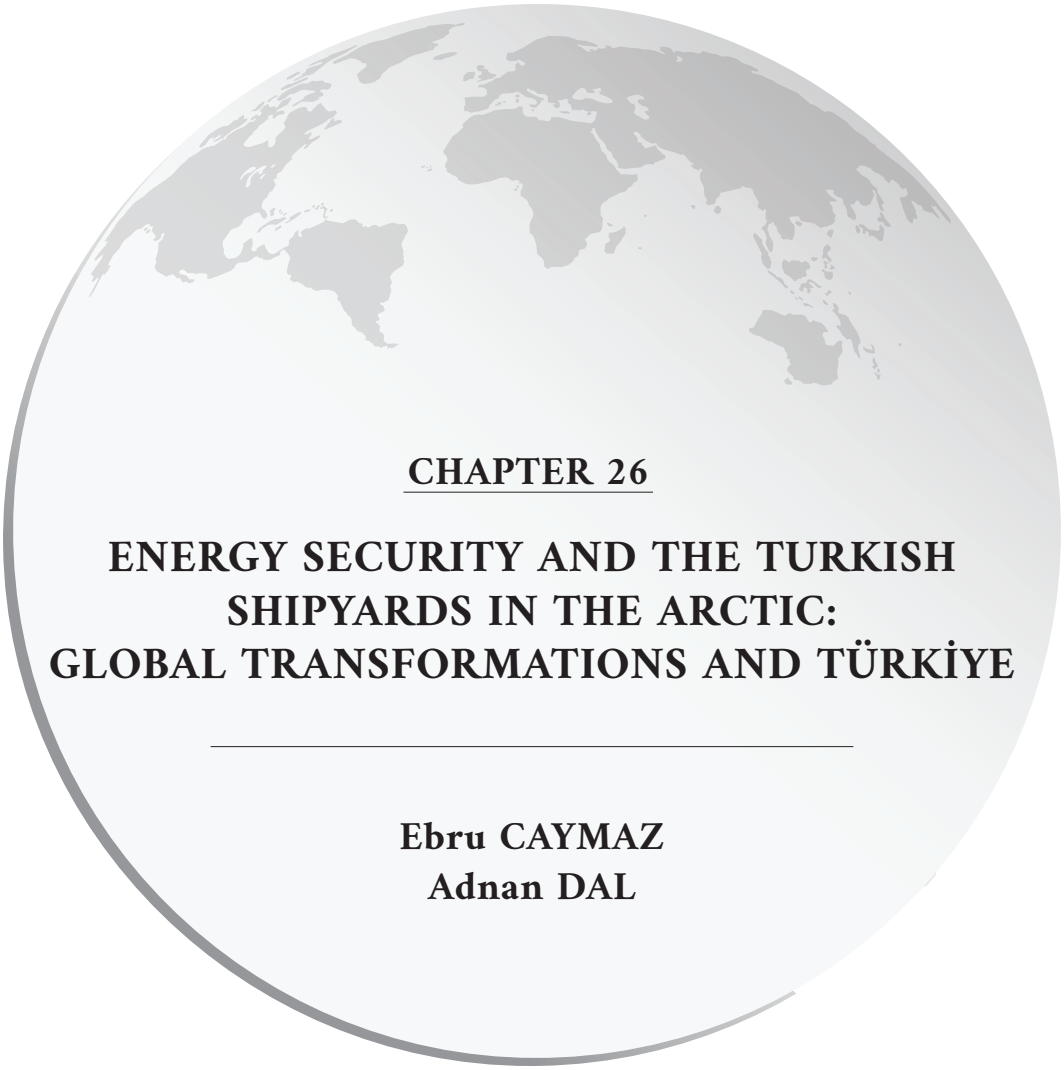

CHAPTER 26

ENERGY SECURITY AND THE TURKISH SHIPYARDS IN THE ARCTIC: GLOBAL TRANSFORMATIONS AND TÜRKİYE

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ENERGY SECURITY AND THE TURKISH SHIPYARDS IN THE ARCTIC: GLOBAL TRANSFORMATIONS AND TÜRKİYE

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Abstract

Energy security, which is an integral part of energy policy along with affordability of energy, as well as environmental soundness, has become an essential discussion topic due to the negative effects of the climate crisis. In recent years, the emergence of several factors that pose a risk to transporting energy resources safely, especially in the Suez Canal - such as the Evergreen crisis, the Houthis blocking the activities along the Canal, and the Panama Canal facing the risk of drought, have stimulated discussions about alternative transportation routes. The extant literature focuses on the utility of the Arctic maritime routes based on three major maritime connections namely the Northwest Passage (NWP), the Northeast Passage (NEP), and the Trans-Polar Passage (TPP). On the other hand, there is a rising Arctic interest in Turkish shipyards and the number of successful bidders has increased as well. In this context, the preference for ships produced in Turkish shipyards, especially for the use of the Arctic maritime routes, holds the potential to become an important step in ensuring energy security. Since the issue of energy security currently necessitates a wide analysis framework consisting of environmental, political, and economic risks, this study also adopts a wider framework. Based upon the recent energy security framework in line with the developments in global politics, this paper examines the increasing activities of Turkish shipyards in the Arctic. The systematic review method is used to investigate current developments and future projections. Accordingly, from a global perspective, this study aims to present the role of Turkish shipyards in ensuring energy security in the region.

Keywords

Arctic, Arctic Maritime Routes, Energy Security, Turkish Shipyards

DOI: 10.53478/TUBA.978-625-6110-04-5.ch26

Introduction

The Arctic has turned into a potentially strategic region as a result of receiving growing political attention associated with the negative effects of climate change (UNEP, 2013; Østhagen, 2013). Owing to accelerated warming, emerging opportunities in the Arctic are narrated as energy resources, shipping, fishing, and tourism in a recent report prepared by the NATO Parliamentary Assembly (Bak, 2015). Being an important component of energy policy that has traditionally been associated with the security of energy supply -especially the uninterrupted supply of oil - energy security has been one of the most debated issues in recent years due to the devastating consequences of climate change. Albeit its emergence with the OPEC oil crisis in the 1970s, the issue of energy security currently necessitates a wide analysis framework consisting of environmental, political, and economic risks. For an instance, the interruption along the essential maritime trade routes for the global supply chain, such as the Suez Canal and the Panama Canal, has become one of the major concerns to energy security. In addition to the detrimental effects of climate change, piracy-terrorist activities further jeopardize the sustainability of traditional maritime operations, and Arctic maritime routes are being discussed in terms of their feasibility as alternatives.

The Arctic region, which has been isolated from global politics due to its difficult geography and climatic conditions, comes to the fore with polar sea routes since they become navigable due to the recession of sea ice and glacier melt. In this respect, these routes currently have ice-free summer months that enable navigation without icebreaker assistance, as well as delivering energy resources to the world markets conveniently. Albeit the existence of three major maritime connections within the Arctic waters: the Northwest Passage (NWP), the Northeast Passage (NEP), and the Trans-Polar Passage (TPP), a significant difference in terms of commercial usage has been recorded due to harsh conditions and low accessibility of the NWP and TPP. While the NEP is considered the most accessible Arctic shipping route in terms of navigational conditions (Gunnarsson & Moe, 2021; Stephenson et al., 2013), these maritime routes are considered secondary level options (Tadeusz, 2016), and significant infrastructure investments are being made for the utilization of them.

On the other hand, Turkish shipyards have a growing interest in the region, especially after the 2000s. Owing to their ability to function multipurpose and bid lower offers, Turkish shipyards have the potential to become essential actors for energy security in the region. Since it is a highly trend topic, there have been extensive number of studies focusing on energy security. Therefore, this study adopts the systematic review approach to classify and process large bodies of research material. Accordingly, based on a systematic review approach, this study investigates the increasing role of Turkish shipyards in ensuring energy security in line with the most recent trends in world politics.

Rethinking Energy Security

In a traditional sense, security is expressed as the absence of a threat to the values held (Wolfers, 1952, p. 485) or, survival in the face of threats according to a more current definition (Buzan et al., 1998, p. 27). However, this concept has been exposed to a new expansion with new risks and threats. That's why a new conceptualization is needed including non-traditional security elements since the concept of security has become much more inclusive. In this context, energy becomes a security issue owing to its being an element or cause of war or conflict (Ciuta, 2010, p. 129). As well as its profits such as the residential, industrial, and transportation sectors, energy has been crucial for military purposes as well. Not surprisingly, discussions related to energy security mainly revolve around the reliability of and risks to energy supply, accessibility of resources, energy interdependence, military aspects, the resilience of energy systems and energy nationalism, energy price shocks, and potential impacts of disruption, both long-term and short-term aspects of energy security, and energy inequity. Therefore, energy security has become a multidimensional research field based on a wide range of perspectives, specializations, disciplines, and domains (Narula, 2019), and the significance of energy security has increased due to our growing reliance on it (Bahgat, 2006, p. 961).

As much as being a relatively new concept, there is no consensus on the definition of energy security (Ang et al., 2014, p. 1081), and it has been subject to many different definitions. The International Energy Agency (IEA) defines it as the continuous availability of reasonably priced energy sources (The IEA's Website). The European Union (EU) emphasizes the availability of a stable and abundant energy supply for EU citizens and the economy (EU's Website) whereas NATO also attaches special importance to it. While NATO deals with energy security, the Alliance focuses on establishing energy infrastructure, providing a stable energy supply, and protecting transportation facilities, and energy transmission routes (NATO's Website). However, the absence of, protection from, or adaptability to threats that are caused by or have an impact on the energy supply chain can be used to summarize the basic concept shared by all the many definitions of energy security (Winzer, 2011, p. 9).

In particular, attention is drawn by political decision-makers and academics to the multidimensional and changing structure of the concept according to the relevant actors (Cherp & Jewell, 2011). Beyond sustainability, competitiveness, and reliable supply, energy security is a multifaceted idea that encompasses both internal and external actions (Baumann, 2008, p. 4). Chester (2010) and Vivoda (2010) draw attention to the multifaceted and polysemic nature of energy security. In this regard, the concept of energy security necessitates a holistic evaluation.

During the second half of the 20th century, the idea of energy security was closely related to the supply of energy resources for military purposes (Cherp & Jewell, 2011, p. 202) as the importance of oil supply has been extremely (Yergin, 1991). For most of the 20th century, the political significance of the energy security problem was to ensure the supply of oil which is vital for modern armies and economies (Cherp & Jewell, 2011, p. 203). The best example of this situation is the OPEC oil crisis that occurred in the 1970s, where oil was symbolized as a weapon. In this respect, the concept of energy security in the traditional sense is defined as ensuring energy supply security for energy-dependent countries. In particular, political decision-makers often use the traditional definition of energy security as a response to ensuring access to energy resources such as oil, coal, and natural gas. And yet, due to the growing diversity and globalization of the energy markets, together with the emergence of new transnational energy-related issues, its usefulness in policymaking has decreased (Hippel et al., 2010, p. 74).

Energy security has long been defined as the security of supply for energy availability and prices (Spanjer, 2007). However, changing dynamics in the international system have compelled to expand this narrow-scoped definition. In this context, emerging threats especially in energy, and the new technologies that try to adapt to these threats have led to the expansion of the scope of energy security. The issue of energy security has now become a concept that is addressed together with the phenomenon of sustainability, in which climate change and environmental concerns are taken into account. In other words, the scope of energy security has grown, and topics like governance, the environment, and energy efficiency which were typically ignored in the past are now frequently included (Ang et al., 2014, p. 1090). As a result, in recent years, a wider range of themes have been taken into account, and energy security has been studied and handled more comprehensively.

Herein, different dimensions have been touched upon as the framework of the concept has expanded. The reason for the emergence of differences in this regard is due to the differences in geopolitical conditions (Hippel et al., 2010, p. 75) since all actors may not have the same geopolitical conditions in terms of quantity, distance, and processing difficulties. Thus, according to Hippel and his colleagues (2010, p. 78) there are six facets of energy security; energy supply, economic, technological, environmental, social and cultural, and military/security aspects. Alternatively, seven main topics or elements can be identified: energy efficiency, infrastructure, energy costs, societal implications, environment, governance, and energy availability (Ang et al., 2014, p. 1081). Once mentioning energy security, Baumann also underlines four different but overlapping dimensions; internal policy dimension, economic dimension, geopolitical dimension, and security policy dimension (Baumann, 2008, p. 5). According to the Asia Pacific Energy Research Center, energy security analysis can be carried out under four main themes; availability, accessibility, affordability, and acceptability (APERC, 2007). The degree of state development can also be used to depict energy security. According to Yergin (2006, p. 70), energy security is the risk associated with energy dependency for industrialized nations; the impact of shifting energy prices on the balance of payments for developing nations; and the security of energy demand for nations with abundant energy resources.

Upon the emergence of non-traditional security threats in the post-Cold War period, the concept of energy security has transformed into a multi-dimensional and comprehensive structure. Different security threats such as cyber terrorism, piracy activities, natural disasters, and the need for new mines have urged governments to reconsider the concept of energy security (Hatipoğlu, 2019, p. 1). In this regard, a wide variety of definitions have covered areas such as the protection of critical energy infrastructure, bio-energy resources, renewable energy resources, prioritizing different elements, and ultimately the new definition has gained a comprehensive content that includes the security of the entire energy infrastructure that feeds the global economy (Çelikpala, 2014, p. 82-85). Through the definition of modern energy security, economic, military, environmental (such as the potential effects of climate change and global warming), and geopolitical factors have been taken into account (Biresselioğlu, 2012, p. 232). Although the redefinition of the concept is affected by the tight oil market and high prices, cases such as the threat of terrorism, political instability in countries exporting energy resources, ultra-nationalist reactions, the competition over resources, geopolitical struggles, and the urging need for energy affect energy security (Yergin, 2006, p. 1).

Recent environmental disasters have also affected the course of energy policies. As instance, hurricanes Katrina and Rita in August and September 2005 caused the first combined energy shock in history by simultaneously interrupting the delivery of natural gas, oil, and electricity (Yergin, 2006, p. 1). Moreover, cases like the Suez Canal blockage by the ship named Ever Given in 2021, the Houthis blocking the activities along the Canal in 2024, and the Panama Canal facing the risk of drought demonstrate that energy policies face more vulnerable conditions. The next chapter further discusses the transformation of energy policies based on emerging vulnerable conditions.

Vulnerable Conditions Blinking Energy Policies

In recent years, a number of developments induced by climate change have necessitated reconsidering the dimensions of energy security. These negative effects have also closely affected the geopolitical conditions in which sustainable energy security has emerged and defined as "the provisioning of uninterrupted energy services (short term and long term) in an affordable, equitable, efficient and environmentally benign manner" (Narula, 2014, p. 1054). Herein, the maritime aspects of energy security become prominent as these aspects involve energy trade, energy supply chains, energy markets, and shipping. Since almost 40 percent of all maritime traffic consists of energy-related products (UNCTAD, 2022), the shipping industry has gained strategic significance as well.

On the other hand, companies tend to target oil rather than gas since it is comparatively easy to transport. Currently, Arctic energy resource development is asserted as a high-risk and high-cost business due to several factors given below:

- Harsh and unpredictable weather conditions,
- Demanding cost of rig construction (climbing up to 8 billion),
- Risks and obstacles associated with ice packs (in terms of reaching offshore facilities, and the shipment of personnel, equipment, materials, and oil)
- Poor soil conditions demanding additional preparations,
- Long distance from manufacturing centres,
- Higher salaries due to harsh working conditions,
- Poor infrastructure,
- Limited working periods and shortness of operating season,
- Limited transportation access (Bak, 2015).

In this process, first of all, environmental disasters resulting from the effects of global warming and climate change have become one of the main threats affecting energy policies. Events such as harsh climatic conditions, floods, droughts, and hurricanes have been encountered frequently in recent years, and human life is negatively affected by these events. These events disrupt the global supply chain and cause delays in distributing basic sustenance. It is expected that the Panama Canal, which connects the Atlantic and the Pacific, will negatively affect the flow of global trade due to the drought risk since the Canal handles a significant amount of all shipping in which any disturbances may have an impact on the global supply chain leading to delayed shipments, increased fuel use, and lost GDP.

Since early 2023, the Canal has been experiencing a protracted drought. October was calculated the driest October since the 1950s, with 43% less rainfall than usual (Canal De Panama's Website) and ship passage limitations have been imposed by the Panama Canal Authorities due to declining water levels. The ship transits are restricted to 24 per day as of April 2024 (Woodwell Climate Research Center's Website). Some ships have already rerouted due to the unreliability of transit via Panama (Woodwell Climate Research Center's Website). In contrast to the Suez Canal, the Panama Canal receives its water from Lake Gatun, a freshwater lake, whose level is rapidly decreasing (Fleury, 2024). Thus, the rainwater that accumulates in the lake is vital for the Canal. This is an important observation of how the canal is affected by the consequences of climate change.

One of the most prominent cases to show the fragility of the global supply chain is the 400-meter-long container ship -Ever Given- jammed in the middle of the Suez Canal in 2021. Over 20 percent of global container traffic passes across the Canal and it was out of operation for almost a week leading to a global crisis with far-reaching effects in which oil prices have been significantly affected. Besides, the impact of the delay on supply chains has been enormous; up to 400 ships were prevented from sailing, and the daily incurred expenses were between 50 and 100 million euros due to delays or detours (Vasic, 2022). The Ever Given case showed how a key strategic axis for global trade and navigation might turn into a point of chokepoint (Delaisse & Gauden, 2022).

Another case of blockage of the Suez Canal -the quickest route between Asia and Europe- by Houthis is also related to energy security. Being among the seven vital geographical choke points, the Canal has been blocked by the Iran-aligned Houthi group towards the end of 2023. Due to attacks by militants from Yemen's Houthi group on ships in the Red Sea, maritime trade through the Suez Canal has been interrupted and some ships are rerouting to a considerably longer East-West route along the southern tip of Africa. This alternative passage means higher costs that are not viable in the long term. After the Houthi blockade ship traffic along the Canal has decreased by about 42 percent (Le Monde's Website). In the face of this crisis, states are forced to use alternative and yet viable routes of transportation. As a result, navigable Arctic maritime routes have the potential to become salient alternatives as long as the melt proceeds at that pace (US Department of Defense, 2011; Gosnell, 2018).

Competition for the Arctic Energy Resources

According to several projections, the demand for hydrocarbons will remain essential in terms of the global energy balance (IAE, 2021; Total, 2021; BP, 2021) which underscores the significance of the Arctic energy resources. These resources have been studied extensively and their results suggest that the Arctic contains approximately %13 of undiscovered oil while %30 of undiscovered gas (Stauffer, 2009). Therefore, the region has been located at the centre of energy debates in recent years.

In addition to emerging maritime trade routes, the discovery of 26 fields on the Arctic shelf of Russia, which equals to 0.6 billion tons of oil and 8.5 trillion cubic meters of gas (Dimitrievskiy et al., 2017), has propelled the competition for these resources. Besides, the reduction of sea ice coverage will enable transporting oil and other goods between Europe and Asia in a relatively shorter time period compared to its alternatives. Accordingly, both the Arctic and non-Arctic states seek to benefit from the Arctic resources, as well as the economic potential of circumpolar navigation (Johnston, 2021).

On the other hand, according to several environmental, economic, and technical research, extraction and exploitation of these resources creates a major risk in terms of sustainability (Dai et al., 2021; Zakharova, 2019). Climate change and sustainability studies have become one of the hot topics; 13 non-Arctic states have obtained the observer status within the Arctic Council while several others state their scientific interest in the region through their scientific expeditions including Türkiye. Besides, the Ukraine-Russia conflict has further complicated the current condition in the Arctic due to major economic sanctions against Russia. Currently, there is a general tendency of conducting scientific research to justify the legitimacy of being in the region. At the nexus of sustainability and sustainable development, all parties are expected to perform their activities responsibly. The next chapter discusses the role of Turkish shipyards in the Arctic.

Turkish Shipyards in the Arctic: Becoming a Global Player

There are 85 shipyards in Türkiye (Ministry of Transport and Infrastructure, 2024) that carry out repair, maintenance, recycling, conversion, as well as vessel production. Owing to their diligent work, Türkiye became the 11th largest global shipbuilding economy as a result of seagoing vessel completions in 2019. Turkish shipyards have acquired the necessary skills to produce a wide variety of vessels including tugboats, fishing vessels, cruise/passenger ferries, trawlers, dry cargo ships, tankers, bulk carriers, gas carriers, offshore service and roll-on/roll-off (Ro-Ro) vessels, and fully cellular containers (FCC) over the last ten years. In order to strengthen the legal framework, the outdated Turkish Shipbuilding Regulation was updated and the Regulation of Vessel and Ship Building, Maintenance, and Repair entered into force in 2015. The new regulation is wider in scope compared to its predecessor as being implemented as part of a governmental strategy to strengthen sustainable shipbuilding activities. In 2019, listed among the world's five major ship recycling countries, Türkiye became the first of them to ratify the International Maritime Organization's Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (OECD, 2021).

In addition, while smaller yards tend to be multipurpose in terms of shipbuilding, offering conversion, maintenance, and repair services, bigger yards have started to produce LNG-powered, electric-powered, hybrid-powered vessels, and icebreakers. That steady growth is also reflected in the number of employed workers rising from 19,719 workers in 2009 to 30,910 in 2018 (OECD, 2021). Moreover, in line with the reinforcement of environmental regulations, the number of eco-friendly vessels and the retrofitting of ships with green technologies present a growing trend as well. Accordingly, their ability to diversify their operations has transformed Turkish shipyards into a global actor with revenue reaching up to approximately USD 2.5 billion per year (UNCTAD, 2022).

In this process, being located at an advantageous geographical location, Turkish shipyards also benefit from its proximity to Europe. In contrast to their alternatives on the Indian subcontinent, Turkish shipyards are closer to the Gulf of Mexico, to Brazil, and the North Sea. Besides, the Turkish government focuses on enhancing the competitiveness of the Turkish shipbuilding industry based on a sectoral aim to improve multimodal transport through green and innovative ships in the 11th Development Plan (2019-2023). As an instance, being an essential example of a Turkish shipbuilder targeting niche sectors, Sefine Shipyard constructed the first LNG-powered vessel in the world. The shipyard has focused on the construction of more environmentally friendly ships and completed several naval vessels using smart technologies, fish carriers, and (battery-powered) ferries. Cemre Shipyard can be given as another essential example within environmentally sustainable niche sectors that focus on the construction of service operation vessels for offshore wind farms (OECD, 2021).

In this regard, a noteworthy development is Turkish shipyards' growing interest in the Arctic. In 1991, Sedef Shipyard produced a cargo vessel for an Arctic state for the first time. The vessel was successfully delivered to the Soviet Union. After a relatively long period, Çelik Tekne Shipyard became the first Turkish shipyard awarded a contract for constructing a polar vessel in 2015. In the same year, Cemre Shipyard launched the first icebreaker project built in Türkiye (Cemre Shipyard Website). During the period between 2010 and 2019, Tersan Shipyard delivered 45 orders such as fishing vessels, and ferries to the United States, Russia, Norway, Greenland, and Canada (Basaran, 2019). Besides, the acquisition of Havyard Leirvik Shipyard in Norway in 2023 has expanded the position of Tersan in the Arctic. Tersan also built a krill trawler for Norway to be used in Antarctica in 2021. Moreover, Sefine Shipyard was shortlisted as the only bidder for a Russian icebreaker tender in the same year (Ship Technology, 2021) and won the tender. Ensuring its position by delivering five fishing vessels and three ferries to Norway, Sefine Shipyard currently targets the Russian market with bigger tenders (Sefine Shipyard Website). Their ability to bid lower prices even for icebreakers has sparked a major interest within the Arctic states.

In addition, a growing number of Turkish shipyards such as Ozata, Istanbul, Çeliktrans, Ada, Med Marine and Çeksan have received many orders ranging from ice-class tugboats and ferries to offshore support vessels. Atlas and Akdeniz Shipyards have gained the ability to produce ice-class vehicles in accordance with the requirements of the Polar Code. It is possible to multiply examples from Sanmar Shipyard, which won the icebreaker tugboat tender, Beşiktaş Shipyard which built ice-class fuel ships,

and Cemre Shipyard which built environment-friendly factory fishing vessel (Caymaz, 2022; Turkish Ships & Yatchs, 2020; Cemre Shipyard Website). Adopting progressive engineering, UZMAR Shipyard produces emission-compliant and hybrid vessels for Canada and Denmark that have the ability to lower emissions (UZMAR Website). Furthermore, in collaboration with DNA Marin and Poseidon, OTTOMAR produced an icebreaker oil barge that is specially designed for oil transportation (DNA Marin Website).

Not surprisingly, almost half of the exports in the industry belong to the Northern European countries. Recently, Türkiye has held the leadership position of importing fishing boats to Norway, and industrial collaboration between the two countries has been solidifying as Turkish shipyards pay special attention to compliance with international environmental standards (Turkish Ships & Yachts, 2020). Furthermore, Danish Esvagt awarded Cemre Shipyard for building a green fuel-based vessel and it received the sustainable shipping award at the World Maritime Forum in 2022 (Cemre Shipyard, 2022).

As another milestone achievement in 2022, Kuzey Star Shipyard was awarded for building a floating dock for nuclear icebreakers to be used by Atomflot, a subsidiary of Rosatom in Russia. Their increasing presence has been underscored by the previous CEO of Atomflot stating that "The Turkish shipyard has all the necessary competencies and earned a respectable reputation in the shipbuilding market" (Rosatom Newsletter, 2022) which also relieves the pressures on the sustainable development projects within the Russian Arctic due to major sanctions implemented as a result of the Ukraine-Russia conflict. Herein, Türkiye holds the potential to become a mediator in the region owing to its balanced policy between Ukraine and Russia. Their growing interest in the region, as well as their ability to comply with international environmental standards while proposing lower bids, underscore Turkish shipyards as salient alternatives for future large-scale energy-oriented projects all across the Arctic.

Conclusion

Since almost 90% of the world's trade is transported by the sea, it is crucial to pursue global trade along maritime routes without interruption. In this respect, Arctic maritime routes are expected to be preferred as a secondary option for the uninterrupted movement and regular supply of the global trade cycle since they have significant advantages for the global supply chain, both in terms of cost reduction due to time-fuel savings and the absence of any terrorist-piracy activities along the transportation corridors. Herein, it is also significant to take into account that increasing human activity and recent climate change projections will further spark fears about both conflict and competition in the region.

On the other hand, this study concludes that the emergence of Arctic maritime routes and their associated economic opportunities are duly recognized by Turkish shipyards, which have determined to be essential actors in the Arctic. In addition to Northern Europe and Canada, there has been a remarkably rising trend of Turkish shipyards' investments in logistics and maritime trade within the Russian Arctic as well. Based on the number of accomplished orders, it can be asserted that Russia perceives Türkiye as a strategic partner. Besides, upon the accession of Finland and Sweden to NATO, Türkiye may become a balancing mediator between Russia and NATO in the Arctic. Last but not least, several Turkish shipyards have started to adopt a green technology approach with the aim of an energy-efficient and emission-free shipping sector thereby contributing to sustainable energy security in the long term. It is also concluded that there is an urgent need for a strategic roadmap for Turkish shipping industry, as well as governmental incentives, since these efforts are limited to private sector.

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