Pooling Regional Energy between China, Iran, Pakistan, Turkey, and Russia

Moaz Altaf*

Abstract

This paper assesses the energy requirements and potential of China, Iran, Pakistan, Russia, and Turkey in the context of the geostrategic locations of these countries. It notes that the demand, potential, and actual supply of energy in these countries make a viable prospect for a framework whereby these countries pool their energy together for the benefit of each country. While there are certain initiatives already in place, there is potential for more bilateral or regional energy-sharing initiatives. The current and proposed frameworks of energy-sharing have laid an infrastructure of pipelines or communication corridors. Based on these factors, the paper proposes an energy corridor between these countries, titled ‘Golden Ring Energy Corridor’ (GREC). This corridor will connect the ‘golden ring countries’ to enable energy trade through pipeline, land, and sea routes among these states. A strength, weaknesses, opportunities, and threats (SWOT) analysis of the proposed corridor takes account of the various internal and external factors that have the potential to contribute positively or negatively towards the completion and viability of this corridor. Some countermeasures have also been suggested so that the implementation of this corridor can be realized.

Keywords: China-Iran-Pakistan-Turkey and Russia Energy Corridor, China-Pakistan Economic Corridor (CPEC), Central Asian Republics (CARs), SWOT, Energy Strategy, Energy-Sharing Initiatives, TAPI.

Introduction

According to Frank Douma and Kenneth Kriz, a route of transportation is a geographical area between two points that links up different centers and helps in the movement of people and freights.¹ A corridor is made up of one or more

---

* Energy Auditor; PhD Scholar, King Mongut University, Thonburi, Thailand; Research Fellow, Golden Ring Economic Forum (GREF), Lahore, Pakistan.
routes that connect economic activity centers. Those routes are connected to the same endpoints with different alignments but shared transfer stops. The term ‘energy corridor’ does not have a clear interpretation. The concept of the ‘energy corridor’ was introduced by MacPherson in 2013 as a transportation route that can move resources like gas, oil, electricity, and water across geographical divisions. This discussion to understand the potential for an energy corridor has been restricted to specific forms of energy, i.e., oil, coal, gas, and electricity. An energy corridor can, therefore, be defined as ‘transportation corridor that connects energy supply and consumption regions by transporting oil, natural gas, coal, and electricity.

This article explores the prospects of pooling the energy resources of China, Iran, Pakistan, Turkey, Russia, and the Central Asian Republics (CARS), through an energy corridor. In a way, it expands the concepts discussed by Fei-fei Guo et al., and Mirza Sadaqat Huda and Matt McDonald. To set the foundation of the discussion, the following overview takes a broad look at the energy profile of the countries being discussed.

**Overview**

**China**

China is a leading electricity producer and net importer in the region. As the sixth largest exporter of electricity in the world, China exported electricity worth $133 million from November 2020 to November 2021. During the same period, its electricity import cost $39.3 million, making it the 41st largest importer of electricity in the world. The sustained and steady growth of energy resources and commodity trade, ensuring the supply of domestic markets, as well as supporting powerful companies to go global, and developing overseas resources are among the key considerations in China’s 13th and 14th five-year plans.

**Iran**

Iran offers a viable route for connecting Eurasian maritime traffic and serves as a link between the Middle East and Central Asian oil regions. It has an abundance of proven gas and oil reserves. It controls the Strait of Hormuz (SoH), which is a major oil and gas import corridor in the Asia Pacific region. Iran remained interested in developing cross-border corridors to overcome its longstanding seclusion. Zhang Li, in his 2007 analysis, had discussed the Iranian efforts to construct a cross-border oil corridor aimed at diversifying its
Pooling Regional Energy

energy exports to ensure sustainability while the country struggled to survive under the weight of economic sanctions.11

Pakistan

Pakistan is bordered by Iran to the west, by the Middle East to the south through the Persian Gulf, by China to the north, via Afghanistan to Central Asia, and by India to the east. Therefore, it can be said that Pakistan is an ‘energy corridor crossroads’ nation. Several significant sea routes from Africa, and Europe via the Red Sea, the SoH, and the Persian Gulf, to the Asia-Pacific, pass through its southern coast. As Pakistan’s domestic energy reserves are fast depleting,12 to meet its energy needs, the country aims to import oil and gas through pipelines from Gulf, Iran, Central Asia, and Western Asia.13 To satiate its increasing domestic energy needs, Pakistan seeks to explore international energy cooperation.

Turkey

Turkey has an oil shortage, and it is also reliant on imported natural gas. It is geographically competitive in terms of oil supply since it is situated between the large energy-producing region, Europe, and the countries in Central Asia and the Middle East, which are rich in energy resources. Turkey’s strategic priorities include encouraging the diversification of energy supplies and working to establish energy hubs.14

Russia

Russia is not merely the largest country in the world in terms of surface area but also rich in natural resources. Russia is among the leading producers of petroleum and other liquids. During 2020, its daily liquid fuel production retained an annual average of 10.5 million barrels per day (b/d). Its natural gas production was estimated at 22.5 trillion cubic feet during the same year. Russia’s Energy Strategy of 2020 aims at taking measures till 2035 that would help diversify its energy exports, modernize energy infrastructure, increase competitiveness, and develop better technologies and digitalization.15

To sum up the broader picture, Russia has abundant energy resources. China is both an energy producer, importer, and a large consumer of energy. Pakistan is both an energy importer and a consumer of energy and a transit nation. Iran is both a producer of energy and a transit country. Turkey is both an importer of energy and a transit country. Therefore, the energy corridor of
‘China-Iran-Pakistan-Turkey and Russia’ is a strategically and economically viable concept. The corridor’s construction is in line with the energy aspirations of these nations.

This energy corridor will also have proximity to the Central Asian region and have the potential of expanding its network to include all or some of these nations in the corridor. Each of the Central Asian countries has specific domestic, regional, and international conditions, and they cannot be treated as one bloc in any discussion involving geoeconomic and geostrategic aspects. This paper, in the interest of brevity, only indicates the potential for further expansion of the proposed energy corridor.

Central Asian countries like Turkmenistan, Azerbaijan, Uzbekistan, and Kazakhstan along the Caspian region have immense potential for natural energy resources. Kulkarni and Nathan estimated that Central Asia–China energy corridor addresses China’s majority of gas import needs, as well as Central Asian countries’ diversification plan for energy exports. Paul Kubicek examined the strategic goals of the important players in the Caspian Sea energy resources. He concluded that the major powers like Russia, the United States (US), and China have been competing for a larger piece of the pie from the natural resources in the Caspian Basin but the Central Asian countries have been able to develop an atmosphere of ‘geopolitical pluralism’ where neither of the major powers can claim dominance.

Turkmenistan and Uzbekistan are particularly rich in natural gas, and Kazakhstan has an abundance of oil, uranium, and coal. Figure 1 represents the available energy resources in these countries.
**Figure 1:** Available Energy Resources in the Central Asian Caspian Countries as of 2019-2020

Source: Mehta et al., “The Energy Situation in Central Asia.”

If this area’s total production potential is fully utilized, it may become a major player in the global fossil fuel trade. This requires immediate commitment and consensus on a collective energy export plan aimed at both external markets and the Caspian countries themselves.

To develop the proposal for the GREC, the following section offers a deeper look into the current and potential energy resources, requirements, and infrastructure of each of the countries proposed to be part of this initiative.
An Overview of the Existing Energy Markets in China, Iran, Pakistan, Russia, and Turkey

**Energy Market of China**

In 2020, the total energy consumption per capita in China was estimated to be 2.4 tons of oil equivalent (toe) per capita.\(^{19}\)

**Figure 2:** China’s Energy Consumption Patterns by Energy Source (Mtoe)

![Figure 2: China’s Energy Consumption Patterns by Energy Source (Mtoe)](image)

\(^{1}\)Including heat; Nuclear (1TWh=0.26 Mtoe), Hydroelectricity, wind and solar PV (1TWh=0.086 Mtoe), Geothermal (1 TWh=0.86 Mtoe)

**Source:** “China Energy Information,” Enerdata.net.

Meanwhile, the total energy consumption in China increased at a significantly higher rate since 2017 (3.3 percent per year vs. 1.7 percent per year from 2012 to 2017).\(^{20}\) Even during the outbreak of Covid-19, energy consumption increased, though at a slower pace of 2.2 percent in 2020, it is lower than previous levels of 7 percent per year between the years 2000 and 2012 but still positive.\(^{21}\) Between 2000 and 2015, oil output rose by an average of 2 percent per year, but then fell by 10 percent between the years 2015 and 2018. It was redeemed significantly in 2019 and 2020, reaching 201 Mt in 2020, which is the 6th largest in the world.\(^{22}\)

Much of the production is done on land and on farms along the northeastern coast (Daqing and Shanghai). Offshore oil and gas production is booming, with the Bohai Basin being one of the most active locations.
China currently has energy corridors in the northeast, northwest, southwest, and sea lanes, which include Central Asian gas pipelines, the China–Russia gas and oil pipeline, the China–Myanmar gas and oil pipeline, and a maritime energy corridor.

The first oil pipeline between Russia and China, named ‘Russia–China crude oil pipeline (RCOP)’ was launched on January 1, 2011, with a capacity of 15 million toe per year. The second RCOP went into effect. It is capable of transporting 15 million toe each year. Concurrently, both the western and eastern lines are part of the RCGP. The western line, commonly known as the Altai gas pipeline, is planned to transport 30 billion cubic meters of natural gas each year. That gas line is currently being negotiated. The Siberia power pipeline, also known as the eastern route, is planned to transport 38 billion cubic meters of natural gas per year. While Northwest China is not a natural gas-consuming market, Xinjiang still possesses its natural gas resources. After coming into the Xinjiang region, the western line's natural gas will, therefore, be exported to the southeast.

The sea lane has been crucial in shipping energy resources like gas and oil from the African continent and the Middle East to China. Importing crude oil and natural gas from foreign nations is now possible via four different shipping routes. To access China, routes from the Middle East and the African continent would cross the Strait of Malacca (SoM) into the South China Sea. The SoM and the Taiwan Strait connect Southeast Asia with mainland China, while the Panama Canal and the Pacific connect South America with China. The SoH, SoM, and the Cape of Good Hope, particularly the first two straits, which are geostrategic hotspots, are now China’s sole route for oil import through the sea. Both the Central Asian natural gas pipeline and the China–Russia oil pipeline have struggled to reach their full-load objectives.

Energy Market of Iran

In 2019, per capita energy consumption was estimated to be 3.2 toe (comparable to the Middle East or the EU average). Due to US sanctions on Iran, energy consumption has been rising more slowly since 2018 i.e., 1.2 percent per year than 3.1 percent from 2010 to 2017. Natural gas share was 68 percent of overall energy use (2019). Since 2000, oil’s proportion of overall consumption had decreased by half, from 56 percent to 30 percent in 2019. Hydro accounts for 1.5 percent of overall energy consumption, whereas coal and biomass both are responsible for less than 1 percent.
Between 2017 and 2019, oil output decreased by 33 percent to 146 Mt, of which 30 percent was decreased in 2019, as a result of new US sanctions. This downward trend continued in 2020, but at a slower pace, with a 16 percent drop in the first semester. Due to international sanctions, it had already decreased by 25 percent to 161 Mt, between 2010 and 2015. Following the removal of these restrictions in 2016, it grew by 37 percent from 2015 to 2017, peaking at 220 Mt, much above the 2003-2010 average (around 215 Mt). Oil usage has climbed somewhat since 2016, following a sharp drop (5.7 percent per year) between 2013 and 2016 due to rising motor fuel prices and slowing economic development. In 2019, it was 77 Mt. Electricity consumption has remained relatively steady since 2018, however, between 2010 and 2018, it rose by 4.3 percent each year, reaching 263 TWh in 2019. The majority of the population has access to electricity (99.5 percent). Industry accounts for 34 percent of power usage, followed by the residential sector (32 percent), and services (18 percent). The oil and gas industry consumes the remaining 16 percent.28

By the end of 2017, Iran’s proven oil reserves had reached 157.2 billion barrels (bbl), ranking it at number four on this planet. It accounts for 9.3 percent of the total worldwide reserves with an 86.5-year reserve-production ratio. It possesses the world’s second-largest natural gas reserves, with 33.2 trillion cubic meters, equivalent to 17.2 percent of the worldwide reserves.29 The economy of Iran is heavily reliant on foreign trade. Iran is the second-biggest exporter of the Organization of the Petroleum Exporting Countries (OPEC). Its economy is characterized by crude oil exports and imports of consumer products. Iran currently has three major pipelines which transport oil and gas across its national borders. Most of the energy exports are exported by sea. Maritime transportation plays a significant role in Iran’s foreign relations and economy. The road maintenance and sea transportation organization 2014 reported that the sea transports 93 percent of Iran’s crude oil exports. Sea shipping accounts for more than 95 percent of non-crude oil exports.30

In 1996, Turkey and Iran inked a gas agreement, and construction of the ‘Tabriz–Erzurum–Ankara (TEA) gas pipeline’ began. The pipeline connects Tabriz in northern Iran with Ankara in Turkey. Iran exported 450 billion cubic feet of natural gas and imported 170 billion cubic feet through pipelines in 2017, with Turkey accounting for roughly 73 percent of total natural gas exports. It is a major supplier of Turkish gas and will most likely export gas to southern Europe.31
Due to the Middle East’s instability, particularly in Syria, the Iran-Iraq-Syria gas pipeline project has remained stalled. The Iran-Iraq oil pipeline project, which had a capacity of 100,000 b/d, is also no longer in use for similar reasons.

**Energy Market of Pakistan**

The average per capita energy usage in Pakistan in 2020 was recorded at 4,369 kwh. The 2019 figures for per capita electricity usage were found at 417.99 kwh, while the total consumed electricity has been 92.33b kwh. After a period of considerable growth between 2013 and 2018 (4.5 percent/year), overall consumption in the country fell by 1 percent in 2019.

**Figure 3:** Pakistan’s Energy Consumption Patterns by Energy Source (Mtoe)

![Energy Consumption Chart]

Source: “Pakistan Energy Information,” Enerdata.net.

Since 2014, oil production has varied between 4-5 Mt (4.8 Mt in 2019). Just over 20 percent of the country’s demands are met through production. Crude oil imports totaled 8.5 million toe in 2019, a 20 percent decrease following years of steady growth (plus 8 percent each year from 2011 to 2018).

Since the 1990s, Pakistan has promoted the development of transnational oil and gas pipelines. It intends to build three energy pipelines,
as shown in Figure 4,\textsuperscript{36} to alleviate the country’s internal energy shortage by importing oil and gas via pipelines from Western Asia, the Gulf, and Central Asia; however, they are yet to be built.

**Figure 4:** Pakistan’s Plan to Develop Three Strategic Corridors

![Diagram of Pakistan's strategic corridors](image)

**Source:** Guo et al., “Strategic Analysis on the Construction of New Energy Corridor China–Pakistan–Iran–Turkey.”

The Turkmenistan–Afghanistan–Pakistan–India (TAPI) natural gas pipeline would connect Turkmenistan with Pakistan and India via a large gas field, passing through war-torn Afghanistan to meet the energy demands of the two countries. However, there are several strategic roadblocks, including pipeline stability in Afghanistan and Russia. Between 15,000 and 18,000 security people would be required to secure TAPI.\textsuperscript{37} Construction on the TAPI pipeline in Turkmenistan began in December 2015. However, the construction from the Pakistan side has not started yet. One of the main reasons for the delay in this project is the security issues in Afghanistan. However, TAPI initiative has found new hope after the Foreign Minister of Pakistan visited Ashgabat in August 2021; the new regime in Afghanistan also showed positivity towards this initiative.
The Iran–Pakistan (IP) pipeline (originally Iran-Pakistan-India pipeline-IPI) is approximately 2700 km long. Through this initiative, Iran planned to export 2.8 million toe of liquefied natural gas (LNG) each year. The Iran part of the pipeline was completed in 2013, but construction on the Pakistan segment has yet to commence. India had opted out of this initiative as India found the pipeline’s economic interests, not in line with its economic and geopolitical interests. Meanwhile, the Iranian nuclear crisis halted further developments due to sanctions levied by the US and European countries on Iran.

A viable Iran-Pakistan (IP) gas pipeline project required political will and sufficient funding from both governments. However, the destiny of the IP remained in limbo. China’s recent entry into Iran’s energy arena has revived hopes that the project will see the light of the day. There are disagreements on gas prices which need resolution too.

Also, Pakistan imports LNG from Yemen, Qatar, and other Gulf countries. It also imports crude oil from the United Arab Emirates (UAE) and Saudi Arabia to fulfill its domestic energy needs. The Qatar–Pakistan (QP) pipeline was envisaged in 1991. Qatar has the world’s fourth-biggest gas reserves and LNG export capacity. There have been several rounds of consultations to assess the viability and various funding options. The pipeline project could not kick off. As an alternative, it proved more viable that Pakistan imports LNG from Qatar without building a pipeline. Both countries have signed a long-term contract for LNG supply to Pakistan.

Pakistan has a severe oil shortage and unbalanced energy demand and supply. In 2019, the crude oil production was 4.3 million metric toe, which could meet only 20 percent of the domestic requirement. To meet the huge gap of 80 percent, crude oil, and refined petroleum products had to be imported which cost around $15-$16 billion. Production of natural gas from domestic sources has remained around 4 billion cubic feet per day (bcfd), while the demand has remained around 6-8 bcfd. The country has been exploring options to bridge the supply-demand gap.

The development of gas and oil infrastructure, as well as supply security, have a major effect on the social and economic development of Pakistan. However, international considerations have hampered the construction of a transnational gas pipeline in the country. Pakistan is yet to build a cross-border oil pipeline. However, resolving the underlying issue of
energy scarcity remains a challenge. Pakistan also has a long way to go in terms of diversifying its electricity supplies and transportation routes.

Energy Markets of Russia

After the US and Saudi Arabia, Russia is the world's third-largest crude oil producer. In 2020, total per capita consumption was 5.1 toe. Electricity consumption per capita was around 6250 kwh. Gas had the highest proportion of consumption (54 percent) in 2020, followed by coal (15 percent), hydro (2 percent), oil (20 percent), biomass (1 percent), and nuclear (8 percent). Figure 5 shows the Russian energy consumption pattern.

Figure 5: Russia’s Energy Consumption Patterns by Energy Source (Mtoe)

*Including heat; Nuclear (1TWh=0.26 Mtoe), Hydroelectricity and wind (1TWh=0.086 Mtoe), Geothermal (1TWh=0.86 Mtoe)

Source: “Russia Energy Information,” Enerdata.net.

The strategic goal of Russia's international energy policy is to improve productivity to fully integrate into the global energy market, strengthen its status, and increase business profitability. The 2009 Energy Strategy of Russia for the period upto 2030 (ES-2030) envisioned Russia as the focal point of the joint ‘Eurasian energy system’ bridging the gap between European and Asian energy markets. Turkey and Iran are crucial players in this broader picture. Turkey is a major transit country and one of the main users of Russian energy products. Russia has been a major energy supplier to Turkey through several gas pipelines, including the Trans-Balkan pipeline that delivered gas to several countries including Turkey. The 1,213 km long Blue Stream gas pipeline has
been providing gas to Turkey with a maximum capacity of 16 billion cubic meters per year since 2003. The 930 km TurkStream is another gas pipeline between Russia and Turkey. This gas pipeline has two parallel pipelines with a total capacity of 31.5 billion cubic meters (BCM) per year (15.75 BCM each). Russian companies regard Iran as a promising future partner. Russia’s energy policy includes an increased effort to extend its transmission infrastructure, linking major gas-producing countries like Iran and Central Asian nations, as well as integrating the Eurasian transport grid to speed up production and transit flows between Europe and Asia.

The following are the two keys to a reliable Russian energy supply to the Central and Western Europe:

1) ensuring that Russian energy supplies pass through Ukraine and Belarus without being obstructed; and
2) the defense of Russia’s place in the European gas market against competition from other Caspian gas producers

Coal, gasoline, refined goods, and natural gas are among the Russian energy sources imported by Turkey, which is third among the major importers of Russian gas. Turkey is not only one of Russia’s major energy users, but also a participant in the execution of proposals for energy infrastructure growth to ensure that Russian hydrocarbons are effectively exported to international markets, especially in Europe. Turkey and Russia have been able to overcome the geostrategic and geopolitical differences in Syria to prioritize their long-term energy-sharing relationship. This indicates the significance of such partnerships for global peace as well.

Since Iran is Russia’s largest trade partner in the Middle East—a huge market for Russian machinery, supplies, trucks, steel, and timber, and a neighboring nation with a variety of significant transit routes—, Russian economic relations with Iran are strategic. The interaction with Iran in the oil and gas sector, including the formation of hydrocarbon transportation corridors, is expected to boost Russian foreign policy by bolstering Moscow's role in Central and South Asia and the Middle East, while also adding to these regions' energy stability. Russia and Iran decided in September 2011 to establish a joint Iranian-Russian energy commission, which established and signed the ‘Roadmap for Energy Cooperation’. The roadmap allows sharing of technological know-how, technologies, and experience in the oil, gas, and petrochemical industries, with an emphasis on areas like oil and gas extraction, hydrocarbon refining, maritime exploration, and oil and gas
development. However, due to the US and other countries’ sanctions against Iran, Russian companies had to be careful when trading with Iran, especially when trading Russian oil products. Recently, both countries have agreed to further strengthen their relations in the energy sector.\textsuperscript{52}

**Energy Market of Turkey**

Total per capita consumption in Turkey during 2020 remained around approximately 2,740 kwh.\textsuperscript{53} With crude oil production of 55,000 bbl, Turkey has to import 521,500 bbl for its oil demand.\textsuperscript{54} Following a period of strong expansion between 2010 and 2017 (4.5 percent per year), led by the transportation industry, oil consumption has been gradually declining over the previous three years (40 Mt in 2020). The transportation sector’s proportion of overall oil consumption grew from 47 percent in 2010 to about 61 percent in 2020. Following a significant decline in 2018-2019 (minus 17 percent) as a result of repeated gas price hikes throughout 2018-2019 and lesser demand for power generation, gas consumption somewhat rebounded to 48 bcm in 2020, led by the power sector. A graph of energy consumption over the years in Turkey has been given in Figure 6.\textsuperscript{55}

**Figure 6:** Turkey’s Energy Consumption (TWh) (1991-2019)

![Graph of energy consumption over the years in Turkey](image)

**Source:** “Turkey Energy Information,” Enerdata.net.

Turkey is strategically located between 47 percent of global energy supplies from Central Asia, Russia, and the Middle East and 17 percent of the world’s natural gas demand in Europe, making it significant from both a geopolitical and geoeconomic standpoint. Turkey aspires to serve as the Eurasian Energy Corridor, connecting the supply from the East with demand
Turkey currently has many natural gas and oil pipelines, and it is progressively establishing itself as a significant transshipment hub for leading oil and gas exporting regions across the world, such as Russia, the Middle East, and Central Asia, and the European Union (EU) as well as other global energy markets. Turkey plays an important role in meeting international energy demand.

The Baku–Tbilisi–Ceyhan oil pipeline (BTC), which passes through Turkey, is the major conduit for Caspian oil exports and it is crucial for oil deliveries from Turkmenistan, Azerbaijan, and Kazakhstan. According to Woehrel, pipeline broadens global oil supplies and safeguards against supply interruptions elsewhere to some extent.

The Kirkuk–Ceyhan oil pipeline, also called the Iraq–Turkey crude oil pipeline runs across Turkey and Iraq. Iraq became Turkey’s main oil provider because of this pipeline, which also provided a crucial alternate path for the country’s oil exports. Following the Gulf War of 1991, that was one of two primary routes for Iraqi oil exports under the Oil-for-Food Program. This complied with the United Nations (UN) directive that at least half of all oil exports would travel through Turkey. At one time, it was also the biggest pipeline system in the Middle East. Militancy in the region with the rise of the Islamic State (IS) made this pipeline a target for strikes and sabotage to damage its optimum impact.

The North-South and East-West lines both pass via Turkey to deliver natural gas to Europe. The North-South corridor includes the Blue Stream pipeline from Russia to Turkey, while the East-West corridor includes the Baku–Tbilisi–Erzurum (BTE) and Turkey–Greece interconnector (ITG). ‘The Blue Stream pipeline has been carrying gas from Russia to Turkey since 2003. In 2010, it was scheduled to reach a capacity of 16 billion cubic meters of gas, but it never did.’

The BTE pipeline is the first leg of the Trans-Caspian Natural Gas Project to deliver natural gas from Azerbaijan, Turkmenistan, and Kazakhstan to Europe via Turkey. It is near to the BTC oil pipeline, which delivers oil from Azerbaijan’s Gunashli oilfield to Ceyhan, Turkey’s Mediterranean port, and has turned into a significant element of Turkey’s energy hub status. Similarly, the BTE natural gas pipeline is critical for shifting Turkey’s role in European energy stability. In 2004, the Interconnection Turkey-Greece-Italy (ITGI) pipeline was authorized, and in 2007, the first delivery was made.
Turkey is currently neither an oil and gas corridor nor a center, but it can become one. Therefore, it has all the incentives to construct new pipelines. Its natural gas supply is largely reliant on Russia, and it requires an alternative. In the meantime, Turkey has contributed significantly to transporting energy to the EU. To maintain its central position, diversification of energy sources and export industries is required.

The Golden Ring Energy Corridor (GREC)

‘Golden Ring of Security (GRS)’

The roadmap in this paper allows for the sharing of technological expertise, technologies, and experience in the oil, gas, and petrochemical industries, with an emphasis on areas like oil and gas extraction, hydrocarbon refining, maritime exploration, and oil and gas well development, to build on each country’s knowledge in these areas. However, due to the US and other countries’ sanctions against Iran, Russian companies had to be careful when trading with Iran, especially when trading Russian oil products.

New global integrated power blocs are challenging US domination in the Eurasian region. Weaker states tend to mobilize against stronger opponents through bandwagoning because the latter can instinctively take hold of valuable sources by coercion. Consequently, joining the bandwagon is seen to prevent an aggressive state from tampering with the power balance. China and Russia have begun to use the balance of power theory in this regard, building more and more partnerships in the energy sector.

Furthermore, in the competition between the East and the West, some countries’ natural gravitation towards the Eastern bloc is a source of motivation for Turkey, Iran, and Pakistan, resulting in the intricate ‘Golden Ring of Security’ (GRS). China, Iran, Pakistan, Russia, and Turkey are among the countries that make up the proposed GRS. These countries are also part of China’s BRI.62
Figure 7: China’s Belt and Road Initiative with Six Corridors

Source: Chaudhuri, “India Nudges China Toward Belt and Road”
**Importance of the ‘Golden Ring of Security’ Energy Corridor**

The proposed GRS would encircle the various intertwined power alliances with newly emerging security arrangements. In turn, the increasing bilateral and multilateral strategic relationship between China and Russia is establishing them as ‘waxing forces’ in opposition to the US, which is increasingly seen as a ‘waning force.’ Beijing, Russia, and Pakistan established multi-polar trilateral relations in 2016 as a response to the US’ inability to combat terrorism in Afghanistan. In late 2016, Iran, Russia, and Turkey too formed multilateral cooperation of major Middle East countries, which was eventually codified into multiple bilateral alliances in 2018. These alliances have also encompassed Afghanistan, as well as energy-rich parts of Central Asian nations, Eurasia’s heartland, and to a lesser degree, the Middle East. Furthermore, the Economic Cooperation Organization (ECO) and the Shanghai Cooperation Organization (SCO) are the two transnational entities that play the most essential roles in security alliances.

Pakistan, on the other hand, will serve as a link between them as the ‘Zipper of Eurasia,’ owing to the Chinese-built infrastructure of the China-Pakistan Economic Corridor (CPEC). The term ‘zipper’ applies to the extensions of the CPEC as well as the New Eurasian Land Transport Initiative (NELTI) and Central Asia Regional Economic Cooperation (CAREC). Kashgar is the domestic entry port for the CPEC oil and gas pipelines, as well as the Xinjiang border port in Western China. Pipelines for oil and gas were built by the Central Asian countries and China to access Xinjiang through Khorgos and travel through Kashgar. Along with other oil pipelines in China, these lines make up a massive network for energy transmission in Western China. They create the basis for China to combine its energy imports from the sea and land.

The proposed China–Pakistan oil and gas pipeline runs via Pakistan’s Gwadar Port. It is a deep-water port about 400 km from the SoH, capable of berthing oil tankers of 80–100,000 tons. The oil from the Middle East will be transported overland into China’s Xinjiang province, which will be 85 percent faster and cheaper than the SoM route. The IP’s Iranian section has been completed. Oil and gas resources from Iran to China can be delivered by land through Gwadar Port, but they can also be carried to the Iran–Pakistan border via Iranian domestic oil and gas pipelines, and then to China via Pakistani domestic oil and gas pipelines. As a result, pipeline transportation would be the principal route of oil and gas transportation, with rail and water as backups.
Turkey has constructed a gas and oil pipeline network that connects it to Russia, Central Asia, and the major energy-producing areas of the Middle East and has successfully diversified its sources to avoid dependence on a single source (Figure 7). Through cross-border energy pipelines, Turkey will play an important role in delivering gas and oil supplies from other regions to China and Pakistan.

**Figure 8: Diversifying Gas Supply of Turkey in 2019-2020**

Source: “Turkey’s Purchase of Russian Gas Drops by 62% Year-on-Year,” *Daily Sabah.*

On the one hand, while shifting the global energy strategic direction, the corridor would respond to the diversified energy demands of those nations interested in importing energy. It needs to be realized, however, that energy transportation networks are complex. Energy transmission to Pakistan and China can be integrated in different ways including the sea and land transit, rail network, and pipelines, alongside traditional shipping. Finally, it would assist oil exporters and transit countries in diversifying their petroleum export markets and meeting their diversification goals. Turkish and Iranian energy can be transported to markets in East Asia, Southeast Asia, and South Asia, as well as Iranian energy to Europe via Turkey.

**SWOT Analysis of Golden Ring Energy Corridor**

The SWOT analysis will help to recognize the strengths, weaknesses, threats, and opportunities in the GREC.
The Strengths

Same Goals and Objectives

At the inauguration of the Chinese Belt and Road Initiative, Chinese Vice Premier Zhang Gaoli revealed six different economic corridors. 67

- The China-Mongolia-Russia Economic Corridor (CMREC);
- The New Eurasian Land Bridge Economic Corridor (NELBEC);
- China–Central Asia–West Asia Economic Corridor (CCWAEC);
- The China-Indochina Peninsula Economic Corridor (CICPEC);
- The China-Pakistan Economic Corridor (CPEC);
- The Bangladesh-China-India-Myanmar Economic Corridor (BCIMEC).

BRI prioritizes the interconnection of energy, transportation, and telecommunication networks. CPEC too is a network of highways, bridges, gas and oil pipelines, and fiber optic cable networks. It is the key component of BRI. Iran, on the other hand, is a major supporter of China's BRI with strong momentum in the ‘five links’ of politics, trade, banking, infrastructure, and public opinion.

Turkey and China also signed a memorandum of understanding on the development of BRI on November 15, 2015. With the existing routes under this initiative as defined in Figure 7 above, it is an opportunity for the GRS countries to make use of these developing and existing energy and transportation infrastructures of BRI to achieve common goals, and objectives.

Rich in Energy Resources

The Countries involved in the Golden Ring of Energy Security are rich in energy resources. All the member countries have an abundance of natural resources. Some of them have abundant energy resources while others import oil and gas to meet their domestic needs. Some detail of the energy riches has been given above.

The gas and oil deposits of Russia, the Middle East, the Caspian Sea Rim, and Central Asia can be shared through the countries along the GREC via the cross-border energy trade.
Geostrategic Location

The GREC will aid in the construction of a cross-border economic corridor connecting China with West Asia, South Asia, Africa, and Europe, as well as the opening of the New Silk Road’s international strategic corridor. Pakistan is a crossroads of energy passages in terms of geography. Many significant sea routes connect Europe and Africa with the Asia-Pacific region, all of which go through the south coast of Pakistan. The vast domestic network of pipelines within the country and the mega infrastructure project of CPEC offer prospects for developing a transborder energy connection that would not only benefit the country itself but also would help transit these resources to other regions of the world.

Iran is the most convenient route for linking Eurasian maritime traffic as well as the oil and gas crossroads between the Middle East and Central Asia. The managed SoH is a vital passage for gas and oil imports and a major transportation center in the Asia-Pacific region. Since Turkey is situated in the heart of Eurasia, it has a unique geographical and strategic location. It serves as a ground, sea, and air transportation center in the Middle East, as well as a vital stop on the ancient Silk Road. Pakistan has a strategic geographic position, running parallel to the ‘Middle East to the west, and central Asia to the north, with India to the east and China to the north.’ The Southern Coast of Pakistan is home to some of the world’s most significant sea routes, which connect Europe and Africa through the Hormuz Strait, the Gulf of Persia, the Red Sea, Arabian Sea, and the Indian Ocean, as well as the Asia-Pacific region, the country is referred to as an oil corridor crossroads.

Ability to Complement Each Other’s Energy Needs

China is both the biggest electricity producer and net importer in the world. It imports natural gas and oil to meet its increasing energy demand. Pakistan’s energy supply has been limited for years, and the country hopes to alleviate the problem by importing gas and oil through pipelines from West Asia, the Gulf, and Central Asia. However, constructing energy corridors to satisfy local demand on its own, puts Pakistan under strain, so it must pursue foreign collaboration in the energy sector. The economy of Iran is heavily reliant on foreign support. Iran is attempting to grow its economy through increased energy exports since its economy is characterized by the export of crude oil and the import of manufactured products. The economy of Iran has been seriously harmed by the US oil and financial sanctions, which have been in place since 2003. On the other hand, Turkey is not only a major importer of
oil and natural gas, but its favorable geographic location prompts it to work as an East-West energy center. It necessitates a reliable energy supply and export demand.

The Weaknesses

Poor Infrastructure

The overall infrastructure in many of the Golden Ring countries needs to be revamped. Communication network plays a vital role in further developments. Table 1 shows the infrastructure of transportation in Turkey, Iran, Pakistan, and China.

**Table-1:** Infrastructure of Transportation in Turkey, Iran, Pakistan, and China.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway</td>
<td>Total Mileage</td>
<td>264,000 km</td>
<td>389,000 km</td>
<td>200,000 km</td>
<td>4.577 million km</td>
</tr>
<tr>
<td></td>
<td>The density of Road Network</td>
<td>0.32 km/km²</td>
<td>0.49 km/km²</td>
<td>0.15 km/km²</td>
<td>0.48 km/km²</td>
</tr>
<tr>
<td></td>
<td>Total expressway mileage</td>
<td>710 km</td>
<td>2127 km</td>
<td>1957 km</td>
<td>123,500 km</td>
</tr>
<tr>
<td>Railway</td>
<td>Total Mileage</td>
<td>7791 km</td>
<td>9718 km</td>
<td>13,000 km</td>
<td>121,000 km</td>
</tr>
<tr>
<td></td>
<td>The density of the Railway Network Technical grade</td>
<td>0.98 km/100 km²</td>
<td>1.24 km/100 km²</td>
<td>0.79 km/100 km²</td>
<td>1.26 km/100 km²</td>
</tr>
<tr>
<td></td>
<td>Double-track rate: 15 percent</td>
<td></td>
<td></td>
<td></td>
<td>Double-track rate: 52.9 percent</td>
</tr>
<tr>
<td></td>
<td>Electrification rate: 3.8 percent</td>
<td></td>
<td></td>
<td></td>
<td>Electrification rate: 60.8 percent</td>
</tr>
<tr>
<td></td>
<td>Double-track rate: 10 percent</td>
<td></td>
<td></td>
<td></td>
<td>Electrification rate: 2 percent</td>
</tr>
<tr>
<td></td>
<td>Electrification rate: 25 percent</td>
<td></td>
<td></td>
<td></td>
<td>Electrification rate: 2 percent</td>
</tr>
</tbody>
</table>

Source: Ministry of Commerce, GoPRC, “China Trade in Services Statistics”; McCloskey-Gholikhany, “EU Foreign Policy Identity”; and Komisyonu,
Study of the EU-Turkey Bilateral Preferential Trade Framework, Including the Customs Union, and an Assessment of its Possible Enhancement

In Pakistan and Iran, the density of highway and railway networks is comparatively low. Around the same time, the current railway system is being upgraded. The electrification and double-track rates are insufficient. Most of the tracks are single-track railways that have not been electrified, which has a significant impact on transportation quality. Turkish railways are lagging in terms of growth. Turkey’s overall railway length is currently less than 10,000 km, indicating that there is already much need for improvement in terms of being an East-West transport hub. As a result, all countries in the corridor would focus on developing and upgrading their transportation infrastructure systems.

Poor Regulatory Policies for Cross-Border Power Trade

Regulatory policies play a significant role in international electricity and energy exchange. For regional coordination and commerce, national regulators must harmonize and align their regulatory activities. For streamlined and reliable transmission system operations, technical issues such as specifications, regulations, and procedures concerning transmission access, pricing templates, congestion management, operating codes and protocols for system service, energy accounting, and payment structure, and transmission protocols must be increasingly regionalized.

High transmission and distribution (T&D) losses, capacity shortages, electricity theft, ineffective pricing structures, expensive and futile subsidies, governance issues, circular debts, and an ineffective mix of generating resources are among the problems that would require fixtures for further progress towards trans-border energy exchange.

Market Barriers

Power trading, including other goods and services, is hampered by export, import, and transit duties/taxes. The introduction of international arrangements and mechanisms for free trade is required to increase regional power trade. Similarly, policy flaws in the domestic sector include the fiscal strain of price discounts, poor tax collection rates, and other issues.
Opportunities

Use of Barter Trade for Increasing Cooperation

The Golden Ring countries can complement each other’s energy needs. Therefore, it is a great opportunity for them to deal with each other in the Barter trade. If one country needs to trade with another country within the Golden Ring region, this trade can take place in the pro-rata energy resources, depending on the energy needs of one another.

Defining and Meeting National Energy Strategic Objectives

The energy demand in China is currently growing. New concerns for China’s strategic energy stability include developing international energy cooperation establishing new energy transport networks and extending energy import regions. On the one side, China will broaden its energy supplies by building the strategic China-Pakistan-Iran-Turkey (CPIT) energy corridor.\textsuperscript{70} China can import natural gas and oil from Caspian Sea countries including Georgia and Azerbaijan through Turkey. It will also expand its energy transportation channels and establish multiple corridors.

Land accessibility exists within Pakistan, Iran, China, Russia, and Turkey, where they can have the opportunity to trade with one another. Especially, China, with its growing needs, can import through Turkey, via Azerbaijan, and Georgia. Similarly, the sea route is accessible via the SoH and Pakistan’s Gwadar Port.

It is a golden opportunity for Pakistan to fulfill its energy needs, especially for oil and gas. Similarly, Iran can export to other countries within the Golden Ring region and Turkey can also meet their energy needs.

Opportunity to Restart the Unfinished/Stalled Energy Projects as Part of GREC

Some of the energy projects remained stalled due to political instability caused by factors like terrorism, political uprisings, and political tensions within a country or among the governments. Some of these projects include the Iran-Iraq-Syria gas pipeline, Tabriz-Erzurum-Ankara pipeline, IP, and (TAPI) pipeline.

The Golden Ring countries have the opportunity to revive the halted projects and restructure them as part of the GREC. For example, the TAPI
gas pipeline can take China in the loop to help strengthen the cooperation between the Golden Ring countries and serve China’s energy needs.

Similarly, by making better policies and increasing cooperation among the Golden Ring Countries, the security of Tabriz-Erzurum-Ankara can be enhanced, and hence the trade through this pipeline can be reinstituted.

**Threats**

**Arab-Israel Pact**

The Arab-Israel pact may turn out to be a blockade in the implementation of the GREC as it will not only dent the interest of Middle East countries to trade with Golden Ring countries, but it may also result in blocking the trade route through the Middle East countries due to conflict in their trade interests.

**Political Situation in the Golden Ring Region is Uncertain**

One of the challenges in implementing this energy corridor is the uncertain political situation in the region. US sanctions on Iran hinder its initiatives and activities and even the desire of other countries to benefit from the latter’s huge resources. Similarly, there is a challenge of mutual trust with a history of checkered relations between certain countries or on account of current geostrategic interests, particularly in the Middle East. Similarly, internal conflicts, the absence of a platform for cross-border barter trade, and delays in the implementation of projects add to the impediments to such regional collaboration.

**Recommendations**

In light of the above, this paper suggests the following recommendations for the implementation of the GREC.

**Devising a Strong Policy for Cooperation, Improving Design and Infrastructure, and Defining Costs for Cross-Border Transmission**

For successful implementation of the proposed GREC, there is a need to develop strong macro policy and effective communication, which can facilitate the cross-border power trade and increase cooperation among these countries. If that happens, then the design at the top level can be improved and the energy and transportation infrastructures can be reinforced.
Countries involved should improve government-to-government coordination and communication, develop a mechanism for exchange and multilevel inter-governmental macro policy communication, exchange, develop and implement development strategies and improve measures for the development of an energy corridor, and collectively develop strategies and actions to promote regional collaboration, as well as seize important nodes and initiatives. To accomplish international transport facilitation, the nations must work together to develop a single transport coordination system, and enhance international customs clearing, transshipment, and multimodal transport organic links.

**Developing a System of Regional Cooperation and Security**

Due to political instability in the region of the proposed GREC, there is always a security hazard that can sabotage such cooperation in the longer run. Therefore, if there is a system of cooperation like the Shanghai Cooperation Organization (SCO) for security and economic alliance, it will protect the interest of all the member countries of the proposed Corridor.

**Sticking to the Standards and Formalizing International Energy Strategic Partnerships**

After defining standards and formalizing international energy strategic partnership, all the member countries of the proposed GREC must stick to the international standards and safeguard the common interest of all the member countries.

**Conclusion**

Due to changing political environment in Asia, like the Arab-Israel pact and some Asian countries showing their inclination towards the West, it will be a great opportunity for the member countries of the proposed GREC which is comprised of China, Iran, Pakistan, Turkey and Russia. Using this corridor, the participating countries can use systems like Barter trade to make full use of the resources each country has to offer and to fulfill their needs, without depending on those countries which may, otherwise, ask them to compromise their national interest. These countries can also benefit from their incomplete projects like the TAPI and IP pipelines. This paper, however, proposes that such projects can instead be completed among the partner countries of the proposed corridor—GREC.
Pooling Regional Energy

However, this corridor can be achieved through formalizing a strategic policy, increasing cooperation, making principles, and sticking to them, through effective dialogue, and by respecting and safeguarding the common interests of each member state.

Further cooperation like the economic and industrial cooperation among the GREC countries can be an interesting topic for future research. Similarly, how these countries can actualize barter trade and develop a system of regional cooperation and security would be an interesting topic to analyze.

Moreover, the impact of the withdrawal of the US troops from Afghanistan followed by the Taliban takeover, on the security of the energy projects of the Golden Ring Countries will be interesting research too.

Notes

5 Ibid.
8 Ibid.
13 Ibid.
18 Ibid.
22 Ibid.
25 Ibid.
27 Ibid.
28 Ibid.
36 Guo et al., “Strategic Analysis on the Construction of New Energy Corridor China–Pakistan–Iran–Turkey.”
Pooling Regional Energy


42 Ibid.


44 Ibid.

- :text=Energy%20Strategy%20of%20Russia%20for%20the%20period%20up%20with%20new%20objectives%20and%20priorities%20in%20the%20country.


49 CRS, “TurkStream: Russia’s Southern Pipeline to Europe.”


54 Ibid.


Andrew Korybko, “Pakistan is the Zipper of Pan-Eurasian Integration” (Moscow: Russian Institute for Strategic Studies, 2015), https://en.riss.ru/article/1018/.


