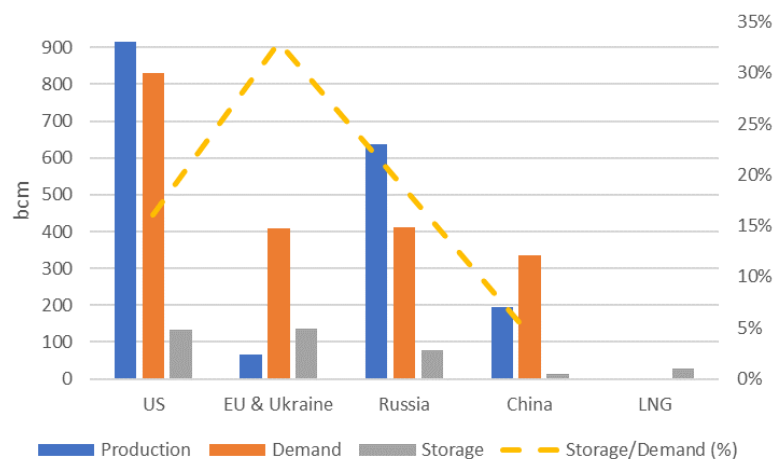
## 7 ■ HOW IS THE EUROPEAN GAS MARKET WORKING? WHAT ROLES DO HUBS, THE TRANSPORT SYSTEM OPERATORS, LNG TERMINALS AND STORAGE FACILITIES PLAY?

**The Dutch TTF is the EU's leading hub.** Brexit accelerated the decline of the National Balancing Point, Europe's pioneering experiment in gas-to-gas competition. The TTF is **where most traders are buying/selling gas**. This gas can come from producers via pipes or as LNG, as already explained; or from **storage, of which EU inherited from its 27 domestic markets a very high capacity, although unevenly distributed**. If they had been over 90% full at the beginning of October, EU and Ukraine storage facilities could have acted as the world gas/energy storage provider during the energy transition. **EU facilities do not only provide security of supply at home but for all energy consumers worldwide if the capacity is fully filled during summer** (for the lack of filling this summer, please see Q12).

To reduce upfront investment and increase security of supply, from the early days, storage was built to complement less flexible imports. Thanks to this, **in winter, demand is met by 40% storage and 60% direct production** (EU & imports).

**EU has about 105 billion cubic metres (BCM) storage capacity and Ukraine about 30 BCM.** Ukraine and EU are linked by pipelines and the Ukrainian storage capacity could play an **important role in securing supply, not just for the EU but also elsewhere as there is very limited capacity in China, Japan and South Korea**.

FIGURE 9 ■ Gas storage capacity, production and demand in selected zones



Source: BP Statistical Review of World Energy 2021, thierrybros.com

**The question of gas storage injection and withdrawal is critical in a tight market.** The oversupply that existed until this year discouraged storage capacity bookings. Some storage even closed like Rough<sup>18</sup> in UK. With the present gas crunch, the inventory level is a fundamental pointer to the likely cost of the marginal supply. Low inventories add to the stress ahead of winter.

## 8 ■ WHO MONITORS EU GAS SUPPLY AND VERIFIES THAT THE MARKET IS FUNCTIONING WELL? WHAT IS THE ROLE OF ACER AND ENTSOG?

The **EU regulation governing security of supply** was adopted in 2010 in the wake of the above-mentioned Russian gas supply crisis. It was updated and reinforced in 2017. The **Gas Co-ordination Group**, chaired by the EC and representing all member states and relevant stakeholders, meets regularly to discuss all issues related to security of gas supply. Since the present situation can be seen as the result of supply problems and market malfunctioning, it **met monthly to assess the situation** in as broad a scope as possible. **No conclusions** have been published as of 19 November. At the first meeting, the **European Network of Transmission System Operators for Gas (ENTSOG)**, which is in charge of compiling an annual Winter Supply Outlook, presented its main conclusions, which had been published on 12 October 2021 (see Q12).

In addition, the **Agency for the Cooperation of Energy Regulators (ACER)** has the legal duty to monitor the market functioning. It produces a detailed report every year. Its last report, covering the period up to June 2021, was published the following month. According to the Regulation on wholesale energy market integrity and transparency (REMIT), ACER also has to ensure there is no price manipulation.

## 9 ■ WHAT MEASURES CAN BE TAKEN IN CASE OF SUPPLY PROBLEMS AND PRICE HIKES?

Prevention is the most effective way of avoiding supply problems, hence the efforts to diversify supply sources and routes. The EU regulation on security of gas supply prescribes **three different sources at least for each member state**. It also has in place the **N-1 rule**, ensuring that each state has sufficient alternative delivery routes in the event its main import infrastructure is disrupted.

Should one or more member state experience difficulties with supply, the first step is for the member state(s), at the initiative of the EC, to assess the situation precisely, within the framework of the Gas Coordination Group. If needs be, national energy ministers themselves may be invited to examine the situation and discuss measures to be taken. This has already happened twice this autumn. But there were no concrete conclusions. The EC published a paper on 13 October 2021, titled “Tackling rising energy prices: a **toolbox for action and support**”. It is more concerned with short-term measures to be taken at a national level to help the most vulnerable consumers.

At the EU level, the EC says it will “**investigate indications of any possible anti-competitive behaviour in the energy market**”, “**ask the European Securities and Markets Authority (ESMA) to further enhance the monitoring of developments in the European carbon market**” and also ensure that **REMIT is effectively enforced**. The EC is also proposing to

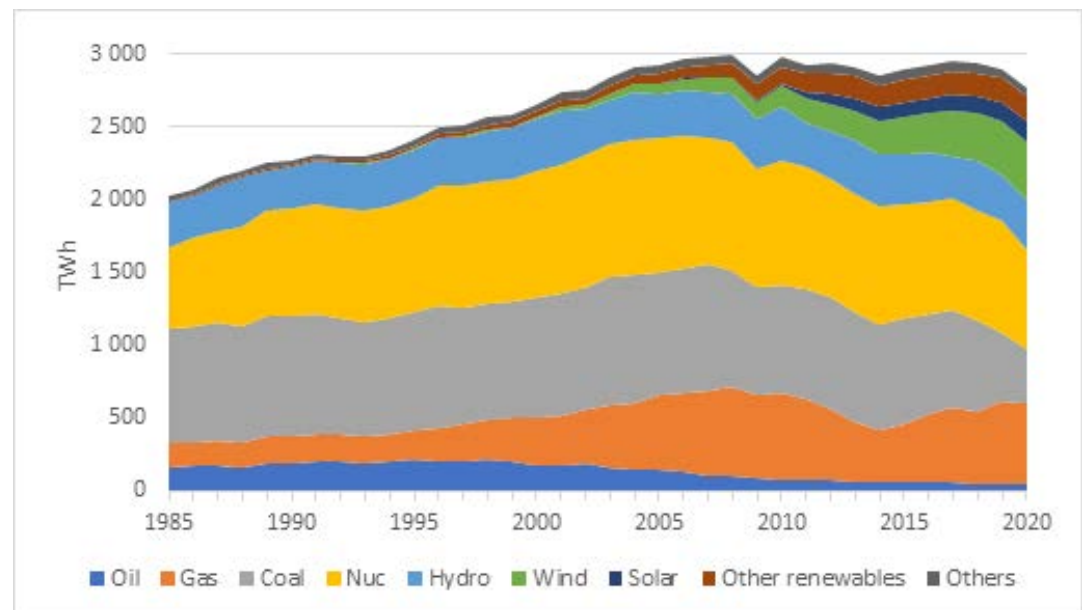


revisit the rules to ensure gas storage facilities function more effectively across the single market, to support the development of future-proof energy storage as a key flexibility tool. Finally, and as some member states had suggested, the EC will consider the creation of a European central gas purchasing agency and “**explore the potential benefits and design of a voluntary joint procurement of reserve gas stocks...**”. This raises many questions related to the well-functioning of the market and the management of so-called strategic stocks. While a similar tool has existed for oil products for decades, it has still to be demonstrated that it is feasible for gas; and more, that it would be the best thing to do to address price hikes. The feasibility had already been studied in 2014/2015 with no positive conclusions.

## 10 ■ WHAT IS THE IMPACT OF THE PRICE OF GAS ON THE PRICE OF ELECTRICITY?

Thanks to the growth of renewables, especially wind and solar, the EU electricity mix is evolving rapidly to remove fossil fuels and those that emit the most CO<sub>2</sub>. Fuel oil has almost disappeared, while the share of coal has been reduced drastically in favour of renewable energy sources.

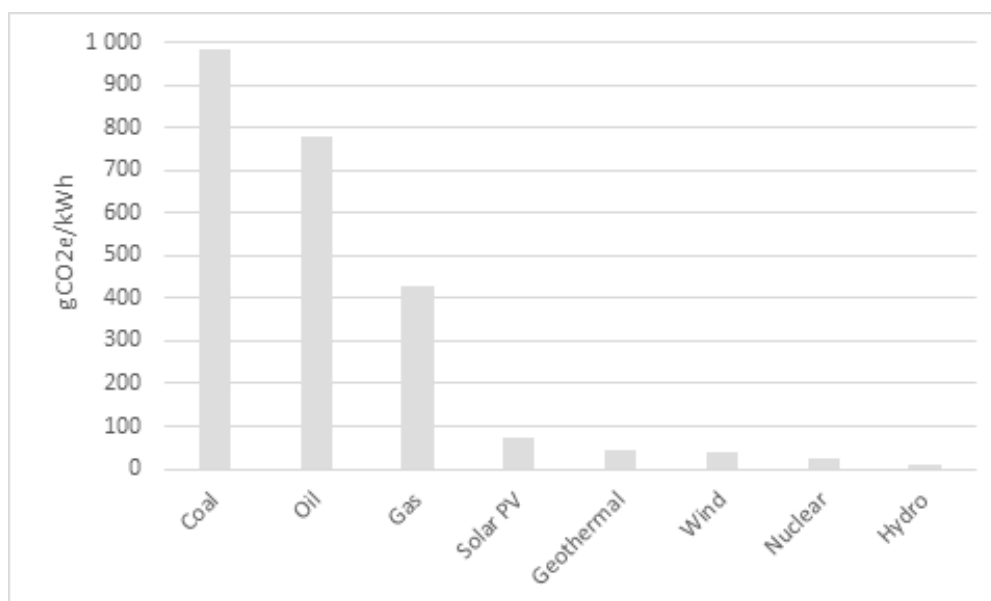
FIGURE 10 ■ Evolution of EU-27 electricity mix (1985-2020)



Source: BP Statistical Review of World Energy 2021.

**The price of electricity is set by the market: the marginal plant producing the marginal electron.** As renewable plant has priority access to the grid, the marginal plant is either a coal or a gas fired power plant (it can be in some extreme cases a fuel oil plant).

FIGURE 11 ■ Estimated emissions per fuel type per unit of power generation



Sources: France's transmission system operator RTE, UK House of Commons, thierrybras.com

The record prices of gas today are pushing power generators in Europe and Asia into switching from gas to coal and even – exceptionally, in some isolated member states – to fuel oil, leading to a potential climate disaster. **High gas prices reflect the fact that the EU is short of gas.** This is a vivid example of gas “demand destruction”; the market is legally reserving gas for residential customers so they can stay warm this winter. Within the EU supply standard, they are priority customers as defined by national law and so a more polluting fuel has to be found by industries. So far “demand destruction” in the form of power cuts remain only a prospect.... So **we can expect this year's CO<sub>2</sub> emissions to rebound sharply above the 2020 levels and possibly even above 2019 levels. China has been the first to rely again on coal to support the rebound of its economy**, which was the first in the world to recover.

## 11 ■ WHAT IS THE IMPACT OF THE EUROPEAN GREEN DEAL OBJECTIVES ON THE INVESTMENTS AND THE USE OF GAS?

The energy transition requires fossil fuels to be progressively eliminated from the energy mix and/or the ability to capture and sequester CO<sub>2</sub> as soon as possible. However, the signals that investors in fossil fuels are receiving might lead them to stop spending on those and switch instead to projects centred on energy efficiency and renewable energy deployment. In a market economy, this may lead to frequent and major balancing problems between supply and demand, such as those we are witnessing today.

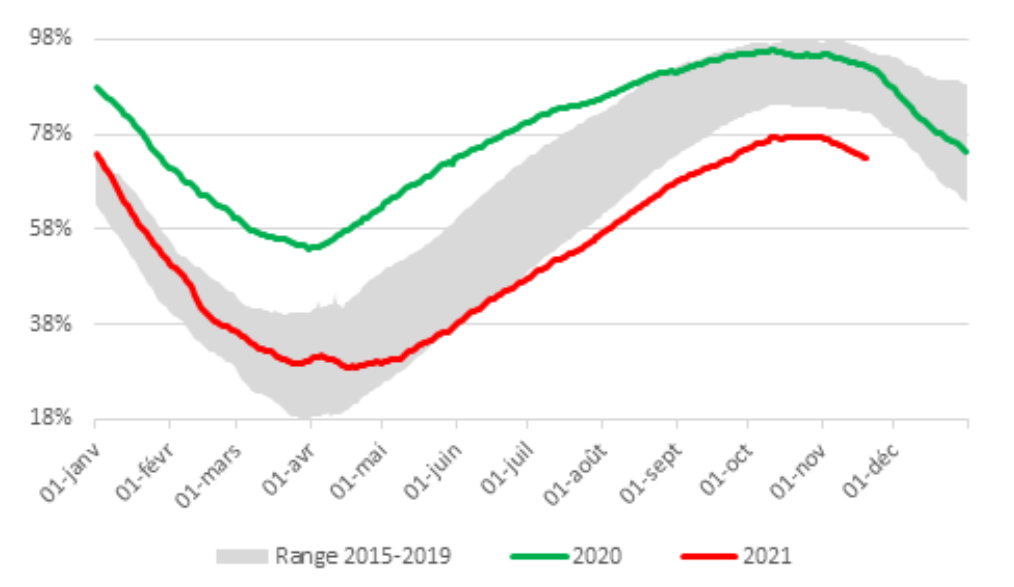
The EU's aim, with its Green Deal, is to put “fossil” gas behind it as fast as possible. In theory this is fine. In practice, **as supply and demand must balance, neglecting the fundamentals of gas supply without taking care of the demand side has led to the present high prices and scarcity.** The Green Deal, combined with the pandemic, has created an expectation of

less demand for fossil fuel, meaning less investment; while investments in energy efficiency and clean energy are still woefully short of replacing gas at least in the short term. This calls for pragmatism otherwise the public at large will refuse to pay for the great objectives. **The price difference between the present fossil fuel world and the ideal decarbonised world we all want is simply too big.**

**As with any transition, this is all about timing.** Consumers should understand that the **price of energy now reflects its externalities, such as the cost of carbon emissions**, much more closely. Now is the **time to take all measures necessary to cut demand**. Once again, the conclusions of COP 26 reveal the yawning gulf between governments' ambitions and the concrete measures that are required in the short term to achieve them.

## 12 ■ IS THERE A SERIOUS RISK TO SECURITY OF GAS SUPPLY IN THE COMING MONTHS?

FIGURE 12 ■ Europe's storage inventory

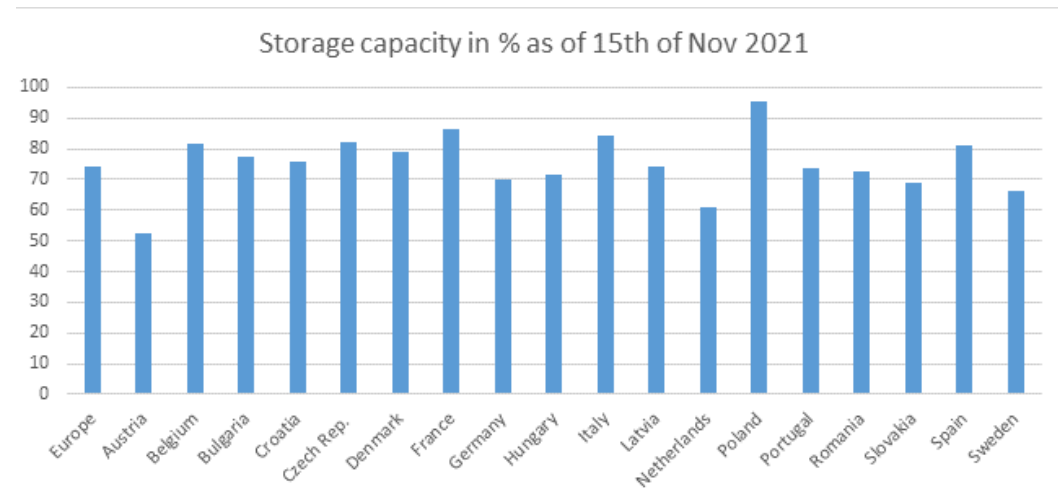


Source: GIE, [thierrybros.com](http://thierrybros.com)

In its **Winter Supply Outlook 2021-2022**, released on 12 October 2021, ENTSOG identified the **main risks** as follows: first, **storage was 75% full on 1st October, one of the lowest in any of its winter outlooks**. Second, if the winter is cold, the gas market will have to increase gas imports from pipelines and/or LNG by 5-10% more than the maximum volumes observed in recent years. Third, an early and significant withdrawal from storage will result in low storage levels by the end of winter and consequently very high demand/prices again next summer for reinjection from a very low base. **The gravity of this situation should not be underestimated.** There are indeed risks, and specific measures might have to be taken to ensure security of supply to households which are the last consumers to be curtailed in case of a catastrophic supply failure.

While storage is worryingly low on average, **some countries (Austria, Germany, The Netherlands) where Gazprom has some capacity are looking even worse.** In an unusual move, Gazprom could have decided this summer not to refill its EU storages. This makes it almost impossible to analyse this year's record low storage.

**FIGURE 13 ■ Gas storage level in each Member State**



Source: Institut Jacques Delors from data AGSI+ (gje.eu)

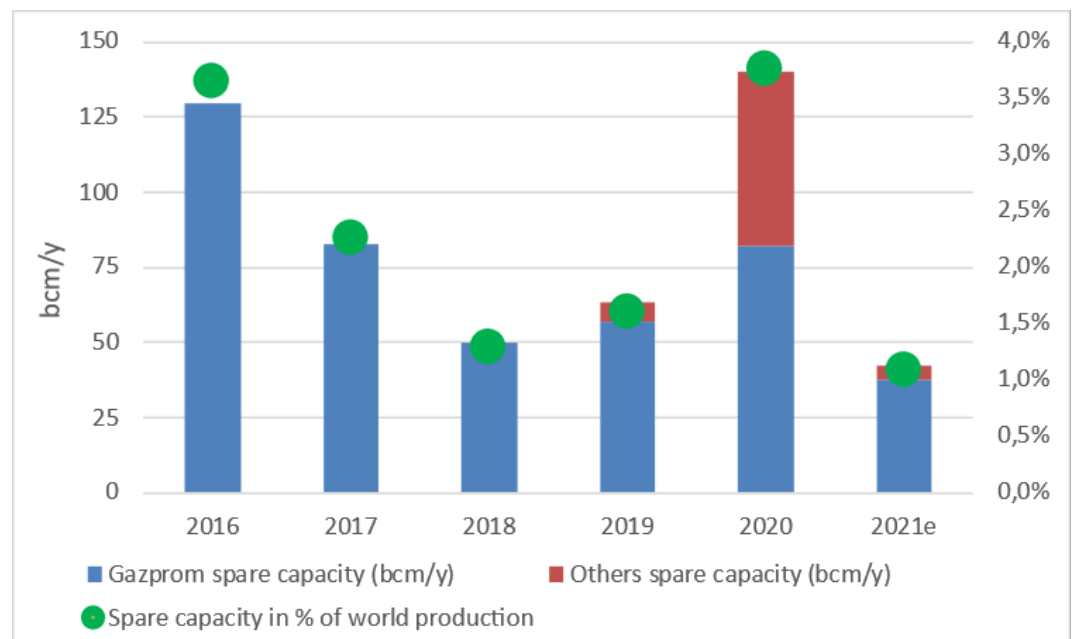
The record high prices have already led to some demand destruction<sup>19</sup>. And if demand continues to exceed supply there is still the risk of blackouts.

Blackouts tell consumers that maybe it is now time to find alternatives and this could see more consumers rejecting gas owing to the risks. At this point in time, we very much doubt if Gazprom will cross this red line. It is much likelier to do everything in its power to supply the additional volumes needed (at record prices!) if it were required to. President Putin seems to want to calm the market by asking Gazprom to refill its EU storage after 8 November. That is the cut-off date for replenishing Russian facilities ahead of winter. But **Russian gas exports remain very low** and this looks more an accounting exercise than a way to make sure the EU has enough gas for winter.

## 13 ■ IS THE MAJOR RUSSIAN ROLE AS SUPPLIER A RISK FOR EU AND WHAT COULD BE THE EUROPEAN RESPONSES TO THIS RISK?

**Gazprom is the only supplier with remaining spare capacity.** It has so far decided not to supply more than its contractual obligations to mitigate the present crisis. Gazprom is maybe waiting for the EC to take an official position before exporting more. In particular it might need assurance that if its market share exceeds 40% (and it will if it exports more), the EU will not initiate a competition inquiry into the use of its spare capacity. At the same time, it could also say that it has diversified its portfolio of clients by adding China (with a new pipeline in operation since 2019) and that it is just playing by the market rules. **With reduced domestic production (see Q1) as seen today in Europe, the Europeans have de facto reduced their diversification of supply and enhanced their import dependency.** This approach has already backfired as **it gives more market power to state-owned oil and gas companies** that will benefit from increased market share globally... And behind Gazprom there is the Russian Federation with a clear agenda to weaken the EU and to punish Ukraine. Russian gas might well be the EU's Achilles' heel.

FIGURE 14 ■ Gas production spare capacity



Source: [thierrybros.com](http://thierrybros.com)



## 14 ■ WHAT COULD THE EU AND THE MEMBER STATES DO TO ALLEVIATE THE PRESENT TENSIONS BETWEEN SUPPLY AND DEMAND?

**The gas market is not governed by the EU but by the principle of supply and demand at a global level.** The main characteristic of the EU market is its **heavy reliance on Russia**, which uniquely has spare capacity to influence prices if there are spikes, just as Saudi Arabia has the spare capacity to solve potential problems of oil scarcity on the world market.

US President Joe Biden decided to ask OPEC+ for more oil on 11 August 2021. The International Energy Agency called for more Russian gas on 21 September but the EU so far has stayed silent... Asking for more oil and gas to avoid an economic downturn would represent a major volte face for Europe's policy-makers. **The next European Council in December 2021 could well be the opportunity for the heads of state and government to send a unanimous message to President Putin to stop taking the EU hostage.**

At the end of the day, well beyond questions such as the certification of Nord Stream 2 and the circumvention of Ukraine's gas transit system, **there is the matter of Russia's reliability as the EU's main gas supplier.** Russia's revenues from sales of oil, gas and coal to Europe are a very significant part of the budget (more than 40%). The top two contributors are Rosneft (thanks to oil exports) and Gazprom (thanks to gas exports).

**The other EU message could be to accelerate the phase out of fossil fuels.** But for this threat to be credible, the necessary investments in energy efficiency, new housing stock, renewable energy and electricity storage must be made quickly. Past experience shows that it is not occurring fast enough. For the future, the energy and climate plans of the member states give no signal that it will happen fast. Will the recovery plans now under implementation help to accelerate the process?

Opening a new abuse of dominant position inquiry against Gazprom could be an additional argument to put pressure on Russia but it would hardly benefit the EU gas market.

## 15 ■ HOW TO ENSURE SOCIAL JUSTICE?

**Social justice is a question central to any energy policy** and it is well proven that **any rise in oil and gas prices affects the poorest the most.** By some calculations, 34 million European citizens are energy poor. Their energy budget, which includes transport and heating, covers a disproportionately large share of their total spending. In addition, they more likely live in the worst insulated buildings and ride in the least efficient and most polluting cars. In other words, an energy crisis will impoverish the poorest still further before the richer consumers even notice it has started.

**Freezing regulated tariffs** as the French government decided to on 21 October is **only a short-term fix.** Many member states are introducing the same type of short-term measures<sup>20</sup>. They merely prevent consumers from falling into fuel poverty or losing their

spending power. But at the end of the day, this extra money goes into the pockets of gas and electricity producers without addressing the structural problems faced by the poorest. Member states are therefore de facto transferring their wealth to some non-EU companies... In addition, consumers might not see any reason to limit their demand if the increased bill is mitigated by extra subsidies.

**Helping consumers to address their structural demand is a matter of great urgency:** this can be done at medium-term through renovation of their housing and providing cleaner transport. This would confer many side benefits such as job creation, poverty alleviation and better health. **Investing public money domestically is thus far better than helping foreign fossil fuel suppliers to maintain their level of supply.** Unfortunately, decision-makers seldom take the time to explain these issues to the population, despite their willingness to enact bold climate laws.

## CONCLUSIONS AND RECOMMENDATIONS ■

**The climate emergency has taught us that we have no time left and that fossil fuels are far and away the biggest sources of GHG emissions.**

Solving it is clearly a **collective task** to be driven forward by our national and European policy-makers. The final objective in Europe is to become carbon neutral by 2050, giving us less than **30 years to remove polluting fossil fuels without adversely affecting the level of comfort society enjoys.**

The present discrepancy between the discourse and the measures taken has to be addressed with a **clear roadmap of concrete measures that are supported by corresponding investments that take a realistic view of the feasibility and costs.** This is basically what the Green Deal intends to do, but the sense of urgency is lacking.

Citizens empower decision-makers to take strong measures through the ballot-box. Until they are willing to curtail their energy needs in line with the objectives set, this discrepancy will continue to be reflected in the price of fossil fuels, which are “still needed” to ensure society’s comfort. As there is today no perfect/magic solution readily available, policy-makers will **need to foster research and development in every sector (on both the supply and the demand side) with the clear mandate to speed up decarbonisation** at all levels and affordably.

That is the general idea: now for some specific recommendations echoing the four acts of retaliation identified earlier.

## 1 ■ The market should not be ignored and taxation has to be aligned on climate objectives.

**The European economy is a market economy where prices are governed by the principle of supply and demand. Decision-makers have to accept these principles** when addressing this energy crisis. Oil has a global price (the Dated Brent crude benchmark), gas has still three main regional prices (US Henry Hub, Asian JKM or Anea and EU TTF), and coal prices are also regional. Europe has a wholesale gas price and a wholesale electricity price. Yet, each member state heavily influences retail prices: national network costs and national taxes and in some cases green levies combined constitute much more than half the bill paid by end-users for oil, gas and electricity.

**Finding the right balance between market fundamentals and appropriate regulation to achieve our objectives is the most difficult task facing decision-makers today.**

**Putting a price on CO2 has been an EU ambition since 2001. And over the 20 years of its operation, the EU ETS has also taught us that putting a decent price on carbon can help reduce greenhouse gas emissions. The EC should therefore fast-track the end of free allowances which have provided no incentives for manufacturers** to even consider reducing their CO2 emissions. It should also **allow negative emissions (CCS) to be traded** to enable the net-zero goal.

**The ETS revenues are now substantial (more than €30bn/year) and should be reinvested in all the measures taken to replace fossil fuels.**

## 2 ■ Saving energy and scaling-up energy efficiency and clean energy investments is a no-brainer.

The present gas crunch shows that **the old patterns of consumption are more deeply embedded in our behaviour than investors and decision makers had realised.** It is almost as if Covid never happened.

Making our consumption match our goals will become unavoidable when we are confronted by more frequent natural disasters and the loss of biodiversity. This change in mindset has to be encouraged every day and at every level.

EU discourse on how best to reach the 2030 climate objectives should lead to **massive investments in energy efficiency in buildings, clean transport and industry as well as in renewable energy and energy storage.** This will give hope to everyone that our climate objectives are achievable and the Green Deal is a serious endeavour.

Rather than slowing down investment in the light of today's crisis, acting with renewed urgency to tackle the major structural deficiencies of our economy in terms of energy has become a duty. **It is time to act decisively to address our fossil fuels addiction** and to fast-track a better world for our children and grand-children. One major step is for the European Parliament and Council **to adopt ambitious reforms of EU legislations**, including the directives on renewable energy, energy efficiency and the energy performance of buildings.<sup>21</sup>

### 3 ■ Natural gas infrastructure should be managed in a way that is consistent with our climate objectives and storage requirements should be strengthened.

With gas occupying 25% of our primary energy mix, and given the damage it does to the climate, **a roadmap to phase it out is needed as a priority**. Europe can stop its gas production but cannot dictate what the others will do as more gas will be needed elsewhere. As shown by the COP26 in Glasgow, exploration and production in the top 3 major exporters (Russia, Qatar and the US) will not be stopped in the foreseeable future. We can only hope that exploration for hydrocarbons will not take place in the Arctic.

**Investments in gas should not be considered as environmentally friendly in the EU finance taxonomy regulation** now being discussed, if our deeds are to match our words. Similarly, there is **no need to invest more in pipelines in the EU** beyond what has already been recognised as essential for security of supply. Innovation should thrive in low-carbon/green fuels and provide cost-competitive solutions to gas with CO2 pricing.

However, given the importance of gas for stabilising the market for at least the next two decades, the European Union should revise the 2017 regulation on security of gas supply and **impose standards for filling storage at the beginning of the winter as some member states already do (eg a minimum 90% full on 1st October) and address possible structural problems in this respect**. This regulation will enhance security of supply and it could also simplify matters by dropping ENTSOG's useless Summer Outlook.

In addition, **looking at the wider role of EU and Ukraine storage in the energy transition** could help to ease supply problems far beyond the EU. It is up to the gas industry to be innovative on this front.

### 4 ■ An EU-Russia agreement or common understanding is needed.

We have seen the key role played by Russia in the present gas market. **Gazprom is not only a commercial company but also the main tool of Russia's geopolitical ambitions in Europe**. The recent gas conflict with Moldova is merely the latest episode in a long series of negative events that has played out in many eastern European countries.

The Europeans, and Germany in first instance, have been naïve in thinking that natural gas is only a commodity traded like any other good. NordStream 2 is definitely a geopolitical project to undermine Ukraine. Its construction is now completed. The certification needed to operate it has to be granted by the German network regulator BundesNetzAgentur which has four months to reach a decision. Then the EC has two months to give an opinion to the German regulator. Surprisingly on 16 November 2021, the application of the Swiss-based company NordStream2 AG, filed on 9 September 2021, has been suspended, until the Swiss company establishes a German subsidiary to which it has to transfer the assets and resources to operate the German leg of the pipeline. In other words, **NordStream 2 might not enter commercial operation before the beginning of the winter 2022/2023**. Legal complications may be expected as Poland and Ukraine will use all the possible recourse to oppose the certification. **Up to now, major German interests and some prominent oil and gas companies made this pipeline possible even as the EU took sanctions against Russia after its 2014 annexation of Crimea**.

The German government pretended this pipeline was a bilateral commercial agreement with Russia, ignoring as it did so all the legitimate protests of other member states who perceived the threat it posed to Ukraine and to their own gas supply chain. In a landmark decision related to OPAL, the pipeline prolonging NordStream1 on the German territory, the European Court of Justice decided recently, at Poland's request, that it had breached the spirit of solidarity provided by Art 194 of the Treaty. The same principle could be applied to NordStream 2 that would not only make Ukrainian pipelines redundant but also the Polish Yamal-Europe pipeline.

With the support of some member states like Austria and France, **Germany prevented the EC from negotiating (on behalf of all member states) an agreement with Russia dealing with the energy aspects of the relationship**, including the use of pipelines, storage, and interconnection points.

**This attitude let Russia conclude bilateral agreements with member states**, further undermining the EU's ability to intervene and to defend its collective interests. The recent agreement with Hungary on a 15-year supply agreement at a discounted price, conceded on the basis of the use of the Turkish route (Turk Stream) further weakening Ukraine, is another consequence of the German government's attitude and of the inertia of the EU.



## End Notes ■

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2. In particular Chairman of the Nord Stream 1 shareholders' Committee.
3. Cole L. 2021. "How The Netherlands Is Turning Back On Natural Gas?", BBC, October 2021.
4. "From where do we import energy?" (europa.eu)
5. White paper on article 82 available at <https://ec.europa.eu/competition/antitrust/art82/discpaper2005.pdf>
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7. In the top 3 in the EU.
8. For 13bcm/month, last year at the record low level Gazprom was only making €1billion/month.
9. Algeria will need, as publicly stated, to increase both pipe flows via Medgaz and provide additional LNG (assuming they have the available shipping) not immediately but from end of December to avoid a tighter energy crunch in Spain.
10. DELAIR M. 2021. "The German Energy transition", *Policy paper 270*, Jacques Delors Institute, September 2021.
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12. Source BP Statistical Review, 2020 data.
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14. NGUYEN P.-V., PELLERIN-CARLIN T. *et al.* 2021. "The EU ETS: From Cornerstone to Catalyst", *Policy paper*, E3G & Jacques Delors Institute, April 2021.
15. Germany-based utility RWE, the EU's top corporate emitter, reported a 23.5% jump in its ETS-covered thermal power output for the first nine months of the year in <https://carbon-pulse.com/142528/>
16. DEFARD C. 2021. "Putting the cart before the horse – perspectives on a potential ETS on residential buildings", *Policy paper 268*, Jacques Delors Institute, July 2021.
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18. Because of the winter-summer price differential could not justify the cost to repair it.
19. Some energy intensive companies will have to close down as the high cost of energy is making their business unprofitable.
20. NGUYEN P.-V., PELLERIN-CARLIN T. 2021. "The European Energy Price Spike. Overcoming The Fossil Fuel Crisis", *Policy brief*, Jacques Delors Institute, October 2021.
21. PELLERIN-CARLIN T. 2021. "Making The Regulation Fit For Innovation", *Policy paper 263*, Jacques Delors Institute, April 2021. • DEFARD C. 2021. "Addressing The Climate And Social Emergencies With Minimum Energy Performance Standards", *Policy paper 271*, Jacques Delors Institute, November 2021.

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