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# **CPEC and BRI Nexus**

## **Perspectives on Economy, Politics, Culture and Environment**

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## Exploring the Impact of the Belt and Road Initiative on Sustainable Energy Cooperation in Pakistan

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### Abstract

Pakistan and China have had historical relations since 1948; these relations are long-standing, and strong ties are maintained in different sectors. In 2014, China launched the Belt and Road Initiative, marking a significant step in China's efforts to strengthen global economic links, with a key focus on energy. Through the China-Pakistan Economic Corridor (CPEC), China invested heavily in Pakistan's energy sector, aiming to alleviate the country's decades-long energy crisis. In 2021, President Xi Jinping, alongside the UN Secretary-General, pledged to shift investment away from fossil fuels towards renewable energy, reflecting China's commitment to climate change. This chapter examines China's green energy investments in Pakistan, assessing both their successes and challenges. It explores and analyses how BRI has influenced the development of sustainable energy in Pakistan while addressing the geo-economic and geopolitical complexities the country faces. Through this chapter, we explore the importance of green energy in Pakistan and how this green energy helps to control climate change.

**Keywords:** Belt and Road Initiative, Green Energy, Infrastructure Construction, Transportation, Geopolitics

## **Background of the Study**

'Silk Road Economic Belt' was first announced in the capital city of Kazakhstan, Astana, in September 2013, leading to the next step of the '21st Century Maritime Silk Road' in the capital city of Indonesia, Jakarta, in the following month. Then, it began to be widely known as the 'One Belt, One Road Initiative' (Bhoothalingam, 2015). Under this background, domestically and internationally, it has been officially addressed as the 'Belt and Road Initiative' (BRI).

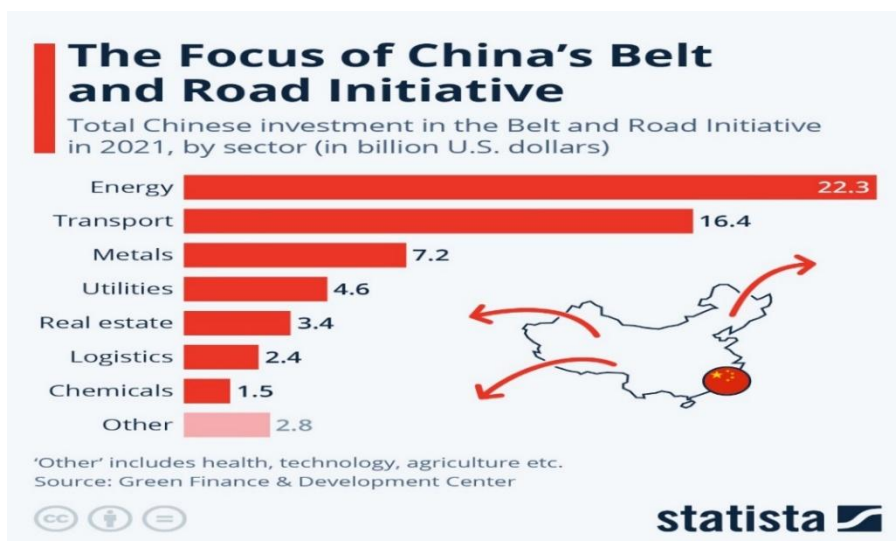
This ambitious project has attracted worldwide attention, interest, support, and growing concerns for a decade. The multi-trillion-dollar plan for this new effort was first presented in the speech of the Chinese top leader titled 'Promote People-to-People Friendship and Create a Better Future'. It originated from the conception of the renowned Silk Roads and their fabled legacy of religious, political, social, and cognitive interactions between China and the world. Furthermore, this historical framework was founded upon other domains such as trade, business, and amicable interactions among diverse populations from China, South Asia, Central Asia, Africa, and Europe. Therefore, in essence, it is asserted to be a novel trans-regional cooperation framework for mutually beneficial collaboration, aiming at promoting peace and development among its member states in the world. For instance, it can enhance connectivity in a pragmatic context by substantially investing in constructing railway systems, ports, airport networks, maritime, energy, communication, and internet infrastructures.

The BRI is an extensive undertaking to construct infrastructure and promote economic growth, spearheaded by China. The objective is to improve connections and foster economic collaboration across regions encompassing Asia, Europe, Africa, and beyond. As a result, China has made substantial investments in the infrastructure and energy sectors of the member states included in the BRI. Below are several crucial elements of BRI investments in the energy industry. Regarding Energy sectors, the BRI investments in the energy sector primarily focus on developing energy infrastructure, including power plants, transmission lines, pipelines, and ports. These multi-projects aim to improve the energy supply and distribution networks, improve energy deficits, and support economic growth in participating countries.

For instance, the Renewable Energy Project is classified as a part of its commitment to sustainable development. China has emphasized on its investments in renewable energy projects within the BRI framework. These projects include solar farms, wind farms, hydroelectric power plants, and other

clean energy initiatives. Based on the above, China's expertise in renewable energy technologies and its investments in these projects are expected to contribute to the global transition towards a green and low-carbon economy on a global scale.

Figure 3: Chinese investment in BRI in 2021 by sector (in billion U.S dollars)



Source: Statista official website, [statista.com](https://www.statista.com)

Likewise, energy trade and cooperation are also essential sectors. The BRI aims to promote energy trade and cooperation among participating countries. Its investments in energy infrastructure are to facilitate cross-border energy flows by enabling countries to access and share energy resources. This includes building multiple projects of building pipelines, establishing energy corridors, and stabilizing and reducing energy trade to enhance both trans-regional cooperation and energy security.

### The BRI's Infrastructure and Energy Cooperation

Infrastructure development is a critical focal point of the Belt and Road Initiative. The primary objective of the BRI is to bolster connectivity and foster economic collaboration through the investment and development package, which would develop important infrastructure facilities for the host countries. These infrastructure initiatives encompass various industries, such as transportation, energy, and telecommunications. Among them, the BRI

heavily relies on the transportation infrastructure sector. The sector of projects prioritizes constructing and enhancing roads, trains, ports, and airports (Xunpeng & Yao, 2019). This entails the creation of brand-new transportation routes, upgrading current transportation networks, and improving border crossings.

The objective is to streamline the flow of commodities and individuals, improve interconnectivity, decrease transportation expenses, and foster trade and economic cooperation among the BRI member states. In this context, developing energy infrastructure is also a significant part of Belt and Road Initiative projects. Hence, this initiative includes promoting investments in energy facilities, including power plants, transmission lines, pipelines, and so on. Also, specifically, this encompasses advancing sustainable energy facilities and their networks, such as solar systems (so-called photovoltaic power generation facilities) and wind power. Quite obviously, this can be understood as a new energy-relevant business model in addition to establishing oil and gas pipelines to guarantee energy security in terms of better interconnectedness between China and its BRI host countries. These projects aim to bolster the advancement of sustainable energy, encourage the exchange of resources, and streamline energy commerce (QinggeGeng, 40-49).

As is widely known, in addition to infrastructure cooperation, Energy cooperation between China and the host nations is vital to the Belt and Road Initiative. Sometimes, the primary objective of the BRI can be said to foster cooperation in several energy domains, which range from encompassing oil, gas, and electricity to adopting renewable green energy sources, and energy sources, and systems. This can lead to generating reciprocal advantages for China and other member states of the BRI. Therefore, despite 'Debt Trap Diplomacy' type controversy, it is becoming obvious that this collaboration can enhance energy security, foster sustainable development, and promote economic progress, especially for the less-developed host countries of the BRI. However, one crucial aspect of energy collaboration under the Belt and Road Initiative is that it has been known to facilitate and stabilize the constant flow of oil and gas commerce, mainly from the host countries to China. As the most significant energy consumer in the world, China aims to diversify its global supply of energy sources to guarantee a consistent inflow of oil and gas.

In this context, by forming trans-regional alliances with host nations along the Belt and Road Initiative lines, China can secure entry to untapped energy sources and build intra-regional trading routes for energy; this logic is based on guaranteeing a reliable energy supply. For example, On the other hand, host

countries benefit from the new influx of enhanced investment, technological dissemination, and expanded market entry for their oil and gas reserves. Simultaneously, the Belt and Road Initiative emphasizes fostering collaboration in the renewable green energy sector. China has become a prominent global front-runner in the mass production and operational technology of renewable green energy, such as solar systems and wind power (Medinilla, Sergejeff, & Domingo, 2022).

### **The BRI's Green Energy Infrastructure Cooperation**

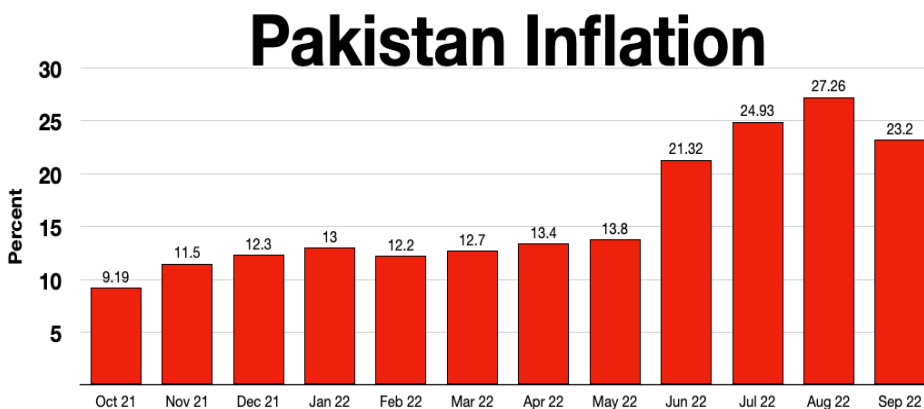
The Belt and Road Initiative has substantial prospects for underdeveloped host nations by implementing eco-friendly energy infrastructure projects. And this can have favorable economic impacts for them. For example, within the Belt and Road Initiative framework, China is known to support advancing renewable energy adaptations or sometimes transformation in these economically less-developed host nations. Hence, this can bring out some positive economic effects of aiding the shift of less developed partner countries towards cleaner and more sustainable energy sources (and systems). This collaboration entails the establishment of solar and wind farms, along with the exchange of renewable energy technologies.

One significant advantage of green energy infrastructure projects is the potential for new job opportunities for local communities of host countries. The construction and operation of renewable energy facilities require an effective workforce, providing employment opportunities for local communities. This can help alleviate unemployment and stimulate local economies. Moreover, the renewable energy sector often involves technology-intensive operations, which require skilled workers and promote knowledge transfer, contributing to regional human capital development. Green energy infrastructure projects can attract investment and stimulate economic growth. Substantial financial resources are necessary to establish renewable energy facilities, as they require significant capital investment. However, this investment can attract foreign direct investment (FDI) and promote economic activity. The construction phase of these projects entails the acquisition of equipment and materials, which stimulates the demand for local suppliers and enhances industrial production (Ross & Neil , 2022). Moreover, the functioning of renewable energy facilities not only creates income through the sale of energy but also has the potential to improve the host country's economy by increasing its energy exports.

Moreover, these projects contribute to enhancing energy security and achieving cost reductions. Host countries can bolster their energy security by

diversifying their energy sources and diminishing reliance on fossil fuels. Renewable energy projects offer a consistent and dependable source, reducing susceptibility to price volatility in global energy markets. The region's stability has the potential to attract further investment and cultivate a conducive business environment, thereby stimulating economic growth outside the energy industry.

Figure 4: Inflation in Pakistan after regime change.



Source: State Bank of Pakistan

## Pakistan's Comprehensive Geostrategic Cooperation with China

### Geostrategy-oriented Projects of the BRI

Under the geopolitical background of geoeconomic fragmentation on a global scale, the China-Pakistan Economic Corridor (CPEC) is a major component of the Belt and Road Initiative (BRI) in Pakistan. It encompasses a range of projects aimed at improving connectivity, infrastructure development, and economic cooperation between China and Pakistan (Fazal, Khan, & Ali, 2023). Here are some key projects under the CPEC.

### Gwadar Port

Gwadar Port, situated in southwestern Pakistan, is a deep-sea port that holds great strategic importance within the framework of the China-Pakistan Economic Corridor (CPEC). Gwadar is the endpoint of China Pakistan Economic corridor. It is being transformed into a major trade hub through extensive expansion and development initiatives. Gwadar Port's development includes berths, terminals, warehouses, and other support facilities, forming a

key component of Pakistan's maritime infrastructure. Strategically located on the Arabian Sea, the port offers China an alternative trade route that bypasses the congested Strait of Malacca—a critical maritime chokepoint between Malaysia and Indonesia (Ali, Shah, Rizwan, & Ali, 2019). This shift helps China diversify its trade routes and reduce strategic vulnerabilities. The port is being expanded to handle larger ships and increased cargo, enabling more efficient goods movement. As a result, Gwadar is poised to become a regional hub for shipping and transshipment, enhancing economic activity both within Pakistan and across the region. Its proximity to major energy resources and trade routes adds to its appeal. Additionally, Gwadar's development supports Pakistan's broader goals of improving maritime connectivity, attracting investment, generating employment, and strengthening its position in regional and global trade networks. (Kanwal, 2018).

### **Diamer Basha Dam**

Diamer Basha Dam is in Gilgit, Gilgit-Baltistan region. This dam is one of the main important projects of China China-Pakistan Economic Corridor. Located on the Indus River, the dam is designed to generate 4,500 megawatts of electricity, significantly addressing Pakistan's persistent energy shortages. Beyond power generation, the dam will contribute to flood control, improve water storage capacity, and support agricultural development. With China providing both financial investment and technical expertise, the project exemplifies the deepening of bilateral ties through strategic infrastructure development. It also aligns with broader goals of promoting sustainable economic growth and enhancing regional connectivity between China and Pakistan.

### **Green Energy-oriented Projects of the BRI**

The distribution of energy investments within the context of the China-Pakistan Economic Corridor reveals a notable reliance on coal projects, which comprise 66.7% of the overall investment. Just 3.04% of the funding goes to wind and solar projects separately, compared to 27% for hydroelectric developments. The need for further emphasis on investments in renewable energy sources, such as solar and wind, is highlighted by this distribution. The data shows that in 2015, renewable energy (other than hydro) accounted for only 0.33% of overall energy generation or 0.133% of the nation's electrical demand. Projections show that by 2035, the CPEC will account for 0.42% more electricity generated overall—that is, electricity generated from renewable sources like solar and wind—than hydropower. When hydroelectric power is considered, the overall contribution of all electricity

generation's renewable energy is predicted to reach 32.7% (Duan, Khurshid, Nazir, & Calin, 2022).

China is aggressively supporting the growth of the green energy industry and resolving Pakistan's energy crisis. China's investments in wind, solar, and hydro projects will help Pakistan's renewable energy ambitions through the China-Pakistan Economic Corridor. These investments support the annual investment possibilities that can assist in reaching the 25,206 MW policy targets, representing 56.1% of the world's total energy production. Completing ongoing projects increases output from renewable sources, which is considered when projecting future investments. China's current energy projects are anticipated to be finished by 2026. Pakistan's renewable energy policy ambitions would require China to increase production by 5.3% yearly. However, China must boost green output by 13% annually to transition from black (conventional) to green energy. Pakistan's wind, hydro, and solar energy industries can meet the country's future energy needs on their own and aid in the overall switch from fossil fuels to renewable energy. Pakistan can significantly advance its renewable energy aspirations by utilizing China's funding and experience in these fields.

China helps Pakistan build renewable energy projects as part of the China-Pakistan Economic Corridor. Numerous solar and wind projects, such as the Quaid-e-Azam Solar Park, Hydro China, Dawood, and UEP Wind Farm, have been supported by CPEC. Additionally, the Kohala Hydel Project, Suki Kinari Hydropower Station, and Karot Hydropower Station are just a few of the projects that have benefited from CPEC. These programs demonstrate China and Pakistan's cooperative efforts to advance renewable energy sources and lessen reliance on conventional energy (Duan, Khurshid, Nazir, Khan, & Cantemir Calin, From gray to green: Energy crises and the role of CPEC, 2022). Pakistan is moving in the right direction toward a more sustainable and environmentally friendly energy sector with China's help.

Table 1: Completed green energy projects in Pakistan

1	1000MW Quaid-e-Azam Solar Park (Bahawalpur)
2	50 MW Hydro China Dawood Wind Farm, Gharo, Thatta
3	100MW UEP Wind Farm, Jhimpir, Thatta
4	50MW Sachal Wind Farm, Jhimpir, Thatta
5	100MW Three Gorges Second and Third Wind Power Project
6	Matiari to Lahore ±660 KV HVDC Transmission Line Project
7	720MW Karot Hydropower Project, AJK/Punjab

Table 2: Under Construction green energy projects in Pakistan

8	884MW Suki Kinari Hydropower Project, KP
9	1124MW Kohala Hydropower Project, AJK
10	700.7MW Azad Pattan Hydropower Project, AJK/Punjab
11	50MW Cacho Wind Power Project
12	50MW Western Energy (Pvt.) Ltd. Wind Power Project

Source: Pakistan water and power development authority

## **BRI Green energy projects in Pakistan through**

### **Sustainable Development Cooperation of the BRI**

Under the geopolitical background of fragmented geo-economics on a global scale, the dual cooperation concepts in the context of the China-Pakistan Economic Corridor, an essential part of the Belt and Road Initiative, include geostrategic and green energy objectives. CPEC aims to improve connectivity and collaboration between China and Pakistan from a geostrategic standpoint. The project involves building ports, railway lines, and other transport infrastructure that links the two countries and boosts trade and economic cooperation. The development has increased diplomatic relations between China and Pakistan, they also support South Asian regional stability. Through the Belt and Road initiative, China is increasing its regional influence, especially South Asian region. Furthermore, the CPEC highlights the importance of green energy and related economic opportunities. It includes the major investment in the green energy sector, solar, Wind, and hydro projects. Through the CPEC, in Gilgit region has a working Hydro project. These projects will fulfil Pakistan's energy requirement and less dependence on Fossil Fuels (Kukreja, 2020).

In 2021, China and the United Nations agreed to work together on controlling climate change. The Chinese government decided that the Green Energy Project would fulfill its promise to control climate change and protect the environment. Through the support of the Green energy project infrastructure, the initiative plays a key role in helping Pakistan shift toward a low-carbon economy. CPEC combines strategic goals with sustainable development by promoting cooperation that balances geopolitical interests with environmental responsibility (Asim, et al., 2022). The full approach is not only strong economic relations with China but also highlights green energy and eco-friendly practices. Major investments in solar, wind, and hydropower aim to meet Pakistan's growing energy needs while decreasing its reliance on fossil

fuels. This strategy fosters mutual benefits in trade, infrastructure development, and green technology, aligning with China's broader climate commitments. The key benefits of green energy under the project of BRI are supporting Pakistan to lower greenhouse gas emissions and adopt a more sustainable energy mix. Chinese green energy also contributes to controlling climate change. Pakistan has more than 40 glaciers are effect due to climate change ( Li, Xu, Hui, Cai, & Zhang, 2022). These green energy efforts also contribute to climate change mitigation. By amalgamating geopolitical interests with environmental responsibility, the initiative also strengthens both country relations and increases regional stability. It opens opportunities for Pakistan to modernize its energy sector and integrate more deeply into global markets. Finally, the China-Pakistan economic corridor (green energy project) is contributing to controlling global climate and supporting sustainable development through economic cooperation and environmentally responsible growth (Geng, 2021).

### **The BRI's Shift to a 'Greener Energy Portfolio'**

### **The BRI and 'Semi-Containment' against Pakistan**

#### **Baluchistan Issue**

The Baluchistan region is rich in natural resources, but this region has been in unrest for more than 30 years. This unrest in Baluchistan is hosting many projects of the China-Pakistan economic corridor, such as Gwadar Port, which poses a significant obstacle to successfully implementing the CPEC. The local population in Baluchistan harbours deep-seated grievances regarding limited political and economic opportunities, coupled with concerns about potential demographic shifts that could marginalize native Baloch people. Resolving these grievances and fears is crucial to ensure a conducive environment for CPEC initiatives. Addressing the socio-economic disparities, promoting inclusive development policies, and actively involving the Baloch community in decision-making processes are essential steps to alleviate tensions and foster cooperation in Baluchistan (Ali M. , 2020). The CPEC is portrayed by Baloch rebels as an act of enslavement by the centre to take advantage of the local resources. Baloch terrorists are taking advantage of this circumstance with help from abroad and have advised China to "stay away from Gwadar". Baloch insurgent groups have frequently targeted gas pipelines and trains to discourage non-local investors, specifically Chinese developers. In April 2015, militants from Baluchistan killed around 20 labourers from outside the region in the small village of Turbat. This incident occurred just a week before the Chinese president visited Pakistan. According to media sources, there is

evidence that international intelligence organizations are collaborating with rebel groups to sabotage the project.

On August 13, an unknown extremist organization initiated an attack on a group of Chinese engineers traveling in a convoy in Baluchistan Province, located in the south-western area of Pakistan. Sarfaraz Ahmed Bugti, a former Baluchistan interior minister and senator, utilized the social networking platform X (formerly known as Twitter) to affirm that there were no casualties among Chinese citizens in the attack. The BLA asserted accountability for a 2020 assault on the Pakistan Stock Exchange, claiming their resistance to what they regarded as "Chinese exploitative plans" in Baluchistan. The CPEC part of the BRI project highlights China's significant engagement with Pakistan. This involvement connects China's Xinjiang Province with the strategically important Gwadar Port.

### **Indian Side for CPEC**

India perceives the CPEC as an obstacle to its overarching objective of exerting influence over South Asia, and any progress that enhances Pakistan's economic situation is unwelcome. Iran sees Gwadar as a competitor to Chabahar Port and as a promising trade route; it is establishing relations with India to access Afghanistan, which is not accessible by sea due to its landlocked nature, unlike Pakistan's other neighbouring countries. The trade connections provided by CPEC can help Afghanistan, and the route to Gwadar is more expedient and profitable than the one from Chabahar. However, since both countries' independence in 1947, India has fostered a hostile Afghanistan on Pakistan's western flank, which has contributed to a problematic relationship between Afghanistan and Pakistan. These issues are mainly of Afghanistan's creation. The current fallout from Afghanistan and India's different levels of hostility is that India has been charged with attempting to destabilize Pakistan (Ali, Shah, Rizwan, & Ali, 2019).

These purported activities involve rebels fighting the government in the province of Baluchistan as well as the training, equipping, funding, and sending of terrorists to areas that were once Taliban strongholds in Pakistan. There have been allegations that Afghanistan provides India with support in carrying out these operations through its intelligence organization, the National Directorate of Security (NDS). The campaign's primary objective is to subvert the established legal system, with one of its aims being to instill fear and apprehension among Chinese individuals engaged in projects such as the CPEC and other ventures in Pakistan. After being apprehended in Pakistan, Kulbhushan Jadhav, an active Indian Naval Commander working undercover

in Chabahar for the Indian intelligence agency RAW, confessed and provided information regarding his participation in a broader Indian operation to supply weapons, provide financial support, and give instructions to terrorists in Baluchistan. The objective of this operation was to create instability in Pakistan as a whole and hinder the CPEC.

## **Energy Sector Cooperation**

Through the CPEC project, China is highly invested in Pakistan. The energy project China has invested in includes different renewable energy sources, hydroelectric power, solar energy. Pakistan will reduce its dependence on Coal and Fossil fuel energy and enhance its energy security. Pakistan has a gap between supply and demand in the energy sector. This BRI project will reduce this gap, and Pakistan will also be less dependent on non-renewable energy. Pakistan wants to maintain economic growth and industrial expansion by building new power plants and renewable energy initiatives. In addition to helping the nation fulfill its energy demands, these initiatives promote industry growth, job development, and a better investment climate (Asim, et al., 2022). The renewable energy sources will reduce carbon emissions, addressing environmental challenges, and transitioning toward cleaner, more sustainable energy solutions.

BRI is focusing on the transmission lines and energy infrastructure. These upgrades are essential for minimizing transmission losses, enabling cross-border energy trade, and ensuring efficient and reliable power distribution. Strengthening this infrastructure offers multiple benefits. Consistent energy delivery supports the smooth operation of businesses and industries by ensuring consistent access to electricity with minimal losses. This dependable power supply attracts investment, stimulates economic growth, and fosters industrial development. Furthermore, the enhancement of infrastructure reduces transmission losses and upgrades the total competence of the energy system. According to Jafri 2021, this leads to cost savings and promotes a more sustainable and responsible use of resources (Jafri, et al., 2021). Finally, enhanced grid connectivity facilitates the transfer of surplus energy between countries, advancing regional energy integration. The interconnection not only enhances investment opportunities in Pakistan but also increases the strength of energy security and builds new opportunities.

The BRI activity support to address the environmental challenges and combat of climate change (Xunpeng & Yao, 2019). Pakistan, with its significant potential for solar, wind, and hydropower, stands to benefit greatly from BRI-backed investments in renewable energy projects. The Green energy reduce

dependence of Non-renewable energy resources. Transitioning to renewable energy offers several key advantages for Pakistan, which in turn enhances energy security by minimizing the risks associated with fuel supply disruptions and price volatility (QinggeGeng, 40-49). Pakistan is facing many challenges due to climate change. In the northern area of Pakistan have glaciers are melting rapidly. This green energy will help to control carbon emissions. Aligning Pakistan with global climate change mitigation efforts. The adoption of greener energy sources also contributes to reducing air pollution and improving the country's environmental sustainability (Sadiqa, Gulagi, & Breyer, 2018). Finally. The project will help to increase economic growth and create job opportunities. This project also helps to attract international investors to invest in Pakistan's green energy project.

### **The BRI's Greener Energy Cooperation for Pakistan**

The Belt and Road Initiative (BRI) presents a significant opportunity for Pakistan to embrace green energy and transition towards a more sustainable and low-carbon future. The BRI's focus on green energy for Pakistan is driven by the shared goal of addressing environmental challenges, reducing carbon emissions, and promoting renewable energy sources. With an expanding population and growing energy demand, Pakistan faces the dual challenges of meeting its energy needs while also tackling the adverse impacts of climate change. The BRI offers a platform for collaboration and investment in green energy projects, enabling Pakistan to capitalize on its immense renewable energy potential and drive sustainable development.

One of the key aspects of the BRI's green energy focus for Pakistan is the development of renewable energy projects. Pakistan has abundant solar, wind, and hydroelectric resources, making it well-suited for harnessing renewable energy. The BRI encourages investments in solar and wind power projects, which can provide clean and sustainable energy for the country. Solar energy projects, such as the Quaid-e-Azam Solar Park in Punjab and the Sachal Wind Power Project in Sindh, have already been established with Chinese investment and expertise. These projects contribute to reducing Pakistan's reliance on fossil fuels, lowering carbon emissions, and improving air quality (Zafar, Rashid, Khosa, M. Shahid Khalil, & Rashid, 2018).

In addition to solar and wind power, the BRI supports the development of hydroelectric projects in Pakistan. The country has a significant hydroelectric potential, with rivers like the Indus, Jhelum, and Chenab offering favourable conditions for hydropower generation. The BRI provides opportunities for investments in large-scale hydroelectric projects, such as the Diamer-Bhasha

Dam and the Dasu Hydropower Project. These projects not only contribute to Pakistan's energy security but also help mitigate the impacts of climate change by providing clean and renewable energy. Furthermore, the development of hydroelectric projects supports water management and irrigation systems, benefiting agriculture and promoting sustainable water resource utilization.

The BRI's green energy focus for Pakistan extends beyond power generation to include energy efficiency and conservation measures. Energy efficiency initiatives promote the optimal use of energy resources and reduce wastage. The BRI encourages investments in energy-efficient technologies and practices, such as smart grids, energy-efficient buildings, and industrial processes (Duan, Khurshid, Nazir, Khan, & Cantemir Calin, 2022). These measures help in reducing energy consumption, improving energy productivity, and lowering greenhouse gas emissions. The BRI also supports the adoption of energy conservation practices, raising awareness about the importance of responsible energy use and promoting behavioural changes towards more sustainable lifestyles.

The Belt and Road project focuses on developing infrastructure for clean transportation. Through this clean transportation, international and local investors have provided the opportunity to invest in electric vehicles and associated charging ports. The transportation sector is a significant contributor to carbon emissions and air pollution. By promoting the adoption of EVs and investing in charging stations, the BRI helps reduce the reliance on fossil fuel-based transportation and supports the transition towards cleaner and greener mobility options. This not only contributes to reducing carbon emissions but also addresses the issue of air pollution, improving public health and quality of life (Khurshid, Duan, Nazir, & Calin, 2022).

Under the shadow of BRI, China and Pakistan have signed 21 energy projects. Seven projects are already completed, and fourteen projects are under construction. The details of the projects already mentioned are in the above table. The success of these projects has been essential in resolving Pakistan's energy issue. The concentration on wind and solar energy projects has been perfect for Pakistan's ecology. Since the nation is already experiencing the effects of climate change, developing renewable energy sources has helped lower greenhouse gas emissions and lessen reliance on fossil fuels.

## **Conclusion**

It concentrates on the second case study of Pakistan's green energy cooperation with China. Here, it begins by providing background knowledge about Pakistan in relation to its disadvantageous geopolitical position within

the 21<sup>st</sup> century Capitalist World-Economy. This part is important for understanding Pakistan's geopolitical challenges and geo-economics opportunities in the context of the Belt and Road Initiative of China. Then, concerning this South Asian country Pakistan, we delve into the global, regional, and domestic situations of Pakistan with regard to the geo-economics fragmentation of the international community on macro-level and Pakistan's comprehensive geostrategic cooperation with China on micro-level.

In this contextual background, from the perspective of bilateral comprehensive geostrategic cooperation, we continue to analyse how the BRI can be engaged with Pakistan trans-regionally and how this can advance Pakistan's domestic economy and sustainable development in the South Asia. More specifically, in terms of Pakistan's comprehensive geostrategic cooperation with China, it can be divided into three independent-but-correlated sectors as follow:

- ① Geostrategic-oriented projects of the BRI;
- ② Green energy-oriented projects of the BRI;
- ③ Sustainable development cooperation of the BRI.

Then, it becomes obvious that the BRI can improve the backwardness of Pakistan's geostrategic-oriented socio-economic modernization by forging it more sustainable.

Against this backdrop of reality, before discussing the BRI's shift to a 'Greener Energy Portfolio', it should point out the negative impacts caused by the decades of 'semi-containment' against Pakistan. On the contrary, however, the BRI has been adopting the 'Win-Win' approach of green energy collaboration together with Pakistan on the trans-regional cooperation basis. Most importantly, buttressed by the mutual benefits and geostrategic cooperation between Pakistan and China, we find that the BRI is shifting gradually towards a 'Greener Energy Portfolio' for its comprehensive geostrategic cooperation with Pakistan in the South Asia.

### **Suggested Citation**

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