



## Geopolitics of Energy: Pakistan-China Energy and Economic Corridor for Poverty Alleviation in Pakistan



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**Abstract:** *The growing energy partnership between China and Pakistan is one of the most promising avenues for reducing poverty in Pakistan. This China-Pakistan Energy Cooperation has a strong potential to address the energy crisis in Pakistan that is a high priority. Opportunities for energy cooperation, such as building power plants, transmission lines, and other infrastructure, have expanded due to this partnership. The collaboration in this arena has helped reduce poverty and boost economic growth in Pakistan by giving the country access to abundant and low-cost energy resources. This paper tries to explore China's cooperation in building energy infrastructure in Pakistan and a paradigm shift towards renewable energy resources such as hydel, coal, solar, wind and nuclear will reduce its reliance on the Gulf States. The objective of this paper is to investigate China and Pakistan's energy cooperation after realizing its potential that can help reduce poverty in Pakistan. The discussion, analysis and findings indicate that energy security will reduce poverty and lead to economic prosperity in Pakistan.*

**Key Words:** Geopolitics, Energy, China-Pakistan, Poverty, Renewables

### Introduction

The geopolitics of energy has enticed the world's attention. Countries around the globe seek to secure reliable sources of energy for their populations. Mason Willrich (1975) in "Energy and World Politics," provided a political analysis of energy security that it is essential for both industrialized and developing nations, yet there is a huge disparity in how resources are distributed, in terms of both technology and capital because there isn't a centralized body for allocating resources in the globalized world (Jianhua & Yichen, 2012).

In the 21st century, the concept of the geopolitics of energy revolves around who

supplies it and who controls access to that supply has been the driving factor in international security and economic growth. Due to extensive demand and reduced supplies, the global order is shifting towards access to energy resources. In the future, energy politics will become more complex and will determine survival. Access to energy is critical to foster economic growth (Pascual & Zambetakis, 2008). The supplies of cost-effective energy sources are the basis of the modern world economy (Milina, 2007). Globally, there are around 1.1 billion people who do not have access to energy supplies and a vast majority of these live in the developing world of

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Asia and Africa. On the other hand, the volatile prices of fossil fuels have further put challenges to access to energy resources. Moreover, the damage to the ecosystem, climate fluctuations and air pollution have put hazards to the life of millions of people (Asif & Saleh, [2019](#)). Since Pakistan struggles to encounter the energy requirements of its rapidly expanding population, China-Pakistan cooperation in this dimension is important keeping in view the geopolitical factors.

China and Pakistan's strategic partnership has grown stronger over the years. Recently they have collaborated in the energy sector. Sustainable, uninterrupted, economical and reliable access to energy resources is indispensable for poverty alleviation, economic prosperity and well-being of any country (Tufail, Ibrahim, & Melan, [2018](#); Tully, [2006](#)) that is agreed upon that this project, the China-Pakistan Economic Corridor (CPEC), is basically a flagship project of Belt and Road Initiative (BRI). It will help the country deal with its long-standing problem of frequent power blackouts and build more reliable energy infrastructure. Over the past few years, the Chinese government invested a massive amount of money into Pakistan's energy sector aiming to secure reliable and affordable energy imperative to economic growth and poverty reduction. Pakistan has benefited greatly from this cooperation. China and Pakistan's energy cooperation in the context of poverty reduction in Pakistan focus on the most important initiatives and their effects on the country's economic and social growth.

Energy resources are considered the backbone of Pakistan's economy. It plays a significant role in a country's socioeconomic development. The enormous shortfall of energy has had a significant negative impact on the industrial, service, and agricultural sectors, leading to a significant economic downturn in the country. The country's economy has also suffered as a result of the energy shortage, with a loss of GDP of 4-7 per cent. Pakistan has recently experienced an energy shortage of 7,000 MW (Ali, [2022](#)).

The widening gap between the demand and supply of energy negatively impacted Pakistan's

economy. Therefore, the government resorted to load-shedding. On the other hand, the uninterrupted supply at an economical cost will have spillover effects. Energy-scarce countries spend a lot of money to manage the power crisis and generate eco-friendly energy supplies. Pakistan is one of those economies that are energy stricken. The unstable political governments are failed to generate efficient energy resources to meet the growing demands of the increasing population and failing economy (Shah, Solangi, & Ikram, [2019](#)). To boost economic growth, and expand trade, industrial, agricultural, financial and service sectors, energy security is a prerequisite (Kanwal, Mehran, Hassan, Anwar, Naqvi, & Khoja, [2022](#)). Currently, China has come to the fore to modernize Pakistan's outdated infrastructure under the auspices of CPEC to respond to the future needs of energy security.

Pakistan's energy needs are dependent on energy imports. It has been reliant on oil, coal natural gas and fossil fuels to generate energy that has been imported from the Middle East, especially Saudi Arabia. It is now shifting towards diversified resources of the energy mix that is environmental-friendly such as nuclear, solar, hydel, and wind. Rich and clean energy has great potential for economic growth and well-being for the entire community. Energy cooperation remains to be the key area of cooperation and a boon to Pakistan-China's enduring and mutually beneficial friendship.

This research is going to analyze the research question that how China-Pakistan Energy Cooperation contributed socio-economically by poverty alleviation for indigenous communities through its energy projects. The current paper tries to explore the impact of potential economic gains of the energy cooperation of CPEC for Pakistan and fulfil commercial and residential needs by employing the lens of Energy Security. By analyzing these issues, a deeper understanding of the complex interplay between energy security, economic development, and poverty reduction in Pakistan is obtained through the qualitative methodology for gathering and analyzing data. The secondary sources including government statistics and reports and research articles, books, journals and

dissertations have been selected to thematically analyze the data by classifying themes and patterns.

### **Evolving Concept of Security in IR**

Foregoing theories of IR do not encompass a variety of issues and energy is not the constitutive factor. The realist paradigm of International Relations mainly underpins the Cold War security pattern in which achieving security, survival and territorial integrity were the prime objectives of these self-interested actors (Hussain, [2012](#)). The neo-realists believe that in an anarchical structure, therefore they enhance their security by building armaments and forming alliances that generate "security dilemma". Hegemonic Stability Theory indicated that a single dominant power or a hegemon can stabilize the international system.

Liberal thinking of achieving security is related to economic interdependence and cooperation among actors in the international sphere. Neoliberals focused on international institutions play a key role in cooperating global community. Copenhagen School for security studies founded by Barry Buzan challenged the state as a major referent of security and broadened and widened the concept of security incorporating human security approaches that encompass, environment, economic health security, personal security, community and political security and feminism.

Energy security is a significant constituent of power politics explaining the uninterrupted availability; distribution and access of resources at an affordable price. It is composed of several components (demand, supply, access, reliability and environment) based on complex interactions between different energy systems, actors, and institutions that have a strong connection with environmental stability (Winzer, [2012](#); Ang, Choong, & Ng, [2015](#)).

Energy supply includes the availability and diversity of liveliness sources, such as lubricant, gases, petroleum, nuclear-powered, and other renewable energy. The stability of the energy supply can be affected by factors such as geopolitical tensions, natural disasters, and infrastructure failures. Energy demand includes

the level and growth of energy consumption and its efficient use. Population growth and economic progress have an impact on energy demand. Energy infrastructure is based on production, distribution, and transmission that include pipelines, transmission lines, and storage facilities. Energy markets are supply and demand, price volatility, and market regulation that could impact the energy markets. Energy governance includes the policies, institutions, and regulations that govern the energy sector, such as energy security strategies, energy subsidies, and energy efficiency standards that can be affected by factors such as political and economic institutions and international agreements. Energy resilience includes the ability of the energy system to withstand and recover from disruptions, such as cyberattacks, natural disasters, and supply disruptions (Sharifi, & Yamagata, [2016](#); Amin, [2008](#)).

### **Geographical Potential of Pakistan**

China and Pakistan are time-tested friends and their strategic ties are further deepening after signing CPEC, a flagship project of BRI that is a multi-billion project and a mega developmental strategy in history aimed at international connectivity and integration, unearthed in October 2013. BRI will connect Europe, Asia, and Africa in 68 countries which account for two-thirds of the world's population through the "Silk Road Economic Belt" and the "Maritime Silk Road" with a gigantic amount of US\$ 1 trillion (Mirza, Fatima, & Ullah, [2019](#)). The original Silk Road basically arose throughout the westward expansion of China's Han Dynasty, which remained in the ideational realm that has now been realized.

During Chinese President Xi Jinping's visit in 2015, Pakistan and China inked the CPEC deal that triggered a new era of economic development and growth through their intersubjective understanding. This project enables China to detour the hotspots of the South China Sea and Strait of Malacca to reach abundant power resources and growing markets in the Middle East and Africa. Chinese realized Pakistan's geographic potential of connecting the landlocked Central Asian Republics, West Asia,

and Europe through railways, highways, sea lanes, pipelines and transmission lines (Rizvi, [2015](#)).

China is the second-largest consumer of energy (Fenson, 2013 Jan. 23). 83% of China's oil is imported by sea, and 77% travels through the Strait of Malacca, which could potentially cause gridlock for China due to enduring issue South and East China Sea, pirates' attacks and the omnipresence of US and Indian navies. China connected with Pakistan to reach the Arabian Sea to resolve this issue (Anwar, Wuyi, Shah, Ullah, Amir & Syed, [2022](#)). The current energy sea route, however, is 12,900 km long and was famously termed China's "Malacca Dilemma" by the prior Chinese Head Hu Jintao. China's substantial confidence in this particular obstructing point, the Canal of Malacca, makes it susceptible to disturbance. So the government of China suggested a different oceanic route from the Port of Gwadar, which is just 2,000 kilometres away from the city of Kashgar in Xinjiang to minimize this interruption. The suggested route falls under CPEC. Pakistan's land and maritime connections with East Asia, Central Asia, and the Middle East enable Gwadar Port to serve as a BRI trade hub.

Since Pakistan is a pivot to Asia, it is the keystone to Beijing's future development vision of the world. CPEC is a game changer multi-billion, and multi-sectoral infrastructural development project that is designed in a manner to respond to Pakistan's all economic challenges. Achieving political stability and upgrading the energy sector are only two of the various objectives that can be accomplished by building the framework for stronger regional cooperation and economic progress. It seeks to build an efficient road infrastructure. This strategic initiative also aims to foster social interaction to encourage cultural exchange, information sharing for urban-rural development, and the establishment of industrial zones (Mirza, Fatima & Ullah, [2019](#)). After fruition, Pakistan will reap the benefits.

### **China-Pakistan's Energy Cooperation under the Umbrella of CPEC**

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Since energy security is critical for economic

growth. The energy cooperation was not initially listed in CPEC. Basically a reviewed variety of "Vision and Actions on Energy Cooperation" was released in May 2017 (Yu, [2018](#)) titled as Pak-China Energy and Economic Corridor (PCEEC) (Hussain, Yu & Sohail et al. [2020](#)). For a common global energy future, in 2019, The Belt and Road Energy, Partnership (BREP) were developed.

Pakistan's financial crunch has become worst. One of the major reasons is a serious energy crisis. Its energy cohort is heavily dependent on oil and natural gas to run its industrial, agriculture and service sectors that have compelled Pakistan towards energy imports. Fluctuations in international oil prices have negative effects on several economic sectors in terms of energy accessibility and affordability (Mirza, Fatima & Ullah, [2019](#)). China, an all-weather strategic cooperation partner of Pakistan, has already collaborated in its nuclear energy sector in the 1970s (Khalid, [2020](#) Feb. 12). This energy cooperation was aimed at enhancing the energy investment to boost energy infrastructure projects and uphold cooperation in clean energy including the construction of energy pipelines, electricity transmission grids and lines, logistic facilities and technological cooperation that will increase the indigenous production, decrease the energy import, strengthen national economic growth and generate thousands of employment opportunities and drive the country towards greater energy independence (Nazir, [2020](#) Dec. 17).

A gradual transformation towards the energy mix has been visible. Numerous energy projects in CPEC are increased with untapped renewable energy shares such as solar, wind, hydro and low-carbon energy that will be 30 per cent by 2030 and lessen the cost of imported fuel and have an enormous impact on the state's national strategy and greater potential for economic development (Hao, Shah & Nawaz et al, [2020](#)). China's state-owned Exim Bank funded a huge financial outlay to overcome the energy crisis by investing \$33 billion in multiple projects. China's energy policies have an important influence on the world energy structure because it is currently the 2nd-largest economic and energy consumer state in the

world. In 2013, China's fuel mix included coal (70.6%), oil (19.9%), gas (5.6%), hydroelectricity (3.13%), and nuclear energy (0.4%). Due to socioeconomic advancement and industrial development, China's oil consumption has increased significantly over the past years (Shaikh, Ji, Fan, 2016). This partnership will counter the looming energy shortfall and will mitigate climate change hazards faced by Pakistan. The successful completion and implementation of these projects will improve industrial production, and trade and offer 2.3 million new job opportunities that will have a spillover effect on people's quality of life and community poverty reduction.

### **Coal-fired Power Plants**

The majority of the energy projects under CPEC involve coal-fired power plants, which are being constructed in several locations in Pakistan. The

largest coal-fired power plant under CPEC is the 1,321 MW Sahiwal Coal Power Plant in Punjab, which was completed in 2017 and is currently operational, 1,320 MW Port Qasim Power Plant in Karachi, 1,321 MW Hub Balochistan and the 660MW Engro Thar with imported coal that is all operational and producing 4620 MW of electricity. 1320 MW SSRL Thar Coal Block-I power plant is in progress and almost 70 per cent of the work is completed. Other coal-fired power projects include the 660 MW Engro Thar Block II power plant in Sindh and as far as the 660 MW HUBCO Thar Coal power plant is concerned, almost 75 per cent of work on this project is already completed. Fifty per cent work on the 660 MW HUBCO Thal Nova power plant is completed. 300MW Coal-Fired Power Project is an underway project (Rashid, Zia, & Waqar, 2018; Dadwal, & Purushothaman, 2017). More than 18000 jobs have been created through coal-fired power projects.

**Table 1**

<b>#</b>	<b>Project Name</b>	<b>Installed Capacity</b>	<b>Project Progress Update</b>	<b>Jobs Created</b>
1.	Sahiwal Coal-fired Power Plant (Sahiwal, Punjab)	1320 MW	operational since 2017 and now connected to Pak- the national grid in 2019	3770
2.	Coal-fired Power Plant (Port Qasim, Sindh)	1320 MW	Completed in 2018 and operational	4000
3.	China Hub Coal Power Project (Hub, Balochistan)	1320 MW	Completed in 2019 and currently operational	4200
4.	Engro Thar Coal Power Project (Thar-Block-II Sindh)	660MW	Completed in 2019 and currently operational	3000
5.	SSRL Thar Coal Block-I 7.9 mtpa & the Power Plant (2×661MW) (Shanghai Electric) (Thar-Block-I, Sindh)	1320 MW	66% work Completed	2000
6.	HUBCO Thar Coal Power Project (Thar Block – II, Sindh)	660 MW	73% of work completed	805
7.	HUBCO ThalNova Thar Coal Power Project	660 MW	51% work completed,	305
8.	Coal-Fired Power Project at Gwadar (Baluchistan)	300MW	Project Proposed	1000

### **Solar Power Project under CPEC**

Solar energy is another important form of clean and environment-friendly source of energy. Like other renewable sources of energy, Pakistan is quite rich in solar potential which is the

alternative to costly and insufficient supply of electricity to address the acute electricity crisis.

Under the CPEC framework, several solar power projects have been initiated in Pakistan, including the most significant one being the 1000

MW Quaid-e-Azam Solar Park sited at Bahawalpur, Punjab, which was completed in several phases (Rasheed, Kanwal, & Abbas, 2022; Ali, 2018). Sukkur Solar Power Project is located in Sindh province and has a capacity of

200 MW. Solar energy projects, both at small and large scales, are encouraged beyond CPEC projects and proposals are being floated to install solar energy in public sector organizations in Pakistan to manage the electric shortfall.

**Table 2**

S. No	Project Name	Installed Capacity	Project Progress Update	Jobs Created
1.	The Quaid-e-Azam Solar Park in (Bahawalpur, Punjab)	1,000 MW	The 400 MW project, completed in August 2016 & 600MW under Implementation	1200
2.	Sukkur Solar Power Project (Sindh)	200MW	Construction started in 2022	700 locally created jobs

These solar power projects are expected to significantly increase Pakistan's renewable energy capacity, which is crucial for the country's sustainable development. The development of these projects is also expected to create job opportunities and boost economic growth in Pakistan.

### Wind Power Projects under CPEC

Pakistan is a coastal country that is substantially enriched with wind power potential but this potential is still untapped. CPEC includes wind power projects and the most significant one is the 660 kV Bipolar Matiari-Lahore HVDC transmission line project, which will transmit 4,000 MW of electricity, which is one of the partnership's key initiatives. It will also be the first transmission line project in Pakistan to be developed by the private sector. This project will be Pakistan's first HVDC transmission line. Three repeater stations, a transmission line, two converter stations, and two electrode-grounding stations, are located at Matiari and Lahore.

Jhimpir Wind Power Project is located in the Thatta district of Sindh province, this project has a capacity of 50 MW and was completed in 2017. It is owned and operated by Sachal Energy Development (Pvt.) Limited. Other wind power projects include the 50 MW Sachal Wind Power Project and the Dawood Wind Power Project located in the Keti Bandar Wind Corridor in the Sindh province and have a capacity of 50 MW. It was completed in 2019 and owned by Dawood Power (Pvt.) Limited. Three Gorges Second Wind Farm Project has a capacity of 100 MW and is located in the Sindh province. It is owned by the Three Gorges Second Wind Farm (Pvt.) Limited and was completed in 2018 (Baloch, Chauhdary, Ishak, Kaloi, Nadeem, Wattoo, & Hamid, 2019). UEP Wind Farm in Thatta, Sindh has 100 MW that is completed in 2017 and is currently operational. 1320MW Thar Mine Mouth Oracle Power Plant & surface mine (Thar Block-VI, Sindh), 50MW Cacho Wind Power Project (Thatta, Sindh), 50 MW Western Energy (Pvt.) Ltd. Wind Power Project (Thatta, Sindh) is in the letter of intent stage.

**Table 3**

S. No	Project Name	Installed Capacity	Project Progress Update	Jobs Created
1.	Hydro China Dawood-Wind Farm (Thatta, Sindh)	50 MW	Completed in 2019 and currently operational	500
2.	UEP Wind Farm (Thatta, Sindh)	100 MW	Completed in 2017 and currently operational	900
3.	Sachal Wind Farm (Thatta, Sindh)	50MW	Completed in 2017 and currently operational	450

S. No	Project Name	Installed Capacity	Project Progress Update	Jobs Created
4.	Three Gorges Second and Third Wind Power Project (Thatta, Sindh)	100MW	Completed in 2018 and currently operational	950
5.	Matiari to Lahore ±661 KV HVDC Transmission Line Project (Sindh and Punjab)	4,000MW Evacuation Capacity	Completed in 2021 and currently operational	2212
6.	Jhimpir Wind Power Project (Thatta, Sindh)	50 MW	completed in 2017	
7.	Thar Mine-Mouth Oracle Power Plant & surface-mine (Thar Block-VI, Sindh)	1320 MW	letter of intent stage	
8.	Cacho Wind Power Project (Thatta, Sindh)	50MW	letter of intent-stage	
9.	Western-Energy (Pvt.) Ltd. The Wind Power Project (Thatta, Sindh)	50MW	letter of intent stage	

*These projects are expected to contribute significantly to Pakistan's energy mix and help the country meet its growing energy demand.*

### **Hydropower Project under CPEC**

Energy-economy-environment is described in sustainable development goals in Pakistan. Therefore, in addition to coal-fired power plants, CPEC also includes hydroelectric power projects. Hydel potential under CPEC is aimed to produce more than 40,000 MW of electricity that has not been exploited yet because huge investments are essential. The most significant hydroelectric power project is the Karot hydropower project which is situated on the Jhelum River in Punjab with a capacity of 720 MW. This project was completed in June 2021 and since then, it became operational (Rashid, Zia, & Waqar, 2018). It was executed by Karot Power Company Ltd. (KPCL), China Three Gorges (CTG), China Three Gorges South Asia

Investment Ltd (CSAIL), and China Three Gorges International Corporation (CTGI). Considering the massive hydel potential of the country, this project produces just 720 MW of electricity but it's in line with the SDGs agenda of clean and affordable energy. 70per cent of the 884MW Suki Kinari hydropower project is completed and it is situated on River Kunhar, a tributary of River Jhelum. This project is also a joint venture between Pakistani and Chinese companies. 1124MW Kohala and 700.7MW Azad Pattan hydropower projects are in the initial phases of their construction. This hydropower generation is below par and needs to be enhanced over longer periods. More than 20,000 jobs are created by this hydropower project (Ullah, Raza, & Mirza, 2019).

**Table 4**

S. No	Project Name	Installed Capacity	Project Progress Update	Jobs Created
1.	Karot Hydropower Project (River Jehlum, Punjab)	720MW	Completed in 2021 and currently operational	4870
2.	Suki Kinari Hydropower Project (Kunhar River, KP)	884MW	70% work completed	4250
3.	Kohala Hydropower Project (Jhelum River near Muzaffarabad)	1124MW	Project Underway	7500
4.	Azad Pattan Hydropower Project (AJK, Punjab)	700.7MW	Project Underway	3000

## Nuclear Energy Projects under CPEC

A shift to nuclear energy has been visible. The construction of Chashma-1 or C-1 started in 1993 and it became operational in 2000. The plan to construct Chashma-2 or C-2 was agreed upon in 2005. To bridge the gap between energy demand and supply, China National Nuclear Corporation (CNNC), in collaboration with PAEC agreed to construct C-3 and C-4 at the Chashma site. Both C-3 and C-4 became functional in 2016 and 2017 respectively. It is argued by a few analysts that C-3 and C-4 were constructed in response to the US-India civil nuclear deal agreed upon in 2008. KANUPP is Pakistan's oldest nuclear power

plant, which began commercial operations in 1972. The plant is located near Karachi and has a capacity of 137 MW. As part of CPEC, China is assisting to upgrade KANUPP's capacity to 1,100 MW. The construction of K-2 and K-3 was announced by China and Pakistan back in 2013 in Karachi each with a capacity of 1014 MW. Both of these projects are operational now adding substantial quantities to the existing nuclear energy in Pakistan. The overall vitality capacity of the first 5 nuclear power plants (K-1, C-1, C-2, C-3, and C-4) was 1318 MW. With K-2 and K-3 being operational, it is expected to generate 3346 MW by 2022 (National Electric Power Regulatory Authority, [2016](#)).

**Table 5**

S. No	Project Name	Installed Capacity	Status
1	Chashma-Nuclear-Power Plant-1 (CHASNUPP-1 or C-1)	300 MW	Operational
2	Chashma-Nuclear-Power Plant-2 (CHASNUPP-1 or C-2)	300 MW	Operational
3	C3 and C4	315 MW	Operational
4	Karachi Nuclear Power Plant-2 (K-2)	1014 MW	Operational
5	Karachi Nuclear Power Plant-3 (K-3)	1014 MW	Operational

### Source: CPEC Authority

### Discussion, Analysis & Findings

#### Increase in Energy Availability

Currently, Pakistan is confronted with severe power outages and suffered the cost of Seven per cent of Pakistan's GDP which is 14 billion rupees lost last year. Millions of people lack access to the power grid. The average shortfall is 7,000 MW. Pakistan's consecutive governments' endeavours to increase the capacity of the grid are transient and these measures cannot produce an immediate result. The Chinese investment in Pakistan's energy sector, such as the development of the China-Pakistan Economic Corridor (CPEC), can help increase the availability of energy, reducing the impact of power shortages and promoting economic growth. In this scenario, industries of Pakistan severely shrank or are vulnerable to the use of diesel generators to fulfil the demands resulting in the downsizing of staff and the shutting down of industries. Over 500,000 households have been impacted (Javid, [2018](#) Aug. 31).

The CPEC project would add 17000MW of electricity generation capacity to Pakistan's grid, which is expected to help alleviate the country's chronic energy shortage (Khurshid, Rashid, & Zahid, [2018](#)). China has agreed on a huge sum of \$35 Billion in varied power generation and transmission projects. Shifting to alternative/renewable sources of energy such as hydel, wind and solar has great potential for Pakistan. However, the CPEC project has also been criticized for its environmental impact, particularly concerning coal-fired power plants. Numerous energy-related projects have been put on hold, and some are moving more slowly than anticipated. It is speculated that CPEC projects funded by China did not add the promised energy (Ali, [2022](#)). However, a few projects have been completed, and the majority are in various stages of completion. Pakistan's severe energy crisis is therefore anticipated to be resolved if the remaining energy projects go as planned. No question CPEC-related energy-related projects have a significant potential to make Pakistan energy-independent. Chinese companies have been working on the ground to complete the



projects and handle all of this procurement. FDI or loans taken out by Chinese companies from Chinese banks accounts for three-fourths of all financing. Due to huge revenue generation, repayment won't be a problem.

### **Job Creation**

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The development of new energy infrastructure, such as power plants and transmission lines, will require significant employment opportunities on a long-term basis during the construction and operational phases will contribute to developing Pakistan's economy. Ample workers are needed to build transmission lines, substations, power plants and related infrastructure. This can create job opportunities for Pakistanis, reducing unemployment and poverty. During the operationalization phase, a skilled labour force will be needed to maintain and operate them. CPEC has 60,000 local employees. Due to a lack of skilled workers in Pakistan, only engineers and highly skilled workers are foreigners (Ali, [2022](#)).

### **Business Opportunities**

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Energy is an important driving force to upgrade economies (Pokharel, [2007](#)). A vast literature has found that higher energy production caused economic growth (Hou, [2009](#)). Along with providing locals with employment opportunities, CPEC offers numerous opportunities for various businesses to prosper. In the "Pakistan Economic Survey 2016-17," for instance, it was noted that the use of locally available construction materials has increased significantly as a result of increased demand from CPEC projects. These materials include cement, iron, steel, glass, and other building materials. To meet transit needs, more trucks and other heavy-duty transport vehicles are being produced (Khurshid, Rashid, & Zahid, [2018](#)). There are potential opportunities for companies to manufacture energy-related infrastructure. There have been ample jobs created in the I.T. sector and software development jobs and local resources have been utilized. CPEC projects have generated thousands of employment opportunities for local workers. This has a severe impact on the country's economy, particularly on industries and

small businesses (Ali, [2022](#)). This will also attract foreign investors and entrepreneurs resulting in generating a competitive environment leading to increased economic activity.

### **Reduction in energy costs**

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China-Pakistan Energy Cooperation can also help reduce the cost of energy for domestic consumers by increasing the energy capacity. Currently, many Pakistanis rely on expensive diesel generators and other alternative energy sources due to the high cost of electricity. The development of new power plants and other infrastructure including renewable sources such as coal, hydro, nuclear, solar and wind can help bring down the cost of energy by reducing the dependence on costly imported oil and making it more affordable for households and businesses.

### **Improved living standards**

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Energy is a significant factor to foster the quality of life and provide socioeconomic progress (Enu, [2014](#)). Developing economies are striving to preclude the energy shortfall by enhancing their energy services (Toman and Jemelkova, [2003](#)) through numerous collaborated projects. China-Pakistan Energy Cooperation has the potential to play a significant role in reducing poverty in Pakistan by increasing access to affordable and reliable energy as well as state-of-the-art amenities that require electricity generation. The policymakers have placed a heavy emphasis on several standards to attain these sustainable development goals (SDGs), which impact the well-being of the community. For instance, it has given possibilities for the performance of competing enterprises under CPEC projects in the area. In the long run, the regional energy market will present innumerable business and employment prospects for the indigenous community, natives, and foreign communities. Increased access to affordable and reliable energy can also improve living standards in Pakistan by improving the entire infrastructure including roads, bridges, transport and access to distant areas. Moreover, with increased availability of energy sources better health and modern education infrastructure using electronic

devices to increase the learning experience. Households will no longer have to rely on kerosene lamps or other hazardous sources of lighting which reduces the risk of fires and other accidents. Additionally, access to energy can improve access to education and healthcare, as schools and hospitals can operate more effectively with reliable electricity. By making Pakistan an energy hub, this cooperation foresees regional socioeconomic development, enhancing people's well-being, and promoting domestic peace and stability by adding a cluster of

industries such as manufacturing, textile and agriculture. The existing industries can function at full capacity by increasing productivity and efficiency resulting in increased exports, trade and foreign exchange reserves that would have a spillover effect on the overall GDP of Pakistan. This is a total win-win synergy for development. Overall, China-Pakistan Energy Cooperation has the potential to reduce poverty in Pakistan by increasing energy availability, creating job opportunities, reducing energy costs, and improving living standards.

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