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Energy Security in Times of Crisis

The largest part of the European Union's energy needs comes from outside its borders, and although the goal of improving the import dependency rate has been set for decades, this has not substantially improved. The EU is therefore extremely vulnerable to energy imports, especially from Russia, and its energy security is thus at risk. The integration resulting from the common market also brings difficulties, as do the increasingly strong effects of climate change, while the diversity of member states' interests makes it difficult to create a common voice. The EU has laid down in strategic documents that, as part of the fight against climate change, energy systems must be changed, switching to renewable energies. For the EU, diversification also results in improved energy security; therefore, it has set ambitious goals for itself in the fight against climate change, and in this fight it is setting itself a global leadership role: becoming the first climate-neutral continent by 2050. Today, however, energy policy alone is not a sufficient tool, it is necessary to combine several policies. In February 2022, Russia attacked Ukraine and simultaneously began to use the EU's energy dependence as an economic and political weapon against it. As a result of the emerging energy crisis, the EU has accelerated decision-making, and as a solution, it is trying to become independent from Russian fossil energy sources and speed up the energy transition process. The EU has adopted a total of nine sanction packages against Russia until the end of 2022 to weaken the Russian economy to the point where it cannot continue the war against Ukraine. The sanction packages also contain a number of energy policy instruments. The set goal for the EU is to become independent from Russia and establish its energy security well before 2030, which, however, still holds many challenges.

Keywords: European Union, energy security, energy policy, climate change, energy dependency

Acronyms

EAC	European Atomic Energy Community (Euratom)
ECSC	European Coal and Steel Community
EEC	European Economic Community
EPE	Energy Policy for Europe
ETS	Emission Trading System
IEA	International Energy Agency
LNG	liquefied natural gas
UNFCCC	United Nations Framework Convention on Climate Change

Introduction

Energy supply is one of the basic conditions for the operation of the European Union: without energy we cannot heat, light, travel, and industrial production cannot proceed either. It is now clear to everyone that, as part of the fight against climate change, we

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have to change our energy systems and basically the way we relate to energy. 2022 was a particularly important year from this point of view: in February, Russia attacked Ukraine, and it is not yet clear when the aggression will end, and the whole of Europe was faced with such extreme weather events that made the presence of climate change palpable.

The EU's energy mix has been constantly changing over the past decade, using less and less petroleum, whereas, to a lesser extent, natural gas consumption is decreasing, the phase-out of coal has begun, and the use of nuclear energy is also slowly decreasing, while the share of renewable energies is constantly increasing (International Energy Agency 2022a). In 2020, the EU's energy mix consisted of 34.5 percent of crude oil, 23.7 percent of natural gas, 17.4 percent of renewable energy and 10.5 percent of solid fossil fuels (Eurostat 2022). However, the EU has set itself extremely ambitious goals, as part of the fight against climate change on the one hand, and, on the other hand, to improve energy security.

The EU is considered a front-runner in the fight against climate change, as part of which it strives to replace fossil energy sources with renewable energies and thereby reduce its energy dependence. The goal is to become the first climate-neutral continent by 2050. The implementation of this requires the involvement of many policies, of which energy policy has a particularly important role.

In this article, we present the role of energy policy and energy security in the history of the EU from the beginning, and how the fight against climate change appeared on the agenda in relation to energy, as well as what role the EU assigns to itself in the recovery from the energy crisis and thereafter.

Russia's war against Ukraine has highlighted the weakness of the EU and its member states separately, the exposure to cheap Russian fossil energy sources. The significant energy dependence is not surprising. Its solution has been on the agenda for decades, yet a crisis was needed to speed up the solution process.

57.5 percent of the energy used in the EU comes from imports, almost half of which, 24.4 percent, is purchased from Russia. In addition, Russia is the EU's largest supplier of primary energy carriers, crude oil, natural gas and solid fossil fuels (Eurostat 2022).

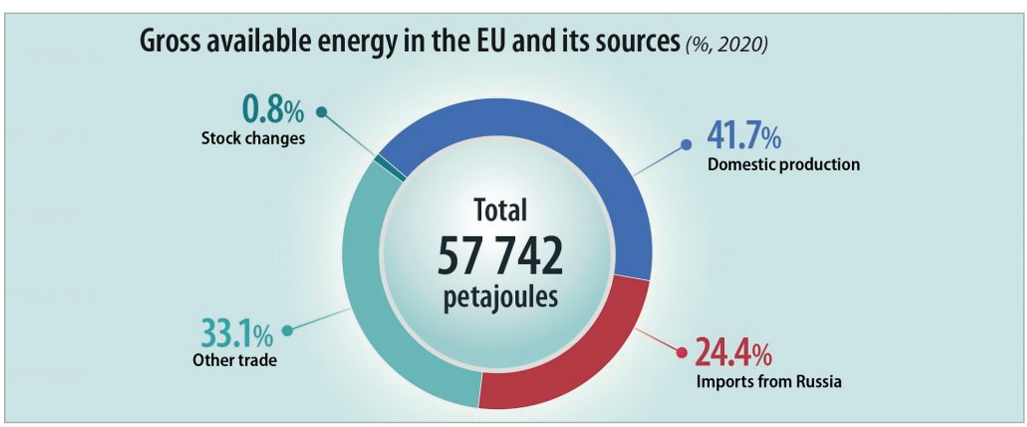

Figure 1: Gross available energy in the EU and its sources
Source: Eurostat 2022

If we only consider natural gas, the EU imports 90 percent of the natural gas it needs, and 45 percent of the imports come from Russia, but this proportion differs greatly when broken down by member state. In 2020, Lithuania imported 96.1 percent from Russia, Slovakia 57.3 percent, Hungary 54.2 percent, Cyprus 1.7 percent, Ireland 3.2 percent and Luxembourg 4.3 percent (Eurostat 2022). 25 percent of the EU's oil imports and 45 percent of its coal imports come from Russia (European Commission 2022a).

It is now clear that the conflict is not only taking place on the Ukrainian battlefield, but is also having a serious impact on the European and global markets.

The EU and its member states were thus forced to use new solutions to replace the lost Russian energy to ensure their energy security. This opens up new opportunities and Europe plans to take a leading role in the transition to green technologies and the promotion of fair and sustainable development.

The concept of energy security

The concept of energy security in the discipline of security studies is based on the sectoral theory of the Copenhagen School of Security Studies. In their book *Security. A New Framework for Analysis,* published in 1997, Barry Buzan, Ole Waever and Jaap de Wilde create the analytical conditions for examining the different sectors of security: military, environmental, economic, societal and political (Buzan et al. 1997). They present the broadening of the concept of security from the 1970s, when non-military and political factors threatening security appeared, just think of the two oil crises. Since the end of the Cold War, the concept has continued to expand, the focus of security has gone beyond the threat to existence, and new sectors and actors not directly linked to states have appeared (multinational corporations, terrorist organisations, etc.).

Energy security used to be treated as a part of economic security, since energy is the basis for the functioning of the economy, but today, as a result of climate change and the energy transition, it is closely connected to other sectors, especially the environmental sector, but we must not forget the political and social effects of these challenges either. Digitisation is also crucial for the development of the energy sector; thus, cybersecurity is inseparable from energy security, as well. The Russian invasion of Ukraine, which can also be considered an energy war from a European perspective, is only the latest proof of the relationship between energy security and military security.

The current international energy supply system was formed in response to the 1973 oil embargo. On the one hand, it was intended to deter the oil-producing countries from using the oil weapon, and on the other hand, to prepare for coordination in the event of a supply interruption. In 1974 the International Energy Agency (IEA) was created to ensure the security of global oil supplies. The core mission of the organisation is still ensuring energy security and creating a framework for energy policy cooperation. It also helps prevent supply disruptions, supports information transparency, energy efficiency, sustainability, research and development and technological collaboration (International Energy Agency 2022b).

The IEA defines energy security as "the uninterrupted availability of energy sources at an affordable price" (International Energy Agency 2022c). It distinguishes between two aspects: "Long-term energy security mainly deals with timely investments to supply energy in line with economic developments and environmental needs. On the other hand, short-term energy security focuses on the ability of the energy system to react promptly to sudden changes in the supply-demand balance."

Another frequently used energy security concept is based on similar foundations, as the first two elements of the 4A concept, availability, affordability, accessibility and acceptability, are also found in the IEA definition (Cherp–Jewell 2014). Accessibility is typically a geopolitical challenge when the energy source is available, but access is not necessarily guaranteed. Acceptability is basically a social and political approach, i.e. whether a community really wants to use the given energy source, which arises, for example, in the case of nuclear energy.

The meaning of energy security also differs by geographical area: there are energy exporters, energy importers and energy transit countries. The production, export and transport of energy resources has become a strategic issue, so the stability of energy-producing countries and regions is crucial to maintaining the balance between supply and demand, which is reflected in foreign and security policy.

The European Union and most developed economies typically supply a significant part of their energy needs from imports, so for them energy security means a continuous supply from the given energy source in the right quantity and at an affordable price.

According to the latest EU data from 2020, 57.5 percent of the energy used comes from imports, which shows a slight decrease compared to 60 percent in 2019, but this is presumably due to the Covid-19 economic crisis. In 2000, this ratio was 56 percent, which means that the vulnerability of the EU has not improved significantly (European Commission 2022b).

The role of energy in European integration

The establishment of the EU was determined from the beginning by energy policy. When the community was born, the goal was to guarantee long-term peace between European countries, so the international supervision of the coal and steel industry was meant to support the reconstruction after the Second World War and prevent the rearmament of Germany and France (Zsolt 2022).

In 1951, with the signing of the Treaty of Paris (entered into force in 1952), the establishment of the European Coal and Steel Community (ECSC) marked the first step towards integration, in which common political interests were represented and cooperation was realised.

The aim of the international organisation founded with the participation of six countries (Belgium, West Germany, France, Italy, Luxembourg and the Netherlands) was to create a common European market for coal and steel, the most important energy

carriers at the time, providing conditions for free movement without customs duties or taxes and access to production resources.

The six member countries further deepened the integration on 25 March 1957, when, with the signing of the Treaty of Rome, the European Economic Community (EEC), i.e. the common market, was born. On the same day, the same six countries signed the second Treaty of Rome, which established the European Atomic Energy Community (EAEC or Euratom), another institution of European cooperation on energy policy. Both treaties entered into force in 1958. The signatories are committed to the peaceful use of nuclear energy and to cooperating in the development of the nuclear energy industry with the aim of ensuring their energy independence and security of supply with nuclear energy.

European integration in the field of energy policy has changed after the dynamic initial years, on the one hand, because the role of coal in energy supply has decreased and, in parallel, crude oil has become increasingly dominant. In addition, due to the different energy structure, supply routes and energy market structure of the member states, different interests appeared in the community, which stood in the way of deepening energy policy cooperation. Already in the 1960s, one of the biggest challenges of the EU's energy policy, the question of energy dependence, was formulated, while the energy markets of the member countries operated separately from each other because of protectionist policies.

In December 1968, the European Commission, in its report entitled *First Guidelines for a Community Energy Policy* (European Commission 1968), called it a "dangerous trend" that the common energy market had not yet been established, and set the goal of implementing a community energy policy that fully integrates the energy sector into the common market. "A community energy policy is also necessary in order to counterbalance within the community the risks arising from the great dependence of the Member States on imports and from insufficient diversification of the sources of supply" (European Commission 1968).

The global energy market of the 1960s was generally characterised by abundant availability and relatively low prices, and although difficulties sometimes arose, the community was able to ensure its energy supply under favourable conditions during that period (European Commission 1972). At the same time, in the outlook for the period between 1975 and 1985 published in 1972, the Commission stated as a problem that 95 percent of the EC's (European Communities) oil needs come from imports, and even if they increase supplies from the nearby North Sea, most of the supply still depends on distant suppliers. Meanwhile, the world oil market also underwent significant changes, which caused the price of oil to rise.

The 1973 oil crisis confronted Europe with how vulnerable it is to external suppliers and thus to energy supply disruptions. As a result, a new energy policy strategy was adopted in 1974 on the proposal of the Commission, which for the first time formulated community energy policy objectives and covered the period up to 1985 (European Council 1974). The strategy approved by the Council emphasised the importance of common energy policy and coordination between member states, referring to changes in the global energy market. The strategy indicated the improvement of the security of energy supply by developing nuclear energy production, the use of own hydrocarbon and solid fuel

sources, as well as the diversification of imports and the technological development of various energy sources. Finally, it specifically emphasised the environmental protection aspects in the field of energy production and energy consumption.

As a result of the second oil crisis, the Commission put the implementation of the community energy policy back on the agenda. The document *The Energy Programme of the European Communities* (European Commission 1979), published in 1979, included a revision of the 1974 energy strategy and set new goals in the key areas of energy policy; focused on the issue of dependence on petroleum, describing dependence on external energy supply as dangerous.

By the 1980s, it became clear that, although several strategic documents stated the need to create a common energy market and reduce dependence on crude oil through more rational energy use, as well as to increase the diversification of energy supply, this did not lead to the creation of a comprehensive European energy strategy. At that time, the community energy policy typically covered only the application and development of nuclear energy, but renewable energy was already mentioned as a means of diversification.

Meanwhile, following the oil crises of the 1970s, the world market price of oil fell again in the mid-1980s, and the energy supply was once again characterised by relative abundance. It was clear that a single internal market, of which energy is an integral part, could significantly increase Europe's competitiveness.

The Maastricht Treaty was signed on 7 February 1992 (entered into force on 1 November 1993), which marked a huge step forward in European integration: the three-pillar structure and the European Union itself were born. Although it was on the agenda for a long time that the field of energy should be included in the treaty independently, this had to wait until 2009 (the Treaty of Lisbon). Primarily, the member states with raw materials hindered the Commission's efforts to raise the energy policy to the community level (Langsdorf 2011). Maastricht can still be considered a step forward in that the economic provisions of pillar I extended to the field of energy together with the common market, but, for example, the development of the energy infrastructure and foreign relations were still only listed as goals.

By 1995, the white paper of the unified energy policy was born (European Commission 1995), which formulated three goals: general competitiveness, security of energy supply and environmental protection. The document named market integration, management of import dependence, promotion of sustainable development and development of energy research and technology as means to achieve the goals. The first internal energy market measures did not have to wait long: directives for the gradual opening of the internal markets of electricity in 1996 and natural gas in 1998 were published.

Meanwhile, the issue of environmental protection gained more and more attention. In 1997, the European Union signed the Kyoto Protocol, the treaty that extended the United Nations Framework Convention on Climate Change (UNFCCC 2015), in which it committed itself to reducing its greenhouse gas emissions by 8 percent by 2012 compared to the base year of 1990. It also became clear that the fight against global climate change at the nation state level can no longer bring the desired result, which has also set a common

goal for the European Union, and not least Europe has been devoting itself a leading role in this fight.

At its meeting on 8–9 March 2007, the Council defined an action plan entitled *Energy Policy for Europe* (EPE) for the period 2007–2009 (European Council 2007), which can be considered the birth of the first unified European energy policy. The adopted measures included the development of the internal electricity and gas market, security of energy supply, joint European action in energy external relations, increasing energy efficiency and the spread of renewable energies, as well as the development of energy technologies.

In the spirit of the integrated European climate and energy policy, it was declared that the EU would reduce greenhouse gas emissions by 20 percent by 2020 compared to the base year of 1990, increase energy efficiency to 20 percent, and also increase the share of renewable energies in total energy consumption to at least 20 percent (20/20/20). In 2009, the directive on increasing the share of renewable energies also set these targets broken down by member states (European Parliament and European Council 2009).

The Treaty of Lisbon was signed in 2007 (entered into force in 2009), in which – for the first time in the history of integration – energy policy was given a separate chapter. The goals of the EU energy policy were the operation of the energy market, the security of energy supply, energy efficiency and energy saving in order to protect the environment, as well as the development of renewable energy sources and the interconnection of energy networks. The issue of exploiting one's own energy sources, the choice between energy sources (energy mix) and the definition of the general structure of energy supply, which also includes maintaining external relations, remained within the competence of the member states.

European Energy Security Strategy

In 2014, the Commission proposed a comprehensive energy security strategy (European Commission 2014). Following the dispute between Russia and Ukraine in 2006 and 2009 and the armed conflict that broke out in early 2014, dependence on Russian gas imports has been a crucial problem for the EU, as Russia was the only supplier for six member states.

Also in 2014, the energy and climate policy framework until 2030 was presented, which further raised the 2020 targets. The EU has committed itself to reducing greenhouse gas emissions by 40 percent, increasing energy efficiency by 27 percent, and providing at least a 27 percent share of renewable energies in total energy consumption.

Energy Union: Energy security, climate policy and single market

In 2015, the Commission published the *Energy Union Strategy* (European Commission 2015), which seeks to bring together the energy security strategy with the energy and

climate policy framework. Its aim is to "ensure affordable, secure and sustainable energy for Europe and its citizens", which is based on five pillars: energy security, integrated internal energy market, energy efficiency, decarbonisation of the economy, research and innovation. Overall, the energy union seeks to respond to the most important energy challenges, namely, climate change, energy dependency and aging energy infrastructures.

In order to implement the energy union, in 2016 the Commission presented a package of proposals entitled *Clean Energy for all Europeans,* all elements of which were finally accepted by 2019 (European Commission 2016). As part of the package, the energy policy goals set until 2030 were revised and it was set to increase energy efficiency by at least 32.5 percent, as well as to increase the share of renewable energies to at least 32 percent of total energy consumption.

Also in 2015, the Paris Agreement was signed (UNFCCC 2015), which was supposed to replace the Kyoto Protocol that expired in 2012, but it took a long time to reach an agreement. Finally, at the Conference of the Parties (COP) to the UNFCCC held in Paris, world leaders agreed on new, ambitious goals in the fight against climate change. The most important goal of the agreement is to keep the increase in the global average annual temperature below 2 degrees Celsius compared to the level before industrialisation, but they try to ensure that the increase does not exceed 1.5 degrees Celsius.

European Green Deal

The EU continues to strive for a leading role in the global fight against climate change, therefore, in accordance with the Paris Agreement, it has set itself the ambitious goal of becoming the first climate neutral continent by 2050. The European Green Deal (European Commission 2019) presented in 2019 marks the way to this end by involving a number of policies in which energy policy plays a key role – this is called energy transition.

The document (European Commission 2019) prioritises the issue of energy security, and states that the integrated and digitalised common energy market must be created in line with the energy union. The rate of emission reduction and the spread of renewable energy sources must be accelerated, and energy efficiency must be increased with special emphasis on improving the energy performance of the buildings. The document highlights the importance of sustainable energy production, decarbonisation and modernisation in energy-intensive industries, in parallel it aims to phase out coal from energy production. Finally, it sets the development of trans-European networks, thus, the connection of energy infrastructures with innovative and intelligent technologies.

The member states submit energy and climate plans on their national contribution, which contain ambitious commitments in accordance with the energy union and climate policy aspects to achieve the EU goals. Overall, the European Green Deal in addition to net zero emissions intends to implement a new growth strategy taking into account the concept of a socially just transition.

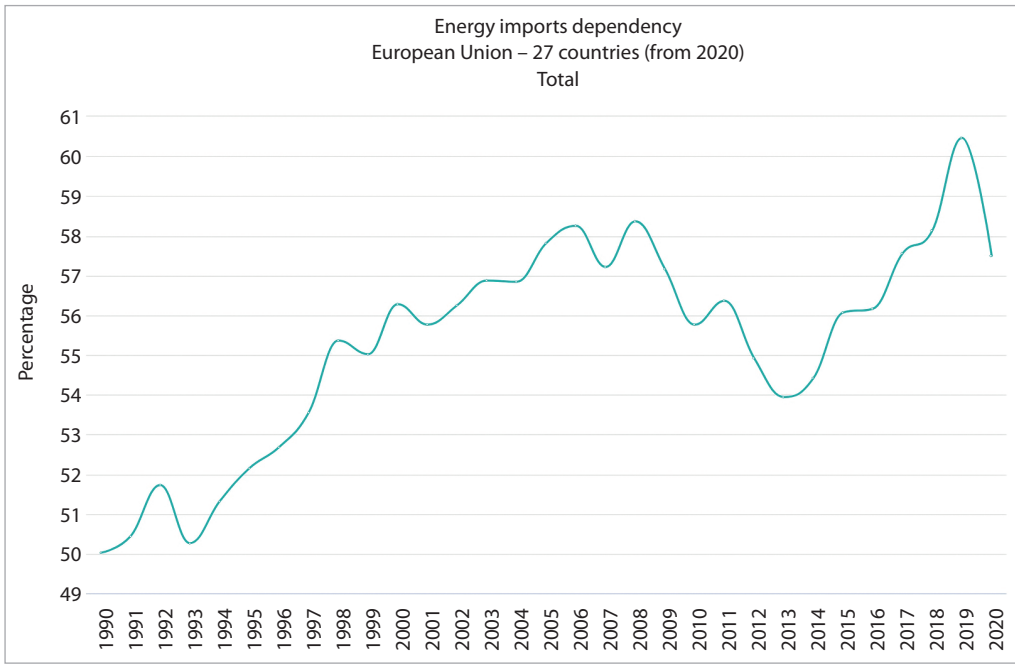

Figure 2: Energy imports dependency, EU, 1990–2020 (% of the total energy needs)
Source: Eurostat 2022

Fit for 55

On 14 July 2021, the European Commission adopted the *Fit for 55* package of proposals as part of the European Green Deal, which aims to strengthen the EU's global climate leadership and set the path for the EU to reduce greenhouse gas emissions by 55 percent by 2030. The package modernises existing legislation and introduces new policy measures (European Council 2021).

The package of proposals therefore deals primarily with large polluting industries, such as the reduction of transport emissions, also assigns real prices to pollution by expanding the Emission Trading System (ETS) not only in industry but also in the transport sector. *Fit for 55* further supports the spread of renewable energies and tries to provide adequate frameworks for weather-dependent solar and wind energy to obtain permits to connect to energy networks. It will increase the target for renewable energy in the energy mix from 32 percent to 40 percent, and the target for energy efficiency from 32.5 percent to 36 percent for final and 39 percent for primary energy consumption. It also covers the issue of land use, the energy performance of buildings, energy taxation and deals with the social effects of the measures.

Repower Europe

In February 2022, Russia attacked Ukraine, which put Europe and especially the member states in an uncertain situation, and the resulting crisis accelerated decision-making. The European Commission presented its REPowerEU plan on 18 May 2022 (European Commission 2022c), which served a dual purpose. While it is necessary to reduce the dependence on Russian fossil energy sources, which Russia uses as an economic and political weapon against Europe, it is also urgent to speed up the energy transition and thus the fight against climate change.

In fact, the REPowerEU plan did not include completely new measures, it builds on the *Fit for 55* package, only the priority and speed have changed (European Commission 2022d). The deadline for resolving dependence on Russia is 2030, but with the stipulation that it can be done much earlier (European Commission 2022a).

The most important areas of REPowerEU are: energy saving, clean energy production and diversification of energy supply, for which legal and financial instruments have been assigned. The spread of renewable energies and electrification is therefore accelerating, new partners must be agreed upon to achieve diversification, in industry, transport and the heating of buildings, which are most dependent on fossil fuels; the emission of greenhouse gases must be reduced through energy saving, energy efficiency and the use of alternative fuels.

Energy policy and foreign affairs in a strategic framework

On 18 May 2022 the EU also presented its External Energy Strategy (European Commission 2022e) as part of the REPowerEU plan, which links energy security with the global clean energy transition through external energy policy and diplomacy. Thus, it can simultaneously respond to the energy crisis caused by Russia's invasion of Ukraine and to the existential challenges of climate change. Implementation therefore requires close cooperation between foreign affairs and energy policy decision-makers, energy security can no longer be ensured solely by means of energy policy. The strategy also reveals that, just like the fight against climate change, the EU also strives to play a leading role in solving the energy crisis, and assumes responsibility for mitigating the global effects of the crisis through partnerships, especially with developing countries (European Commission 2022c). The support can be financial, technology transfer, assistance and trade cooperation.

The energy crisis also means that new solutions must be found: Europe is taking a leading role in the transition to green technologies and promoting a just and sustainable development. However, for this, it must ensure its energy security, the defining element of which is diversification, including the resilience of supply chains and access to critical raw materials required for energy transition.

Consequently, the strategy aims to reduce energy demand, save energy, promote energy efficiency and spread renewable energies, and promote the EU's clean energy industry globally (European Commission 2022f).

One of the biggest challenges facing the EU is dependence on Russian gas supplies, which it aims to completely eliminate. In order to diversify the gas supply, it forms partnerships for the purchase of liquefied natural gas (LNG), but it does not completely stop the supply of piped gas, and it also prepares for the trade of renewable hydrogen.

The EU takes part in ensuring that, despite the war, Ukraine's energy supply is continuous in the field of gas and electricity. The document also deals with the reconstruction of Ukraine's energy infrastructure. The strategy states that Russia's invasion of Ukraine threatens the energy security not only of the EU, but of the entire world, and sees the transition to green energy as the only solution.

Sanctions

From the very beginning, the EU strongly condemned Russia's invasion of Ukraine as unprovoked and unjustified military aggression, and urged a negotiated diplomatic solution to the conflict (European Council 2022a).

As a response, the EU introduced a series of sanctions against Russia: a total of nine sanction packages were adopted by the end of 2022. The purpose of the sanctions is to weaken the Russian economy so that it does not have access to the technologies and markets it needs to generate revenue and continue the war in Ukraine. Energy plays a key role in this, as Russia has enormous fossil energy reserves, and most of the state's income comes from their export, and one of its largest markets is the EU.

Even before the attack on Ukraine, Europe was hit by ever-higher energy prices, then, after the start of the invasion, Russia reacted to the news of the sanctions, and by using energy as a weapon further worsened the situation of the energy market with high prices and endangering the security of supply.

On 8 April, the EU adopted its fifth package of sanctions, which included a complete ban on the import of coal and other solid fossil fuels from Russia. Coal was then the first energy source from Russia to be restricted by the EU. The measure entered into force on 10 August (Euronews 2022). Considering that ten EU member states have already phased out coal, and another ten have set the date for the complete phase out of coal in the coming years (European Commission 2022g), this measure made it less difficult to ensure the energy supply of EU member states. Natural gas and crude oil were the bigger challenge.

In preparation for the winter, the EU started diversifying its gas supply, while Russia significantly reduced its gas exports to the EU. While Russia's market share was around 50 percent in the second half of 2021, by August 2022 the share had dropped to 17.2 percent (European Council 2022b). At the same time, the EU reduced gas consumption by 15 percent (European Commission 2022h). The EU replaced most of the Russian gas

with LNG, which it bought primarily from the United States, but Norway, Algeria, Qatar and Nigeria were also suppliers.

The ban on the import of Russian crude oil and refined petroleum products was included in the sixth sanction package adopted on 3 June (European Council 2022c). The restriction on crude oil came into effect on 5 December 2022, and on refined petroleum products on 5 February 2023. Exceptions to the ban on the import of crude oil are those countries that do not have direct access to seaports and therefore can only get oil via pipeline, the sanction still affects 90 percent of Russian exports to Europe, so Russia loses significant revenue (European Council 2022d). The sanctions were designed in cooperation with the G7 countries in such a way that the price of oil on the world market remains in balance, the details of which were provided for in the eighth package of sanctions adopted on 6 October.

Challenges of the future

The EU's crisis management is particularly important not only for Europe, but also for the rest of the world, as Russia's invasion of Ukraine goes far beyond the region due to global energy commodities. The world is in the middle of "the first truly global energy crisis", as Fatih Birol put it (Euractiv 2022). The executive director of the IEA also said that this crisis could be a turning point in the history of energy by accelerating the clean energy transition. "Energy security is the number one driver (of the energy transition)."

Achieving the set ambitious goals requires a strong commitment on the part of the member states, however, due to the differences between the energy sources at their disposal, geographical location, and historical and geopolitical conditions, divisions are characteristic in several areas of energy policy (Leimbach–Müller 2008). In the years since the end of the Cold War, the member states tried to represent their interests in a constantly changing environment, which is why we can only talk about a common European energy policy since the Treaty of Lisbon. However, you can distinguish cooperation between the member states along certain interests, from new ad hoc alliances formed as the energy transition process takes place.

The issue of the energy transition divides the member states into two groups, the axis being drawn between the old and the new member states (Mata Pérez et al. 2019). The states that joined between 1958 and 1995, with their more developed energy markets and modern energy infrastructure, see the rise of renewable energies as an economic opportunity, which reduces import dependence and greenhouse gas emissions. For them, the integrated market means joint management of challenges.

In the states that joined after 2004, the energy infrastructure is old and outdated, so in its current state it is not suitable for providing significantly better connections with other countries in order to improve the security of supply. Energy markets are therefore less resilient, and the applications of renewable sources are also less developed, thus they see a greater risk in the energy transition and market integration. The countries

of the region must therefore bear huge costs in order to realise modernisation in all areas of energy.

Accelerating the energy transition and the integration of the energy sector has many positive benefits for the EU, but it also brings serious challenges. Throughout the energy crisis, too much emphasis is placed on the security of supply and on ensuring the right amount of natural gas. The EU thus risks that the investments focus on the development of the infrastructures necessary for natural gas transport, such as the increase of LNG capacities, the return on which is increasingly uncertain in the long term in view of the changes in the energy market, while other dimensions of the developments may be unjustifiably pushed into the background (Dennison–Zerka 2022).

Parallel to all this, the use of renewable energies is increasing as a result of the energy transition, however, the European industry is not yet sufficiently prepared and does not have the necessary raw materials and tools, while China, for example, plays a leading role in the renewable industry. The EU may thus find itself in a trap where it replaces one kind of foreign energy dependency with another similar foreign energy dependency.

Presumably, some form of dependency will be present in the future as well, but ideally this will not mean one actor. The EU must be able to ensure that the renewable energy industry obtains and processes the necessary minerals that form the basis of the technology. The EU must be prepared that, on the one hand, their quantity does not necessarily meet the global needs associated with the energy transition, which generates competition and price increases, on the other hand, it is often necessary to maintain trade cooperation with countries with unstable political systems, which will therefore not always be reliable partners. At the same time, a leading role must also be played in the field of clean technology innovation (Bordoff–O'Sullivan 2022).

Conclusions

Overall, the European energy policy has come from complete fragmentation to a phase where integration is gradually realised, while we witness the complete transformation of energy-related areas. The EU is committed to the fight against climate change, and considers the widest possible use of renewable energies to be a particularly important tool for this. Energy produced in Europe, such as renewable energy, also serves as a tool to reduce the EU's energy dependence by bolstering diversification.

Accordingly, the European Green Deal laid the foundations for reducing import dependence, which has been a challenge since the 1950s. The integration could not be realised for a long time precisely because of the different interests of the member states, but the impact of the common market on the security of supply and the fight against climate change moved the process in the direction of cooperation, then Russia's invasion of Ukraine accelerated solutions to strengthen energy security and realise the energy transition.

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