

Research Paper

China's energy diplomacy in the Caspian Basin and its impact on the energy security of Europe

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ABSTRACT

Recent global events such as COVID-19 and Russia's invasion of Ukraine led to a significant transformation in the global energy market. The European Union's (EU) vulnerability to energy supply made the concept of diversification of energy supply more prominent. China also needs a stable energy supply for its sustainable economic growth. We observe that the energy resources of the Caspian Basin are crucial for the energy supply of China and the EU in this market for energy supply diversification. The research aims to analyze energy trends in the Caspian Basin and in what direction are these energy trends? Towards Europe or China? Three theories - interdependency, energy security, and sustainability - are used to analyze the research aim. The findings indicate that China has sustainable Gross Domestic Production (GDP) growth and a high Human Development Index (HDI) level, and its energy diplomacy in the Caspian Basin follows three concepts: Shanghai Cooperation Organization (SCO), Belt and Road Initiative (BRI), and Mutual Cooperation. Conflicts around the Caspian Sea have geopolitical roots in the West but internal roots in the East. Thus, current trends in the Caspian Basin are causing states to move toward China.

1. Introduction

In anarchic situations, there is no hierarchical superior authority to settle disputes, and states are the self-defense. Energy security becomes crucially important in this situation. The import and export of energy resources create interdependence between countries. As energy resources are restricted and unequally distributed, the energy supply is critical for the progress and stability of nations.

The EU has traditionally relied on fossil fuels and has actively pursued alternative energy routes to diversify its suppliers. The Caspian Basin has emerged as a viable alternative route, with Western countries investing in the region's energy infrastructure and building pipelines such as the Baku-Tbilisi-Ceyhan (BTC) and Baku-Tbilisi-Erzrum (BTE). Plans are also proposed to import energy from the east of the Caspian Sea through the Trans-Caspian pipeline. However, China's economic growth and increasing energy consumption have made it a competitor for Europe's energy imports in the region. Furthermore, due to China's significant economic growth rate, the country will need abundant natural gas. In this regard, gas imports from the Caspian Sea can cover its gas demands. According to [British Petroleum BP \(2023\)](#) statistics,

China's natural gas consumption in 2022 equaled 375.7 billion cubic meters (bcm). It has been predicted to increase to 700 bcm in 2050; at the same time, China can produce only 280 bcm. In this regard, the rest of its gas demand should be imported from foreign countries.

Since the independence of the Caspian countries from the Soviet Union, the competition over the natural resources of the Caspian Sea has dramatically increased ([Janbaaz and Fallah, 2018](#); [Bayramov, 2021](#)). [Kubicek \(2013\)](#) illustrated the foreign policy of great powers in the natural resources of the Caspian Sea. Russian foreign policy is based on the maintaining dominance policy in near-abroad and the United States (US) is following a diversity policy in the region to reduce Russia's influence on the energy issues of the Caspian states by building non-Russian pipelines. As part of its efforts to enter the Caspian slowly, China invested in the infrastructure of the Caspian countries and constructed pipelines to the east. [Stegen and Kuszniir \(2015\)](#) illustrate the Caspian states welcome China's investments worth billions of dollars. Due to the limited access to the West and counterbalance to Russia, East Caspian states have turned to China as an alternative market. In addition, because three states of the Caspian Sea (Azerbaijan, Turkmenistan, and Kazakhstan) are landlocked countries, pipeline politics is a crucial

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tool for these states (Bahgat, 2002; Orazgaliyev et al., 2017). For instance, Sovacool (2011) illustrates oil and gas pipelines have multifaceted roles in global politics and international political economy. Pipelines can be tools for wealth transfer from developing countries to developed ones and objectives for economic stability. Furthermore, due to the Russian invasion of Ukraine, Caspian states play a significant role in the energy security of the EU. Liu et al. (2023) illustrate policy changes in the EU toward sustainable resources could lead to carbon neutrality by 2050 and freedom from Russian energy imports before 2060. Therefore, we propose two questions in this article: what are the energy trends in the Caspian Basin? And these trends toward China or Europe? Furthermore, we hypothesize that due to the sustainable energy consumption growth in China and less ethnic conflicts in the east of the Caspian Basin, the cooperation of these states with China has priority over European countries. We used the assumptions of three theories: Interdependency, Energy Security, and Sustainability. The current research analyzes inter-regional energy security in the Caspian Basin, EU, and China. In other words, the authors explore China's energy diplomacy in the Caspian Basin to access sustainable energy resources and its impact on the Energy Security of Europe.

Research is structured as follows: Section 2 discusses the literature review, while Section 3 describes the methods and theoretical framework. Sections 4–9 adopted a theoretical framework for the studied regions. Section 10 provides a discussion and compares the results to other papers, and finally, Section 11 represents the main findings.

2. Literature review

The energy security concept has a complex definition and implications depending on social, economic, and political factors. As energy consumption increases in developed and developing communities, fluctuations in international energy markets can have varying impacts on energy sources. This has led many scientists to focus on the concept of safety. Given the wide-ranging nature of energy security, there are many different ways to approach it, with regional energy security being a recent area of study. However, the United Nations Development Program (UNDP) defines energy security as the availability of energy in different types at affordable prices (Knez et al., 2022).

In light of the regional energy security assessment, Tutak and Brodny (2022) evaluated the energy security of the Three Seas Initiative region by Grey Relational Analysis (GRA). They found to improve the energy security of this region; these countries should be pursuing transition programs, expanding their suppliers, constructing new energy storage, and developing their energy transmission networks. Darke et al. (2022) illustrated the role of the United Nations (UN) and China in the energy security of Central Asia. Kazakhstan has received significant assistance from China in its energy transition, including technological, financial, and capital support. The UN has also played a role in facilitating partnerships for policy development and government consultation. Vasić et al. (2023) detected that the security, development, and institutional challenges of Central Asian states have a significant impact on the energy sector. The authors illustrated if the EU wants to import energy from Central Asia, it should find practical ways to overcome these challenges. Pradhan (2021) highlighted India's role in Central Asia's great game. He found that if India wants to access Central Asian markets, it needs political will, good relations with Central Asian neighbors, and an expanding economy to interact with them. Chen et al. (2018) showed energy security in Central Asia is impacted by various political factors, such as the country's ties with Russia, competition for influence in the Eurasian region, the growing influence of China, and the geopolitical landscape of the area. Metera (2022) analyzed EU and Central Asia energy exporters based on Cooperation Agreements. The analysis shows that Turkmenistan is a crucial player in the EU's energy security, and the EU faces significant challenges in establishing relations with other states in the region.

For energy diplomacy, Alkyana and Kartini (2023) examined energy

diplomacy to achieve Sustainable Development Goals (SDG). They found that energy diplomacy is a practical tool for developing countries to improve their energy security and plays a significant role in the multilateralism order. Xu and Reisinger (2018) examined Russia's energy diplomacy toward China and found that personalism has a considerable effect on the coordination of decision-making institutions. Lee (2019) demonstrated that the energy diplomacy of China is influenced by its energy security. Furthermore, he emphasized China's energy diplomacy based on the three pillars: foreign aid, partnerships, and leadership visits. Quitzow and Thielges (2020) showed that energy diplomacy of Germany is a soft power strategy, and bilateral energy partnerships are a significant tool of the government.

Generally, the recent studies highlighted regional energy security and energy diplomacy but didn't examine the impact of inter-regional energy security. Furthermore, these studies largely neglect to analyze China's energy diplomacy in the Caspian Sea and its relation to the energy security of the EU. Similarly, though the existing papers have examined the great game in Central Asia over natural resources from essential perspectives, but after Russia's attacked on Ukraine, the global energy market faced changes that doubled the importance of the energy resources of the Caspian Sea.

3. Material and method

The regions under examination include Caspian Basin states, China, and the EU. The reason for the analysis of the regions together is that these countries' energy sectors are linked. The data are obtained from BP, the UN, the European Commission, the Energy Information Administration (EIA), the Eurostat website, and Statista.

Various techniques are employed by economists and statisticians to monitor economic progress, with the most widely recognized and frequently monitored being GDP. However, the shortcomings inherent in using GDP as a gauge of advancement have resulted in the development of alternative measures. One such measure is the HDI, which is regularly issued by the UNDP in its Human Development Report. The HDI is a combined index that assesses countries based on their overall performance concerning three criteria: life expectancy, education, and Gross National Income (GNI) per capita (using PPP dollars). This enables a better assessment of a country's economic growth (Ross, 2022). Therefore, we examined China's economy with GDP and HDI indicators in recent decades. Overall, for analyzing the research, we use the foundations of the three theories: Interdependency, Energy Security, and Sustainability. In the following, we will explain them one by one and express their relationship.

3.1. Interdependency

The concept of interdependence refers to situations in which countries have reciprocal effects on each other (Keohane and Nye, 1987). Dependency also refers to being determined or significantly influenced by external actors. Mutual dependence involves the relationship between actors and can be characterized by cooperation and competition.

The degrees and outcomes of interdependence are considered by Keohane and Nye. Interdependence refers to the economic field and the flourishing of comparative advantage. The interdependence also involved two concepts: sensitivity and vulnerabilities. Regarding policy, sensitivity is the willingness to cope with the effects of external influences before changing policies and taking advantage of them. Vulnerability of interdependence also refers to the cost of external forces imposed on the actor even after policies are altered (Coate et al., 2015).

3.2. Energy security

Benjamin Sovacool defines energy security in four concepts: Availability, Affordability, Efficiency, and Stewardship (Sovacool, 2012).

Availability: means providing a sufficient and uninterrupted supply

of energy, services, and minimizing imports. **Affordability:** an affordable energy supply provides adequate and uninterrupted energy at a reasonable price. Suppliers have difficulty planning investments when fuel prices swing wildly. **Energy Efficiency:** Achieving the highest energy efficiency and minimizing energy waste. Various approaches can be taken to enhance energy efficiency, such as reducing the number of energy demands, substituting alternative fuels, and changing habits. **Stewardship:** Governing and promoting social and environmental sustainability are essential stewardship components. The definition of stewardship implies ensuring the vitality of local communities, minimizing ecological destruction, and adhering to human rights norms and good governance rules.

3.3. Energy security and interdependency

An energy importer's sensitivity to interdependence defines the share of imported energy in total energy demand. To assess the interdependence vulnerability, alternatives to imported energy must be considered, as well as the switching costs (Gupta, 2008). For example, two countries, each importing 30% of their petroleum demand, are similarly sensitive to price increases. The first state can transform domestic sources at a moderate cost, and the other states cannot. Therefore, the second state would be more vulnerable than the primary. In times of high prices and limited markets, energy importers seek supply security and low prices, whereas energy exporters seek demand security.

Oil markets are interdependent and interconnected; a disruption or change in the country's supply or demand balance and fuel mix can impact other countries, whether they produce or consume oil. The interdependence between suppliers and consumers in gas markets differs from that in oil markets, where actors are generally highly interdependent, due to the inflexibility of gas pipelines.

3.3.1. Factors measuring the sensitivity and vulnerability of energy

Regarding energy security, four concepts were measured to determine the sensitivity and vulnerability of interdependence (International Energy Agency, 2007).

- Diversification of the primary fuel mix,
- Dependence on imports and substitutability of fuels,
- Market concentration (predominance of few countries in total fuel trade),
- Imports from politically unstable regions.

3.4. Sustainability

The following essential prerequisites should be met for a country to be regarded as independent within the energy sector (Adibe et al., 2018):

- Access to energy resources,
- Accessibility to sufficient funds,
- Technologies,
- Diversified export markets.

There is a possibility that asymmetric interdependency in energy cooperation could influence politics (DaDalt and Park, 2020). In asymmetrical interdependence, if the importer of energy, or the exporter of energy, has lower vulnerability than the other, it has more opportunities to impact the outcome of the transactions to its advantage (Glaser, 2013).

According to the energy curse theory, the sources of revenue from the sale of natural resources make governments needless in tax revenues and prevent the formation of a democratic system. Citizens who pay lower taxes are less inclined to hold the government accountable and improve institutions. It also prevents the formation of social institutions, and the cursed revenues of resources prevent the modernization of the

economy. The abundance concept of natural resources is a relative matter, and all countries need natural resources to achieve development. Natural resources can increase growth if combined with technology, efficient political systems, and capable labor (Asiedu and Lien, 2011). Therefore, according to the 7th goal of SDG the energy sustainability concept involves ensuring that energy is provided in a manner that is adequate, reliable, and affordable while meeting social and environmental standards (Grigoroudis et al., 2019). It is essential to recognize the interconnectedness of energy goals and sustainability and to prioritize sustainable practices when evaluating energy policies. While short-term energy security is significant, it should not be viewed in isolation but rather in the context of the energy security dimension and long-term sustainability. This approach prevents the creation of policies that may address immediate energy needs but ultimately to substantial problems down the line (Ang et al., 2015).

Fig. 1 shows China, Europe, and Caspian Basin states need energy security to achieve human security. Therefore, the interdependency, energy security, and sustainability theories help to analyze this process.

4. Caspian Basin

As shown in Fig. 2, Caspian Basin is divided into four territories: North Caspian Basin, Northeast Caspian Basin, Middle Caspian Basin, and South Caspian Basin. Therefore, Iran, Turkmenistan, Uzbekistan, Kazakhstan, Russia, and Azerbaijan are in the Caspian Basin.

5. Sustainable economic growth of China

China's economy has sustained a rapid annual growth rate since the late 1970s when economic reform was initiated. Increasing economic growth is the result of China's market-oriented reforms. GDP measures the size of the economy (Chen et al., 2020). A rapid increase in real GDP will likely result in companies hiring more workers. In the following, we will examine China's GDP:

China's average GDP growth from 1990 to 2022 equals 8.88% per year. Compared to the GDP of the BRICS (Brazil, Russia, India, China, and South Africa), China ranked first and second in the world GDP ranking. As shown in Fig. 3, China experienced a decline in GDP in 2019 due to the COVID-19 pandemic. The epidemic in China would lead to a 2.2–3.09% drop in Chinese GDP and a 1.56–2.48% drop in energy consumption (Wang and Wu, 2021). In 2021, China's GDP increased, but in 2022, the GDP decreased because of the Zero-Covid policies.

For a better understanding of the Sustainable Economic growth of China, we analyze China's HDI. HDI plays a crucial role in developing

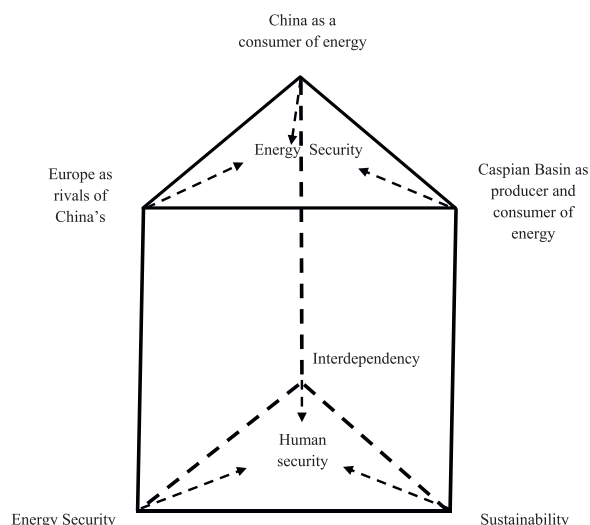


Fig. 1. Energy security to Human security.

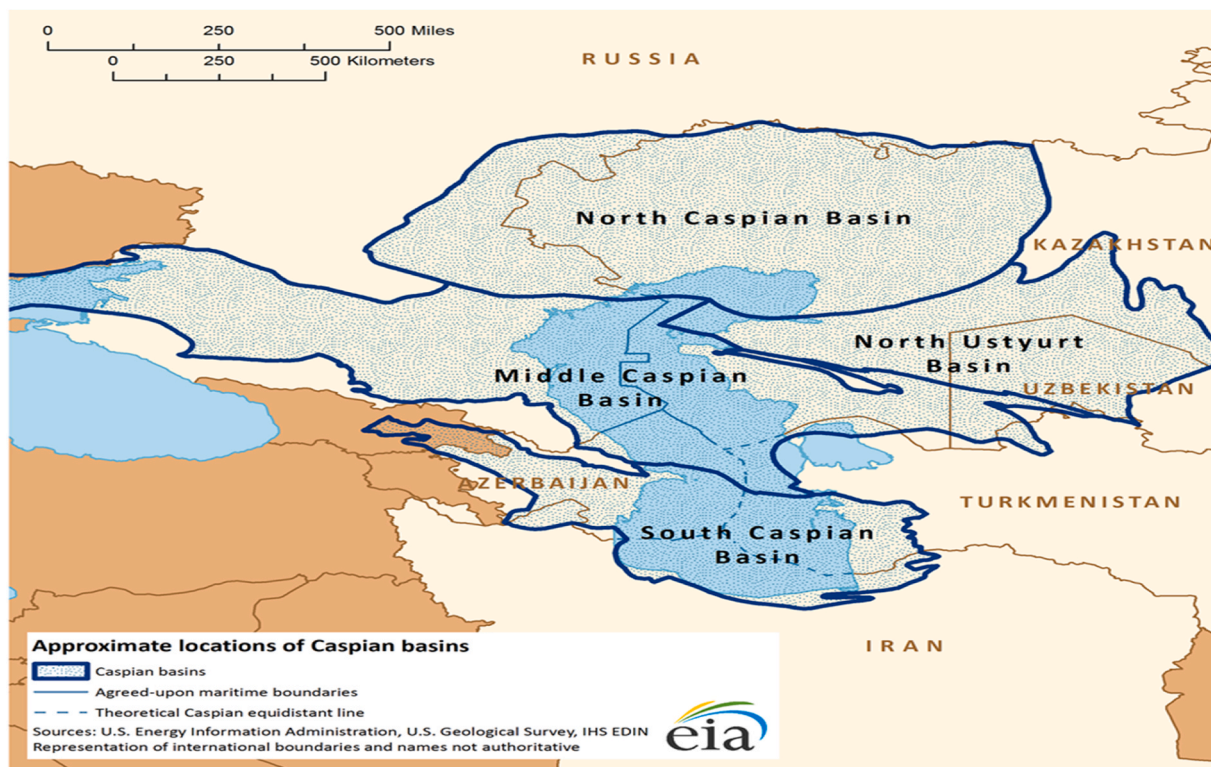


Fig. 2. Caspian Sea Basin (EIA, 2013).

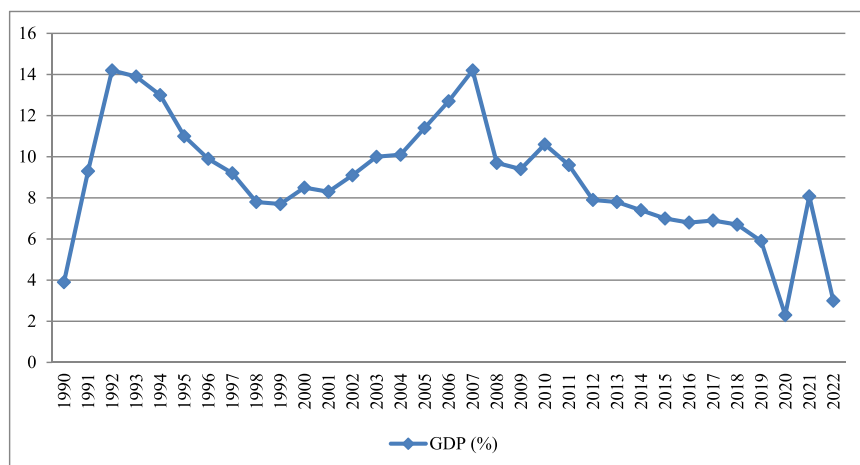


Fig. 3. GDP of China (Statista, 2022a).

countries since higher life expectancies contribute to a more robust economy by keeping workers employed longer instead of increasing pension and healthcare expenses. In other words, increasing life expectancy in developing countries leads to economic growth (Gulcemal, 2020).

According to the UNDP report in 2014 and 2015, countries were categorized into four groups:

- Very High HDI (0,800-1000)
- High HDI (0,700-0799)
- Medium HDI (0,550-0699)
- Low HDI (0-0549)

Fig. 4 shows the HDI of China in 1990 at a low level, but during the

years, HDI in China increased. Therefore in 2021, the HDI of China was at a high level. China’s GDP and HDI growth show that the country has sustained economic growth. Economic growth increases life expectancy. Life development contributes to economic growth.

5.1. China as a consumer of energy

By 2022, China’s population had reached 1.4 billion, and its rapidly expanding economy positioned it as the leading consumer of energy worldwide. According to the BP, in 2021, China accounted for 26.5% of global energy consumption.

Due to the gap between the production and consumption of oil and natural gas in China, the country must look for energy resources in foreign countries. China needs the energy to maintain the sustainable

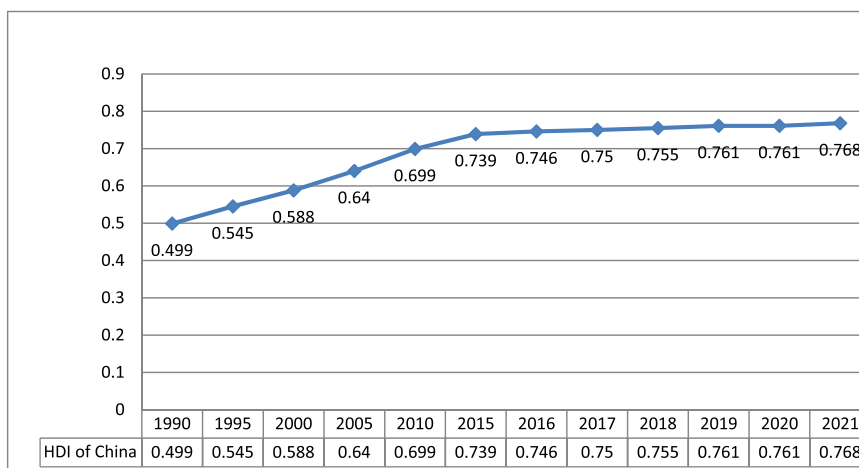


Fig. 4. HDI of China. (UN, 2022).

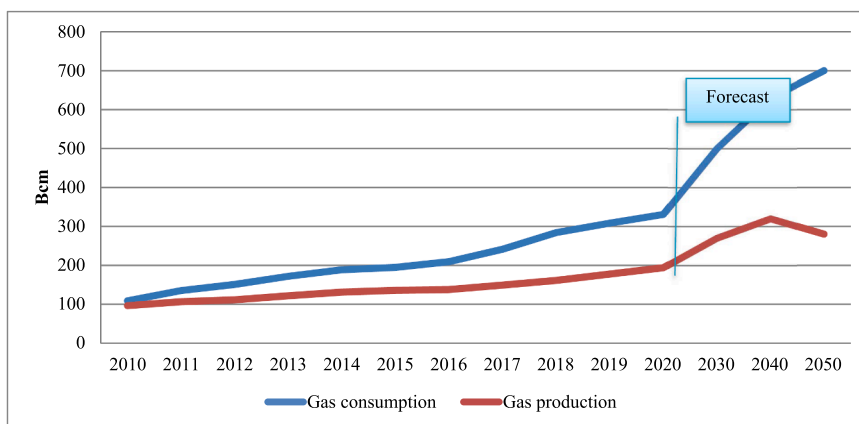


Fig. 5. Gas consumption and production of China (BP, 2023).

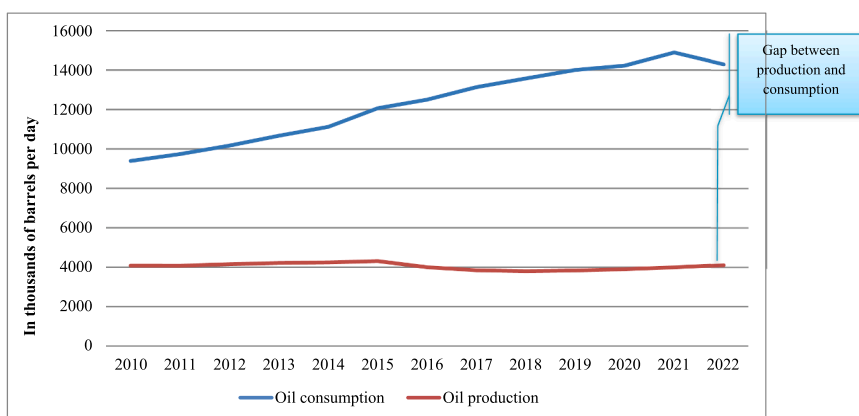


Fig. 6. Oil Consumption and production of China (BP, 2023).

growth of its economy. Figs. 5 and 6 show China’s energy (oil and gas) consumption and production. The country must import a shortage of its demands from foreign countries.

China has serious concerns about securing the flow of energy needed by its economy because access to reliable energy sources ensures that China continues to accelerate its move toward the world’s largest economy. Therefore, China faces different challenges in importing oil and Liquefied Natural Gas (LNG) because these commodities should pass

through the Malacca Strait. Malacca Strait serves as a vital waterway for hydrocarbon transportation and bulk cargo. Fig. 7 shows Malacca Strait is a natural strategic chokepoint. Singapore is one of the US closest allies and regularly participates in US naval drills. As a rival country, the US could easily block the Straits of Malacca in a conflict, cutting off China from vital energy sources.

The choice for China is to import energy by pipeline through Caspian Basin. Despite China’s late entry into the Caspian Great Game, the two



Fig. 7. Strait of Malacca map (Dastjerdi and Nasrabad, 2020).

parties have made significant progress in energy cooperation. Chinese Energy Diplomacy in the Caspian is smooth and slow within SCO, BRI, and mutual cooperation within BRI in Caspian.

5.2. China's strategy to low carbon economy

China has committed to achieving carbon neutrality by 2060 through its low carbon development strategy, which is part of its High-Quality Development framework. To achieve this goal, China has developed a comprehensive policy framework that includes reducing fossil fuel consumption and developing renewables from the supply side. The country has also made a policy push to use gas as an alternative to more polluting options such as coal, biomass, and oil. The greater uptake of natural gas has helped reduce urban air pollution in Beijing, offering a template for other developing world cities. Controlling fossil fuel will rely heavily on non-fossil fuel development, and China is leading the renewable energy development and nuclear energy in the world (United Nations, 2023). Therefore, it is expected that the future of fossil fuel energy use could decrease.

According to Fig. 8, the use of coal is crucial for energy security and power generation in China, and its usage was previously driven by demand. However, due to increasing concerns about environmental issues such as air pollution, policymakers have shifted their focus towards controlling the supply side. China has implemented policies to reduce coal usage and promote clean coal, intending to reduce coal use through the 14th Five-Year Plan and start decreasing it further in the 15th Five-Year Plan. The country has also increased its reliance on natural gas imports as an alternative to more polluting options. The shift towards natural gas has helped to reduce urban air pollution, particularly in Beijing (Tsafos, 2020). Furthermore, SDGs play a significant role in China's energy diplomacy. In this regard, China tries to promote renewable energy as part of its energy diplomacy efforts. The country is the world's largest producer of solar panels and wind turbines, and it has been exporting these technologies to other countries. China has also joined the International Renewable Energy Agency (IRENA) Innovation and established a Technology Center in China to promote renewable energy research and development. China's energy diplomacy efforts are aimed at achieving SDGs while ensuring energy security. By promoting

renewable energy, improving energy efficiency, and investing in infrastructure projects, China is helping to create a more sustainable future for itself and its partner countries (Hossin et al., 2023).

5.3. Shanghai cooperation organization

In April 1996, the Shanghai Five group was established through border demarcation talks with China. It includes China, Kazakhstan, Kyrgyzstan, Russia, and Tajikistan. In 2001, the five members first admitted Uzbekistan in the Shanghai Five mechanism. Then leaders of state signed the Declaration of the SCO in 2001. The Chinese government's aim in SCO is to combat separatist movements among its ethnic minority with the cooperation of Central Asian states (Öksüz, 2009). Generally, the SCO is seen to foster positive regional relationships and enhance China's management of the Xinjiang province's border area. In addition, the Caspian states have direct relations with the SCO; Iran, Russia, Uzbekistan, and Kazakhstan are members, Azerbaijan is a dialogue partner, and Turkmenistan is a guest of the SCO. SCO is crucial for Chinese diplomacy in the Caspian Basin for promoting harmonious regional relations and effectively managing the border region of Xinjiang, particularly in terms of economic development and security against terrorist or separatist threats originating from the Caspian Basin (Hall and Grant, 2009). SCO also threatens Western ambitions for oil and gas reserves in the Caspian and impacts its balance of power in the region (Pradhan and Mohanty, 2021).

5.4. Belt and road initiative

The Chinese President, Xi Jinping, proposed building the Silk Road Economic Belt and the 21st-Century Maritime Silk Road in 2013. As it is shown in Fig. 9, BRI passes through Central Asia. Therefore, China tries to invest in the infrastructure of the Central Asian countries, especially in their energy sector (Yongnian and Chi, 2018). The primary motivation for China's initial overseas oil investments is its desire to build stronger relations with Central Asian countries. Energy Security also is another reason for China's initial overseas oil investment (Liao, 2019).

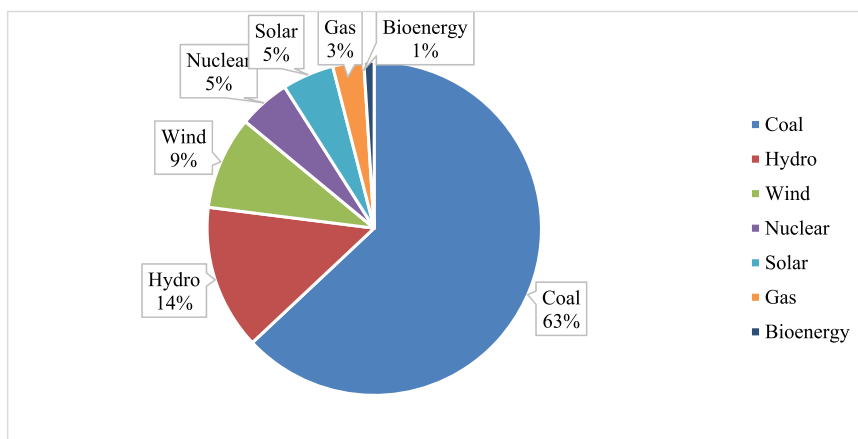


Fig. 8. Distribution of electricity generation in China in 2022, by source (%) (Statista, 2023b).

5.5. Energy mutual cooperation

Caspian Countries cooperate with China, especially Kazakhstan, Turkmenistan, and Uzbekistan. Russia and Iran do not cooperate with China in the Caspian, but these states cooperate with China in the East and south of their countries. Cooperation between Azerbaijan and China is downstream of the energy industry. Thus, we mentioned some of China’s cooperation with these countries.

5.5.1. Kazakhstan and China

China has an enormous investment in Kazakhstan in the energy sector. Several Chinese companies, such as Sinopec, China National Petroleum Corporation (CNPC), and China National Offshore Oil Corporation (CNOOC), have invested over 20\$ billion in Kazakhstan’s oil and gas industry. In 2019, a total of 27.6\$ billion was invested by Chinese companies in Kazakhstan (Nicharapova, 2023).

As one of the Chinese energy companies in Kazakhstan, CNPC owns stakes in local energy companies and participates in infrastructure projects. Aktobemunaigas Corporation, a subsidiary of the national energy company KazMunaiGaz (KMG), was purchased by the CNPC in 1997 for 60%. Furthermore, Kazakhstan and China jointly constructed the 12.5 million ton-per-year Kazakhstan-China oil pipeline. Kashagan offshore project, owned by CNPC, was acquired in 2013 for 8.33% (Kalyuzhnova and Lee, 2011).

5.5.2. Turkmenistan and China

In the Batiyarlyk region, CNPC built a processing plant (5 bcm capacity) between 2007 and 2009, and a processing plant (9 bcm capacity) was added by the Chinese firm in 2011–2014. A 30 bcm plant was to be built near South Yoltan by the Turkmengaz and CNPC in 2013 (Paramonov and Strokov, 2015). In September 2013, the Turkmengas and CNPC signed an agreement for Research and Development and construction of a plant near South Iolotan (30 bcm capacity annually). Furthermore, a new contract was signed between China and Turkmenistan to invest in natural gas fields in 2022. The agreement helps China to diversify its energy import sources between rising energy prices (Lee, 2014).

5.5.3. Uzbekistan and China

Sino-Uzbek economic relations were boosted by the deterioration of relations with the U.S./West in 2004–05 and Hu Jintao’s (President of China) visit to Tashkent in 2004. The total volume of Chinese investment in Uzbekistan has steadily increased since 2018. It has reached 9 billion USD by the end of 2021 (Website of the president Republic of Uzbekistan, 2022).

5.5.4. Azerbaijan and China

In 2016, CNPC and SOCAR entered a memorandum of cooperation for the Gas Processing and Petrochemical Complex (GPC) Project. The project will be located in Garadagh, south of Baku, and aims to construct petrochemical and gas processing facilities. The GPC goal project is to

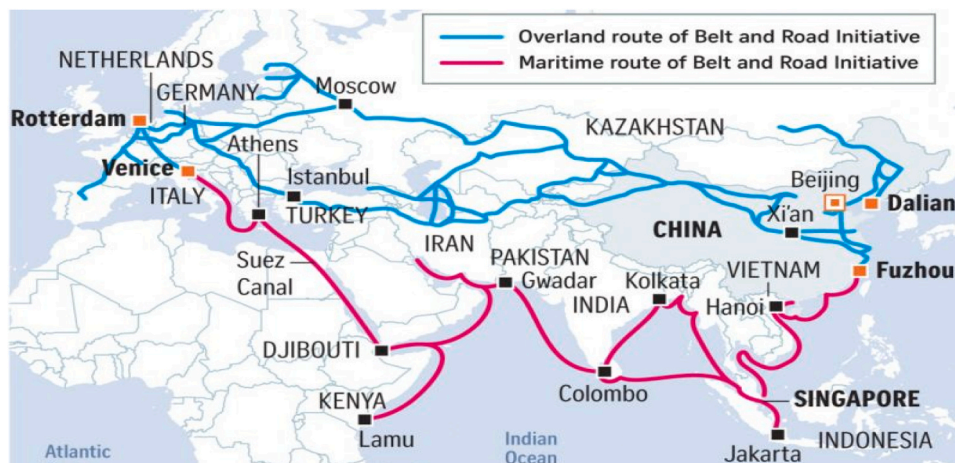


Fig. 9. BRI map. (Asia green real estate, 2019).

develop the value chain in the oil and gas industry (upstream, midstream, and downstream industries). In 2017, the Chinese and Azeri firms, including CNPC, the China Development Bank, and SOCAR, signed a memorandum of understanding for the GPC Project during the Belt and Road Forum for International Cooperation. The total investment for this project exceeds \$4 billion (Azertac, 2021).

5.5.5. Iran and China

Primarily, Iran and China collaborate on energy in the southern region of Iran, with various agreements signed between Chinese firms and the National Iranian Oil Company. These agreements involve exploiting oil blocks, upgrading refineries, and developing oil and natural gas fields. Nonetheless, some projects have encountered disputes between the two sides and have not commenced. For example, Sinopec and the National Iranian Oil Company (NIOC) signed a deal in 2001 to exploit the Zavareh-Kashan oil block and upgrade two NIOC refineries. In 2007, Sinopec and the Iranian Ministry of Oil concluded the most significant agreement to develop the Yadavaran oil field, which has yet to begin due to disagreements. Another agreement in 2009 between China and Iran focused on developing the North Azadegan oil field and the South Pars natural gas field (Garlick and Havlova, 2020). Furthermore, on March 27, 2021, the Chinese and Iranian foreign ministers signed the Iran–China 25-year Cooperation Program, which would further develop Iran-China relations over the next 25 years (Liao, 2023).

5.5.6. Russia and China

There are several important energy projects between China and Russia. In 2006, a joint venture between the Open Joint Stock Company and CNPC was established in China to focus on oil exploration and production in Russia, which is one of several collaborative projects between China and Russia. Additionally, there have been numerous deals signed to encourage investment, promote Russian machinery exports and technical products, and enhance cooperation between oil companies. The Eastern Siberia-Pacific Ocean oil pipeline was constructed to export oil to the Asia-Pacific market (Holtzinger, 2010). Gazprom-operated Power of Siberia pipeline transports natural gas from Yakutia to Primorsky Krai and China, running a 4000-km-long natural gas transmission system in the sub-Arctic part of the region (Sidortsov et al., 2016).

The Yamal LNG project encompasses natural gas production, liquefaction, and shipping. South Tambey field is being used as the source of LNG, with a production capacity of around 16.5 million tons per year (Katysheva, 2019). Approximately CNPC (20%) and China's Silk Road Fund (9.9%) have 30% shares of the Yamal LNG project (Tillman et al., 2018).

6. Caspian Basin as producer and consumer of energy

The Caspian is considered a strategic energy source because of its vast gas and oil resources. Besides the region's natural resources, its geographic position and energy transmission system make it a geopolitically and economically significant region. After the collapse of the Soviet Union, oil and natural gas sectors were managed differently by successor states of the Soviet Union, ranging from private ownership and full state control. Figs. 10 and 11 show Caspian oil and natural gas reserves.

Figs. 12,13,14 and 15 show the production and Consumption of oil and gas in the Caspian.

7. Energy security of Caspian Basin countries

The economy of Caspian countries is based on the revenues from energy resources trade; therefore, the efficiency of allocation of energy revenues and economic stability are consistently high on the agenda. Azerbaijan's high dependence on the oil sector accounts for 80–90% of the country's exports annually (more or less) and up to half of its GDP (Investment Monitor, 2021). One of the significant economic sectors in Uzbekistan is the oil and gas industry. More than 6% of Uzbekistan's government budget comes from the oil and gas sector, and 5.4% of revenue comes from oil and gas exports. The oil and gas sector accounts for 5.8% of the GDP (International Trade Administration, 2022). In addition, in 2022, 7.7% of Russia's GDP was dependent on oil and gas revenues, and in April and June, 16% of the country's GDP was also dependent on oil and gas revenues (Statista, 2023c). Kazakhstan's economy depends heavily on selling raw materials, of which hydrocarbons account for the majority. 50% of total exports and 30% of tax revenue in Kazakhstan rely on oil and gas revenue (Bjerde, 2022).

Oil revenue is one of the primary sources of the Iranian government's budget and is an engine for its development of infrastructure and economy. Hence, Petroleum exports accounted for 25% of the government budget (IRNA, 2021). Iran is one of the major natural gas producers but does not have significant production in the Caspian basin. The project of the Khazar exploration and production company is "Chalous Superstructure Drilling and Exploration." Based on several studies conducted on this project, it is estimated that Chalous natural gas reserves equal to one-fourth of the giant South Pars field (KepCo, 2021). The energy security of Iran isn't dependent on the Caspian Sea. However, investment with foreign companies in the Caspian Basin can be beneficial for Iran.

The Caspian countries are sensitive to the volatility of energy prices. Furthermore, it does not have a suitable alternative to replace its energy revenues, which makes these states vulnerable. Therefore, these countries must diversify their economy and foreign direct investment away from oil and gas toward infrastructure and industry. In this regard, it is

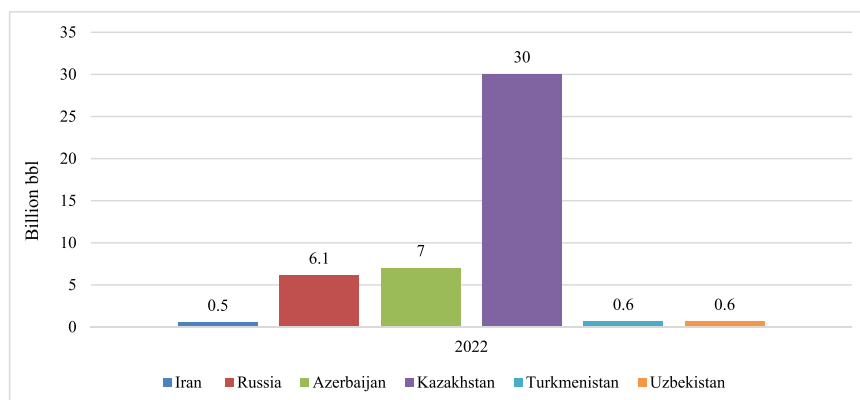


Fig. 10. Total oil proved reserves in the Caspian Basin (EIA, 2013; BP, 2023).

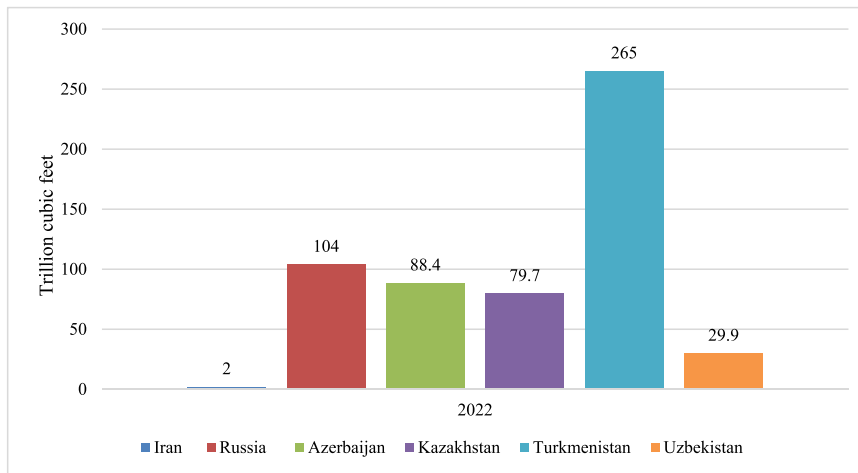


Fig. 11. Natural gas proved reserves in the Caspian Basin (EIA, 2013; BP, 2023).

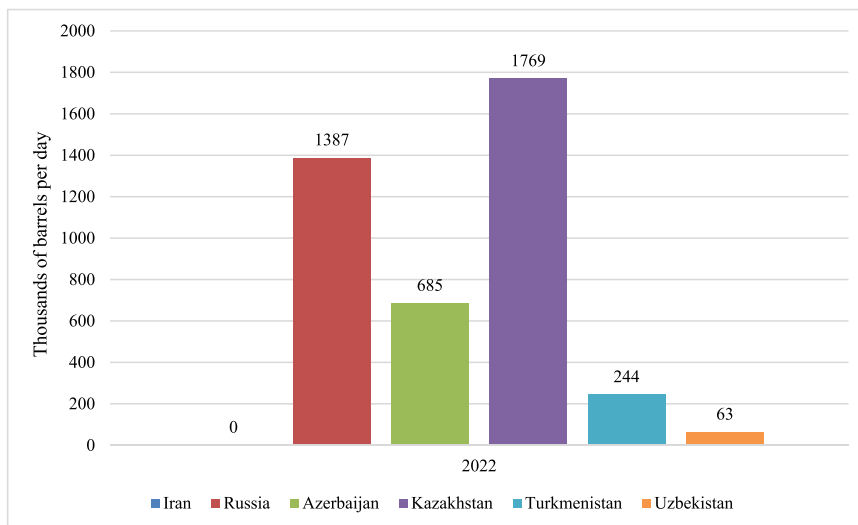


Fig. 12. Oil Production in the Caspian Basin (EIA, 2013; BP, 2023).

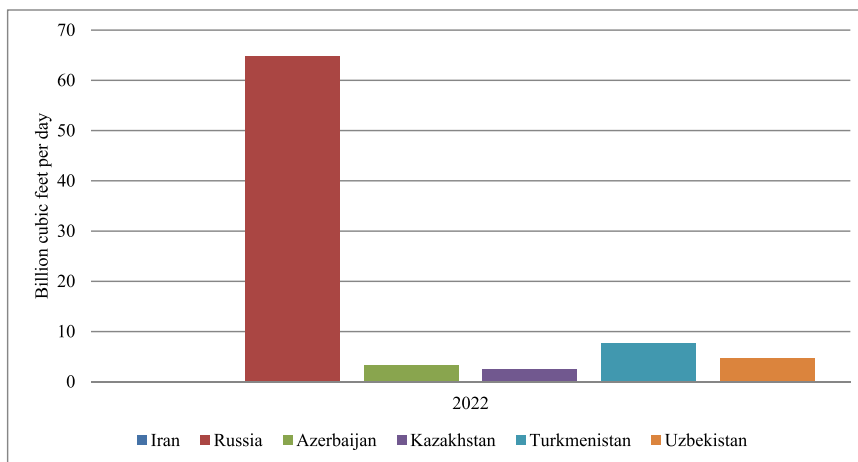


Fig. 13. Natural gas Production in the Caspian Basin (EIA, 2013; BP, 2023).

better for these states to invest in renewable energy resources.

The Caspian states are landlocked countries except for Iran and Russia. Therefore, Caspian states should diversify their export routes.

Turkmenistan tries to diversify its export routes from China. In this regard, the TAPI pipeline was promoted as a solution to diversify Turkmenistan’s export routes. It is proposed that this pipeline will transport

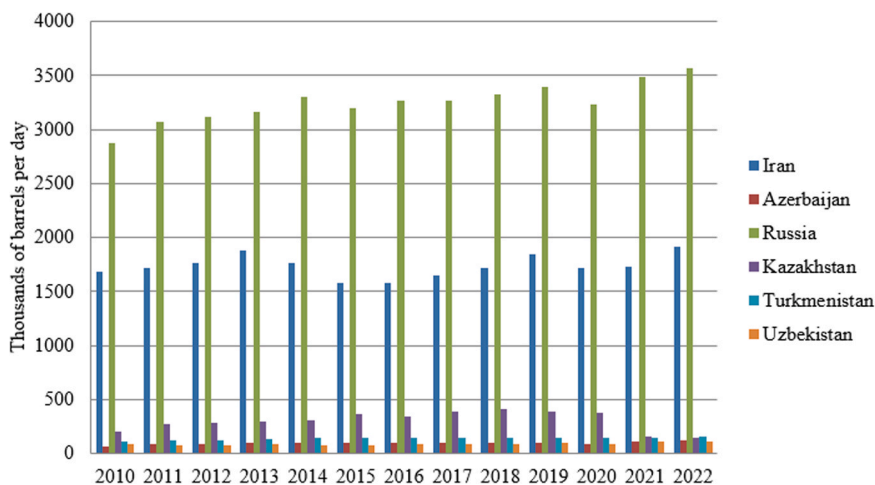


Fig. 14. Oil Consumption in Caspian Basin (BP, 2023).

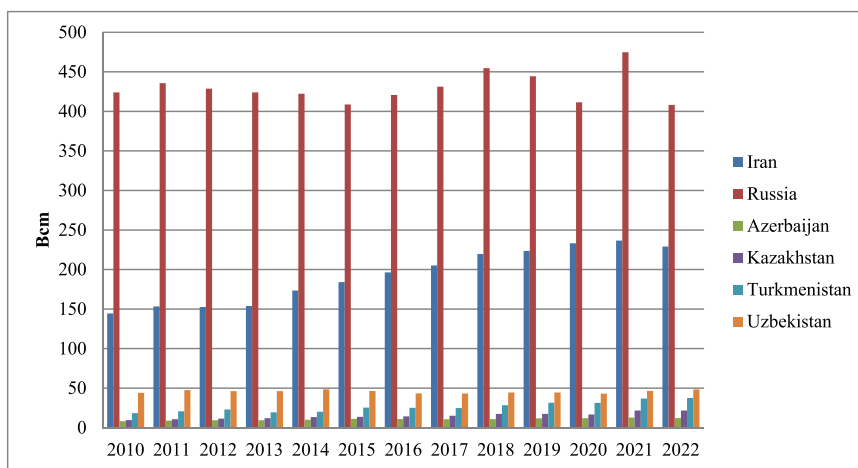


Fig. 15. Natural gas consumption in the Caspian Basin (BP, 2023).

33 bcm of gas from the Galkynysh field in the southeast of the country and terminate at Fazilka, near the Pakistani border in India (Anceschi, 2017). TAPI pipeline has problems such as financial and Geopolitics (Passes through Afghanistan).

The Kazakh oil pipeline export includes the Russian pipeline system to the north, the Caspian Pipeline Consortium to the west (CPC), the BTC through Azerbaijan, and the Kazakhstan-China oil pipeline. Furthermore, the natural gas pipeline includes the Central Asia-China natural gas pipeline to the east, which transits even larger volumes of gas from Turkmenistan and Uzbekistan through Kazakhstan’s territory. Azerbaijan also diversifies its export route from Russia with the help of the BTC, BTE, and Baku-Supsa pipelines.

8. Conflicts around Caspian

The conflicts in the west of the Caspian Sea have geopolitical roots, but in the east, the roots of the conflicts are internal.

8.1. Conflicts in the West of the Caspian

Conflict in the West of the Caspian Sea included the Chechen War, the Nagorno-Karabakh War, the Georgia-Russia War, and the Ukraine-Russia War.

8.1.1. Chechen War

In 1991, after the collapse of the Soviet Union, the Chechen separatists began fighting for autonomy. The rebels wanted to establish an independent republic in the region, which is culturally different from Russia. A wider Islamic war might be sparked as the senior Mufti in Chechnya declared jihad against the Russian invaders. In August 1996, the Russian government signed a cease-fire agreement with Chechen leaders. The second Chechen War broke out in 1999; rebels from Chechnya invaded the neighboring republic of Dagestan to liberate and unify it with Chechnya to form an Islamist republic (Tsatsos, 2014). The Baku-Novorossiysk oil pipeline passes through the North Caucasus, which existed since the Soviet era (1983). This Pipeline extends to 1330 kilometers, of which 231 kilometers are settled in Azerbaijan. However, the main route passes through Chechnya, but during the Second Chechen War, Transneft built a new pipeline and bypassed the Chechen. Thus, the new path of the pipeline passes through Dagestan.

8.1.2. Nagorno-Karabakh War

Despite Nagorno-Karabakh’s legal location within Azerbaijan, the Nagorno-Karabakh legislature voted to join Armenia in 1988. Furthermore, in 1993, approximately 20% of Azerbaijan’s territory around Nagorno-Karabakh was occupied by Armenia. Russia mediated between the two parties and made a ceasefire in 1993 (Karlinsky and Torrisi, 2023). Furthermore, the second war of Nagorno-Karabakh War started on September 27, 2020. The war ended on November 10, 2020, with a

ceasefire agreement brokered by Russia, which saw Azerbaijan gain control of most of Nagorno-Karabakh and surrounding territories that were previously held by Armenian forces. In the second war, Energy played a central role in 2020 between Azerbaijan and Armenia (Yavuz and Gunter, 2022). The battle was a threat to energy infrastructure that triggered the reignition of hostilities more than any other factor. The critical transit energy infrastructure includes BTC, Baku-Supsa, and BTE near the conflict region. The second war highlighted the complex historical, political, and ethnic issues that underlie the Nagorno-Karabakh conflict and the need for a peaceful and sustainable resolution that respects the rights and aspirations of all affected communities.

8.1.3. Georgia-Russia War

The Russia-Georgian conflict dates back to the early 1990s when both countries were newly independent. Georgia erupted in civil war when two provinces (South Ossetia and Abkhazia) declared independence. In 1992, the likelihood of a significant conflict between Russia and Georgia grew as Russian authorities pledged to bomb Tbilisi to support the separatist movements in South Ossetia. Therefore, Georgia agreed to a ceasefire to prevent further intensification of the conflict with Russia. Furthermore, Saakashvili's priority upon assuming power after Georgia's Rose Revolution was to regain control of South Ossetia and Abkhazia, which had been lost during the conflicts in Georgia. Then, during the 2008 war between Russia and Georgia, the Russian government recognized the independence of South Ossetia and Abkhazia (Askerov et al., 2020). Furthermore, due to Georgia standing at a crossroads between Europe and Asia, the geographical location of the country has become strategic (Rich, 2013).

For the EU, there will be an increasing reliance on energy suppliers on the periphery of Europe (South and East). Furthermore, reliable export routes are necessary, and energy security is one of the factors driving an increased international engagement level with the Caucasus. The frozen conflict threatened the stability and energy security of the Caucasus and the EU (German, 2009). Three pipelines pass through the Georgian territory, including BTC, BTE, and Baku-Supsa pipelines. Due to the investment of Western banks and companies in the energy infrastructure of Georgia, the Georgian state has a Western orientation. Therefore, Georgia has significant importance for the EU because Georgia has a transportation role between the Caspian Sea and the EU. Although the corridors of the Caucasus were not targeted during the 2008 war, the fact that Russian troops could easily reach the pipelines reflected its vulnerability.

8.1.4. Ukraine-Russia War

The relationship between Moscow and Kyiv has been dominated by tensions since Ukraine's Orange Revolution of 2004, a bloodless revolt that overturned the fraudulent election of Russia-backed Viktor Yanukovich. But he won the election again in 2010. In 2013, A trade and cooperation agreement with the EU was declined by President Yanukovich. Massive demonstrations were held in Ukraine in response to this decision. Therefore, Viktor Yanukovich, the president of Ukraine, was removed from office in February 2014, and Russia did not recognize the interim government (Tandilashvili, 2015). Therefore, Russia invaded the Crimean Peninsula in 2014.

Furthermore, Russia invaded Ukraine in 2022 because they were concerned that Ukraine would join NATO, so they felt threatened by Ukraine becoming a member of NATO. This situation explains why the official Russian leaders said they attacked Ukraine in 2022.

Ukraine is a transit country for pipelines. In this regard, the price of essential commodities, especially fuels, has increased dramatically since the invasion began. Despite Russia using natural gas as a weapon, the European Council ordered the Commission to ensure an affordable energy supply. As a result of the six rounds of sanctions imposed by the EU due to Russia's invasion of Ukraine, almost 90% of Russian oil imports were banned until the end of 2022 (Lambert et al., 2022). In response to the European sanctions, Russia cut transfer oil through the CPC pipeline.

The CPC transports oil from Kazakhstan to Russia and the Black Sea ports. CPC's operations have been suspended for 30 days by a Russian court on July 6, 2022. Around 80% of Kazakhstan's oil exports move through the Novorossiysk oil terminal, even though CPC handles over 1% of global oil (The Diplomat, 2022).

8.2. Conflicts in the East of Caspian Basin

Conflict in the east of the Caspian Sea included Xinjiang Uygur, Uzbekistan protests, and Civil War in Tajikistan.

8.2.1. Xinjiang Uygur

A preliminary estimate from the seventh national census in 2020 shows that the Xinjiang population was 25.85 million, with the Han ethnic group numbering 10.92 million, the Uyghur ethnic group numbering 11,624,300, and other ethnic minorities numbering 3.31 (The State Council Information Office of China of China, 2021). The Uyghur minority is unsatisfied with the Central government, and the Chinese government is also concerned about Xinjiang province.

Although China had successfully integrated Xinjiang's northern part during the 1990s, its southern part was more challenging to control. Dissatisfaction among the ethnic population, echoed by local cadres, led to an increase in small-scale, isolated "sudden incidents." In 1990, an insurrection broke out at Baren, near Kashgar. As a result of the combination of the radical Islamic ideology, organizational sophistication, and the weaponry used by the insurgents, foreign support from across borders appears to have been an important factor in their success (Becquelin, 2000).

8.2.2. Andijan massacre

The Andijan massacre happened in 2005. There were protests in Andijan and a siege of the prison following the arrest of twenty-three Uzbek businessmen who were all members of Akramiya. Armed men seized control of a nearby government building after releasing the businessmen and hundreds of other prisoners. In this regard, the National Security Service of Uzbekistan cracked down the protesters. EU imposed sanctions on Uzbekistan in 2005, including suspension of the EU-Uzbekistan Partnership and Cooperation Agreement, a visa ban for high-ranking officials of Uzbekistan, and an embargo on arms exports to the country (Melvin, 2008). On the other hand, Russia and China supported the Uzbek President Islam Karimov.

8.2.3. Karakalpakstan

Under the Karakalpakstan constitution, this province can secede and maintain its autonomy. However, a constitutional commission appointed by parliament on June 25, 2022 proposed amendments that would remove this right and autonomy. This sparked mass protests in Nukus on July 1, with residents of Karakalpakstan demonstrating against the proposed changes that would eliminate their constitutional right to secede through a national referendum (Pomfret, 2023).

8.2.4. Civil War in Tajikistan

Although there were frequent public demonstrations in Dushanbe after Tajikistan gained independence in 1991, the struggles for state power were peaceful. The former leader of the Communist Party (Qahhor Mahkamov) won the first multi-party presidential election. There was still a lack of consensus on the legitimacy of his presidency. Government supporters and opposition parties engaged in armed confrontation. The internal causes included regional, parochial, and religious, which were exacerbated by Tajikistan's historical, geographical, demographic, and socioeconomic peculiarities (Babak et al., 2004). The government was dominated and supported by the southern Kulyab clan from Kurgan-Tyube, northern Khujand and Hisor clans, and most of the Uzbeks. Against them is Gharm from the center of the country, supported by the Pamiris from the Gorno-Badakhshan ("The Civil War in Tajikistan, ", 1997). There were too many deaths during the Tajikistan

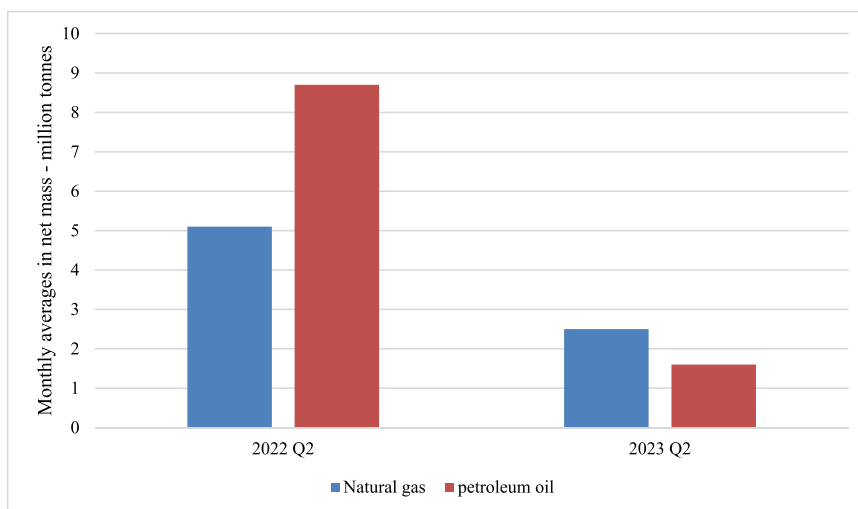


Fig. 16. EU imports of petroleum oil and natural gas, 2022 Q2 and 2023 Q2. (Eurostat, 2023).

civil war, which lasted from 1992 to 1997. Furthermore, the civil war was accompanied by religious and ethnic extremism.

9. Europe as rivals of the China’s consumption

In 2022, 378.5 bcm of natural gas was exported to Europe through pipelines, and 170.2 bcm of natural gas was shipped in the form of LNG. Furthermore, Europe imported oil of 14383 thousand barrels daily (BP, 2023e). For oil imports, the EU has plenty of options; oil is abundantly available and can be easily traded and transported worldwide. In contrast, gas imported is different, as it usually must be imported through pipelines, which take years to build. The general trends of European energy security show Europe’s dependence on foreign resources. The risks to European energy supply include socio-political conditions within countries, geopolitical issues of competition between countries, technical and economic problems, and the environment.

One of the EU’s concerns is energy import routes to Europe. In the Green Document, Europe is looking for independent pipelines for importing natural gas from the Caspian, the Middle East, and North Africa. Furthermore, Europe follows to building new LNG terminals to supply natural gas to the European markets, as well as the establishment

of a pipeline network in Central Europe to transport Caspian oil to the EU via Ukraine, Romania, and Bulgaria (European Commission, 2022).

9.1. Russia

The Russian invasion of Ukraine has caused turmoil in energy markets and geopolitics, resulting in the highest oil and gas costs in more than a decade. In contrast, the US, United Kingdom, and EU have imposed economic sanctions on Russia in various sectors, such as finance, energy, and transportation, as well as restrictions on dual-use goods, export controls, export financing, and visa policies. Before the war, the EU imported 27% of its crude oil, 46.7% of its solid fuel, and 41.1% of its natural gas from Russia (Ahmed et al., 2022). Therefore, Due to the interdependence of the Russian and European economies through the trade of oil, natural gas, food, and raw materials, the increased geopolitical tension and imposed sanctions negatively impacted the EU and Russian economies. As a result of the sanctions, the oil and natural gas import from Russia was significantly reduced (see Fig. 16).

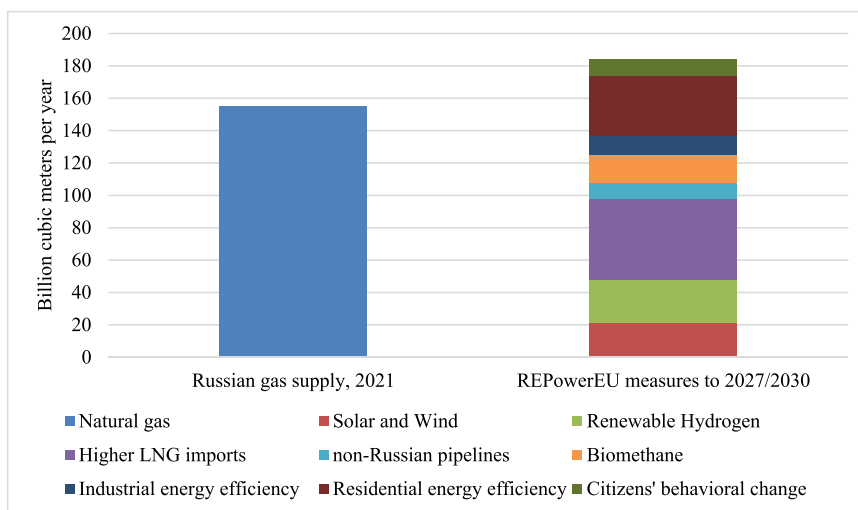


Fig. 17. EU plans for Pivot from Russian Gas. (Eurostat, 2023 a).

9.2. The responses of EU to the energy difficulties

There are several solutions, such as supporting non-Russian routes, changing the priorities of gas resources, and discovering new internal sources and renewable energy. To develop the fractional solution, new internal sources have to be explored, such as the development of North Sea oil and gas areas or extracting shale gas from the ground. Until 2008, however, the significant response to perceived energy insecurity was a call for a more comprehensive standard energy policy in the EU.

"A country will only be vulnerable if it has no escape route, no alternatives on offer" (Szulecki, 2017). It is crucial to ensure secure and affordable supplies of energy to Europe that non-Russian routes are pursued since the EU wishes to reduce its dependency on Russia. Norway and Caspian countries could be considered as part of diversifying supply routes. Furthermore, Energy security can be strengthened by the commission's new decarbonization strategy as long as member states are committed to prioritizing energy security in their efforts to reduce carbon emissions (Atlantic Council, 2021).

In response to Russia's invasion of Ukraine, the European Commission has proposed a plan called REPowerEU, which aims to make Europe independent from Russian fossil fuels before 2030. The program will focus on diversifying energy supplies, saving energy, producing clean energy, and replacing gas in heating and power generation (Vezzoni, 2023). The plan is based on two main pillars: diversifying gas supplies through higher LNG and pipeline imports from non-Russian suppliers, as well as increasing biomethane and renewable hydrogen production and imports, and reducing the use of fossil fuels in residential, buildings, industry, and power systems by improving energy efficiency, increasing the use of renewables, and electrification (see Fig. 17) (European Commission, 2022).

The EU's energy transition plan places significant importance on natural gas due to its less impact on air pollution than oil consumption (Belucio et al., 2022). It is considered a cleaner fuel than coal and is designated as a bridge fuel towards a lower-carbon economy. Natural gas is also considered an ideal partner for variable renewables in electricity generation due to its flexibility, versatility, and diversified supply sources (Hirschhausen et al., 2020). Shell describes natural gas as a transformation fuel supporting renewable technologies by balancing intermittency, providing reliable energy, and offering affordable investments and consumer prices. However, utilizing natural gas as a transition fuel also poses challenges (Gürsan and Gooyert, 2021).

According to Fig. 17, the EU plans to import 60 Bcm of natural gas from other regions to replace Russian gas imports, of which 10 billion

are in the form of pipelines and 50 billion are in the form of LNG. The resources of the Caspian Sea basin are vital for importing natural gas to the EU. In this regard, the Union has signed agreements to double gas imports from Azerbaijan by 2027. At the same time, it's still unclear just how much extra gas Azerbaijan will be able to supply and when. However, the construction of the Trans-Caspian pipeline and natural gas import from Turkmenistan can also contribute to the supply of natural gas to the EU.

There are various challenges on this pipeline as well, which include long-term gas import contracts between China and Turkmenistan, increasing domestic consumption of the Republic of Azerbaijan, ambiguity in the development of gas swap between Turkmenistan, Iran, and the Republic of Azerbaijan, and Baku also has commitments to supply gas to its neighbors Georgia and Turkey (O'Byrne, 2023). Therefore, the EU may become more dependent on other producers, such as the Middle East and the US (see Fig. 18). This trend can also harm the goal of diversifying import routes and the cost-effectiveness of energy.

The other EU's challenge to import to supply its energy is that Emerging Asian Economies such as China, India, Indonesia, Japan, Malaysia, etc., need sustainable energy supply for their economic growth and residential consumption. This situation increases the competition for natural resources worldwide, which can lead to the difficulty of supplying and unaffordability of energy for the supply of Europe. Furthermore, the EU faces the hard choice of carrying out an independent energy policy or depending on America. Following World War II, the EU became a significant ally in the capitalist world led by the United States. However, if the EU were to pursue independent energy diplomacy, it would likely serve as a stimulus for America while simultaneously challenging its energy hegemony. Such actions would inevitably lead to American dissatisfaction and could potentially undermine the energy security of the EU. On the other hand, if the EU were to adopt a dependence policy on the US for energy, it would encounter new challenges. First, the EU's energy strategic interests are not identical to those of America, making it hard to satisfy their requirements through such a policy (Wei et al., 2019).

10. Discussion

The energy market has experienced unprecedented conditions in recent years. The world also faces a shortage of energy supply and excess demand, leading to record-high prices of energy commodities that have affected global inflation, living standards, economic growth, and decarbonization efforts. As a result, sustainable energy access has

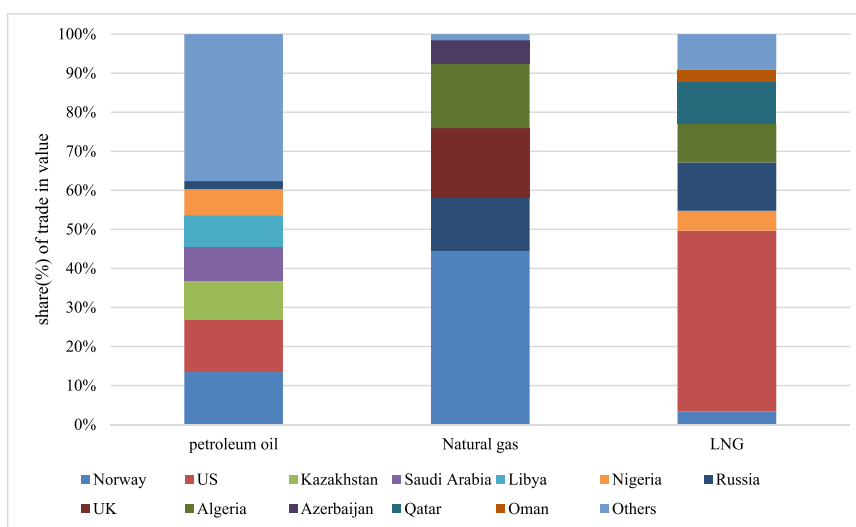


Fig. 18. EU's import by energy product and by partner, Q2 2023. (Eurostat, 2023).

become crucial for communities worldwide. Furthermore, there is a growing demand for energy in Emerging Asian economies, particularly in China, which will have a significant impact on the region's future geopolitical and geo-economic landscape.

The Caspian basin is crucial as an alternative energy source for China and Europe. The invasion of Russia caused the EU and the US to impose several sanctions on the energy fields of Russia. The sanctions harmed the energy security of the eastern and center of Europe. Therefore, the EU seeks to find an alternative supplier region. This is compatible with the results obtained by [Sarkhanov and Huseynli \(2023\)](#) and [\(Hasanov et al., 2020\)](#). [Leonova et al. \(2022\)](#) showed that one of Europe's goals is to build pipeline infrastructure that leads to regional stability. In this regard, the conflict in the west of the Caspian Basin has a geopolitical root, and the construction of the pipelines is not enough; for example, Russia and Ukraine have massive pipeline infrastructure, but we see two countries fight together. Other influencing factors to achieve peace and a stable region of energy transportation include energy diplomacy, political system, and resource management.

China's energy diplomacy in the Caspian Basin is multi-dimensional, including using the capacities of the SCO, BRI, and strategic partnership. In contrast, [Umbach \(2019\)](#) emphasized geopolitical features only. He showed that China's previous policy of developing the BRI and acquiring energy production and infrastructure was built into a more strategic long-term plan to diversify its energy import routes. Furthermore, [Wei et al. \(2019\)](#) decomposed under the current global geopolitical structure of having one superpower and multiple counterbalancing powers; the US has consistently used political, economic, and military methods to dominate key energy strategic regions and channels. This is done to maintain its and its allies' interests, influence the world energy market, and shape the global economic and political landscape. Meanwhile, the EU, Russia, resource-rich nations, and emerging economies have utilized their strengths to establish a strong counterbalance against the US.

The energy security of the Caspian Basin states is sensitive to the volatility of the price of energy carriers. Suppose these states have no suitable alternative to replace their energy revenues; it makes them vulnerable. Therefore, these states could be diversifying their economies with investments in renewable energy. Energy mix diversification can be enhanced by increasing the share of renewable energy. This is compatible with the results obtained by [Hafezi and Souhankar \(2022\)](#) and [Alkuwaiti \(2020\)](#). In contrast, [Karatayev and Hall \(2020\)](#) showed that a significant energy security component of Kazakhstan and Russia is the affordability price to export energy resources. Iran and Azerbaijan consider energy security as a technology and infrastructure opportunity, and environmental factors play a significant role in the energy security of Turkmenistan and Uzbekistan. In addition, the government budget is dependent on energy revenue.

11. Conclusion

This article presents a methodology for analyzing the multifaceted nature of China's energy diplomacy and its impact on the energy security of the European Union. Energy diplomacy is a complex phenomenon that involves diverse tools and dimensions. Factors influencing energy diplomacy include diversification, technology, renewable energy, geopolitics, strategic cooperation, international organizations, political systems, and national development plans. Therefore, a comprehensive approach is necessary to examine the interplay between these factors and their implications for energy security. The proposed methodology provides a framework for such an analysis.

China has shown sustainable economic growth over the decades. The average growth of China's GDP from 1990 to 2022 equaled 8.88% annually. Furthermore, the increased life expectancy of developing countries leads to economic growth. In other words, GDP and HDI have a mutual relationship. China's GDP and HDI growth show that the state has sustained economic growth. In 2021, the HDI of China was equal to 0.768 and stood at a high level.

GDP growth ↔ Economic HDI growth

China needs a sustainable energy supply to achieve sustainable economic growth. On the other hand, the EU needs a sustainable energy supply to overcome energy security challenges after the Russia-Ukraine war. Therefore, diversification of energy mix consumption and import routes is crucial for both of them. Furthermore, natural gas has a significant role in energy transition and is part of their energy transition programs. The Caspian Basin as an alternative region to supply their energy demands, has a vital role in their energy security.

China's energy diplomacy tools in the Caspian Basin included SCO, BRI, cooperation, and long-term partnership agreements. Furthermore, China's national energy companies invested a lot in these countries, especially Kazakhstan and Turkmenistan, and these countries benefit from cooperation with China politically and economically.

The ethnic conflict around the Caspian Basin has a significant role in the energy security of Europe. Ethnic conflicts in the West of the Caspian are geopolitical, and Russia plays a crucial role. Thus, western countries have imposed energy sanctions against Russia. Furthermore, the war between Russia and Georgia, the Karabakh conflict between Azerbaijan and Armenia, and the Russian invasion of Ukraine renewed awareness of geopolitical rivalries and multiple nodes of vulnerability along the energy infrastructure and cross-border pipelines in the world energy market. On the other hand, the ethnic conflicts in the east of the Caspian Basin have internal roots, and these conflicts are controlled with the support of the SCO, Russia, and China.

These trends create complicated conditions for Europe's competition with China in the east of the Caspian. Energy trends and China's energy diplomacy in the Caspian Basin make the EU dependent on the Middle East for energy import. Therefore, Europe's greater dependence on the Middle East can make energy prices unaffordable.

In the future, the scholars and practitioners shall also further explore the role of India and South Asia in the Caspian Basin. Furthermore, the theoretical framework proposed in this article can be used in other regions to examine their energy security, for example, the competition of emerging Asian economies with Western countries on Persian Gulf energy resources. Therefore, the developed method in this paper helps not to deal with the issue of energy diplomacy from only one dimension and to examine different dimensions of energy diplomacy. In general, this method helps to better understand the multidimensional energy diplomacy of countries.

CRedit authorship contribution statement

Moghani Amir Mohammad: Writing – review & editing, Writing – original draft, Validation, Supervision, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Maleki Abbas:** Writing – review & editing, Validation, Supervision, Project administration, Methodology, Investigation, Formal analysis, Data curation, Resources, Writing – original draft.

Declaration of Competing Interest

We confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. We have no conflicts of interest to disclose.

Data Availability

The data that has been used is confidential.

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