

# Energy Efficiency and Grid Integration of Renewable Energy (EEGIRE) II

## Background

The Bangladesh Government has fulfilled its commitment of ensuring energy access for all citizens. The nation now has sufficient electricity supply capacities, 21 gigawatts (GW) of installed capacity, compared with a peak consumption of about 13 GW. Despite the oversupply of electricity, there are still voltage and frequency fluctuations in the power grid. According to official data, the general overloading of the grids and the associated power cuts has been significantly reduced in recent years. However, bottlenecks in the power supply continue to occur, especially in rural areas and the urban periphery. Diesel or gas-powered emergency generators are used throughout the country to compensate possible supply shortages. Their operation is accompanied by enormous greenhouse gas emissions.

The grid infrastructure and management are facing additional challenges with the growing number of electric vehicles (primarily battery-powered rickshaws) as well as the integration of power from fluctuating renewable energy sources (mainly solar power) into the existing grid. A major barrier for stakeholders to integrate solar power into the electrical grid and improve efficiency are inadequate general and technical framework conditions.

Germany and Bangladesh have collaborated in the priority area of renewable energy and energy efficiency since 2004. On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is currently implementing the project “Energy Efficiency and Grid Integration of Renewable Energy (EEGIRE) II” to improve electrical grid for the public and private stakeholders in the energy sector of Bangladesh.

## Objectives

Objective of this technical cooperation project is to “increase the integration capacity of the grid for decentralised renewable energy sources”. Key outputs to reach the objectives are:

- Developing grid management for the integration of decentralised solar power systems, including increasing digitalisation.
- Developing innovative instruments, processes or technologies to increase the share of decentralised solar power systems which will be systematically evaluated by energy utilities.
- Developing the transmission grid operators to reach a position to improve the stability of the transmission grid, as a prerequisite for further expansion of grid-connected decentralised solar power plant

Programme name	Energy Efficiency and Grid Integration of Renewable Energy (EEGIRE) II
Commissioned by	German Federal Ministry for Economic Cooperation and Development (BMZ)
Project region	Bangladesh
Partner ministry	Power Division; Ministry of Power, Energy, and Mineral Resources (MPEMR)
Implementing partner	Sustainable and Renewable Energy Development Authority (SREDA); West Zone Power Distribution Company Limited (WZPDCL); Dhaka Power Distribution Company Limited (DPDC); Power Grid Company of Bangladesh (PGCB)
SDG contribution	Affordable and Clean Energy (SDG-7), Climate Action (SDG-13)
Duration	2021-2024



EEGIRE II aims to enhance the grid to accommodate more renewable energy sources (left). Working Group Meeting with public and private stakeholders (right).

## Approach

The first phase of the Energy Efficiency and Grid Integration of Renewable Energy (EEGIRE) (06.2018 – 05.2021; EUR 3.0 m grant) was completed with the objective “Decision-makers in the energy sector of Bangladesh have successfully enabled the integration of solar power into the electrical grid and improved energy efficiency in the electrical grid.” The second phase is focusing primarily on the improvement of technical preconditions for further expansion of

grid-connected decentralized solar power plants. The project is aiming to improve the conditions under which stakeholders can integrate renewable energy, especially from decentralized solar power plants, into the electrical grid and improve its efficiency. To achieve the objective with its implementing partners, led by the Power Division of Bangladesh’s Ministry of Power, Energy and Mineral Resources (MPEMR), the project is pursuing a multi-stakeholder approach at several levels. It is structured in three components that reflect three levels of intervention:

### Component 1

Aims to enable selected distribution companies to operate their electricity grid more reliably with an increasing share of decentralised solar power plants and more efficiently through increasing digitalisation. The distribution companies will compile the knowledge gained on grid analysis, grid management and the digitalisation of the distribution business and integrate it into their operating routines.

### Component 2

Targets the systematic evaluation of innovative instruments, processes and technologies designed to increase the share of decentralised solar power systems by energy utility companies. Based on detailed evaluations and feasibility studies, utility companies are able to assess the potential benefits of investing in identified technologies for further increase of grid-connected decentralised solar power systems.

### Component 3

Enables the national transmission company in Bangladesh (Power Grid Company of Bangladesh) to improve the stability of the transmission grid as a prerequisite for further increase of grid-connected decentralised solar power plants.

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