



POWER SYSTEM RELIABILITY AND EFFICIENCY IMPROVEMENT PROJECT

RELIABLE AND AFFORDABLE ELECTRICITY FOR ALL

BASIC INFORMATION

APPROVAL DATE:

**April 26
2017**

END DATE:

**December 31
2021**

TOTAL COMMITMENT:

\$77 million

IMPLEMENTING AGENCIES:

**Power Grid Company of
Bangladesh (PGCB)**

OVERVIEW

Despite significant increase in power generation capacity and access to electricity in recent years, Bangladesh is struggling to ensure quality and reliability of power supply. Unreliable power supply leads to voltage drops and outages resulting in about 2 percent loss of Gross Domestic Product (GDP). The power system requires upgradation and modernization to cope with the growing economy.

The **Power System and Reliability and Efficiency Improvement (PSREI) Project** aims to help Bangladesh meet the increasing demand for electricity by improving the reliability and efficiency of the entire power system, from electricity generation to transmission.



CHALLENGE

The rapid increase of the power system size amplifies the challenge to ensure quality and reliability of supply with present operational tools and rules. The power system operation needs to address the following three issues to operate and expand efficiently: i) ensure frequency control ii) reduce voltage fluctuations and iii) enable merit-order dispatch.

The system is still reliant on manual dispatch and controls that cannot ensure system economy and security. Demand-supply mismatch results in wide variation of system frequency and voltage fluctuations. Unstable frequency causes supply disruption; both unstable frequency and voltage drops damage household appliances. Unreliable power supply causes significant production loss in case of industrial users. Lack of system automation and integration implies considerable delays and uncertainty in balancing the demand and supply situation. An absence of spinning reserve leads the system to give dispatch to inefficient and expensive power plants. Absence of automated merit order dispatch results in uneconomic system operation and leads to high cost supply; it requires substantial annual subsidy. There is a need to modernise and upgrade the power system infrastructure and the related operating procedures.

APPROACH

To modernize and upgrade Bangladesh's power system, the project will implement primary frequency control and install both software and hardware to integrate generators with National Load Dispatch Centre (NLDC). It will also modernize SCADA/EMS and dispatch protocol. The project will address critical transmission bottlenecks by reconducting of 40 km line and installing dynamic line rating (DLR) to improve utilisation of transmission capacity. It will also support capacity development of utilities especially in operational procedures and enhance cooperation among the agencies to sustain the outcomes.

Merit order dispatch protocol maximizes power generation from more efficient and less expensive generators. The project will undertake an in-depth institutional and policy review to identify barriers that have led to non-merit-order dispatch and lack of cooperation of generators with NLDC. The review will recommend actions to address the constraints.

TOWARDS THE FUTURE

The project will make important contributions towards the government's vision of ensuring reliable and affordable power for all, through upgradation and modernization of the national power system. Reliable and low-cost power will benefit households and facilitate industrial and business growth. The project will reduce fiscal burden as the efficient and optimum power system will cut down fuel consumption. Reduced use of carbon intense fuel will lower greenhouse gas emission.



EXPECTED RESULTS

Reliability of power supply enhanced through frequency control, voltage management and outage reduction

Fiscal savings expected from reduction of fuel usage driven by merit order dispatch