Overview of Energy Projects under CPEC

Introduction:

The China-Pakistan Economic Corridor (CPEC) is a monumental initiative aimed at enhancing economic cooperation between China and Pakistan. Among its various components, energy projects stand out as a critical focus, with an estimated $33 billion allocated to alleviate Pakistan's chronic energy shortages. These projects encompass a wide array of energy sources, including coal, wind, hydro, and solar power, and are expected to significantly boost Pakistan's energy generation capacity.

Key Takeaways

- CPEC aims to invest approximately $33 billion in Pakistan's energy sector to address chronic energy shortages.
- A significant portion of the new energy generation capacity under CPEC will be coal-based, with $5.8 billion allocated to coal power projects.
- The energy projects under CPEC are being constructed by private Independent Power Producers, with financing from the Exim Bank of China.
- Renewable energy projects, including hydro, wind, and solar power, are also a key component of CPEC's energy initiatives.
- The successful implementation of these energy projects is expected to double Pakistan's energy production capacity and significantly narrow the supply-demand gap.

Overview of Energy Projects under CPEC

The China-Pakistan Economic Corridor (CPEC) is a monumental initiative aimed at upgrading Pakistan's infrastructure and bolstering its economy. Forty-six billion US dollars were initially

allocated to develop various projects, with a significant portion dedicated to energy production, including hydro, wind, coal, and solar power. This investment was later increased to $62 billion in 2017.

Investment and Financing

CPEC is investing $33 billion in the energy sector development for the production of electricity. This includes a mix of hydro, wind, coal, and solar projects. As of September 2017, more than $14 billion worth of projects were under construction. The stakeholders have utilized all available resources to ensure the timely completion of this mega project.

Energy Generation Capacity

Pakistan's current energy generating capacity stands at 24,830 MW. Energy generation is a major focus of the CPEC project, with approximately $33 billion expected to be invested in this sector. An estimated 10,400 MW of electricity were slated for generation by March 2018 as part of CPEC's "Early Harvest" projects.

Role of Private Independent Power Producers

Private Independent Power Producers (IPPs) play a crucial role in the energy projects under CPEC. They are responsible for the development, financing, and operation of power plants. This involvement of private entities ensures a diversified and efficient approach to energy production, contributing significantly to Pakistan's energy needs.

Coal-Based Power Projects

Coal-based power projects play a significant role in the **China-Pakistan Economic Corridor (CPEC)**, despite the presence of several renewable energy initiatives. The bulk of new energy generation capacity under CPEC will be coal-based plants, with a total investment of $5.8 billion. Some of the major coal power plants under CPEC include the Hubco Coal Power Project, Suki Kinari Hydropower Project, and the Coal Power Project of Engro Powered Limited at Thar Block-II. These projects are crucial for meeting Pakistan's energy demands and ensuring energy security. However, environmental concerns surrounding coal-based power generation remain a key issue that needs to be addressed for sustainable development. The projects are aimed at boosting Pakistan's energy sector and supporting its industrial growth, but they also face challenges and criticisms related to their environmental impact and sustainability.

Renewable Energy Initiatives:

Hydropower Projects

Hydropower projects under CPEC are pivotal in harnessing Pakistan's vast water resources. These projects not only aim to generate substantial electricity but also help in water management and flood control. Pakistan aims to generate 60 percent of the country's energy from renewable resources by 2030, and the role of China remains critical in this regard.

Wind Energy Projects

Wind energy projects are being developed in various regions of Pakistan, particularly in the coastal areas. These projects are expected to significantly contribute to the national grid, reducing reliance on fossil fuels. The collaboration between Pakistan and China in this sector is a testament to their commitment to sustainable energy.

Solar Energy Projects

Solar energy projects are another major focus under CPEC. With abundant sunlight available throughout the year, Pakistan has immense potential for solar power generation. These projects are designed to provide clean and affordable energy to remote areas, enhancing the overall energy security of the country.

The renewable energy initiatives under CPEC are not just about power generation; they are about creating a sustainable and resilient energy infrastructure for Pakistan's future.

Here's a table summarizing the energy projects under CPEC, categorized into completed, under construction, and under consideration projects:

#	Project Name	MW
Completed Projects		
1	1320MW Sahiwal Coal-fired Power Plant	1320
2	1320MW Coal-fired Power Plant at Port Qasim Karachi	1320
3	1320MW China Hub Coal Power Project, Hub Balochistan	1320
4	660MW Engro Thar Coal Power Project	660
5	1000MW Quaid-e-Azam Solar Park (Bahawalpur)	400/600
6	50 MW Hydro China Dawood Wind Farm, Gharo, Thatta	50
7	100MW UEP Wind Farm, Jhimpir, Thatta	100
8	50MW Sachal Wind Farm, Jhimpir, Thatta	50
9	100MW Three Gorges Second and Third Wind Power Project	100
10	Matiari to Lahore ±660 KV HVDC Transmission Line Project	4000
11	720MW Karot Hydropower Project, AJK/Punjab	720
12	330MW HUBCO Thar Coal Power Project (Thar Energy)	330
13	1320MW SSRL Thar Coal Block-I 7.8 mtpa & Power Plant (2×660MW) (Shanghai Electric)	1320
14	330MW HUBCO Thal Nova Thar Coal Power Project	330
Under Construction Projects		
15	884MW Suki Kinari Hydropower Project, KP	870

16	300MW Coal-Fired Power Project at Gwadar	300
Under Consideration Projects		
17	1124MW Kohala Hydropower Project, AJK	1124
18	700.7MW Azad Pattan Hydropower Project, AJK/Punjab	700.7
19	1320 MW Thar Mine Mouth Oracle Power Plant & surface mine	1320
20	50MW Cacho Wind Power Project	50
21	50MW Western Energy (Pvt.) Ltd. Wind Power Project	50

Impact on Pakistan's Energy Sector

Alleviating Energy Shortages

Pakistan as late as early 2017 faced energy shortfalls of over 4,500 MW on a regular basis with routine power cuts of up to 12 hours per day, which has shed an estimated 2–2.5% off its annual GDP. **Over $33 billion worth of energy infrastructure** are to be constructed by private consortia to help alleviate Pakistan's chronic energy shortages. By the end of 2018, over 10,400 MW of generating capacity was brought online, with the majority developed as part of CPEC's fast-tracked "Early Harvest" projects.

Boosting Industrial Growth

Higher efficiency on power generation has been a key factor in boosting industrial growth. Pakistan's energy sector is mainly dependent on imported fuel (oil and LNG), which has caused a heavy burden on foreign reserves and confined industrial development of the country. The impact of Chinese investments in the energy sector was soon visible as in December 2017, Pakistan succeeded in producing surplus electricity. Pakistani Federal Minister for Power Division, Awais Leghari, announced a complete end to power cuts in 5,297 feeders out of a total of 8,600 and claimed that the country's current electricity production had gone up to 16,477 Megawatts, which was 2,700 megawatts more than the demand.

Challenges and Criticisms

Despite the progress, there are challenges and criticisms. Pakistan owes more than $7.5 billion in project debt to power plants set up under CPEC. The country also owes nearly $2 billion in circular debt, or unpaid dues to power producers. These financial burdens pose significant challenges to the sustainability of the energy projects under CPEC.

The energy projects under CPEC have the potential to transform Pakistan's energy landscape, but the financial and environmental challenges must be addressed to ensure long-term benefits.

Future Prospects of CPEC Energy Projects

Upcoming Projects

In prospective financing, the energy projects under CPEC bring hope for Pakistan's energy sector. The stakeholders of the project tried to utilise all available resources to ensure timely completion of this mega project. The council was told that CPEC projects, international investment projects, and ongoing projects close to completion will be given priority in the upcoming phases.

Sustainability Goals

CPEC is investing $33 billion in the energy sector development for the future. The focus is on creating a sustainable energy mix that includes coal, wind, hydro, and solar power. This diversified approach aims to meet both domestic and industrial energy needs.

Long-term Benefits

Over $33 billion worth of energy infrastructure are to be constructed by private consortia to help alleviate Pakistan's chronic energy shortages. This will not only boost the energy generation capacity but also support the economy by developing Gwadar port, infrastructure, and special economic zones.

The energy projects, including coal, wind, hydro, and solar power, were planned to be completed by 2018 as part of EHPs and phase-I projects to fulfil the domestic and industrial energy needs of Pakistan.

Conclusion

The energy projects under the China-Pakistan Economic Corridor (CPEC) represent a monumental step towards addressing Pakistan's chronic energy shortages and boosting its economic growth. With an investment of approximately $33 billion, these projects encompass a diverse mix of energy sources including coal, hydro, wind, and solar power. Despite the significant focus on coal-based plants, the inclusion of renewable energy projects highlights a balanced approach to energy generation. The successful completion of these projects, many of which were fast-tracked under the 'Early Harvest' initiative, has already begun to alleviate the energy deficit, contributing to the stability and growth of Pakistan's energy sector. As the country continues to develop its infrastructure and energy capabilities, the CPEC energy projects stand as a testament to the collaborative efforts of Pakistan and China in achieving mutual economic and developmental goals.

Frequently Asked Questions

What is the total investment in the energy sector under CPEC?

Approximately $33 billion is expected to be invested in the energy sector under CPEC.

How much energy generation capacity is planned under CPEC's 'Early Harvest' projects?

An estimated 10,400 MW of electricity is slated for generation by March 2018 as part of CPEC's 'Early Harvest' projects.

What is the significance of coal-based power projects in CPEC?

Despite several renewable energy projects, the bulk of new energy generation capacity under CPEC will be coal-based plants, with $5.8 billion worth of coal power projects expected to be completed by early 2019.

Who will construct the energy projects under CPEC?

The energy projects under CPEC will be constructed by private Independent Power Producers, rather than by the governments of either China or Pakistan.

What types of renewable energy projects are included in CPEC?

CPEC includes hydroelectric, wind-power, and solar energy projects as part of its renewable energy initiatives.

What is the role of Exim Bank of China in CPEC energy projects?

The Exim Bank of China will finance private investments in CPEC energy projects at 5–6% interest rates, while the government of Pakistan will be contractually obliged to purchase electricity from those firms at pre-negotiated rates.

Meta Description

Explore energy projects under CPEC, including coal, renewable initiatives, and their impact on Pakistan's energy sector.