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CHINA PAKISTAN ECONOMIC CORRIDOR (CPEC)- AN ECONOMICALLY VIABLE SOLUTION TO THE ENERGY CRISIS OF PAKISTAN

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Abstract

The work of this thesis primarily revolves around the viability of China Pakistan Economic Corridor (CPEC) in solving the problems of Pakistan. It explains that whether CPEC can economically solve the problem of energy crisis in Pakistan or not. The impact of electricity will then be seen on the GDP and Economic development of Pakistan. The research methodology used in the study follows both qualitative and descriptive approach. Moreover, technique of comparative analysis has been used to show the impact of various growth rates of electricity production on the economic development of the country. GDP has been used as the dependent variable. Growth of electricity production has been used as the independent variable. The first step of the methodology involves a questionnaire, which aimed at finding out the point of view of Pakistanis regarding the major problems of Pakistan and as well as on CPEC. In the second step, this study shows that how the most important problem of Pakistan i.e. electricity shortfall have affected the Gross Domestic Product (GDP) of the country and as well as the economy of Pakistan. The results show that CPEC will actually solve the major

economic problems of Pakistan and will not only increase its GDP but will also make it stronger both socially and economically.

Keywords: China Pakistan Economic Corridor, Electricity, Gross Domestic Product, Comparative Analysis

Introduction

Pakistan is situated in a region which has immense political, economic and strategic importance. It has been the hub of activities of world powers for the last 20 years. It has witnessed interpolation of three great powers i.e. Britain, USSR, and USA. Apart from that in its neighbor's one world power Russia and the other emerging power China lies. It has China that has always supported Pakistan's economy by different projects.

China Pakistan Economic Corridor or CPEC as it is commonly known is one of another long term project that will not only strengthen the bond between China and Pakistan but will also help Pakistan to solve its major problems of electricity shortfall and as well as poor infrastructure. CPEC promises to be an economically viable solution to the problems of Pakistan. The motive of this research paper is to find out that whether CPEC is going to help Pakistan solve its major problem of electricity shortfall.

Electricity production means to use available esources such as water, coal, oil and gas to produce electric energy. The greater the creation of electric energy the greater will be the production of electricity and the smaller will be the shortfall on energy.

The smaller the electricity shortfall, the lesser the problems of Pakistan would be. The fundamental point of this paper is to study the impact of CPEC on electricity shortfall and in turn on the economic development of the country.

Research Aim

The research objective of this study is to find the impact

of production of electricity on its Gross Domestic Product and also on its overall economic development.

The purpose of this research is to demonstrate that whether CPEC will actually help Pakistan to prosper economically by solving its problem of energy shortfall or not.

Research Question

The research questions that will be answered in this study are:

- Is there any relationship between electricity production and economic development of the country?
- Is CPEC the solution to the energy crisis of Pakistan?

Research Design

Secondary data has been used. It has been obtained from various sources including articles, Internet, newspapers and books. Statistics regarding electricity production and GDP has been taken from Ministry of Energy, World Bank, and Ministry of Communications. Two types of research approaches have been used to answer the research questions:

i) Qualitative

ii) Descriptive

Moreover, technique of comparative analysis has been used to show the impact of various growth rates of electricity production on the economic development of the country. GDP has been used as the dependent variable. Growth of electricity production has been used as the independent variable.

The relationship between the growth rate of electricity production with the growth rate in the GDP has been studied. The data from years 2000 to 2016 has been used. If in years when the growth rate in GDP is high, the growth rate of electricity production is also high then it means there does exists a direct relationship between the variables chosen.

Limitation of the Study

This study deals with CPEC which is a recent project that is currently under construction. It was, therefore, difficult and somewhat impossible to obtain the exact information and statistics regarding CPEC. It was difficult to obtain exact data such as per unit electricity cost, total generation capacity etc. The research has been done with whatever data updates that were recently available at the time of the research.

Theoretical Framework

This section basically explain the basic meaning and concept of the independent variable used in this study i.e. electricity.
Electricity is a form of energy that is a need for people living all over the globe. No activity, domestic or industrial, is possible without the use of electricity.
Electricity generation is the practice of producing electric power from by using various sources of primary energy. For electric efficacies, it is the first step in the delivering electricity to consumers. Other processes such as, transmission of electricity, its distribution, and electrical power storage and recovery using pumped-storage methods are generally performed by the electric power industry.
Electricity is usually produced at a power station by electromechanical generators, mostly energized by heat engines and are fuelled by combustion or nuclear fission. At times, the generators are also fuelled by the kinetic energy of flowing water and wind. Solar photovoltaic and geothermal power are some of the other energy sources.

A research was conducted by the International Energy Agency (IEA) for the period of 1981–2000. The study focused on energy being used in the production functions of some of the developing countries. It was concluded that, in comparison to the other variables used in the production funcion, it was energy that played a very prominent role in the growth of the economy of those developing countries which are at transitional stages of economic development (IEA, 2004). A rise in energy has seen to result in higher

growth and its shortage may result in a slowdown in the growth process, and economic growth may also affect the demand for energy considerably (Siddiqui, 2004).

Literature Review

This section reviews the work that has already been done by various researchers to show the impact of electricity production on the economic development and growth of any country. The table below summarizes the review of the literature relevant to electricity and GDP.

Author/ Researcher	Publication Year	Independent Variable(s)	Dependent Variable(s)	Conclusion
Morimoto & Hope (Srilanka)	2001	Supply of electricity	GDP	The relationship between supply of electricity and GDP is positive.1
Aqeel & Butt (Pakistan)	2001	Electricity, Petroleum	GDP	Increased use of all sorts of energy sources resources result in increased.2
Siddiqui	2004	Energy consumption	Economic activity	The relationship between energy consumption and economic growth is positive.3
Khan & Qayoom	2005	Electrical energy	Production efficiency	The efficiency of production has a close relationship with both, the direct or indirect use of energy.4
Akinlo (Nigeria)	2009	Electricity consumption	Real GDP	Electricity consumption is linked to GDP in a strong and positive way.5
Gbadebo (Nigeria)	2009	Energy consumption	GDP	There is a positive causal relationship between energy consumption and GDP.6

Atif & Siddiqi (Pakistan)	2010	Electricity production	Economic growth	An increased production of electricity leads to an increase in the pace of economic growth.7
Asafu-Adjayel	2010	Electricity consumption	GDP	Increased consumption of electricity industrial growth which resulted in increased GDP.8
Ozturk	2010	Electricity production	GDP	The higher the production of electricity the higher the GDP.9
Payne	2010	Electricity consumption	GDP	There existed a positive relationship between energy consumption and economic
Sher et al.	2011	Energy consumption	Industrial growth	Increased energy consumption resulted in the expansion of industrial and
Binh (Vietnam)	2011	Energy production	Economic growth	Increased use of electricity resulted in growth of GDP.12
Shahbaz et. al (Pakistan)	2011	Renewable nonrenewable energy resources	Economic growth	Energy sources are important and have positive impact on economic growth.13
Chaudhry, Safdar & Farooq (Pakistan)	2012	Energy shortfall	Economic growth	The shortfall of energy had a negative impact on the growth of Pakistan's economy.14
Liew et al.	2012	Energy supply	Industrial & agricultural growth	Energy supply led to higher growth in all sectors.15
Qazi et al.	2012	Energy consumption	Industrial growth	Electricity supply increases industrial output and hence

Jamil & Ahmad (Pakistan)	2013	Electricity demand	Real GDP	The higher the demand of electricity the higher is the GDP.17
Azeem & Ramzan (Pakistan)	2013	Energy consumption	Economic growth	Short fall of the supply energy resources had a significant negative impact on the economic growth of Pakistan.18
Narayan et al.	2013	Energy consumption, Population growth	Economic growth	Population growth affects energy consumption, which in turn affects economic growth.19
Yildirm et al. (USA)	2014	Electricity production	Real GDP	An increased production of electricity leads to an increase in the pace of economic growth and an increased real GDP.20
Raza et al.	2015	Energy consumption	Trade,economic growth	Trade increased due to higher consumption which resulted in economic growth.21

Findings and Discussion

This section establishes the relationship between production of electricity and the GDP of the country. It will also explain as to how CPEC will solve this problem of Pakistan.

Growth rate of Electricity Production

To find out the impact of the change of electricity production on the GDP of Pakistan it is important to find out the growth rate of electricity production. Data from year 2000 t0 2016 has been used and has been obtained from the World Bank. The growth rate of electricity production has been found out using the following formula:

$$\text{Growth Rate of Electricity production} = \frac{\text{Current year's Production of electricity} - \text{Last year's Production of electricity}}{\text{Last year's Production of electricity}} \times 100$$

The table below shows the production of electricity in Pakistan from year 2000 to 2016. It also shows the rate at which the production of electricity raised i.e. the growth rate of electricity production.

Table 1: Growth rate of Electricity Production (2000 – 2016)

Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
Electricity Production (Billion kWh)	63.00	69.00	72.00	77.00	81.00	90.00	94.00	91.00	88.00
Growth Rate (%)	1.61	9.52	4.35	6.94	5.19	11.11	4.44	-3.19	3.30
Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	
Electricity Production (Billion kWh)	91.00	90.00	90.00	93.00	93.00	97.00	104.00	108.00	
Growth Rate (%)	3.41	-1.10	0.00	3.33	0.00	4.30	7.21	3.80	

Source: World Bank

It can be seen that there has been a constant rise and fall in the production of electricity so thus in the growth rate. The growth rate of electricity production showed a fluctuating trend in years 2000 to 2004. The growth rate reached its highest of 11.11% in 2005. From 2005 onwards it showed a sudden and a

sharp decline and reached its lowest of -3.30% in 2008. The growth rate of electricity production improved afterwards. From 2010 onwards it again started showing fluctuating trends and after 2014 it kept on increasing.

Figure 1 shows the ups and downs in the growth rate of electricity production in Pakistan from 2000 to 2016.

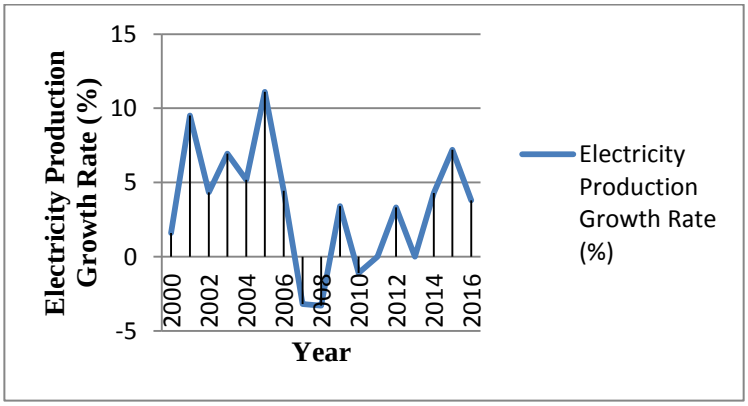


Figure 1: Growth Rate of Electricity Production

Growth rate of GDP

The growth rate of GDP has been calculated to show the impact, the independent variables i.e. electricity production and Infrastructure has on the economic development of the country.

It has been calculated using the following formula:

$$\text{Growth Rate of GDP} = \frac{\text{Current year's GDP} - \text{Last year's GDP} \times 100}{\text{Last year's GDP}}$$

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
GDP Growth Rate (%)	1.98	4.26	3.22	4.84	7.36	7.66	6.17	4.83	1.70

Year	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
GDP Growth RATE (%)	2.83	1.69	1.84	3.50	3.84	4.67	5.21	5.90

Table 3 has been formulated using the above formula to calculate the growth rate of GDP from year 2000 to 2016. Data has been obtained from the World Bank and for authenticity purposes it has also been counter checked with the Ministry of Finance of Pakistan as well as the State Bank of Pakistan.

Table 2: Growth rate of GDP (2000 – 2016)

Source: World Bank

The GDP growth rate has also been showing a fluctuating trend throughout the time period.The fluctuating trends of GDP show the changes in the atmosphere of the economy of Pakistan. The higher the GDP, the better the investment climate and the lower the GDP, the more unafavorable is the investment climate.

Figure 2 clearly shows the fluctuations and ups and downs in the GDP of Pakistan from year 2000 to 2016.From year 2000 to 2004 the GDP first increased and then declined a bit but afterwards it increased at a rapid speed. The GDP reached its highest in 2005. This means that in 2005 the economy of Pakistan had the most favorable investment climate, that offered high returns. After 2005 the Gross Domestic Product of Pakistan or GDP showed a sharp decline and reached its lowest in 2008. After 2009 onwards the condition of the GDP kept on improving and so the growth rate of GDP also kept on rising.

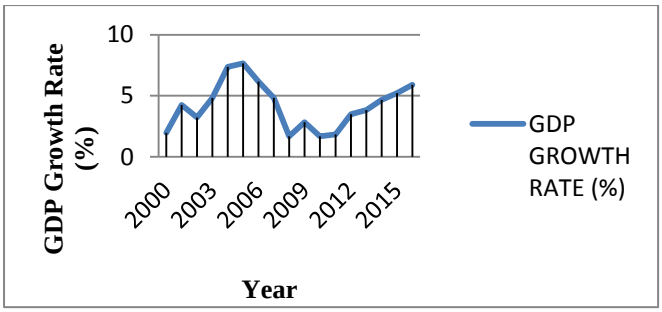


Figure 2: Growth rate of GDP

Impact of Electricity Production on GDP

To show the impact electricity production has on GDP, the graphs of growth rate of electricity production and growth rate of GDP have been drawn together on the same axis.
Figure 3 clearly shows that in years when the growth rate of electricity production was high, the growth rate of GDP was also high, and in years when the growth rate of electricity production was low, the growth rate of GDP was also low. The growth rate of electricity production was high in years 2000 and 2001 and so was the growth rate of GDP. In 2003 the growth rate of electricity production showed a declining trend and so did the growth rate of GDP. From 2003, onwards the growth rate of electricity production showed a sharp increase and it was followed by an increase in the growth rate of GDP in the same years. From 2006 onwards the growth rate of electricity production showed a declining trend and so did the growth rate of GDP. The same can be observed for years later on. The black arrows on the figure indicate that the direction of the movement of the graphs of both the growth rate of electricity production and growth rate of GDP have been the same. This means that the changes in the growth rate of electricity production and as well as of GDP were simultaneous.

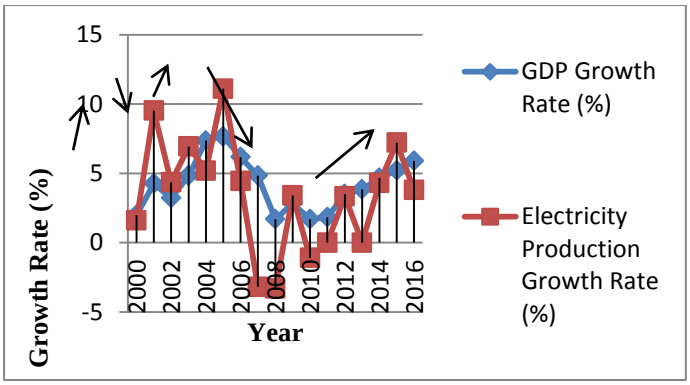


Figure 3: Impact of electricity production on GDP

This analysis proves that: **"Electricity production has a direct impact on the GDP and the economic growth of the country."**

Figure 4: How electricity production results in economic development

Figure 4: How electricity production results in economic development

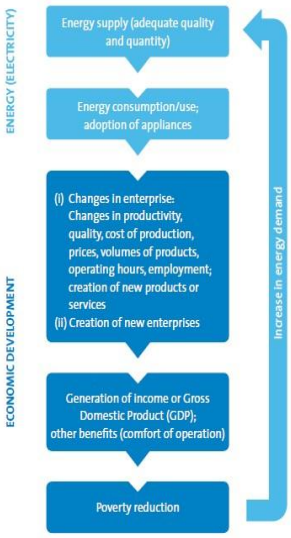


Figure 4 shows how electricity production results in economic development. It shows that if supply of electricity is matched with the demand of electricity then it will bring about a drastic change in the society and as well as the economy of the country. It will lead to the creation of new enterprises. The productivity of industrial as well as the agricultural sector will increase. The costs of production will go down and the profits will rise. This will bring about an increase in the national income of the country and as well as Gross Domestic Product (GDP).

As the national income of the country will raise due to increased employment opportunities the ratio of employed people in the country will go up. This will result in reduction of poverty. The living standards of the people will improve and so would the demand of local commodities would rise, which will boost all types of markets domestically.

How will CPEC solve the Problem of Electricity Shortfall?

China is investing a total of US $ 34 million through CPEC in the energy sector of Pakistan. It has promised to solve the problem of energy crisis of Pakistan by increasing it electricity production capacity by 30 %.The details of all the 24 power projects that will be installed under CPEC are given

Port Qasim Electric Company Coal Fired, 2x660, Sindh

The coal fired project at Port Qasim is one of the early harvest projects proposed by CPEC. Super critical technology is being used. The installed capacity is nearly 1320 MegaWatts. The estimated cost of this project is US $1980 Million. The project

is being sponsored by Port Qasim

Electric Power Company and is being financed by Independent Power Producer. The work on this project started in May 2015. Currently 65% of the power plant and 70% Jetty has been completed. The project will start its energization in October 2017.

Sahiwal Coal Fired Power Plant Punjab

With super critical technology being used this power plant will be using coal as a medium to generate electricity. It will be having an installed capacity of 1320 MegaWatts. Located in Sahiwal this project needs US $ 1600 Million to be completed. The executing company is Huaneng Shandong Rui Group from China. It will be financed by Independent Power Producer. Almost 95% of the work on the site has been completed. This project is 6 months ahead of its schedule. The energization will start in October 2017 and it will become operational by December, 2017.

Engro Thar 4x330mw Coal-fired, Thar, Sindh

The primary energy input is coal. The technology is sub critical. It is located in the Thar block of Sindh. It has an installed capacity of 1320 MegaWatts. Almost US $ 2000 Million is being spent on this project. The executing company is Engro Power Gen Thar Ltd. It is being financed by IPP(s). The team is mobilized at the site. The construction work is under progress. The project will become operational by June 2019.

Surface Mine in Block ii of Thar Coal Field, 6.5 Metric Ton Per Annum (mtpa), Thar Sindh

It is another coal power project initiated under CPEC. Open Pit Mining is being used as the technology. The power plant is located in Thar, Sindh. The estimated cost of this project is US $1470 Million. The executing companies are China Machinery Engineering Corporation (CMEC) and Sindh Engro Coal Mining Company (SECMC).The IA for

this project has been signed. The COD of this project is expected in 2018-2019.

Gawadar Coal Fired Power Project, Gawadar

Imported coal will be used to produce energy. The technology is yet to be decided. The installed capacity of this project is 300 Megawatts and this will be made possible with a total investment of US $ 600 Million. The China Communications Construction Company will be sponsoring this project. It hasn't been decided yet that who will be financing this project. Gawadar Port Authority has been given the duties as supervising agency. The work on this project is yet to be started.

Hubco Coal Power Plant 1x660 mw, Hub Balochistan

Located at Hub in Balochistan this power plant would be using coal as it primary energy input. Moreover, the super critical technology will be used. This project will have an installed capacity of 660 Megawatts. The estimated cost of this project is US $ 970 Million. China Power Hub Generation Company has been appointed as the sponsor and IPP's are going to finance this project. The IA has been signed and the expected operational date for this project is in 2019.

Rahimyar Khan Coal Power Project, Punjab

Another coal powered project under CPEC will be installed in Rahimyar Khan. The installed capacity of this project is 1320 Megawatts. The estimated construction cost has been set at US $ 1600 Million. Shangai Electric Power Generation, China Machinery Engineering Corporation and Nishat Power Company are the executing companies and sponsors of this project. The project will be financed by Independent Power Producers. The Punjab Power Development Board has been made the supervising agency. The process of checking the feasibility of this project is still in progress.

SSRL Thar Coal Block 1 - 6.5 Metric Ton per Annum(mpta) Thar, Sindh

It will be a coal fired power project but the source from where the coal will be obtained hasn't been decided yet. Open Pit Mining will be used as the technology. This project will be located in Sindh and will need US $ 1300 Million to become operational. Moreover it will be supervised by Thar Coal & Energy Board. Sino-Sindh Resources Limited is the sponsor. This project is expected to become operational by 2018.

Zonergy 900MW Solar Park, Bahawalpur, Punjab

Solar energy would be the primary energy input for this project. The technology used will be PV Solar. This Solar Park in Bahawalpur will have an installed capacity of 900 Megawatts. Almost US $ 1.215 Million will be spent on this project. Zonergy is the executing company for this project and it will be financed by Independent Power Producers. The COD of 300 Megawatts was attained in August 2016.

SSRL 2×660 MW Mine Mouth Power Plant, Sindh

Imported coal will be used as the primary input for this power plant. Sub critical technology would be put into use. The installed capacity will be 1320 Megawatts which would be made possible with a cost of US $ 2000 Million. Sino-Sindh Resources Limited will be the executing company for this project. This project will be financed by Independent Power Producer.
Moreover, it will be supervised by Private Power and Infrastructure Board and will become operational in 2018 or 2019.

Dawood 50MW Wind Farm, Bhambore, Sindh

With wind being the primary energy input and wind turbine as the technology this wind farm at Bhambore promises to

produce 50 Megawatts of energy under the condition of upfront tariff. Almost US $ 125 Million would be spent on this project. Hydro China will be executing this project and it would be financed by Independent Power Producer. Alternative Energy Development Board has been made the supervising agency for this project. The financial close for this project has been achieved. Construction has started and its testing is in progress. It will become operational very soon.

UEP 100MW Wind Farm, Jhimpir, Sindh

It is another wind farm that is a part of CPEC's energy sector. It has an installed capacity of 100 Megawatts and it will be using wind turbine as the technology. The estimated cost for this project is US $ 250 Million. It will be executed by Hydro China (EPC) Gold Wind China (Supplier) and United Energy Pakistan (Pvt.) Ltd under the supervision of Alternative Energy Development Board. The construction of this project has started and erection of 61 out of 66 turbines has been completed. The substation is currently under construction and the operation date of this project is June 2017.

Sachal 50MW Wind Farm, Jhimpir, Sindh

Located in Jhuimpir this wind farm will be using wind turbine technology to produce 50 Megawatts of energy. The tariff for this project will be calculated as:

Cost + Tariff (US cent/kw 15.8618)

US $ 134 Million would be spent on this project. Hydro China and Arif Habib Corporation Limited would sponsor this project and it will be financed by an Independent Power Producer. Moreover Alternative Energy Development Board shall be supervising it.

The construction of this project is currently under progress and it is expected to become operational in June 2017.

Suki Kinari Hydro Power Station, KPK

This power station relies on hydel energy. Hydel technology

will be used to produce 870 Megawatts of electricity. Located on river Kunhar, this project needs an approximately of US $ 1802 Million to undergo completion. Suki Kinari Hydro (Pvt) Ltd shall be sponsoring this project. It will be financed by Independent Power Producer and will be supervised by Private Power and Infrastructure Board. The financial close of this project has been achieved. Land acquisition was announced in 2016. EPC contractor was mobilized to begin construction activities and it is expected to become operational by 2022.

Suki Kinari II Hydro Power Station, KPK

It is a hydel energy based power station that will generate 720 Megawatts of electricity. Karot Power Company Ltd. shall be sponsoring this project and it will be financed by an IPP. This project needs a total of US $ 1420 Million to reach completion. It will be supervised by Private Power and Infrastructure Board. The land acquisition award has been done and the financial close has been achieved. Its construction is in progress. Work has been initiated through equity and 25% of the civil works has been completed. This power station will become operational in 2020.

Matiari to Lahore Transmission Line

This transmission line focuses on transmitting 2000 Megawatts of energy with 10% overloaded capability for 2 hours. To meet the requirements technologies such as 660 Kilowatts bipolar HCDC with converter and grounding electrode will be used. The estimated costs for this project are US $ 1500 Million. China Electric Power Equipment and Technology Co. Ltd. shall be sponsoring this project and Independent Transmission Company will finance it. National Transmission and Dispatch Company will supervise it. The feasibility study of this project has been completed. Its tariff has been determined by NEPRA. Its TSA was initiated in December, 2016. Land acquisition for converter stations at Lahore and Matiari has also been completed. China Electric Power Equipment and Technology Company (CET) and State Grid have been nominated by the Chinese side. This will become operational by 2019.

Matiari to Faisalabad Transmission Line

This is another transmission line that is a part of CPEC energy projects. This transmission line focuses on transmitting 2000 Megawatts of energy with 10% overloaded capability for 2 hours. To meet the requirements technologies such as 660 Kilowatts bipole HCDC with converter and grounding electrode will be used. The estimated costs for this project are US $ 1500 Million.

China Electric Power Equipment and Technology Co. Ltd. and State Grid Corporation of China shall be sponsoring this project and Independent Transmission Company will finance it. National Transmission and Dispatch Company will supervise it. The feasibility study of this project has been completed. Its tariff has been determined by NEPRA. Its TSA was initiated during 6th JCC. Land acquisition for converter stations at Faisalabad and Matiari has also been completed. China Electric Power Equipment and Technology Company (CET) and State Grid have been nominated by the Chinese side. This will become operational by 2019.

Gaddani Power Park Project (jetty + infrastructure)

The estimated cost of this project was US $ 1200 Million. The construction of this project began in 2013, but due to the priorities of the Chinese government the work on this project was stopped in early 2015. This project was put on back footing.

Hubco Coal Power Plant 1x660 MW, Hub Balochistan

Another coal powered project under CPEC will be installed in Hub. The installed capacity of this project is 660 Megawatts. The estimated construction cost has been set at US $ 970 Million.

Super critical technology will be used. China Power Hub Generation Company is the executing companies and sponsors of this project. The project will be financed by Independent Power Producers. The Private Power Development Board has been made the supervising agency.

The IA for this project has been signed and it is expected to become operational by 2018.

Gaddani Power Park Project (2×660MW)

The complete proposal for Gaddani Power Park Project hasn't been presented yet. All that has been decided is that the installed capacity of this project will be 1320 Megawatts whereas its estimated cost is US $ 3960 Million.

Kohala Hydel Project, AJK

This hydel project shall be located on Jhelum River near Muzaffarabad. It will be having an installed capacity of 1100 Megawatts. The estimated cost for this project will be US $ 2397 Million. This project shall be sponsored by CTG, CWEI (China Three Gorges) and CWE Investment Crop. The feasibility study of this project is in its first stage and the tariff has been announced by Nepra. The land acquisition process has been started. Its environmental impact assessment study has been updated. The EPC contractor for this project has been selected. Its financial close has been planned in December, 2017. This project is expected to be completed in 2023.

Pakistan Wind Farm II 2x50 MW (Jhampir, Thatta, Sindh)

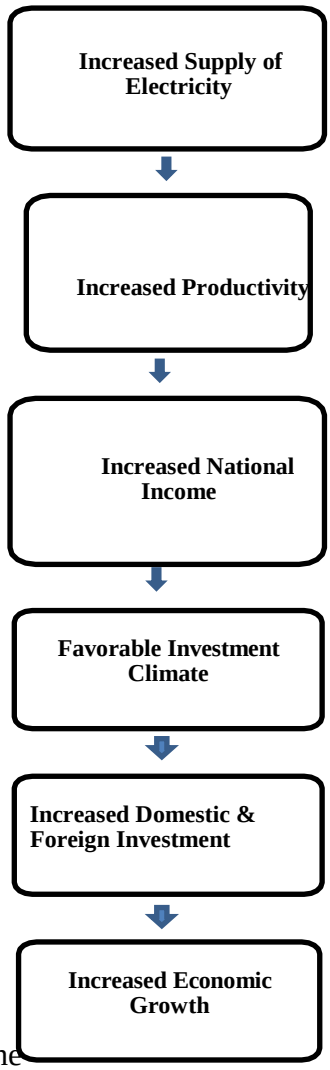
Located in Jhimpir, Thatta this wind based power project will be having an installed capacity of 100 Megawatts. Its LOS was issued in August, 2016 and it EPA was initiated on 30th November, 2016. This project requires US $ 150 Million for its completion. The construction activity for this project has been started from equity. Its financial close will be completed in April, 2017 and it is expected to become operational by September, 2018.

Thar Mine Mouth Oracle, Thar Sindh

The complete details of this project haven't been decided yet. All that is known is that it will have a capacity of generating 1320 Megawatts of energy with an estimated cost of US $ 1300 Million. The feasibility stage tariff for coal has been obtained. The shareholding agreement on new equity partners is still in process.

Muzaffargarh Coal Power Project, Punjab

Imported coal will be used as the primary input for this power plant. Sub critical technology would be put into use. The installed capacity will be 1320 Megawatts which would be made possible with a cost of US $ 1600 Million. The executing company for this project is yet to be decided. This project will be financed by Independent Power Producer. Moreover, it will be supervised by Punjab Power and Infrastructure Board and will become operational in 2018 or 2019.



Conclusion

If all these power projects are made functional within the stipulated time then the problem of electricity shortfall in Pakistan can be solved easily. If the problem of electricity shortfall is solved then the country would become stronger, both economically and socially. The strength of Pakistan will then invite foreign investors to invest in various projects in Pakistan which will eventually shift Pakistan from the line of developing countries to developed countries.

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