

Ukraine Crisis: The Trigger for the EU to Cut Its Dependence on Russian Fossil Fuels

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Abstract

The escalation of the conflict in Ukraine in February 2022 has added new concerns about the EU's energy security. By promoting renewable energy sources and using various methods of environmental protection, the EU is committed to becoming climate neutral by 2050. In this context, the main pillars and drivers of EU energy policy are focused on improving energy security, reducing CO₂ emissions and sustainable economic development.

The aim of this paper is to assess the impact of the crisis in Ukraine on EU-Russia energy relations and the achievement of the EU's climate neutrality target.

In order to achieve the proposed objectives, this paper is the result of a mixed research design, based on a quantitative and qualitative component, respectively. The topicality of the debate on EU-Russia energy relations is reflected in the field of scientific research through significant literature. Official documents of the European Commission and the European Parliament, academic articles and studies by various prestigious think tanks were analyzed. The research is also based on data published by Eurostat.

It has been established that the crisis in Ukraine (2022) and its consequences require a thorough reassessment of how the security of energy supply throughout the Union will be guaranteed. The new reality could be a trigger for the EU to reduce its dependence on fossil fuels in a shorter time than originally planned and to accelerate the use of renewable resources.

Keywords

European Union, Russian Federation, energy, restrictive measures, natural gas, oil.

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Introduction

The European Union is currently facing many energy challenges, including import dependence, limited diversification, volatility in energy prices, reduction of greenhouse gas emissions and security of supply (Ciucci, 2021).

The EU is heavily dependent on imported energy resources, which makes the EU bloc vulnerable to risks of supply disruption and rising fossil fuel prices. Gas supply interruptions in the north and east of the old continent in 2006 and 2009 (Siddi, 2015, 2017) and the crisis in Ukraine (2014) (Loskot-Strachota and Zachmann, 2014) have exacerbated the European Union's over-reliance on Russian energy resources. The escalation of the conflict in Ukraine in February 2022 has added new concerns about the EU's energy security. In this context, the main pillars and vectors of EU energy policy are the focus on improving energy security, reducing CO₂ emissions and sustaining the economy. Thus, in the transition to a more competitive economy and a more secure energy system, sustainable energy plays a significant role.

In recent years, the European Union has set ambitious goals, the achievement of which will allow for more efficient and cleaner use of energy. The EU is committed to becoming climate neutral by 2050 (European Commission, 2019b). By promoting renewable energy sources and using various methods to protect the environment, the EU bloc aims to become a world leader in green energy.

The crisis in Ukraine (2022) and its aftermath call for a thorough reassessment of how the security of the entire Union's energy supply will be guaranteed. The new reality may be a trigger for the EU to rethink its

energy strategy, reduce its dependence on fossil fuels in a shorter timeframe than originally planned, and accelerate the use of renewable resources.

1. Review of the scientific literature

The energy field plays an important role in studies on EU-Russia relations. In the context of climate change, but also of the crisis in Ukraine, this topic has enjoyed increased interest from the scientific community. Ensuring energy security has become a major challenge for the European Union over the last two decades. At the heart of researchers' concerns is the European Union's energy security and the diversification of its natural gas supply.

Sullivan and Northam (2022) consider the rapid implementation of alternatives to natural gas to be a challenge for the EU. Studying the impact that changing the source of supply would have on economic competitiveness, Mäe (2020) determined that replacing Russian natural gas with gas imported from elsewhere in the world would reduce Member States' GDP by an average of 0.13%. According to the same author, replacing Russia as a source of supply would be a heavier burden for Central and Eastern European countries than for Western European countries (except Austria). Rodríguez-Fernández, Fernández Carvajal and Ruiz-Gómez (2020) analyzed the level of security of energy supply of EU Member States in the period 2005-to 2010. The results of the study show that in order to improve the external dimension of the EU's energy security, it is necessary to diversify gas suppliers and reduce external dependence. Medlock, Jaffe and O'Sullivan (2014) indicate that reducing dependence on Russian natural gas involves diversifying suppliers through both pipelines and LNG regasification terminals. Dickel et al. (2014) consider that by 2030, the EU's main alternative energy source for Russian gas imports will be LNG. Analyzing the problems that the EU may face in the event of a prolonged supply disruption, McWilliams et al. (2022) pointed out that the most effective solution in this case also includes adjustments on the demand side to reduce gas dependence, rather than just replacing Russian gas with imports from another country. Jaller-Makarewicz and Williams-Derry (2022) emphasize that looking to the future, the EU must redefine energy security not as a diversity of gas infrastructure, but as a true diversity of energy sources that is immune to political influence and may reduce the risk of future energy crises.

2. Research methodology

This paper, which is an analysis of the cooperation between the European Union and Russia in the field of energy, is based on two components: qualitative and quantitative. The study of information gathered from official EU documents (directives, regulations, strategies and reports of the European Commission), academic articles and studies published by various think-tank organizations (Bruegel, Institute for Energy Economics and Financial Analysis (IEEFA), Oxford Institute for Energy Studies (OIES)) make up qualitative research. The processing of statistical data, collected from the website of the EU Statistical Office - Eurostat is the quantitative component. Following access to Eurostat databases, statistical data on trade in goods between the European Union and the Russian Federation for the period 2010-2020 (quantity, value and type of fuel exported from Russia to the EU) were collected and processed.

3. Results and discussion

The main sources of primary energy used in the EU in 2020 were oil and petroleum products (32.65%), natural gas (24.38%), renewable energy (17.9%). Nuclear power accounted for 13.06% of domestic primary energy consumption, solid fuels - 10.46%, and non-renewable waste accounted for 1.06% (see Figure no.1). About 2/3 of the energy consumed in the EU during 2020 came from fossil fuels: 32.65% from oil and its derivatives, 24.38% from gas and 10.46% from solid fuels.

Energy is one of the areas where competencies are shared by the European Union and the Member States. Therefore, each EU Member State has full freedom to decide what primary energy resources it uses to meet the needs of its population and national economy. Thus, in the Netherlands, Italy, Hungary, Slovakia, Romania, the main source of energy is natural gas. France is the main consumer of nuclear energy, and Poland, Estonia and the Czech Republic use solid fuels as their primary energy resource. Estonia has a unique energy mix among the EU Member States. Estonia's main energy resource is domestically produced bituminous shale, which gives this Baltic country a high degree of energy independence. However, the burning of oil shale also has certain side effects such as very high carbon dioxide emissions and the formation of a large amount of slag. At the other end of the scale are Sweden, Finland, Denmark and Latvia, which have the highest share of renewable energy in their energy mix. (see Figure no.2)

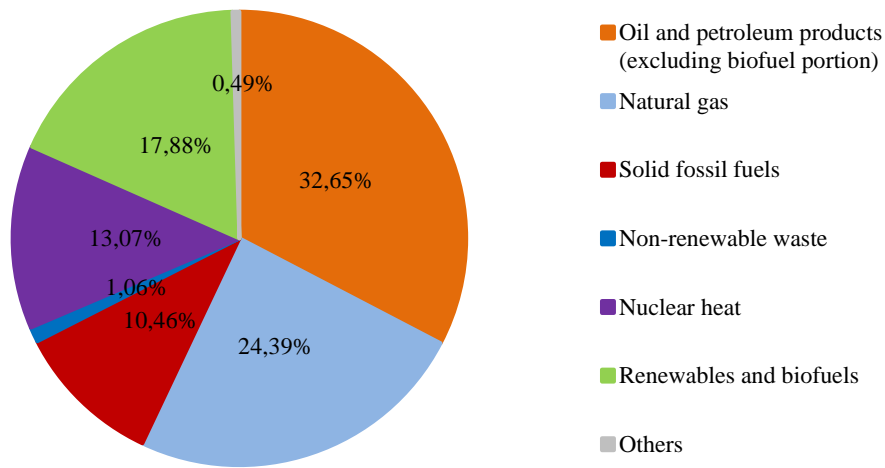


Figure no. 1. EU Gross inland consumption 2020
Source: Author's projection using Eurostat database, 2022

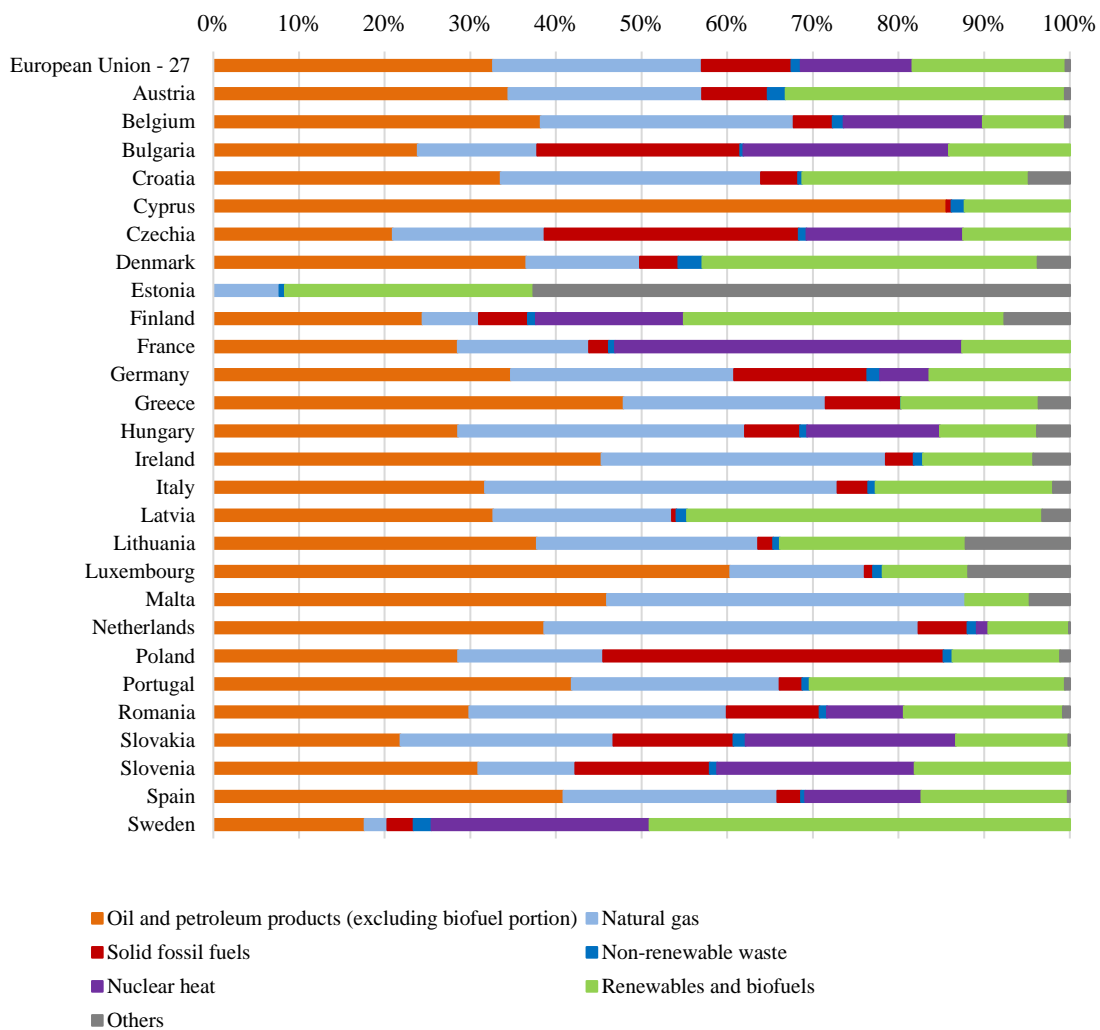


Figure no. 2. Energy Mix 2020
Source: Author's projection using Eurostat database, 2022

In 2020, according to data provided by the statistical office of the EU – Eurostat (European Commission, 2022a), 43.20% of the total volume of natural gas imported by the EU came from Russia. Also, imports from the Russian Federation (see Figure no. 3, 4, 5) accounted for 25.85% of oil imports and 53.96% of total coal imports.

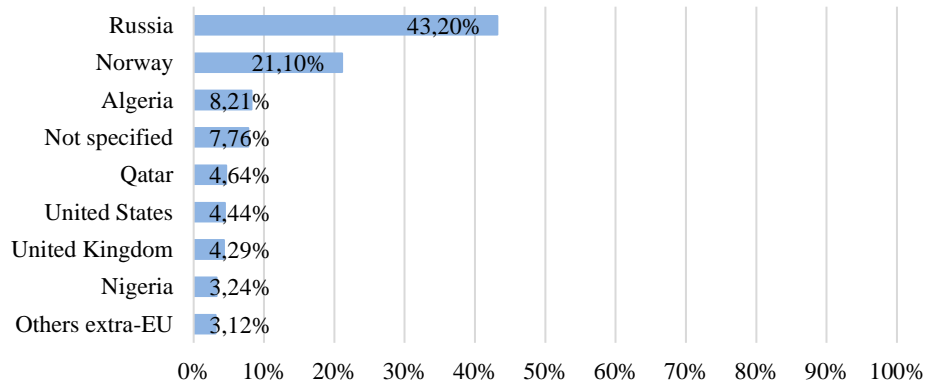


Figure no. 3. Extra EU imports of natural gas – 2020
Source: Author's projection using Eurostat database, 2022

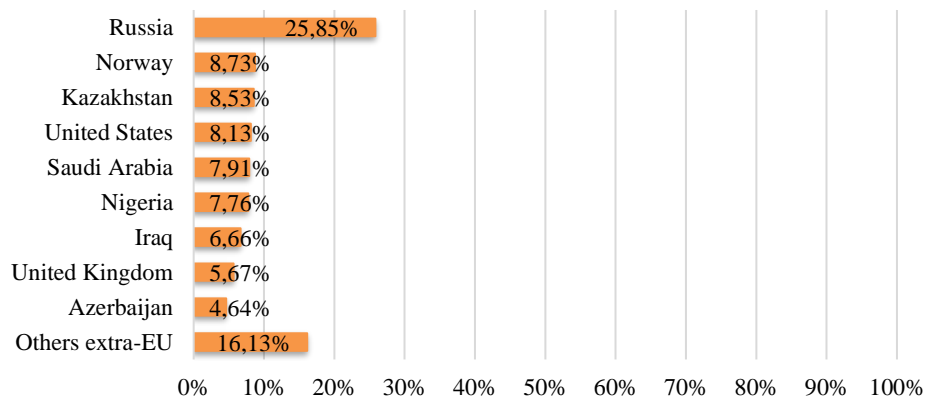


Figure no. 4. Extra EU imports of crude oil – 2020
Source: Author's projection using Eurostat database, 2022

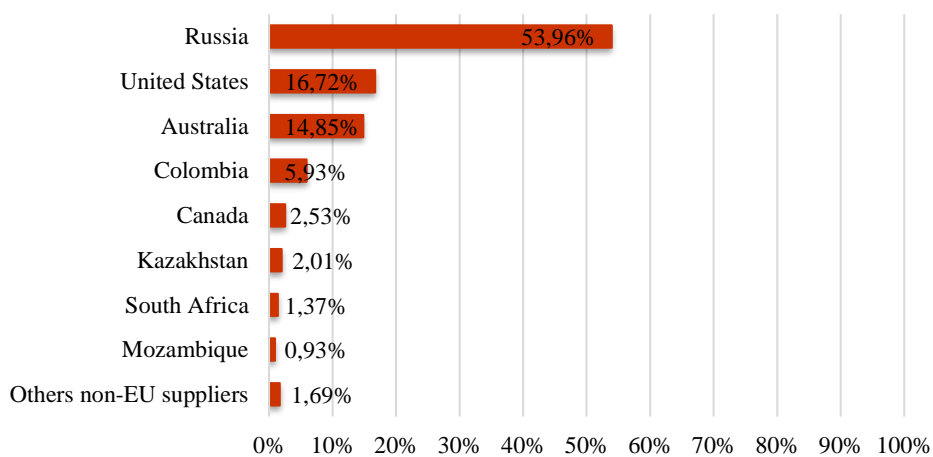


Figure no. 5. Extra EU imports of hard coal – 2020
Source: Author's projection using Eurostat database, 2022

Import dependence, energy price volatility, limited diversification, the decarbonization of the economy, the threats posed by climate change and the need for stronger integration and interconnection in the internal energy market are the EU's recent energy challenges.

Over the last 10 years, the EU has made a number of commitments in the field of energy, adopting legislation that sets out the vision and strategies of the Community bloc and at the same time sets out the guidelines and steps for the Member States.

The European Energy Union Strategy was adopted by the European Commission in February 2015 and validated by the European Council in June of the same year. The strategy focuses on five dimensions: *energy security, solidarity and trust; a fully integrated European energy market; energy efficiency contributing to moderation of demand; decarbonising the economy, and Research, Innovation and Competitiveness* (European Commission, 2015).

In 2016, the European Commission proposed the adoption of the legislative package entitled *Clean energy for all Europeans*. This package is an important component of the Energy Union Strategy, which aims to provide affordable, secure and sustainable energy for European citizens and businesses. The main objectives of this initiative are: to give priority to energy efficiency, to become a world leader in renewable energy and to ensure a level playing field for consumers (European Commission, 2019a). The purpose of this strategy is to facilitate the transition from a fossil fuel-based energy sector to one based on clean energy and to ensure compliance with the EU's international commitments under the Paris Agreement (2015) in the field of climate change.

The Clean Energy Package includes proposals on important areas such as the organization of the electricity market, energy efficiency, security of supply, renewable energy sources and governance rules. The overall goal of this legislative package is to transform the EU into a low-carbon economy by 2030. In May 2019, the latest regulations that make up this legislative package were adopted.

Another European Commission initiative, launched in December 2019, is the European Green Deal. It sets out a growth strategy, which aims to transform the EU into a modern, competitive and resource-efficient economy with no net greenhouse gas emissions by 2050 and economic growth, be disconnected from the use of resources. Achieving the EU's neutrality target implies a significant decrease in current levels of greenhouse gas emissions over the next decades. As an interim step towards achieving this goal, the European Union has committed itself to reducing net greenhouse gas emissions by at least 55% by 2030 compared to 1990. In order to meet the proposed targets for 2030, the European Commission has launched the legislative package *Fit for 55*. The purpose of this set of proposals for revising and updating European Union legislation and implementing new initiatives is to ensure that EU policies are in line with the new climate targets set (European Council, 2022b). In 2021, the European Climate Law was adopted as part of the European Green Deal. Thus, the goal of achieving climate neutrality in 2050 has been transposed into law.

Following the escalation of the armed conflict between the Russian Federation and Ukraine, the European Commission has proposed a REPowerEU plan aimed at increasing the resilience of the EU energy system and ensuring the EU's independence from fossil fuels in the Russian Federation before 2030. In March In 2022, the Commission outlined the outline of this initiative. In addition to accelerating the transition to clean energy, the REPowerEU plan sets out a series of measures to mitigate the impact of rising energy prices in the EU and diversify the natural gas supply for the winter of 2022-2023. The REPowerEU plan will focus on two pillars: diversifying the supply of natural gas and reducing the use of fossil fuels in homes, buildings and industry. Increased imports of LNG and pipelines from suppliers outside the Russian Federation and increased production and imports of biomethane and hydrogen will lead to the achievement of the first pillar, namely the diversification of gas supply. Improving energy efficiency, making greater use of renewable energy sources and removing bottlenecks in infrastructure will help achieve the objectives of the second pillar (European Commission, 2022c).

The European Commission estimates that the full implementation of the proposals in the "Ready for 55" legislative package will help reduce annual fossil fuel consumption by 30%, the equivalent of 100 billion cubic meters, by 2030, and the adoption of REPowerEU measures would phase out at least 155 billion cubic meters of fossil gas, which is the equivalent of the volume imported by the EU from the Russian Federation in 2021. Applying these measures will reduce the EU's over-reliance on a single supplier (European Commission, 2022c).

Shortly after the Communication on the REPowerEU Plan, an informal meeting of Heads of State or Government took place on 10-11 March 2022 in Versailles, France. During this meeting, three key dimensions for the EU were addressed, including the reduction of energy dependencies. In this regard, the leaders of the European Union agreed that the dependence of the Community bloc on gas, oil and coal imports from the Russian Federation should be phased out as soon as possible (European Council, 2022c).

Subsequently, in order to ensure security of energy supply, the European Commission presented a legislative proposal providing for the introduction of an obligation for the Member States to store natural gas at a minimum level of 80% for winter 2022-2023 and 90% for subsequent years (European Commission, 2022b).

Since March 2014, the EU has gradually imposed restrictive measures against Russia in response to the crisis in Ukraine. In turn, the Russian Federation has adopted counter-sanctions, which have largely targeted Western agricultural exports. In February 2022, the EU significantly expanded its sanctions against the Russian Federation in response to Russia's decision to recognize the independence of the Donetsk and Luhansk regions and the escalation of military conflict in Ukraine. The EU has imposed various types of restrictive measures: diplomatic measures, individual restrictive measures (asset freezes and travel restrictions), restrictions on economic relations with Crimea and Sevastopol and areas not controlled by the government in the Donetsk and Luhansk regions, economic sanctions, restrictions on the media and restrictions on economic cooperation.

The economic sanctions adopted against the Russian Federation by the European Union target the financial, trade and energy sectors, as well as the transport, technology and defense sectors. EU restrictive energy measures do not allow coal imports from Russia, ban exports to Russia of petroleum refining products and technologies, and prevent new investments in the Russian energy sector (European Council, 2022a).

The United States has banned all imports of natural gas, coal, oil and petroleum products from the Russian Federation. Canada, Australia and the United Kingdom have also restricted imports of Russian oil. Among fossil fuels, the first target of EU restrictive measures against Russia was coal. The European Union has decided to stop delivering Russian coal from August 2022.

The construction of the Nord Stream 2 pipeline, through which Russian gas was to reach Germany directly, bypassing Ukraine, was completed in September 2021. The pipeline was to become operational following approvals from German and European Union regulators. However, due to the crisis in Ukraine, in February 2022, Germany suspended the approval process, thus giving up the commissioning of the controversial gas pipeline.

As of April 2022, Latvia, Estonia and Lithuania stopped Russian gas imports. On April 2 of the same year, the Lithuanian government declared that the country had completely given up importing gas from the Russian Federation. Shortly, on April 7, 2022, the Tallinn government also announced that it would cease importing gas from Russia by the end of 2022. The Baltic countries have been trying for several years to reduce their dependence on energy imports from Russia, especially on Russian gas. To strengthen Lithuania's energy security, an LNG terminal was launched in 2014 in the port city of Klaipeda. Neither of the other two Baltic countries currently has its own LNG terminal. Thus, in order to solve this problem, Estonia decided to cooperate with another country in the region, namely Finland. In order to guarantee the supply of gas to Estonia and Finland, the two countries jointly agreed to the joint leasing of a floating LNG terminal. The establishment of this floating LNG terminal is planned to be by fall of the 2022.

The simplest solution that the EU Member States can apply in the near future to diversify energy sources and reduce the bloc's dependence on the Russian Federation is to reopen and extend the period of use of coal-fired power plants. If until now it was considered that in order to replace the conventional resources with the renewable and sustainable ones, first of all, the coal-burning will be given up, in the current context several EU countries have announced that they will continue to use this type of fossil fuel. Member States planning to use coal to replace Russian gas will have to take into account the EU's climate targets. Given the European Union's strategy to reduce carbon emissions, coal is not a reliable long-term solution. In the short term, one solution would be to use conventional fuels in combination with sustainable resources.

Conclusions

In the light of recent events in Ukraine, the EU's main energy goals are to increase the resilience of the energy system at the EU level and to reduce its dependence on fossil fuels in the Russian Federation. In the medium and long term, the objectives of the European Green Pact coincide with those related to the European Union's energy security. Maintaining existing EU sanctions, adopting other restrictive energy measures against Russia, and implementing the REPowerEU plan represent the starting point in reducing dependence on fossil fuels in Russia, while also contributing to the EU's energy transition. The diversification of EU energy sources, the development of LNG stations, the development of the internal transmission network and the development of domestic renewable energy production are the main ways in which the EU can eliminate its dependence on Russian oil and gas. The economic sanctions and the implementation of the REPowerEU plan involve certain financial costs that will affect both the budgets of the EU Member States and the final consumers. It also takes time to achieve your goals. Thus, Russian gas will continue to be important for the European Union, at least until the development of alternative sources of supply.

At the time of writing, the latest available information has been studied but taking into account the fact that, in the current context, new circumstances arise every day, the subject needs constant updating. The paper complements current studies in the approached field and can be a starting point for constructing evolutionary scenarios on EU-Russia energy relations and/or the EU's energy transition.

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