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THE RUSSIAN-UKRAINIAN CRISIS AND THE ENERGY MARKET

Preliminary communication
UDK: 620.9:(327:341.31)](470+571):(477)
JEL classification: B17, H56, N40, N70
DOI: 10.17818/DIEM/2023/1.10
Accepted for publishing: July 7, 2023

Abstract

The paper deals with the current crisis, the Russian-Ukrainian war, and events on the energy market. Emphasis is placed on the European Union since Russia is of strategic importance in the trade of major energy products. Namely, the majority of Russian energy exports on a daily basis is directed towards Europe. Nevertheless, Russia's aggressive venture was strongly condemned by the member states of the European Union, which are also members of NATO. Guided by the purpose of a peace alliance, despite energy connectivity, the European Union introduced a series of restrictive measures. Thus, it took an economically quite hostile position. In response to the restrictions, Russia predictably manipulated the energy supply chain and threatened Europe's energy survival. The European Union faced enormous challenges due to disturbed peace, social insecurity, energy uncertainty, inflation, threatened business and the gap between supply and demand. Therefore, this paper takes an analytical approach to this problem and analyses potential strategic solutions for both Europe and Russia. The end of the war is indefinite and still invisible, but what is doubtless is that the consequences in energy flows, strategic approaches and trends in the energy aspect will change forever.

Keywords: Energy market, Russian-Ukrainian war, European union

1. INTRODUCTION

Global dependence on basic energy sources in an economic and productive context is not new. Since ancient times, there has been dependence on fossil fuels as the main sources in the process of transformation of natural forces for the performance of industrial and other processes and activities. Europe has been successfully depleting its own reserves for many years. However, they are drastically reduced and quite exhausted. Therefore, as an economic superpower, it is dependent on energy imports. Although Europe strives to switch to renewable energy sources, the process of transformation and implementation of energy infrastructure is long-term and complex. Consequently, dependence on oil and gas is still quite pronounced. For many years, one of the main European strategic partners in energy trade has been Russia as a major global producer of oil and natural gas (Smialek & Swanson, 2022; Paillard, 2010). In the context of Europe, Russia meets slightly less than half of Europe's natural gas needs and a quarter of its oil needs (Baran, 2007). Europe's great dependence on Russia has been usurped by the current war which has put Europe in an ungrateful position. In addition, trade conditions have been affected by a series of sanctions against Russia by European countries. Although they harmed themselves, as members of the NATO

alliance, they expressed their clear disagreement with the disturbed global peace and stability. The consequences were immediately visible in the form of large fluctuations in the price of energy, interruption of trade flows and very strained relations between business partners and questionable energy supply security. Given that the war situation is not calming down, alternative solutions are urgently needed for both Europe and Russia. Therefore, the goals of this paper are: (i) to present a strong correlation between the energy sector and economic prosperity, i.e. to highlight the mutual dependence of economic growth and development and the energy market; (ii) to emphasize Europe's long-term dependence on Russian energy sources, (iii) to analyse the consequences of a significant increase in the price of oil and gas, and (iv) to study possible solutions that are imposed on Europe, but also on Russia's exit strategic turn.

The paper is structured in six chapters. After the introduction, the importance of the energy market for the economy and the importance of Russia as an energy supplier to the member states of the European Union were highlighted. Then follows the analysis of the newly created situation on the energy market due to the Russian-Ukrainian war. This is supported by future forecasts and potential strategic solutions that should lead to the stabilization of the energy market. The paper ends with concluding remarks.

2. ENERGY MARKET AND GLOBAL ECONOMY

The energy sector is closely related to economic growth and development (Pao & Fu, 2013). Energetics are necessary for a functioning economy, and it was precisely the availability of energetics that directed the prosperity of the national and global economy (Brown et al., 2011). In other words, the contribution of energy is crucial (Merkulova et al., 2019). Energy has driven historical human development (Pillot et al., 2019); from the historical transformation of society from agrarian economies, through the initial industrial revolution and further industrial progress to the modern IT and communication era (Yan et al., 2018; Stern & Kander, 2012; Fouquet, 2009). This is exactly why the energy market is one of the fastest growing markets (Asif & Muneer, 2007). The complexity of the energy market is inevitable, and the necessity of this sector is unquestionable (Bale et al., 2015). It encompasses a whole series of processes that manage the market of electrical energy or other energy sources through supply, trade relations and financial issues (Mousavi et al., 2021).

Efficient energy consumption is an urgent need that leads to the improvement of the efficiency of all sectors of the economy and the increase of GDP (Menegaki, 2014; Lee, 2006). However, the efficiency of the energy sector depends on numerous factors, among which stand out factors such as climate change, the availability of energy resources at low market prices, the structure of energy consumption, socioeconomic circumstances, the level of development of the entire economy and the development of industrial production, which implies the presence of high technology (. Based on all of the above, it can be said that energy efficiency is manifested through ways of using energy for economic purposes. The implementation of energy efficiency implies economical production, rational investments, energy independence, and optimization of technological processes.

The correlation between energy consumption and economic growth is the subject of numerous research in the 21st century from different methodological points of view (Pirlogea & Cicea, 2012; Belke et al., 2011; Apergis & Payne, 2010; Wolde-Rufael, 2009). However, the bulk of the research approach is based on the relationship between energy consumption and income, and the results confirm a cause-and-effect relationship between economic growth and energy consumption (Rafiq & Salim, 2011; Soytas & Sari, 2006). The reasons lie in the fact that the functioning of all economic activities requires energy as an initial input, and, on the other hand, the efficiency of the energy sector is impossible without the financial support of the national economy (Proskuryakova & Kovalev, 2015; Stern, 2004).

Delving into different research approaches in more detail it was observed that fossil fuels are still the primary input and the biggest indicator of real production despite the increasing implementation of renewable sources (Ewing et al, 2007). Every impact on the energy market of non-renewable energy sources has a direct and intense impact on production costs. Among other things, it has been proven that diversification in energy consumption has the same significance for economic growth as employment (Sari & Soytas, 2004). However, conflicting results have also been observed in the literature. For example, Payne (2009) failed to demonstrate a link between total energy consumption, regardless of source, and actual production in the US. Also, there is a lack of causality in the literature between the consumption of non-renewable energy sources and economic growth in sustainable countries (Pao & Fu, 2013). Nevertheless, research has been conducted that refers to the correlation between sustainable economic growth, balanced use of natural resources and social inclusion (Ullah et al., 2022; Durran et al., 2015).

3. THE IMPORTANCE OF RUSSIA IN SUPPLYING EUROPE WITH ENERGY SOURCES

The European Union is dependent on the import of non-renewable energy sources, more precisely on the energy sources that dominate the market, namely oil and gas. The majority of the current European energy market is covered by imports (Chalvatzis & Ioannidis, 2017). As economic activities intensified after the global recession, so did the need for energy sources. Russia was a logical choice and the most relevant supplier due to its geographical proximity and infrastructural connections and due to the fact that it is a leader in the production of (primarily) gas. An additional mitigating circumstance is the fact that the demand for gas is progressively increasing due to a number of advantages it possesses. The reason for such great dependence, in addition to everything mentioned, is the ownership between refineries in EU countries and the largest Russian energy companies.

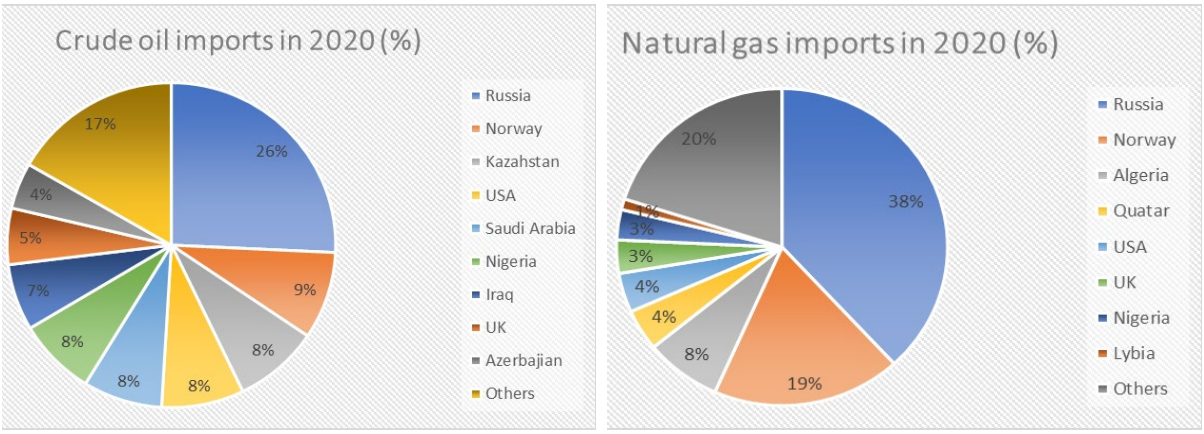

Figure 1 Import of oil and natural gas into the European Union in 2020 (%)

Source: Eurostat, Main origin of primary energy imports, EU, https://ec.europa.eu/eurostat/statistics-explained/images/e/e8/Main_origin_of_primary_energy_imports%2C_EU%2C_2010-2020_%28%25_of_EU_imports%29_v6.png

Statistics show that the most dominant partner in oil imports is certainly Russia (25-35%), and in a much smaller share Norway (7-9.5%), Kazakhstan (6-8%), Saudi Arabia (5-9%), UK (4-5,5%), Nigeria (4-7,5%), Iraq (3,5-8,5%), Azerbaijan (4-5%) and the USA which appeared as a partner of the European Union in 2015, but the cooperation is growing intensively (from the initial 0.2% to around 8.8% in 2021). As far as gas is concerned, Russian dominance is still present (30-40%), although a relatively large share is imported from Norway (19-25%) as well. In addition, demand is also present for Algerian (7-13%), Qatari (3-5%), Nigerian (1.5-3.5%), British (2.5-3.5%) and Libyan

gas (1-2.5%). As with oil, the USA is becoming an increasingly important partner, with which cooperation began in 2016, but has a progressive upward trend (4% in 2020).

When observing individual members of the European Union, it can be noticed that countries that are geographically relatively close to Russia, such as Bulgaria, Hungary, Romania, Slovakia, and Finland, are most dependent on Russian oil. They import between 75% and 100% of Russian oil because it is the most optimal supplier due to cheaper transportation via the main oil pipeline. The remaining members of the European Union import up to a quarter of their oil from Russia, except for Lithuania and Poland (this share is between 50% and 75%). Furthermore, the share of gas imports to the individual EU countries from Russia is dominant among the countries of Central and Eastern Europe. In principle, only a few countries (Belgium, Denmark, Ireland, Spain, Croatia, Malta, the Netherlands, Portugal) import up to a quarter of their gas from Russia. The remaining countries depend between 50% and 100% on Russian gas (Eurostat, 2022).

4. CHANGES IN THE EUROPEAN UNION ENERGY MARKET DUE TO THE RUSSIAN INVASION OF UKRAINE

The Russian-Ukrainian war caused numerous changes in the international market. A period of high risk of deepening recession has begun (Mbah & Wasum, 2022). Initially, there were numerous oscillations in energy prices. More precisely, unrealistically high prices had recorded maximum multi-year levels in accordance with the already reduced reserves in the producing countries. The inflationary change at the annual level amounted to almost 4% with the beginning of the fourth quarter of 2021 (Šonje, 2021). Turbulence continued at the beginning of 2022. Prices continued to rise slightly, but drastic changes occurred with the beginning of the war. In one day, the price rose by as much as 9%, and in just ten days from the start of the invasion, oil prices rose by over 30%. Thus, the price of oil was above 100 dollars per barrel for the first time in seven years. The situation further worsened when European countries reacted through an embargo and thus expressed their disagreement with Russian actions (Beyza Kılıç, 2022).

On the other hand, the global market was dominated by the demand for gas due to the economic recovery after the COVID pandemic. Until the beginning of the war, gas prices on stock exchanges ranged from 69.8 to 96.5 euros per megawatt-hour. Before the very beginning of the war, there was a sudden jump in the price of gas by 40%, and the consequence of the war is a further unrealistic price increase. Namely, on March 7, 2022, the price of gas was 227.21 euros, and on August 26, 2022, it was a record 338.90 euros (Trading economics, 2022). If the price of gas just before the war and in the first weeks of the war is compared, a record growth of as much as 283% was spotted.

The price pressure was unbearable, and the behaviour of Russia, as a trading partner, was unacceptable. Therefore, European countries resorted to various sanctions, either because of uncertainty, or because of the moral code and obligations to the respective institutions. Thus, for example, the United Kingdom closed its debt and capital markets to Russian companies. British energy companies began to withdraw from joint stock deals with Russia (Guenette et al., 2022), a Norwegian company also ended its current business with Russia (Kuzemko, et al., 2022), and the EU and the US sanctioned several individuals who were associated with Russian energy giants (Lambert et al., 2022; Ozili, 2022). Companies dealing with the import and distribution of energy products faced very pronounced financial pressure, which significantly threatened their liquidity, purposefulness, and ability to fulfil contractual obligations. Because of that, many countries of the European Union (such as Hungary, the Czech Republic, Slovakia, etc.) were not satisfied with the introduction of an embargo because their energy stability was directly threatened. However, the great dependence on Russian oil had to be put aside for the sake of the collective and internal agreements.

In the following period, there was a rather chaotic atmosphere with continuous fear of insufficient supply in climatic conditions that lead to increased demand. Energy prices were volatile, which led to accelerated inflation, rising prices of final products, fear of the uncertainty of

recession and existential security. Numerous internal turmoils, conflicts and discontents followed. Strikes broke out due to the closure of gas pipelines and interruption of deliveries, record low stocks in European warehouses during the winter, the imposition of unfavourable trade conditions in which the Russians demanded payment for Russian gas in rubles, etc. Furthermore, the energy market has become unattractive to investors precisely because of the present political risks and obstacles to economic growth. Likewise, households suffered because the cost of living for basic existential needs increased, leaving them with less means to meet other needs. A negative effect on consumption was created, which indirectly resulted in the collapse of companies from other production and service activities due to reduced demand and the arrangement of priorities. Their productivity is visibly threatened. Essentially, the end result could certainly be fatal in the way that irreversibly high energy prices will cause an increase in global poverty.

Still, the only positive consequence of current war events could be attributed to increased rationality in the consumption of oil and gas which are non-renewable energy sources. The awakening consciousness about the existence of humanity in terms of the availability of energy sources, ecological reflection in the direction of sustainability, rational consumption are certainly the benefits that arose from this crisis. The European Union has been debating energy and environmental issues for many years. However, the war in Ukraine intensified the proactive component.

5. FORCASTS AND STRATEGIC SOLUTIONS ON THE ENERGY MARKET

The main way out of the crisis for the countries of the European Union is unity, synergistic action and gaining independence from Russian energy sources. Diversification of imports and supply methods, transformation towards renewable energy sources, improvement of energy efficiency and energy infrastructure is necessary. In line with this, alternative sources are definitely in Norway, Kazakhstan, Algeria, Saudi Arabia and Quatar. These are all countries that are not geographically significantly distant, so no additional aggravating circumstances will be created. Algeria has a special perspective since there are unused capacities in the gas pipeline that transports it to Italy (Shorki, 2022). An alternative market is certainly the USA, which is heading in the direction of taking over the leadership in the production so that it could meet a large share of European needs. In any case, intensifying the already existing cooperation through a long-term partnership is certainly an ideal strategy that could improve the current supply situation in Europe (Cooban, 2022). Cooperation can also be achieved with Greece, Turkey, and Israel when infrastructure and transport obstacles are mitigated by joint initiatives. Cyprus has great supplier potential as well. It could create a strong and long-needed stability in terms of gas because of its good connections with neighbouring countries. Additionally, it represents a good example of energy independence thanks to deposits in its marine area. If these sites are successfully implemented in the program of European economic sustainability, they can turn Europe into a completely energy independent community (Fokaides et al., 2017). In cooperation with the Croatian terminal, they could play a key role in strengthening European energy security. Egypt stands out in a positive context too due to the not so long-ago discoveries of large gas fields (Pavlović et al., 2019). There are also some suppliers who have potential, but only after investing in infrastructure. An example of such a market is Nigeria with the construction of a gas pipeline through the Sahara (Holz et al., 2009). Nigeria is one of the countries with the largest number of reserves in the world. However, due to extreme poverty and the financial impossibility of building a gas pipeline, the export potential is underutilized. Nevertheless, its potential was recognized more than ten years ago, even dough the initiative was never launched until these war events, which is a big omission. But, if the construction of the gas pipeline comes to fruition, Nigeria could become one of the major suppliers of gas to the EU. Libya and Iraq could also be highlighted, although they are unable to trade freely due to frequent war events, but in order to achieve greater diversification of the supply chain, they should definitely be considered.

Furthermore, European infrastructure is very important and should be used to the maximum with technological upgrading and/or reconstruction. Oil pipelines are located all over Europe, from Austria, Croatia to Germany. These pipelines, along with the Ukrainian one, make up 4% of the total world network of pipelines, and they would certainly be of strategic importance for Europe (Sekulić, 2018). In this way, European countries could become independent and choose business associates, just like Lithuania (Mišík & Prachárová, 2016). An option, although not sustainable in the long term, is the more intensive use of conventional fuels such as coal-fired power plants, nuclear power plants, etc. In addition to diversifying the energy supply, a much more comprehensive solution is a turn towards renewable energy sources. Focus on bioconversion, accelerated development of solar and wind energy and overall green transition would gain independence and bring climate neutrality closer. Ultimately, it would strengthen the economy of the European Union and ensure stability. Building on energy efficiency, it certainly implies the rational use of available energy, which is called for by the competent institutions of the European Union. At the time of the current crisis, saving energy is the cheapest and easiest way to amortize the negative effects of war.

Mathematically speaking, in accordance with all the mentioned strategic solutions, and according to the Polish Economic Institute and the guidelines of the European Commission and the International Energy Agency, the implementation of alternative solutions would lead to a significant reduction and minimal dependence of the European Union on Russia (only 8.7%), which is shown in on Figure 2 (Miniszewski, 2022).

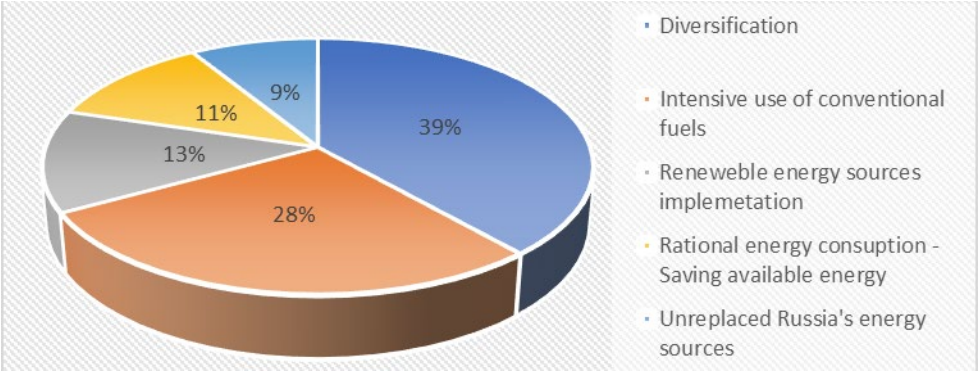

Figure 2 Distribution of possible strategic plans of the European Union

Source: author's work according to Polish Economic Institute, European Commission, and International Energy Agency.

On the other hand, Russia also has to find alternatives considering the intense cooperation with the EU so far that has been sanctioned. Russian efficiency in equipment procurement and infrastructure investments could be threatened beyond access to Western technologies. In addition, Russian opportunities to find an adequate replacement partner are certainly less because it is difficult to find such an economic superpower as the European Union. However, the exit strategy for Russia is a turn towards eastern countries. The most logical choice are the two most populous countries in the world - India and China - which still want to do business with Russian companies (Farmer, 2022). China is already intensively buying Russian oil, a number of agreements on joint investments have already been signed, and China's gas needs are intensively growing because China plans to end the use of coal, for which its main alternative energy is gas (Hausmann et al., 2022). Aware of its dependence on China, Russia is already proactively thinking and adjusting the price in order to gain as much cooperation with China as possible for itself. Along with China, Russia intends to continue cooperating with the Indian market and significantly increase its sales there. India is the third largest consumer of oil in the world, and the mitigating circumstance for Russia is that it is dependent on imports. Considering the poorly implemented cooperation so far (about 2% of Indian oil imports), there is certainly room for improvement (Sullivan, 2022). India also took

advantage of the current situation to reduce its own costs and buy energy at reduced prices (Warren & Ganguly, 2022). In addition to Asian countries, Russia will most likely direct its energy supplies to South Africa, the countries of the Middle East, and Brazil (EIA, 2022; Joshi & Sharma, 2017; Munir et al., 2013).

6. CONCLUSION

Guided by the results of previous research, it was completely evident that the current war events in the energy-important export market such as Russia will not bring economic prosperity to the countries of the European Union, at least not in the short term. Russia's long-standing conquest aspirations hinted at turbulence on the energy market. With the start of the war at the beginning of 2022, the global crisis caused by the corona virus is even more pronounced. The world has not yet recovered from the Covid pandemic and has already faced new challenges due to the Russian-Ukrainian war, which caused numerous inconveniences on a global scale. Additionally, the countries of the European Union experienced a tremendous strike due to the geographical proximity to Russia, but also due to the very intensive cooperation in key business segments. Usurped capital flows, disrupted transport routes, sanctions and restrictions have led to price fluctuations and problems in supply chains. Price sensitivity has caused a heavy burden for all market participants, from small consumers to large manufacturing industries. An additional aggravating circumstance is the fact that energy is the starting point for almost everything, so the price increase was reflected in the less favourable price of all final products and services. The end result was even the collapse of business entities that could not cope with the financial burden and/or insufficient amounts of energy for the unobstructed business operations. Europe faced anxiety, uncertainty, great pressure and a questionable existence. It can be said with certainty that a crisis has set in, after which many trade relations will never be the same again.

Sanctions against Russia despite high import dependence on the one hand and limiting Russian export quantities at an unrealistic price on the other hand, force Western European countries to find alternative solutions and change their strategic direction. The untimely and belated action of the European Union could be discussed, but this is debatable and less important. Undoubtedly, the European Union's major drawback was its excessive dependence on only one supplier, which is quite incidental, monopolistic, and aggressive in its global approach. However, through its own competent authorities, the European Union can create a strong, safe, reliable, and diversified energy network. The EU has at its disposal a relatively extensive network of potential suppliers that could adequately replace Russian energy producers. Its main comparative advantage is its global influence and predominance in numerous economic activities which would surely be strengthened even more through risk dispersion. Therefore, intensive effort is necessary. It is very important to negotiate with quality so that each country gets the best for itself while simultaneously fulfilling and satisfying the conditions of other countries. Furthermore, given that these raw materials will certainly be in mass use for a certain period of time, the EU must direct its efforts and carefully plan how to strengthen its energy independence so that it does not end up in the situation it is in now. In addition to diversification, it is also of a crucial importance to invest in infrastructure in such a way as to develop new storage areas and ensure a sufficient amount of stock. Of course, initiatives for energy efficiency are necessary and a greater focus on renewable energy sources will also contribute to reducing the dependence of reproductive economic capacity on energy suppliers. The European Union is very active in this context. Through its funds it directs material resources in an energy-efficient direction and undertakes a number of actions that should alleviate energy independence.

It could be said that Russia is in a less favourable position in the long term, but certainly the exit strategy should include renewal and improved cooperation with existing customers. In conclusion, European-Russian relations have been damaged, and with the prolongation of the war, they are getting weaker. Therefore, it is crucial for the European Union to turn to alternative solutions and act strategically towards the most economically logical, commercially productive and least risky solution.

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