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The Strategic Importance of the Black Sea: Regional Cooperation for Energy and Defense

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327

INTRODUCTION

In light of the growing global and regional connectivity and interdependence and the increasing complexity of security threats, ensuring the resilience of infrastructure is critical. The security of underwater and surface marine and coastal infrastructure for the extraction, transport and storage of energy resources is a growing priority for countries not only because of the importance for the economies of individual countries, but also for the connectivity. The same applies to the underwater routes of the data transmission infrastructure. Until recently, the main focus was on ground-based security measures but the explosion of the Nord Stream gas pipeline, the seizure of Ukrainian gas production facilities by the Russian military, the disruption of key submarine data cables in the Red Sea due to the Houthi missile attack against cargo ship and other similar incidents highlight the need for a comprehensive approach and creating necessary capabilities to protect all maritime infrastructure.

Security of marine infrastructure is high in the priorities of NATO and EU. In 2023 a Critical Undersea Infrastructure Coordination Cell was established at NATO Headquarters with the main goal of the cell is to provide better coordination between key military and civilian stakeholders and industry, share best practices and by this to boost the security of Allied undersea infrastructure. On 23 May 2024 the first meeting of NATO's new Critical Undersea Infrastructure Network gathered in Brussels with the goal of enhancing the security of undersea cables and pipelines and monitoring potential threats.[1] Another initiative is the opening of the Maritime Centre for the Study of Critical Undersea Infrastructure. Based at NATO Allied Maritime Command (MARCOM) on the outskirts of London in Northwood, UK, the center has reached Initial Operational Capability as of May 2024.

In January 2023, NATO and the EU set up a joint task force to protect critical infrastructure. To address the increased risks to undersea energy pipelines and communication cables, the Allies have significantly increased their military presence around key infrastructure, including with ships and patrol aircraft.

This clearly shows that countries are aware of the increased risks to critical infrastructure and the need of taking certain actions. Along with the general approach and awareness, it is very important to have specific approaches that reflect the specifics of the regions and the countries. Undoubtedly, the Black Sea is a region that deserves special analysis and approach from NATO and individual countries.

The Black Sea region is an important transit corridor which connects Europe, Asia and the Middle East, and this connectivity is expressed in the potential for the development of

[1] "NATO holds first meeting of Critical Undersea Infrastructure Network," North Atlantic Treaty Organization, May 23, 2024, https://www.nato.int/cps/en/natohq/news_225582.htm

transport routes, data transmission, energy projects for the transmission of electricity, oil and gas as well as clean and renewable energy resources. In itself, the Black Sea region is rich in gas, with Romania and Türkiye announcing discovered enormous deposits of gas, and Bulgaria also in the process of searching for such in its Exclusive Economic Zone (EEZ). All this underlines the importance of the Black Sea region not only for the littoral countries, but also for the connected regions, for NATO and the EU.

Along with the great potential, the numerous risks and threats create an extremely complex security environment in the Black Sea region. This environment is primarily defined by Russia's ongoing war against Ukraine. Although the main hostilities are taking place on the land territory of Ukraine, a number of Russian activities in the littoral space have an impact on the activities of other countries as well. Russia has blocked parts of individual countries' EEZs, thereby impeding economic activities there. Russia has military capabilities which allows it to impact on any sites in the Black Sea, including future gas production installations. Russia's actions towards the ships of other countries, which was seen in its actions to stop the transportation of Ukrainian grain, or in searching the ships of third countries at sea which is another manifestation of its aggressive behavior. In addition, many other risks that result from war are present in the region, including free-floating mines that can endanger ships and infrastructure, an unknown number of different types of weapons taken by individuals and organizations from the front, environmental pollution and others. Russia is waging a hybrid war against NATO member states, including cyber-attacks, jamming signals of positioning systems and spoofing, turning off transmitters on its own ships and many others which create risks for the navigation and economic activities in the region. Targeted impact of Russia on objects of the critical underwater and surface infrastructure cannot be ruled out. The general uncertainty in the region increases the risks for economic activities, and hence their cost. Investors are hesitant given the uncertainty, as is the case with the postponement of the project to build an undersea power and data cable in the Black Sea to connect the Caucasus to countries in Europe.

It is unlikely that the existing risks will disappear before the military conflict between Russia and Ukraine is resolved. Therefore, the huge potential of the Black Sea region as a bridge between countries, continents, cultures and peoples will not be fully realized. This will affect not only littoral states, but also countries outside the region. All this raises the question of the need to strengthen security and build capabilities to protect critical infrastructure in the Black Sea.

To answer key questions related to the economic opportunities but also the risks and threats in the Black Sea region three think tanks: The New Strategy Center (Romania), The Sofia Security Forum (Bulgaria) and The Center for Economics and Foreign Policy Studies – EDAM (Türkiye) prepared the present study. They analyze the energy routes and opportunities in the Black Sea as well as the priorities and policies of the three littoral

countries (Bulgaria, Romania and Türkiye) in the sphere of exploration and use of energy resources. The three think-tanks pay significant attention to different risks and threats to economic activities and energy infrastructure, including the hybrid risks, to the realization of individual countries' priorities and ambitions. Potentials for cooperation in the exploration of energy resources and protection of the critical infrastructure are also in the focus of the analyzes.

ROMANIA

The offshore energy potential of Romania stands as a critical element in the broader context of the Black Sea energy security and regional geopolitics. This area is rich in natural resources, holding a significant promise for energy exploration and exploitation, especially in offshore natural gas and offshore wind energy. However, the ongoing conflict in Ukraine, sparked by the Russian invasion in 2014 and the 2022 full scale war has profoundly impacted the region's energy dynamics. Europe's dependence on Russian gas, subsequent energy supply disruptions, as well as increased tensions have caused countries to place energy independence at the forefront of international concerns. In an attempt to mitigate these concerns, European nations, such as Romania, have escalated efforts to diversify their energy portfolio.

Romania has taken proactive measures and made substantial investments in its energy sector to mitigate potential disruptions and ensure a more resilient energy landscape amid geopolitical challenges. The country has intensified efforts to develop its domestic gas exploration and production capabilities within the Black Sea, investing in infrastructure upgrades and exploration projects to reduce reliance on external gas sources and enhance its energy independence. By focusing on both natural gas and wind energy, Romania aims to reduce its dependence on external energy supplies and achieve greater energy independence. This strategic diversification not only strengthens the country's energy resilience but also adds to the energy security within the region, highlighting Romania's critical role in the regional energy landscape.

Offshore Gas

The Neptun Deep project, owned by OMV Petrom and the Romanian state-owned company Romgaz consortium, is the largest natural gas endeavor in Romania's Exclusive Economic Zone (EEZ). With an estimated recoverable resource of about 100 billion cubic meters (bcm) of natural gas, this project is pivotal for Romania's energy security.[2] The Neptun Block, covering roughly 7,500 square kilometers in the deep-water region of the Black Sea, hosts this ambitious venture. Drilling is expected to begin in 2025, with production starting in 2027. The field is projected to produce 8 bcm of natural gas annually for approximately a decade.[3]

At the end of November 2024, the necessary drilling equipment for the Neptun Deep perimeter arrived in the port of Constanta, and next year the effective construction of the infrastructure of this project in the offshore area will start.

[2] OMV Group. "OMV Announces Final Investment Decision Taken by OMV Petrom for Natural Gas Deep-Water Project Neptun Deep," June 21, 2023. https://www.omv.com/en/news/230621-omv-announces-final-investment-decision-taken-by-omv-petrom-for-natural-gas-deep-water-project-neptun-deep.
[3] "Neptune Deep Gas Field Project, Black Sea," Offshore Technology, July 7, 2023. https://www.offshore-technology.com/projects/neptun-deep-gas-field-project-black-sea/

Source: OMV Petrom

The project involves developing the Domino and Pelican South natural gas fields within the Neptun Deep block. This includes ten wells, subsea production systems, an offshore platform, heated pipelines, and remote digital operations. The processed gas will be transported via a 160 km pipeline to Tuzla, where it will enter the national gas transmission network.[4] In March 2023, OMV Petrom and Transgaz, the Romanian gas pipeline operator, signed a 17-year agreement to facilitate the transport of natural gas from the Neptun Deep gas field to the National Transport System. This transformative initiative aims to enhance Romania's domestic gas production, reduce dependence on imports, strengthen the country's energy resilience, and support the broader region's energy diversification efforts.

Complementing the agreement with OMV Petrom, Transgaz has launched a significant €500 million project to directly connect the Neptun Deep block to Romania's national grid.[5] This initiative marks a substantial advancement in the country's energy logistics. The project includes constructing a new pipeline extending over 308.3 kilometers, further linking to the BRUA corridor, significantly enhancing the regional gas distribution network and bolstering national and regional energy security within the broader EU network.

[4] "Neptun Deep Natural Gas Project, Romanian Black Sea." NS Energy. https://www.nsenergybusiness.com/projects/neptun-deep-natural-gas-project/.

[5] Rani, Archana. "Romania's Transgaz to Build €500m Gas Pipeline in the Black Sea." Offshore Technology, March 17, 2023. https://www.offshore-technology.com/news/transgaz-gas-pipeline-black/?cf-view

Source: Marton Dunai and Sam Jones, "Romania threatens Black Sea gas project over Austria's Schengen veto," Financial Times, October 6, 2023. https://www.ft.com/content/c485abce-48ea-4b29-8c47-ba53b1a21c95

In addition to the Neptun Deep Project, the Midia project, incorporating the Ana and Dina production platforms, is another significant initiative aimed at increasing Romania's domestic energy production. These platforms are located in the Midia West perimeter, approximately 120 kilometers offshore in the Black Sea, in waters about 70 meters deep. Operating within the Black Sea Oil and Gas (BSOG) Midia field, production commenced on June 15, 2022, with initial targets set to produce 0.5 bcm of gas in the same year.[6] The transportation of gas from these platforms involves a 126-kilometer-long pipeline extending from the Ana platform to an onshore facility. Expectations were to escalate production to a steady rate of 1 bcm annually by 2023, fulfilling 8% of Romania's energy demand.[7]

These platforms are crucial to enhancing Romania's domestic energy supply and pivotal in the nation's pursuit of energy independence. Located in the relatively shallow waters of the Black Sea, these platforms have seen significant technological investments aimed at sustaining and potentially increasing their production capacities. Currently, Romania satisfies roughly 80% of its annual gas consumption, about 12 bcm, through domestic

[6] "Midia Gas Development." Black Sea Oil & Gas, September 23, 2022. https://www.blackseaog.com/midia-gas-development/
[7] "Midia Gas Development." Black Sea Oil & Gas, September 23, 2022. https://www.blackseaog.com/midia-gas-development/

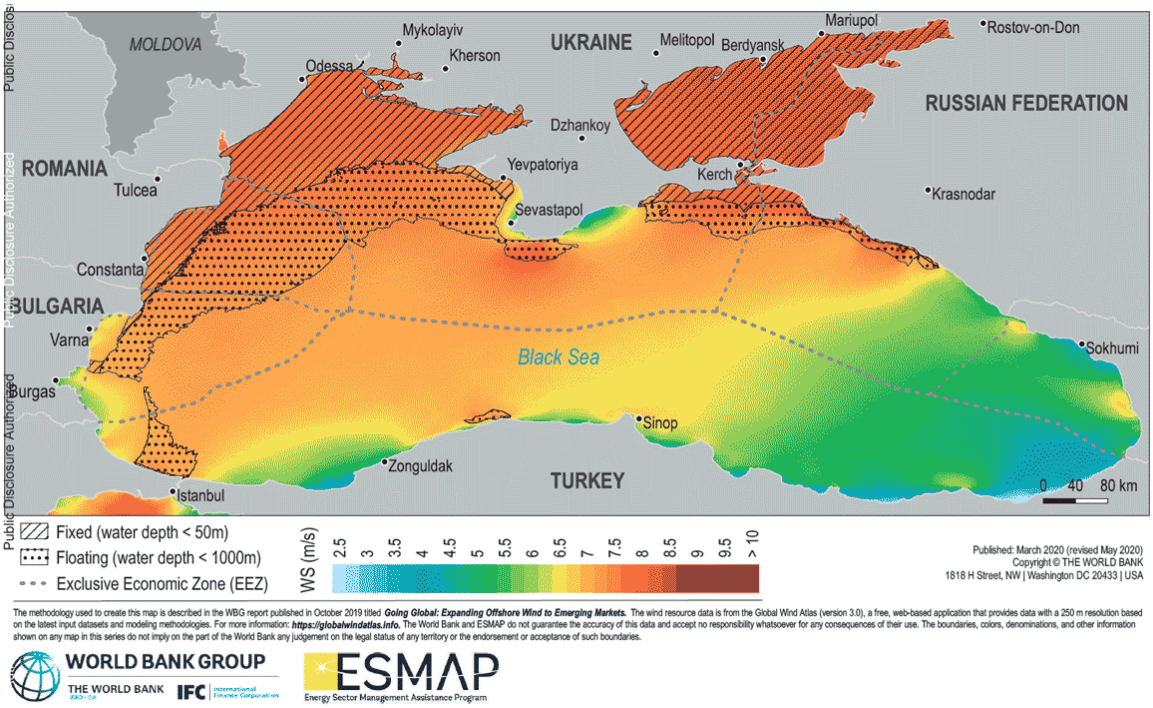
production.[8] With the expected development of both the Neptun Deep and Ana projects, alongside existing production, Romania is on track to cover its entire annual gas consumption domestically and to be an important gas supplier in the region. As Black Sea production ramps up to full capacity, Romania could potentially begin exporting excess gas to neighboring countries such as the Republic of Moldova Bulgaria, Hungary or Serbia, offering an alternative to their imports of Russian gas.[9] This shift not only strengthens Romania's energy autonomy but also positions it as a key energy player in the region.

Offshore Wind

Contrary to fossil fuel-based energy sources, Romania and Ukraine have been actively investing in renewable energy projects, with a particular emphasis on wind energy, as part of a broader European strategy. Recognized as a priority offshore grid corridor under the Trans-European Networks for Energy Regulation, the Black Sea Basin holds substantial wind energy potential. The European Commission's Offshore Strategy, adopted in November 2020, sets ambitious targets for offshore wind energy, aiming for a minimum installed capacity of 60 GW by 2030 and a long-term goal of 300 GW by 2050.[10] At the time of adoption, the region's installed capacity of offshore wind power plants was approximately 12 GW.

Furthermore, the REPowerEU Plan underscores the urgency of adopting renewable energy sources, targeting an additional 41 GW of wind capacity beyond previous estimates. According to the European Commission's Long-Term Strategy, achieving climate neutrality by 2050 will require the deployment of up to 451 GW of offshore wind capacity. By then, it is projected that up to 30% of Europe's electricity demand could be met by offshore wind energy, highlighting its critical role in the region's energy mix.[11] This transition towards renewable energy sources not only contributes to climate goals but also plays a pivotal role in enhancing Europe's energy security and advancing its energy independence objectives.

[8] Arnold, Dupuy. “A New Black Sea Natural Gas Project Could Be a Game Changer for the Region—and a Challenge for Putin.” Atlantic Council, July 26, 2023. https://www.atlanticcouncil.org/blogs/turkeysource/a-new-black-sea-natural-gas-project-could-be-a-game-changer-for-the-region-and-a-challenge-for-putin/.
[9] Idem
[10] “Special Report 22/2023: Offshore Renewable Energy in the EU.” European Court of Auditors, September 19, 2023. https://www.eca.europa.eu/en/publications/sr-2023-22.
[11] Tang, Andreas. “It’s Official: The EU Commission Wants 30 GW a Year of New Wind up to 2030.” WindEurope, July 15, 2021. https://windeurope.org/newsroom/press-releases/its-official-the-eu-commission-wants-30-gw-of-new-wind-a-year-up-to-2030/.



Source: Adrian Stoica, "First Offshore Wind Energy Tenders in Romania," Energy Industry Review, February 15, 2023, https://energyindustryreview.com/renewables/first-offshore-wind-energy-tenders-in-romania/

Romanian Parliament has passed the Offshore Wind Energy Bill proposed by the Ministry of Energy, setting the stage for the country's first offshore wind project by 2032.[12] Within three months of the law's enactment, the Ministry will conduct a study to guide the concession award process and establish construction and operation rules for offshore wind farms. This study will identify maritime areas for concessions based on wind potential, grid connection possibilities, and environmental restrictions. The Government will approve these areas and relevant regulations by mid-2025 and set concession fees by the end of June 2025.[13] Following these approvals, the Ministry will initiate a competitive procedure for awarding concession contracts. Romanian Minister of Energy Sebastian Burduja has indicated that the first megawatt of offshore wind energy could be produced by 2032, bolstering Romanian industry through the production of green hydrogen and ammonia.[14]

[12] Mihai, Catalina and Rotaru, Sebastian.v "Romanian government approves offshore wind law for Black Sea power plants". EURACTIV, 22 December, 2023. https://www.euractiv.com/section/politics/news/romanian-government-approves-offshore-wind-law-for-black-sea-power-plants/

[13] Ibidem

[14] Todorović, Igor. "Romania adopts offshore wind energy law to get first megawatts in 2032". Balkan Green Energy News, 10 April 2024. https://balkangreenenergynews.com/romania-adopts-offshore-wind-energy-law-to-get-first-megawatts-in-2032/

According to estimates from the World Bank, Romania's technical offshore wind potential is 76 GW, with 22 GW suitable for fixed-bottom wind turbines and 54 GW for floating turbines.[15] In February 2024, the World Bank presented the draft findings of Romania's offshore wind roadmap study, projecting 7 GW of offshore wind capacity by 2035.[16]

In September 2024, the World Bank, European Commission, and Romanian government released the "Offshore Wind Roadmap for Romania," a strategic plan for establishing a successful offshore wind industry in Romania.[17] The roadmap highlights Romania's strong wind resources, port infrastructure, and skilled workforce, with potential for up to 7 GW of offshore wind capacity in the Black Sea. Two scenarios are outlined: a moderate 3 GW target, meeting 16% of Romania's electricity needs and adding €1.4 billion to the economy by 2035, and a high-growth 7 GW target, covering 37% of demand and contributing €5.3 billion. Key recommendations include setting 2035 energy targets, designating development zones, streamlining licensing, upgrading transmission, and strengthening local supply chains.

In addition, Black Sea Oil & Gas (BSOG), completed a feasibility study, in partnership with other entities, in which it aims to develop 3 GW of offshore wind energy.[18] This initiative aligns with Romania's newly adopted Offshore Wind Energy Bill, which sets goals for designating suitable areas and establishing tender procedures by mid-2025, with the first project expected to be completed by 2032. Moreover, BSOG, along with Petro Ventures Resources and Gas Plus Dacia, has begun the permitting process for a 126-kilometer power corridor.[19] This corridor will utilize existing infrastructure to connect future offshore wind farms to Romania's national power grid (SEN). The regulatory procedures for this power corridor are anticipated to be finalized by mid-2024. This extensive coordination and planning underline Romania's commitment to expanding its offshore Black Sea energy capabilities and integrating offshore wind power into its national energy strategy.

In conclusion, Romania's strategic focus on developing its offshore energy potential, encompassing both natural gas and wind, marks a crucial step towards enhancing regional energy security amid geopolitical uncertainties. The Neptun Deep and Midia projects, which are pivotal in expanding Romania's domestic energy production, underscore the nation's commitment to reducing dependence on external sources and fortifying its energy resilience. With significant investments and proactive measures in

[15] Ibidem
[16] "OWC completes feasibility study for offshore wind in Black Sea." Power Technology, May 9, 2024. https://www.power-technology.com/news/owc-offshore-wind-black-sea/?cf-view
[17] "A Roadmap for Offshore Wind in Romania," World Bank Group, September 27, 2024, https://www.worldbank.org/en/news/infographic/2024/09/27/a-roadmap-for-offshore-wind-in-romania
[18] Idem
[19] Ernst, Iulian. "BSOG goes ahead with 3GW offshore wind project in Romania's Black Sea". Romania-Insider, 10 May, 2024. https://www.romania-insider.com/bsog-offshore-wind-project-romania-black-sea-may-2024

place, Romania is poised to achieve greater energy independence and contribute significantly to the broader European energy diversification efforts.

The integration of offshore wind energy, as outlined in Romania's ambitious legislative framework, aims not only to meet domestic energy demands sustainably but also to position Romania as a key player in advancing renewable energy goals across the Black Sea region and beyond. By designating areas and defining tender procedures for offshore wind projects, Romania is setting the stage for substantial contributions to the EU's renewable energy targets. As these projects progress, Romania stands ready to play a pivotal role in shaping a more sustainable and secure energy future, benefiting not only itself but also its European and regional partners.

Another important energy source could be hydrogen sulfide from the Black Sea. There are several research projects and studies carried out by universities and institutes in Bulgaria, Romania and Georgia showing that hydrogen sulfide can be used to produce electricity. The 4.5 billion tons of hydrogen sulfide in the Black Sea could produce around 10-12 TWh annually.[20]

Given the importance of these energy projects, ensuring security and fostering cooperation within the Black Sea region is crucial. The potential for geopolitical tensions and external threats underscores the need for robust maritime security and collaborative efforts among Black Sea nations. By working together to protect critical energy infrastructure and maintain stability in the region, Romania and its neighbors can safeguard their investments and ensure the successful development and operation of these vital energy projects. Enhanced security measures and regional cooperation will be essential in mitigating risks and securing a resilient energy future for the entire Black Sea area.

[20] Energie electrică produsă din hidrogenul sulfurat din Marea Neagră, Globalinfo, 14 March 2022, https://www.globalinfo.ro/z/energie_electrica_din_hidrogenul_sulfurat_marea_neagra.htmRomania-Insider

BULGARIA'S ENERGY STRATEGY – DIVERSIFICATION, RISK REDUCTION, REGIONAL CONNECTIVITY

The Black Sea region has traditionally played the role of a transport, energy and economic corridor and provided connectivity between Europe and Asia. Currently, this potential is called into question due to the hostile activities of the Russian Federation in Ukraine that adversely impact the region. Undoubtedly, the main threat for the region and beyond is the Russian military aggression and the full-scale war that Russia is waging against Ukraine in violation of the principles of international law. Russia is also taking aggressive stance towards other countries, blocking activities in their Exclusive Economic zones or threatening their assets, thus raising tensions and creating additional risks. This creates conditions for an increase in uncertainty, which in turn lead to negative consequences for economic activities for the objectives of individual countries.

Bulgaria, like all regional countries, has a vital interest in building security, stability, prosperity and resilience against different threats as the worsening security environment in the Black Sea has negative impact on the economic activities of the country, including on its ambitions and plans in the energy sector.

Bulgaria is relatively poor in fossil energy sources, with the local energy resources used being coal, renewable energy sources and other sources with less economic impact, such as oil and gas. Currently, natural gas extraction is limited, but efforts to explore potential deposits on the Black Sea shelf and on the territory of the country remain a strategic objective. This predetermines the country's strategic approach, which includes maximising the use of available resources, complying with the common EU energy policies, including achieving the objectives of the green economy, diversifying supplies and avoiding excessive dependence on a single supplier, and using the geographical location of the country for turning it into a distribution hub of energy resources for countries from Central and Eastern Europe.

In the context of the country's energy strategy, the Black Sea region plays an important role, which is determined by the fact that Bulgaria receives the main amount of oil and gas by sea and through the land territories of the neighbouring countries. High hopes are being placed on potential gas extraction in the country's Exclusive Economic Zone (EEZ) in the Black Sea. According to the confessions of Minister of Energy, "The potential local gas extraction is of key importance for Bulgaria to achieve the objectives for diversification of the sources of energy resources. The development of local deposit would guarantee the country's energy security and independence and will contribute to increasing the

competitiveness of the economy."[21] "Han Asparuh" perimeter, which borders the economic zone of Romania, is the most promising. At present, the country's gas extraction is concentrated in "Galata" offshore area near the city of Varna. However, only small gas amounts are produced and the deposits are being depleted.

Gas extraction platform near Varna, Bulgaria
*Source: "Bulgaria," Petro*celtic, https://petroceltic.bg/en/bulgaria/

Currently, gas for consumption in the country is almost entirely imported. Bulgaria's ambition is to provide sufficient amount of gas for domestic consumption, which is about 3 billion cubic metres per year, and to play an important role in the gas transportation in North-South and East-West directions. For this reason, Bulgaria has 20 % shareholding in the liquefied gas terminal near Alexandroupolis and has an established gas interconnection with Greece. In 2023, Bulgaria concluded 13-year contract with the Turkish state energy company Botash regarding the unloading capacity and supply of liquefied gas. Through these interconnections, the country's strategy to diversify its energy sources is implemented.

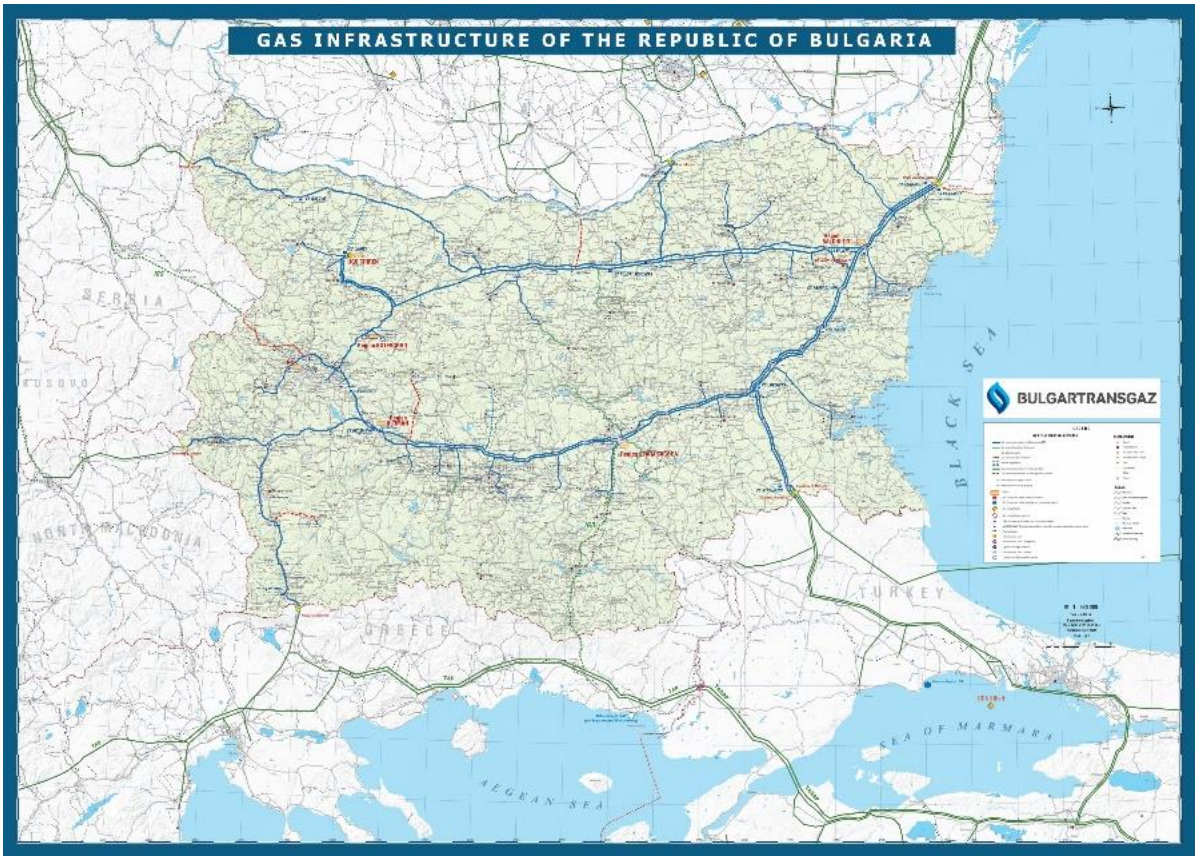
[21] "OMV Petrom" is looking for a new partner for oil and gas exploration in the Black Sea," Mediapool, April 17, 2024, https://www.mediapool.bg/omv-petrom-tarsi-nov-partnyor-za-prouchvane-za-neft-i-gaz-v-cherno-more-news358336.html

The country's gas transmission system has established reverse interconnections with all neighbouring countries, which guarantees energy connectivity and allows the transportation of gas from different sources to different consumers. This turns Bulgaria into an important regional gas hub for energy diversification in the Southeast Europe region, since the main gas supplies to Serbia, Hungary and Austria pass through the country.
The Black Sea is an important transport corridor for crude oil supply. Until now, almost 100 % of refined oil was imported by ships directly from Russia. Even after the suspension of Russian oil supplies due to the sanctions imposed on Russia by the EU, the Black Sea will remain the only route to import raw materials for processing, regardless of their origin. In this regard, the shipping security issues, including the issue on reducing the risk of floating sea mines, remain extremely important.

The country is taking action to ensure an affordable and sustainable energy mix and to switch to environment-friendly energy production. Currently almost 50 % of the energy is produced by thermal power plants operating mainly on coal. The country also relies on production of electricity from nuclear capacities (about 37% of the energy mix) and renewable sources.

Bulgaria considers the Black Sea region in view of both the oil and gas supplies and transport opportunities and as an important factor for electricity and information connectivity. The country's electrical system is connected to the electricity transmission systems of all neighbouring countries, which helps export electricity from Bulgaria to the neighbouring countries. Currently, there are two important data transmission arteries that connect Bulgaria with other countries. One of them is the cable connecting Georgia and Bulgaria.[22] The other connects Türkiye, Bulgaria and Romania. [23]

[22] Caucasus System Submarine Cable System Map, Fiberatlantic, https://www.fiberatlantic.com/cable/EKtVhgZQQlbS9ITKBJIq
[23] "Türk Telekom International (TTI) activates KAFOS (the Black Sea Fiber Optic System) subsea cable connecting İstanbul and Bucharest," Türk Telekom International, March 5, 2021, https://turktelekomint.com/turk-telekom-international-tti-activates-kafos-the-black-sea-fiber-optic-system-subsea-cable-connecting-istanbul-and-bucharest/



The Black Sea region is a key for the gas supply and energy independence of Europe. On the map – Bulgarian gas transmission system (in blue) which allows gas flows from and to any neighboring country.
Source: *"Bulgartransgaz Networking Map," Bulgartransgaz,*
https://www.bulgartransgaz.bg/files/useruploads/images/MAP_BTGAZ_Bolkan_530k_EN_2021_opt.jpg

The importance of the Black Sea in terms of connectivity will grow in the future. One such promising project is the construction of underwater cable through the Black Sea, which will transfer energy from renewable sources from Azerbaijan through Georgia to Romania and Hungary. Bulgaria has also decided to become a shareholder with 20 percent in the company that will implement the project. Although the project is supported by the European Commission, its implementation is delayed mainly due to the insecurity in the region, which results in the lack of investors to finance the construction of the interconnection and the laying of the cable on the seabed.

The international communication connectivity will become increasingly important in the future, and the Black Sea may provide it to the European countries by laying submarine communication cables. Communication connection along the Black Sea bed and energy cable are planned to be laid.

Although the Black Sea is at a crossroads of continents and may be a connecting energy and information hub, at present, the underwater energy and information infrastructure is poorly developed. Undoubtedly, Russia's aggressive actions in the region are an additional obstacle to the development of these activities.
In recent decades, the development of Bulgarian energy sector has been marked by both successfully implemented and failed projects. Diversification of energy supplies, which helped the country free itself from almost complete energy dependence on Russia, is considered to be an undoubted success.

BREAKING FREE FROM THE BEAR'S HUG

In 2022, Bulgaria was almost entirely energy dependent on Russia importing almost 80 % of the natural gas, the main amounts of oil for "Lukoil-Neftohim" oil refinery and 100 % of the nuclear fuel for "Kozloduy" nuclear power plant. This dependence was used by Russia to pressure Bulgaria to change its policies after the start of the war in Ukraine. In 2022, Russia imposed political conditions on Bulgaria regarding the supplies of natural gas and their payments. After the Bulgarian government rejected them, in April 2022, Russia unilaterally suspended the gas supply to the country. This was a clear signal that Bulgaria should free itself from the Russian energy dependence. Within two years after the suspension of Russian gas supply, Bulgaria diversified its gas, nuclear fuel and oil supplies from different sources.

The suspension of gas supplies in an attempt to influence Bulgaria's policies is just an example of how Russia is weaponizing the energy supplies in its hybrid war. At the same time, the Russian propaganda is trying to convince businesses and the population that replacing Russian energy sources with alternative ones will have a negative impact on the country's economy.

After the EU has imposed sanctions on Russia, actions have been taken to diversify the sources of crude oil for the needs of an oil refining company in Burgas. This will allow the use of crude oil other than that suppled from Russia. Another essential measure to release Bulgaria from Russian energy dependence is the construction of facilities for production of energy from renewable sources. The share of these sources in the country's electricity production reaches 20 % and is expected to rise.

Despite the great success, especially in terms of diversification of the energy sources, a number of projects, in which Bulgaria was involved, proved to lack solvency and revealed corruption risk. Russia was directly involved in these projects. An example of such a project is the construction of the second nuclear power plant in Bulgaria in the area of the town of Belene on the Danube River. After years of delay and investments of over BGN

5 billion in preparatory activities, the project was finally terminated in 2023. This project is a clear example of inefficient use of state resources and creation of circles of corruption.

Another unrealised project is South Stream gas pipeline project for transmission of gas from Russia to Italy and to other countries of southern and central Europe. Part of the pipes had to pass along the Black Sea bed from the Russian city of Anapa to the Bulgarian city of Varna. Since no construction activities were carried out, this project was terminated on 1 December 2014 with a unilateral statement of the Russian President Vladimir Putin, who announced that Turkish Stream project would be implemented instead of this project. The real reasons for termination of South Stream gas pipeline project were its excessive costs and non-compliance with the requirements of the EU's Third Energy Package, which required from PJSC Gazprom to provide access for other transit countries to the pipeline and not to reserve its capacity for itself. However, Russia tried to shift the blame for non-implementation of the project entirely on Bulgaria.

Russia's aggressive actions in the Black Sea have adverse effects on the economies of the coastal states. Thus, in 2023, Russia announced for months large parts of the of Bulgaria's EEZ as "zones dangerous for navigation" due to military activities. This in practice stopped the economic activities, including gas exploration, in the perimeter. Considering these activities of Russia, in June 2024, the government of Bulgaria extended the deadline for exploration of gas deposits by the Romanian company "OMW Petrom" due to force majeure circumstances that occurred as a result of the Russian war on Ukraine and Russian hostile activities in the Bulgarian EEZ.[24]

Given that OMV Petrom is developing the Neptune Deep project in Romania's Exclusive Economic Zone, the commencement of gas extraction this fall will not only help optimize costs but also provide valuable experience for the exploration of Asparuh Khan in Bulgaria. This initiative opens up opportunities for further collaborations between Bulgaria and Romania, fostering a stronger partnership and enhancing regional energy security.

Experience shows that different forms of disinformation and pressure from various groups may have significant impact on the implementation of energy projects, since the ultimate goals and interests are usually unclear. An example of such activities is the ban on exploration and extraction of shale oil and gas. Due to protests organised by environmental organisations and agricultural workers, in 2012 the Parliament adopted a decision on total ban on the application of hydraulic fracturing technique in the exploration

[24] Valchanova Zlatina, OMV remained the only company to search for oil and natural gas in "Khan Asparuh," Investor Bulgaria, May 6, 2024, https://www.investor.bg/a/518-energetika/395277-omv-ostana-edinstvenata-kompaniya-koyato-da-tarsi-neft-i-priroden-gaz-v-han-asparuh

and/or extraction of gas and oil on the territory of the Republic of Bulgaria despite the scientific analyses for the existence of large reserves of such sources.

Another case is related to preventing the construction of wind power plants in the Black Sea. It is believed that offshore wind energy may play an important role in increasing the security of supplies for Bulgaria and in the region given the Russian aggression in Europe and in reducing Europe's over-dependence on Russian fossil fuel imports. Despite the large prospects for such energy sources, there is still no solution for their realisation due to the protests of fishing and tourism businesses in Bulgaria in March 2024. Many of the concerns have been proven to be unfounded or based on false claims. However, compromise has not been found and the organisation of these protests and the distribution of false information remain unclear.

The utmost importance of the Black Sea for the energy sector of Bulgaria and for other neighbouring countries is obvious. The region is important for the energy diversification and security of Europe as a whole and for reduction of the Russian energy influence. The potential for development of both extraction and transportation of energy resources along the Black Sea bed, or with ships or through the land part of the intertidal countries, is huge. Both littoral countries and countries outside the region are willing to implement large-scale projects with some projects supported by the European Commission as projects of pan-European importance. The interest of large international companies in investing and performing activities is strong. A number of international initiatives, such as The Three Seas, also provide opportunities for implementing connectivity projects. The interest of distant countries, such as China for example, to invest in implementation of projects, like the project for construction of a deep-water port in Anaklia, Georgia is evident.

However, despite these positive signals, the region's potential cannot be fully developed if appropriate conditions are not provided. Establishing favourable for economic activities security environment is of top priority. The main threat to the regional security currently is Russia's aggressive actions and its war against Ukraine. There are also many other risks and factors that need to be addressed so as to implement the identified and future potential projects. Last but not least, the implementation of various energy projects aimed at diversification and strengthening sustainability will undoubtedly reduce the Russia's influence on the economies and policies of the neighbouring countries.
The above goals can’t come as a result of activities of a single country. Establishing better regional cooperation and attracting interests of organisations and partners is of key importance to creating suitable environment for implementation of projects.

First of all, the Black Sea countries should build capacity to protect the critical energy infrastructure, while seeking regional and other forms of cooperation. A good example in addressing the risks in the Black Sea is the mine action initiative, in which Bulgaria, Romania and Türkiye participate and which is open to the participation of other countries. NATO, which makes serious efforts to protect critical infrastructure, including energy infrastructure, should play a key role. With its resources and know-how, NATO may become a centre for coordinating the efforts and may demonstrate to potential investors and contractors that the security of existing and future projects is protected as much as necessary.

TÜRKİYE

At a time when profound changes are happening in global energy politics Türkiye, that has the longest coastline in the Black Sea, follows closely the energy and security dynamics in the region. The Black Sea region, being in the immediate vicinity of the ongoing war in Ukraine, has become even more important in and vulnerable to geopolitical developments. The prevailing uncertainties due to the current unfavorable circumstances have increased the importance of the Black Sea region which has become an important transportation and energy corridor in the last decade. The new challenge nowadays is to preserve energy security with sustainability and affordability. This challenge impacts national and international politics. For this reason, many governments are in the process of revising their national strategies to ensure their own energy security, a key component of which has become clean energy transition and new and evolving technologies.

Türkiye is strongly committed to strengthening energy security of the region based on diversification of routes and resources, and through transitioning to cleaner energy.[25] Türkiye's long-term objective is to gradually decarbonize its energy system in accordance with its international climate commitments and create a sustainable and climate resilient economy by fully tapping its vast renewable capacity, namely solar, wind and geo-thermal while phasing down coal and another heavy polluter. While these efforts were well underway in that direction, the recent geopolitical realities have had a "fast-forward effect" on these endeavors. Türkiye is one of the fastest growing energy markets globally. It is also a major natural gas consumer and importer. Türkiye has experience in materializing mega size international energy projects such as The Trans-Anatolian Natural Gas Pipeline (TANAP), which is the main component of Southern Gas Corridor, Baku-Tbilisi-Ceyhan Pipeline (BTC), Southern Gas Corridor, LNG infrastructure and electricity interconnections. Being neither an oil nor a gas rich country Türkiye is highly dependent on imported fossil fuels, particularly natural gas from its neighboring countries, namely Russia, Azerbaijan and Iran. While dependence on Russian natural gas has recently decreased to 36 percent of Türkiye's total consumption from the earlier level of about 50 percent, there is a major surge in LNG imports. [26]

Another major development which strengthened Türkiye's energy supply security was the developments in the field of renewables and drilling technologies.[27] The deep-sea drilling

[25] "TÜRKİYE'S INTERNATIONAL ENERGY STRATEGY," Republic of Turkiye Ministry of Foreign Affairs, https://www.mfa.gov.tr/turkeys-energy-strategy.en.mfa

[26] ñTurkey 2021 - Energy Policy Review,ò International Energy Agency, https://iea.blob.core.windows.net/assets/cc499a7b-b72a-466c-88ded792a9daff44/Turkey_2021_Energy_Policy_Review.pdf

[27] Bayraktar Alparslan, ñEnergy Transition in Turkey,ò Turkish Policy Quarterly, 2018,

capacity Türkiye has acquired was the main policy tool which brought about the Black Sea gas discovery. Sakarya Natural Gas Field was discovered in 2020 by TPAO-owned drilling vessel Fatih. The field is within the uncontested Exclusive Economic Zone (EEZ) of Türkiye, located at about 170 kms Northwest of the city of Zonguldak on the Black Sea coast.[28] [29] Sakarya was declared as a giant field with 540 bcm capacity. Subsequent drilling of appraisal wells and the discovery of Çaycuma-1 gas field led to the revision of the size of gas reserves. The Turkish President Recep Tayyip Erdoğan declared, on the 26th of December 2023, that proven reserves now amount to 710 bcm. It is a giant discovery in the real sense of the word by international standards. It is the expectation of Türkiye that this huge volume can be fully tapped and utilized without further delay.

Given the recent geopolitical developments and the adverse effects of the war in Ukraine to energy supply security and energy prices in general, the Turkish authorities decided to develop the field in two phases in a relatively short period of time. The first phase was completed by international and national companies. It entailed the drilling of multiple wells, the construction of the Subsea Production System including manifolds and seabed pipelines and other related infrastructure: the construction of underground pipelines and the Onshore Production Facility at Filyos in Zonguldak. The second phase, which should take longer to complete, was recently contracted. The Turkish Minister of Energy recently stated that the daily production has reached 5 mcm per day which amounts to roughly 2 bcm per annum. This figure should reach 12-15 bcm/annum by 2028. It would contribute to reducing Türkiye's energy bill and reducing dependency on imported gas from unstable regions and unreliable producers. It would also support EU's efforts to enhancing energy supply security of the Balkan countries and beyond.

Türkiye has taken the first step towards becoming a natural gas producer. Production is expected to steadily grow from this field and at its peak (probably by the end of the decade) to meet approximately 10 percent of Türkiye's yearly natural gas consumption. Discovering and utilizing domestic energy resources has long been a priority in Turkish energy policy. Therefore, Türkiye is expected to continue exploration and discovery activities within its maritime jurisdiction areas in the Black Sea. In view of the far-reaching negative consequences of the ongoing war in Ukraine on the riparian states and Europe

https://www.worldenergy.org.tr/wp-content/uploads/2018/12/Energy-Transition-in-Turkey-Alparslan-BAYRAKTAR.pdf

[28] ñSakarya Gas Field Development Projectò, TPAO, October 25, 2022, https://www.tpao.gov.tr/file/2210/sakarya-gas-field-development-project-non-technica-1062635810a6d7ca9.pdf

[29] "Turkey's TPAO begins gas production from Sakarya field in Black Sea," Offshore Technology, April 21, 2023, https://www.offshore-technology.com/news/tpao-production-sakarya/?cf-view

in general, Türkiye's Black Sea Gas Discovery has become more important.[30] Provided that the project is financed and commissioned on time it would strengthen Türkiye's hand in its negotiations with gas providers in the region. It may also defuse possible political pressure on Türkiye.

Türkiye's Natural Gas Discovery in the Black Sea
Source: https://www.aydinlik.com.tr/haberleri/tuna-1-kuyusu

Source: Hürriyet Daily News
https://www.hurriyetdailynews.com/turkeys-4th-drill-ship-to-start-operations-in-summer-2022-169649

[30] Ildem Tacan, ñA balancing act: Turkeyôs misunderstood position on Ukraineò, European Leadership Network, November 9 2022, https://europeanleadershipnetwork.org/commentary/a-balancing-act-turkeys-misunderstood-position-on-ukraine/

Over the past decade Türkiye has put in place an extensive infrastructure for storage and export of natural gas and import of LNG. Türkiye strives to decrease its dependence on a single source for its energy imports and the recent figures indicate that its investments have paid off, not just for Türkiye but for its neighboring countries as well. In this respect Türkiye's LNG imports, largely from the US, albeit on the spot market, has not only helped diversify its own consumption of gas, but also have contributed to the diversification of other Black Sea riparian Allies and partners like Bulgaria and Romania.[31] This no doubt has positive implications on EU energy policies as well. Türkiye remains committed to working with the EU based on mutual benefit to contribute to strengthening not only Türkiye's energy security but that of the EU countries.

Türkiye attaches importance to dialogue and cooperation with its Allies and partners in the region regarding the initiatives launched by littoral states. It promotes inclusiveness as a guiding principle for those initiatives that littoral states may wish to launch to ensure security, safety and confidence. Consultations would be essential to prevent unintended adverse effects of any initiative on the security interests of other littoral states. As exemplified by the trilateral joint initiative of Mine Counter Measure Task Group, in line with the aspiration to promote the ideal of regional ownership, without, however prejudice to other mutually beneficial partnerships, to work closely in dealing with the dangers of drifting mines in the Black Sea, three Allied nations can expand their cooperation to other spheres including energy security.[32] All initiatives also need to be Montreux Convention friendly, an international legal instrument that Türkiye has a solid record of implementing its provisions fully and faithfully as being the "custodian" of this Convention.[33] [34]

[31] "Turkey, Shell Sign LNG Supply Deal in Boost to Gas Hub Plan," Energy Connects, September 2, 2024, https://www.energyconnects.com/news/utilities/2024/september/turkey-shell-sign-lng-supply-deal-in-boost-to-gas-hub-plan/

[32] ñTacan Ildem: NATO and Turkiyeôs Black Sea /Caucasus Policyò, Caucasus Watch, January 27, 2024, https://caucasuswatch.de/en/interviews/tacan-ildem-nato-and-turkiyes-black-seacaucasus-policy.html

[33] ñImplementation of the Montreux Convention,ò Republic of Turkiye Ministry of Foreign Affairs, https://www.mfa.gov.tr/implementation-of-the-montreux-convention.en.mfa

[34] "NATO'S ROLE IN ADDRESSING SECURITY THREATS AND CHALLENGES IN THE BLACK SEA: TIME FOR A COMPREHENSIVE STRATEGIC APPROACH FOR THE REGION?" https://edam.org.tr/Uploads/Yukleme_Resim/pdf-1-11-2023-13-23-41.pdf

CONNECTIVITY IN THE BLACK SEA REGION AND BEYOND

Since the Russia-Georgia war in 2008, the security calculus in the wider Black Sea region has deteriorated. The Russian occupation and annexation of Crimea in March 2014 dealt a severe blow to maritime security in the wider Black Sea region, thereby presenting a litany of challenges in many, including NATO's five operational domains for the three NATO members, namely Türkiye, Bulgaria, and Romania, not to mention the other littorals and stakeholders in the wider Black Sea basin.

The Black Sea region has been the subject of power politics for centuries. It has also been a crucial nexus in the ancient Great Silk Road that linked Europe to Asia. This critical aspect of the region has been revived in the aftermath of the Cold War with a web of connectivity projects designed to encouraging regional integration at a time when Russia was having a good rapport with the West, including European and Euro-Atlantic institutions.

The Russian aggression in February 2022 on Ukraine has further exacerbated the fragile security situation in the Black Sea, certainly including but not limited to maritime security. While the lack of trust has become a trademark of relations among the regional players in the wider area, the global security order has been shaken to the ground due to the ever-increasing geopolitical and geostrategic competition among the major powers, that is, the U.S., China, and Russia. Against this broader picture, whereby the rules-based order is greatly challenged, the Russian aggression on Ukraine has gained further traction with adverse consequences for the Black Sea security.

Strategic rivalry at the global level has started to exact a heavy toll on connectivity in its widest meaning in the region implicating not only the security in the area, but also the domains such as energy, food, protection of critical infrastructure, supply and value chains, transportation etc.

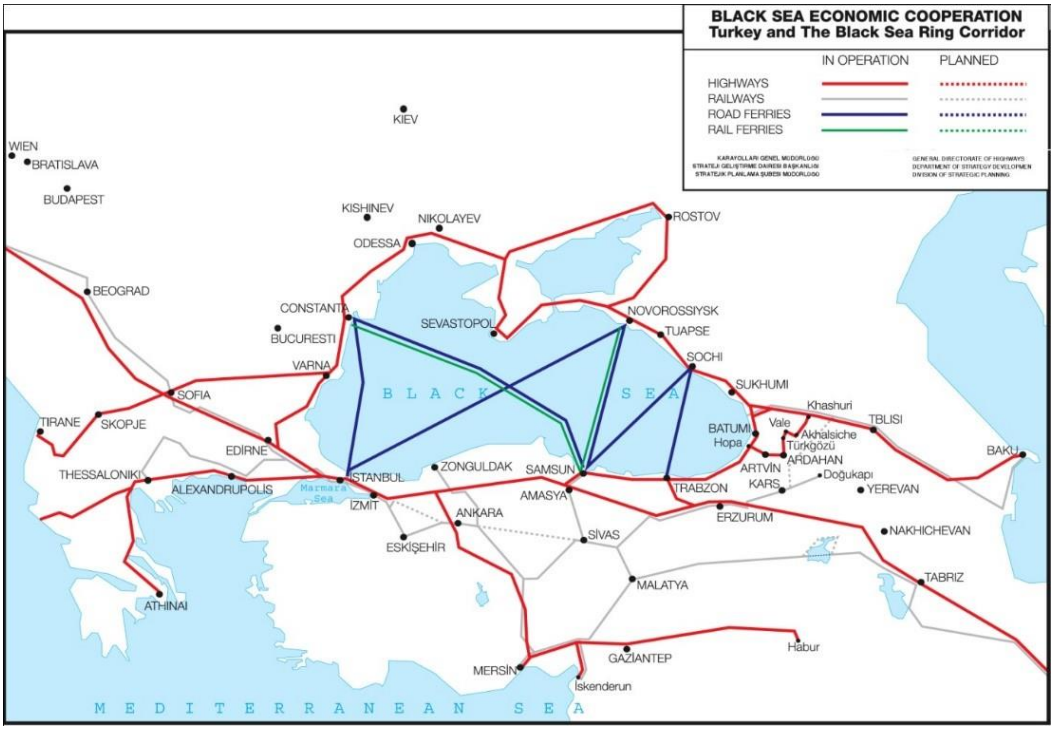
Recent state of affairs governing global security has clearly demonstrated that connectivity mainly defined by investment in critical infrastructure such as transportation networks, logistics, free trade centers, digital networks, ICT, green transformation has become an inseparable part of the ongoing systemic rivalry. Hence the clear need for paying more attention to the rising influence of connectivity in shaping global and regional politics.

The incorporation of Russia into the Western economic and commercial structures had a pause in 2008 in the wake of the war in Georgia and came to an abrupt halt after Russia started to demonstrate an aggressive attitude in Ukraine. The current Russian aggression against Ukraine has made it essential more than ever to sustain connectivity among the regional countries suffering from the acts of an aggressive Russia.

Long before the outbreak of strategic competition among major powers, Türkiye has been fully aware of improving regional connectivity to support and encourage supply & value chains in the Black Sea. Türkiye had perceived connectivity as an important security &

stability enabler.[35] Suffice it to say that in October 1998 Bakü-Tbilisi-Ceyhan pipeline project was initiated with the Ankara Declaration[36] signed by Türkiye, the U.S., Azerbaijan, Georgia, Kazakhstan, and Uzbekistan that ensued the Multilateral Agreement of September 1998 signed in Baku among twelve International Transport Corridor Europe-Caucasus-Asia (TRACECA) members to help revive the historic Great Silk Road to connect Europe to the South Caucasus and Central Asia.[37]

Türkiye launched the project of the Black Sea Ring Corridor in 2003 within Black Sea Economic Cooperation (BSEC) organisation to reinforce sea and land connectivity among its member states.[38] This project has come to a gradual halt in the wake of Russian aggressive behaviour since 2008.



Source: Retrieved from BSEC. (n.d.) The Black Sea Ring Corridor. https://www.bsec-organization.org/

[35] Fatih Ceylan, ñAll Roads Now Leading to the Middle Corridor - Fatih Ceylan.ò Panorama, February 14, 2024.
https://www.uikpanorama.com/blog/2024/02/14/middle-corridor/

[36] Azerbaijan, Georgia, Kazakhstan, Turkey, and Uzbekistan. ñLetter Dated 19 November 1998 from the Permanent Representatives of Azerbaijan, Georgia, Kazakhstan, Turkey and Uzbekistan to the United Nations Addressed to the Secretary-General.ò United Nations Digital Library System. UN, November 25, 1998. https://digitallibrary.un.org/record/264846?v=pdf

[37] TRACECA. ñStrategy of IGC TRACECA 2016-2026. TRACECA ORG.ò Traceca-org.org, 2016. https://traceca-org.org/en/home/strategy-of-igc-traceca-2016-2026/

[38] General Directorate of Highways. ñBSEC.ò Kgm.gov.tr, 2019. https://www.kgm.gov.tr/Sayfalar/KGM/SiteEng/Root/Gdh/InternationalProjects/BSEC.aspx.

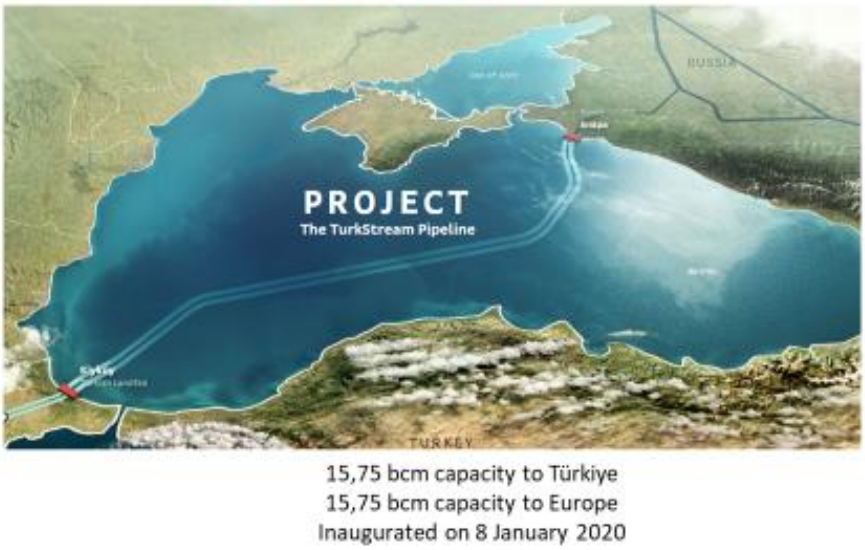
In addition, TurkStream brings natural gas directly from Russia to Türkiye, and also on to the rest of Europe. The completion of the off-shore section ceremony of TurkStream was held in November 2018 in Istanbul and the first gas delivered to Türkiye at the end of 2019. The opening ceremony was held on 8 January 2020 in Istanbul.

The offshore component of TurkStream consists of two parallel pipelines (TS1 and TS2), each with 15,75 bcm/year capacity, running through the Black Sea. The pipelines enter the water near Anapa in Russia, and come ashore on the Turkish coast in the Thrace region, near Kıyıköy reaching to a total of 930 km. TS1 provides gas to Türkiye while TS2 continues to the Turkish-European border and connects to Bulgaria, Serbia and Hungary.

TS1 supplies natural gas exclusively to Türkiye, replacing the RF gas provided from the Western Line (from Ukraine, Moldova, Romania and Bulgaria).

All shares of the onshore section of TS1 belong to BOTAŞ (a state-owned crude oil and natural gas pipelines and trading company in Türkiye) while 50% of the onshore section of TS2 in Türkiye belongs to BOTAŞ and 50% to Gazprom. The offshore section of TS1 and TS2 is wholly owned by Gazprom.

Gas deliveries via TS2 started to Bulgaria in January 2020, Serbia in January 2021 and Hungary in October 2021.



Source: The TurkStream Pipeline Project https://turkstream.info/project/

The Middle Corridor had been designed by Türkiye in 2010 as an integrated project intended to tie together seaports, airports, railroads, highways, energy lines, and digital networks in the region that extended from Central Asia to Türkiye through the South Caucasus and to Europe.[39] It also entailed Northern (Europe)[40] and Southern (Middle East)[41] arteries to strengthen connectivity in a large belt of geography mutually beneficial for European and regional stakeholders. The idea behind it has been to generate peace, stability and welfare in the region, thus serving expansion of supply & value chains, attracting investments in critical infrastructure and contributing to national, regional, and European resilience.

The flow of events since the early 2000s such as the U.S. unilateral military intervention in Iraq in 2003 and the Russo-Georgia war in 2008 and the footsteps of an increasing geopolitical rivalry between the U.S. and Russia in terms of Euro-Atlantic security have shaped Black Sea regional politics as well as the threat perceptions of all littoral states. Türkiye has not remained immune to this shift in regional politics influenced by the rising geostrategic rivalry among the major players at the macro level. Such developments have been instrumental in shaping Türkiye's regional perspective, thereby inspiring the idea of regional ownership. As a result, Türkiye has started to pursue projects designed to encouraging peace, stability and welfare in the region. Türkiye's clear preference for such an approach has manifested itself in prioritising connectivity projects for the greater region.

At first glance the components of connectivity projects have been launched in seemingly separate endeavours, but it has evolved into an integrated architecture that goes beyond the region extending to Central Asia.

Baku-Tbilisi-Kars railroad connection,[42] Baku-Tbilisi-Erzurum natural gas pipeline,[43] the Marmaray Project, the Eurasian Tunnel, the third Suspension Bridge (Yavuz Sultan Selim), the Alat seaport near Baku, the Aktau (Kazakhstan) and the Türkmenbaşı (Türkmenistan) seaports with connections to Central Asia via Kyrgyzstan and Uzbekistan have all been the interconnected critical infrastructure segments of the Middle Corridor. In that respect, the land, railroad, highways, transportation and logistics segments seemed to have initially proceeded on separate tracks, but ultimately, they have become parts of a bigger connectivity enterprise, including but not limited to sea and air components as well as digital and energy networks.[44]

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[39] Alberto R zz , ñRisk and Reward: Why the EU Should Develop the Middle Corridor Trade Route.ò ECFR, April 11, 2024. https://ecfr.eu/article/risk-and-reward-why-the-eu-should-develop-the-middle-corridor-trade-route/.

[40] Alliance Logistics. ñViking TrainôProject.òAlliance Logistics, n.d. https://alliance.net/viking-train-project/

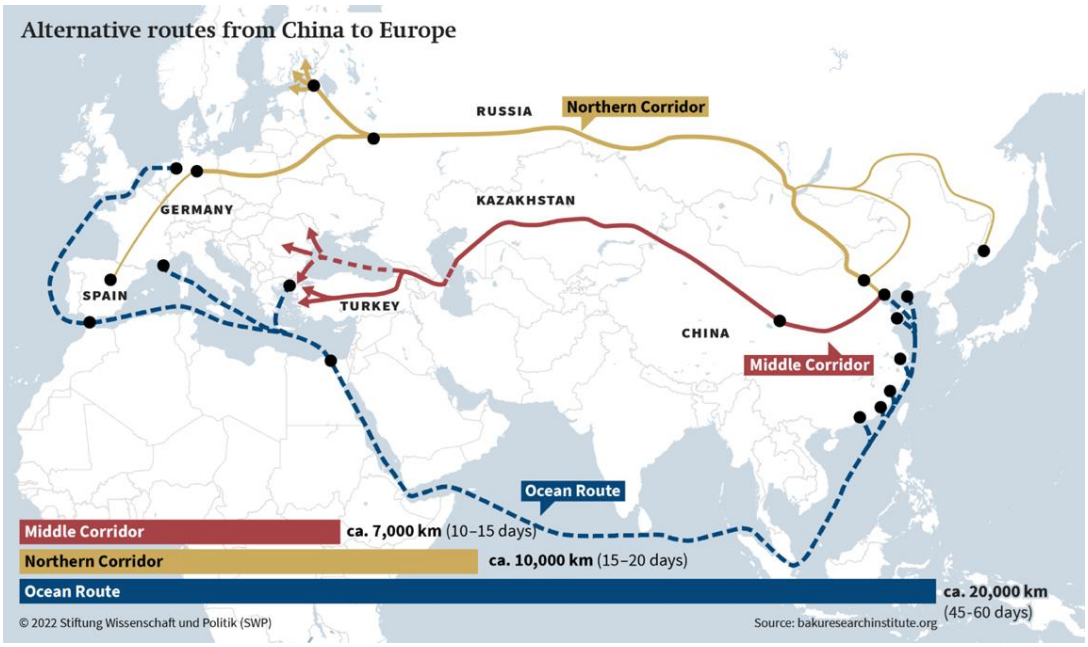
[41] AA. ñstanbul-Islamabad Journey to Take 11 Days with Gul Train.òAa.com.tr, December 13, 2012. https://www.aa.com.tr/en/turkey/istanbul-islamabad-journey-to-take-11-days-with-gul-train/299051.

[42] Ilham Kar ml , ñBaku-Tbilisi-Kars Railway Expansion Completed, Boosting Cargo Volume to 5 Million Tons.ò Caspian News, May 7, 2024. https://caspiannews.com/news-detail/baku-tbilisi-kars-railway-expansion-completed-boosting-cargo-volume-to-5-million-tons-2024-5-7-0/

[43] Global Energy Monitor. ñSouth Caucasus Gas Pipeline - Global Energy Monitor.òGlobal Energy Monitor. Global Energy Monitor, September 19, 2024. https://www.gem.wiki/South_Caucasus_Gas_Pipeline.

[44] Tuba Eldem, ñRussiaôs War on Ukraine and the Rise of the Middle Corridor as a Third Vector of Eurasian Connectivity.ò *SWP Comment* C, no. 64 (October 28, 2022). https://doi.org/10.18449/2022C64

Given the recent challenges to European security owing to the ongoing Russian war in Ukraine and the tragic developments in the Middle East due to the Israel-Palestine war, it is important more than ever to prioritise the Middle Corridor by all stakeholders, regional and non-regional, with renewed impetus.



Source: Stiftung Wissenschaft und Politik, 2022

The Middle Corridor with its European, Caucasian, Central Asian, and Middle Eastern tracks will be a powerful strategic tool to be leveraged against coercive and aggressive powers such as Russia and reduce dependencies on them, including in the energy domain.

Current and future extractions of natural gas in the EEZs of Türkiye, Romania, and Bulgaria in the Black Sea (Neptun Deep&Midia – Romania; Sakarya – Türkiye, and Khan Asparuh – Bulgaria) have the potential to change the energy calculus in the region, which will necessitate both investing in the energy sector like building rigs in the EEZs, LNG storage sites in all three littoral Allies, improving the interconnected territorial and under sea electricity cables and grids, and protecting the critical energy infrastructure that is fast evolving in the region. The undersea electric cable agreement among Azerbaijan, Georgia, Hungary, and Romania signed in December 2022 under the auspices of the EU is an example of regional cooperation that will mitigate the adverse consequences of relying on Russian energy sources. Although important, this project will not suffice to meet energy needs of regional countries. This necessitates the diversication of green corridors that spread throughout the region as an inseparable part of the Middle Corridor as an integrative construct.

It should be underlined that the Middle Corridor is simply not a network of railroads and highways, but hinges on different tracks of integration, including but not limited to enhancing the Green Transition in the region, notably a catalyst for mobilising clean and renewable energy resources in the mid-to-long term. Consequently, it has an all-encompassing architecture catering, among others, for mitigating shocks and disruptions primarily in the energy domain.

It has in its design not only the sea lines of communication (SLOCs), but also territorial lines of communication (TLOCs), aerial lines of communication (ALOCs), digital lines of communication (DLOCs), energy & electricity lines of communication (ELOCs), and transport and logistics lines of communication (TLOCs). It is, thus, a comprehensive enterprise built on a holistic structure that needs to be protected and sustained over the long term.

The Middle Corridor is by design open to regional and non-regional public and private stakeholders but denies cooperation with states demonstrating aggressive behaviour in the Black Sea region that are the main actors challenging energy supply and security. Transition to green energy, notably solar and wind energy, is also an integral part of the Middle Corridor.

Given the scope and the level of ambition of the Middle Corridor, it would be worth to explore establishing a structural link between the EU's 3Seas Initiative and the Middle Corridor Enterprise that entails also three seas, namely the Caspian, Black Sea, and the Mediterranean. In this endeavour, it is incumbent upon the two EU littoral members, that is, Bulgaria and Romania, to deploy necessary efforts to create a level-playing field for non-EU regional countries in expanding the scope of cooperation among all stakeholders involved in an inclusive manner.[45]

A functional and sustainable belt of cooperation from the Baltics to the depths of Central Asia that takes the Black Sea as its pivot needs certainly vibrant and lively interest and investment in connectivity projects, inclusive of energy infrastructure, and supply & value chains. It thus requires broad, continuous and seamless cooperation between the EU and non-EU states in this wide geography that should entail robust, sustainable and in-place security measures to protect various critical components of this comprehensive architecture against aggressive state and non-state actors in the years to come.

[45] PRESIDENT.PL. ñJoint Declaration of the Ninth Summit of the Three Seas Initiative,òApril 11, 2024. https://www.president.pl/news/joint-declarationof-the-ninth-summit-of-the-three-seas-initiative,83857

Source: Middle Corridor-*Modern Silk Road. Retrieved from Bulut, E. B. (2018), "GOVERNANCE OF TRANSPORT CORRIDORS" PERSPECTIVE OF TURKEY, 11th Meeting of COMCEC Transport and Communications Working* Group on « Governance of Transport Corridors in the OIC Member States: Challenges, Cases and Policy Lessons», Ankara.

To effectively bolster its regional energy infrastructure, Romania has also invested in several key interconnectivity projects. Firstly, to begin with, the BRUA project has assumed strategic significance in the region. Its reversible flow connectors to Ukraine and Bulgaria, in tandem with connections to the southbound Trans-Balkan pipeline, provide crucial supply flexibility and facilitate the efficient distribution of Black Sea gas resources. Phase 1 includes constructing a 479 km pipeline and three compressor stations to enable bidirectional gas flow. Phase 2 facilitates gas transport from the Caspian Sea through Romania to Hungary, while Phase 3 aims to accommodate additional Black Sea gas volumes via the new Tuzla-Podișo**r** pipeline, connecting the Black Sea coast with the BRUA corridor. [46] Romania's Transgaz has initiated the Tuzla – Podisor gas pipeline project, a crucial venture connecting Black Sea gas resources, particularly Neptun Deep, to the broader European network via the BRUA corridor. With an estimated cost of €500 million of which €85 million is coming from the European Bank for Reconstruction and Development, this 306.5-kilometer pipeline will traverse Constanta, Calarasi, and Giurgiu

[46] "BRUA", Three Seas, https://projects.3seas.eu/projects/brua-development-on-the-territory-of-romania-of-the-national-gas-transmission-system-along-the-corridor-bulgaria-romania-hungary-austria

Counties. [47] Designed to meet approximately 45% of Romania's gas consumption, this pipeline will have an annual capacity of over 12 billion cubic metres and is crucial for Europe's energy security. [48] It will facilitate Black Sea gas entering the National Transmission System at the Podisor technological node, enhancing supply for both economic operators and households.

Regarding bilateral cooperation, Romania, with support from the EU, has made significant investments in the Iasi-Chisinau pipeline, enabling the Republic of Moldova to import gas from Romania and other countries. In September 2023, Romania further strengthened Moldova's energy independence when Transgaz, a state-owned company, acquired Moldova's entire gas transmission network through its subsidiary, Vestmoldtransgaz. Previously, this network was controlled by Moldovagaz, with Gazprom as the majority shareholder. [49] Additionally, on December 11, 2023, Romania and Moldova signed a memorandum to connect their natural gas and electricity networks, including expanding the Iasi-Ungheni-Chisinau gas pipeline with the construction of the Chisinau Belt pipeline by 2031. [50] According to Ion Sterian, the CEO of Transgaz, Transgaz has built the Onești-Gherăești-Lețcani-Ungheni-Chisinau gas pipeline, which is functional and operational and through which the Republic of Moldova could take natural gas between 1.5-2.2 billion cubic meters/year, satisfying its yearly consumption. [51] Romania has invested €450 million to upgrade the transmission infrastructure between the two countries, facilitating the distribution of Black Sea gas to the Republic of Moldova. [52]

These projects are additional instruments in boosting the region's energy supply and play a vital role in Romania's quest for energy independence. Currently, Romania meets around 80% of its annual gas consumption domestically, about 12 billion cubic meters (bcm). [53] With the development of the Neptun Deep project and the completion of various interconnecting lines, Romania is poised to fully satisfy its gas needs from domestic

[47] Raluca Besliu, "Romania wants to become the EU's biggest gas producer. It's a problem for many," Euronews, September 6 2023, https://www.euronews.com/my-europe/2023/10/06/romania-wants-to-become-the-eus-biggest-gas-producer-its-a-problem-for-many#:~:text=The%20EU's%20Modernisation%20Fund%20%2D%20a,cost%20of%20%E2%82%AC478%20million

[48] Jov Onsat, "Transgaz Awards Build Contract for Tuzla-Podisor Pipeline", RIGZONE, June 20, 2023, https://www.rigzone.com/news/transgaz_awards_build_contract_for_tuzlapodisor_pipeline-20-jun-2023-173120-article/#:~:text=The%20Tuzla%2DPodisor%20pipeline%20will,Caspian%20Sea%20region%2C%20he%20said

[49] "Transgaz has taken over the operation of the entire gas transmission system in the Republic of Moldova," Energynomics, September 5 2023, https://www.energynomics.ro/en/transgaz-has-taken-over-the-operation-of-the-entire-gas-transmission-system-in-the-republic-of-moldova/

[50] "Moldova and Romania signed a memorandum of agreement on the implementation of projects to connect the natural gas and electricity networks of the two countries.", InfoMarket, December 11 2023, https://infomarket.md/en/analitics/332183

[51] Ancuta-Carolina Stanciu, "Interviu Ion Sterian: "România este mai sigură din punct de vedere energetic decât a fost în orice alt moment al său," Financial Intelligence, April 17 2023, https://financialintelligence.ro/interviu-ion-sterian-romania-este-mai-sigura-din-punct-de-vedere-energetic-decat-a-fost-in-orice-alt-moment-al-sau/

[52] Ibidem

[53] Arnold, Dupuy. "A New Black Sea Natural Gas Project Could Be a Game Changer for the Region—and a Challenge for Putin." Atlantic Council, July 26, 2023. https://www.atlanticcouncil.org/blogs/turkeysource/a-new-black-sea-natural-gas-project-could-be-a-game-changer-for-the-region-and-a-challenge-for-putin/.

production and as Black Sea production reaches full capacity, Romania is set to emerge as a significant gas exporter starting 2027.

For example, Moldova’s annual gas consumption is approximately 2.9 bcm (1.5bcm to the areas under Chisinau's control, while the remaining 1.4 bcm, used by the Kremlin-controlled region of Transnistria) Bulgaria's is around 3 bcm, and Serbia's is 2.4 bcm. [54] By Romania potentially supplying to these countries, it will be enhancing regional energy connectivity and efficiency and this shift would solidify Romania's position as a key energy player in the region, offering an alternative to Russian gas imports.

Bulgaria considers the connectivity in the fields of energy and communications in the region as a key priority. In recent years, in fulfillment of this priority, gas interconnectors with neighboring countries with possibility of reversible gas supply were built. This makes it possible to transport gas in the north-south and east-west directions through the Bulgarian gas transmission system from any sources to various consumers. In this way, it contributes to the diversification and energy security of the Eastern and Central European region.

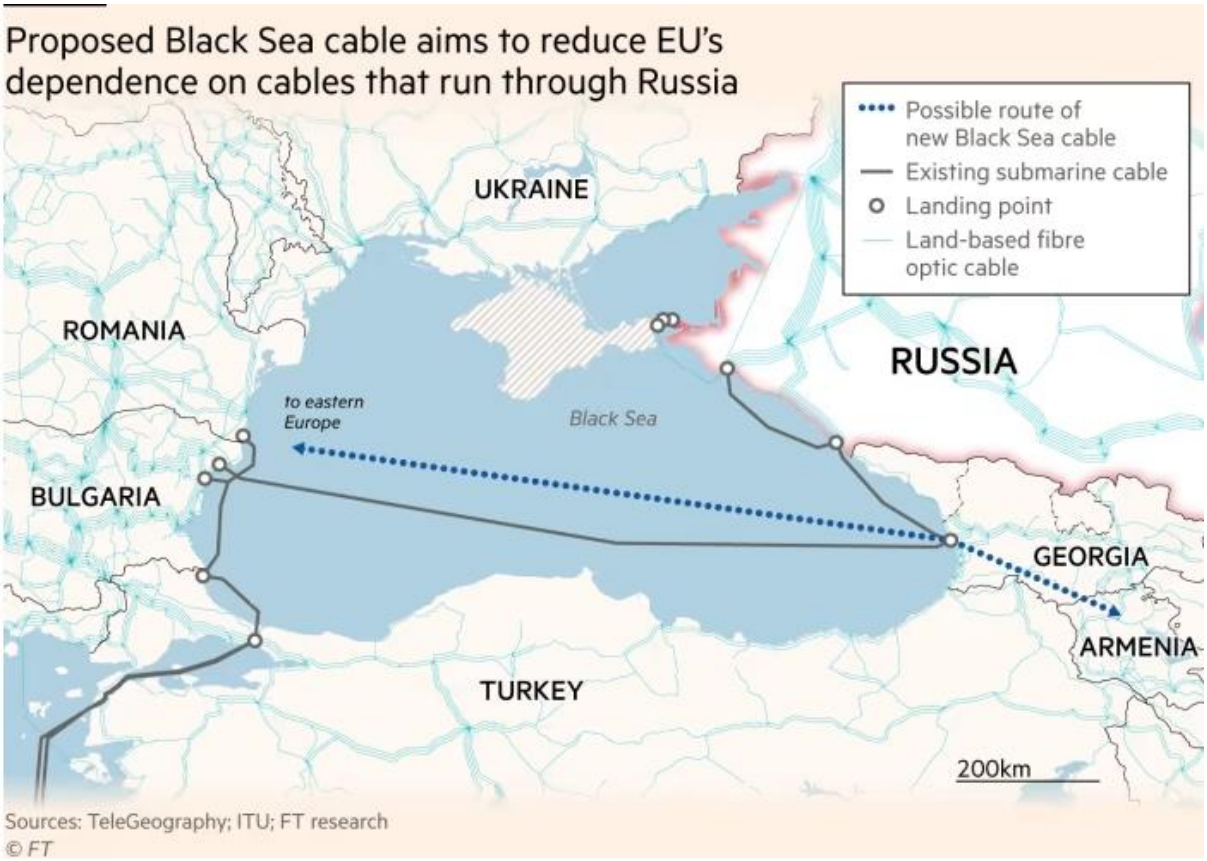
The same approach has been applied to the country's electricity transmission system, which is connected to the respective electrical grids of the neighboring countries.

Bulgaria also uses two communication cables laid along the Black Sea bed. One connects Bulgaria and Georgia, and the other goes from Türkiye to Bulgaria and Romania. Another example of regional connectivity in the Black Sea is the ferry connection between Burgas /Bulgaria/ and Batumi /Georgia/. This transport connection is important for both countries, but has also potential to be included in the Middle Corridor for connectivity with China.

Assessing regional connectivity in the Black Sea region, several conclusions can be drawn.

First, the importance of the Black Sea region as energy, transport and data hub exceeds the regional dimension. The region is important to the connectivity of Europe, the Middle East and Asia as its geographical location makes it extremely promising. However, the region's potential has not been fully realized. There is currently one gas pipeline which transport gas from Russia to Türkiye. The data cables laid on the seabed can be counted on the fingers of one hand. There is no single undersea electricity cable. Recently, a project has been proposed for construction of such cable to supply electricity from Azerbaijan through Georgia and further to Romania and Hungary.

[54] Ibidem



Despite the geographical location of the Black Sea and its potential to be a connectivity hub, there are currently very few cables which connect two or more countries. Source: FT 2023 https://www.ft.com/content/d07dbd19-5e8b-4543-85f6-bbf1a6a0858d

Second, Bulgaria, Romania and Türkiye have as their national priorities the construction of an energy infrastructure that allows connectivity and the transfer of resources, materials and data. Good coordination among the three countries undoubtedly helps in the development of connectivity.

Third, the interest in developing multinational projects between Europe, Asia and the Middle East are key for Europe as an opportunity for diversification of supplies. On the other hand, the Black Sea is on the way of the Middle Corridor. In the past, this region was on the Silk Road. Today, these options are available again. Many third countries, organizations and private investors are interested in implementing various projects to ensure connectivity in its various tracks in a holistic manner.

The question is why, with so many contributing factors, the Black Sea lags behind other regions in the field of connectivity and why there are currently very few projects that connects different countries.

The region's underdevelopment in terms of connectivity can be explained mostly by security concerns and first and foremost by the Russia's ongoing war against Ukraine. This prevents states from investing in new projects and discourages potential private investors. Addressing security issues and ensuring the capacity to protect the critical surface and underwater infrastructure are key to the realization of new underwater projects.

Another problem is related to the geography of the sea. The average depth of the Black Sea is 1,253 meters, and the deepest point is 2,212 meters. This depth somewhat poses technical problems for the implementation of deep-sea projects. However, advances in technology make it possible to overcome this problem. For this purpose, it is necessary to strengthen the regional and wider cooperation to search for modern and innovative solutions.

Joint efforts by the Black Sea states to invite potential investors would be positive and should be incentivised. Development of common projects and involvement of the states in cooperation with private stakeholders towards putting the components of connectivity in place would promote new opportunities at a regional and global scale.

SECURITY CONCERNS REGARDING CRITICAL ENERGY INFRASTRUCTURE

Russia's war against Ukraine has created significant security challenges for the Black Sea's littoral countries, posing a substantial threat to ongoing and future energy projects. Since Russia's illegal occupation of Crimea in March 2014, Moscow has transformed the peninsula into a formidable military stronghold, in its attempt to assert dominance over the Black Sea and extend its influence across Europe, the Mediterranean, the South Caucasus, and the Middle East. This strategic foothold has significantly altered the regional security dynamics posing a direct threat to NATO members and to freedom of navigation in the Black Sea. Russia's widespread use hybrid warfare measures such as blocking maritime perimeters under the pretext of military exercises, and the establishment of an extensive A2/AD zone with Crimea at its center, has extended Russia's military control, compounding the ability of littoral states to safeguard their military, strategic, geopolitical, and economic interests. Furthermore, the blockade of Ukrainian ports, the occupation of strategic locations like Snake Island, and the aggressive interception of commercial vessels have not only strained regional security but also jeopardized critical energy infrastructure. While these actions prove Russia's imposition of limitation of navigation of freedom, they also highlight Moscow's continuous ambition to dismantle the legal and normative assemblage governing the international waters and institute its own in the Black Sea. These actions have reiterated the vulnerability of future and ongoing energy projects, which are dependent on secure maritime routes and stable geopolitical conditions.

The militarization of Crimea and the Donbas region of Ukraine has been central to Russia's strategy. Following the 2014 annexation, Russia transformed the peninsula into a major military hub. By 2022, the peninsula became the largest inter-service grouping of Russian troops in Europe. The initial military presence included land, air, and sea components, each geared towards preparing broader offensive actions against Ukraine. Moscow quickly equipped Crimea with advanced military hardware and restored numerous Soviet-era facilities, including airfields, missile launchers, air defense installations, radar systems, and bases for nuclear weapons.[55] The revitalization of Crimea's defense industry included military instrumentation, shipbuilding, and ship repair, effectively integrating Crimean military enterprises into Russian state-owned concerns. Consequently, Crimea became a comprehensive military base, deeply embedding military priorities into its economy, social life, and governance.[56] The number of Russian military personnel in Crimea also increased significantly over time, with the deployment

[55] Ben Hodges, Steven Horrell, and Ivanna Kuz. "Russia's Militarization of the Black Sea: Implications for the United States and NATO". CEPA, September 22, 2024. https://cepa.org/comprehensive-reports/russias-militarization-of-the-black-sea-implications-for-the-united-states-and-nato/

[56] Gressel, Gustav. "Waves of ambition: Russia's military build-up in Crimea and the Black Sea." European Council for Foreign Relations, 21 September, 2021. https://ecfr.eu/publication/waves-of-ambition-russias-military-build-up-in-crimea-and-the-black-sea/

evolving into a comprehensive Anti-Access/Area Denial (A2/AD) area by the time of Russia's full-scale invasion of Ukraine in 2022.[57]

A significant part of Russia's control over Crimea and its military purposes was its takeover of Ukrainian gas drilling platforms in the Black Sea in 2015. Since seizing Ukrainian drilling platforms in the Black Sea, Russia had repurposed them for both resource exploitation and military missions. Russia used these bases for special forces and surveillance equipment, where this strategic positioning enabled Russia to significantly restrict Ukraine's access to the Black Sea and disrupt its maritime communications.[58]

These platforms had been equipped with Neva-B water-surface surveillance radar systems, providing real-time monitoring of air and surface activities in the northwest Black Sea and enhancing Russia's targeting capabilities for its naval and aviation forces.[59] Additionally, these platforms have served as strategic bases for logistical support, helipads, and staging points for special operations units. This infrastructure has been crucial in supporting Russian troops in facilitating the blockade of maritime routes adjacent to Ukraine.

These sites, such as the Boyko Towers, sit above substantial reserves of natural gas and were critical assets for Ukraine's energy infrastructure. By controlling these drilling sites, Russia denied Ukraine access to these crucial resources, further straining Kyiv's energy independence and economic stability. The takeover of these sites had disrupted Ukraine's plans for energy diversification and development, forcing the country to seek alternative sources of energy by increasing its reliance on imports. Russia aimed to severely limit Ukraine's economic, logistical, energy, and security capabilities, creating a dependence and surrender to the Kremlin, consequently affecting the surrounding littoral states.[60]

On September 11, 2023, Ukrainian Defense Intelligence special operations units executed a mission to regain control of several strategic platforms including Petro

[57] Andrii Ryzhenko. "Crimea's Role as Russian Bastion for the Ongoing War in Ukraine." The Jamestown Foundation, April 6, 2022. https://jamestown.org/program/crimeas-role-as-russian-bastion-for-the-ongoing-war-in-ukraine/

[58] Pavel Baev, Yevgeniya Gaber, Dmitry Gorenburg, and Graeme P. Herd. "Russia End State: Battle for the Black Sea". George C. Marshall European Center for Security Studies, March 12, 2024. https://www.marshallcenter.org/sites/default/files/files/2024-03/C%20-%20FY24-SCSS%236-Summary-FINAL-PDF.pdf

[59] Dylan Malyasov. "Ukrainian special forces seized Russia's modern radar system." Defence blog, September 11, 2023. https://defence-blog.com/ukrainian-special-forces-seized-russias-modern-radar-system/

[60] Dalay, Galip and Sabanadze, Natalie. "How geopolitical competition in the Black Sea is redefining regional order." Chatham House, 7 March, 2024. https://www.chathamhouse.org/2024/03/how-geopolitical-competition-black-sea-redefining-regional-order

Godovanets, Nezalezhnist, Tavrida, and Syvash.[61] Despite these achievements, the threat of Russia reclaiming these key points remains a critical security concern. This aggressive move underscores Russia's willingness to use energy resources as a tool of geopolitical leverage, heightening tensions with neighboring countries in the process and complicating the security dynamics of the energy projects in the Black Sea.

Significance of the Snake Island

On February 24, 2022, Russian naval forces approached Ukraine's Snake Island and issued an ultimatum for the Ukrainian garrison to surrender. Following the refusal of Ukrainian forces, Russian forces launched a coordinated assault involving air strikes and naval bombardment, ultimately capturing the island after destroying Ukrainian miltiary assets based on the island. The garrison personnel was taken into captivity.[62] Subsequently, Russia established a comprehensive blockade in the northwest Black Sea.

Source: Paul Adams, "Ukraine claims to retake Black Sea drilling rigs from Russian control," BBC News, 11 September 2023, https://www.bbc.com/news/66779639

On February 26, 2022, Russia declared that any ships in the area would be considered terrorist threats, and on the same day, seized the civilian rescue ship Sapphire near

[61] "Ukraine snatches back control of offshore rigs in Black Sea following a special raid." Ukinform, September 11, 2023. https://www.ukrinform.net/rubric-ato/3759798-ukraine-snatches-back-control-of-offshore-rigs-in-black-sea-following-special-raid.html

[62] Sophie Williams in Lviv & Paul Kirby. "Ukraine war: Snake Island and battle for control in Black Sea" BBC, May 11, 2022. https://www.bbc.com/news/world-europe-61406808

Snake Island.[63] This move reinforced Moscow's blockade of Ukraine from the sea and solidified its control over adjacent waters. The occupation of Snake Island was part of a broader strategy to project Russian power into Ukraine, and potentially conduct intelligence and electronic warfare operations against NATO forces deployed in Romania. The island's proximity to Romanian strategic points, including the ports of Sulina and Constanta and the Mihail Kogalniceanu and Fetesti airbases, highlighted its strategic importance.[64] Control of Snake Island enabled Russia to potentially block naval traffic to and from key Ukrainian ports, thereby threatening freedom of navigation including in the Romanian Economic Exclusive Zone (EEZ).

In June 2022, Ukraine successfully recaptured Snake Island. However given the strategic value of the island, the possibility of it being recaptured remains pervasive. The island could play an important role in a blockade of the mouth of the Danube. A Russian Federation in control of the Snake Island could close all naval traffic to and from the Ukrainian ports of Reni and Izmail and the Romanian port of Sulina, further deepening its control over the North-Western Black Sea.[65] Ensuring sustained control over the island is crucial for maintaining the security of Ukraine's maritime boundaries and safeguarding the broader stability of the Black Sea region and the security of the ongoing and upcoming energy projects. The strategic location of these points allows control over key maritime routes and energy extraction sites. Disruption in these areas could lead to heightened geopolitical tensions, and increased energy insecurity. Most importantly, it threatens the safety and continuity of gas extraction and transportation infrastructure, crucial for meeting the energy demands of these nations.

Despite the setbacks outlined above it should be noted that Ukraine achieved significant upper hand in securing sea lines of communication in Northwestern parts of the Black Sea by inflicting heavy damage to the Russian Black Sea fleet. This Ukrainian success forced Russia, which lost one third of its naval assets, to redeploy its naval assets from Sevastopol farther to the East. The Ukrainian achievements in the Western portions of the Black Sea should be supported primarily by the three littoral Allies and be sustained in the long run.

Military exercises as a means of naval blockades

In recent years, Russia has increasingly utilized military exercises as a pretext to establish no-go zones in the Black Sea. These lawfare practices have led to the disruption of

[63] "The Russians seized the Ukrainian rescue ship "Sapphire" and lead her to Sevastopol." Odessa Journal, March 9, 2022. https://odessa-journal.com/the-invaders-forcibly-lead-the-stolen-rescue-ship-sapphire-to-sevastopol

[64] Sophie Williams in Lviv & Paul Kirby. "Ukraine war: Snake Island and battle for control in Black Sea" BBC, May 11, 2022. https://www.bbc.com/news/world-europe-61406808

[65] Andrew Higgins. "As Russia Threatens Ships in the Black Sea, a Romanian Route Provides a Lifeline." New York Times, August 16, 2023. https://www.nytimes.com/2023/08/16/world/europe/ukraine-romania-danube-shipping.html

international shipping while hindering littoral states' ability to capitalize on the economic potential of the Black Sea, according to their rights under UNCLOS. This tactic involves strategically closing large maritime areas under the guise of ensuring safe navigation during military drills, effectively restricting freedom of navigation for extended periods. A notable instance occurred in September 2020, when Russia closed nearly the entire maritime perimeter of the occupied Crimean Peninsula beyond the 12-mile zone, maintaining this closure from September 17 to December 9, 2020.[66] This maneuver has become a recurring strategy, with the international community struggling to counter it due to Russia's legitimate right, as a Black Sea littoral state, to close its exclusive economic zone for exercises.

Following the implementation of its naval blockade in the Black Sea, maintained a persistent naval presence for several months which covering portions of Romania's EEZ. This blockade lasted from February 24 to August 1, 2022, effectively halting all maritime traffic from Ukrainian ports until the Black Sea Grain Initiative was negotiated by the UN, Türkiye, Russia, and Ukraine, allowing ships to enter the Port of Odessa from August 1, 2022.[67]

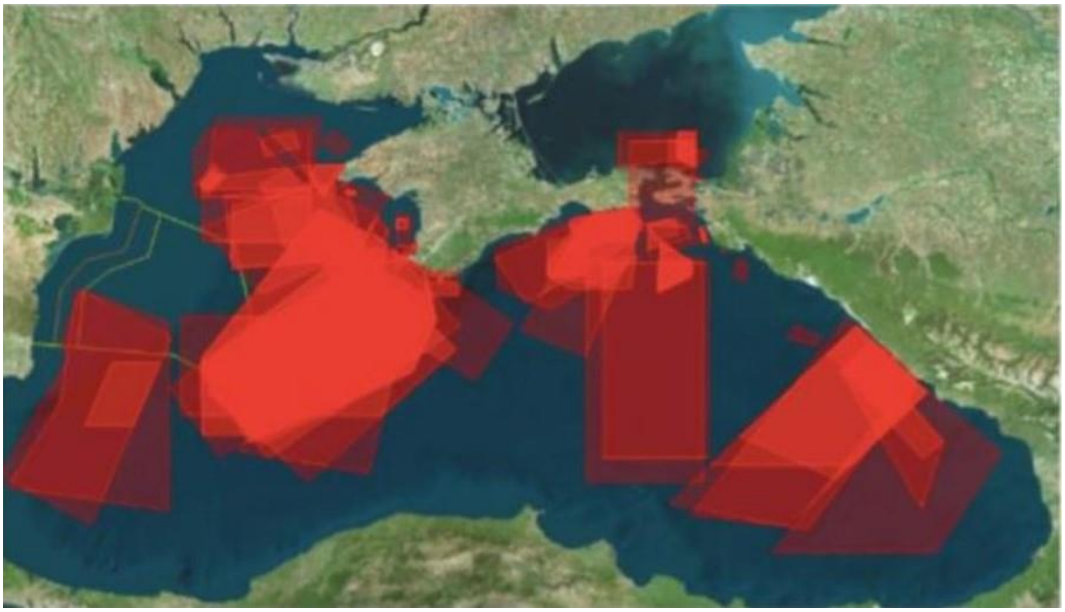
On July 18, 2023, following Russia's withdrawal from the Black Sea Grain Initiative, its Black Sea Fleet initiated a blockade within Bulgaria's EEZ, deploying three corvettes to obstruct and intimidate ships from the Odessa region. Russia's Shipping Safety Service announced ongoing missile and artillery exercises. This blockade continued until mid-December 2023, during which time Russian naval vessels repeatedly harassed maritime traffic between Odessa and Istanbul.[68] In response, Bulgaria announced a €20 million deal with the SAAB to urgently acquire RBS-15 missiles for its Coast Guard.[69]

[66] Andrii Klymenko, Tetyana Guchakova, Olha Korbut. "Security Risks in the Black Sea and the Sea of Azov in 2021." Black Sea News, September 1, 2021. https://www.blackseanews.net/en/read/183685

[67] Matt Boyse, George Scutaru, Antonia Colibasanu and Mykhailo Samus. "The Battle of the Black Sea is not Over". Hudson Institute, April 2024. https://newstrategycenter.ro/wp-content/uploads/2024/03/Studiu-Kas-Black-Sea-final-version.pdf

[68] Dobrin, Dobrev. "Security Challenges in the Black Sea: Military Exercise or a Navy Blockade? Analysis of the Russian Navy Activities in Bulgaria's Exclusive Economic Zone in the Black Sea." Opinio Juris, November 10, 2023. https://opiniojuris.org/2023/11/10/security-challenges-in-the-black-sea-military-exercise-or-a-navy-blockade-analysis-of-the-russian-navy-activities-in-bulgarias-exclusive-economic-zone-in-the-black-sea/

[69] Idem



Areas of the Black Sea in Which the Russian Federation Conducted Military Exercises in 2019
Source: New Strategy Center

To further intensify their actions, In August 2023, Russian forces unlawfully intercepted the Sukru Okan, a commercial vessel owned by Türkiye and flagged by Palau, en route to the Ukrainian port city of Izmail. Russia justified the interception under the pretext of inspecting for prohibited materials.[70] The operation involved warning shots to compel the vessel to halt, followed by a helicopter-assisted boarding by Russian soldiers who conducted a thorough search. Through these actions, the Kremlin sought to assert dominance over the region's maritime activities, challenging the effectiveness of international law and dictating the terms of maritime navigation.

[70] Vladimir Socor. “Russian Black Sea Fleet Intrudes Bulgarian Waters, Harasses Turkish Grain Freighter.” Jamestown, August 15, 2023. https://jamestown.org/program/russian-black-sea-fleet-intrudes-bulgarian-waters-harasses-turkish-grain-freighter/

Source: "Russia Navy intercepts Turkish civilian cargo ship Sukru Okan en route to Ukraine." Army Recognition, 14 August 2023, https://armyrecognition.com/news/navy-news/2023/russia-navy-intercepts-turkish-civilian-cargo-ship-sukru-okan-en-route-to-ukraine?utm_content=cmp-true

The incident involving the Russian Navy's interception of a Turkish freighter in Bulgaria's exclusive economic zone has raised serious implications for the security of critical energy infrastructure in the Black Sea region. Given the strategic importance of the Black Sea for energy transit, particularly natural gas pipelines and maritime routes, the use of military force to enforce controls on commercial shipping could undermine confidence in the security and stability of these vital energy corridors. Such actions not only threaten the freedom of navigation but also introduce uncertainties that could deter international investors and energy companies from engaging in projects in the region as well as cause serious disruptions in ongoing energy projects and extractions, leading to security and financial strains. The escalation of military activities near critical infrastructure points to broader concerns and the potential for disruptions that could impact energy supplies and further impediments in attempts at a successful energy independence.

Mines

The Black Sea faces a severe threat to maritime commercial activity due to the presence of thousands of naval mines, both anchored and drifting. Initially, over 400 mines were present, but Russia has since deployed thousands more, mainly along the northern coast. This danger extends into Romanian, Bulgarian and Turkish territorial waters where, despite neutralizing at least 20 mines, the threat remains, with commercial vessels

occasionally striking mines within NATO member states' EEZs.[71] The persistent danger of mines has led to increased insurance rates, escalating export and import costs, and significantly reduced maritime commerce from pre-2014 levels. The UN has highlighted that commodity shipments still face substantial risks from airstrikes and sea mines.[72]

In response to the mine threat, Romanian, Bulgarian, and Turkish officials signed a memorandum in January 2024 to establish the Mine Countermeasures Naval Group in the Black Sea (MCM Black Sea). This group aims to coordinate efforts to clear mines and will mobilize demining ships, patrol ships, helicopters, and drones for aerial surveillance.[73] However, experts estimate that clearing the sea of existing mines will take at least five to ten years, highlighting the long-term challenges to maritime security and commercial activity in the region. [74]

Even though this initiative is crucial for the security of energy infrastructure in the Black Sea, particularly gas extraction projects and natural gas pipelines, it is not sufficient on its own. More comprehensive international cooperation is needed to ensure the safety and stability of these critical energy infrastructures as the threats faced are complex and multifaceted. Enhanced collaboration among Black Sea nations and broader international cooperation (especially human, ISR, EW, and anti-drone resources) is essential to effectively address the security issues faced and safeguard energy infrastructure, thereby ensuring uninterrupted energy supplies and extraction processes.

GPS jamming

Russia's interference with GPS signals for ships in the Black Sea has become a significant concern, highlighting broader implications for maritime navigation and safety in the region. Reports indicate that Russian authorities have intermittently disrupted GPS signals, affecting both civilian and commercial vessels. This interference poses serious risks, potentially causing navigational errors, operational disruptions, and safety hazards for maritime traffic dependent on GPS for accurate positioning and routing. On April 1, 227 vessels originally sailing in the Black Sea were detected across various land locations, marking one of the highest instances of disrupted vessels since these incidents began.[75] In September 2023, Romania's Chief of the Defense Staff, General Daniel

[71] Tony Wesolowsky and Georgi Angelov, "The Battle to Clear the Black Sea of Mines," Radio Free Europe/Radio Free Liberty, January 14, 2024, https://www.rferl.org/a/black-sea-mines-ukrainerussia-shipping-turkey-bulgaria-romania/32773644.html.
[72] iIdem.
[73] Tayfun, Ozberk. "Türkiye, Bulgaria And Romania Activate MCM BLACK SEA Task Group." Naval News, July 2, 2024. https://www.navalnews.com/naval-news/2024/07/turkiye-bulgaria-and-romania-activate-mcm-black-sea-task-group/
[74] Matt Boyse, George Scutaru, Antonia Colibasanu and Mykhailo Samus. "The Battle of the Black Sea is not Over". Hudson Institute, April 2024. Page 70. https://newstrategycenter.ro/wp-content/uploads/2024/03/Studiu-Kas-Black-Sea-final-version.pdf
[75] "GPS jamming shows ships in "impossible" locations." Kuehne-Nagel, April 9, 2024. https://mykn.kuehne-nagel.com/news/article/gps-jamming-shows-ships-in-impossible-locatio-09-Apr-2024

Petrescu, accused Russia of “actively and constantly” jamming GPS communications for ships in Romanian territorial waters.[76]

As an example, A Tanzania-flagged ship Mohammad Z sank 26 nautical miles off Sfântu Gheorghe on 18 May following a collision with another Comoros-flagged vessel, Michel, and eight crew members were rescued, three were reported missing. The Mohammad Z was on its way from Mersin, Türkiye to the port of Sulina. The ship Michel was carrying pipes manufactured in Ukraine, had left Odesa and was due to arrive in Varna, Bulgaria.[77] One of the possibilities considered by the Romanian authorities is that the incident was caused by Russian GPS jamming activities.[78]

Russia's interference with GPS signals in the Black Sea has significant implications for critical energy infrastructure projects in the region. As countries like Romania and Bulgaria seek to develop and secure energy projects, including pipelines and offshore platforms, reliable GPS navigation is crucial for construction, maintenance, and emergency response operations. Intentional jamming or disruption of GPS signals by Russia could disrupt these activities, potentially leading to delays, operational inefficiencies, and safety risks.

False flag operations

Russian hybrid warfare tactics in the Black Sea region include the use of false flag operations, notably involving naval drones. On February 10, 2023, Russia deployed a kamikaze naval drone to strike the Zatoka bridge over the Dniester Estuary, a key infrastructure link between Odessa and the port of Galati in Romania.[79] Russia wanted to make this known because the moment of impact was filmed and posted on social media.[80]

Similar tactics could potentially be used against energy platforms, with Russian attacks passing blame to Ukrainian forces, and their drones causing substantial damage to critical infrastructure. Certain types of naval drones produced by Russia are very similar to the Ukrainian one, which would make it difficult to identify who the drone belongs to in the event of an attack. For example, the Russian Oduvanchik naval drone is almost identical to the Ukrainian Magura V naval drone.

[76] “Head Of The Romanian Army: Russia Is Jamming The GPS Of Ships In Romanian Territorial Waters.” Romania Journal, September 29, 2023. https://www.romaniajournal.ro/society-people/social/head-of-the-romanian-army-russia-is-jamming-the-gps-of-ships-in-romanian-territorial-waters/

[77] „Romania searching for three missing crew after ship sinks in Black Sea”, Reuters, 18 May 2024, https://www.reuters.com/world/europe/romania-searching-three-missing-crew-after-ship-sinks-black-sea-2024-05-18/

[78] Discussions between New Strategy Center and Romanian Navy representatives

[79] George Scutaru, “Black Sea’s offshore energy potential and its strategic role at a regional and continental level,” New Strategy Center, February 2024, https://newstrategycenter.ro/wp-content/uploads/2024/03/Studiu-Kas-Black-Sea-final-version.pdf

[80] “Video: Russian Suicide Drone Boat Strikes Ukrainian Bridge”, Maritime Executive, 12 February 2023, https://maritimeexecutive.com/article/video-russian-suicide-drone-boat-strikes-ukrainian-bridge

Source: *"A new marine drone was presented in the Russian Federation," MILITARYNYI, December 2023,* https://mil.in.ua/uk/news/v-rf-predstavyly-novyj-morskyj-dron/?fbclid=IwAR1I_QEHEqMB7-5kls0B1uWwrhB8--9glfmayyALJHm0ek4Z1tEekgrWYEI and *"MAGURA V5 marine drone developed in Ukraine," MILITARYNYI, 26 July* 2023, https://mil.in.ua/en/news/magura-v5-marine-drone-developed-in-ukraine/

What does this mean for the Black Sea energy projects?

Given Russia's tactics, there is a strong likelihood that it will harass any large efforts to develop critical energy infrastructure in its Black Sea Exclusive Economic Zone, particularly regarding the Neptun Deep project in the Romanian EEZ. The peak construction period, expected in 2025-2026, will involve a significant maritime presence with numerous ships and over 2,500 personnel at sea, at a daily cost of approximately $2 million. [81] This project is crucial for Romania's energy independence and has broader geopolitical implications. By tapping into its Black Sea gas reserves, Romania can reduce its dependence on Russian energy, thereby mitigating Russia's ability to use energy as a tool of political leverage against countries like the Republic of Moldova and Bulgaria. Furthermore, Hungary is expected to benefit from the Romanian gas, which would allow Budapest a geographically proximate source of gas as an alternative to some of its Russian imports.

The successful exploitation of gas in the Neptun Deep perimeter will likely motivate OMV Petrom, to initiate similar infrastructure projects in Bulgarian waters, specifically targeting the Khan Asparuh perimeter for gas extraction. The state-owned Bulgarian Energy Holding was given information from previous gas drillings, which show potential gas deposits between 210 and 510 bcm.[82] According to data published by TotalEnergies, there are two prospective gas fields in the northern Bulgarian economic zone in the Black

[81] George Scutaru, "Black Sea's offshore energy potential and its strategic role at a regional and continental level," New Strategy Center, February 2024, https://newstrategycenter.ro/wp-content/uploads/2024/03/Studiu-Kas-Black-Sea-final-version.pdf

[82] Krassen Nikolov. "France's Total gives up exploration of Bulgaria's largest gas field." EURACTIV, March 28, 2024. https://www.euractiv.com/section/energy-environment/news/frances-total-gives-up-exploration-of-bulgarias-largest-gas-field/

Sea, called Vinekh and Krum. The first is expected to produce 5 bcm of gas per year between 2030 and 2040, and the second 8 bcm between 2031 and 2044.[83]

This development would mark a significant shift for Bulgaria, transforming it from an energy-vulnerable country reliant on imports and susceptible to Russian pressure, to one that can meet its own energy needs of around 3 bcm a year, and even become a gas exporter within the region. Such a transformation would greatly enhance the energy independence of the Balkan countries, reducing their exposure to Russian energy blackmail and contributing to regional stability and security.

The deployment of naval mines, GPS signal interference, and naval blockades are not just acts of military aggression but also calculated moves to disrupt and dominate the region's maritime activities. The mines scattered across the Black Sea present persistent threats to maritime commerce, increasing insurance costs and reducing trade volumes. Despite efforts by Romania, Bulgaria, and Türkiye to establish the Mine Countermeasures Naval Group, the long-term challenge of clearing these mines underscores the ongoing risk to maritime security and commercial activity, which is crucial for the stability of energy projects. Similarly, the strategic blockade and interception of commercial vessels highlight Russia’s ability to influence maritime navigation and exert control over critical energy infrastructure, complicating the efforts of littoral states to pursue their economic and energy interests securely. The interference with GPS signals disrupts not only maritime navigation but also the essential activities related to the construction, maintenance, and emergency response of energy projects. The hybrid warfare tactics, including false flag operations and the deployment of kamikaze naval drones, further complicate the security landscape, potentially causing significant damage to critical infrastructure while evading direct accountability.

The combination of these tactics not only threatens the safety and continuity of gas extraction and transportation infrastructure but also introduces uncertainties that could deter international investors and energy companies from engaging in the region. Ensuring the security of these energy projects requires robust international cooperation and vigilance to mitigate the multifaceted threats posed by Russia's aggressive strategies in the Black Sea.

Given the interest of the three NATO Black Sea states—Romania, Bulgaria, and Türkiye—in pursuing offshore energy projects, especially exploiting gas from their Exclusive Economic Zones, increased naval cooperation is essential. The first step has been taken with the joint initiative to combat floating mines in the Black Sea, but this cooperation can extend to protecting critical energy infrastructure. Joint exercises and patrol missions by Turkish and Romanian ships, especially between the Neptun Deep field in the Romanian EEZ and the Sakarya field in the Turkish EEZ, can effectively deter hostile Russian actions. According to maritime law, platforms have a safety zone of 500 meters around

[83] Ibidem.

them, considered sovereign territory, which simplifies their protection. However, the EEZ does not have the same legal status as territorial waters and is not covered by NATO's Article 5, encouraging more aggressive Russian behavior in these areas. The most sensitive period is during the construction of critical infrastructure when drilling ships arrive, pipelines are laid ashore, and platforms are installed. This situation demands a high level of cooperation among the three countries within the Black Sea and increased awareness and cooperation within NATO, as these measures pose security risks to the Alliance.

Given the uncertainty of the war between Ukraine and Russia ending, it remains uncertain when NATO will be able to resume deploying ships to the Black Sea. In light of the provisions of the Montreux Convention, NATO must explore complementary solutions to enhance Intelligence, Surveillance, and Reconnaissance (ISR) as well as air capabilities stationed in Romania and Bulgaria. This strategic shift aims to ensure these countries possess effective deterrence tools beyond naval assets. Concurrently, Türkiye, which has the most powerful fleet among NATO members in the Black Sea, should assume greater naval responsibilities alongside Romania and Bulgaria. This includes safeguarding the critical energy infrastructure of NATO's Black Sea member states.

PROPOSED COOPERATION RECOMMENDATIONS

- To increase energy capacity, supply security and efficiency a holistic approach is needed to encompass stakeholders within the wider Black Sea basin extending to the South Caucasus and Central Asia without losing sight of the priority to enhance cooperation among the three countries.
- A Master Plan geared toward improving the energy distribution and transmission systems such as smart and resilient electricity grids designed as cyber& hybrid-proofing should be urgently developed.
- Likewise, a Roadmap or a Plan of Action for the short-medium-long term should be prepared among the three countries to support connectivity projects in terms of the current and planned energy systems.
- While developing future-oriented energy enterprises, incentives for public-private joint ventures should be introduced by the three countries in a coordinated manner.
- Prospects emanating from transition to green energy must be prioritised, including the maximum use of innovative and emerging technologies, based on a coherent regional plan with a view to increasing capacity of solar and wind energy. In that respect, utmost care should be exercised to avoid dependencies on a single source.
- Security of critical infrastructure such as electricity grids and undersea cables, that is maritime security in surface and subsurface assets is a priority that should guide both current and future efforts. To that effect, a trilateral endeavour to build capacity and increase capability of both manned- and unmanned-naval assets among the three countries should be encouraged.
- Present efforts in the extraction of natural gas in the EEZs of the three countries are promising. To prepare the grounds in a future-oriented manner for increasing collaboration in production and marketing of natural resources in the EEZs, joint initiatives should be explored among the three countries to reduce their dependencies on other powers attempting to monopolise and weaponize energy resources.
- Strengthen trilateral cooperation between Bulgaria, T¿rkiye, and Romania to protect critical energy infrastructure in the Black Sea, ensuring collective security and resilience against emerging threats in the region, especially hybrid activities within grey zones.
- Expand the Mine Countermeasures Naval Group further and initiate joint naval cooperation and exercises among these NATO states to ensure the protection of vital energy projects, particularly gas explorations within the corresponding EEZs.
- Enhanced consultations should take place to identify the modalities of involving non-regional countries and organisations in both conventional and non-

conventional energy resources to the benefit of the three countries in an inclusive manner.

- Funds dedicated to improving connectivity in energy should be utilised through mutually agreed frameworks that would alleviate bottlenecks in European energy calculus for the long term.
- Opportunities offered by memberships in different organisations such as NATO, the EU, G20, OECD as well as regional webs of cooperative relations should be leveraged to the maximum extent possible to attract investments in connectivity infrastructure, including but not limited to the energy field.
- Business models that bring together public and private sectors should be explored among the three countries (trilateral models) to be tied to, as necessary, to reliable external actors and organisations.
- A trilateral LNG Production and Storage Corporation should be conceived and incentives for this Corporation should be adopted by the three countries.
- A joint initiative should be developed on a trilateral basis to actively participate in European R&D efforts on fusion-based nuclear energy enterprise.

THE ROLE OF NATO IN THE ENERGY SECURITY AND CONNECTIVITY OF THE BLACK SEA REGION

Obviously, the Black Sea is both a promising source of energy resources and an important transport and connectivity corridor. To allow the region's potential growing, it is necessary to minimize the influence of the negative factors, with the main of them being the security risks, and to strengthen the factors that provide favorable conditions and facilitate the implementation of different projects. The protection of the critical maritime infrastructure should become a priority of the Black Sea states, seeking interaction at other levels as well:

- Close regional cooperation;
- Engaging, as appropriate, NATO and the EU as organizations having direct interest in the connectivity and sustainability;
- Working, as appropriate, with third countries, international organizations and initiatives that demonstrate interest in participating in various projects.

CREATING FAVORABLE SECURITY ENVIRONMENT.

The implementation of large-scale projects in the Black Sea for gas extraction and transmission or of projects related to other forms of connectivity requires that security issues be properly addressed. This is important in view of protecting infrastructure, attracting investors and ensuring sustainability and integrity of the supplies of goods and

services. In recent years, the vulnerability of critical infrastructure has become apparent. Example of such vulnerability is the attack in 2022 against the Nord Stream gas pipeline. Moreover, we see in the current war that Russia is systematically destroying Ukraine's energy infrastructure in pursuit of its war aims.

The protection of marine surface and underwater infrastructure is a serious challenge due to different reasons and peculiarities. For example, such infrastructure may be owned by one or more states or private companies, or may be located on the territories/EEZ's of one or more states, etc. This raises the question of the activities that should be performed and of the responsibility for monitoring and protecting such sites that must be shared.
Next, it should be taken into account that problems related to the security of the energy infrastructure may result from an accident or from deliberate activities. The damage of underwater international Communication and Internet cables in the Red Sea from the anchor of a ship hit by a missile of the Yemeni Houthi rebels is an example of an incident. There are many cases of targeted attacks aimed at damaging or destroying critical energy infrastructure. These actions can be physical attacks or cyber-attacks. All this shows how complex the activities of ensuring the security and proper operation of this infrastructure are.
It should be taken into account that affecting elements of the energy infrastructure can have negative environmental impact. This is particularly relevant for the Black Sea, which is a semi-enclosed sea and the environmental impact resulting from energy infrastructure problems can be significant.
As Eoin Micheál McNamara rightly points out, the risks to critical infrastructure are multiple and need to be addressed comprehensively so that resilience is built and NATO can play an essential role in this process. [84]
To ensure the security and smooth operation of the underwater and surface infrastructure in the Black Sea actions need to be taken at the national, regional and international level.

ACTIONS THAT NEED TO BE TAKEN:

1. Analyzing the risks and methods to minimize them. The evaluation should include an analysis of the potential risks and vulnerabilities of the critical infrastructure and of the capabilities that will be needed to respond to certain crises. This will enable measures to be planned at the national, regional and international levels. The existing capabilities of the individual Black Sea states must be reviewed, gaps must be identified and methods to remove them must be found.

[84] Eoin Micheál McNamara, "Reinforcing resilience: NATO's role in enhanced security for critical undersea infrastructure," NATO Review,https://www.nato.int/docu/review/articles/2024/08/28/reinforcing-resilience-natos-role-in-enhanced-security-for-critical-undersea-infrastructure/index.html

2. Planning resources and developing capabilities to protect critical maritime infrastructure in order to cope with incidents, accidents or destruction. This should include development of monitoring and control systems and physical defense capabilities and protection against other adverse factors, such as cyber-attacks. The protection of critical maritime infrastructure requires that specific capabilities that most Black Sea states do not have be developed. Therefore, partner countries and organizations, such as NATO, which can contribute to providing know-how and the relevant capabilities, should be involved.
3. Ensuring high level of cyber security should be a priority for all relevant government authorities and businesses. In 2021, we witnessed the destructing effect of cyber-attacks on the US energy infrastructure. Investments in increasing cyber security should be a priority for all states and operators.
4. Planning and conducting trainings, exercises, experience sharing, etc.
5. Developing organizational measures to protect maritime infrastructure, which may include restriction of shipping in certain territories, prohibition of drone flights within the certain perimeters, etc. The Black Sea states should comply with the international maritime law and should work in coordination at the regional level and with international organizations.
6. Establishing better coordination between the competent authorities of the Black Sea states, operators of critical infrastructure sites, shipping companies and other companies in order to prevent accidents. Establishing such interaction is of key importance to minimize damage from incidents or accidents that occur.
7. Properly addressing all forms of hybrid threats which may include propaganda, disinformation spreading of fake news, intimidation provocations and many others. These new risks proved to be as dangerous as traditional military risks. Cooperation and coordination at regional and broader international level are needed.

Having in consideration the abovementioned, the NATO Black Sea member-states should establish forms of cooperation similar to those applied to the operation against freely floating mines in the Black Sea encouraged at the same time the partner and allied countries.

NATO as an organization and the relevant NATO's Centers of Excellence can play a significant role in every element of the abovementioned activities to protect the critical maritime infrastructure in the Black Sea, since their importance goes beyond the regional dimension.

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