



New
Direction

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SECURITY OF ENERGY SUPPLY BETWEEN POLICY AND THE MARKETS IN EUROPE



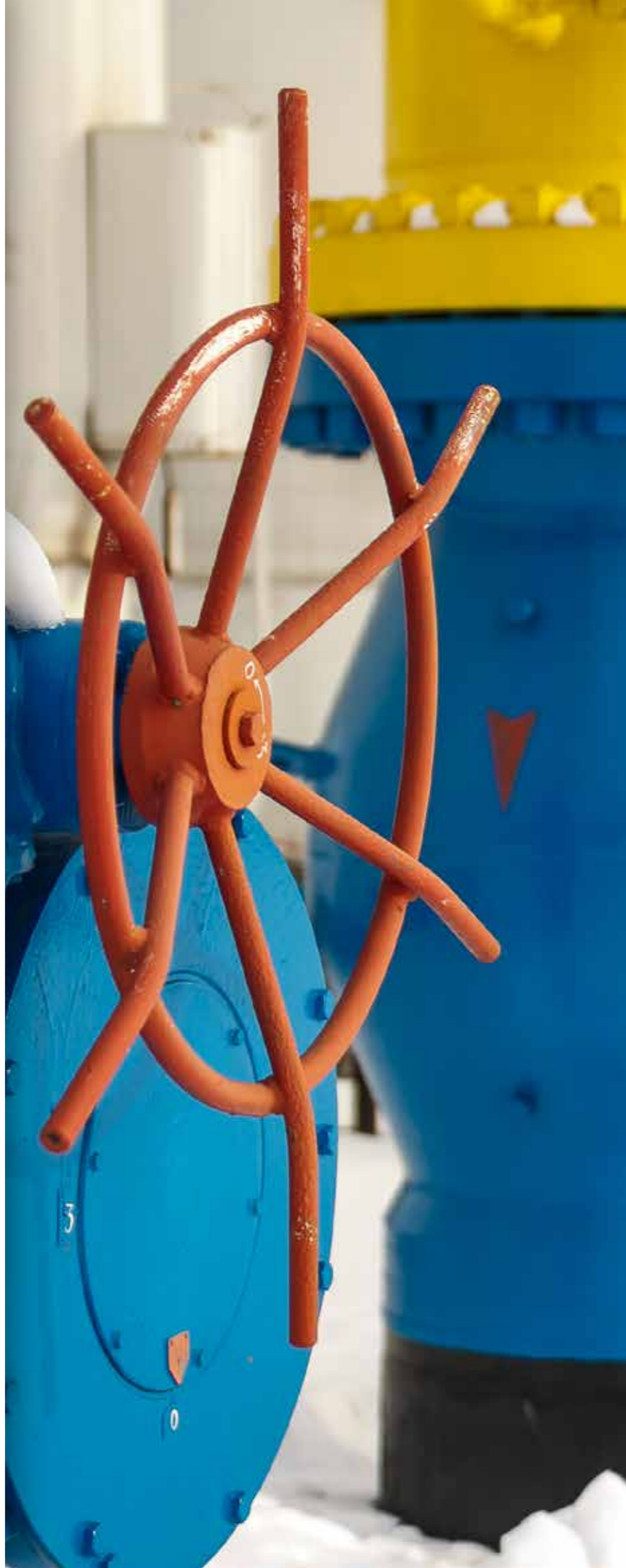
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ABBREVIATIONS USED

ACER	EU Agency for the Cooperation of Energy Regulators
BCM	Billion cubic metres
CEER	Council of European Energy Regulators
CfD	Contract for Difference
CHP	Combined heat and power
CME	Chicago Mercantile
COP	Conference of the Parties
EC	European Commission
EIA	Environmental Impact Assessment
EP	European Parliament
ESMA	European Securities and market Authority
EU	European Union
FSR	Florence School of Regulation
FSRU	floating storage and regasification unit
FSU	floating storage unit
GW	Gigawatt
GWh	Gigawatt hours
HEPP	Hydroelectric power plant
IEA	International Energy Agency
IMO	International Maritime Organization
kW	Kilowatt
MCM	Market Correction Mechanisms
MMBtu	Metric Million British Thermal Unit
MSP	Maritime Spatial Plan
MS	Member States
MTPA	Million tonnes per annum
MW	Megawatt
MWh	Megawatt hours
NECP	National energy and climate plan
NBP	National Balancing Point
LNG	Liquefied natural gas
LRS	Last Resort Suppliers
OEM	Original Equipment Manufacturers
OTC	Over-the-Counter
PPA	Power purchase agreement
RES	Renewable energy sources
SMEs	Small and medium enterprises
SSO	Storage system operator
TFEU	Treaty on the Functioning of the European Union
TSO	Transmission system operator
TTF	Title Transfer Facility
TW	Terawatt
TWh	Terawatt hours
VTP	Virtual trading point
WPP	Wind power plants/ Wind power parks



INTRODUCTION

It sometimes takes a lot for some people to realise that without electricity it isn't just internet and Wi-Fi that are affected. Productive life generally comes to a halt - everything shuts down, as we wait for the power to return before being able to do almost anything.

After a short blackout the public is soon back to normal life, but visualise this:

What happens if there is an extended blackout, one that occurs over several days, or a week, or longer? No power means no mobile phones, no computers, no access to data, no TV, no refrigerator, even no cooking if on an electric stove; no shopping, as bank cards cannot be used as a means of payment, but cash on-hand is limited, because ATMs do not work. There are no elevators, no lights; there is no running water in the kitchen, nor in the toilet. You cannot wash your dirty clothes, charge your electric toothbrush, and your hair dryer has now become obsolete.

Food production halts. Gas stations do not function. You have limited options for cooking, so your kitchen appliances have become shelves for storing dirty dishes and cutlery. There is nothing that is digital and requires electrical current available. One can deal with this for a short time on a micro scale by using a backup generator, but then again – how many inhabitants of densely populated urban areas have, or can house power generators? Or imagine there is no gas in the pipeline to heat your apartment or house. Or there is no gas to produce heat for district heating in a larger city. There is not only no comfort; there is no access to basic amenities. Life as we know it comes to a stand-still, it freezes. And it can freeze literally.

Therefore, much of our daily lives is about energy security and everything related to it.

Attempts are ongoing by the European Union to ensure there will always be affordable energy for everyone. The task is not at all simple and easy, but the price of failure to succeed is too high for things to be left alone to their own devices.

Solidarity might be one of the key supranational powers, but we should not forget the ideology behind energy solidarity – the consumer is above all else. Article 194 on the Treaty on the Functioning of the European Union (TFEU) speaks of a spirit of solidarity. The energy market, security of energy supply, renewable energy, and interconnections are a set of concepts well known to the EU.

The European Commission has already had to deal with acute energy security situations in recent past. In 2016, the European

Council called for the completion of the European Energy Union (EEU), which was supposed to become a milestone in the way the EU approaches energy and climate policies. In a way, the situation ongoing since late 2021 and early 2022 is similar to the situation in 2014-2016. Less than a year before the European Energy Union strategy was announced the European Energy Security Strategy (EESS) was adopted. In terms of its content and main goals, the EESS served as the final steppingstone for tabling the EEU strategy. Both the EESS and the EEU strategy were drafted and adopted under difficult international circumstances. The Russian Federation, one of the key energy suppliers to the EU, engaged in activities incompatible with international law and a hindrance to regional security. The same situation, only in an aggravated form, was experienced in 2022 and remains persistent in 2023. This demonstrates that a consistent approach to energy security is not a luxury mental exercise, but a real-life necessity based on facts and analysis.

Energy security has been a transnational endeavour for many years now, especially for those countries that rely heavily on imports to meet domestic demand. Around the world, there is a complex web of cross-border energy connections and development partnerships, and energy plays an increasingly prominent role in international diplomacy. Still, the world has not been investing enough in energy in recent years, which is a fact that left the energy system much more vulnerable to the sort of shocks seen in Europe in 2022.

As the EU energy system faced an unprecedented crisis, European governments started to implement a range of policy responses. Due to possible cross-border spillover effects, there was a need for a coordinated effort across the EU. As a policy response in 2022, the EC adopted a list of short-term and longer-term measures, some of which were called temporary. The task for the EU was trifold – to increase supply, reduce demand, and keep the energy market open. While the first two tasks were solved by short-term measures, the discussion is still open - what will the future of the EU electricity market be. This study provides, among other relevant things, analysis of EU measures implemented in 2022 from the aspects of energy availability and energy affordability.

After Russia's invasion of Ukraine, substitution of Russian energy imports, particularly natural gas, was one of the main priorities. It was clear already in spring 2022 that the EU must be ready for any scenario. The REPowerEU Communication¹ was a response to severe uncertainty regarding security of energy supply. The report covered both dimensions of security of supply - availability and affordability - as equally

¹ European Commission, 2022. Communication on REPowerEU: Joint European Action for more affordable, secure and sustainable energy. COM(2022) 108 final. Strasbourg, 8 March 2022.

important. The measures in the REPowerEU Plan² were designed to respond to security of supply through energy saving, diversification of energy supplies, accelerated roll-out of renewable energy technologies to replace fossil fuels, and smartly combined investment and reforms. For the most part, those are short-term measures with a precise start and end date, with some exceptions, which are described as temporary measures without a specific timeframe. There is a risk that some of the measures without specific deadlines could serve as obstacles to achieving an efficient energy market.

Chapter 1 of the study shortly describes the approach and methodology.

Chapter 2 provides a deeper insight into theoretical considerations of security of supply definition and energy trilemma. Chapter 3 offers a general overview of the EU energy sector with a focus on energy dependency. Chapter 4 reflects on recent energy market developments including worldwide energy trends. Chapter 5 elaborates on recent EU energy policy developments, covering energy availability and affordability aspects. It also analyses security of supply measures adopted on the EU level in 2022 and beyond. Chapter 6 provides a preliminary analysis of forthcoming EU wholesale electricity market reform. Last but not least, the chapter on Conclusions summarises observations, warns of risks, and outlines key factors and aspects to be taken into consideration when thinking about and acting on energy security.

1

METHODOLOGY, SCOPE AND LIMITATIONS

This chapter briefly explains the scope and limitations, and methodological approach of the study.

The scope of the study: Overall situation in Europe, detailing the biggest risks to energy security, and potential ways to improve resilience.

Limitations of the study: this analysis does not cover supply of oil and transport fuels. Also, although it looks at the broader situation in Europe, more attention is paid to the Baltic Sea region. This does not mean that issues typical to other regions in Europe are of less significance, or are radically different.

In elaborating the study, the authors have used publicly available data, regulatory norms, reviews, analytical materials, policy documents, reports, and public communication of the European Commission, European Parliament, governments, non-governmental and commercial entities, and other actors.

First, elements of energy security are identified and described, and an overview of definitions and approaches to explaining energy security is provided. Sources of definitions are identified, and energy security is explained in a broader context of energy trilemma.

Second, actions for the implementation of policies are identified and described with the purpose of explaining the role of each action in decision-making and policymaking relevant to ensure that the level energy security is optimal in terms of effectiveness, costs and benefits (i.e.: risk prevention vs social costs).

The definition of energy security has been provided by elaborating on the origins of the notion and its development till present times. Elements considered key to energy security have been identified and elaborated on. The content of further chapters rests on the description and analysis of what energy security means.

² European Commission. 2022. Communication on REPowerEU Plan. COM(2022) 230 final. Brussels. 18 May 2022.

FRAMEWORK OF SECURITY OF ENERGY SUPPLY AND ITS PLACE IN ENERGY TRILEMMA

Security of energy supply should be defined in a way that best describes the specific region and the specific time frame. In the current European energy policy, the definition of energy security is in line with that of the International Energy Agency (IEA), namely as an “uninterrupted availability of energy at an affordable price.”

During recent years, the inability for some households to access and afford sufficient levels of energy services has been a concern for policymakers in an increasing number of European countries and at the European level. Given the EU’s heavy

reliance on energy imports, its current energy policy focuses on ensuring a stable flow of energy in the face of potential energy crises.

The energy trilemma is important because it helps to highlight the main areas of the energy sector. The energy trilemma is about the need to find balance between security, affordability, sustainability, and/or competitiveness. Presently, the Russia-Ukraine conflict increases the concern about its geopolitical consequences, and because of it, energy security is undermined at the national, EU, and global levels.

2.1 Definition of security of supply

How to define energy security in a universal and applicable way? There is no simple answer as energy security itself is a complex term with different building blocks and with implications in a wide range of spheres like economic, political, environmental, social, technical, etc. The definition of energy security can vary per country depending on location, available natural resources, economic status, energy-related import and export activities, its vulnerability to energy supply disruptions, political system, and international relations. For example, Europe is a major energy-importing region, with limited internal fossil energy resources. This distinguishes it from energy-exporting regions and countries, where the concept of security of demand could be more important.

The concepts of mutual dependency and reliable partnerships have experienced serious reshuffling as it turns out that relationship (in international relations) reliability stretches only as far as the willingness of all parties to cooperate on mutually advantageous terms. With Russia having withdrawn from the rules-based international system, the whole approach of the EU relying on an energy partnership with Russia has collapsed, throwing the EU collectively, as well as many Member States individually, into the process of revisiting past, present, and future values of and beyond the elements that constitute energy security. Some of the energy-exporting

countries have demonstrated a willingness to strengthen mutually advantageous ties, while others are using the opportunity to push prices higher, and others still have ramped up their ability to produce and export to such an extent that a significant proportion of Europe’s energy security is being ensured through transatlantic cooperation.

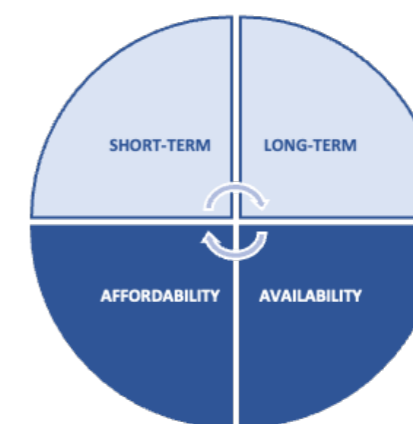
There is no clear definition of energy security in EU policy documents, therefore a more general approach could be used. A frequent starting point of contemporary energy security studies is the four “A”s of energy security:³

- **Availability:** ensures that energy supplies are available in sufficient amount.
- **Accessibility:** ensures that there are no barriers to energy supply accessibility, such as economic, political, and technological factors.
- **Acceptability:** describes environmental concerns, minimising the negative impacts of energy, such as pollution and environmental damage.
- **Affordability:** aims to have these resources available to all consumers at competitive and affordable prices.

International Energy Agency (IEA) defines energy security mainly based on two “A”s as “[the uninterrupted] availability of energy sources at an affordable price.”⁴ It is a widely used definition when energy security issues are investigated.^{5 6} The IEA explains its definition also from a timeline perspective meaning that long-term energy security mainly deals with timely investment to supply energy in line with economic development and environmental needs; and short-term energy security focuses on the ability of the energy system to react promptly to sudden changes in the supply-demand balance.⁷

A general analysis of security of supply definitions demonstrates that different approaches can be used depending on the context. The primary goal of the authors of this study is to analyse recent measures adopted by the EC, and how those measures correspond to the current market situation. For this purpose, the authors have chosen the IEA definition as the most appropriate when talking about energy availability and affordability (see Figure 1).

Figure 1.
A framework of energy security definition⁸



2.2 EU energy trilemma

The classical energy trilemma defines three main priorities of energy policy: environment, affordability, and security of supply, and suggests that those policies are in a rather mutually competitive state.

For some time, policy makers have been trying to find a solution how to ensure security of supply, keep prices low, and protect the environment simultaneously. Such a trilemma has often meant that one of the three gives way to the other two. In the 1970s and 1980s, during the first and second oil crises, security of supply and affordability surpassed sustainability. In 1979, for example, the G7 nations went as far as pledging in their annual summit “to increase as far as possible coal use” to lower energy costs.⁹ The trilemma balance started to transform in the early 1990s with the rise of the modern environmental movement.

Over the last decade climate change has taken priority as evidence of global warming becomes stronger. According to the latest Annual Global Climate Report the 10 warmest years in the 143-year record have all occurred since 2010, with the last nine years (2014–2022) ranking as the nine warmest years on record.¹⁰

The Russian invasion in Ukraine put additional weight on energy security as the energy sector was the most affected by this conflict. There is little doubt that energy was used as a weapon against the EU to subdue potential support of the EU or separate member states for Ukraine. One can say that Russia inflicted the war on Ukraine, but instigated the energy crisis in the EU, and, in fact, globally. The energy crisis has forced governments to rethink their priorities yet again. While

4 International Energy Agency. Ensuring the uninterrupted availability of energy sources at an affordable price. <https://www.iea.org/topics/energy-security>

5 Russell, Martin. 2020. Energy security in the EU’s external policy. European Parliamentary Research Service. [https://www.europarl.europa.eu/cmsdata/210517/EPRS_IDA\(2020\)649334_EN.pdf](https://www.europarl.europa.eu/cmsdata/210517/EPRS_IDA(2020)649334_EN.pdf).

6 Energy Charter Secretariat. 2015. Common Concept for Energy Producing, Consuming and Transit Countries. <https://www.energycharter.org/>.

7 International Energy Agency. 23 February 2023. Ensuring the uninterrupted availability of energy sources at an affordable price. <https://www.iea.org/topics/energy-security>

8 Authors’ own illustration

9 G7 Information Centre. 29 June 1979. Declaration. Tokyo. <http://www.g8.utoronto.ca/summit/1979tokyo/communique.html>

10 NOAA National Centers for Environmental Information. January 2023. Monthly Global Climate Report for Annual 2022. <https://www.ncei.noaa.gov/access/monitoring/monthly-report/global/202213>.

3 Asia-Pacific Energy Research Centre. 2007. A Quest for Energy Security in the 21st century. Resources and constraints. Edited by Alicia Altgracia APONTE. https://aperc.or.jp/file/2010/9/26/APERC_2007_A_Quest_for_Energy_Security.pdf.

climate change is still high on the political agenda, security and affordability are regaining their importance among energy policy goals, and the environment is no longer the absolute priority.

Energy trilemma in the EU was defined in a different manner and security of supply gained its importance depending on internal and external economic and political developments. In the past, the EU has experienced some security of energy supply issues like temporary disruption of pipeline gas supplies in the winters of 2006 and 2009 that strongly hit EU citizens in several Central and Eastern EU member states. In 2007, when “the first EU energy action plan” was endorsed by the heads of governments, the EU declared that Europe needs to deliver **sustainable, secure, and competitive energy**, with clear emphasis on internal energy market development.¹¹ Security was a novelty, because traditionally it was preserved by MS, which had a national energy mix, external energy policy, and the conditions for exploiting the energy resources in their own hands.

Later in 2011, in the Energy Roadmap 2050, the Commission explored the challenges posed by delivering the EU’s decarbonisation objective while at the same time ensuring **security of energy supply and competitiveness**.¹² The Roadmap calls for a secure, competitive and decarbonised energy system in 2050. A policy framework for climate and

energy in the period from 2020 to 2030 defines seven key elements: security of supply is the last one there, surpassed by green targets, competitiveness, and consumer issues.¹³ In 2014 the EU published the European Energy Security Strategy, and most of the measures are still relevant.¹⁴ The Strategy calls for a more EU-wide approach by highlighting two major cornerstones of energy security. Firstly, the need for greater cooperation at the regional and EU level through a functioning internal market and coordinated network development. Secondly, calling for a more coherent external action. In the Energy Union founding package, its goal has been extended, introducing a fourth pillar claiming that the goal of a resilient Energy Union is **secure, sustainable, competitive, and affordable energy**.¹⁵

The invasion of Ukraine by Russia put EU energy security under real threat as the EU imported around 90% of its natural gas consumption with Russia accounting for more than 40% of the imported natural gas. The EU addressed the situation of emergency and called for a drastic acceleration of clean energy transition to increase Europe’s energy independence.¹⁶ The approach that companies and households must be provided with **affordable, secure and clean energy** was at the centre of the European energy security concept. Competitive energy as an objective has stepped back while optimisation of the electricity market design is on the agenda, which may lead to more regulated market mechanisms.

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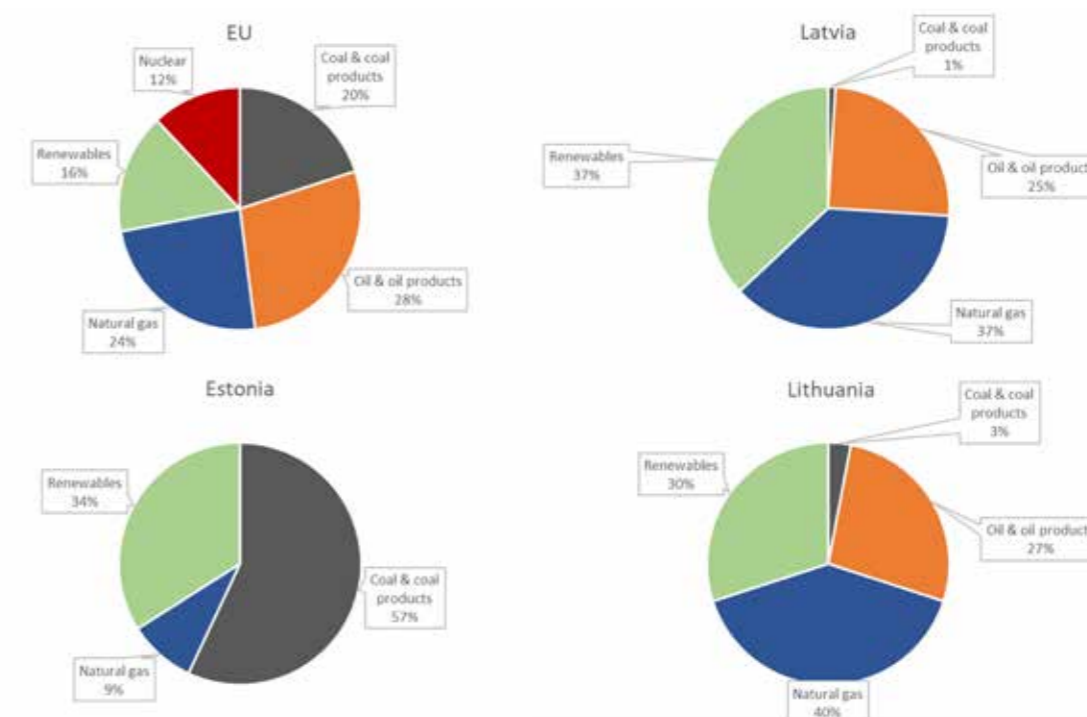
GENERAL DESCRIPTION OF EU ENERGY SECTOR

3.1 EU energy mix

In 2021, the energy mix in the EU, meaning the range of energy sources available, was mainly made up by five different sources (Figure 2). Petroleum products (including crude oil) (28 %) continued to be the most significant energy source for

the European economy, despite a long-term downward trend. Natural gas (24 %) remained the second largest source with declining trend. Renewables (16%) surpassed nuclear energy (12%) production.

Figure 2. Energy mix, EU& Baltics, 2021.¹⁷



The share of different energy sources in the national energy mix varies considerably between member states. Natural gas accounts for 40% in Italy, and 38% in the Netherlands. Renewables have the highest share in Sweden (49%) and Latvia (40%), while nuclear energy makes up 41% of energy available in France, and 25 % in Sweden and Slovakia. More than half of the energy available in Estonia (53%) and in Poland (41%) comes from solid fossil fuels.

When it comes to the Baltic states, which historically have been among the MS receiving all of their gas supplies¹⁸ from Russia via pipeline, the portfolios represent a spectrum of situations. Most of the domestic power production in Latvia comes from large hydro power plants (HEPPs), followed by gas-fired CHPs. Depending on HEPP generation, Latvia manages to satisfy between 60 and 80% of annual demand, with numbers fluctuating seasonally. For example, in spring, it is able to

11 European Commission. 2007. An Energy Policy for Europe. COM(2007)1. Brussels. 10 January 2007. I

12 European Commission. 2011. Energy Roadmap 2050. COM/2011/0885 final.

13 European Commission. 2014. A policy framework for climate and energy in the period from 2020 to 2030. COM(2014) 15 final. Brussels. 22 January 2014.

14 European Commission. 2014. EC Communication European Energy Security Strategy. COM(2014) 330 final. Brussels. 28 May 2014.

15 European Commission. 2015. A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy. COM(2015) 80 final. Brussels. 25 February 2014.

16 European Commission. 2022. REPowerEU: Joint European Action for more affordable, secure and sustainable energy. COM(2022) 108 final. Strasbourg. 8 March 2022.

17 Source: European Commission. EU State of the energy union 2022 - snapshots per EU countryrostat. https://energy.ec.europa.eu/publications/state-energy-union-2022-snapshots-eu-country_en

18 Until the commissioning of the FSRU Independence in Klaipeda, Lithuania, in 2014, which became the first energy infrastructure object in the Baltic states providing alternative sources and routes of supply of natural gas.

produce almost twice as much as its domestic production. Most of the remaining demand is covered by electricity import. Estonia still makes use of its fossil fuel (oil shale) power plants, producing up to 60% of annual demand. Estonia has invested significantly in wind power generation, which, in 2021 accounted for up to 10% of total production, being the third largest source of electricity production behind oil shale and biomass¹⁹, and contributing to power the total 39% of renewable energy in

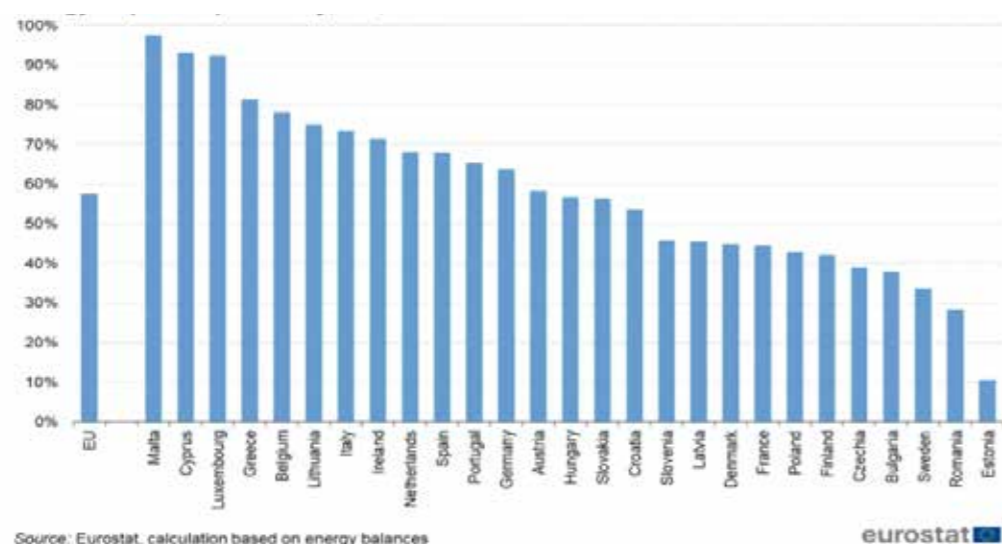
power production.²⁰ Lithuania is the most energy-dependent of the three countries with imports varying between 40 to 70%. It relies on gas-fired CHPs, HEPPs, a hydroaccumulation power plant, and over 600MW of installed wind power capacity for electricity generation. Thus, depending on meteorological and climate conditions, the Baltic states can be on either side of the scale – exporting electricity to, or importing it from, their interconnected neighbours in Scandinavia and Poland.

3.2 EU Energy dependency

In the last decade, the EU has been increasingly dependent on energy imports. Decreasing EU energy dependency is one of the main goals of the EU energy and climate policies. Figure 3

illustrates the broad spectrum of level of dependency among the Member States.

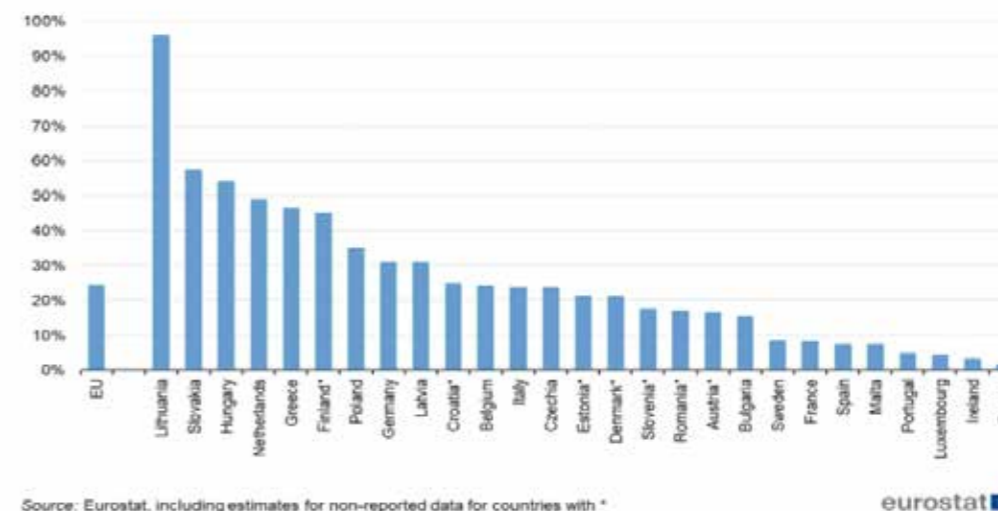
Figure 3. EU energy import dependency, 2020. (Source: Eurostat)



Further, energy dependency of the Member States on Russia demonstrates the systemic problems of energy supply, and the

high reliance of the EU on energy imports from third countries (see Figure 4).

Figure 4. EU energy dependency on Russia, 2020. (Source: Eurostat)



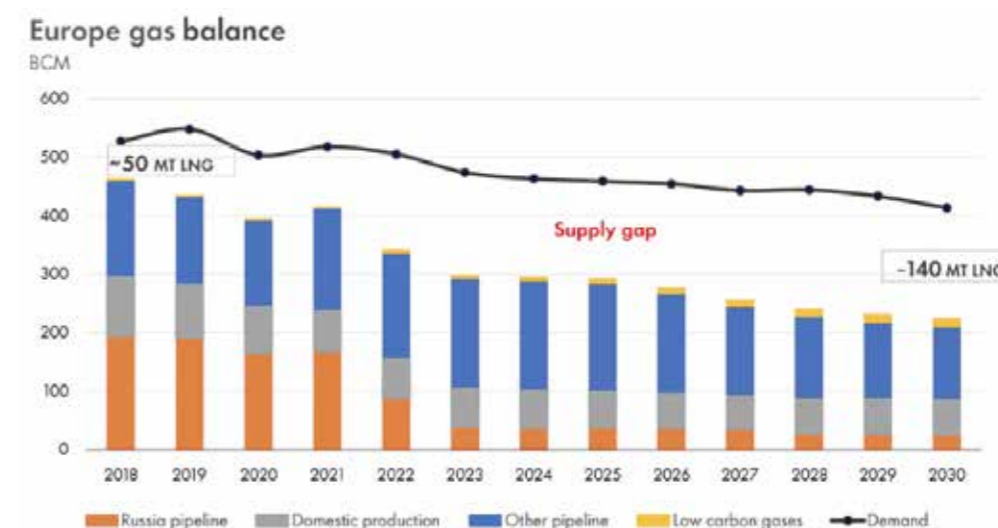
While natural gas is an important energy source for many EU MS, much of it is imported, including pipeline gas from Russia (41% out of total gas imports in 2021). In addition to natural gas import via pipelines, EU countries also import LNG. In 2021, the largest LNG supplier to Europe was Qatar, followed by the US, Nigeria, Russia, and Algeria; but between January and September 2022, the largest LNG exporters to the EU were the United States (44%), Russia (17%), and Qatar (13%). The biggest importers of LNG in 2022 were France, Spain²¹, and Belgium.

affordability for households and competitiveness for the national economy. Natural gas imports have increased from gaseous to liquid, while coal volumes have slightly declined, indicating that domestic production has increased.

While import volumes of energy in physical terms have increased slightly, in monetary terms it more than tripled in 2022, reaching approx. 75 billion EUR, which reduces

As could be expected, imports from Russia have significantly decreased due to both political considerations and sanctions. While in 2021 the import share of natural gas from Russia was 39.3%, in the 3rd quarter of 2022 it had decreased to 15%, still occupying a relatively significant share of EU imports. The projections indicate that this has been the turning point for the EU gas imports from Russia, with almost complete phaseout of Russian gas supplies by 2030 (see Figure 5).

Figure 5. Key gas supply sources in Europe. (Source: Shell LNG Outlook 2023)

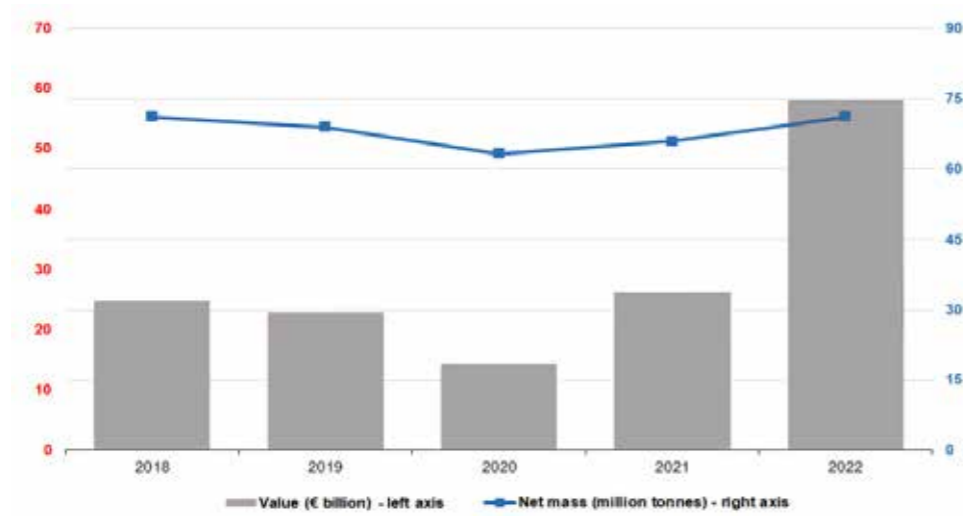


²¹ Spain and Portugal is a specific gas market as it is barely connected to the rest of continental Europe and gets its supplies mainly through pipeline from North Africa, and LNG supplies the proportion of gas from the two sources fluctuating at around 50/50. Spain and Portugal have six LNG import terminals.

Diversifying natural gas supplies away from Russian sources is a task that must be dealt with immediately. International Energy Agency wrote in mid-January 2022, which is just a little over a month prior to the Russian invasion of Ukraine, that “we see strong elements of ‘artificial tightness’ in European gas markets, which appears to be due to the behaviour of Russia’s state-controlled gas supplier. Unlike other pipeline suppliers – such as Algeria, Azerbaijan, and Norway – Russia reduced its exports to Europe by 25% in the fourth quarter of 2021 compared with the same period in 2020 – and by 22% compared with its 2019 levels. And this is despite the exceptionally high market prices for natural gas that we have seen in recent months.”²² At that

point the international community did not yet understand what all the indicators on the dial were showing. And the EU, while being unhappy with short supplies from its main energy supplier, did not consider it possible that this energy supplier was cutting supplies short on purpose and as a part of a bigger plan to, first, make European countries overly dependent on gas supplies from Russia, and second, make them vulnerable and unable to take action against Russia once it invaded Ukraine. Thus, Europe’s single biggest energy supplier openly revealed the true purpose of shorter than usual gas supplies a year ahead of the invasion and demonstrated that it is an unreliable partner.

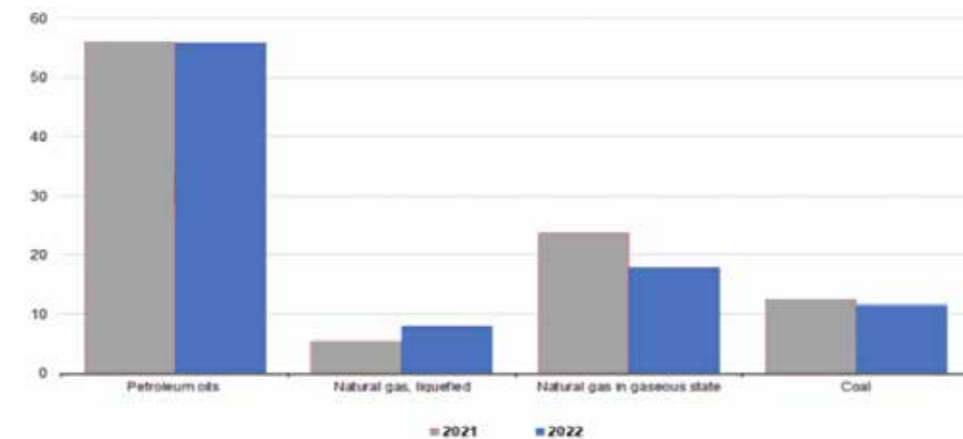
Figure 6.
Extra-EU imports of energy products, 2018-2022 (monthly average, billion EUR, million tonnes).²³



In 2022 the EU imported more liquefied gas, but less natural gas in gaseous state (Figure 7). According to statistics, less coal was also imported, but power generation from coal increased in 2022 to account for 16% of annual generation in the EU.

That was the fuel’s highest share in EU power generation since 2018, although it was smaller than the 20% share of gas, 22% combined share from wind and solar, and 32% from hydropower and nuclear.²⁴

Figure 7.
Extra – EU imports of energy 2021, 2022. Share of net mass of main energy products.²⁵



22 Birol, F., Europe and the world need to draw the right lessons from today’s natural gas crisis, International Energy Agency, 2022.

23 Source: Eurostat

24 Ember, <https://ember-climate.org/insights/research/european-electricity-review-2023/#supporting-material-downloads>

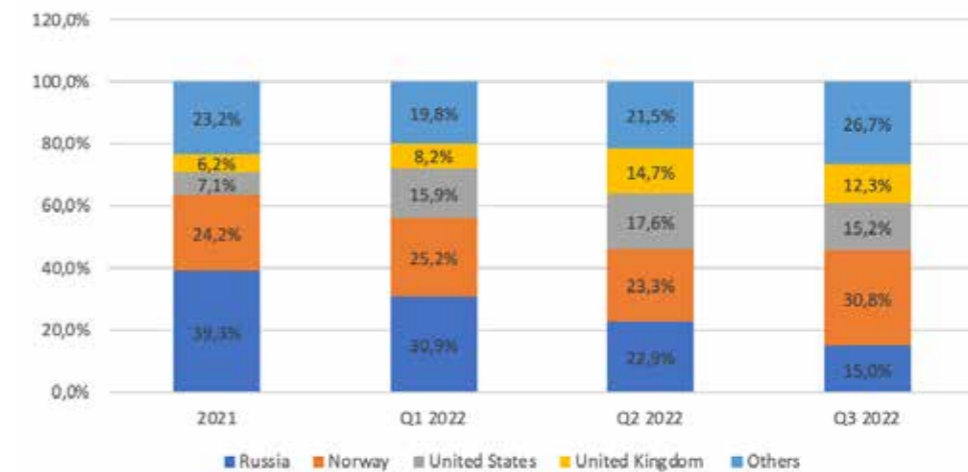
25 Source: Eurostat

3.3 Latest trends of natural gas supplies

Russia was the largest supplier of natural gas to the EU with a share of 39.3 % in 2021, followed by Norway (24.2 %) (see Figure 8). After Russia’s invasion of Ukraine and in light of

several packages of sanctions imposed by the EU, the supply of natural gas from Russia steadily decreased. Compared with 2021, Russia’s share was only 15% in the third quarter of 2022.

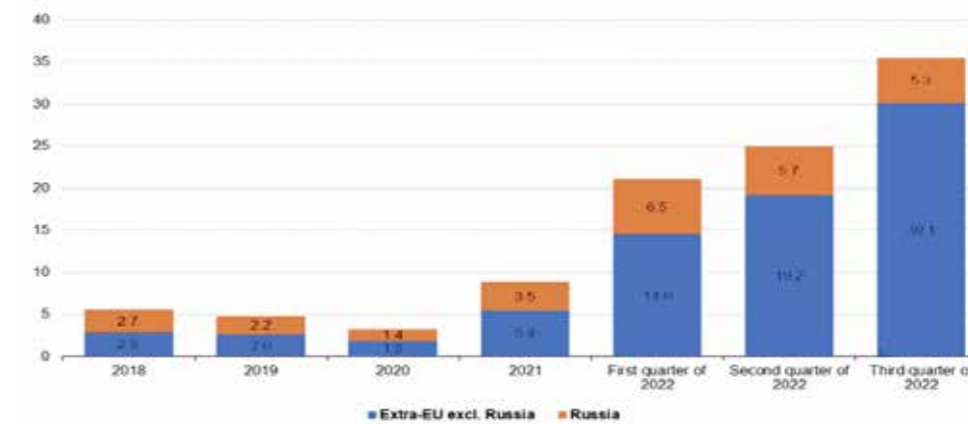
Figure 8.
Natural gas suppliers to the EU, 2021 – 2022 (Q1-Q3).²⁶



For natural gas, average monthly imports from Russia and from the extra-EU partners, excluding Russia, are shown in Figure 9 (in value) and Figure 10 (in net mass). An impressive increase of the value of monthly imports in 2022 compared with 2021 is observed, due to increasing prices, as the net mass in the same period remained stable. Between the second and third quarter 2022, the total increase of monthly value was equal to 42%, due to the increased share of other partners (+57%), while Russia’s share dropped by 7%.

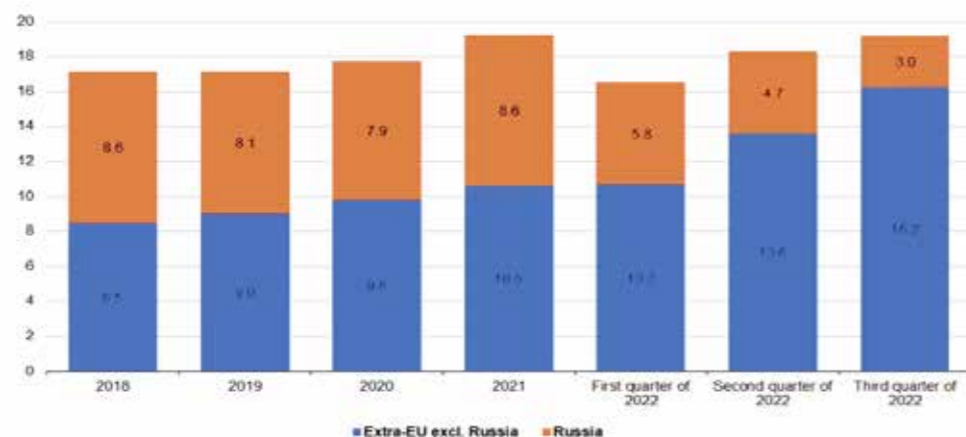
However, when looking at the net mass imported for the same quarters in 2022, the results are even more impressive. The imported volume of natural gas increased by 5% between the second and third quarter of 2022, with an increase by other partners of 20%, while Russia’s share dropped by 37%. Compared with 2021, the import of natural gas in net mass from Russia dropped by 66% in the third quarter of 2022, while the share of other partners increased by 53%.

Figure 9.
Extra-EU imports of natural gas, 2018- 2022 (Q1-Q3) (monthly averages in value – billion EUR).



26 Source: Eurostat

Figure 10.
Extra-EU imports of natural gas, 2018 –2022 (Q1-Q3) (monthly averages in net mass – million tonnes).



How does the EU plan to replace imports from Russia? Building on the Fit for 55 package of proposals, and completing the actions on energy security of supply and storage, REPowerEU plan puts forward an additional set of actions:²⁷

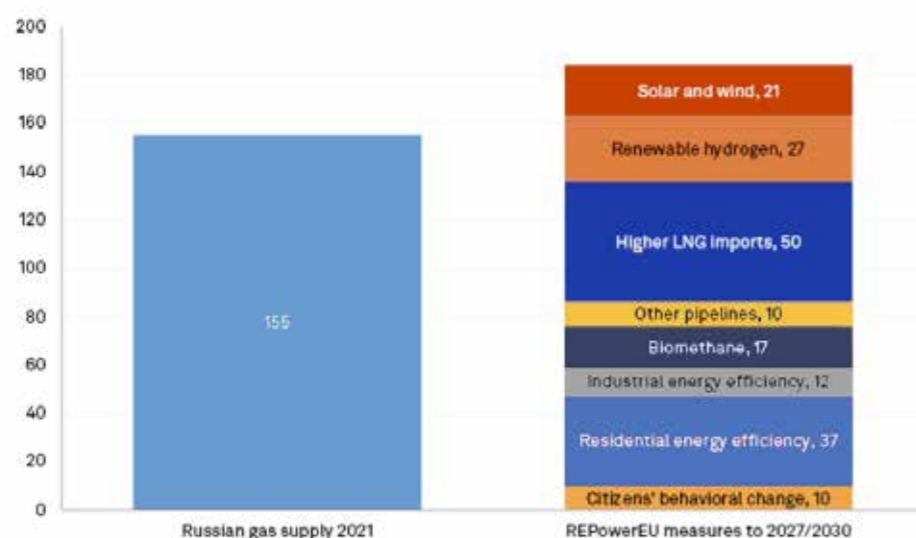
- save energy,
- diversify supplies,
- quickly substitute fossil fuels by accelerating Europe’s

clean energy transition,

- smartly combine investment and energy market reforms.

With the measures in the REPowerEU plan, EC promised to gradually remove at least 155 bcm of fossil gas use by 2030, which is equivalent to the volume imported from Russia in 2021 (see Figure 11). Nearly two thirds of that reduction can be achieved within a year, ending the EU’s overdependence on one single supplier.

Figure 11.
EU plans for the reduction of Russian gas imports, data as of May 18, 2022²⁸



The deficit will be made up with a combination of higher LNG and pipeline flows from non-Russian suppliers, increased production of biomethane and renewable hydrogen, and an accelerated rollout of renewable energy projects, rooftop solar panels, heat pumps, as well as energy efficiency measures.

Europe’s renewable energy industry is ready to deliver and is hoping that the political commitment of the EU will translate into action on a national level across the EU.

²⁷ EC Communication REPowerEU Plan. 230 final, 18.05.2022.

²⁸ Laidlaw, Jennifer. 2022. How the EU aims to transform its energy mix and boost investment in renewables. S&P Global. 26 August 2022. <https://www.spglobal.com/esg/insights/how-the-eu-aims-to-transform-its-energy-mix-and-boost-investment-in-renewables>

THE DYNAMICS OF THE GLOBAL AND EU ENERGY MARKET

The EU energy market is going through a transformation, both in terms of physical supply of energy, and regulatory and market design changes. Some of the biggest challenges are associated with the need for the EU to significantly decrease its dependence on natural gas supplies from Russia, which so far has been the single biggest gas supplier to the EU, and which decided in February 2022 to wage an unlawful war against Ukraine. Everything that has come after has been directed at increasing resilience of the EU member states against external shocks associated with disruption of supply of energy resources, namely natural gas, and crude oil. Diversification of sources and routes of supply quickly escalated to new highs allowing for a significant decrease in the EU energy market’s dependence on Russia as the single biggest source of supply.

The extraordinary situation created extraordinary impact and consequences, requiring extraordinary measures. The crisis hit hard in all areas – primary energy resources as well as the transformation sector. Initially, it seemed that 2022 would become the year when European energy markets were decimated. However, the gas market recovered remarkably quickly given the scale of the problem. In addition, the electricity market demonstrated an ability to return to normal within roughly six months from the

moment prices hit new highs in August 2022. It should be noted that part of that ability is to be owed to incredibly favourable meteorological conditions in Europe during the heating season, resulting in the limited need to heat houses and commercial spaces. This implied decreased need for natural gas to produce heat for district heating purposes and individual households alike.

However, given the challenges posed by the changes, the EU took both short and long-term steps vis-à-vis the energy market. Actions were related to production as well as consumption and can be classified as both reactive and proactive.

EU member states have pursued a range of measures to alleviate the effects of extremely high electricity prices varying from direct subsidies to vulnerable consumers taken from energy producers’ profits, to terminated compensation for more vulnerable consumers. The EU and individual member states have taken a range of measures and actions in 2022 and 2023 to strengthen security of supply, including diversifying supply sources even further, setting minimum underground storage inventory obligations, and coordinating seasonal demand reductions. This aspect is elaborated on in more detail in Chapter 5 of this study.

4.1 Key aspects of the electricity market

The European electricity market was affected by geopolitical events to a lesser extent than was the gas market; though the majority of natural gas has to be imported, electricity is an energy product that is produced within the EU. Energy portfolios in the EU represent a variety of energy production solutions, but while natural gas plays a more relevant role in some Member States, others have no dependence on the availability of natural gas or the price of this product. Those countries, where power production rests upon the use of natural gas, were affected most.

Additionally, the electricity market has appeared to be quite resilient to extreme pressures, including but not limited to extremely high gas prices, dry and windless summers, and limited interconnection capacities. Unbundled control of production, transmission and commercial trade has had a positive effect on market liquidity and stability. The Electricity market bounced back from extremely high prices in August

and September 2022 to reasonable prices in Spring 2023. The demonstrated resilience to extreme external shocks (highly unpredictable conditions in the region due to Russia’s invasion of Ukraine and its manipulation of gas supplies to the EU and subsequently extremely high gas prices globally) is at least partially the result of considerate and forward-looking market liberalisation policies suggested by the European Commission, adopted by the European Parliament, and implemented by the EU Member States.

Liberalisation of the electricity market in the EU has taken place swiftly, and today concerns are mainly related to the rights of consumers to make optimal use of the free market. Other challenges are related to the interaction between different energy market stakeholders and the behaviour of market participants in sequential markets, influencing electricity price formation. Affordability of energy is part of energy security; therefore, the EC has certain new ideas in mind related to

electricity market design that would protect users against sudden and extreme moments of volatility in energy prices.

Well-functioning, adequately regulated, and supervised markets can ensure a just interplay of demand and supply when it comes to price formation. Behaviour of market participants on day-ahead, intraday, and balancing markets add to the

complexities stemming from availability (or unavailability) of generating capacities representing a broad spectrum of technologies and resources, as well as transmission and storage capacities both within national boundaries and in cross-border energy flows and transactions. A smooth functioning of the liberalised market contributes greatly to the ability to withstand external shocks.

4.2 Key aspects of the natural gas market

Given the current geopolitical challenges with Russia trying to assert its physical dominance over the European continent through unlawfully invading Ukraine, the global energy markets have tried to adjust the many elements contributing to the smooth functioning of the global natural gas market. Some EU countries faced the consequences of their long-lasting dependence on Russia's natural gas and oil products in 2022. In the face of the events seemingly unimaginable in the 21st century, the EU has had to reorganise the supply of energy resources according to the new realities. It has meant a rapid substitution of significant volumes of natural gas deliveries from the Russian Federation with deliveries from other sources. Thus, it has also meant the need to find new affordable sources of supply in a world where prime markets play a key role in global flows of energy resources.

Gas market liberalisation – allowing natural gas to be supplied on the free market from whichever source of supply from all over the World – has been the key strategy of the EU, which has been working persistently to diversify energy supplies and improve the energy security of its member states. This has included diversification of natural gas supply sources and routes, requirements for gas storage, the principle of regional solidarity, introduction of mandatory reserves, and strengthening of electricity and gas interconnections. In particular, the Baltic states have benefited from the implementation of the Baltic Energy Market Interconnection

Plan (BEMIP) aimed at ending a situation where the three countries can be considered an energy island within the EU, having historically been integrated with the energy systems of Russia and Belarus.

Taking care of gas supplies is an important task, as natural gas plays a significant role in the energy portfolio of many EU member states. Plenty of heating and electricity is produced in gas-fired CHPs. In the broader context of European energy and climate policy, natural gas is the preferred fuel in situations where coal-fired power plants have to get phased out and replaced with other technology and energy resources. Thus, natural gas is still going to have a significant impact on energy production in the EU for years to come, and until fossil fuels are replaced to a large extent or completely by renewable energy resources, which preferably also have to be local.

It must be noted that ownership unbundling has had a particularly relevant role in ensuring effective, safe, and fair functioning of the EU gas market. Elimination of situations where the same owners are in control of supply, infrastructure, and trade is part of the success behind EU MS being able to minimise or get rid of Gazprom's influence on energy policy and the actual functioning of the EU gas market as a whole, as well as in individual national markets that had previously been overwhelmed by Gazprom's interests and exclusive dominance.

4.3 Global LNG market context

LNG has become more vital than ever to secure reliable functioning of energy systems around the world. It is also a vital tool for controlling emissions, particularly as the crisis in energy supply is forcing even some of the most climate-conscious economies to turn back to coal, reversing emissions reductions achieved in recent years. At a time of geopolitical turbulence, LNG has become a commodity sought after by many economies worldwide, not exclusively in Europe. As a result, the LNG market has grown significantly over the past couple years.

Globally, according to the International Gas Union, LNG trade grew by 4.5% from 2020 to 2021, reaching 372 million tonnes (MT).²⁹ It grew even further by 6.7% in 2022, reaching an all-time high of 397 MT.³⁰ A strong post-pandemic recovery resulted in a surge in LNG imports, even though the annual growth rate of 4.5% in 2021 and 6.7% in 2022 remains far from pre-COVID-19 levels of 13.0% in 2019.

2021 experienced a sizeable addition to the LNG export infrastructure. About 6.9 million tonnes per annum (MTPA)

of liquefaction capacity was brought online in 2021, increasing global liquefaction capacity to 460 MTPA at the end of the year. Also, the average global utilisation rate in 2021 was 80.4%, compared to 74.6% in 2020. In the first four months of 2022, an additional 12.5 MTPA of liquefaction capacity was brought online, bringing the total global liquefaction capacity to slightly over 472 MTPA as of April 2022, which was already several months into the period of exorbitant gas prices and two months after the beginning of the Russian invasion in Ukraine. These additional capacities played an important role in securing availability of LNG, especially in European markets.

With the delivery of 57 vessels in 2021, and seven in the first four months of 2022, the global LNG carrier fleet consisted of 641 active vessels³¹ as of end of April 2022, including 45 floating storage and regasification units (FSRUs) and five floating storage units (FSUs). This represents a 10% growth in the fleet size from 2020 to 2021, comparable to a 12% growth in the number of LNG voyages as trade recovered from demand reductions induced by COVID-19 due to a decrease of economic activity and growth.

As of April 2022, global regasification capacity was 901.9 million tonnes per annum (MTPA) across 40 markets. 49.8 MTPA of regasification capacity was added in 2021 with the commissioning of five new import terminals and the completion of five expansion projects at existing terminals,

with the greatest addition of 11 MTPA at the Al Zour LNG import facility in Kuwait. New import capacities came into operation in European destinations in the Baltic region as well: LNG import terminal in Inkoo, Finland, became operational³², improving security of supply of gas in both the Finnish and the Baltic market, as Finland and the Baltic states are interconnected with the Balticconnector subsea pipeline³³ and has already proven to be of relevance for the common Latvian, Estonian, and Finnish gas market. It is expected that Lithuania, which has an LNG import terminal (FSRU Independence) in Klaipeda, operational since 2014, will eventually join the rest of the Baltic states and Finland to form a single Baltic – Finnish gas market.

With the implementation of stricter environmental legislation to reduce emissions at both the local and international levels, a growing number of marine vessel owners are considering the use of cleaner alternative bunker fuels to achieve compliance. In effect from January 2020, the International Maritime Organization (IMO) enforced a new global limit of 0.5% on the sulphur content of ships' fuel oil. The imposition of a stricter sulphur content cap on marine bunker fuel has spurred the switch to LNG-fuelled vessels through the installation of new systems or conversion where possible, alongside the construction of related onshore bunkering infrastructure. The Baltic Sea is not an exception, and LNG for shipping will grow in significance in the sea-going ports in the Baltic Sea region.³⁴

4.4 Global gas market developments

The attempt to cut Russia's share of natural gas from the EU's consumption has resulted in the reshuffling of global gas flows. One of the most notable changes is that the US LNG export has shifted from markets in South-East Asia to the European markets. Add to this the fact that the US has become the biggest global LNG exporter within a very short time span (it took just 10 years, starting from 2012, for the US to increase its LNG export from just under 1 bcm to

a whopping 95 bcm, with the major escalation having taken place since 2017) (see Figure 12)³⁵ and one gets a picture of the new reality – a new major player on the global gas market directing its deliveries to partners in Europe to compensate for the very radical phase-out of Russian pipeline gas. Total imports of natural gas in Europe did not deviate much from the average 330 bcm between 2017 and 2021 (see Figure 13).

29 IGU World LNG Report 2022

30 Shell LNG Outlook 2023

31 IGU World LNG Report 2022

32 Gasgrid, <https://gasgrid.fi/en/2023/03/03/ing-terminal-vessel-in-inkoo-ensures-finlands-security-of-supply-the-project-was-implemented-in-record-time/>

33 Elering, <https://elering.ee/en/balticconnector>

34 Interreg Baltic Sea Region, <https://interreg-baltic.eu/project/go-Ing/>

35 BP Statistical Review of World Energy 2022. <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2022-full-report.pdf>

Figure 12. Natural gas import and export: US. (Data source: BP Statistical Review of World Energy 2022)

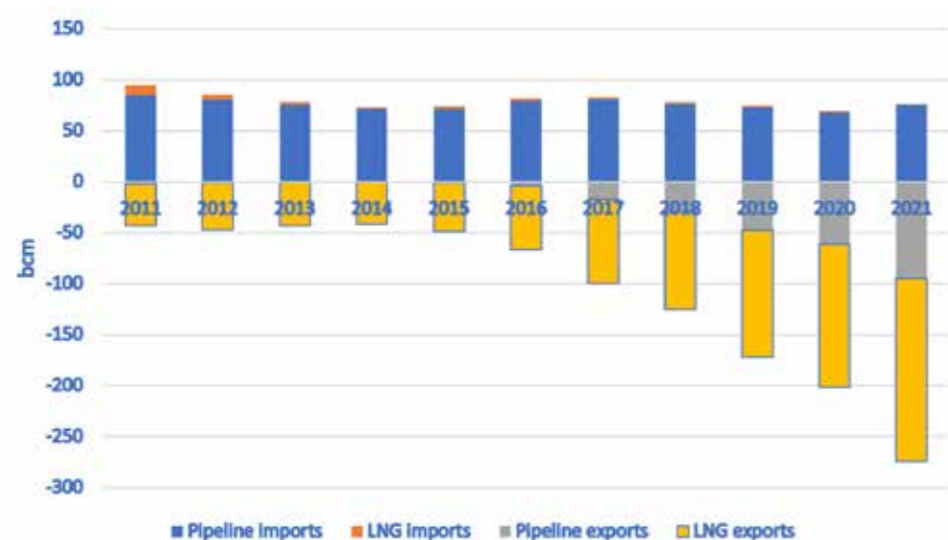
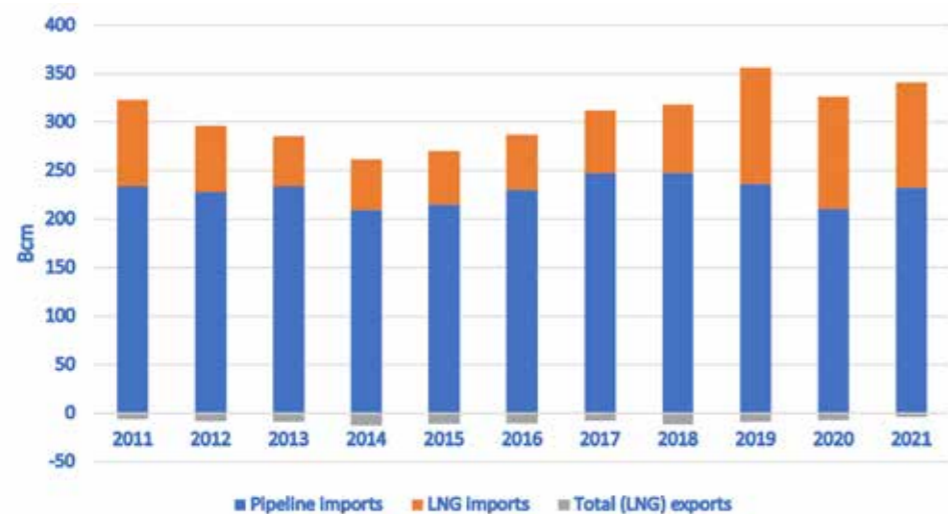


Figure 13. Natural gas import and export: Europe. (Source: BP Statistical Review of World Energy 2022)



LNG imports did not increase significantly in Europe or other regions between 2019 and 2021. Asia Pacific region was at the top of the list of LNG imports with total imports reaching 371 bcm in 2021. Europe was second with 108 bcm, followed by South and Central America in third place, far behind in terms

of imported volumes (see Figure 14). Import volumes in some EU MS have increased significantly since 2019, initially because of historically lowest gas prices (till the first half of 2021) (see Figure 15) and afterwards because of gas supply disruption in Europe related to the EU getting rid of Russian pipeline gas.

Figure 14. LNG imports by region. (Data source: BP Statistical Review of World Energy 2022)

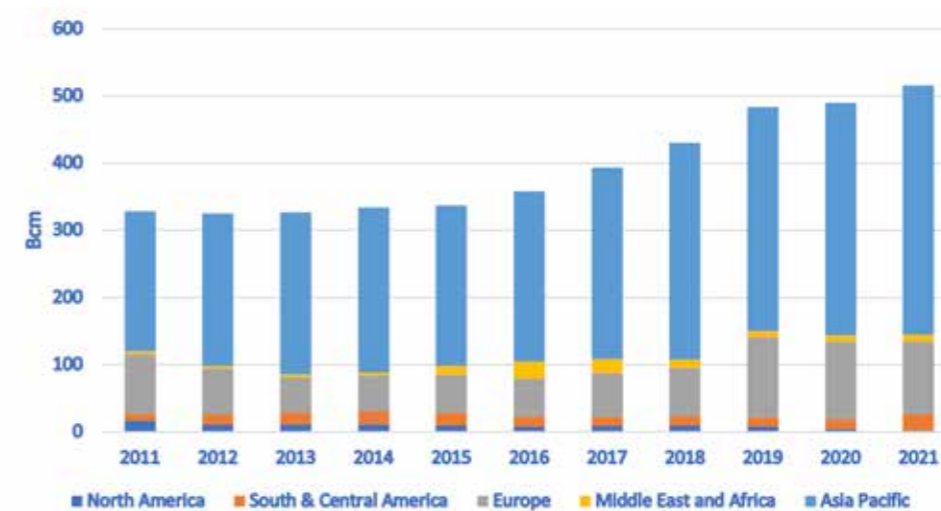
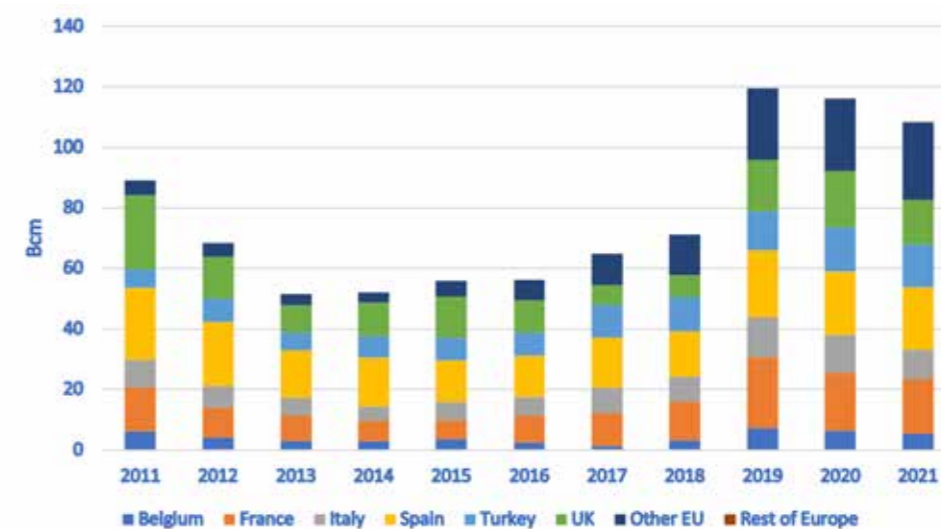


Figure 15. LNG imports in European countries.



Several EU member states have had to reconsider not only natural gas deliveries, but, in fact, their whole energy policies, focusing on a swift deployment of renewables more than ever. Also, Germany postponed phasing out of its remaining nuclear capacity in reaction to the recent developments on the European energy market. The three Baltic states, Finland, Slovakia, and several other EU countries have had to adjust their natural gas strategies by getting rid of 100 (or near 100) percent dependence of natural gas supplies from Russia. This had to be accomplished within a record-short time, but such a move is essential to eliminate the influence of the one single major player on the gas market in these EU countries, which had been relying on Russia as a partner in energy supplies for years, including by paying this dominant supplier the price it asked as there were limited or no alternatives to the supplies.

Growing demand of supplies from sources other than Russia has created both pressure on current suppliers and pressure on producers to produce more natural gas. It is not necessarily a bad situation *per se*, as demand airs the message that it makes sense investing in additional production, transmission, storage infrastructure and capacities. It also serves as an incentive to the owners of the transportation fleet that vessels are going to be in great demand, and previously unassigned floating assets (LNG vessels) will have a long list of assignments over the next 10 or so years.

The overall trend has been that LNG demand in Europe has grown³⁶, and deliveries have been reaching European destinations more frequently than prior to 2022. Comparatively, the mild winter in South-East Asia has contributed to LNG

36 Eurostat & IGU statistics

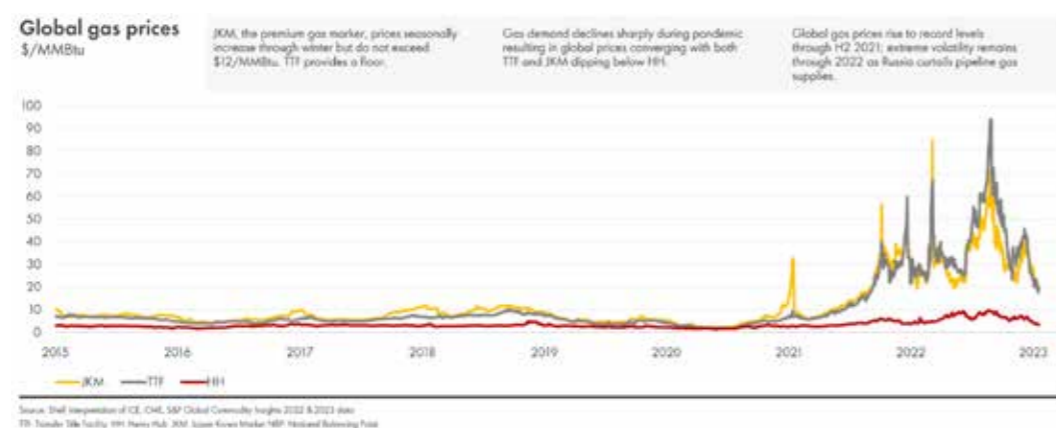
flows ending up in European gas hubs instead of Japan, South Korea, Taiwan, and China. Of course, higher than usual demand for LNG in Europe increased prices and the EU became the top prime market for LNG, which also added to the changes in the LNG flows. There is also a new development – the US has emerged as a new global leader of LNG export. While several years ago European hubs constituted a small share of all US LNG exports, the situation has changed dramatically.³⁷

In terms of gas prices, the situation has been extremely dynamic over the last five years. Gas prices reached their historically lowest level in 2020 and 2021 before beginning to climb from 2021 Q3 onwards. As it later turned out, the changing trend was partially due to objective market conditions, and partially due to Russia's manipulation of the market, which began with lower-than-usual volumes of natural gas being stored in storage facilities in Europe prior to the 2021/22 heating season. With Russia's military attack on Ukraine, it became

clear that by withholding supplies and storage volumes, Russia had been preparing to exercise pressure on the EU to not support Ukraine defending itself against Russia's war of aggression.

Global LNG markets had an eventful year in 2021, with the market transitioning away from the conditions where supply exceeded COVID-19 lockdown demand, and into a period of rapidly tightening market conditions, with a resurgent demand rate exceeding new supply additions. As could have been expected, 2021 saw an almost complete reversal of many of the pricing trends seen over 2019-2020, with spot LNG prices surging to historic highs and staying above the long-term contract formulas that use either Brent or US Henry Hub as their basis. The market changed from a buyers' market into a pronounced sellers' market. Overall, gas prices have experienced a highly dynamic period between 2021 and 2023 Q1 (see Figure 16).

Figure 16.
Global gas prices 2015 – 2023. (Source: Shell LNG Outlook 2023)



Gas prices soared towards the end of 2021, with Dutch TTF price reaching 338 EUR/MWh on 26 August 2022, and UK NBP price reaching 638 GBP/MWh on August 29. US Henry Hub gas prices followed global trends and reached 9.85 USD/MMBtu on 22 August, which was almost three times higher than the same time a year earlier.³⁸ Prices have returned to a more comprehensible level since the beginning of 2023, but risks remain high and are associated mainly with the ability of the EU to fill up gas storage facilities for the 2023/24 heating season. It can be cautiously presumed that the market will have calmed down in the first half of 2023 and prices will remain stable for most of the rest of the year, but there are unknowns, which can cause market fluctuations, even if short-term. Extremely high price volatility further increases financial pressure on market participants and the risk of defaults, limiting the number of active market participants resulting in further volatility.

The gas price in European destinations has fallen by approximately 70% after reaching an all-time high in August 2022 and is now below its price prior to the end of Q3 2021. In the US, prices have dropped to an 18-month low, a radical turnaround from last year when they reached their highest level since 2008. In Japan, the benchmark reached an all-time high in September 2022; this benchmark remains high due to the dominance of contracted prices. Historically, regional gas benchmarks differ significantly, largely due to transportation constraints, although price gaps have narrowed in recent years due to rising flows of LNG and growth in inter-regional trade. The war in Ukraine changed this underlying dynamic by impacting trade flows and benchmarks worldwide.³⁹

Because of the ongoing geopolitical dynamics there was plenty of caution about what situation consumers might face

for 2022/23 Winter and heating season. Seasonal resilience analysis done by the IEA indicated that the EU will have to introduce gas-saving measures, as those might become crucial to minimise the stress on gas storage in a scenario where Russia cuts pipeline supply entirely. Such measures would allow maintaining supply flexibility for potential late cold spells in Q1 2023, and prepare better for winter 2023/24. Retrospectively, Winter 2022/23 turned out to be mild and favourable for energy saving. The energy market, and the gas market in

particular, demonstrated its ability to bounce back from an unexpected shock and to react to changes swiftly; energy prices decreased significantly over 2022 Q4 and 2023 Q1 as supplies were secured and storages had sufficient reserves remaining. However, global competition in LNG procurement may create further tension, as additional European needs would put further pressure on other buyers, especially in Asia, and cold spells in Northeast Asia could limit Europe's access to LNG because of insufficient volumes or very high prices.

4.5 US shale gas production and LNG export capacity

Shale gas production in the US has been growing steadily since 2007, which is the year which the US Energy Information Administration refers to as a key moment for radical acceleration of production of significant commercial volumes of shale gas. Production of shale gas grew by a stunning 1,238 percent from 2007 till 2016, which was the period of the first bigger expansion of the US shale gas industry.

This, however, does not mean that all this volume went to or goes to export, as domestic demand for natural gas is high enough and export capacity was limited but has since expanded significantly. The US has become a gas-exporting country relatively recently and has already managed to supply notable volumes of LNG to a number of destinations in Europe. LNG imports from the US have experienced growth since the first supplies were delivered to Portugal in April 2016, cumulatively reaching just under 2,5 bcm by December 2022.⁴⁰

It should also be noted that total LNG exports from the U.S. have been growing. In this respect the trend is different from the situation prior to Russia's invasion in Ukraine, after which EU and US sanctions kicked in, and when the share of LNG supplies to European destinations generally remained low. The highest share of export to European destinations was reached in April

2022. Historically, April 2016 stands out as the very beginning of LNG exports by the U.S. therefore it was easy to reach over one third of exports out of a total 283 million cubic metres (mcm) going to Portugal. During the initial stages of US LNG export, the US LNG deliveries were going simultaneously to more countries than usual – in January 2017, LNG was supplied to Spain, Portugal and Malta, while in August 2017 – to Spain, Lithuania, Portugal, and Italy. Things changed significantly in 2022.

Given the changes in the global LNG flows, and Europe's need to replace Russian gas, the US is on its way to becoming the largest LNG exporter globally in 2023 after having exported 95 billion cubic meters (bcm) in 2021⁴¹ and 109 bcm in 2022. In 2022, roughly 69%, or 74 bcm, of U.S. LNG exports went to Europe as cargoes diverted away from Asia to get higher prices. In 2021, when prices in Asia were higher than in Europe, just 35%, or about 34 bcm, of U.S. LNG exports went to Europe.⁴² Figures illustrate that the potential to export LNG is significant and it is up to buyers and sellers to agree on price, volume, and timing of deliveries. The new geopolitical reality has required adding a political dimension to the usually dominant economic dimension when it comes to LNG flows from the US to the rest of the world.

37 EIA statistics

38 https://ycharts.com/indicators/henry_hub_natural_gas_spot_price

39 World Bank

40 US Energy Information Administration.

41 BP Statistical Review of World Energy

42 <https://www.reuters.com/business/energy/us-poised-regain-crown-worlds-top-lng-exporter-2023-01-04/>

EU RECENT POLICY DEVELOPMENT

The EU has adopted a series of emergency interventions in the energy market to address the issues of energy availability and high energy prices over the last year.

Part of ensuring energy availability entails procuring a sufficient and uninterrupted supply, while also minimizing import dependency of fuels. Decreasing dependency on foreign supplies of energy fuels, therefore, is an important component of ensuring availability and improving energy security. In 2022, the major task was exploring and replacing gas imported from Russia with other sources of supply.

The increased geopolitical tensions after Russia's invasion of Ukraine in the beginning of 2022 intensified uncertainties and highlighted the need for well-filled gas storage for the next winter. Although in a common EU framework, by 1 November 2022 MS had to reach 80% filling capacity of gas storages; considering geopolitical conditions, MS exceeded the determined level by reaching 94,9%. Limited pipeline supplies, LNG availability, and consequently the premium linked to the security of supply risks, are among some of the reasons the gas price skyrocketed in autumn. To ensure gas for the 2023/24 winter at an affordable price, EU countries are required to pool at least 15% of their gas reserve obligations. The coordinated effort is an attempt to make up for lost Russian gas and use infrastructure more efficiently. By mid-March, MS had expressed their preliminary interest in aggregating a gas demand equalling more than 17 bcm of gas over the next three years.

To avoid security of supply issues in 2022/23 winter, EC adopted emergency legislation to reduce energy demand - gas demand by 15% and power demand by a voluntary 10% and a mandatory 5% load reduction in peak price hours. In Winter 2022/23 the reduction of gas consumption between the MS differed significantly, while gas consumption in Finland fell significantly by 57,3% in some countries it even increased, as was the case in Malta and Slovakia. Total EU electricity demand dropped 6% over the four-month period in which the measures were in place (1 December 2022 to 31 March 2023). While gas reduction measures will be extended for another year covering 2023/24 winter as a voluntary target, it is expected

that electricity market participants will adjust consumption in response to price signals.

To diversify supplies, the EC adopted temporary rules of an emergency nature to accelerate the permit-granting process for the production of energy from renewable sources.

On the energy affordability side, the EU EC adopted mechanisms to lower the price of energy for consumers. It was authorized for the MS to set the regulated price for households and microenterprises below cost. To mitigate the effects of high retail electricity prices on the national level, MS introduced temporary price regulation as well as supported both households and industrial consumers in different ways and to different extents. At the EU level several restrictive measures were introduced, such as a cap on market revenues for energy producers which would be transferred to consumers, especially those most vulnerable. First, MS must collect electricity generators' realised market revenues from the sale of electricity exceeding a cap of 180 EUR/MWh that rely on cheaper 'inframarginal' energy technologies, such as renewable energy, nuclear energy, peat, and lignite. Secondly, a mandatory temporary solidarity contribution was set on the profits of businesses active in the crude petroleum, natural gas, coal, and refinery sectors. In addition, a price correction mechanism for natural gas with a price cap of EUR 180/MWh was introduced, though the mechanism was not activated in the first quarter of 2023.

In 2022, the majority of legal acts addressing the energy crisis were adopted using Article 122(1) of TFEU⁴³ as a legal basis. This approach has been challenged by some energy related applicants alleging that the legal basis of Article 122(1) TFEU is not correct, and legal acts should have been adopted by the Council, acting unanimously after consulting the European Parliament in accordance with a special legislative procedure. Several measures are now subject to direct challenge before the General Court and the Court of Justice. ExxonMobil, TV and TW, TJ, and 7 other applicants, are challenging Council Regulation (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices.^{44 45 46} Poland brought the case against the Council Regulation 2022/1369 of 5 August 2022 on coordinated demand-reduction measures for gas.

⁴³ Article 122 (10). "Without prejudice to any other procedures provided for in the Treaties, the Council, on a proposal from the Commission, may decide, in a spirit of solidarity between Member States, upon the measures appropriate to the economic situation, in particular if severe difficulties arise in the supply of certain products, notably in the area of energy."

⁴⁴ Action brought on 20 December 2022 — TV and TW v Council (Case T-795/22).

⁴⁵ Action brought on 12 December 2022 — TJ and Others v Council (Case T-775/22)

⁴⁶ Action brought on 28 December 2022 — ExxonMobil Producing Netherlands and Mobil Erdgas-Erdöl v Council (Case T-802/22)

It is too early to judge, which measures are more efficient and effective, as some were adopted at the end of 2022. This chapter of the study offers a preliminary assessment of

emergency measures to ensure security of energy supply- the uninterrupted availability of energy sources at an affordable price.

5.1 Measures for energy availability

5.1.1 Gas Storage Obligations

- **Objective** – to provide additional gas in the event of high demand or supply disruptions.
- **Legal basis** - Article 194(2) of TFEU, Regulation (EU) 2022/1032 of 29 June 2022 amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage.
- **Timeframe** – 31 December 2025.

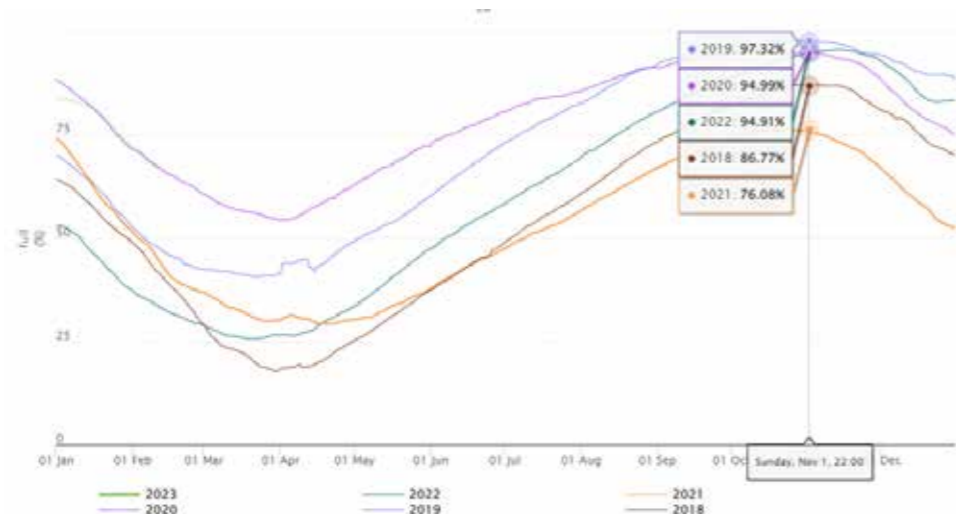
RECENT BACKGROUND

Gas storages play a vital role to ensure resilience of the European energy system. The EU-27 gas storage capacity

amounts to 1,147 TWh across 18 MS or an equivalent of approximately 27% of the EU-27's annual consumption. In 2021, the EU experienced a long period of high and volatile energy prices, and lower than usual storage filling levels. On 1 November 2021, the lowest storage filling level for the period of last five years was recorded, reaching only 76,08% (see *Figure 17*) and 20% of the EU-27 annual consumption.

In 2021, Gazprom owned or operated approx. 10% of EU storage capacity. The EC announced that Russia's state-owned gas company Gazprom was under investigation for keeping its gas storage sites at unusually low levels. The company displayed unusual business practices, as the average filling level of the EU's Gazprom-operated storage was around 16%, whereas non-Gazprom storage was at 44%.⁴⁷

Figure 17.
Storage filling levels, EU⁴⁸



The situation with gas storages and their management differs among EU MS. Gas storages are available only in 18 MS and there are significant differences in terms of the role of storage and the level of capacity. For instance, Latvia and Austria have storage capacities larger than their national annual gas consumption, and their facilities also serve regional markets.

Until energy crises in 2022, storage obligations (such as strategic reserves to be used in case of emergency) did not apply in all MS with gas storage facilities. Only eleven MS applied such type of requirements. In three MS these obligations are imposed on TSO/SSO, in four MS on holders of storage capacity, and in four MS on gas suppliers.⁴⁹

EU-WIDE GAS STORAGE OBLIGATIONS

Serious threat of Russian gas cut-offs intensified uncertainties about gas availability for the 2022/23 winter. The new gas regulation rules⁵⁰ defined a minimum mandatory filling target of 90% for EU gas storage to be achieved by 1 November each year with an exemption of 80% for 2022. As gas storages are available only in 18 MS, a burden-sharing mechanism was introduced to ensure that all MS share costs and benefits equally deriving from this new mechanism.⁵¹ MS have the freedom to choose by which instrument, and on which market, participants impose gas storage obligation: gas suppliers, storage owners, TSOs (purchasing strategic stocks), or via the new platform for joint purchase. All filling obligations will end on 31 December 2025. This will also help to ensure that the EU does not become overly reliant on fossil fuels.

On 23 November 2022, the Commission set out in an implementing regulation⁵² the intermediate gas storage filling targets that the EU countries should meet in 2023 to reach the 90% gas storage target by 1 November 2023. Intermediate targets were defined for 1 February, 1 May, 1 July, and 1 September 2023. The amending act also recognises the variations in gas storage capacities and national situations.

- It allows MS to partially meet the storage target by counting LNG stocks or alternative fuels.
- For those MS with very large storage capacities compared to their domestic gas consumption, the filling obligation is limited to a volume corresponding to 35% of the average annual gas consumption over the last 5 years.
- MS without storage facilities should store 15% of their annual domestic gas consumption in stocks located in other MS. An exception is granted to Cyprus, Ireland, and Malta, for as long as they are not directly interconnected with the gas system of other Member States.

CHALLENGES OF THE STORAGE OBLIGATION

While the storage requirement in general was recognised as a pragmatic measure, doubts have been raised about the effectiveness of these measures and their compatibility with the situation of uncertainty.

- **Filling targets.** In the Regulation on gas storage, filling targets are set on capacity-based rationale. According to

the ACER assessment, they should be calculated rather on the demand-based approach. Several parameters, like LNG tanks, diversity of supply, demand seasonality, interconnection capacities, dependence on Russian supplies are crucial to set the gas storage filling targets.⁵³ The summer/winter demand ratio is much lower in Southern Europe than in Northern Europe, which reduces the need for seasonal storage. Due to the EU initiative to reduce demand by 15%, and factoring in milder weather and some factory closures, natural gas consumption fell by 14,8% compared to 2021. Forecasts of gas consumption should be considered when setting the filling targets for the next period. This is especially important when assessing the financial burden for consumers and on budgets at a negative summer/winter spread.

- **Gas storage auctions.** Much is determined by the way in which gas storage auctions are organised. Florence School of Regulation (FSR) suggested that auction participants would be allowed to bid at negative prices if they expect the winter-summer gas price spread below the cost of storing gas, which was the case for the 2022/23 winter. In such an unprecedented time of uncertainty, it could be envisaged that additional payment to/from the party awarded a storage obligation is assessed ex-post, and equal to the actual difference between winter-summer price benchmarks, based on a standard injection/withdrawal time profile. This would effectively remove price risk, without altering the incentives of shippers. ACER suggested a similar approach, namely two types of auctions:
 - Launching descending clock auctions⁵⁴ with zero reserve price to reflect the market's appreciation of the risk of negative spreads, including through negative prices.
 - Ascending storage auctions with negative reserve prices based on seasonal spreads, which would help storage allocation price to converge with storage's market value in case of negative seasonal spread. The associated cost for SSOs needs to be compensated.

Costs of emergency storage filling. The Gas market before the 2022/23 winter season was very volatile with high prices. Near the end of August 2022, when the gas-supply crisis was at its peak, TTF day-ahead prices exceeded 300 EUR/MWh. MS governments, gas companies, or large consumers, most

47 Tylor, Kira. 2022. EU clinches deal on mandatory gas storage for next winter. Euroactiv. 27 May 2022. <https://www.euractiv.com/section/energy/news/eu-clinches-deal-on-mandatory-gas-storage-for-next-winter/>

48 Gas Infrastructure Europe (GIE), Attribution: Sonnem Holding B.V.

49 EU Agency for the Cooperation of European Regulators. 2011. Report on Gas Storage Regulation and Indicators, ACER, 7 April 2022. https://acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ACER%20Report%20on%20Gas%20Storage%20Regulation%20and%20Indicators.pdf

50 Regulation (EU) 2022/1032 of 29 June 2022 amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage.

51 Regulation (EU) 2022/1032 amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage.

52 Commission implementing regulation (EU) 2022/2301 of 23 November 2022 setting the filling trajectory with intermediary targets for 2023 for each Member State with underground gas storage facilities on its territory and directly interconnected to its market area.

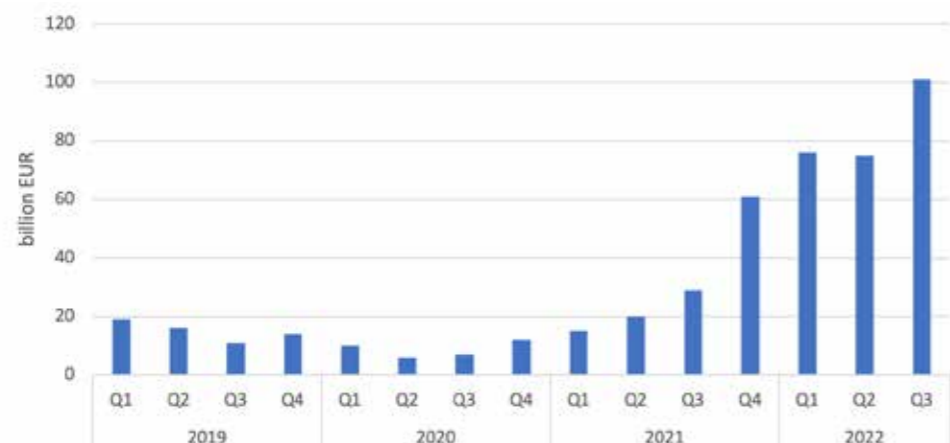
53 EU Agency for the Cooperation of the energy Regulators. 2022. ACER and CEER views on the proposal for a regulation amending Regulations (EU) 2017/1938 and (EC) n°715/2009 relating to the access to gas storage facilities. 29 April 2022 <https://www.ceer.eu/documents/104400/-/-/71ed6155-e199-07e1-b564-3e7064d6fea9>

54 On October 19, 2021 RWE Gas Storage CZ held an auction for storage capacity available from April 1, 2022. For the first time the auction was held on the principle of a descending auction. The starting price was set on 49 CZK/MWh (~2,058 EUR/MWh) and this amount was gradually reduced until all offered capacity is reserved or the minimum price is reached. The final price was 39 CZK/MWh. <https://www.rwe-gasstorage.cz/en/transparency/auction-overview/>

likely own gas that they procured at much higher prices than the current market price (Feb. 2022 - 50 EUR/MWh), and sale or use of gas bought in summer 2022 will entail substantial losses. Preliminary calculations demonstrate that the EC spent almost 101 billion EUR to fill gas storages

for the 2022/23 winter, which is more than triple compared to the 3rd quarter of 2021 (see *Figure 18*). Depending on whether buyers hedged the gas volumes they stored or not, they might keep that gas in storage as gas prices could potentially increase.

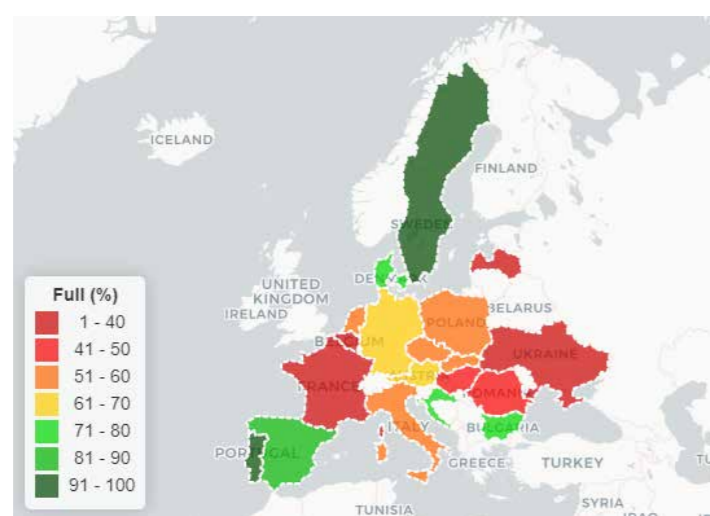
Figure 18.
Estimated quarterly extra-EU import bill ⁵⁵



Having serious concerns about gas availability MS ensured that the storage filling level by 1 November 2022 exceeded the level set by the Regulation, reaching 94,91% (see *Figure 17*). Several MS provided government support for buying gas. For example, in 2022 Germany's Trading Hub Europe GmbH had access to 15 billion EUR in government support to buy inventories at practically any cost to fill the gap left by Russia. The firm was deeply exposed to the spot market and collected charges to cover the costs associated with the task of filling storage.⁵⁶

The outlook for the 2023/24 winter season is more optimistic. By the end of the 1st quarter of 2023, gas filling levels differed remarkably among MS (see *Figure 19*). According to the assessment of some MS the coming season seems to be more optimistic. Storage filling level of the EU fell to 55,64% on 30 March, 2023, nevertheless it is more than double compared to the last year.

Figure 19.
Filling level versus Working Gas Volume by country (12.04.2023)⁵⁷



⁵⁵ Source: EC. & European Gas Is Stuck in Storage After Prices Sank from Peak. Bloomberg. February 13, 2023 <https://www.bloomberg.com/news/articles/2023-02-13/european-natural-gas-is-stuck-in-storage-after-prices-plunged-from-peak>

⁵⁶ Mazneva, E., Dezem, V. 2023. European Gas Is Stuck in Storage After Prices Sank From Peak. Bloomberg. 13 February 2023. <https://www.bloomberg.com/news/articles/2023-02-13/european-natural-gas-is-stuck-in-storage-after-prices-plunged-from-peak#xj4y7vzkg>

⁵⁷ Gas Infrastructure Europe, 12.02.2023. <https://agsi.gie.eu/data-visualisation/filling-levels>

The potential effects on gas prices and potential gas savings were analysed in the first report by the EC.⁵⁸ It was concluded that the 80% filling target for 2022 had been exceeded. By 1 November 2022, 94.9% of the EU's gas storage was filled, with all MS having reached more than 80%. Latvia, which was the only MS with a figure lower than 80%, reaching 57,7%, qualified for a reduced storage obligation due to the large storage capacity compared with national consumption. The filling level reached by Latvia largely exceeded its reduced November target set in relation to its own consumption. According to the report, intermediate targets for Latvia for 2023 are 45% for 1 February, 41% for 1 May, 63% for 1 July, and 90% for 1 September, which raises questions regarding the approach of calculation.

The burden-sharing mechanism of the Regulation provides that MS without storage facilities on their territories store gas volumes in neighbouring countries corresponding to at least 15% of their annual consumption. Regarding the Baltic region, it is reported that only the Estonian government arranged the purchase of 1 TWh as a national strategic reserve to be stored at a storage site in Latvia.

In summer 2022, Member States with storage sites owned or operated by Gazprom took measures to protect their energy security:

- Germany nationalised its Gazprom sites, formerly owned by Gazprom Germania. The new entity's name is SEFE Securing Energy for Europe GmbH.
- Austria's site was given to another operator under newly introduced 'use it or lose it' rules.
- In the Netherlands, the government appointed a state-run entity called Energiebeheer Nederland to transport gas to the Bergermeer storage facility using unused storage capacity, including capacity owned by Gazprom.
- Czechia applied the 'use it or lose it' principle to force market participants with spare storage capacity above a certain threshold, to give back injection slots to the government. Under this principle, Gazprom's storage capacity at the Dambořice site has been withdrawn and placed under the government's special auction measures. These include the possibility of free auctions and payments to traders in exchange for storing gas.

The EC is cautious in its assessment whether and to what extent the filling targets set by the Gas Storage Regulation have had an effect on gas prices. Pipeline supplies, LNG availability, gas savings, weather conditions, and the premium linked to the

security of supply risks perceived by the market are mentioned as non-storage related factors.

To ensure gas for winter MS have used various instruments, including market mechanisms and the obligation to store some minimum volumes of gas, the tendering of capacities to market participants, together with incentives, to fill the storage facilities and ensure that the contracted capacities are effectively used. What is worth considering is that the MS would probably have tried to fill the storages to provide gas for the winter even without such EU wide storage obligations.

It is recommended that more use of market-based tools to implement storage obligations in an efficient way, especially to reduce storage costs. It would be important to arrive at the tools that are the least distortive to the gas market. It is still a question how costs not covered by the market forces will be compensated. In cases where public funds are used, support should be targeted and temporary and disrupt the market as little as possible.

5.1.2 Joint gas procurement

- **Objective** - to play a key role in pooling demand, coordinating infrastructure use, negotiating with international partners and preparing for joint gas and hydrogen purchase.
- **Legal basis** – Article 122(1) of the TFEU. Council Regulation (EU) 2022/2576 of 19 December 2022 enhancing solidarity through better coordination of gas purchases, reliable price benchmarks and exchange of gas across borders.
- **Timeframe** – short-term (1 year)

MECHANISM OF JOINT GAS PROCUREMENT

The geopolitical situation, gas availability and price uncertainty, has driven political attention on the issues of gas purchasing in the EU. It was expected that the gas joint purchase would play a key role in pooling demand, coordinating infrastructure use, negotiating with international partners, and preparing for joint gas and hydrogen purchases. The Commission Communication of 18 October 2022 provided for legal tools of the energy platform.⁵⁹ The Regulation 2022/2576⁶⁰ makes it possible for MS and the energy companies to make joint purchases of gas in the global market. The joint purchasing mechanism was considered to be key to avoid EU companies bidding on the same gas and inflating prices. However, European gas market participants might not be the main reason for the gas price

⁵⁸ European Commission. 2023. Report from the Commission on certain aspects concerning gas storage based on Regulation (EU) 2017/1938 of the European Parliament and of the Council. COM(2023) 182 final. Brussels. 27 March 2023.

⁵⁹ European Commission. 2022. Energy Emergency - preparing, purchasing and protecting the EU together. 18 October 2022.

⁶⁰ Council Regulation (EU) 2022/2576 of 19 December 2022 enhancing solidarity through better coordination of gas purchases, reliable price benchmarks and exchanges of gas across borders

increase, because the main competitors for gas supplies are not in the EU, but Asia and South America. With joint purchases of gas, the EU will be in a stronger position in negotiations, provided that appropriate skills are available for this objective.

The gas purchase will consist of both mandatory and voluntary gas volume. MS would be obliged to aggregate demand for volumes of gas equivalent to 15% of their respective storage filling obligations (around 13,5 bcm for the EU as a whole). Beyond this 15%, aggregation will be voluntary, but based on the same mechanism.⁶¹ The platform is also extended for the Energy Community countries.⁶² The purchasing mechanism consists of two elements:

- Aggregating demand for gas, which natural gas undertakings and undertakings consuming gas report to a service provider contracted by the Commission, and
- Coordinated purchases of gas via the EU Purchase Platform.

The EU Energy Platform will aim to provide security of supply through:

- Demand pooling to maximise leverage to attract reliable supplies from global markets and at stable prices that reflect the predictability and the size of the common EU market;
- Efficient use of existing gas infrastructure;
- Facilitate long-term cooperation with key suppliers.

RECENT BACKGROUND

At the beginning of 2022, due to the geopolitical situation and dependence on Russian gas, there was high uncertainty regarding the EU's energy supplies. Despite high gas prices, the priorities were to fill storage sites sufficiently and to organise adequate import volumes to replace a substantial share of gas that might no longer come from Russia. It is questionable whether under existing circumstances when gas prices have fallen back to a new normal at around 50 EUR/MWh, a joint gas procurement will be the most effective emergency tool to safeguard gas supply. In addition, gas storages have a relatively high filling level. Gas price stabilization and availability could reduce the willingness of MS and large companies to participate

in a joint EU-wide gas procurement. On the other hand, the next winter of 2023/24 may bring new surprises again, and with it high energy prices.

Will the lessons learned help to create more successful joint gas procurement in the future? Joint gas procurement was one of the earliest cornerstones proposed by Donald Tusk⁶³ back in 2014 when the EU Energy Union was formed. He suggested that “Europe should confront Russia’s monopolistic position with a single European body charged with buying its gas.”⁶⁴ Tusk proposed a step-by-step approach starting with a mechanism for jointly negotiating energy contracts with Russia and building up solidarity mechanisms between MS. It is quite clear that the idea was bringing down the inflated contractual gas prices for Central and Eastern European countries which were dependant on Russia as the main source of gas. Later, commissioner Šeřčovič proposed the five dimensions of the EU Energy Union Tusk’s proposal – a common gas purchasing platform – and met active resistance from energy sector organizations and the Commission. At the Commission, common gas procurement was called a ‘non-issue’.⁶⁵ The Commission’s competition services have examined its possibility and concluded that in no way could the platform be mandatory. It was also proposed by the Commission to focus the energy union on demand, not supply – an idea that brought some fresh thinking into this project.⁶⁶ Today, taking into account the geopolitical context, there is a much greater emphasis on energy supply, but the question remains - will it be possible to overcome the obstacles that stopped the joint gas procurement when the Energy Union was formed?

Some global examples of joint procurement have produced positive results. One positive example is the procurement of Covid-19 vaccines. Although, there are some essential differences between joint Covid-19 vaccine procurement and gas procurement. In the case of Covid-19 vaccines, the Commission had to negotiate with three similar companies and a less complex logistics chain, whereas in the case of natural gas, there are more than 30 different supplier countries, with different cultures, different expectations, different negotiating entities, and different mechanisms to control resources and exports.

There is a positive world-wide example regarding joint LNG purchase in Japan. Two Japanese electricity producing companies, Tokyo Electric Power Co. (TEPCO) and Chubu Electric Power Co. (Chubu Electric) integrated their

upstream and procurement fuel business by establishing a new joint venture JERA in 2015. TEPCO and Chubu Electric faced financial difficulties since the Fukushima disaster in 2011 and the shutdown of their nuclear power plants. Since 2011 the increased demand for LNG pushed up global prices and contributed to Japan’s trade deficit. The joint venture JERA was primarily established with the objective to secure lower LNG prices. The combined annual demand of both companies was about 40 million tonnes, becoming the world’s single biggest LNG buyer.⁶⁷ Over time, JERA developed and has become the largest power producer in Japan. Respecting global environmental trends, JERA is planning to cut the amount of gas it buys under long-term contracts to 42% by 2030⁶⁸. At the same time JERA has not respected the geopolitical situation, and in August 2022 it signed a new deal with the Sakhalin-2 energy project in Russia to maintain LNG long-term deliveries.⁶⁹ Unlike the EU Energy platform, this was not a public, but a private initiative.

FUNCTIONING OF THE EU ENERGY PLATFORM

The process for joint purchasing of gas will be coordinated by an established *ad hoc* Steering Board consisting of representatives from the Commission, MS, and representatives of the Energy Community Contracting Parties (see *Figure 20*). They will help to assess whether gas purchases strengthen security of supply and respect the principle of solidarity. The first *ad hoc* meeting took place on 16 January 2023.

Five regional groups have been set up to identify the needs and opportunities for common use of infrastructure and potential new suppliers. They consist of Member State and Energy Community representatives per region to consider infrastructure and market dynamics. The regional groups are:

- South-East Europe: Bulgaria, Greece, Romania, Serbia, North Macedonia, Moldova, and Ukraine;
- Central and Eastern Europe: Poland, Czechia, Slovakia, Germany, Hungary, Austria, Slovenia, Croatia, Italy, Moldova, and Ukraine;

- South West Europe: France, Spain, Italy, and Portugal (Malta and Germany as observers)
- North West Europe: France, Belgium, the Netherlands, Luxembourg, Germany, Denmark, Sweden, and Ireland;
- Baltics and Finland: Lithuania, Latvia, Estonia, and Finland (Poland as an Observer).

The regional groups agree on action plans on gas demand, including potential gas demand reduction, infrastructure opportunities, and supply options. They also discuss the potential of joint purchasing in each region. Following the finalisation of the Action Plans of all regional groups, discussions on the potential of joint purchasing in each region will be the main focus.

The Industry Advisory Group is an informal expert group consisting of 27 EU companies and 11 observers with experience in buying gas on the global market. It brings to the table non-binding advice and an industrial perspective on demand aggregation and joint purchasing. The group aims at providing:

- feedback and comments on options issued by the Commission for natural gas, LNG (and, in the future, also hydrogen) demand aggregation and joint purchasing;
- insights and advice on how to ensure that the EU’s goal to reduce its dependency on gas supplies from Russia can be achieved in line with the timeline provided by the REPowerEU⁷⁰, with particular focus on the diversification of gas supply;
- information to support outreach activities.

The first meeting of industry representatives on joint gas purchases in the EU was held at the end of December. Some EU officials have said certain large energy companies have expressed reluctance to join, since they can already negotiate their own gas deals and doubt the EU scheme will yield lower prices.⁷¹

61 Council Regulation (EU) 2022/2576 of 19 December 2022 enhancing solidarity through better coordination of gas purchases, reliable price benchmarks and exchanges of gas across borders

62 The Energy Community is an international organisation consisting of the EU, represented by the European Commission and nine contracting parties - Albania, Bosnia and Herzegovina, Georgia, North Macedonia, Kosovo, Moldova, Montenegro, Serbia, and Ukraine. Armenia, Norway and Türkiye take part as Observers. <https://www.energy-community.org/aboutus/whoweare.html>.

63 Donald Tusk, a Prime minister of Poland (2007-2014) and President of the European Council (2014-2019)

64 Tusk, Donald. 2014. United Europe can end Russia’s energy stranglehold. Financial Times. 21 April 2014. <https://www.ft.com/content/91508464-c661-11e3-ba0e-00144feabdc0>

65 Belin, Hughes. 2014. The five energy labours of Juncker. Energy Post. 21 November 2014. <https://energypost.eu/five-energy-labours-juncker/>

66 ibid

67 GR Japan. 2014. TEPCO and Chubu Electric in Joint LNG Procurement. 17 December 2014. <https://grjapan.com/insights/articles/tepc-and-chubu-electric-joint-ling-procurement>

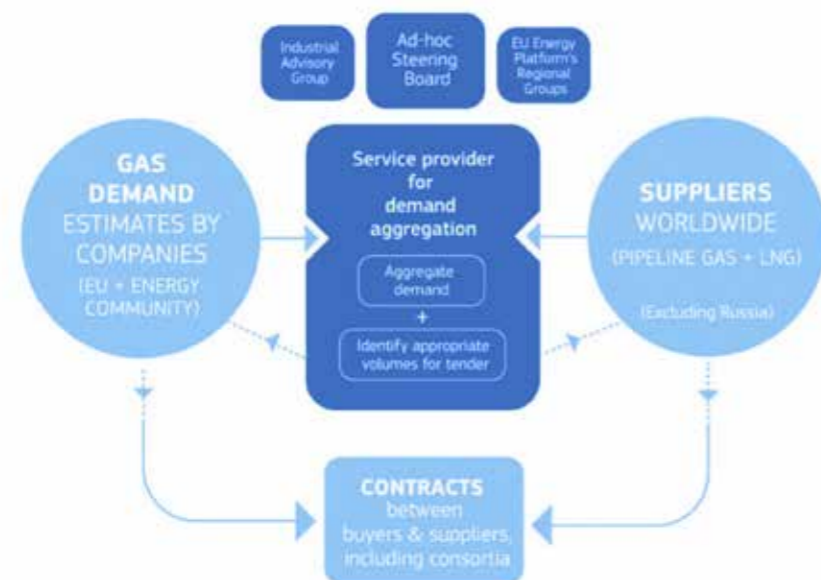
68 Gas Processing & LNG. 2021. Japan’s Jera plans 42% cut in long-term LNG contracts by 2030. 4 May 2021. <http://www.gasprocessingnews.com/news/japans-jera-plans-42-cut-in-long-term-ling-contracts-by-2030.aspx>

69 Obayashi, Yuka. (2022) Japan’s JERA signs new LNG deal with Russia’s Sakhalin-2. 26 August 2022. <https://www.reuters.com/business/energy/jera-signs-deal-with-new-operator-russias-sakhalin-2-keep-ling-contract-2022-08-26/>

70 European Commission. 2022. Communication on REPowerEU: Joint European Action for more affordable, secure and sustainable energy. COM(2022) 108 final. Strasbourg. 8 March 2022.

71 Euractiv. 2023. EU hires firm to launch countries’ joint gas buying. 31 January 2023. <https://www.euractiv.com/section/energy-environment/news/eu-hires-firm-to-launch-countries-joint-gas-buying/>

Figure 20.
Joint gas purchasing system.⁷²



CHALLENGES OF THE JOINT GAS PURCHASE

The EU Energy platform shall fulfil its objectives even though there are many uncertainties. Some concerns and proposals were expressed by Eurogas when the concept itself was discussed, but some of their suggestions have not lost their relevance.⁷³ The major concern was related to the possible gas market distortion due to the joint gas procurement. While Eurogas was quite sceptical whether this tool could be a short-term remedy to the crisis, Bruegel emphasized that the platform should be developed into an effective emergency tool.⁷⁴ Several major challenges based on previous studies are summarized below.

- **Joint procurement against private procurement.** It might make little sense if the platform buys more gas from, for example, Algeria by outbidding EU partners that could have obtained this gas on better conditions. Additional buying from the mechanism could increase international gas prices and discourage individual companies from ensuring their own supplies. As publicly procured and stored gas in principle increases prices in the buying/injecting period (spring, summer) and reduces prices in the selling/withdrawing period (winter), companies have less interest in maintaining storage themselves outside of the system. It will be a challenge to design a system in which public and private procurement coexists effectively.

- **Incentives to participate in the system.** So far, the platform is considered to be a short-term, rather than a long-term, tool. The business entity should complement current market design. Companies that benefit from good prices and other conditions in their long-term contracts will not have to lose them to join the platform. Moreover, acting individually will make their additional purchases more costly. It must be clear whether the new entity is formed to respond to short-term contingencies or also be part of longer-term agreements. In case it is a time-limited tool, the decision to be part of the joint venture will be low-risk.
- **Allocation of gas purchased.** Some EU countries rely on gas more, and some - less. Some EU countries are more exposed to the Russian gas supplies, others less. The allocation mechanism must be set up based on a major negotiation in the EU on who needs what and when. Price and volumes or trajectories of the procured gas would have to be determined before released into the market and a take or pay mechanism agreed upon. Releasing the procured gas into the market must happen in the least distortive way.
- **Expertise needed for the gas markets.** Gas procurement is complex and needs experts in the gas market to secure the best deals and organise the complex logistical chains. There is a need for experienced negotiating with a wide variety of third country suppliers, understanding the technical and complex nature of gas contracts, and having

the ability to organize logistics. In general, this expertise resides within the EU gas companies, but may not be sufficient in public administration.

- **Existing long-term contracts.** Many commercial transactions are involved in bringing gas from a gas field into a gas storage facility. Each stage may be based on long-term legacy contracts. Emergency gas procurement would by necessity interact with all these stages – purchase of gas, booking pipeline capacity, booking regasification services, withdrawal of gas, injecting and withdrawing gas from storage. Bottlenecks may arise when one stage of this value chain is at its maximum capacity under long-term contracts, meaning that import capacity at a liquefaction terminal may be booked, or pipeline capacity may be fully booked. Joint procurement must: a) not infringe on long-term contracts, and b) be aware of the extra complications that will arise from the need to carefully step around long-term contracts.
- **Market power.** This multi-stage value chain lends itself to certain companies having market power in certain areas. A competitive process for purchasing gas and supplying it to a final storage point in the EU will cross many areas of market power. There is a risk that companies will exploit this to extort extreme mark-ups or public support. For example, a trader or a company who has booked pipeline capacity in a certain direction, or storage/withdrawal capacity, may not be willing to sell for a reasonable price.
- **Compliance with the Competition Law.** It must be clear which elements the Task Force can negotiate and which not, and what are the responsibilities of participants of the EU Energy Platform. Guidance on how to assess the compatibility of joint purchasing agreements between competitors with the EU competition rules can be found in the Commission's Guidelines on the applicability of Article 101 of the TFEU to horizontal co-operation agreements ("Horizontal Guidelines").⁷⁵ According to the Horizontal Guidelines, combined market shares equal to or below 15% in the purchasing and selling market(s) concerned are indicative of a lack of market power. At the same time, combined market shares exceeding 15% on the purchasing and/or selling market(s) concerned do not necessarily indicate that joint purchasing arrangements would give rise to competition issues, but would simply

require an assessment of their effects on the market, involving factors such as the possible countervailing power of strong suppliers.⁷⁶ In addition, it is for the participating companies to self-assess whether participation in any such joint purchasing agreement is compliant with the EU competition rules.⁷⁷ The Commission's competition directorate (DG Comp) has advised that while the burden of proof remains with the companies, DG Comp can offer support to facilitate this process, in the shape of informal discussions. DG Comp has purportedly indicated that, in the case of joint purchasing, the higher risk is on the downstream market. Although the EC has frequently indicated that it will provide further guidance on these issues and has also hinted at the possibility of a wider exemption from the Treaty rules, concrete measures have not been tabled yet.

THE NEXT STEPS

The EU moves ahead with a plan to launch joint gas buying among EU countries to focus on organising demand aggregation and joint purchasing of gas for the coming winter's (2023-2024) gas storage filing season. The platform should be developed into an effective emergency tool to safeguard gas supply. The European Union has appointed gas capacity platform Prisma, the Leipzig-based EU's largest gas transmission capacity platform, to calculate countries' collective demand for gas. Prisma covers around 70% of the EU gas market, this is the majority, but not all MS are using this platform. Prisma will be responsible for grouping together countries' gas import needs and seeking offers from gas suppliers to match those volumes.⁷⁸ According to Vice-President Maroš Šefčovič, chair of the ad-hoc Steering Board, the next steps of the EU Energy Platform are to publish cumulative demand and organize tenders for offers in early spring 2023 and make a deal on the first joint purchase, including on long-term contracts with gas suppliers. Ukraine has already announced that they are prepared to acquire about 2 bcm of gas for next winter through the European Union's Energy Platform as part of joint purchases of this resource.⁷⁹

By 15 March 2023, twenty-two MS have expressed their preliminary interest in aggregating a gas demand equalling more than 17 billion cubic metres of gas over the next three years.⁸⁰ The first contracts are expected to be signed in summer 2023. Norway's Equinor has expressed interest in joining the EU's scheme for gas procurement as a supplier.⁸¹

⁷² European Commission. EU Energy Platform

⁷³ Eurogas. 2022. Eurogas Position Paper on Joint Procurement of Natural Gas. EuroGas. April 2022. <https://www.eurogas.org/wp-content/uploads/2022/05/DEF-Joint-Procurement-Eurogas-Position-Paper-1.pdf>

⁷⁴ Boltz, Walter., Borchart, Klaus-Dieter. Et al. 2022. How to make the EU Energy Platform an effective emergency tool. Bruegel. 16 June 2022. <https://www.bruegel.org/policy-brief/how-make-eu-energy-platform-effective-emergency-tool>.

⁷⁵ European Commission. 2011. Communication from the Commission - Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements Text with EEA relevance, OJ C 11, 14.1.2011, p. 1. The Horizontal Guidelines are currently under review. https://competitionpolicy.ec.europa.eu/public-consultations/2019-hbers_en.

⁷⁶ Horizontal Guidelines, paras. 208-209.

⁷⁷ Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the Treaty. Article 1.

⁷⁸ Reuters. 2023. EU hires firm to launch countries' joint gas buying. 30 January 2023. <https://www.reuters.com/business/energy/eu-hires-firm-launch-countries-joint-gas-buying-2023-01-30>

⁷⁹ Interfax. 2023. Ukraine prepared to buy 2 bcm of gas via EU Energy Platform. 3 February 2023 <https://interfax.com/newsroom/top-stories/87588/>

⁸⁰ Rooks, E. Timothy. EU muscles into gas market with joint buyers' club. Made for minds. 15 March 2023. <https://www.dw.com/en/gas-energy-security-eu-energy-platform-aggregateu-opens-for-business/a-64944583>

⁸¹ Norway's Equinor to supply EU gas procurement scheme. Reuters. March 17, 2023. <https://www.reuters.com/business/energy/equinor-join-eus-joint-gas-procurement-scheme-vonder-leyen-says-2023-03-17/>

By 1 October 2023, the Commission shall carry out a review of this Regulation in view of the general situation of the gas supply to the Union and shall present a report on the main findings of that review to the Council. The Commission may propose to prolong the validity of this Regulation.

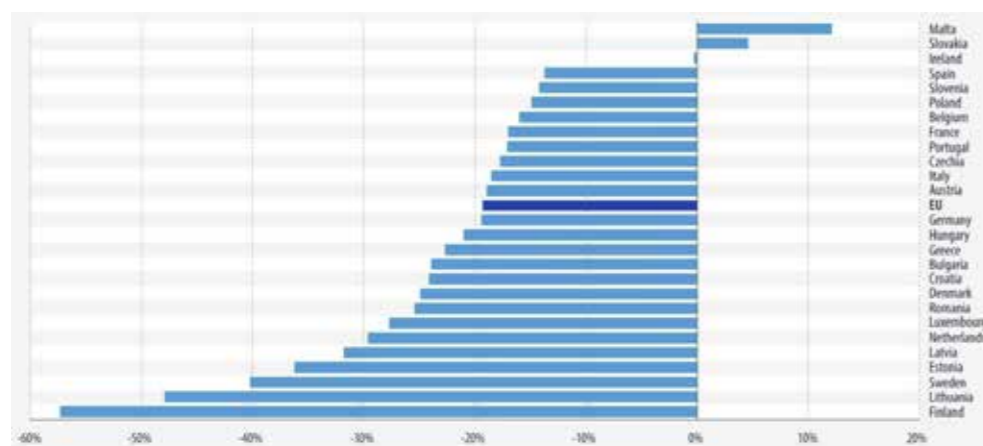
5.1.3 Gas demand reduction

- **Objective** - to reduce gas consumption by 15% for the period August 2022 - March 2023 as compared to the average during the same period of the previous five consecutive years.
- **Legal basis** – Article 122(1) of TFEU. Council Regulation (EU) 2022/1369 of 5 August 2022 on coordinated demand-reduction measures for gas.
- **Timeframe** - Short-term (1 August 2022 to 31 March 2023).

The Regulation requires to reduce gas consumption in each MS by 15 % compared to its reference gas consumption. The Commission shall carry out a review of this Regulation in view of the general situation of gas supply to the Union and present a report on the main findings of that review to the Council by 1 May 2023. Based on that report, the EC may propose to prolong the period of application of this Regulation.

According to Eurostat, the EU consumption of natural gas dropped by 19.3% in the period from August 2022 till January 2023, compared with the average gas consumption for the same months (August-January) between 2017 and 2022. Between August 2022 and January 2023, among EU countries, Ireland registered the smallest decrease (-0.3%) in natural gas consumption in the reference period, while Spain (-13.7%) and Slovenia (-14.2%) recorded a significant drop but have not yet reached the 15% target. In other EU member states, consumption dropped beyond the 15% target, in some, by a large margin (above 40%). Consumption fell the most in Finland (-57.3%), Lithuania (-47.9%) and Sweden (-40.2%) (see Figure 21).

Figure 21.
Natural gas consumption reduction (August 2022 - January 2023 versus 2017-2022).⁸²



According to Bruegel, 15% reduction demand should be extended at least until October 2023. Bruegel notes that there is more potential for reduction as gas savings in the power sector were only 2% in 2022 (due to weak nuclear and hydro output) but should improve in 2023 as French nuclear output returns.⁸³

It is questionable whether the gas reduction objective must be mandatory and whether it is beneficial to all MS equally. MS might switch to renewable energy sources instead of gas, although MS can also switch to coal, oil or nuclear power. Some amounts of gas reduced might have long term impact: for example, in the Baltics, more district heat is produced from

biomass replacing gas in the longer term. Some countries, like Finland, have already decreased gas consumption by more than a half. The situation strongly depends on the share of natural gas in a country's energy-mix. There might not be place for some countries to further reduce gas, at least in the short-term, especially if electrification could be seen as one of objectives. At the same time the EU's ability to diversify supply was improved by new infrastructure to import LNG in Germany and the Netherlands. More LNG terminals are under construction or in the planning stage. The share of global LNG in the European Union's gas represented 39% of EU gas imports in 2022 and replaced most of the lost Russian pipeline gas supplies.⁸⁴

Some countries have opposed the EU proposal concerning gas reduction from the very beginning. For example, Poland challenged this Regulation in court on 2 November 2022 (case C-675/22) regarding its legal basis. Poland's main plea is that Article 192(2)(c) of the TFEU ought to have been used as a legal basis since the regulation significantly affects a member state's choice between using different energy sources. In addition, Poland also raised the plea that its legal basis, namely Article 122(1) of the TFEU, is incorrect.

The review by the Commission on the functioning of Regulation (EU) 2022/1369 on coordinated gas demand⁸⁵ shows that voluntary demand measures achieved the 15% reduction objective between August 2022 and January 2023. The EU's 19.2% reduction corresponds to approx. 41,5 bcm, compared to a 15% target of approx. 32.5 bcm for these 6 months and a target of approx. 45,3 bcm for August 2022 to March 2023. The report also underlines some consideration providing justification why a continued demand reduction is necessary:

- Global supply of natural gas remains tight. The share of Russian pipeline gas in total EU imports has decreased from 49% before January 2022, to less than 10% in January 2023. In 2022, during the refilling season, Russian pipeline imports were significantly higher than those expected in 2023.
- Demand reduction would reduce the price volatility. Global gas markets remain very constrained in 2023. Even if gas prices are below 45 €/MWh, but still at a level twice as high as the historic norm.
- The same spirit of solidarity which has prevailed in the application of Regulation (EU) 2022/1369 should continue. Long-lasting disruptions could still lead to a risk of uncoordinated action by MS, threatening to endanger security of supply in neighbouring MS and to place an additional burden on the Union's industry, consumers, and functioning of the internal market.
- It is cheaper for citizens and industry to continue proactively reducing demand in a proportionate and demonstrably manageable manner rather than face uncoordinated curtailments later.

- A 15% demand reduction is in line with the 90% storage obligation.

While EC recognizes that the nature and sectoral distribution of these demand reductions are not fully understood because of the two-monthly monitoring and lack of a more sectoral reporting during the implementation period August 2022 to March 2023, it is suggested to extend the gas demand reduction covering 12 additional months.

During the Energy Council on 28 March 2023, MS reached a political agreement on a proposal to extend their voluntary 15% gas demand reduction target for one year. The new regulation sets a voluntary target for MS to reduce their natural gas consumption by 15% between 1 April 2023 and 31 March 2024, compared to their average consumption in the period between 1 April 2017 and 31 March 2022. Member states can choose the measures by which they want to reach the target.

5.1.4 Electricity demand reduction

- **Objective** - to reduce MS total monthly gross electricity consumption by 10 % compared to the average of gross electricity consumption in the corresponding months of the reference period.
- **Legal basis** – Article 122 (1) of TFEU. Council regulation (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices.
- **Timeframe** - 1 December 2022 and 31 March 2023

This emergency intervention requires a voluntary overall reduction target of 10% of gross electricity consumption, and a mandatory reduction target of 5% of the electricity consumption in peak hours, amounting to 3-4 hours per weekday on average. Targeting the most expensive hours is expected to lower electricity prices, as this is usually the time when gas-fired power generation is used. Gas prices have been particularly high during the energy crisis, while the current design of the electricity market relies on the 'marginal pricing' (merit order) model. This means that the most expensive fuel in the energy mix sets the price paid by consumers. The Commission estimated that electricity reduction measures would lead to a reduction of gas consumption of around 1.2 bcm (equal to Latvian annual consumption) over 4 months.

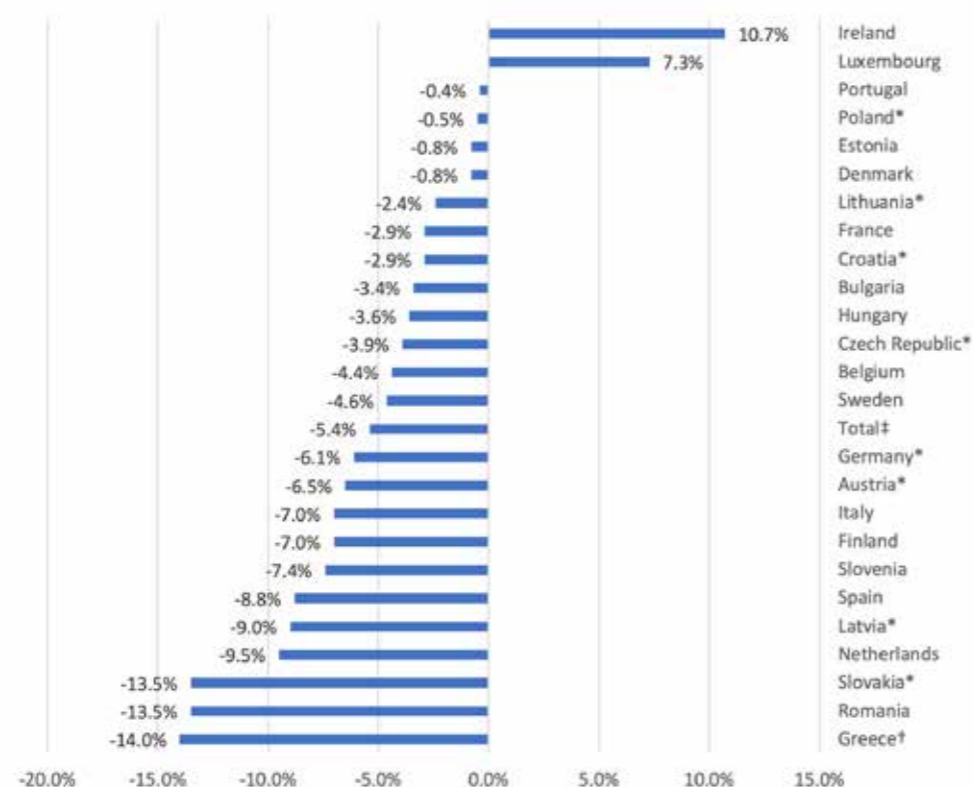
⁸² Eurostat. 2023. EU gas consumption decreased by 19%. Eurostat, 21 February 2023. Eurostat. <https://ec.europa.eu/eurostat/web/products-eurostat-news/w/DDN-20230221-1>

⁸³ McWilliams, Ben., Tagliapietra, Simone., et al. 2023. Preparing for the next winter: Europe's gas outlook for 2023. Bruegel., 2 February 2023. <https://www.bruegel.org/policy-brief/european-union-gas-survival-plan-2023#:~:text=The%20calculations%20suggest%20that%20gas,over%20the%20last%20ten%20years.>

⁸⁴ Elijah, Diane. 2023. Global LNG represents 39% of EU gas imports in 2022. KPLER, 5 January 2023. <https://www.kpler.com/blog/global-lng-represents-39-of-eu-gas-imports-in-2022#:~:text=This%20means%20that%20pipeline%20gas,compared%20to%202023%25%20in%202021.>

⁸⁵ European Commission. 2023. Review on the functioning of Regulation (EU) 2022/1369 on coordinated gas demand reduction. COM(2023) 173 final. Brussels, 20 March 2023.

Figure 22.
EU Power demand, December-January 2022-23 versus December-January 2017-2022.⁸⁶



EU power demand in December 22 - January 23 declined by around 5.4% compared with the five-year average for the period but was below the 10% voluntary reduction target set for the December - March period⁸⁷ (see Figure 22). It is likely that cuts in electricity consumption were driven largely by affordability concerns, alongside solidarity by many citizens to cut energy demand in a time of crisis and improvements in energy efficiency. It is expected that the energy transition will bring a major rise in demand through electrification. Such technologies as heat pumps, electrical vehicles and electrolyzers may raise electricity consumption rather quickly. Electricity demand reduction objectives may slow down the rollout of clean energy, therefore extension of this measure is questionable.

5.1.5 Measures to diversify energy supplies – renewables

- **Objective** – to foster development of renewable projects by shortening the permit-granting process.
- **Legal basis** – Article 122(1) of the TFEU, Council Regulation (EU) 2022/2577 of 22 December 2022 laying down a framework to accelerate the deployment of renewable energy.

- **Timeframe** – short term (18 months) with long-term impact.

According to Eurostat, the EU reached a 21.8 % share of its gross final energy consumption from renewable sources in 2021, around 0.3 percentage points lower than in 2020. With more than half of energy from renewable sources in its gross final consumption of energy, Sweden (62.6 %) had by far the highest share among the EU Member States in 2021, ahead of Finland (43.1 %) and Latvia (42.1 %). At the opposite end of the scale, the lowest proportions of renewables were registered in Luxembourg (11.7 %), followed by Malta (12.2 %) and the Netherlands (12.3 %). The lifting of the restrictions linked to the COVID-19 pandemic likely played a role in the decrease in 2021. In addition, Eurostat explains that the change in the legal basis and the accounting methodology also contributed to the RES reduction. It should be noted that Denmark, Finland, and Czechia made the statistical transfers to Belgium, Slovenia and Germany.

In the last quarter of 2022, electricity demand dropped by almost 8% compared with the year before (see Figure 23). This might be a result of the electricity reduction (voluntary and mandatory) imposed on the EU level. This would mean that the share of renewables will increase at least statistically in 2022,

unless the fact that extreme droughts across Europe resulted in the lowest hydropower generation in more than two decades are taken into consideration (see Figure 24).

In 2022 the Council agreed to set a binding EU-level target of 40% of energy from renewable sources in the overall energy mix by 2030. The current EU-level target is at least 32 %. Member states will need to increase their national contributions, set in their integrated national energy and climate plans (NECPs) to be updated in 2023 and 2024, to collectively achieve the new target.

In this light this Regulation establishes temporary rules to accelerate the permit-granting process applicable to the production of energy from renewable energy sources, with a particular focus on specific renewable energy technologies, which can achieve short-term acceleration of the pace of deployment of renewables in the Union. The Regulation is focused on solar energy equipment, the deployment of heat pumps, and the repowering of renewable energy power plants.

The permit-granting process for selected technologies shall not exceed the following duration:

- **Solar panels** and co-located energy storage assets, including building-integrated solar installations and rooftop solar energy equipment, in existing or future

artificial structures, with the exclusion of artificial water surfaces - 3 months. For solar panels, including for renewables self-consumers, with a capacity of 50 kW (MS may apply lower threshold of 10,8 kW) or less, the absence of a reply within 1 month following the application shall result in the permit being considered as granted.

- The installation of **heat pumps** below 50 MW electrical capacity shall not exceed 1 month, whilst in the case of ground source heat pumps it shall not exceed 3 months.
- **for the repowering of projects** - 6 months including environmental impact assessments, where required by relevant legislation. Where the repowering does not result in an increase in the capacity of the renewable energy power plant beyond 15%, grid connections to the transmission or distribution grid shall be permitted within 3 months.

MS may also apply this Regulation to ongoing permit-granting processes that have not resulted in a final decision before 30 December 2022, if this shortens the permit-granting process, and that pre-existing third party legal rights are preserved.

The process itself overrides public interest and may be in contradiction with land use and environmental objectives.

Figure 23.
EU electricity demand in TWh⁸⁸

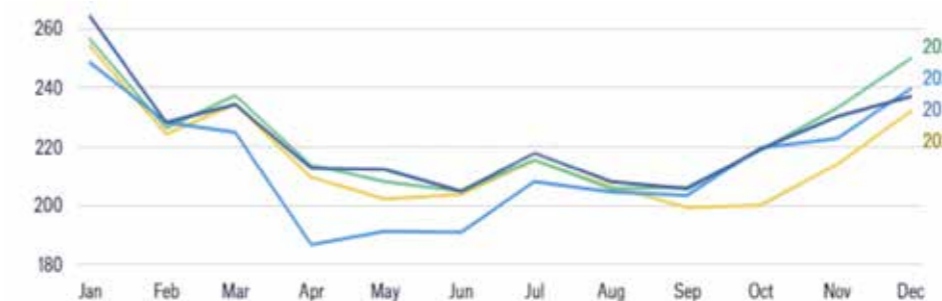
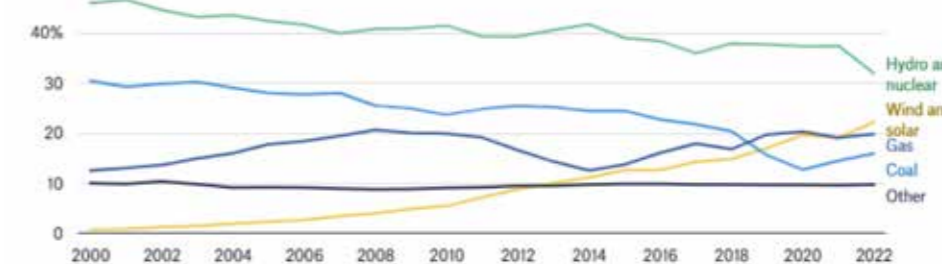


Figure 24.
Share of electricity generation by source in the EU.⁸⁹



86 Argus media (TSOs and Entso-E)

87 Argus. 2023. EU power demand reduction below 10pc target. 14 February 2023. <https://www.argusmedia.com/en/news/2419630-eu-power-demand-reduction-below-10pc-target#:~:text=EU%20countries%20in%20that%20case,place%20to%20reach%20the%20target.>

88 Ember, <https://www.energymonitor.ai/tech/renewables/europe-renewables-in-2022-in-five-charts-and-what-to-expect-in-2023/>

89 Ember, <https://www.energymonitor.ai/tech/renewables/europe-renewables-in-2022-in-five-charts-and-what-to-expect-in-2023/>

5.2 Measures for energy affordability

5.2.1 Retail measures

- **Objective** – to enable MS to apply measures of public intervention in the price-setting for the supply of electricity for household customers and SMEs to ensure energy affordability.
- **Legal basis** - COUNCIL REGULATION (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices.
- **Timeframe** – short-term (temporary).

The new rules will allow MS to temporarily extend regulated electricity prices to small and medium businesses, allowed for households and microenterprises. Also, MS may exceptionally and temporarily set a price for the supply of electricity, which is below cost provided that:

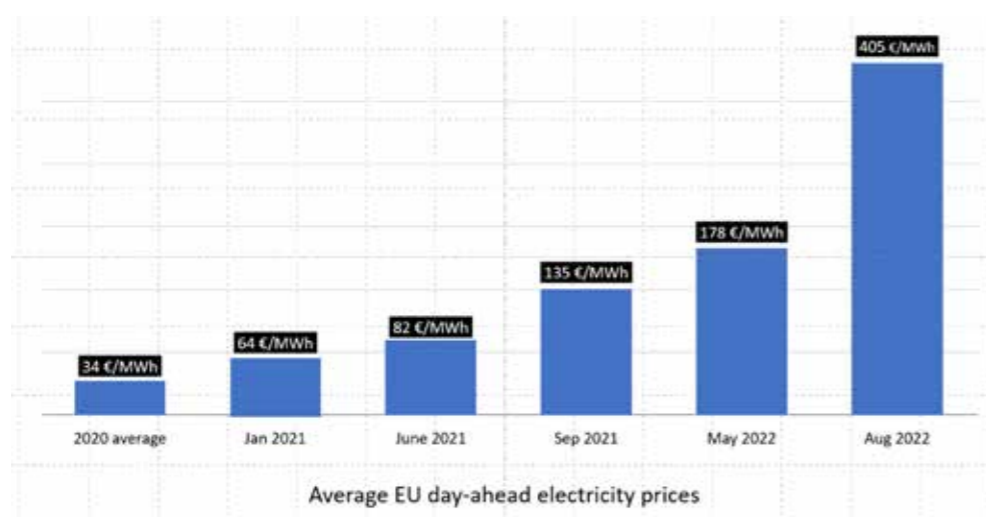
- the measure covers a limited amount of consumption and retains an incentive for demand reduction,
- there is no discrimination between suppliers,
- suppliers are compensated for supplying below cost,

- all suppliers are eligible to provide offers at the price for the supply of electricity, which is below cost on the same basis.

In Europe, the electricity component represents on average 31% of the electricity bill, while network tariffs account for 28% and taxes and levies reach 41%.⁹⁰ This ratio is greatly influenced by the price of electricity, which increased in 2022. Between January 2021 and August 2022 electricity wholesale price increased by 532%⁹¹ (see Figure 25). Wholesale electricity prices differ considerably between trading zones. For example, in the Baltics (Estonia, Latvia, Lithuania) on day-ahead market on 17 August 2022 the whole-sale electricity price reached maximum for one hour – 4000 EUR/MWh.

If the retail market is regulated, most likely customers will benefit from the regulated fixed electricity price if it is set below cost. In an unregulated market customers might choose between a fixed or variable price contract. A variable price contract means that the unit cost can increase or decrease at any time alongside the wholesale price. The retail price offered to a customer is subject to the same volatility as the underlying wholesale market. The variable price contract incentivises consumers to use energy when prices are low and supply plentiful. In the longer period the customer with the variable price contract will be a winner. In some countries, a price cap exists to prevent variable rates to go above a certain threshold, thus reducing the risks for consumers if they choose a variable price contract.

Figure 25. Average EU day-ahead electricity prices.⁹²



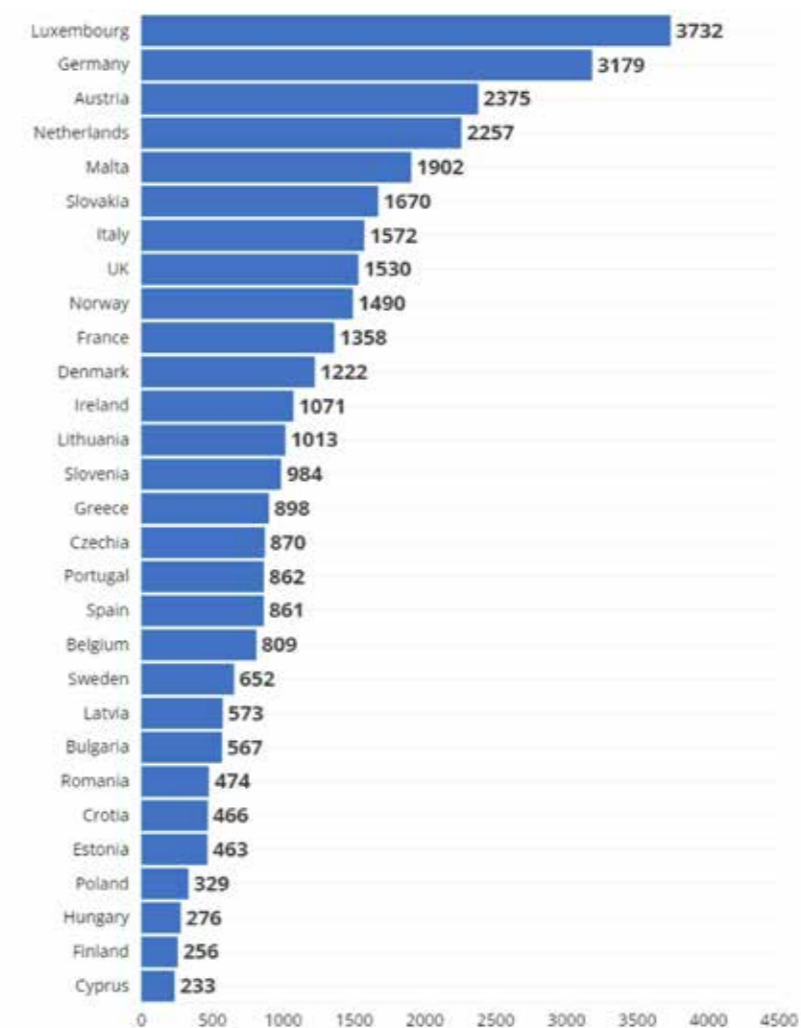
90 Eurelectric.
 91 Eurelectric. 2022. Energy sobriety encouraged as Europe walks tightrope on supply. 07 September 2022. https://www.eurelectric.org/news/pr_pb22/
 92 Power barometer 2022. Eurelectric. 2022. <https://powerbarometer.eurelectric.org/>

Almost a half of MS still regulate electricity prices at the retail level. According to ACER/CEER, report price intervention for non-vulnerable customers was reported by 13 countries in electricity in 2021, and it is mainly present in the form of price regulation. The main reason for price intervention is to protect customers against high prices and undesired price fluctuations, whether they are vulnerable or non-vulnerable. In some countries electricity retail prices are set below cost, thus in breach of Directive 2019/944. Only three MS have a roadmap towards a price intervention removal – Italy (2024), Lithuania and Romania (both 2023),

but due to the observed price volatility, these MS might also reconsider their plans.

Since the start of the energy crisis in September 2021, €758 billion has been allocated and earmarked across European countries to shield consumers from the rising energy costs - €646 billion in the EU, of which €265 billion has been earmarked by Germany alone.⁹³ Between September 2021 and January 2023, total support to households and firms on a per capita basis varied more than 10 times - from €233 in Cyprus to €3,732 in Luxembourg (see Figure 26).

Figure 26. Total support in Euros to households and firms per capita (Sep 2021- Jan 2023).⁹⁴



On the one hand, temporary price regulation could stabilize the situation in the energy market. On the other hand, by subsidizing the energy bills of consumers and businesses, governments risk stimulating consumption of scarce power and gas, increasing the likelihood of blackouts, delaying the

shift to renewable energy sources and investing in energy efficiency. According to some analysts, high prices are the most effective tools to reduce demand. If Europe goes far enough down the interventionist road, it might be hard to return.

93 National fiscal policy responses to the energy crisis. 24 March 2023. Bruegel. <https://www.bruegel.org/dataset/national-policies-shield-consumers-rising-energy-prices>
 94 Yanatma, Servet. 2023. Energy crisis in Europe: Which countries have the cheapest and most expensive electricity and gas? Updated: 05/04/2023 based on Bruegel data. Euronews. <https://www.euronews.com/next/2023/03/29/energy-crisis-in-europe-which-countries-have-the-cheapest-and-most-expensive-electricity-a>

5.2.2 Cap on market revenues of electricity generators

- **Objective** - to introduce a cap on market revenues that certain producers receive from the generation of electricity and directly or indirectly redistribute to final electricity customers.
- **Legal basis** - COUNCIL REGULATION (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices.
- **Timeframe** – short-term (1 December 2022 – 30 June 2023).

MS must collect electricity generators' realised market revenues from the sale of electricity exceeding a cap of 180 EUR/MWh. MS would receive the excess revenues of electricity generators that rely on cheaper 'inframarginal' energy technologies. These companies are obtaining windfall revenues from high electricity prices caused by the exceptional rise in gas prices, rather than from any increases in their own cost of production. The cap will apply to energy sources, including so-called inframarginal technologies, such as renewable energy (wind, solar, geothermal, hydropower, biomass fuel), nuclear energy, peat, and lignite.

MS shall ensure that all surplus revenues resulting from the application of the cap on market revenues are used to finance measures in support of final electricity customers that mitigate the impact of high electricity prices on those customers, in a targeted manner. The measures may include:

- granting financial compensation to final electricity customers for reducing their electricity consumption, including through demand reduction auctions or tender schemes,
- direct transfers to final electricity customers, including through proportional reductions in the network tariffs,
- compensation to suppliers who have to deliver electricity to customers below cost,
- lowering electricity purchase costs of final electricity customers, including for a limited volume of electricity consumed,
- promoting investment by final electricity customers into decarbonisation technologies, renewables, and energy efficiency.

The adopted regulation applies EU-wide and does not have to be implemented on a national level. MS may deviate from the agreed measures to achieve the objectives of such regulation.

The power sector represented by Eurelectric has emphasized importance of ensuring a correct calculation. Incorrectly assessing a generator's revenue could have significant financial implications and negatively impact investors' confidence raising financing cost for a capital-intensive energy transition and reduce incentives to protect customers through hedging and long-term contracting. To ensure correct calculations the responsible institution must consider such important aspects of all revenue/cost streams as:⁹⁵

- across timeframes (e.g. day ahead and intra-day markets, balancing markets, settlement of physical and financial instruments with different maturity),
- across transactional instruments (including but not limited to forward/future hedging, OTC contracts, long-term bilateral contracts, internal transactions, proxy and portfolio hedging [i.e. gas, coal and carbon contracts used in the absence of liquid forward electricity markets], PPAs or any other transactions with suppliers/clients, etc.),
- taking into account the corporate structure (the application of the cap has to take into account the different corporate organisations to ensure that only the actual revenues are taxed, and no revenues are taxed twice, since, for instance, not all risk hedging is carried out by the entity owning the generation assets),
- taking into account different jurisdictions (e.g. transactions can be carried out in different countries and subject to different supervisors and regulations).

To avoid market distortion across the EU, Eurelectric has called for a uniform approach, meaning that the market revenue cap should not be lower than 180 EUR/MWh, and it should only apply to the listed technologies. According to preliminary information, MS are applying different revenue caps, for example: Austria -180 EUR/MWh, Belgium – 130 EUR/MWh, Czechia – between 70EUR/MWh and 240 EUR/MWh, the Netherlands – 130 EUR/MWh, while information was not available regarding many MS.⁹⁶ In addition, Eurelectric is concerned about the timely return-to-normal electricity market functioning, while allowing for sufficient flexibility to adapt to different national and corporate realities.

Other concerns are that electricity suppliers would attempt to evade the cap by selling outside the capped market or an exchange. It should be considered that spot market transactions

do not necessarily reflect gains. This is due to hedging and forward contracting. For example, power producers often sell their electricity on forward markets at prices that can be significantly lower than spot market prices.⁹⁷

5.2.3 Solidarity contributions from fossil fuel

- **Objective** - to impose solidarity contribution on fossil fuel companies and redistribute it to households and companies to ensure energy affordability.
- **Legal basis** – Article 122(1) of the TFEU. Council regulation (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy prices. Article 122(1) of TFEU.
- **Duration** – short-term (temporary).

The regulation sets a mandatory temporary solidarity contribution on the profits of businesses active in the crude petroleum, natural gas, coal, and refinery sectors. The solidarity contribution would be calculated on taxable profits, as determined under national tax rules in the fiscal year starting in 2022 and/or in 2023, which have been above a 20% increase of the average yearly taxable profits since 2018. The solidarity contribution will apply in addition to standard taxes and levies applicable in member states. Member states will use proceeds from the solidarity contribution to provide financial support to households and companies and to mitigate the effects of high retail electricity prices.

Profits made by companies in particular markets in 2022 are remarkable: BP announced net profits of \$27.7 billion for 2022, Total Energies - \$20.5 billion, Shell said it earned almost \$40 billion – more than double its 2021 profits. ExxonMobil has reported a net profit of \$55.7bn for the full-year 2022, up from \$23bn in 2021, benefiting from the surge in oil prices in the wake of Russia's invasion of Ukraine.⁹⁸ Those claiming these companies are profiting from the invasion have some good arguments. However, it seems that collecting additional tax will not be a smooth process.

Several companies are challenging the temporary solidarity contribution imposed by the Council Regulation on an emergency intervention to address high energy prices. ExxonMobil, TV and TW, TJ, and 7 other applicants are challenging Council Regulation (EU) 2022/1854 of 6 October 2022 on an emergency intervention to address high energy

prices.^{99 100 101} They argue that the EU lacks the competence to impose temporary solidarity contributions since these amount to a tax for which the MS remain competent.

5.2.4 Market correction mechanism (MCM)

- **Objective** – to protect against high prices.
- **Legal basis** – Article 122(1) of the TFEU. Council Regulation (EU) 2022/2578 of 22 December 2022 establishing a market correction mechanism to protect Union citizens and the economy against excessively high prices.
- **Timeframe** - The mechanism could be activated as of 15 February 2023.

In November 2022, the Commission suggested a price correction mechanism with a price cap of EUR 275/MWh. Multiple MS criticised the price cap for being so high that it could not be expected to ever apply. Now, the MS have agreed on a price correction mechanism with a price cap of EUR 180/MWh.

The MCM, which will apply from 15 February, would be triggered if the TTF front-month derivative on the ICE Endex exchange holds above €180/MWh for three working days and is at least €35/MWh above ACER's LNG reference price basket, and would limit prices to €35/MWh above this price basket. It will initially apply to TTF exchange-based transactions with an expiry date between the front month and the front year – the European Commission was set to decide by the end of March whether to extend the mechanism to cover other EU virtual trading points.

Industry players and multiple MS have expressed concerns about the adoption of a joint gas price cap in the EU. They are concerned that a gas price cap will have an adverse effect on the reliability of supply in the EU, including a stop on LNG imports to the EU, and will result in a risk of increasing gas consumption and harm financial stability.

As part of the EU efforts to track the impact of the mechanism, ESMA and ACER were tasked with producing preliminary reports on its impact to date by 23 January 2023. Both agencies concluded in separate reports that “no significant impacts” had been identified since the mechanism was adopted last month, but it could have an impact on financial and energy markets in the future.

⁹⁵ Eurelectric. 2022. Cap on market revenues - Eurelectric's recommendations for EC implementation guidance. 13 October 2022. <https://www.eurelectric.org/publications/cap-on-market-revenues-eurelectrics-recommendations-for-ec-implementation-guidance/#:~:text=E%20%80%93%20the%20market%20revenue%20cap%20should,Avoid%20making%20use%20of%20art.>

⁹⁶ PWC. 2022. Energy emergency measures: solidarity charge and revenue cap. 09 December 2022. <https://www.pwc.nl/en/insights-and-publications/tax-news/other/energy-emergency-measures-solidarity-charge-and-revenue-cap.html>

⁹⁷ Ockenfels, Axel. 2022. A simple proposal to skim electricity firm's windfall profits. Axel. 8 September 2022. <https://www.euractiv.com/section/energy/opinion/a-simple-proposal-to-skim-electricity-firms-windfall-profits/>

⁹⁸ Guardian. 2023. ExxonMobil posts record annual profit of \$56bn in 2022. Offshore Technology. 1 February 2023. <https://www.theguardian.com/business/2023/jan/31/exxon-profits-2022-western-oil-industry-record#:~:text=2%20months%20old,Exxon%20posts%20record%20%2456bn%20profit%20for%202022,high%20for%20western%20oil%20industry&text=Exxon%20Mobil%20posted%20a%20%2456,for%20the%20western%20oil%20industry.>

⁹⁹ Action brought on 20 December 2022 — TV and TW v Council (Case T-795/22).

¹⁰⁰ Action brought on 12 December 2022 — TJ and Others v Council (Case T-775/22)

¹⁰¹ Action brought on 28 December 2022 — ExxonMobil Producing Netherlands and Mobil Erdgas-Erdöl v Council (Case T-802/22)

ACER emphasized several potential risks concerning the Regulation itself and they are as follows:¹⁰²

- Limiting the key price discovery function of markets may have an effect on the ability of all market participants to effectively manage their risks.
- The MCM could potentially lead to the relocation of trading volumes from the EU gas exchanges to over-the-counter markets¹⁰³ and / or to other organised marketplaces within or outside the EU, such as the British National Balancing Point (NBP) or the Chicago Mercantile Exchange (CME).
- The MCM could have a potential impact on security of energy supply if, for example, the price levels put in place via activation of the MCM were to lower the attractiveness of the EU markets for global LNG supplies.

- The MCM could potentially lower levels of market-based gas flows between the Union's different market areas, which would lead to a less integrated internal gas market.

ESMA¹⁰⁴ indicated that most likely market participants will adapt to the MCM by redirecting their trading activity to contracts / venues / execution types not affected by the MCM. Such adaptations could be achieved by various means, notably by shifting trading to OTC or to non-EU venues. Moreover, market participants could shift trading to contracts with maturities not subject to the Regulation or on VTPs different from the TTF. Some of these adaptations are likely to reinforce trends that can already be observed today, such as the trend to move trading OTC, which is likely to further lower open interest and ultimately reduce available liquidity on regulated markets for TTF contracts.

6

REFORM OF THE EU WHOLESALE ELECTRICITY MARKET DESIGN

6.1 Background

The events triggered by Russia's invasion in Ukraine have had a profound immediate, as well as long-term, effect on how European countries perceive energy security. Fear of facing actual physical unavailability of energy resources and electricity and heat could have had two rather opposite consequences. In one scenario, the EU policy towards carbon neutrality could have been derailed in favour of giving in to natural gas and cutting support to renewable energy. In another scenario, Russia's aggression against Ukraine, and pressure through manipulating gas supplies and prices, could have served as a disruption and facilitated an even more active transition to a sustainable energy system. However, events since March 2022 developed according to the latter scenario. In fact, the reaction of the EU MS, and the EU in general, was surprisingly unified in favour of phasing out energy supplies from Russia and accelerating transition to a low-carbon economy, with a carbon-neutral energy system being an essential element.

Details, however, are always important, and approaches to solving what was code-named an "energy crisis" varied among the EU member states. It should be noted that, in broad strokes, everyone had and still has the same goal, but opinions on how to reach that goal, differ. EU countries have aligned their arguments in favour of replacing energy supplies from Russia with supplies from other sources, thus decreasing their dependence on this one particular supplier of fossil fuels.

In the context of energy security, the current energy crisis has exposed risks associated with two important elements of energy security: availability and affordability. The supply aspects are related not only to replacing energy supplies from Russia, but, more importantly, developing internal sources of energy generation, preferably – renewable technologies. The

affordability aspects are related to energy prices for industrial, commercial, and household users alike. The urgent need to do something about both availability and affordability of energy has been the main reason for the EC to embark on the path of electricity market design reform.

With natural gas and other commodities at record price levels during 2022 (as opposed to the period with the historically lowest prices five years prior to 2021), causing spikes in the wholesale electricity market, the working principles of the EU energy market have been widely discussed. The core topics of the reform centre around how to make electricity bills less dependent on short-term fossil fuel price hikes, how to drive renewable investments, and how to improve conditions for flexibility.

The main tasks are simple and complicated at the same time: EU member states need to find agreement on how to best facilitate a rapid transition to a carbon-neutral energy system while keeping energy prices at a level that end users are able to pay without serious constraint on their budget. These two major tasks are simple as there is common understanding about the importance of being mostly self-sufficient when it comes to producing electricity and heat, and there is also common understanding that if energy prices are too high (which is a relative notion), energy users either have to spend too much of their budget on energy bills or they resort to using energy below what constitutes comfort level.

In broad terms, producers in the energy market are grouped in two large groups: infra-marginal producers, encompassing large hydro, existing nuclear, solar PV, onshore and offshore wind; and marginal producers, encompassing gas and coal power plants.

6.2 Short description of EC proposal on electricity market design

The EU internal electricity market is the result of a reform process reached over more than two decades. Key elements are EU-wide, cross-border trading and marginal cost pricing. Due to the rise in energy, and consequently electricity prices, since the summer of 2021, there have been many market

interventions across the EU set at the EU and national level. In 2022 the EU adopted temporary emergency measures, such as the EU's inframarginal revenue cap for electricity and the EU's market correction mechanism for natural gas. The Council tasked the EC with a fundamental revision of the EU's

¹⁰² EU Agency for the Cooperation of Energy regulators. 2023. Market Correction Mechanism. Preliminary data report. ACER. 23 January 2023. https://acer.europa.eu/sites/default/files/documents/Publications/ACER_PreliminaryReport_MCM.pdf

¹⁰³ OTC markets comprise decentralised networks of buyers and sellers.

¹⁰⁴ European Securities and market Authority. 2023. Preliminary data report. On the introduction of the market correction mechanism. ESMA. 23 January 2023. https://www.esma.europa.eu/sites/default/files/library/esma70-446-775_preliminary_data_report_on_mcm.pdf

electricity market design. The EC responded to this on 14 March 2023 by presenting two legislative proposals¹⁰⁵ ¹⁰⁶ that suggest changes to five laws relevant to the electricity market: Electricity Market Directive and Regulation, Renewable Energy Directive, REMIT Regulation, and ACER Regulation.

The aim is to reform the electricity market to shield consumer energy bills from short-term swings in fossil fuel prices, and ensure that Europe's growing share of low-cost renewable electricity translates into lower prices. Currently, power prices in Europe are set by the running cost of the plant that supplies the final bid of power needed to meet overall demand. Often, that is a gas power plant, so gas price spikes can send electricity prices soaring.

In general, the proposed reform continues the past path of market-based integration of European electricity systems, defending the idea of ensuring optimal dispatch through marginal-price settlement in short-term markets, and calling for cross-border participation in national instruments. The main focus of the reform is on five bigger groups of issues:

Consumer protection

To protect consumers from high electricity prices and price volatility, they are to be given a wider choice of contract offers. Energy suppliers are to be obliged to offer fixed-price contracts with fixed terms. In addition, the possibility for end consumers to have different electricity meters and thus different electricity supply contracts is to be introduced, for example for charging electric cars or using heat pumps.

The revision also aims to reduce the risk of supplier default. Energy suppliers are to be given guidelines on their hedging strategy. Further requirements relate to the obligation of EU MS to designate last resort suppliers (LRS) in the event of company insolvencies. Other measures concern vulnerable consumers and their treatment in the event of payment arrears. If a crisis is declared at EU level, MS will be empowered to introduce retail prices for households and SMEs below market prices.

The revision also affects rules for renewable energy sharing: consumers will in the future be able to invest in wind or solar farms and sell surplus solar power to both their energy supplier and their neighbours.

Improving conditions for flexibility

Another proposal to stabilize prices is to promote system flexibility and storage capacity. To improve the flexibility of the electricity system, EU MS will be required to define flexibility objectives, assess the need for flexibility instruments and promote demand-side management and storage accordingly. Grid operators will also be required to introduce new instruments for peak-shaving. The EC has published ten non-legally binding recommendations for the promotion of storage technologies.

Long-term stabilization of electricity peaks

To improve the competitiveness of industry and reduce its vulnerability to price fluctuations, the EC proposes to strengthen the role of long-term power purchase agreements (PPAs). MS governments should be able to bear some of the risks arising from these contracts.

To provide electricity producers with stable revenues and to protect the industry from price fluctuations, state support for new investments in wind energy, solar, geothermal, run-off river and nuclear power will only be possible in the form of two-sided contracts for difference (CfDs). Under these, electricity producers receive a fixed price. If market prices are below the fixed price, producers receive a top-up. Revenues above the strike price are to be distributed to final consumers based on their shares of consumption (equal amount of kWh).

In addition, liquidity in the long-term futures markets will be improved.

More transparency in the network sector

The revision includes proposals to improve the integration of renewables. These include transparency obligations for grid operators regarding grid congestion and shortened trading periods – intraday cross-zonal closure time needs to be 30 minutes by 1 January 2028.

More robust market supervision

Stronger protection against market manipulation is foreseen. To ensure competitive electricity markets and transparent pricing, the Agency for the Cooperation of Energy Regulators (ACER) and national regulators will be given additional powers regarding the supervision of wholesale energy markets. This includes stricter rules for data collection.

6.3 Member States' debate over the new Electricity Market Design

Before the EC tabled the new Electricity market design proposal, natural gas and its price had been significant elements in the debate. Some arguments in favour of a reform were based on an observation that high natural gas prices had ripple effects on power prices and the cost of heating. The argument centres around how different energy technologies should be treated in the market to avoid excessively high energy prices and excessive profits for so called infra-marginal producers as opposed to marginal producers.

The experience from the third quarter of 2021 onward has exacerbated the debate about what treatment should technologies belonging to the two groups receive. High profits of energy producers have been one of the issues. Because of high demand and high energy prices, many companies in 2021 and 2022 have had the highest profits in years triggering discussion about the need to disallow such high profits at the time of energy crisis.

Energy industry and several EU MS have a rather cautious approach to the reform, saying that the current market mechanisms should not be dismantled and replaced with something completely new. Even when it comes to Power purchase agreements (PPAs)¹⁰⁷ and Contracts for Difference (CfDs)¹⁰⁸, the approach can still be that these mechanisms aiming at ensuring secure investment while contributing to affordable prices for energy can be implemented in an open market instead of being strictly regulated by MS.

Spain and France have called the current market system “absurd” because, they believe, it leaves price-setting to be dictated by fossil fuels like coal and gas¹⁰⁹. Such players as Eurelectric¹¹⁰ and WindEurope¹¹¹ have criticised the more radical proposals represented by Spain, Portugal and France, which are in favour of a more centralised approach and less reliance on market mechanisms. Wind Europe, which is Europe's biggest wind energy lobby, has noted that the electricity market design reform must fully leverage the potential of corporate PPAs

and other forms of long-term contracting such as private CfDs, rather than crowd them out with an exclusive focus on government controlled CfDs. Alongside facilitating long term contracts (Contracts-for-Difference, Corporate Renewable PPAs) the Market Design reform needs to leave space for innovation and investments driven by market dynamics¹¹².

Other countries like Germany, Latvia, Estonia, the Netherlands, Finland, Denmark, and Luxembourg have aired the opinion that current market mechanisms should be adapted rather than dismantled, and the implementation of PPAs and CfDs can be done on a voluntary basis.¹¹³ This group of countries believe that the merit order principle is still valid and can deliver sufficient energy for a reasonable price. However, they say those should remain voluntary and focused only on renewables, going against a push from countries like Spain, which want a widespread rollout of state-regulated contracts for difference¹¹⁴. To lower the cost of investment into new renewable electricity capacity, the seven aforementioned countries also support long-term contractual arrangements, like power purchase agreements and contracts for difference, which give greater certainty to investors. These seven countries have also called for stronger consumer protection measures, saying households should retain the possibility of choosing between variable and fixed price contracts.

The Agency for the Cooperation of Energy Regulators (ACER) concluded that the EU's wholesale electricity market was working as intended, and even helped mitigate rising energy prices.¹¹⁵ At this stage they cannot support EU actions mandating the use of CfDs or similar types of state long-term contracts because the optimal design of CfDs is not yet known and MS can achieve the objective of protecting consumers through other means as well (e.g. limit excessive inframarginal revenue, taxation policy, (energy) poverty policy, etc.).

Long-term contracts can stabilise prices, especially for large industrial consumers that require high volumes of energy.

¹⁰⁷ PPA (Power Purchase Agreement) is a long-term agreement between an energy producer (incl. renewable developer) and a consumer for the purchase of energy.

¹⁰⁸ CfD – Contract for Difference. The operator promoted by this support mechanism feed their electricity into the grid as usual. If the price they achieve on the exchange is below the amount that was specified in the auction, the operator receives the difference from the fixed subsidy amount. If the price is above this reference price, the operator has to pay the difference to the contracting party. It is called as a symmetrical market premium model.

¹⁰⁹ Kurmayer, Nikolaus, J. 2023. Germany on collision course with France, Spain over EU power market reform. Euractiv. 21 February 2023. <https://www.euractiv.com/section/electricity/news/germany-on-collision-course-with-france-spain-over-eu-power-market-reform/>

¹¹⁰ Goss, Simon. 2023. Electricity Market Design: how can reforms accelerate the transition and help cut energy prices? Energypost.eu. 13 February 2023. <https://energypost.eu/electricity-market-design-how-can-reforms-accelerate-the-transition-and-help-cut-energy-prices/>

¹¹¹ WindEurope response to Spain's proposals on Electricity Market Design. Windflix by WindEurope. 17 January 2023. <https://windeurope.org/newsroom/news/windeurope-response-to-spains-proposals-on-electricity-market-design/>

¹¹² Ibid

¹¹³ Kurmayer, Nikolaus, J. 2023. Germany on collision course with France, Spain over EU power market reform. Euractiv. 21 February 2023. <https://www.euractiv.com/section/electricity/news/germany-on-collision-course-with-france-spain-over-eu-power-market-reform/>

¹¹⁴ Taylor, Kira. 2023. Seven EU countries call for cautious electricity market reform. 13 February 2023. Euractiv, <https://www.euractiv.com/section/electricity/news/seven-eu-countries-call-for-cautious-electricity-market-reform/>

¹¹⁵ Simon, Frederic. 2022. 'Electricity market 'not to blame for current crisis''. Euractiv. 29 April 2022. <https://www.euractiv.com/section/electricity/news/electricity-market-not-to-blame-for-current-crisis-eu-agency-concludes/>

¹⁰⁵ European Commission. 2023. Proposal for a amending Regulations (EU) 2019/943 and (EU) 2019/942 as well as Directives (EU) 2018/2001 and (EU) 2019/944 to improve the Union's electricity market design. COM(2023) 148 final. Strasbourg, 14 March 2023.

¹⁰⁶ European Commission. 2023. Proposal for a amending Regulations (EU) No 1227/2011 and (EU) 2019/942 to improve the Union's protection against market manipulation in the wholesale energy market. COM(2023) 147 final. Strasbourg, 14 March 2023.

Power purchase agreements and contracts for difference would help to ensure both a competitive supply of clean electricity and appropriate returns for investors. Opinions have been expressed that if renewables become cheaper and fossil fuels remain expensive, then the consumers of electricity would, in the present situation, pay significantly for electricity.

There are several key areas of activity: customer-contracting framework, guaranteeing investor confidence, future-proof and long-term investment signals, shielding consumers from price volatility. The European energy crisis is primarily a supply crisis and not a demand crisis, this reform of the electricity market needs to be handled with caution, as causes for the current turmoil may lie with temporary and intentional hardships rather than reflecting systemic problems.

MS are also unanimous regarding the timeframe for how quickly one should move with adoption of this legislation. While France and Spain are pushing for reform, Germany is asking for an “in-depth impact assessment” which means that it has decided to defend the status quo. Germany’s approach is backed by Denmark, Estonia, Finland, Luxembourg, Latvia, and the Netherlands. The timeline is further complicated by European Parliament elections in 2024. That has raised concerns in reform-hungry states that failure to strike a deal before the election could significantly delay the reforms if negotiations have to pause until a new EU parliament is elected.

ENTSO-E¹¹⁶ welcomed the new legislative initiatives by supporting the objective of avoiding a distortion of short-term markets, which ultimately ensures balancing and security of the system, the role of flexibility needs assessments, the provisions to enhance demand response and consumer protection, and the goal to strengthen long-term investment

signals for carbon neutral generation deployment. They also expressed some concerns on the impact of specific provisions, which were included without a proper impact assessment, and could have detrimental effect on the functioning of the market (e.g. including in legislation detailed provisions on intraday gate closure time, compensation mechanisms for offshore renewables using congestion income, mandatory development of Regional Virtual Hubs for forward markets). These topics could be considered in a possible future of more comprehensive market reform, if the net benefits of these measures can be proven by a thorough impact assessment.¹¹⁷

The EC proposal on Electricity market reform is called evolution rather than revolution. It is rather technical, and the main discussion does not relate the fundamentals of the EU electricity market. There are many pros and cons regarding EU electricity market reform, although there is no tangible justification to blame the market mechanism for high electricity prices. CfDs and PPAs can still be used by the national government on a voluntary basis to promote investment into the low carbon market. The current market mechanisms might need some adjustments, but the fundamentals should remain, which has already made it possible to create a single market.

As part of the next steps, the proposal will have to pass through the legislative process at the EU Parliament and the Council of the EU. Spain, as the EU Presidency country in the second part of 2023, has promised to seek a deeper reform than what was contained in the EC proposal.¹¹⁸ If this is a case debate, agreement could take a longer time period. The EC, on the other hand, is determined for the rules to be ready before the next winter period, which is unlikely. The modifications to the different EU directives will have to be transposed in national energy laws.

¹¹⁶ ENTSO-E, the European Network of Transmission System Operators for Electricity, is the association for the cooperation of the European transmission system operators (TSOs). The 39 member TSOs representing 35 countries are responsible for the secure and coordinated operation of Europe’s electricity system, the largest interconnected electrical grid in the world.

¹¹⁷ Entso-E. 2023. ENTSO-E supports key aspects of the electricity market design reform proposals but sees room for improvement. 15 March 2023. <https://www.entsoe.eu/news/2023/03/15/entso-e-supports-key-aspects-of-the-electricity-market-design-reform-proposals-but-sees-room-for-improvement/>

¹¹⁸ Simon, Frederic. 2023. Spain aims for electricity market reform deal during EU Council stint. Euractiv. 3 April 2023. <https://www.euractiv.com/section/electricity/news/spain-aims-for-electricity-market-reform-deal-during-eu-council-stint/>

CONCLUSIONS

Energy resources play a critical role in economic growth and human wellbeing and will continue to be a key concern to policy makers. The ongoing geopolitical conflict, and a rapid global post-pandemic economic recovery, caused a surge in global energy prices. European governments have since implemented a range of policy responses. One class of policies aims to mitigate the impact of higher costs on consumers and businesses. These include retail price caps, regulated tariffs, support programs for energy-intensive companies, as well as cap energy costs, particularly of wholesale gas prices. Another class of measures seeks to ensure energy security, namely energy availability. This includes policies to encourage energy saving, decrease energy consumption and increase supply, including liquidity or capital backing for energy companies, even nationalization.

Such measures don't offer clean solutions, for two reasons. First, conflicting objectives: subsidies or capping prices can make the underlying problem worse by demotivating energy saving and increasing demand. Second, cross-border spillovers: subsidizing energy consumption may benefit consumers in one country but would also raise consumption, leading to higher wholesale prices across the European Union and hurting consumers in other countries.

High energy prices are causing a huge transfer of wealth from consumers to producers, back to the levels seen in 2014 for oil, but entirely unprecedented for natural gas. As natural gas still is an important resource in energy portfolios of many countries, the extremely high gas prices inevitably affected the cost of energy production, be it electricity or heat. Thus, consumers faced unusually high energy bills in 2022, which translated into record-high turnover and profits for energy companies.

There remain huge uncertainties over how this energy crisis will evolve, and for how long fossil fuel prices will remain elevated, and the risks of further energy disruption and geopolitical fragmentation are still high despite the commendable ability of the market to recover from the initial shock.

Authors of the study strongly believe in the ability of the EU member states to solve acute issues and plan for short, medium, and long-term solutions to establishing and maintaining a sustainable energy system in Europe despite having at times quite notable differences of opinion.

The authors make the following conclusions and considerations stemming from the above analysis:

The Situation on the energy market stabilised at the beginning of 2023, however, exacerbation of problems might occur again before Winter 2023/24, depending on the situation with reserves of natural gas in the EU and global gas prices, which

will depend primarily on the demand for energy in prime markets, such as Japan, South Korea, China and Taiwan.

Import of natural gas from the Russian Federation has decreased, but still persists despite the sanctions introduced after strained negotiations between member states representing varying opinions on how the situation should be dealt with considering the role of natural gas supplies in different member states.

Short-term EU measures have the potential for negative consequences in the longer term, for example the tax measures on infra-marginal electricity producers. Imposing higher taxes or short-term tax measures on so called windfall profits could decrease the ability of certain types of energy producers to invest in sustainable energy technologies. Fiscal policy measures stimulating reinvestment of a certain amount of profit into renewable and sustainable energy production would be a preferred approach. Social issues should not become an obstacle to reaching sustainable energy and climate goals.

The legitimacy of EU measures is being challenged in court, especially in the context of TFEU Article 122(1), which allows the Commission to adopt decisions without the involvement of Parliament. The Process is quicker, but less debated, and potentially prone to shortcomings.

High energy prices are the consequence of extraordinary (force majeure, in fact) events rather than the result of market shortcomings. Hasty decisions should therefore be avoided, and the market should be given time to adjust some of the rules and principles of functioning to increase its resilience against fundamentally disruptive events such as wars, catastrophic malfunctioning of critical generators, or extreme weather events.

Hasty decisions should not be taken regarding the reform of the EU wholesale electricity market design, as the electricity market is functioning and developing further after more than two decades of almost permanent process of creation and adjustment.

In the context of electricity market design reform, introduction and application of PPAs and CfDs ought to be left at the discretion of the member states. It should be noted that long-term contracts may have negative consequences for consumers and could have negative effects on the liquidity of electricity markets.

As for the availability aspect of energy security, measures aimed at strengthening solidarity, regional coordination, further improving transmission and storage infrastructure, should remain a priority and should be reflected in ten-year network

development plans, and national energy and climate plans of respective member states.

As for the affordability aspects of energy security, any measures aimed at supporting specific groups of consumers shall be temporary, transparent, and terminated to avoid crippling effects on the functioning of the energy market; and, ideally, shall be coordinated on the EU level to avoid negative repercussions for competition and competitiveness between member states.

Last but not least, energy efficiency, although not being within the scope of this study, shall remain one of the key medium and long-term priorities of EU energy and climate policy as it decreases the demand for both fossil and renewable energy resources, thus improving the EU's energy independence.

This study summarizes the status quo of EU emergency measures adopted in 2022 in the energy market as of the first quarter of 2023. Some measures like gas storage obligations and gas demand reduction most likely will be extended, while there is an insufficient clarity regarding others as they have been left for the Commission to evaluate. At this stage there is also insufficient information to be able to assess the implementation of EU-level measures in member states, for example: a cap on market revenues on electricity generators and solidarity contributions from fossil fuels. On the national level support for energy consumers differs drastically by more than 10 times. However, any such support, which is aimed at a wide range of energy users, leads to market distortion. Further research should be aimed at preventing distortions caused by different types of EU and national interventions in the energy market





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