

How is Russia's War Threatening the Energy Security Globally?

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Introduction

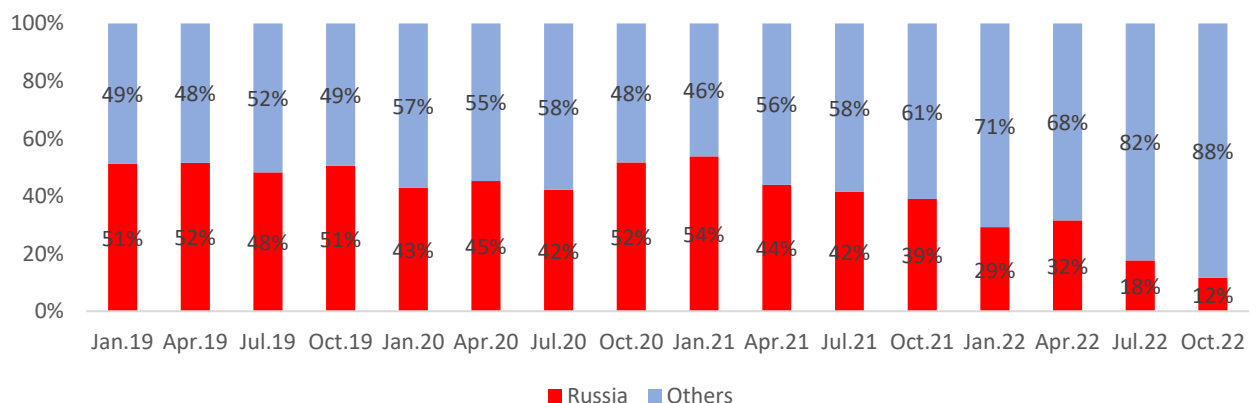
On 24 February 2023, it is already a year since the Russian Federation launched a full-scale invasion of Ukraine. The “big” war (the biggest war since 1945 in Europe) has become a huge challenge to the international security. Moreover, it has also become a shock to the world economy that still is not recovered from the COVID-19 pandemic. High inflation in the European Union, the United State of America, and other economies was boosted by destabilization of energy and food sectors. Limited grain export from Ukraine and sky-high energy prices increased food prices. The energy issues made more people around the world vulnerable.

The Russia’s war emphasized security issues of the energy sector in all dimensions. On one side, market manipulations by unscrupulous energy monopolists can significantly contribute to economic and social instability. On another, energy infrastructure can be also the primary target of more aggressive tools of hybrid warfare (including cyber-attacks and even drones attacks). The war also highlighted weaknesses of recent changes in the sector regarding high green ambitions, especially in developed countries. The article analyses the major challenges imposed by the war and the major lessons learnt by the world regarding the energy sector.

Sanctions War

Russia traditionally has been an important player in the fossil fuel market. In 2021, Russian oil and gas revenues reached \$119 billion, more than a half of its total exports. In the same year, the revenues even exceeded the original plans by \$51.3% due to global gas supply crisis and rising prices.¹ It was discussed that Russia manipulated the market by limiting gas supplies to the European Union. Presumably, the goal was to stimulate approval of the Nord Stream 2 project. As of 2021, the EU received more than 40% of natural gas from Russia and new Russian pipelines could have increased the strength of Russian gas in the fight against LNG-supplies. However, the military aggression against Ukraine turned the state of play upside down. The West without hesitation imposed first sanctions against Russia.

Chart 1. The EU gas diversification in 2019 – 2022, % of gas delivered



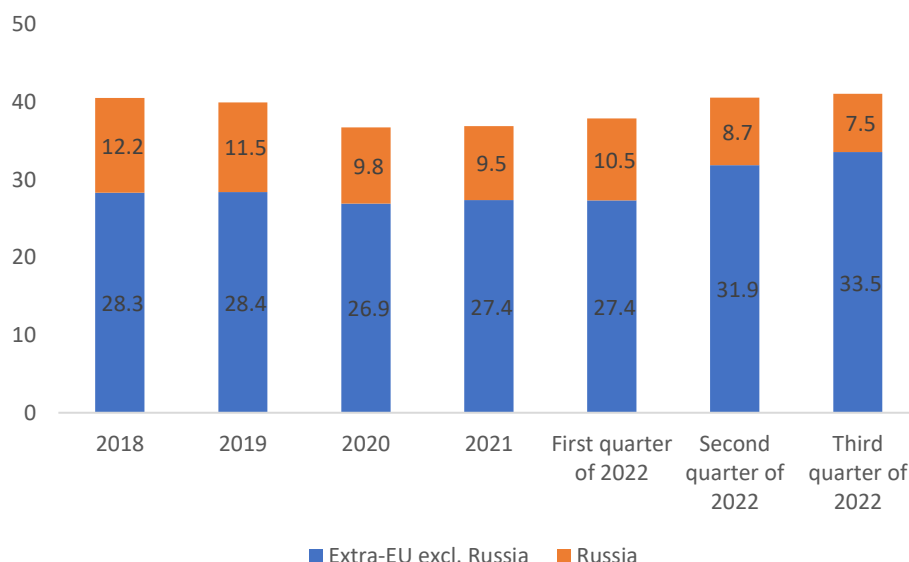
Source: European Commission²

¹ See <https://www.reuters.com/markets/europe/russias-oil-gas-revenue-windfall-2022-01-21/>.

² See <https://www.consilium.europa.eu/en/infographics/eu-gas-supply/>.

At the start of the war, the United States introduced imports ban on Russian oil and gas and Germany froze the Nord Stream 2 project. Step by step, sanctions were extended even on coal imports into the EU, as Russian energy sector has become toxic for the West. At the end of 2022, the restrictions regarding Russian fossil fuel became even stronger. The EU banned imports of Russian oil by sea from 5 December. In addition, the EU has designed a ban on imports of refined oil products (diesel, jet fuel etc) from Russia that comes into force on 5 February 2023. Finally, G7 countries introduced the price cap on Russian oil at \$60 per barrel. In response, Russia just banned oil exports to countries supporting the cap.

Chart 2. Extra-EU imports of petroleum oils, 2018 - third quarter of 2022 (monthly averages in net mass - million tonnes)



Source: Eurostat database (Comext) and Eurostat estimates³

Key sanctions reshaped the fossil fuel markets as the West have made huge efforts to limit its dependance on Russian fossils. EU members even committed to reduce their consumption of gas (by 15%) and electricity (by 10%) by spring 2023. In October 2022, in the EU the share of monthly gas imports from Russian fell down to 12% of total gas exports by value (from 54% in January). In December 2022 – January 2023 Germany launched two new LNG terminals that would increase the energy security of the EU. At the same time, monthly crude oil imports from Russia decreased from 9.5 million tonnes in 2021 to 7.5 billion tonnes in the third quarter of 2022. Consequently, recent oil and oil products sanctions and price cap will lead oil imports to minimum.

The recent data demonstrates that sanctions together with favorable market conditions have huge impact on Russia. On one side, Russia increased revenues in 2022 due to growing prices after start of the war. However, Russia mostly lost the EU as the largest market of its natural gas which consumed more than 50% of its gas exports. Besides, prices and Europe and US have dropped recently because of lower demand around the world and full gas stocks. Instead, Russia have used the Power of Siberia pipeline and LNG to increase gas exports to China. China's weak demand also decreased oil prices that undermines Russian revenues. Russia is also reorienting its export destinations. At the beginning of 2022, only 2% of India's oil imports were from Russia, but now Russia is the largest supplier. Besides, Turkey and China buy a lot of cheap Russian oil. In the end, the situation makes Russia already use own reserves to finance high expenditures and budget deficit.

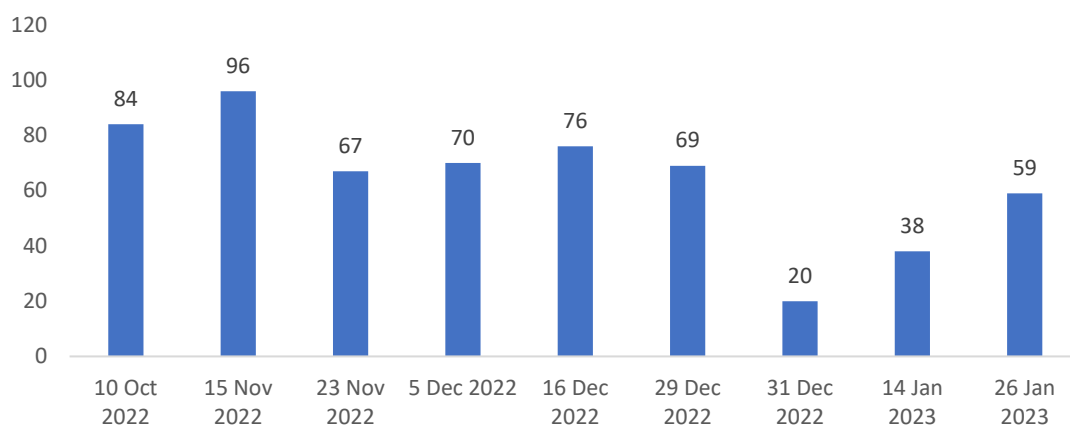
³ See https://ec.europa.eu/eurostat/statistics-explained/index.php?title=EU_imports_of_energy_products_recent_developments&oldid=554503#Trend_in_extra-EU_imports_of_energy_products

All the efforts still demonstrate the complexity of the energy market. Even among the EU members there are some disagreements regarding further steps. There are also discussions that sanctions should be lifted, but they seem to be promoted by Russia. However, still no sanctions have been introduced against Russian nuclear sector. As of today, there are 18 Russian technology based nuclear reactors in the EU countries, thus several EU countries remain dependent on Rosatom, Russian nuclear monopolist. Even Russian uranium makes 20% share in the EU market.

Infrastructure War

Russian aggression against Ukraine emphasized vulnerability of the energy sector infrastructure. In 2022, Russian army launched more than 5000 missiles against Ukraine's military and civil infrastructure. In spring, Russian missiles targeted large fuel depots in Ukraine, causing fuel shortages and lines at petroleum stations. In the autumn, Ukraine experienced massive missile attacks on power stations, distribution transformers and high voltage lines, and even gas extraction facilities. Despite high effectiveness of Ukraine's air defense, 50% of critical energy infrastructure was damaged by December 2022.⁴ After several attacks even nuclear plants had an „emergency stop”, as high voltage lines were damaged. One of the Ukraine's nuclear plants (Zaporizhzhia), the largest nuclear power station in Europe, is still occupied by Russian military.

Chart 3. The number of missiles that attacked Ukraine's energy infrastructure in the last months (by date of attack), number of missiles



Source: Ukrainian media announcements based on the Ukraine's military reports⁵

As a result, Ukraine has been under threat of a humanitarian crisis, caused by possible power blackout that could limit also heating and water supplies. It has also become a challenge to Ukraine's business sector. In November 2022, Ukrainian manufacturing companies on average lost 21% of working time because of power cuts. The energy problems intensified issues of the industry's already massively damaged by the war. For example, the metalworking industry lost 34% of working time and machine building lost 28%.

According to Ukrainian government's estimations, only the emergency recovery of the energy system would require at least \$1 billion, including \$500 million for electricity generation and \$500 million for centralized heating. This is a huge challenge for a country with total estimated needs of more than 500-600 billion for recovery.⁶ However, direct and indirect costs of Ukrainian citizens and businesses have not been calculated

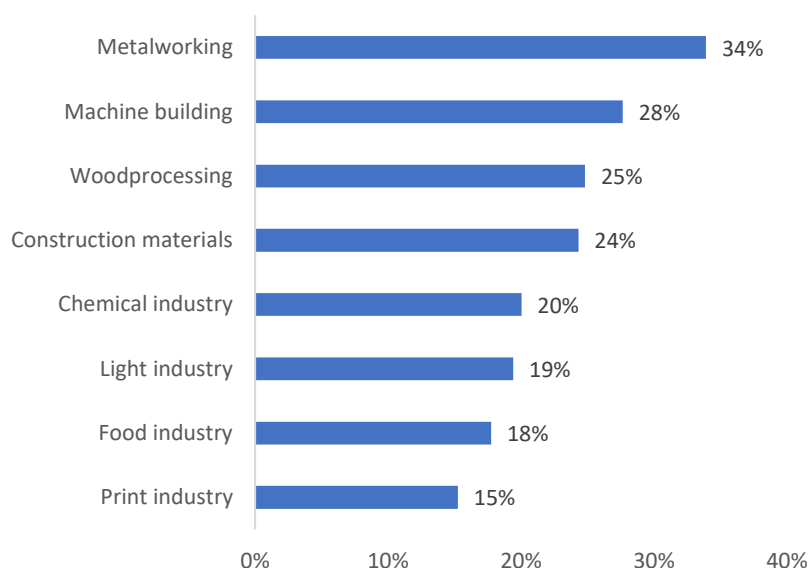
⁴ See <https://tsn.ua/en/ato/some-ukraine-s-energy-infrastructure-is-totally-destroyed-around-50-is-damaged-2220223.html>.

⁵ See <https://www.slovoidilo.ua/2022/12/29/infografika/bezpeka/raketni-obstrily-porivnyannya-shesty-ostannix-masovanyx-atak-rosiyi>

⁶ See <https://www.kmu.gov.ua/news/promova-premier-ministra-ukrainy-denysa-shmyhalia-pid-chas-zasidannia-rady-oesr>.

yet. For example, circa 74% of the surveyed enterprises acquired emergency power devices like generators. Thousands of Ukrainians stayed in Europe afraid of missiles and blackout.

Chart 4. Losses of working time by industry, % of working time



Source: IER New Monthly Enterprises Survey⁷

The situation requires huge efforts of Ukraine's allies and friends that continue non-stop supply of transformers, generators, and other electrical equipment. In mid-December, the Ukraine's prime-minister announced that Ukraine would receive electrical equipment worth of 415 million euro.⁸ Also in December, the Republic of Korea provided generators and other humanitarian aid.⁹

It should be emphasized that since September Russian forces has launched hundreds of Iranian drones to attack energy infrastructure. This aspect clearly demonstrates new methods of warfare might be a major challenge for global energy security in the near future, as drones have become a very cheap and effective weapon. In the recent years, Yemen's Houthis have already undertaken several successful drone attacks against Saudi infrastructure, including a refinery in Saudi capital in March 2022.

Important objects of energy infrastructure can be even more vulnerable. In September 2022, mystic explosions damaged all pipes of the Nord Stream, a natural gas pipeline system that connected Russia and Germany. Recently, Germany and Norway asked for NATO support in projection of subsea infrastructure (including pipelines under the North Sea).¹⁰ Besides, there are another security issues like cyber-attacks. Particularly in September 2022 allegedly Russian hackers attacked Italian energy industry.¹¹

⁷ The Institute for Economic Research and Policy Consulting conducts a new monthly enterprise survey using the Business Tendency Survey approach to quickly collect information on the current economic state at the enterprise level. The survey was conducted within the project "For Fair and Transparent Customs", financed by the European Union and co-financed by the International Renaissance Foundation and Atlas Network.

⁸ See <https://www.unian.ua/economics/energetics/franciya-nadast-ukrajini-energetichne-obladnannya-na-415-milyoniv-yevro-minenergo-12078012.html>.

⁹ See <https://www.koreaherald.com/view.php?ud=20221209000551>.

¹⁰ See <https://www.reuters.com/business/energy/germany-norway-ask-nato-protect-subsea-infrastructure-after-nord-stream-attacks-2022-11-30/>.

¹¹ See <https://www.unian.ua/economics/energetics/franciya-nadast-ukrajini-energetichne-obladnannya-na-415-milyoniv-yevro-minenergo-12078012.html>.

What is the future of the energy sector?

To sum up, the war raised concerns about the future of the energy sector and its security. Sufferings of Ukrainian citizens and businesses demonstrate that the energy sector is the real backbone of economy. Altogether, the war increased concerns regarding energy security in the era of hybrid warfare. State and non-state actors can use combination covert military and non-military instruments (like economic pressure, cyber-attacks, drone attacks etc) to pose threat to critical infrastructure, also including energy.¹² Such dangers were emphasized already back in 2020 by NATO experts.¹³ All global and local players should put more attention to security of their energy infrastructure.

The war also demonstrated that countries should keep the balance between traditional and green sources of energy. In July 2022, the European parliament backed the law that labels investment in gas and nuclear power stations as green. Several EU countries have changed their attitude and already announced plans to extent the nuclear sector. France has planned to build 14 new nuclear plants by 2050 in order to meet carbon neutral status. Even today around 70% of the country's electricity already comes from nuclear energy. Poland has announced intentions to spend \$20 billion to build own 2 nuclear power plants with six reactors (US and Korean companies) by mid-2040s.¹⁴ In mid-January 2023, Belgium extended life of its nuclear reactors by 10 years.¹⁵ At the same time, Hungary allowed construction of two new reactors by Rosatom, simultaneously protesting against possible sanctions against the Russian nuclear sector. Cheap energy can be decisive for competitiveness in the near future.

Finally, the war challenged the EU green policy (Green Deal), the most ambitious and comprehensive plan for green transition. EU countries have slowed down implementation of environmental steps. In spring 2022, gas prices skyrocketed leading to new concerns regarding green transition. Representatives of energy intensive sectors argued that the EU should apply a realistic approach on climate protection and EU industrial leadership.¹⁶ However, the green transition seems inevitable even though similar negative developments can also challenge the green ambitions around the world. Renewables are vital for energy independence and making the world a safer place.

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¹² See <https://www.nato.int/docu/review/articles/2021/01/13/energy-security-in-the-era-of-hybrid-warfare/index.html>.

¹³ See https://www.nato.int/nato_static_fl2014/assets/pdf/2020/12/pdf/201201-Reflection-Group-Final-Report-Uni.pdf.

¹⁴ See <https://www.politico.eu/article/poland-20-billion-nuclear-power-us-westinghouse/>.

¹⁵ See <https://www.rfi.fr/en/international/20230110-belgium-extends-contract-with-french-energy-company-for-nuclear-reactors>.

¹⁶ See <https://ecopolitic.com.ua/en/news/lideri-energetichnih-galuzej-zvernulisya-do-ievroparlamentu-shhodo-ets-i-cbam-chogo-vimagajut-2-2/>.

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