Public Disclosure Authorized

Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 23-Jun-2020 | Report No: PIDC27191

BASIC INFORMATION

A. Basic Project Data

Country	Project ID	Parent Project ID (if any)	Project Name
Pakistan	P170230		Electricity Distribution Efficiency Improvement Project (P170230)
Region	**Estimated Appraisal Date**	**Estimated Board Date**	**Practice Area (Lead)**
SOUTH ASIA	Apr 30, 2021	Jul 30, 2021	Energy & Extractives
Financing Instrument	**Borrower(s)**	**Implementing Agency**	
Investment Project Financing	The Islamic Republic of Pakistan	Peshawar Electric Supply Company, Multan Electric Power Company, Hyderabad Electric Supply Company	

Proposed Development Objective(s)

The project development objectives are to improve electricity supply and operational efficiency in targeted areas of selected distribution companies.

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	375.00
Total Financing	375.00
of which IBRD/IDA	337.50
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	337.50
IDA Credit	337.50

Non-World Bank Group Financing

Counterpart Funding	37.50
Sub-borrower(s)	37.50

Environmental and Social Risk Classification	Concept Review Decision
Moderate	Track II-The review did authorize the preparation to continue

Other Decision (as needed)

Project may include Islamabad Electric Supply Company (IESCO) and will have a stronger reform component.

B. Introduction and Context

Country Context

1. **Pakistan is at a crossroads as it deals with the corona virus disease (COVID-19) pandemic.** Periodic macroeconomic crises and a low human capital basis have constrained the country's growth prospects. Over the last two decades, economic growth in Pakistan has averaged at 4.4 percent a year, below the South Asian annual average of 6.3 percent.[1] Low investment in human capital, slow progress of structural reforms, low private investment, and slow export growth due to an overvalued currency, among others, have hindered growth prospects.[2] The country was making good progress in stabilizing its economy and implementing much needed structural reforms. However, the COVID-19 pandemic will have significant negative impacts on the economy. The closure of businesses and disruption to the supply chains are significantly affecting the services and manufacturing sectors, which account for nearly 80 percent of total gross domestic product (GDP). The economy is expected to contract in the range of 2.6 and 3.3 percent in FY20, and between 0.2 and 4.0 percent in FY21.

2. **The power sector remains a significant fiscal burden to the country, which is now exacerbated by the COVID-19 pandemic**. It incurs annual losses of approximately 2.2 percent of GDP on account of: (a) high costs of power generation, (b) losses accumulated from unfunded public policy mandates and lack of timely revision of tariffs, and (c) the poor performance of electricity Distribution Companies (DISCOs). The government is now setting foundational reforms for improving the financial viability of the power sector through a strategy to address the sector's circular debt and policies to facilitate the development of low carbon resources. In addition, the government intends to increase the share of renewable energy to reduce the cost of supply and the dependence of imported fuel. These reforms are jointly supported by Asian Development Bank, International Monetary Fund and the World Bank's planned Resilient Institutes for Sustainable Economy (RISE) development policy financing series and a potential Program for Affordable and Clean Energy (PACE) development policy financing series that would tackle critical power sector reforms, by building on the foundations of RISE, to ensure the sector becomes financially viable. The proposed project will complement the power sector reforms and help in their implementation.

Sectoral and Institutional Context

3. **Pakistan's energy reforms started in the 1990s but remain unfinished.** The first stages of reform aimed to attract private investment into generation to address growing supply deficits. The Government unbundled the Power Wing of the Water and Power Development Authority (WAPDA), which had been a publicly owned, vertically integrated monopoly with responsibility for generation, transmission, and distribution. In the unbundling, four thermal generation

[1] World Bank estimate

[2] World Bank. 2019. Pakistan at 100: Shaping the Future. Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/31335

companies, one National Transmission & Despatch Company (NTDC, which is also a system operator) and eight distribution companies (DISCOs) were formed, while the large hydropower assets remained with WAPDA. The National Electric Power Regulatory Authority (NEPRA) was also set up, with responsibility for licensing, determining tariffs, creating standards, and monitoring sector performance. In 2015, the single buyer function was separated from NTDC and is now the responsibility of the Central Power Purchasing Agency-Guarantee (CPPA-G). CPPA-G's core functions include billing and settlement, power procurement on behalf of DISCOs, and market development. The institutional architecture for a modern power sector is in place, but challenges remain in making Pakistan able to profit from these institutional reforms.

4. **Arrears in the power sector have added to fiscal vulnerability but are now being addressed.** As mentioned in the Section above, inefficiencies in DISCOs is one of the major causes of circular debt and high electricity prices. These inefficiencies include high system losses (including theft), misbilling, and under collections. In FY19, the average system losses in DISCOs in Pakistan were 17.7 percent, while the National Electric Power Regulatory Authority (NEPRA) only allowed 15.5 percent in losses to be passed on to the consumers. The differential contributed PKR37 billion to the circular debt. Another PKR116 billion was added to the circular debt as DISCOs collected only 91 percent of the billed amount. The high cost of power generation has also exacerbated cost recovery challenges for the DISCOs.[3] The deficit in the sector has hampered investments by loss making DISCOs to strengthen their networks and is resulting in increased outages and interruptions, costing business and affecting household welfare. The Government has now converged on power sector reforms to reduce the deficit of the sector through a Circular Debt Management Plan (CDMP) and improving the performance of the DISCOs is a key element of these reforms. Besides financing the investments in the physical networks to keep up with demand, reduce losses and improve services the proposed project will help improve governance, deploy new technologies and implement power sector reforms.

5. **Lack of access and poor reliability of electricity is causing significant losses to Pakistan's economy.** The electricity access rate is estimated to be around 70 percent.[4] Moreover, even those who have access to electricity do not enjoy reliable supply. Therefore, despite significant improvement on getting electricity indicator in the Ease of Doing Business 2020, Pakistan is still ranked very low compared to other economies.[5] Lack of reliable access to electricity also has negative implications for a range of social and economic outcomes, such as limited educational achievement, health issues, and gender inequality.

Relationship to CPS

6. The proposed Project is aligned with the World Bank Group's (WBG) Pakistan Country Partnership Strategy (CPS) for FY15-FY19 (extended to FY20), directly supporting its energy pillar and contributes to the other three result areas namely private sector development, inclusion and service delivery. The project will help remove system constraints to increase electricity supply to end-consumer which will have a positive impact on all three outcome indicators for energy; it will help reduce load-shedding/outages, reduce per unit cost of production, and without ensuring DISCOs' financial viability (source of all revenue for the sector) power sector can never be financially viable. A significant portion of the financing will be for the subprojects in areas where power supply needs to be improved and access to reliable electricity is strongly correlated with economic development and public welfare. The project will help address the issue of interruptions which along with cost of supply is considered a major barrier to private investment. Furthermore, several World Bank studies have demonstrated the direct link between power supply and growth, and similarly between growth and poverty reduction and shared prosperity. In a nutshell, providing reliable and affordably electricity is must for Pakistan to become an upper middle-income country as envisaged in Pakistan at 100.

[3] The average cost of power generation is US¢ 8.5/kWh in FY20, which is significantly higher than in neighboring countries.
[4] Derived from Population Census and Nepra State of Industry Reports.
[5] Pakistan is ranked at 123 out of 190 on getting electricity indicator after moving 44 notches up from last year.

C. Proposed Development Objective(s)

7. The project development objectives are to improve electricity supply and operational efficiency in targeted areas of selected distribution companies.

Key Results

8. Following key indicators will be monitored for each selected DISCO to measure project's success in improving their performance and profitability. Component 2 of the project will ensure that a reliable monitoring and reporting system is in place to ensure reliability of data.

(i) System Average Interruption Duration Index (SAIDI)
(ii) System Average Interruption Frequency Index (SAIFI)
(iii) Mega Volt Amperes (MVA) capacity added to meet higher load/demand
(iv) Reduction in Transmission & Distribution (T&D) losses
(v) Improvement in collection rate

D. Concept Description

9. The proposed project will support the targeted DISCOs in strengthening and modernizing their electricity distribution network and operations, which should result in improved efficiency and reliable supply to the consumers. Three DISCOs namely Hyderabad Electricity Supply Company (HESCO), Multan Electric Power Company (MEPCO), and Peshawar Electric Supply Company (PESCO) have been selected. The amount of losses in these DISCOs are among the highest in the country and as a result they have not been able to meet their investment requirements and provide reliable supply of electricity. In addition to supporting the traditional investments to expand and rehabilitate the transmission and distribution network being owned and operated by these DISCOs, the proposed project will also help improve their cashflows through installation of Aerial Bundled Cables (ABC) and Advanced Metering Infrastructure (AMI) in some of the high loss/revenue feeders. The project will also focus on interventions to modernize the DISCOs. It will include but will be not limited to deployment of Distribution Management System (DMS), transformer monitoring system, provision of tools and equipment for improved O&M and safety and automation of business processes through use of Enterprise Resource Planning (ERP) and modern information systems. The project will also include technical assistance to strengthen the capacity of the DISCOs and implement power sector reforms. Subject to government approval, Islamabad Electric Supply Company (IESCO) will be included for deployment of DMS. IESCO is one of the better performing DISCOs and with the deployment of DMS it will be at the forefront of latest technology to modernize its operations. The composition of sub-projects and participating DISCOs will be finalized during project preparation. A Phase 2 is also envisioned where activities could potentially be scaled up, new activities can be added, and the project can be extended to other DISCOs.

10. **Component 1 - Improving Grid Reliability.** This component will finance investments to strengthen transmission and distribution network owned and operated by the targeted DISCOs to ensure reliability of electricity supply.

(a) *Secondary Transmission & Grid (STG).* The STG works are the core requirements of DISCOs 132/66kV network which will strengthen the DISCOs electrical infrastructure resulting in elimination/curtailing the forced load shedding due to overloading and provide a power evacuation corridor to meet demand. The main focus for the STG program is enhancing the power transfer capability, accommodating load growth including a reduction in transmission losses which not only improves the stability and reliability of the network but also results in enhancing the revenue. It will include installation of new, augmentation, conversion and rehabilitation of the existing grid stations, construction of new transmission lines, upgrading of transmission

lines to higher voltage, and reconductoring of overloaded lines using High Temperature Low Sag (HTLS) conductors in areas where constructing new lines has become difficult due to Right of Way (ROW) problems.

(b) *Energy Loss Reduction (ELR).* ELR is an on-going process in DISCOs. Under this sub-component expansion and rehabilitation of the distribution system (33kV and below) will be carried out to increase sales, improve voltage profiles, reduce technical losses, eliminate overloading and reduce outages.

11. **Component 2 – Modernizing Operations and Management.** The objective of this component is to modernize DISCOs' operations and management functions using modern equipment, technology and information systems. Major activities are likely to include:

(a) *Installation of SCADA and Distribution Automation Systems.* This will help implement a smart grid roadmap by deployment of SCADA, Distribution Management System (DMS) and transformer monitoring & protection system. DMS will also help improve planning, grid operations and customer services by providing access to and integrating modern information systems e.g. Incident Management System (IMS), feeder automation, Geographic Information System (GIS), Customer Management System (CMS) and ERP. The project will also support upgradation and deployment of these information systems.

(b) *Revenue Protection Program.* It will comprise of installation of Aerial Bundled Cables (ABC), Advanced Metering Infrastructure (AMI), pole mounted transformers to deploy single point solution and other measures to pre-empt theft, illegal connections and ensure recovery.

12. **Component 3 – Institutional Strengthening & Reform Support.** The purpose of this component is institutional strengthening of the DISCOs and to support the Project Management Units in implementing the project. This component will also help instill safe maintenance practices, hiring of consultants for design and supervision including preparation and monitoring of safeguard instruments, carryout studies, implement power sector reforms and pilot projects.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

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APPROVAL

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