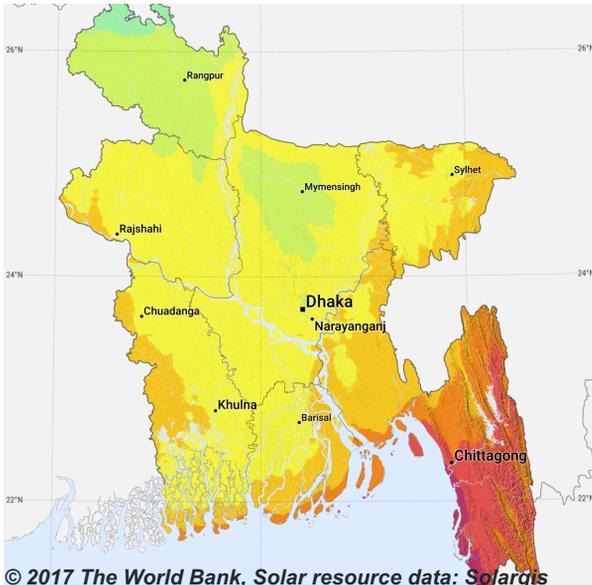


# Solar Market Brief: Bangladesh



<b>Population (2018)</b>	164 million
<b>GDP (2017)</b>	US\$ 249 billion
<b>GDP per capita (2017)</b>	US\$ 1,517
<b>GDP growth rate (2007 - 2017)</b>	6.2 %
<b>Inflation rate (2007 – 2017)</b>	6.9 %
<b>Sovereign Rating (Moody's, 2017)</b>	Ba3 (Stable)
<b>FDI inflow (2016)</b>	US\$ 2.3 billion
<b>Ease of Doing Business Rank (2017)</b>	177 of 190

## Electricity Market Profile

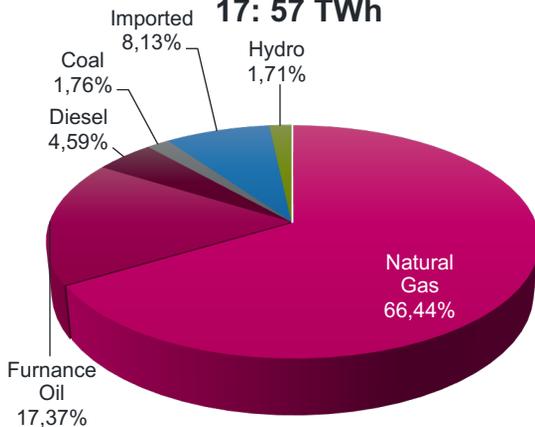
<b>Gross Generation (2015)</b>	60.5 TWh
<b>Installed Capacity (2017)</b>	13.6 GW
<b>Installed Capacity of Renewable Sources (2017)</b>	Hydro: 230 MW
<b>Officially planned installed capacity of Solar PV</b>	1,264 MW by 2022

## Country Facts

- Parliamentary republic in South Asia
- Agricultural society, 64 % of population living in rural areas
- One of the fastest growing economies in South Asia

## Energy Generation FY 2016-

17: 57 TWh



Source: Bangladesh Power Development Board (2017)

## Key Electricity Market Facts

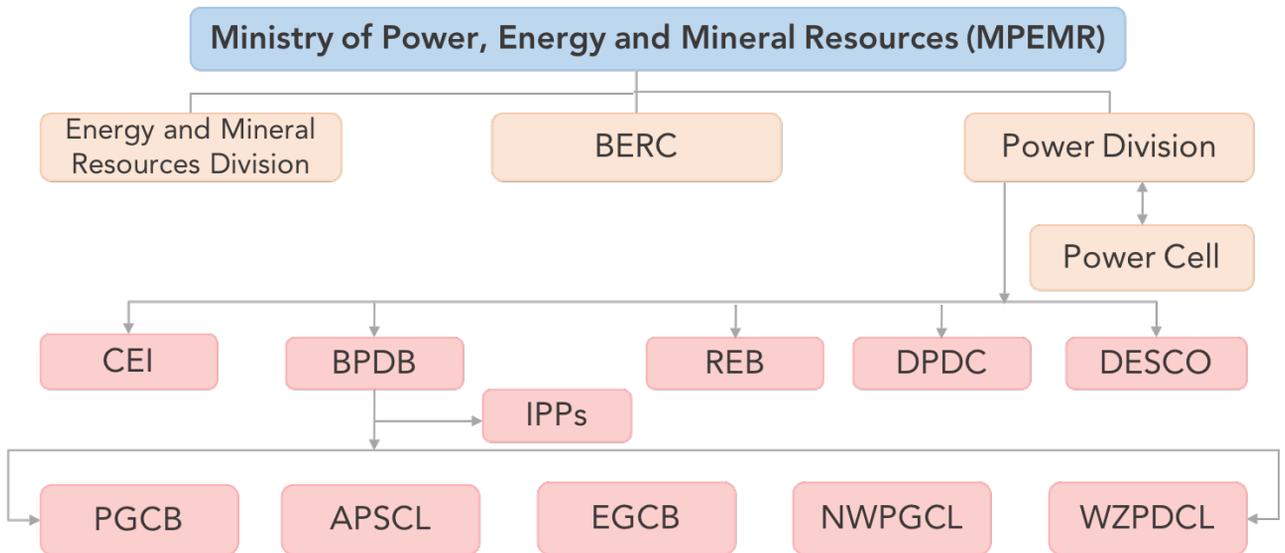
- Natural gas and hydro based energy generation
- Dependency on electricity imports mainly from India
- Challenges regarding power supply where power outages are common
- Rapidly growing power sector, electricity demand is expected to increase to 17 GW in 2020 and 33 GW in 2030
- Power System Master Plan: Efficient use of coal and natural gas and development of solar power and wind power projects.

# Solar Market Brief: Bangladesh



## Regulatory framework

- The Ministry of Power, Energy and Mineral Resources (MPEMR) is responsible for regulating the electrical power infrastructure through the Bangladesh Regulatory Commission (BERC).
- Electricity generation and distribution are under the control of the Bangladesh Power Development Board (BPDB). Transmission is managed by the Power Grid Company of Bangladesh Ltd. (PGCB).
- Rural distribution is mainly provided by the Rural Electrification Board (REB).
- Electricity generation is dominated by independent power producers (IPPs), which sell power mainly to the BPDB and the REB with long-term power purchase agreements (PPA).
- In 2016, the Power Division of the MPEMR updated the Power System Master Plan which includes a renewable energy target of 15 % of the total power supply by 2041.
- Power Cell, under the Power Division, is responsible for managing and implementing the power sector reform project in Bangladesh. In 2008, Power Cell issued a Renewable Energy Policy with general conditions for installing and operating solar photovoltaic (PV) systems and other renewable energy (RE) projects.
- A license must be obtained from the BERC if the electricity generated is to be sold and the capacity of the plant is 5 MW or more.
- Already existing transmission lines and distribution systems may be used for solar energy if there is enough capacity. This is done through a mutual agreement between the solar project sponsor and the transmission and distribution companies.
- All tariffs on electricity generated from the solar PV systems 5 MW or more should be approved by the BERC. Distribution companies are allowed to offer a green energy tariff to incentivize RE projects.



EBL Securities Ltd., 2017

# Solar Market Brief: Bangladesh

## Solar Measurement Campaign to support the development of 2000 MW of renewable energy

- Suntrace is supporting the implementation of the Scaling up Renewable Energy Program (SREP) in Bangladesh.
- The project commenced in January 2017 and is expected to be completed in 2019.
- The aim is to support countrywide renewable energy resource assessment and mapping for the development of a RE generation capacity of 2000 MW by 2020. This will support the country's target of 2470 MW by 2021 as stated in the Power System Master Plan.
- As part of the project, a Suntrace Helio Scale Omega solar measurement station was delivered and installed to provide regular bankable solar data over a two-year period.
- The SREP has proposed the allocation of US\$ 2.36 million to renewable energy resource assessments and technical assistance in the country. This includes the installation of solar measurement station to complement the Feni site's ground measurements.



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# Solar Market Brief: Bangladesh



## Planned solar park projects in Bangladesh

### 200 MW Solar Plant in Gaibandha District

- Solar park to be developed by Bangladeshi firm Beximco Power Company Ltd (80 % share) and Chinese firm, TBEA Xinjiang Sunoasis Co. Ltd. (20 % share).
- The plant is to produce electricity for the Bangladesh Power Development Board (BPDB) under a 20 year PPA at US 15 cents/kWh.
- First utility-scale solar plant in the country signed under a PPA
- Estimated project budget is US\$ 400 million
- Beximco and TBEA to build, own and operate the solar power plant. A Limited Notice to Proceed (LNTP) was issued in April 2018.
- Status April 2018: Civil works ongoing
- Commercial operation scheduled for April 2019

### 30 MW Solar Plant in Rangpur

- Grid-connected plant with a capacity of 30 MW to be installed at Gangachara in Rangpur.
- Project developed and implemented by the local company Intraco Solar Power Limited (ISPL).
- Electricity produced will be bought by the BPDB under a 20 year PPA. Electricity will be bought for US 16 cents/kWh.
- Commercial operation is scheduled for September 2018
- Government-owned entity, the Infrastructure Development Company Limited (IDCOL), was involved in the provision of funding to help ISPL develop the solar park infrastructure.
- BPDB to procure power from the ISPL on a “no electricity, no payment” agreement.
- Status: Under development

# Solar Market Brief: Bangladesh

## Our view on the market

- Bangladesh has on average 4 – 4.5 peak sunlight hours a day and an average solar irradiation of 5 kWh/m<sup>2</sup> per day.
- Increasing consumer electricity prices in Bangladesh could provide an opportunity for RE sources to compete with conventional energy sources. Current electricity prices from diesel or furnace oil-based plants cost around Tk 14-18/kWh (USD 17-21 cents/kWh).
- Although Bangladesh possesses great potential for the development of solar resources, in the last few years, most of the planned solar projects have experienced significant delays. One of the main obstacles is to access suitable land at a reasonable price. Government stipulates that no agricultural land can be used for solar projects. Bangladesh is an agricultural society so acquiring non-agricultural land is difficult.
- Access to suitable sites for PV plants can be obtained by bidding or negotiating direct PPAs with customers.
- Bangladesh has been able to successfully commission two solar plants in the last five years. One is 20 MW plant at Cox's Bazar and a 3 MW plant in Sarishabari, Jamalpur.

## Investment opportunities and requirements:

### On-Grid:

- IPPs: Much of the power generation infrastructure is owned by IPPs as a result of the country's incapacity to fund the development and construction of the necessary infrastructure
- The electricity generated is sold to the BPDB under a negotiated PPA

### Direct Industrial Supply:

- **Rooftop:** Opportunities exist for rooftop PV solar projects for industrial companies that are seeking to reduce their electricity costs.
- **Mini Grids:** The IDCOL regulates mini grids in Bangladesh through an implementation agreement. These mini grids are set up by private developers and are exempt from obtaining licensing for energy sale if the power produced does not exceed 5 MW.

**Off-grid:** Many residents in rural areas make use of off-grid solar in solar home systems (SHSs). The installation of over 4 million SHSs has given residents in remote areas access to electricity which may not have been possible otherwise. However, the quality of these systems has been low and often contributes very little to the electricity needs of the consumer.

# Solar Market Brief: Bangladesh

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