

China Pakistan Economic Corridor: An opportunity to development of energy sector in Pakistan

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Abstract

This paper is dealing with China Pakistan Economic corridor (CPEC) and its multi-project program that is consists of energy, infrastructure and technology programs which is constructing in Pakistan through various phases. The objective of this research is to study about these energy projects and the project details that how the big investment by China in Pakistan bring a transformation in energy and technology sector and how Pakistan seize this opportunistic situation by good planning and policies. The part of silk road initiative (SRI) CPEC is a big investment in Pakistan. Most of the MoUs of CPEC are consists of energy sector in which Pakistan is facing alarming situation. Pakistan has a good environment and vast natural resources that can use into planning of energy. CPEC energy projects are consists of various mode of production; solar, wind, coal, hydel and electrode stations. The long term project goals are very high and with the development in energy sector and good policies the project will provide avenues to Pakistan's economy. The cooperation in energy sector is expected to ease the energy sector crisis. The question is also address in this paper that whether Pakistan will absorb such big investment and what would be the requirements be done by planners to achieve the determined goal of CPEC energy projects. As Pakistan is putting all its energies to ensure the determined results from

this big project as it is the largest foreign direct investment in Pakistan.

Key words: CPEC, Energy, Pakistan, China, Technology

Introduction

China-Pakistan Economic Corridor (CPEC) is a long term project between the two neighboring states of Asia China and Pakistan. The framework of this project has the capacity of bring prosperity in the region especially for the Pakistan. This project is considering as the new avenue for Pakistan's economy. The idea of CPEC presented by Chinese Premier Li Keqiang in his visit to Pakistan in May 2013. CPEC is the part of China new vision of building Silk Road. The both governments have put their special interest in this project. Chinese Premier Li Keqiang gives \$46 billion [1] investments plan to build this corridor in his visit to Pakistan. This is China's big investment to any country in the world. In this plan, the construction in energy sector, motorway, railway lines, special Economic Zones (SEZs), investment in technology and communication sector are part of this project. Corridors are important segment of economic co-operation and development. The route of this corridor is from Gwadar from Pakistan's province Baluchistan to Kashghar located in North-West side of China. Gwadar is located on Arabian Sea and has

very significant geostrategic location. The corridor will give a small route to Xinjiang to access the Arabian Sea. [2]

This mega project is an opportunity to address the energy sector problems and overcome the shortage of energy production in Pakistan. Pakistan has small economy but has many natural resources but we don't have power and money resources to gain benefits from it. CPEC is an opportunity to dig up these resources and bring development in Pakistan. CPEC will bring developments in various stages and its first priority is energy sector in which energy will be generating through coal, thermal, solar and wind projects. This big FDI is equal to FDI investment in Pakistan since 1970. [3].

CPEC energy projects and its implication

In globalized world economy of countries are intertwined between developed and developing countries. These connection need strong structure and mode of transportation that can link two countries make economic activities empirical. Pakistan being a developing country got an practicable opportunity with the announcement of CPEC. Pakistan was already facing shortage of energy when CPEC was announced so the authorities and planners of CPEC give urgency to those projects of CPEC that is related to energy. In fiscal year of 2013 Pakistan energy production was 11,267 MW and the average demand was 15,266 MW similarly in fiscal year of 2014 the energy production was 11,924 and demand was 15,774 MW. [4] The demand in power increased in every coming year.

Pakistan is suffering badly in energy sector from a previous decade. The issues related to this sector are many like indigenous energy sector resources are very limited. The import burden on energy sector is

so heavy that cause into high per unit electricity and load shedding. Due to limited resources country can't use natural resources and use new technologies. The CPEC gives a new life to energy with renewable energy resources like coal, wind, thermal and solar. Investment in these sector not only bring economic activities and energy in Pakistan but also advancement in this sector. The use of alternative and renewable energy sources will bring less burden on expensive and regular sources like electricity and natural gas.

The total 17,000 MW energy will add to power generation at the approximately cost of \$34 billion. The china will provide loans to its private companies to execution of these projects. The government of Pakistan will buy these energy to pre negotiated prices. Tentatively the projects will be completed in the time period of 15 years. The more importantly the army personnel is providing security to these companies workers to work under them. [5]. The other important part of CPEC investment in energy sector that China is solely funding this sector while other projects are part of other private parties and banks as Development Bank, Silk Road Fund, New Development Banks, and Chinese Banks. [6]

The initial investment proposal of \$46 billion is almost 20% of Pakistan's annual GDP. This big FDI is equal to FDI investment in Pakistan since 1970. [3].

Table. 1 foreign direct investments (FDI) to Pakistan from 2004 to 2014

Years	US\$ Billion
2004	1.1
2005	2.2
2006	4.3
2007	5.6

2008	5.4
2009	2.3
2010	2.0
2011	1.3
2012	0.9
2013	1.3
2014	1.8

Source: Behind China's Gambit in Pakistan

(n.d) Retrieved 2016
<http://www.cfr.org/pakistan/behind-chinas-gambit-pakistan/p37855>

This table shows us the FDI in Pakistan from 2004 to 2010. The lack of investment figures speaks itself. In this scenario the Chinese investment plan in Pakistan with huge amount of \$46 billion [1] is an opportunity to discuss its problems and deal with energy crisis.

Pakistan and China signed 51 MoUs under CPEC. These MoUs of CPEC related to energy sector are one of the main areas of investing in Pakistan. There are almost 24 energy projects under CPEC. In which 16 are energy priority projects and other 8 are energy actively promoted projects. The priority projects are worth of \$21,486 million and these will produce 10400 megawatt energy. The actively promoted projects are worth of \$12927 million and will produce 6645 megawatt energy. In this way the total worth of energy projects are \$34,413 million and 17045 megawatt total energy will be produce. [7]

Table 2. CPEC Energy projects

o	Projects	W	Estimated Cost US Million\$	Characterizations of projects
	Port Qasim Electric Company Coal Fired, 2X660	320	,980	Priority based
	Sahiwal 2x660MW Coal-fired Power plant, Punjab	320	,600	Priority based
	EngroThar 4x330MW Coal-fired, Thar, Sindh Surface mine in block II of Thar Coal field, 6.5 mtpa, Thar Sindh	320	,000 ,470	Priority based
	Gwadar Coal Power Project, Gwadar	00	60	
	HUBCO coal power project, Gwadar	60	70	
	Rahimyar Khan Coal Power Project, Punjab	320	,600	
	SSRL Thar Coal Block 1-6.5mtpa Thar, Sindh SSRL 2x660 MW Mine Mouth power plant	320	,300 ,000	

	Quaid-e-Azam 1000MW Solar Park, Bahawalpur, Punjab	000	,350	
	Dawood 50MW wind Farm, Bhambore, Sindh	0	25	
0	UEP 100MW wind Farm, Jhampir, Sindh	00	50	
1	Sachal 50MW Wind Farm, Jhampir, Sindh	0	34	Priority based
2	Sunnec 50MW wind Farm, Jhampir, Sindh	0	25	
3	SukiKinari Hydropower Station, KPK	70	,802	Priority based
4	Karot Hydropower station, AJK & Punjab	20	,420	
5	Matiari to Lahore Transmission line		,500	
6	Matiari to Faisalabad transmission line		,500	
7	Gaddani Power Park Project (i)	320	,960 ,200	

	(ii)			
8	HUBCO coal power plant 1x660 MW, Hub Balochistan	60	70	
9	Salt range Mouth Power Project including mining, Punjab	00	00	
0	KohalaHydel Project, AJK	100	,397	
1	Pakistan Wind Farm II 2x50 MW (Jhampir,	00	50	

	Thatta, Sindh)			
2	Thar mine mouth oracle, Thar Sindh	320	,300	Priority based
3	Muzaffarg arh Coal Power Project, Punjab	320	,600	
4	Gas Power Plant 525 MW	25	50	
	T otal Energy Projects	7045	4,413	

Source: Ministry of planning development and reforms (n.d) Retrieved <http://cpec.gov.pk/energy>

Coal

Pakistan is having a large amount of coal reserves. In Tharparkar desert in Sindh, its estimated that at least 185 billion ton coal is located there. Coal electricity is considered as the cheap resource. In 2004, Pakistan government estimated that if half of the coal reserved used in power generation it could produce 100,000 MW electricity that could be enough for next 30 years. CPEC bring an opportunity to Pakistan to use these coal reserves. From 10 coal projects, 5 projects will use local coal reserves while other 5 will use imported coal. The Thar coal plant will use subcritical technology while the imported coal will use supercritical technology. Supercritical plant need more cost than subcritical. Coal plants are designed to produce 69% of CPEC energy. [6]

The Sahiwal Coal power project or plant is set to be the first project of CPEC that is completed. The project was worth of \$1.8 billion and it will produce the 1320 megawatts of electricity. The completion

of such projects is the motivation for the whole project. Because of this project the economic activities in Sahiwal and Okara city will increase. The project is built between these two cities. Knowing the security concerns in Pakistan, the special security arrangements were done for this project. The project is located just 10 km far from the Okara cant. [8] The project is constructed by two Chinese companies, China's state-owned Huaneng Shandong and Shandong Ruyi Science & Technology Group having the shares of 51% and 49%. The Government of Punjab has provided them free land for this coal power plant. The coal from this port imported from Indonesia and South Africa at the Port Qasim and Port of Karachi [9]

As with the Pakistan Port Qasim Power Project, most of the coal used for the power plant will be imported from Indonesia and South Africa, and will be transported by rail from the Port of Karachi and Port Qasim in Pakistan's Sindh Province. [10]

Hydro

These power plants are meant to produce energy through natural resources. these resources include water resources. Hydroelectrical means of production are clean and non-pollute means of production. They are environment friendly. Meanwhile, by taking the good advantage from hydro power plants the government should make dams and save water. The dams are the best option to cover the crisis of energy and its long term effects are very high. Moreover, government of Pakistan should take it seriously to plan more dams as the climate change and water crisis is becoming a reality and dams are the best solution to this. In priority bases energy projects there are only three projects related to hydro. [11]

Previous planning minister Ahsan Iqbal said that in next phase of the energy projects of CPEC will be transferred into hydropower resources on Indus river. And the discussion will be conducted to become the part of Dia Mir bhasha dam into the CPEC project. [12]

Wind

The wind energy projects under CPEC are very few. But in Pakistan this would be the first time the wind energy in such level will contribute in energy supply. China itself is a big producer of wind energy and an example to others as he is the largest wind energy producer in the world. And his experience in wind sector will help Pakistan to do further work in this solar energy production. Apart from CPEC projects related to wind, Pakistan government must be promote the local production of wind by providing maximum support and awareness, especially in those area which are suitable for wind energy. The local production can ease the local demand of energy and in general contribute the Pakistan s energy demand

Solar

Solar power plants are good option to produce energy and it is also environmental friendly and no production of carbon and pollution. The solar park is design in Cholistan near Bhawalpur district in Punjab province. This solar plant will add 1000 MW electricity to national grid. It is said that this solar plant is the largest plant in the Asia. The renewable energy in plant in Bahawalpur district will provide the opportunities to local market and local businessmen.

Effort Required

The planning need to be done by the government of Pakistan to promote the long term planning in energy. China on the other hand has been working

hard to maintain its glory as the economic power is contributing its best effort to restore the energy crisis in Pakistan. Pakistan's economy is facings stumbling block just because the energy crisis. A large number of Pakistani is facing shortage of energy and hours of load shedding. These energy projects will enhanced the energy supply to household, local industry and will create a sense of recreation in the economic activity hub. [2]

The good management launch the programs to give awareness and implementation of the projects related to energy and especially related to CPEC energy projects. CPEC is becoming the show case for Pakistan and Pakistan can do the efforts to utilize the programs and funds to become an economic hub. Efforts are required and delivery of these projects must be reliable and organized. Of course this is not as easy when a dismal economy and severe shortage of energy is a big hurdle but some corners can be done. Like the corruption, equality of distribution of energy, law and management should be implemented properly. [13] The planning commission to look after the implementation of the projects. Especially project related to coal power that may cause the health issues must be look into. Pakistan planning commission must look into more options and previous energy projects like Dia mir Bhasha Dam and Nandi pur projects. The planning must do the regulatory work to not allow any misunderstanding and mistakes. [14]

Conclusion

CPEC is becoming the biggest investment in Pakistan by any country since its inception. There is always long term consequences of an investment in a country, its economy and its local market. CPEC has the credibility to reform these sectors in Pakistan and restore the energy development. It is very important for Pakistan and its authorities to look into the opportunities of CPEC and work broader to bring

the development framework in each sector especially in energy which is becoming the main hurdle in every economic activity as energy is directly link to economy activities. It is an opportunistic situation that China is bringing all the natural resources of Pakistan to overcome the energy crisis and renewable resources are going to be successful in coming years. Similarly with the completion of these projects the Pakistan will overcome the energy crisis and almost 10,000 MW of electricity will produce. But we can't ignore the fact that most of the energy projects are based on coal plants and coal plants produce the unhealthy carbon that is dangerous to health. The priority bases programs mostly consist of coal plants and hydro and solar and wind projects are very few. There should me projects that are environmental friendly and comparatively cheap and sustainable.

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