

European Energy Crisis Analysis: The Background of Russian-Ukrainian Conflict

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Abstract. This paper argues that the Russia-Ukraine conflict significantly impacts the energy crisis in Europe. The conflict economy will destabilize the trade between Russia and the EU countries that mainly support Ukraine. This new international conflict opens up a new space for analyzing the impact of global conflicts on the economy and trade. In this article, the economic issues raised by the conflict will be from the energy market, trade position, financial market, and GDP, and how the two sides should adjust their domestic economic policies to cope with the crisis. The article shows that ruthless unilateral economic decisions can have a negative impact on the domestic economies of both sides. International conflict is also a significant reforming influence on the global economy.

Keywords: Energy Crisis; European; Russian-Ukrainian Conflict.

1. Introduction

With the Russia and Ukraine war outbreak on February 24, 2022, global political relations began to change, especially between EU countries and Russia. After the European Union countries expressed their political stance to support Ukraine and imposed economic and personal sanctions on Russia, the global energy market became unstable, especially on natural gas. This energy market instability poses a serious threat to European countries. Russia has the world's top energy resources. Because of Europe's energy shortage, they have long depended on Russia for energy trade. Moreover, with the intensive relationship between the EU and Russia, EU countries start to worry about how they will survive the long winter. This article mainly focuses on the energy and gas trade with Russia and the European Union countries, especially looking at the comparison between the economies of Russia and Ukraine before and after the conflict and how will Russia and the EU adapt to the future within each domestic situation.

Historically, politics has tended to be one of the main factors affecting the global economy. The various alliances that have formed since the end of World War II have laid the foundation for global trade. War also tends to be a major component of alliances. The emergence of globalization and industrialization since the Cold War has always proved war's destructive and contributive effects on the economy. So the trade relationship between Russia and the European Union has changed since the war with Ukraine. Therefore, this paper also aims to analyze the economic changes between the target country and the allied country after the outbreak of world conflicts, the changes in the trade relations between the target country and the allied country, and how each country should adjust to the economic impact brought by the war.

2. Review

Scholars also gave some corresponding explanations for the natural gas trade relationship between Europe and Russia in the early days. Simone Tagliapietra also said in his analysis of the energy structure of the European natural gas market that natural gas is a critical element of the European energy structure and an indispensable resource [1]. There are many reasons for the instability of the European gas market, including its energy shortage problem. However, in Zeyno Baran's analysis[2], the most significant energy problem of the current EU is that the member states need more agreement on energy policy. Moreover, because Russia is the EU's leading supplier of oil and gas, it has deliberately exploited this lack of cohesion to secure more substantial energy deals that increase Europe's dependence on Russian supplies. This has left Europe's energy problems unresolved for so

long. As a result, Russia can use this ability to join trade with the European Union, which makes Europe dependent on Russian natural gas. However, the gas crisis in the European Union caused by the conflict between Russia and Ukraine is not accidental. The Russian Federation has been a natural gas supplier to the EU member states for the past half-century, initially since the early 1990s, to the Soviet Union [3]. In his analysis of the cooperation of the EU with Russia in the field of energy, Paris A. Fokaides writes that although the volume of natural gas is not as large as the volume of trade in crude oil products, Because the EU is so dependent on Russia for its natural gas resources, both countries have an equal stake in the market. The importance of energy security issues means that the energy relationship between the EU and Russia has shifted from a simple relationship between suppliers and consumers to further technical cooperation. So for both sides, natural gas trade is essential to promoting trade. In fact, even before the Russia-Ukraine conflict in 2022, gas from 2006 to 2009 had already suffered a crisis[4]. In Laura Rodriguez-Fernandez's analysis, there has been a slight improvement in the security of gas supplies to the 27-nation European Union since the last gas crisis. In other words, the conflict between Russia and Ukraine is a second blow to the EU after the last gas crisis. Russia, for its part, seems to identify several explanations for the EU's transformation in political discourse[5]. After Romanova's analysis, they conclude that Russia is following the logic of the market, while the EU is either politicizing the energy issue or choosing economically unsound options. So Russian political discourse also confirms significant ideological differences in energy policy between Russia and the EU. This explains the current tensions between Russia and the European Union over energy trade[6]. In V. Vlimentenko's analysis, he also mentions that in Russia, changes in international relations, energy, and environmental technologies have led to changes in the structure and quantity redistribution of energy flows in Europe and Asia and will become more prominent in the coming decades[7]. This is also confirmed in kan's article.

According to their analysis, the world needs to prepare for a changing energy mix as global trade relations become more diversified and more suppliers and receivers participate in international trade. Political decisions and international relations have been significant factors affecting the global economy[8]. As Robert Gilpin points out in his book, globalization has been the most prominent feature of international economic affairs since the end of the Cold War. At the beginning of the 21st century, globalization has become the defining feature of the international economy[9]. Regarding the crisis in Russia and Ukraine, June Borge Doornich and Andreas Raspotnik also confirmed that sanctions have had a severe impact on both the sanctioner and the target country, and sanctions have limited the target country's integration into the global economy[10]. However, Andreas Goldthau and Jan martin Witte point out in their article that the current public policy debate on energy security is characterized only by focusing on access to resources. One country's energy security is another country's lack of energy security.

3. Energy Crisis Analysis

3.1 Russia and European Energy Markets

3.1.1 Russia's outstanding position of natural gas in the world

Russia is the largest country in the world. It lies in Eastern Europe and North Asia. Russia's excellent location and abundant natural resources have made it a great world trading partner. Among the countless resources Russia exports to the world, it relies heavily on revenues and profits of natural gas. In 2021 natural gas made up 45% of Russia's federal budget (IEA). However, it is not just Russia's geographical position that gives it a privileged position in the world as a natural gas source. It is also the country that has the world's best methods of producing and delivering gas which makes it become the largest gas exporter in the world. Russia has one of the world's most developed and extensive transportation pipelines, which can be transported directly to Europe and Asia. According to the IEA report, Russia has the roughly 5,500 km Druzhba pipeline system, the world's longest pipeline network, transports 750,000 bpd of crude directly to refiners in east and central Europe. In

2012, Russia launched the 4,740 km 1.6 million BPD ESPO pipeline, which sends crude directly to Asian markets such as China and Japan (IEA). Russia has also built a liquid transport system for gas that can be transported further afield, such as to the United States, Australia, and so on. However, the expansion of the pipeline recently is not only about the economic revenue and profits generated by exports but also about getting rid of the dependence on gas supplies from Europe, especially the European Union countries.

3.1.2 Trade between Europe and Russia

The trade pattern between Europe and Russia has also contributed to the intense relationship. According to Springer, in 2021, the total trade in goods between the EU and Russia amounted to 257.5 billion euros. The EU's imports were worth 158.5 billion euros and were dominated by fuel and mining products, especially mineral fuels (62%), wood (2.0%), iron and steel (4.7%), and fertilizers (1.1%). From the data, it's indicated that the EU is still more dependent on the imports of energy in Russia than Russia does on that. Relations between the EU and Russia have also followed an irregular path, alternating between closer economic integration and political crises. In general, the short-term economy is more convenient, so there is a short supply of gas, masking the risks of the Russian market for European firms and the lack of diversity of suppliers. So, the trade relationship between Russia and the EU is unstable but also interdependent.

While Europe depends on Russian energy imports, the EU is Russia's main trading partner (As shown in Fig.1). Nevertheless, what Russia is doing in retaliation for the EU sanctions is destroying Russia's internal economy and the revenue they were earning. In 2018, the EU accounted for about 58% of Russia's exports, while in 2020, the EU accounted for 37.3% of the country's total merchandise trade with the world, according to Springer. The EU accounts for 36.5% of Russia's imports and 37.9% within the EU; Germany and Italy do the most business with Russia. It became Russia's leading trading partner. Although China later became Russia's main trading partner, accounting for about a quarter of Russia's imports, the trade with EU countries remained relatively high. However, from the EU's point of view, Russia accounts for about 5% of its total trade and is the fifth partner. Therefore, the trade cooperation between the EU and Russia also has a certain degree of asymmetry. However, because of the high dependence of European countries on energy, the EU countries cannot be self-sufficient. They can only import energy from third countries, constituting the energy trade relationship between the EU and Russia. According to Springer's data, the 27-nation EU and the UK account for more than 63% of Russia's fossil fuel exports. In the United States, Turkey, and Japan, Russia's share has risen to 80%.

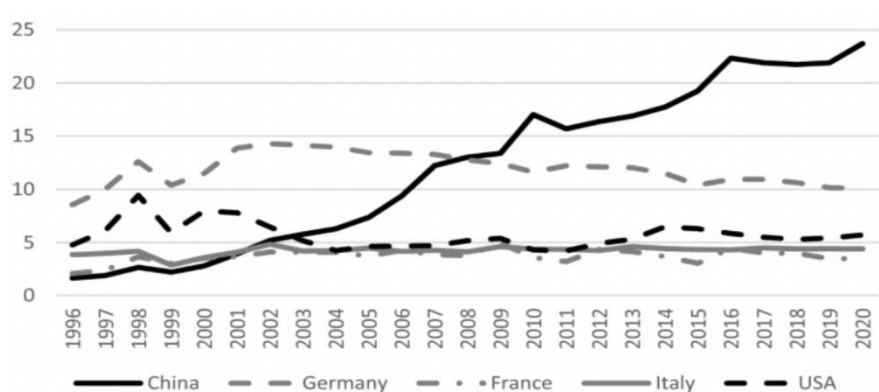


Fig. 1 Russia total import by partner (Resource: World Bank, WITS Database)

While the dependency rate is just one indicator, it shows how much the economy relies on imports to meet the nation's energy needs. In 2020, the EU's dependency rate was 58%, meaning that more than half of all EU countries will need to meet their energy needs through net imports. As for why Russia should be chosen, EU countries have their answers. The Washington Post has said that "Russia's natural gas resources are very attractive to European countries because it is easy to transport

and almost always available” (Washington Post). Indeed, the imports from Russia of natural gas are 45%, and almost 40% is from the demand of European Union countries (IEA). The EU’s dependence on Russian gas is obvious.

According to Tim Schittekatte, a research scientist at the Massachusetts Institute of Technology’s Energy Initiative, in the 1960s and 1970s, Europe supplied about the same amount of gas as it used. In other words, at that time, the gas provided by Europe was no longer a sustainable resource for the future. The subsequent depletion of North Sea gas was the direct cause of the decline in European gas production. Britain and the Netherlands are heavily dependent on North Sea gas, and the Dutch earthquake prompted the Netherlands to shut down the Groningen gas field, throwing Europe into complete trouble (CNBC). In 1992, the United Nations Conference on Environment and Development was to reduce global dependence on coal and fossil fuel to face environmental problems such as global warming. Otherwise, it would threaten the world’s sustainable development in the future. Thus EU countries have responded by reducing their dependence and fuel and coal and placing great emphasis on renewable resources and electronic development. According to the EU’s Energy regulator, 25% of Europe’s energy consumption comes from gas, 32% percent from oil, 18% from renewables and biofuels, and 11% from solid fossil fuels. This shows that EU countries are still the most dependent on natural gas of all energy sources. But because European countries’ research and development focus is not there, they have to rely on imports of natural gas, which Russia. With its powerful natural gas resources and transportation method, as well as the major dependence of European countries on it, Russia has become the monopolist of the natural gas market in Europe.

3.1.3 Influence of war between Russia and Ukraine on European’s natural gas support

The military war between Russia and Ukraine in 2022 has put trade relations between Europe and Russia on the block. As soon as the war was sparked, EU countries expressed their unwavering support for Ukraine and firmly condemned Russia’s unprovoked and unjustifiable military aggression. The European Union has imposed economic and personal sanctions on Russia. It is aimed at weakening Russia’s economic base and depriving it of critical technologies and markets (European council and council of EU). While EU countries have imposed sanctions on Russia, prices in the gas market have soared. Russia is also fighting back over natural gas resources.

According to the IEA, Russia has largely cut off European gas supplies. A long winter in Europe could significantly impact the economy because of the lack of gas supplies. According to the IEA, in the first eight months of 2022, European gas consumption was down 10% compared to the same period in 2021. And that means less heating and productivity for workers, which relates to the drop in GDP, but more pollution from the renewed burning of coal and fossil fuels. As mentioned above, since 1992, EU countries have been working to create renewable and electric energy to face environmental threats. However, due to the decline of Russian gas supplies, they will have to suspend all their efforts and restart burning to cope with the cold winter.

3.2 Impact analysis on Europe

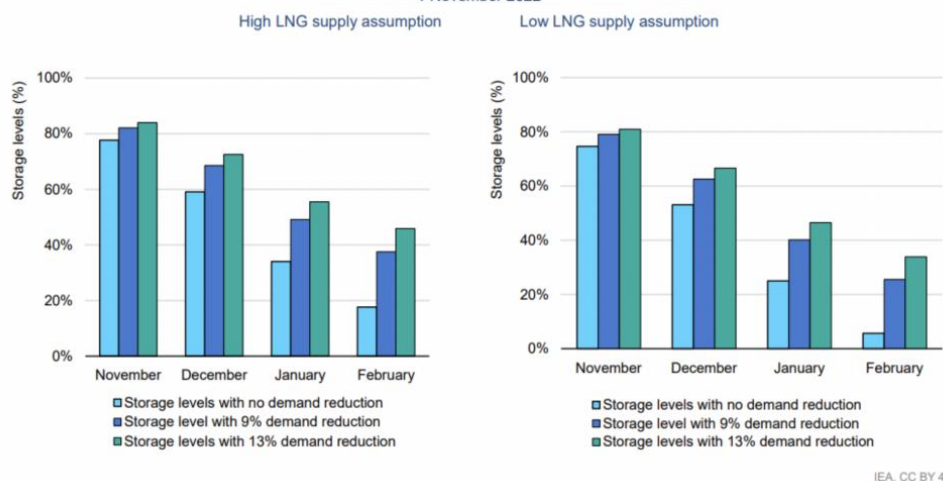
The supply of natural gas in Russia has decreased a lot, increasing the energy crisis in Europe, which already causes unrest in the European economy. European countries, especially European Union countries, take the position of consumers who suffered the most from this crisis. While European countries are trying to wean themselves off Russian energy and have imposed sanctions on Russian trade with Europe, the EU’s dependence on Russian gas remains high, accounting for about 40% of all gas consumption. This lack of gas suppliers and infrastructure opens the door to Russian intervention in European energy markets. According to IPI, by the end of September 2022, Russian gas supplies to Europe had fallen about fivefold, and 13 EU member states had received no or significant reductions in Russian gas supplies. Gas prices are 10-13 times higher than at the start of the year, at 2500 dollars to 3500 dollars per 1000 square meters. Electricity prices in Europe have also hit a record high of 1000 euros per megawatt hour.

For European Union countries, gas consumption in the first eight months of this year was down about 10% compared to the same period in 2021. This is not because demand for gas has fallen but

because factories have cut production, and industrial output has fallen by 15%. Many companies worried about energy costs are laying off workers or cutting production in response to energy restrictions. Over time, unemployment will become a problem. And as labor productivity and employment are significant considerations in GDP, in the long term, the gas shortage in Europe is also causing potential and direct economic disruption. Demand for gas is still high in Europe, but supplies from Russia are dwindling. According to the latest quarterly gas market report from the international energy agency, Russia continues to cut gas flows to Europe, driving international gas prices to new highs. According to the IEA(as shown in Fig. 2), the global gas market has been tightening, with Europe shrinking by 10%. Russia has effectively cut off European gas supplies in retaliation for sanctions imposed after its invasion of Ukraine. According to EIU projections, by spring 2023, Europe's gas storage could be completely exhausted and new import capacity reduced, according to EIU projections.

Gas demand savings and LNG imports will be crucial to maintain gas storage at adequate levels until the end of the 2022/23 heating season

Potential evolution of gas storage levels in the European Union in the event of a complete cut-off in Russian gas supply from 1 November 2022



IEA, CC BY 4.0.

Fig. 2 The global gas market (Resource: IEA)

Europe is also struggling to wean itself off Russian gas. Europe is setting solutions from the inside of the EU. According to IPI, the first action taken in Europe is to cut gas consumption by 15% this winter. That would at least help Europe through this year's cold winter. The second step is the formation of gas storage. EU member states have also agreed to jointly buy gas, using it as a shared resource and coordinating its use in times of shortages in some countries. The third is to extract more profits from other industries to address the market's financial imbalances. The government taxes some companies that experience super profits as revenue for the government and uses that revenue stream to subsidize other companies. Companies that do not experience super profits will subsidize them with other resources. The government can also provide loans to some backward companies to ensure the stable development of domestic industries to achieve the sustainability of individual resources.

For financial markets, stocks are falling because of the European energy crisis. But a strategist warns that while European stocks may look cheap now, the kennel has 15% more to fall as Europe's energy crisis intensifies. "Despite the growing likelihood of a recession, stocks are still showing signs that earnings will grow next year", says Morgan Stanley chief European equity strategist David Secker. European stock markets are down 25% this year, and analysts at Goldman Sachs predict that European energy bills will add up to \$2 trillion, or 15% of GDP, next year. The improvement policies mentioned above within Europe will also improve the European stock market, so the European stock market could still soar again in the future.

4. Conclusion

This paper mainly analyzes the natural gas instability brought on by the war between Russia and Ukraine in the European energy market. The impact includes a smaller share of Russia's net exports to its main partners in the European Union and tensions over natural gas prices due to European shortages. The results also include an analysis of trade relations between Russia and the EU before the conflict. Compare the two countries' respective trade importance. We will be surprised to find that although EU countries are relatively dependent on Russia's energy imports, Russia is not the leading trading partner of EU countries, just ranking only fifth. However, for Russia before the conflict, EU countries, especially Germany and Italy, are essential partners of Russia. Therefore, after the war, both sides actively faced the energy crisis by expressing their political position. EU countries are mainly focused on coping with gas prices and smaller imports. They will respond to the crisis by changing how gas is imported, internal replenishment and storage, and cooperation between EU countries. For Russia, the main focus is to repair the gap in net exports to EU countries. They have chosen to open new pipelines and trade gas with more Asian countries. For Russia Today, China has become a significant trading partner.

However, for this paper, there are still significant areas for improvement. First, the energy crisis in Europe is a hot issue, significant since the Russia and Ukraine war outbreak less than a year ago; scholars need to do more research on this aspect. As a result, this paper mainly use articles or reports on economics websites but seldom use academic papers of scholars. For hot articles, I focused more on using data and reports to analyze the changes in the energy market and the relationship between trade. Still, there needed to be more support from academic papers. This also makes this paper seem to need to be more well-grounded. Secondly, this paper may mainly focus on the relationship between global politics and economic and trade exchanges. There is not much room for economic changes and the reconstruction of economic structure within each country because I have yet to learn relevant knowledge. If more economic knowledge and theories are applied to the paper, the credibility of the paper will be higher.

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