



## Review article

# Turkey's quest to become a regional energy hub: Challenges and opportunities

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## ARTICLE INFO

**Keywords:**Turkey  
Energy security  
Energy transit  
Energy trade  
Energy hub  
Geopolitics

## ABSTRACT

Despite its relatively modest domestic energy resources, Turkey plays a central role in the global geopolitics of energy. Situated between energy-rich areas of the Middle East and energy-consuming Europe, it is no surprise that Turkey has become a crucial transit route for fossil fuels, especially natural gas. Furthermore, in recent decades, Turkey's leadership has pursued an ambitious plan to transform the country into a regional energy hub. This vision encompasses Turkey as a place where energy resources are not only transited but also sold and bought by international sellers and buyers. The study offers a historical overview of major transboundary oil and natural gas energy projects in Turkey, including both successful and failed endeavors and those in prospect. It delves into Turkey's aspirations to establish itself as a regional energy trade spot, a crucial component of its foreign policy agenda aimed at bolstering its influence on the regional and global stage. The paper also assesses the strengths and weaknesses of Turkey's ambition to become a regional energy nexus and its feasibility. The study highlights Turkey's potentially significant role in enhancing energy security for Europe, especially in the wake of the Russia-Ukraine conflict and the European Union's efforts to reduce its dependence on energy from Russia.

## 1. Introduction

Despite having relatively modest domestic energy resources, Turkey has an advantageous geographical location that makes it a central player in the global geopolitics of energy – it is situated between energy-rich regions in the Middle East and the Caspian basin, and energy-needed regions of Europe. Not surprisingly, Turkey has become a vital transit corridor for energy resources, primarily natural gas, as a critical supplier to meet Europe's essential energy needs [1–3]. The recent geopolitical events, notably the 2022 Russian invasion of Ukraine and the European Union's explicit intention to finally eliminate its dependence on Russian energy resources, have underscored Turkey's potentially pivotal role in ensuring energy security for Europe. Despite the European Union's exploration of diverse energy supply options and efforts to reduce reliance on fossil fuels [4], Turkey remains a critical factor in European energy security because of its unique geographic location.

However, Turkey's political leadership has never viewed its country as a simple energy transit corridor and has actively pursued the strategic leveraging of its geopolitical advantages to safeguard domestic energy security and achieve broader geopolitical objectives. Central to this strategy is the vision of Turkey as a pivotal regional energy hub, positioning the nation not only as a critical geographic

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<https://doi.org/10.1016/j.heliyon.2023.e21535>

Received 19 September 2023; Received in revised form 19 October 2023; Accepted 23 October 2023

Available online 30 October 2023

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corridor for energy resources but also as a vibrant trade center where international buyers and sellers engage in the exchange of energy resources [5–7].

The idea of transforming Turkey into an energy hub has sparked vigorous debate among politicians, policymakers, and scholars about its feasibility. Since the 2010s, numerous studies have analyzed Turkey's prospects to become an energy trade spot. Divergent viewpoints on the feasibility of this aspiration have emerged, yielding both optimistic and skeptical arguments.

The existing academic literature on Turkey's ambitions to become an energy hub highlights the following strong sides of the country in that regard – unique geographical position between West and East [1,5,6,8–10], relatively peaceful relationships with all neighbors [11,12], the need of both energy exporters and importers in alternative energy routes [13–15].

On the other hand, many studies point out that several difficulties can prevent Turkey from becoming a genuine energy center. These arguments include insufficient capacity of Southern Gas Corridor, restrictive domestic energy policies and illiberal domestic energy market [16–18], domestic terrorism [13,16,19–21], tensions with the European Union [17], decreasing demand for natural gas in Europe [15,16], increasing role of LNG in international trade [16], ongoing conflict in Syria and uncertainty in Iraq [14,16], poor energy infrastructure and international isolation of Iran [13,20], and isolation of Turkey from Eastern Mediterranean natural gas resources [13,22–24].

Despite a wealth of literature addressing Turkey's aspirations to become an energy trading center, a notable gap exists in the form of a comprehensive systematic review. To date, no exhaustive analysis has been undertaken to evaluate Turkey's transboundary energy projects and the diverse arguments surrounding its pursuit of regional energy hub status.

Furthermore, the geopolitical landscape has evolved significantly with the Russian invasion of Ukraine in 2022, introducing a new and dynamic factor into the energy security equation for multiple nations, particularly within Europe. Consequently, there is a pressing need to investigate how this recent event impacts Turkey's role in ensuring energy security in the region and how it may influence its aspirations as a regional energy trade spot.

Therefore, this article sets out to accomplish a dual set of objectives. First, it aims to provide a detailed and exhaustive examination of Turkey's historical and contemporary transboundary energy projects within the oil and natural gas sectors. This analysis will thoroughly explore project successes, encountered setbacks, and prospective developments on the horizon. Second, this study aims to offer a comprehensive summary of the ongoing debates and discussions surrounding Turkey's fervent ambitions to position itself as a regional energy center. It entails a comprehensive review of diverse viewpoints, including optimistic and skeptical arguments, to provide a well-rounded understanding of the discourse.

In the pursuit of these objectives, we intend to enrich the existing body of literature by delivering a holistic analysis of Turkey's transboundary energy transit landscape. This analysis will illuminate the country's energy policies and broaden their implications. Therefore, we hope that study will contribute to the scientific understanding of Turkey's evolving role in the global energy landscape, emphasizing its position as an energy corridor and its aspirations as an energy trading hub. This paper offers insights into the complex interplay of geography, geopolitics, and energy security by examining historical and contemporary transboundary energy projects and the associated debates. It underscores the importance of considering Turkey as a pivotal player in the region's energy dynamics, particularly in light of the changing energy dynamics of the entire world.

This study is grounded in the theoretical framework of classical geopolitics, with a particular focus on the geopolitics of energy. The Realist approach to International Relations places significant emphasis on the central role of space, territory, resources, and borders in shaping the position of states in the global system. According to this approach, sovereign states view geopolitics as a zero-sum game in their permanent struggle for power and/or security [25–27].

Energy is integral to geopolitics for two reasons. First, energy resources are critical for states in their struggle for power and influence beyond their borders, executing power and pursuing security because they are essential for power sources such as the economy and military [28–31]. Second, geopolitical factors are crucial for energy security because significant share of energy is traded internationally. Therefore, the security of the energy supply heavily depends on transboundary geopolitical factors [32]. Thus, the geopolitics of energy for a country or region is determined by its geographical positioning and function in energy supply, transit, or demand [16].

The paper is structured as follows. In the subsequent section, we briefly describe the methodology of the study. Next, we will explore the historical backdrop of Turkey's major transboundary energy projects, exploring their accomplishments and failures. We will then provide a concise overview of the official discourse on the concept of an energy hub within Turkey. Following that, we will assess the strengths and weaknesses of the Turkish government's pursuit of this objective. Finally, in the conclusion section, we will summarize the key findings and their implications for Turkey's evolving role in the global energy landscape and offer directions for further research.

## 2. Materials and methods

This study adopts a descriptive inductive research design underpinned by an exploratory case study approach. The research approach employed in this paper is characterized by its iterative nature, involving multiple iterations spanning from theoretical literature exploration to empirical case analysis.

The main method of data collection used in this research is qualitative content analysis. This method systematically examines various textual sources. The focus of data collection is identifying and cataloging existing and planned projects related to energy transit, with particular emphasis on oil and natural gas, encompassing their liquefied form (LNG).

### 3. Results

#### 3.1. Transboundary oil projects

##### 3.1.1. Kirkuk-Ceyhan pipeline

The history of transboundary oil projects in Turkey has a long history. However, until the very 1990s, Turkey's engagement in transboundary energy trade was quite limited. The Kirkuk-Ceyhan pipeline was the first transboundary crude oil pipeline that ran from the city of Kirkuk in northern Iraq to the port of Ceyhan in southern Turkey. The pipeline was built to provide an alternative export route for Iraq's oil resources, bypassing the Persian Gulf and the Strait of Hormuz. Construction of the pipeline began in 1973, and it became operational in 1977. The pipeline has a capacity of 1.6 million barrels of oil per day, but various conflicts in Iraq disrupted its operations. In recent years, the pipeline has been used intermittently to export oil from the Kurdistan region of Iraq. Still, its future remains uncertain due to the region's political tensions and security concerns [14,33,34].

##### 3.1.2. Baku-Tbilisi-Ceyhan pipeline

The Baku-Tbilisi-Ceyhan (BTC) pipeline is a crude oil pipeline that runs from Baku in Azerbaijan through Tbilisi in Georgia and terminates in Ceyhan in Turkey. The pipeline was built to provide a new export route for Azerbaijan's oil resources, bypassing Russia and Iran. Construction of the pipeline began in 2002, and it became operational in 2006. The pipeline has a capacity of one million barrels of oil per day and has significantly increased Azerbaijan's oil export capabilities [8,16,35].

##### 3.1.3. Samsun-Ceyhan pipeline

The Samsun-Ceyhan pipeline was a proposed crude oil pipeline that would have run from the Black Sea port of Samsun in Turkey to the Mediterranean port of Ceyhan. The pipeline was intended to provide an alternative export route for Russian oil, bypassing the congested Bosphorus Strait. However, the project was canceled due to economic and political factors.

##### 3.1.4. Turkish Straits

According to the Turkish Ministry of Transport and Infrastructure, approximately 3 million barrels of crude oil transit through the Turkish Straits daily. It represents about 3 % of the global crude oil trade. In terms of tanker traffic, in average, 45 tankers pass through the Turkish Straits daily, making it one of the busiest shipping routes in the world. Most of these tankers are heading from Black Sea ports, with Russia being the largest supplier.

#### 3.2. Transboundary natural gas projects

##### 3.2.1. West pipeline

In the mid-1980s, Turkey signed import agreements for natural gas with Russia. The natural gas from the Soviet Union was transported to Turkey through Romania and Bulgaria and passed through the Turkish cities of Istanbul, Izmit, and Bursa before reaching Ankara. After expansion, the project has a capacity of 14 bcm of natural gas per year [16].

##### 3.2.2. Blue Stream pipeline

The Blue Stream pipeline is a natural gas pipeline from Russia to Turkey via the Black Sea. The pipeline was built to transport natural gas from Russia's giant gas fields to Turkey, providing a new export route for Russian gas. Construction of the pipeline began in 1997 and it became operational in 2005. The pipeline has a capacity of 16 bcm of natural gas per year and has strengthened Russia's position as a major supplier of natural gas to Turkey and Europe [16].

##### 3.2.3. Tabriz-Ankara pipeline

Russia's first alternative natural gas supplier was the Tabriz-Ankara pipeline, also known as the Iran-Turkey gas pipeline, stretching from Tabriz to Ankara. The pipeline was first proposed in 1996 and completed in 2001 and had a total length of 2577 km. The pipeline has a capacity of 20 bcm of natural gas per year and is a critical component of the energy infrastructure in Iran and Turkey [16,36].

##### 3.2.4. Baku-Tbilisi-Erzurum pipeline

The Baku-Tbilisi-Erzurum (BTE), also known as the South Caucasus Pipeline (SCP), is a natural gas pipeline from Baku in Azerbaijan through Tbilisi in Georgia and ends in Erzurum in Turkey. The pipeline was built to transport natural gas from Azerbaijan's Shah Deniz gas field to Turkey. BTE uses the same land corridor as the BTC pipeline through its passage in Georgia. The pipeline's construction began in 2003, was completed in 2006, and became operational in 2007. The pipeline has a capacity of 20 bcm of natural gas per year [35].

##### 3.2.5. Southern Gas Corridor

In February 2002, discussions were initiated between the Turkish state-owned corporation BOTAŞ and the Austrian energy company OMV regarding the implementation of the Nabucco project. The primary objective of this project was to facilitate the annual transportation of 30 bcm of natural gas from the Azerbaijani gas field Shah Deniz to Europe. Subsequently, in June 2002, representatives from five energy companies hailing from transit nations, namely Austria, Bulgaria, Hungary, Romania, and Turkey, convened to endorse a Protocol of Intention. A few months later, a Protocol of Cooperation was formalized in October. The significance of the

Nabucco pipeline project gained prominence following two substantial gas crises between Russia and Ukraine during the winters of 2006 and 2009 and the Russian-Georgian conflict in August 2008. The Nabucco pipeline was conceived as the cornerstone of the European Union's "Southern Gas Corridor," a strategic initiative proposed by the European Commission to source gas from the Caspian and Middle Eastern regions to Europe. To bolster the endeavor, the European Commission extended its support in the form of a grant the subsequent year. Between 2008 and 2010, all participating nations and the European Union engaged in the process of signing ratification agreements with one another. Turkey, the pivotal transit corridor, was the final party to formalize its agreement within this interstate framework, concluding this phase in March 2010. However, the warnings of the pipeline's impending failure began to surface in the early 2010s, culminating in the formal cancellation of the project in the summer of 2013. The reasons attributed to the demise of the Nabucco pipeline project encompassed a myriad of factors, including project impracticality, challenges related to procuring Turkmen gas, competition from Russia's South Stream project, instabilities in Iraq, and the international isolation of Iran [35,37,38].

The Southern Gas Corridor (SGC) was proposed by the European Commission in 2009. Again, this pipeline corridor would transport Caspian gas to Europe via Turkey to limit the Russian influence in the EU energy market. The corridor through which it was supposed to go is almost identical to the one planned for the Nabucco project [3]. After the Nabucco pipeline failed to be completed, the EU has not given up on the search for alternatives to Russian gas.

The Turkish section of the SGC, known as the Trans-Anatolian Pipeline (TANAP), is a crucial land corridor that would supply gas to Greece via the Anatolian plateau. In 2011, the TANAP agreement between Azerbaijan and Turkey was signed. The construction of the TANAP started in 2015, and the opening ceremony took place in 2018. TANAP is delivering 10 bcm of gas to Europe with a planned increase to 20 bcm in 2025. Later, the Trans-Adriatic Pipeline (TAP), the interconnection between Greece and Italy, a natural gas pipeline runs from the Turkish-Greek border to Italy via Albania. Construction began in 2016 and the pipeline became operational in 2020. The pipeline has a capacity of 10 bcm of natural gas per year and has helped diversify Europe's natural gas supply [13,35,37,39].

The completion of the Turkey-Greece Interconnector in November 2007 marked a significant milestone in the EU's efforts to diversify its energy sources and reduce its reliance on Russian gas. The interconnector spanned 300 km and was developed under the EU's Interstate Oil and Gas Transport to Europe (INOGATE) program, an initiative to promote oil and gas transportation from the Caspian and Black Sea regions to Europe [16,35]. It is important to note that the SGC is not limited to pipelines crossing through Turkey but also includes a pipeline from the East Mediterranean gas reserves to Greece mainland via Crete, currently known as the East Mediterranean pipeline, and also an offshore gas pipeline connecting Greece and Italy, known as Poseidon pipeline [2].

### 3.2.6. TurkStream

South Stream was one of Russia's most important natural gas pipeline systems that would have transported gas from Russia to several countries in southern and central Europe. The pipeline was intended to provide an alternative to existing gas transit routes through Ukraine, subject to geopolitical tensions and disputes. The proposed pipeline would have had a capacity of up to 63 billion cubic meters of gas per year. It would have run from Russia's Black Sea coast through Bulgaria to other European countries and became operational in January 2020. However, after a series of disputes and the annexation of Crimea by Russia in 2014 and the EU's Third Energy Package legislative package, which implied an end to Gazprom's gas monopoly in the EU and the involvement of third parties, Brussels put pressure on its Balkan members to cancel the South Stream. Bulgaria, a crucial EU member state on the route, withdrew from the project.

At the same time, Turkey, which at that moment enjoyed good relations with Russia, saw the failure of the South Stream project as an opportunity. Being bypassed in the previous route, where Bulgaria was supposed to be the entry point of Russian gas to the EU territory, Turkey now managed to repackage the prior agreement and change the route in its favor. It happened on Putin's visit to Ankara in December 2014 when he announced the end of the South Stream and, together with the Turkish side, decided to redirect the route towards that country. The entire project was renamed to TurkStream. The deal also helped Russia bypass the EU's third-party-access rule [40]. Shortly after that, in January 2015, Gazprom, the state-owned natural gas giant in Russia, issued a letter of caution to the Vice President for the Energy Union at the European Commission. The letter stated that Russia intended to terminate all gas shipments to Europe through Ukraine once the construction of a new pipeline through Turkey was completed [41].

TurkStream was supposed to deliver half the capacities of the South Stream – 31.5 bcm per year. Of that amount, half was planned for Turkish domestic consumption, while another half was potentially for the European market [13,35,40].

### 3.2.7. Liquefied natural gas

Turkey has increasingly diversified its energy mix and transit capacity by investing in liquefied natural gas (LNG) projects. One of the main points of entry for LNG into Turkey is the Etki Liman, also known as Aliaga LNG terminal, located near the city of Izmir and has a regasification capacity of 5.3 bcm/year. Another main entry point for LNG is the Marmara Ereğlisi terminal, located near Istanbul, with a regasification capacity of 8.2 bcm/year. Dörtyol floating storage and regasification unit (FSRU) went into service in 2018. Turkey is trying to increase the capacities of the Egegas and Marmara Ereğlisi LNG terminals from the current 12.2 bcm of regasification capacity [16]. In addition to these terminals, there are several other LNG projects. A Saros FSRU terminal in the Gulf of Saros is expected to be completed in 2023. Good relations between the government and Qatar, which is actively involved in the Turkish LNG sector, certainly favor Turkey to quickly achieve the desired goal of expanding its LNG capacities.

## 3.3. The idea of energy hub

Although many countries put the trade of energy resources at the center of their national strategies, it is usually typical only for

energy-rich exporters such as Persian Gulf nations or Russia [42–46]. In contrast to those countries, however, Turkey has relatively modest energy reserves that do not even satisfy the needs of its growing economy. Turkey must import most of its total energy needs, including more than half of the coal it uses and almost all of its oil and natural gas [16]. Thus, the country's energy ambitions are exclusively based on the use of foreign energy resources. Although there are several countries in the world whose geographical location made them essential energy transit actors, such as Ukraine [17,47,48] or Belarus [49,50], Turkey is quite unique in putting energy transit as one of the central pillars of its national strategy and foreign policy.

The idea of an energy hub can be traced back to the 1990s when the first transboundary energy projects were completed. Simultaneously with the development of transboundary energy projects, the discourse of Turkey as an energy hub has developed. For instance, the United States facilitated the idea of the “East-West energy corridor” based on pipelines from Central Asia, Caucasus, and the Middle East to Europe to prevent Europe from being entangled in the shackles of the Russian energy monopoly. Thus, both domestic and foreign actors undoubtedly viewed Turkey as a transit energy corridor in its intentions [5].

However, before the late 2000s, the discourse of Turkey as a genuine energy trading center, where energy is bought and sold rather than an energy corridor where energy is simply transported, almost did not exist.

Although the idea of maximizing Turkey's geographical position dates back to the early 20th century, one of the first to promote the idea of Turkey's geopolitical potential was the former Minister of Foreign Affairs of Turkey, Ahmet Davutoglu, whose famous book *Strategic Depth* [51] deals with the broader region that once was part of the Ottoman Empire, which according to him now would serve as the “strategic depth” of Turkey.

In his 2008 essay about Turkey's foreign policy vision, Davutoglu [51] highlighted that Turkey should use its unique geographical location to develop transportation routes, including energy transit from neighboring countries, including Russia, Azerbaijan, Iran, and Iraq.

In 2009, Davutoglu explicitly expressed the idea of making Turkey a global energy center:

Turkey has made strides towards becoming a global energy hub. ... Being the intersection of the East-West and North-South energy corridors is a natural result of Turkey's geography, which lies at the intersection of East and West, and North and South [52].

In 2009, Egemen Bagis, then minister for EU Affairs and chief negotiator of Turkey, in accession talks with the European Union, explained the idea of an energy hub in the following way:

Coffee does not grow in Turkey, but “Turkish coffee” is served all around the world. We brought coffee from Yemen, developed our brewing technique, and stamped our trademark. We could do the same with energy [38].

In 2010, Taner Yildiz, then Minister of Energy and Natural Resources, published a program article that explained the idea of an energy hub in detail and how it would be necessary for domestic, regional, and global energy security.

Turkey can contribute constructively to the world's energy security and, more specifically, play an important regional role in that regard, Turkey can be more than a bridge: it has the potential to become a regional center between Asia and Europe. The core of Turkey's energy policy is circular and the diameter of this circle is equal to the world's diameter [9].

The idea of an energy hub has been introduced in some official documents, such as Turkey's International Energy Strategy, which identified one of its principal goals as “To be a regional trade center in energy” [53].

Quite recently, at a meeting with Russian President Putin in October 2022, President Recep Tayyip Erdogan again expressed his intention to turn Turkey into an energy hub. Turkey's and Russia's energy authorities were instructed to begin technical studies on a Russian proposal to turn Turkey into a gas hub for Europe [54].

On a similar note, the foreign minister, Mevlut Cavusoglu, said that Turkey has the capacity to be “an energy hub for determining gas prices” [55].

## 4. Discussion

The concept of Turkey serving as an energy hub has generated a range of perspectives within the academic community, with some scholars expressing optimism about it. The prospects of Turkey's becoming a regional energy nexus remain a subject of ongoing debates.

### 4.1. Strengths

Scholars who advocate for Turkey's role as an energy hub typically cite several key factors to support their position. Based on these factors, these scholars argue that the idea of Turkey serving as an energy trading center is realistic and feasible in the coming years.

#### 4.1.1. Geographic location

Turkey has one of the most favorable positions for achieving several geopolitical goals, including energy. Indeed, the country is at a crossroads between the most energy-rich part of the world and the energy-poor consumers. Specifically, in the broader Turkey neighborhood, the proven reserves of 73 % of global oil and 72 % of natural gas. On the other hand, Europe consumes almost 20 % of global oil and almost 30 % of natural gas. In addition to the land routes, Turkey also controls the sea routes through which energy products are transported. The most logical and cheapest transport route for the oil and gas destined for Europe is through Turkish

territory. All other route variants that would bypass Turkey are much more expensive, and those options' feasibility is seriously questioned [5,8].

Turkey's geographic proximity to major natural gas producers, such as Russia and Iran, has also made it an attractive partner for the energy trade. Turkey's ability to navigate this complex geopolitical landscape has allowed it to play an instrumental role as a key natural gas consumer and transit country, shaping the scale and scope of its role in the global energy market [16,56–60].

#### 4.1.2. Turkey as an alternative to the Ukrainian route

The insecurity in Ukraine after 2014, especially after the Russia's full-scale invasion in 2022, is often viewed as an excellent geopolitical opportunity for Turkey to become an energy hub. Although much gas has passed through the territory of Ukraine, Russia saw this corridor's potential risks long ago. Even before the war of 2014, Russia and Ukraine had two severe energy crises in 2006 and 2009, caused by disputes over the price – all this created uncertainty for Russia as an exporter and the EU as a consumer. One of the reasons so much energy was invested in the TurkStream, Nord Stream 1, and Nord Stream 2 lies in this fact [48,61,62]. Since both Nord Streams are currently not functional, Turkey has become a crucial link in exporting Russian gas to Europe, including non-EU countries. Essentially, every crisis in Russian-Ukrainian relations, which inevitably affected energy transit, increased the chances for Turkey to use its geographical potential and diplomatic balancing to impose itself as an alternative route, which has partially succeeded.

The EU acknowledged that the Southern Gas Corridor plays a crucial role in diversifying natural gas supply to the EU, especially for countries in Southeastern Europe. In 2022, the European Union and Azerbaijan agreed to strategically cooperate in field of energy. Specifically, it was committed to double the capacity of the Southern Gas Corridor. It would be possible by 2027 to deliver 20 bcm of natural gas to the EU annually. With strengthened energy cooperation, Azerbaijan has already started increasing natural gas deliveries to the EU, from 8.1 bcm in 2021 to an expected 12 bcm in 2022 [63].

#### 4.1.3. Special relationships with other countries

Turkey has friendly or at least neutral relationships with many, especially neighboring countries, which is a positive factor contributing to the country's ambitions to become an energy hub. Turkey's approach to foreign policy in recent years has been characterized by a focus on cooperation rather than competition. This shift reflects a recognition that cooperation and collaboration are essential to addressing the region's complex challenges, including energy security, economic development, and political stability. Turkey has sought to cultivate positive relations with its neighbors, recognizing that a stable and peaceful neighborhood is essential for its security and prosperity. It has involved various diplomatic initiatives, including high-level visits, bilateral agreements, and multilateral forums [11]. Although the international relationships of Turkey with other countries cannot be characterized as perfect, for a long time, it has managed to avoid explicit confrontation with countries from opposite blocks.

Turkey's geopolitical strategy based on a delicate equilibrium between its NATO membership and economic interactions with Russia, Central Asia, and Middle East significantly influences its role as a major natural gas consumer.

On the one hand, as a NATO member and an EU candidate, Turkey has consistently nurtured a robust partnership with the Western countries, which serves as its primary source of investment and technology transfer. On the other hand, despite a history of tension and conflict, Turkey and Russia have increased cooperation in recent years, particularly in trade, energy, and security. The two countries have found common ground on several issues and have been able to set aside their differences in pursuit of mutual interests. Turkey and Russia have long had close ties in the energy sector, with Russia being a major natural gas supplier to Turkey. In recent years, the two countries have deepened their cooperation through joint projects, including the TurkStream gas pipeline and the Akkuyu Nuclear Power Plant. Although most Western countries have unified their policies toward the Russian invasion of Ukraine in 2022, Turkey has recognized it as an opportunity. Being aware that the Ukrainian crisis would create serious energy issues in Europe, Turkey decided not to break its relations with the Kremlin and did not vigorously oppose its invasion. Although the government supports Ukraine's territorial integrity, the relationship with Russia has continued as usual. The Russian invasion did not damage energy deliveries to Turkey, although deliveries to the Balkans seem to be at a standstill.

Iraq, specifically the Kurdistan Regional Government (KRG), has long been considered a potential new natural gas supply source for Turkey. Still, security issues have been the main obstacle to realizing this potential. As a result, it is unlikely that there will be any gas imports into Turkey from KRG in the medium term, and the development of gas projects and exports to Turkey may not happen until the mid-2020s, depending on political relations between Iraq and Turkey and stability in Iraq in general [36].

The East Mediterranean region has substantial natural gas resources, with notable deposits located within the maritime boundaries of Cyprus, Israel, and Egypt. The identification and development of these resources, exemplified by the Tamar and Leviathan fields in Israel and the Aphrodite field in southern Cyprus, have significantly augmented the region's standing as a potential natural gas exporter. It has garnered considerable attention and sparked discussions about the feasibility of constructing a gas pipeline trailing from Israel through Cyprus and culminating in Turkey. Such a pipeline route would inherently be shorter compared to alternative options, thereby offering potential advantages for Turkey, particularly in its aspiration to diversify its sources of natural gas supply [13, 23,24,64].

Iran has enormous potential to become a source of energy resources for Turkey, particularly in natural gas. With the lifting of sanctions, Iran can become a significant global natural gas exporter with its offshore and onshore reserves [16].

The most promising direction for the furthest-reaching long-term geopolitical forecasts undoubtedly centers around the deepening relationship between Turkey and the energy-rich Turkic countries of Central Asia. In recent years, Turkey has actively sought to rekindle its ties with this region, primarily through platforms like the Turkic Council [65]. Turkey's relations with the Turkic republics in Central Asia stand out as a critical focal point for observation. The geopolitical and economic decline of Russia is expected to work in favor of this cultural world. In this context, Turkey could play a pivotal role, leveraging its connections in various fields, including

energy, to elevate its position on the geopolitical and geo-energy stage. Many Turkic countries have already recognized this potential, evident in their active participation in joint meetings of the Turkic Council. The establishment of significant land connections will likely depend on Azerbaijan's stance.

Azerbaijan, a member of the Turkic Council, is indebted primarily to Turkey for returning the territory of Nagorno-Karabakh to its fold. Increasing pressure from the most potent ally, but also other Turkic countries, on Baku could pave the way for the formation of a "Turkic energy corridor" that could bring gas and other energy sources from the depths of the Asian continent to the heart of the Mediterranean and beyond to wealthy European customers.

Turkmenistan gas could eventually be connected to the existing Baku-Tbilisi-Erzurum pipeline. Turkmen gas would be extracted and transported through Turkish territory to Europe [14]. However, the question is whether it is in the interest of Azerbaijan to allow the new energy factor to use the existing infrastructure, given that the pipeline could not bypass the Azerbaijani territory.

Finally, there are plans to create a China-Pakistan-Iran-Turkey energy corridor. The proposed corridor is a significant project within China's Belt and Road initiative to establish a strategic pathway for transferring oil and gas resources from the Middle East to China [66].

## 4.2. Weaknesses

### 4.2.1. EU's shift to alternative suppliers

Although the EU recognizes Turkey's significance as a transit country for natural gas, it expresses concerns regarding the country's domestic politics and those of its neighboring states. While Turkey's geographical location is favorable for gas transit to Europe, the EU's priority is to enforce energy regulations in supplier and transit countries via the Energy Community. Consequently, this challenges the EU's engagement with Turkey as a significant energy transit partner [2,17].

The European Union's decision to reduce its reliance on Russian natural gas could have negative implications for Turkey's goal of becoming a regional energy spot. It shows us that the EU has already significantly diversified its sources, and that trend in the future will continue. Although the EU's natural gas import dependency rate in 2022 was 97 %, almost a quarter of the EU's imports were from Norway. Russia came second at 15.3 %, almost 9 % lower than in 2021, followed by the United States with nearly 10 %. Further diversification of sources and reliance on non-Russian sources, such as Norway, Algeria, and the United States, whose transit would not go through Turkish territory, would reduce the potential of this country to become an energy hub.

In January 2020, Cyprus, Greece, and Israel signed an agreement in Athens regarding the construction of the Eastern Mediterranean pipeline. The proposed 1900-km-long pipeline aims to connect newly discovered gas fields in the Eastern Mediterranean region with European markets through Cyprus, Greece, and Italy, with a capacity estimated at 10 billion cubic meters per year. The construction of the pipeline is expected to be completed by 2025. Implementing this project would create an alternative source and energy supply route to Europe [67].

Shale gas is another factor that might limit conservative attachment to natural gas and further minimize the possibility of Turkey's ambitions to become an energy hub. Indeed, as in the LNG market, the United States is the largest shale gas producer and pressures its customer markets for more significant consumption. Suppose the geopolitical weight of Washington prevails in the global energy realignment from natural gas to LNG and shale gas. In that case, it will undoubtedly harm Turkey's ambition, primarily based on the security of Russian and Azerbaijan natural gas supplies. It alone calls into question the long-term nature of the envisioned vision. At the same time, the transit capacity of the South Gas Corridor is relatively small and cannot be easily scaled up [36].

### 4.2.2. The reduction of European demand

In the aftermath of Russia's military intervention in Ukraine, Europe swiftly initiated a shift towards alternative energy sources, with a particular emphasis on renewable energy. Concurrently, the European Union embarked on an accelerated trajectory to enhance energy conservation and efficiency. In response to Russia's actions and the consequent surge in energy prices, the European Union experienced a substantial decline in natural gas demand, amounting to 55 billion cubic meters or a 13 % reduction in 2022 – a historical nadir regarding diminished consumption [68]. While milder winter temperatures contributed, the decline's foremost drivers were policy-driven alterations, most notably the substantial augmentation of wind and solar energy capacity. Furthermore, elevated energy prices significantly impacted the reduction in gas demand, particularly within gas-intensive industrial sectors.

Nonetheless, the permanence of these demand reductions remains uncertain. Notably, policy-driven changes, characterized by the remarkable expansion of wind and solar energy capacity, constituted a pivotal influence on this transformative shift in Europe's energy landscape. Consequently, the correlation between high energy prices and reduced natural gas demand sustainability remains a topic of ongoing scrutiny [4].

### 4.2.3. Monopolistic domestic natural gas market

One of the challenges to the idea of turning the country into an energy hub is the absence of a free market environment in energy trade. Indeed, the idea of an energy hub supposes a place where numerous independent domestic and international companies buy and sell energy. At the same time, the Turkish energy sector is near-monopolistic and under strict governmental control.

BOTAŞ was founded to transport Iraq's crude oil in 1974. In 1987, the company became responsible for natural gas transportation and trade. In 1995, the company was restructured as a state-owned enterprise. For a long time, BOTAŞ has been criticized for its near-monopolistic position without a healthy market environment and inability to expand service to households [69]. On the one hand, the company's monopolistic position somewhat facilitates the Turkish state's intention to dictate the direction of the gas policy. On the other hand, it causes damage to the long-term potential of the country's energy sector.

Turkey unsuccessfully tried to liberalize its energy market by removing the market monopoly from BOTAŞ. In 2001, the Natural Gas Market Law (NGML) was passed, which dealt with the position of private companies in importing and storing natural gas. The new law aimed to encourage privatization in the energy sector, establish free market competition, and prepare the ground for integration into the EU natural gas market. However, these half-hearted reforms were not enough to break the monopoly that BOTAŞ has. Article 2 of that Law does not allow private companies to sign contracts with countries BOTAŞ already has contracts independently. The only possibility is that a small space is left for private companies to conclude a contract after the expiration of BOTAŞ's contracts with those countries. Since BOTAŞ controls imports with supplier countries, private companies have little room for maneuver despite mild reforms from the beginning of the century. On the other hand, Article 2 does not allow BOTAŞ to conclude new contracts independently either but will enable it to amend existing contracts, thereby extending the life of its existing monopoly. The only hope now seems to be that most existing contracts expire in the 2020s, which could open up space for Turkey to liberalize its energy sector [16,22,69].

#### 4.2.4. Regional and domestic instabilities

Despite the early attempts to follow the “zero-problems with the neighbors” approach introduced by Davutoglu, Turkey has not only sunny relationships with its neighbors and main geopolitical actors. Although Turkey is situated between European and energy-rich countries, most of these countries have international or domestic problems with Turkey or their neighbors. Bilateral relations with Greece, Syria, Iraq, Iran, Armenia, and Cyprus are problematic and still burdened with various historical disputes, raising the question of whether any form of long-term regional cooperation can be achieved in the energy sector [70].

As mentioned above, because of the invasion of Ukraine, Russia has escalated its conflict with the West to the highest from the Cold War times. As a result, re-selling energy resources originating from Russia has become highly problematic. Turkey itself has no perfect relationship with Russia. Although on the strategic level, Turkey and Russia often collaborate, including joint energy projects, on the geopolitical level, those countries are rivals and consistently find themselves on opposite sides of conflicts [57].

The feasibility of incorporating Iran into the SGC project is beset by several notable impediments. First, Iran's substantial natural gas reserves are predominantly situated in the country's southern region, necessitating a considerable infusion of capital to upgrade and modernize its ailing gas infrastructure. Second, Iran presently directs its primary attention towards meeting its swiftly expanding domestic gas consumption, displaying a limited inclination towards gas exportation. Finally, the strained diplomatic relations between Iran and Western nations, akin to the complexities observed in the Iran-Russia relationship, could potentially give rise to substantial challenges in the reliable supply of Iranian natural gas to the European market [13].

Using Turkmenistan's energy resources is also not feasible because of the unclear legal status of the Caspian Sea, which does not allow energy transit. There are also unresolved disputes between Turkmenistan and Azerbaijan regarding energy transit [13].

Despite Turkey's efforts to develop energy projects with the Kurdistan Regional Government in Iraq, rising ethnic and sectarian violence and Syria's war have created significant challenges for the project [22,35].

Turkey faces significant challenges in utilizing the energy resources in the Eastern Mediterranean region. A fundamental point of contention revolves around the ownership of the natural resources, with Turkey asserting that these resources are the shared property of the Turkish and Greek Cypriot communities. Consequently, Turkey contests Nicosia's exclusive right to govern and exploit the offshore hydrocarbon reserves. In response to Nicosia's exploration and extraction efforts in offshore blocks, the Turkish government 2011 entered into a continental shelf delimitation agreement with the Turkish Republic of Northern Cyprus. This diplomatic maneuver further strained relations between Ankara and Nicosia. Tensions escalated significantly when Turkish warships were deployed to accompany a research vessel conducting hydrocarbon surveys in disputed waters in 2014. It is important to note that Turkey's prospects of benefiting from the gas discoveries in the Eastern Mediterranean hinge on the improvement of bilateral relations with key regional players, including Cyprus, Greece, Israel, and Egypt. These countries have taken steps to exclude Turkey from future resource distribution agreements by signing various mutual accords. An additional complexity lies in the ambitious and capital-intensive pipeline project that envisions a route through Turkey to deliver energy resources to Europe. This project's completion remains contingent upon resolving the longstanding reunification issue in Cyprus. Currently, the energy capacities, estimated at approximately 10–20 bcm per year, are primarily allocated for domestic consumption within the Eastern Mediterranean countries [13,16,22–24].

Finally, ongoing tensions between the Turkish state and the insurgent Kurdistan Workers' Party (PKK) are also a significant obstacle to pursuing the idea of an energy trading spot. Although, in recent years, there has been an inevitable weakening of the PKK, the problem is not entirely solved and remains a stumbling block for the development of some transboundary energy projects. The regional issue concerns not only Turkey and is one of the reasons why the southeastern part of the country is not as well connected with pipelines and other energy infrastructure as the western parts.

## 5. Conclusion

In recent decades, Turkey has embarked on an ambitious foreign policy agenda to enhance its regional and global influence, and energy plays a significant role in that agenda. Due to its unique geographic location between energy-supplying and energy-demanding regions and its historical ties with both the East and the West, Turkey has a natural inclination to serve as an energy corridor, a geographical area through which energy resources are transported. Not surprisingly, numerous oil and natural gas transit projects have been completed in the country, particularly in recent decades, resulting in a significant increase in energy resources transiting through Turkish territory. The importance of Turkey as an energy corridor has been further enhanced following the Russian invasion of Ukraine, as it offered an alternative route for sourcing energy resources from countries such as Azerbaijan.

At the same time, the ongoing Russian-Ukrainian conflict has impacted the European Union's energy policies, which now emphasize alternative energy suppliers such as Norway and the United States and alternative energy sources like renewables and



increased energy efficiency. This shift in EU energy policy could potentially weaken Turkey's position as an energy corridor.

Despite being situated near energy-rich regions, only Azerbaijan's energy resources are currently considered the most reliable for transit to Europe. All other energy sources located in Russia, Iran, Iraq, Turkmenistan, and Israel are not feasible for transit purposes, primarily due to political or security concerns.

Furthermore, the concept of an energy hub entails an energy corridor for transportation and a marketplace for international sellers and buyers to purchase and sell energy. Achieving this requires the liberalization of Turkey's domestic energy market, which remains a challenge.

To further advance the research in this field, future studies could delve deeper into the geopolitical ramifications of Turkey's role as an energy corridor, especially in the context of evolving regional conflicts and energy policy shifts. Additionally, research exploring the potential strategies and policies that Turkey could adopt to enhance its position as a regional energy hub would be valuable. Further investigations into the challenges and opportunities related to the liberalization of Turkey's domestic energy market could also provide critical insights into the feasibility of this ambitious endeavor. Lastly, given the dynamic nature of energy geopolitics, ongoing monitoring and analysis of Turkey's evolving energy landscape and its implications for global energy security would be a promising avenue for future research.

### Data availability statement

All data included in the article.

### CRediT authorship contribution statement

**Aliaksandr Novikau:** Conceptualization, Funding acquisition, Methodology, Supervision, Writing – review & editing. **Jahja Muhasilović:** Investigation, Writing - original draft.

### Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Aliaksandr Novikau reports financial support was provided by European Education and Culture Executive Agency.

### Acknowledgements

This work was supported by the European Education and Culture Executive Agency via the Jean Monnet Module grant. Views and opinions expressed are, however, those of the authors only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

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