



# GLIMPSES OF BANGLADESH POWER SECTOR



**Power Division**  
**Ministry of Power, Energy & Mineral Resources**



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## BACKGROUND

Electricity plays a pivotal role in the socio-economic development of a country. At present 94% of the total population of Bangladesh has access to electricity and per capita generation is 510 KWh (including renewables and captive). Demand of electricity has been increasing day by day. Realizing the importance of electricity Government has set target to provide electricity to all citizens by 2020. Govt. has declared vision 2021 to raise the economy at the level of a middle-income country by 2021. To achieve this target about 24,000 MW power to be generated by 2021. Government has also planned to generate 40,000 MW by 2030 and 60,000 MW by 2041. To meet the demand of electricity generation, distribution & transmission projects are in the various phases of implementation. To achieve this target huge investment is required for power sector.



Haripur 412MW Combined Cycle Power Plant

### Power Sector : At a Glance

Item	2009	August, 2019	Achievement
No. of Power Plants	27	136	(+) 109
Power Generation Capacity (MW)	4,942	22,329*	(+) 17,387
Highest Power Generation (MW)	3,268 (6 Jan'09)	12,893 (29 May'19)	(+) 9,625
Transmission Line (Ckt. KM)	8,000	11,650	(+) 3,650
Grid Substation Capacity (MVA)	15,870	41,195	(+) 25,325
Power Import (MW)	-	1,160	(+) 1,160
Distribution Line (KM)	2,60,000	5,37,000	(+) 2,77,000
Access to electricity	47%	94%	(+) 47.01%
Per Capita Power Generation (kWh)	220	510	(+) 290
Electricity Consumers (Million)	10.8	34.8	(+) 24
Irrigation Consumers	2,34,000	3,64,000	(+) 1,30,000
Distribution System Loss	14.33%	9.35%	(-) 4.98%

\*Including captive & RE



## VISION

Reliable and quality power supply to all citizens at reasonable and affordable price.

## MISSION

Ensure reliable electricity to all by 2020 through integrated development of power generation, transmission and distribution.

## STRATEGIC OBJECTIVES

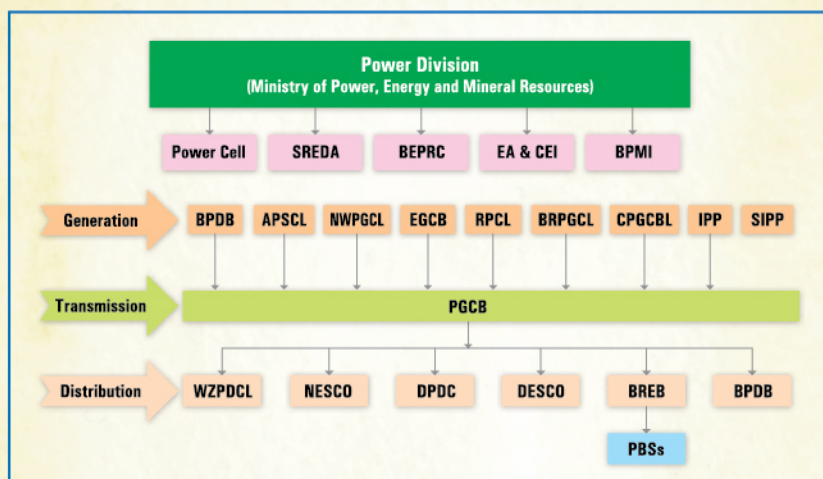
- ◆ Improving power generation, transmission and distribution system.
- ◆ Increase participation of private sector for implementation of development projects.
- ◆ Development of renewable energy.
- ◆ Development of institutional efficiency and capability.

## FUNCTIONS

- ◆ Manage activities relating to power generation, transmission and distribution.
- ◆ Formulate plans consistent with the increasing demand for electricity in the country and expansion, rehabilitation and modernization of power generation, transmission and distribution system accordingly.
- ◆ Formulate & update power sector acts, rules, regulations and policies.
- ◆ Encourage private sector investment including joint venture in power sector.
- ◆ Improve the standard of living of rural people through rural electrification.
- ◆ Monitor and evaluate the performance of the power sector entities.
- ◆ Harnessing renewable energy, energy efficiency and energy conservation.



Ghorashal 7th Unit Power Plant



## DEPARTMENTS

- Power Cell ([www.powercell.gov.bd](http://www.powercell.gov.bd))
- Sustainable & Renewable Energy Development Authority (SREDA) ([www.sreda.gov.bd](http://www.sreda.gov.bd))
- Bangladesh Energy and Power Research Council ([www.eprc.gov.bd](http://www.eprc.gov.bd))
- Electrical Adviser & Chief Electric Inspector ([www.eacei.gov.bd](http://www.eacei.gov.bd))

## GENERATION IN PUBLIC SECTOR

- Bangladesh Power Development Board (BPDB) ([www.bpdb.gov.bd](http://www.bpdb.gov.bd))
- Electricity Generation Company of Bangladesh Ltd. (EGCB) ([www.egcb.gov.bd](http://www.egcb.gov.bd))
- Ashuganj Power Station Co. Ltd (APSCL) ([www.apscl.gov.bd](http://www.apscl.gov.bd))
- Rural Power Company Ltd. (RPCL) ([www.rpcl.gov.bd](http://www.rpcl.gov.bd))
- BR Powergen Company Ltd. (BRPGCL) ([www.brpowergen.gov.bd](http://www.brpowergen.gov.bd))
- North West Power Generation Company Ltd. (NWPGL) ([www.nwpgcl.gov.bd](http://www.nwpgcl.gov.bd))
- Coal Power Generation Company Bangladesh Ltd. (CPGCBL) ([www.cpgcbl.gov.bd](http://www.cpgcbl.gov.bd))
- Bangladesh-India Friendship Power Company Ltd. (BIFPCL) ([www.bifpcl.com](http://www.bifpcl.com))

## TRANSMISSION

- Power Grid Company of Bangladesh Ltd. (PGCB) ([www.pgcb.gov.bd](http://www.pgcb.gov.bd))



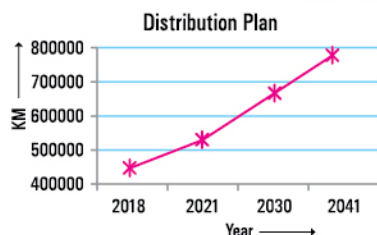
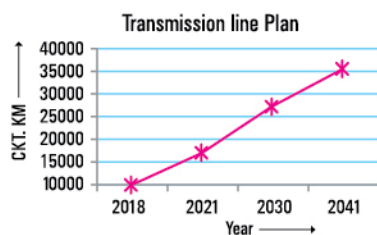
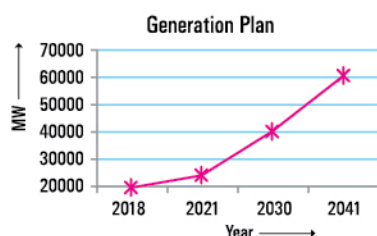
## DISTRIBUTION

- Bangladesh Power Development Board (BPDB) ([www.bpdb.gov.bd](http://www.bpdb.gov.bd))
- Bangladesh Rural Electrification Board (BREB) ([www.reb.gov.bd](http://www.reb.gov.bd))
- Dhaka Power Distribution Company Ltd. (DPDC) ([www.dpdcl.gov.bd](http://www.dpdcl.gov.bd))
- Dhaka Electric Supply Company Ltd. (DESCO) ([www.desco.gov.bd](http://www.desco.gov.bd))
- West Zone Power Distribution Company Ltd.(WZPDCL) ([www.wzpdcl.org.bd](http://www.wzpdcl.org.bd))
- Northern Electric Supply Company Ltd. (NESCO) ([www.nesco.gov.bd](http://www.nesco.gov.bd))

## POWER SECTOR ROADMAP: PERSPECTIVE

To achieve the overarching goal of Vision 2021 and Vision 2041 through bringing stability to the macro-economic structure and achieving rapid economic growth, Government has set target to generate 24,000 MW, 40,000 MW and 60,000 MW by 2021, 2030 and 2041 respectively. Simultaneously priority has been given to construction of adequate transmission and distribution network to evacuate generated power to the consumers. Transmission line (132KV, 230 KV, 400 KV & 765 KV) will be increased from 11,650 circuit kilometer to 36,870 circuit kilometer by 2041. Similarly distribution line will be enhanced from 537,000 kilometer to 783,000 kilometer by 2041.

Government has taken different projects for distribution automation, smart meter, underground distribution line and substation in Dhaka city, GIS mapping, SCADA/ EMS, ICT, smart grid and innovation activities to ensure uninterrupted and reliable power supply. Besides, through the demand side management an unprecedented success has been achieved in power sector.



Power Division has adopted policies to set up base load power plants in order to reduce electricity production cost and ensure sustainable way of generating electricity. Depletion of natural gas reserve restrict the current generation of electricity. To supplement gas supply, Government has taken initiatives to set up land based and FSRU LNG terminal. At present two FSRUs are already in operation.

The Power Division has adopted policy to generate electricity from various renewable sources in 2008. Till date about 589 MW power is generated from renewable energy sources.

### PER CAPITA GENERATION

Per capita electricity generation of a country is considered as a secondary indicator to its economic development. Hence, the capacity of electricity generation is enhanced keeping pace with the economic advancement till the entire population of the country is brought under the coverage of electricity. In January 2009, per capita electricity generation was 220 kWh, which is now 510 kWh including renewables and captive generation.



Inauguration of hundred percent electrification by Hon'ble Prime Minister

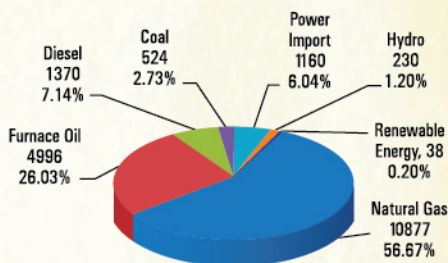


## ELECTRICITY COVERAGE

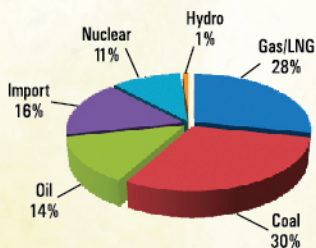
The access to electricity of a country is more significant than that of per capita electricity consumption. Access to electricity and its availability create economic and social discrimination between advantaged and underprivileged groups. This disparity continues to rise as electricity coverage increases the production capacity of the privileged groups. On the contrary, everyone in a country, where electricity is distributed in subsidized tariffs, has the right to get benefits of it. Considering all aspects, electricity coverage has stepped-up from 47% to 94% in the last ten years through implementation of road map to bring the whole nation under electricity coverage by 2020. This number is expected to stand at 100% by the year 2020.

## FUEL DIVERSIFICATION

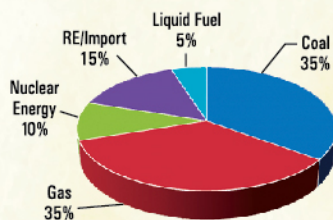
The cost of power generation varies with market price of various fuels in international market. As a result, how much electricity will be produced from a particular fuel is determined by balancing the production cost and electricity tariff. Fuel diversification has been adopted as a strategy considering the promotion of environment-friendly fuels, regulation on power generation cost, the future availability of various fuels and international market price. Hence, the dependence on natural gas for electricity generation is reducing. Figure below shows the change in fuel mix in electricity generation over the years.



**Fuel mix: 2018-19**



**Fuel mix: 2030**



**Fuel mix: 2041**

## GENERATION ADDITION PLAN UP TO 2023

Plans for setting up power plants have been adopted in order to ensure electricity for all by 2020. These plans for establishing power plants are being revised, every year, on the basis of their implementation status. The establishment of a power plant is a multifaceted process and, therefore, it is not always possible to set up a power plant within the stipulated time. Upcoming power generation plan upto 2023 is shown in the Table.

Year wise capacity addition target (2019-2023)					
Description	2019	2020	2021	2022	2023
Public	1463	1953	2217	870	2890
Private	2090	553	0	1142	1490
Power Import	0	0	340	1496	0
<b>Total</b>	<b>3553</b>	<b>2506</b>	<b>2557</b>	<b>4308</b>	<b>4308</b>

## COAL BASED POWER PLANTS

To meet the demand for electricity immediately, a number of power plants were installed through short term plan. The cost of electricity production escalated because of the use of liquid fuel in power generation. In order to reduce the



Barapukuria 3rd Unit Power Plant



production cost of electricity, decision has been taken to set up coal based large base-load power plants. In this context, initiatives have been taken to establish indigenous/imported coal based power plants with a capacity of about 9,820 MW in public/joint venture/IPP/PPP sector by 2037. List of coal based mega projects for years to come is mentioned in the following Table:

Coal Based Mega Projects				
SN	Location	Capacity (MW)	Expected COD	
1	Moheskhalī 1200-1320 MW Coal Based Power Plant, BPDB	660X2= 1320	2027	
2	Matarbarī 1200 MW Coal Based Power Plant (JV of CPGCBL & Sumitomo, Japan)	600X2= 1200	2028	
3	Kohelia 700 MW Coal Based Power Plant (JV of CPGCBL & Sembcorp, Singapore)	700	2029	
4	Moheshkhali 1200-1320 MW Coal Based Power Plant (JV between BPDB & CHDHC, China)	660X2= 1320	2029	
5	Patuakhali 1320 MW Coal Based Power Plant, APSCL	660X2= 1320	2031	
6	Moheskhalī 1200-1320 MW Coal Based Power Plant ( JV of BPDB & TNB-PTB, Malaysia)	660X2= 1320	2033	
7	Moheskhalī 1200-1320 MW Coal Based Power Plant (JV of BPDB & SEPCO, China)	660X2= 1320	2035	
8	Moheskhalī 1200-1320 MW Coal Based Power Plant ( JV of BPDB & KEPCO, South Korea)	660X2= 1320	2037	
Total : 9.820 MW				

## **LNG BASED POWER GENERATION**

Power System Master Plan, 2016 is targeting about 60,000 MW installed capacity by 2041. Under this long term plan, coal, imported power from neighboring countries, limited gas, and nuclear power will be used for the base load power plant. LNG will be used to supplement the gas shortage. Limited gas, liquid fuel and LNG will be used for the peak load power plant. Major activities on LNG terminal for power and energy are stated below:

- ◆ Petrobangla has signed an agreement on 16 July, 2016 with Exceletrate Energy, USA to establish LNG terminal (FSRU) in Moheshkhali, Cox's Bazar district. Already 500 MMCFD gas started supplying to the national pipeline.
- ◆ Government has decided to establish a land based LNG terminal to import of 500 MMCFD of natural gas (approximately 3.5 million tons of LNG per annum) at Matarbari, Moheshkhali of Cox's Bazar district. It is estimated that 2,500–3,000 MW electricity generation will be generated by using this LNG.
- ◆ Government has signed a contract with Summit Power Bangladesh to establish FSRU LNG Terminal at Moheshkhali, Cox's Bazar District of capacity 500 MMCFD. Gas is being supplied to the onboard pipeline from this FSRU.
- ◆ Reliance Power, India will establish LNG based 750 MW CCGP at Meghnaghat. BPDB will purchase power from it.

## INNOVATIVE PROJECT FINANCING

Besides conventional financing power projects are being financed through G to G, bidder's financing and ECA financing. Effective measures have been taken to attract private investment in power sector. About US\$ 23 billion, US\$ 35 billion and US\$ 85 billion will be required by 2021, 2030 and 2041 respectively. In order to finance these projects Government has adopted Export Credit Agency (ECA) financing which opened a new era in power generation. In the meantime about US\$ 8.31 billion has been invested under ECA financing.



Sirajganj 225 MW CCGP



Bolla 225 MW



Siddhirganj 335 MW Combined Cycle Power Plant



The list of ECA financing projects is given below:

Name of the projects	Investment amount under buyers credit (Millions US \$)	Commissioning date
Ashuganj 450 MW CCPP (South)	420.00	July 2016
Ashuganj 225 MW CCPP	193.00	December 2015
Kodda 150 MW Dual Fuel Power Plant	139.00	August 2015
Shahjibazar 330 MW CCPP	257.00	December 2016
Barapukuria 275 MW Coal Based PP (3rd Unit)	224.00	January 2018
Ghorashal 365 MW CCPP	221.00	February 2017
Chapainawabganj 100 MW PP	101.00	August 2017
Sirajganj 225 MW CCPP	200.00	February 2018
Rampal 1320 MW Coal Based Power Plant	1200.00	September 2021
Bibiyana 3 - 400 MW CCPP	347.00	December 2018
Moheshkhali 1320 MW Coal Based Power Plant	1957.00	December 2025
Re-powering of Ghorashal 3rd Unit (416 MW after re-powering)	259.00	August 2019
Sirajganj 225 MW CCPP (3rd Unit)	164.00	December 2018
Khulna 200-300 MW dual fuel CCPP	304.00	December 2020
Payra 1320 MW Thermal Power Plant	1658.00	April 2019 (1st unit) October 2019 (2nd unit)
Sirajganj 414 MW CCPP (4th Unit)	378.00	December 2018
Mymensingh 360 MW dual fuel	288.00	December 2020
<b>Total 8085 MW</b>	<b>Total US\$ 8310 Million</b>	



Coal Jetty

## ENHANCING GENERATION CAPACITY OF OLD PLANTS

No proper steps were taken in the past to repair, renovate or retire the 15-25 year old power plants at public sector. As there is surplus generation capacity now, initiatives have been taken to repair, renovate or retire these power plants.



MoU signed between Ministry of Power Energy & Mineral Resources  
& Emirates National Company Limited

## REGIONAL POWER COOPERATION

To enhance the development of power sector Bangladesh Government is working with neighboring countries as well as UN-ESCAP, SAARC, BIMSTEC, SASEC and D-8 for regional cooperation. Besides India, Bangladesh has taken initiative in cross border trade of electricity through bilateral and cooperation with Nepal, Bhutan and Myanmar. Effort has been taken to import hydro power from Nepal. A Memorandum of Understanding (MoU) between Bangladesh and Myanmar is underway. Discussion is going on to import electricity from Bhutan. Collaboration effort with the SAARC countries is continued.





An agreement has been signed between Bangladesh & Brunei on cooperation for LNG supply

### **ELECTRICITY IMPORT FROM INDIA**

Total 1160 MW power is being imported from India. Out of that 500 MW power is being imported from Boharampur, India since 5 October, 2013. 500 MW power is being imported from Bheramara after enhancement of the same grid substation capacity by 10 September, 2018. Decision has been made to import 1000 MW power more by adding a separate line with this existing line. Besides 100 MW power is being imported from Palatana, Tripura state since March 2016. By using same infrastructure additional 60 MW is being imported since July 2017. A decision has been taken to import 500 MW electricity by 2020 through converting the existing 132 kV AC grid line interconnection to 500 MW HVDC.

A detailed project report is being prepared to establish 765 KV synchronous interconnection from NE India to Eastern India.

### **ELECTRICITY IMPORT FROM BHUTAN**

A tripartite MoU between Bangladesh, India and Bhutan is at final stage to develop a Hydropower project in Bhutan.

### **ELECTRICITY IMPORT FROM NEPAL**

Bangladesh has signed on MoU with Nepal for cross border trade of electricity between the two countries. In order to import 500 MW power from GMRs Hydropower plant signing of a contract is at final stage.

## CHINA COOPERATION

A Memorandum of Understanding (MoU) has been signed between Bangladesh and China on October 21, 2012 to enhance cooperation in power sector. Under this MoU both countries would cooperate each other in Electricity generation, transmission, distribution, energy efficiency, renewable energy.

## ELECTRICITY TRANSMISSION

Power Grid Company of Bangladesh (PGCB) has taken a number of initiatives under various development projects to improve the transmission infrastructure to evacuate the additional generation capacity. The overall electricity transmission capacity, quality and reliability have increased. However more transmission infrastructure would be required to ensure grid reliability. The total figure of the transmission infrastructure of the PGCB is shown in the table.

Achievements of PGCB	
Infrastructure	Achievement
400/230/132 KV transmission S/S Capacity	4,420 MVA
230/132 KV grid sub-station Capacity	13,135MVA
132/33 KV grid sub-station Capacity	23,640 MVA
<b>Total Substation Capacity</b>	<b>41,195 MVA</b>

Infrastructure	Achievement
400 KV transmission line	698 Circuit KM
230 KV transmission line	3407 Circuit KM
132 KV transmission line	7545 Circuit KM
<b>Total Transmission Line</b>	<b>11,650 Ckt KM</b>

## ELECTRICITY DISTRIBUTION

Six distribution utilities, namely: Bangladesh Power Development Board (BPDB), Bangladesh Rural Electrification Board (BREB), Dhaka Power Distribution Company Ltd. (DPDC), Dhaka Electric Supply Company Ltd. (DESCO), West Zone Power Distribution Company Ltd. (WZPDCL) and Northern Electricity Supply Company Ltd. (NESCO) are involved in power distribution.



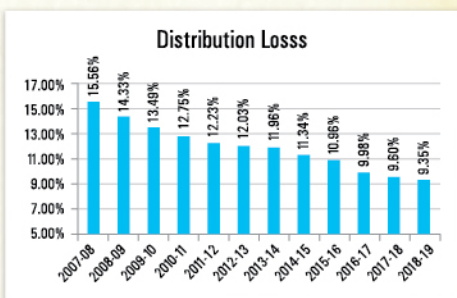
### Distribution System Improvement (2009-19)

Item	2009	2019
Total distribution line (KM)	2,60,000	5,37,000
Total number of consumers (Million)	10.8	34.8
Distribution System loss	14.33%	9.35%
Accounts Receivable (Eq. month)	2.44	1.58

The utilities are working to provide electricity through customer satisfaction, efficient, viable environment friendly, bring transparency and bring the entire population under electrification. The electricity distribution organizations have been able to develop a sound distribution system, enhance customer service, reduce system loss and collect the outstanding bills. A comparative data regarding electricity distribution is presented in the following table.

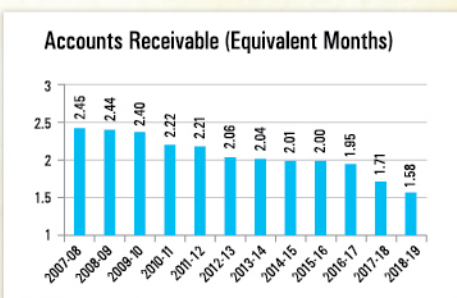
### DISTRIBUTION SYSTEM LOSS

Distribution entities of Bangladesh have been able to reduce system loss remarkably. The distribution system loss in FY 2007-08 was 15.56%, which reduced to 9.35 % in FY 2018-19. The distribution system loss from 2007-08 to 2018-19 is shown in graph.



### ACCOUNTS RECEIVABLE

Accounts Receivable has been reduced to an acceptable level through taking some incentive-oriented steps, closed monitoring and conducting different activities in the field level collecting from government, semi-government and private consumers over last few years. It was 2.45 equivalent-



months in FY 2007-08, which reduced to 1.58 equivalent- month in FY 2018-19. The accounts receivable from 2007-08 to 2018-19 is shown in graph.

## ACCESS TO ELECTRICITY ENHANCEMENT THROUGH RURAL ELECTRIFICATION PROGRAM

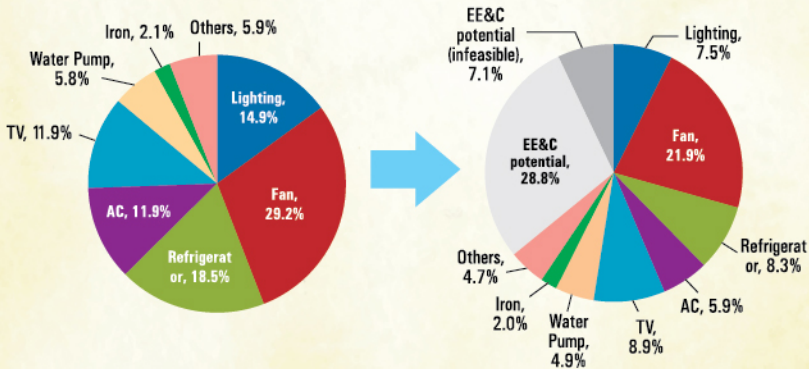
Considering the pivotal role of electricity for the improvement of socio-economic conditions of rural people, Bangladesh Rural Electrification Board (REB) was formed. REB has been making remarkable progress in reducing the disparity between the urban and rural areas by bringing the rural people under electricity coverage gradually through Palli Bidyut Samity (PBS). System loss, accounts receivable have been reduced considerably.



Electricity has brought redical change in village life

## DEMAND SIDE MANAGEMENT

Electricity generation is an expensive and time-consuming process. Considering the importance, necessity and benefits of energy conservation and energy efficiency, the Government has taken measures to ensure efficient power management alongside its relentless efforts to increase generation. As a part of the strategy, efforts have been made to use energy saving, efficient and modern equipments in power generation, transmission, distribution, and simultaneously encouraging the use of renewable energy. Energy Efficiency & Conservation (EE & C) Master Plan up to 2030 has been declared.



Energy efficiency and conservation



Since it is easy and less costly to save one unit power than to generate the same, the Government has created an authority called "Sustainable and Renewable Energy Development Authority (SREDA)" for the implementation of the "Energy Efficiency Rule." Many power saving measures have been taken for the load and demand side management by the Government.

### PRE-PAID METERS

To improve power distribution system, 2.5 million prepaid meters have been installed by different entities. Till August 2019, BPDB, BREB, DPDC, DESCO, WZPDCL and NESCO installed 1100000, 460000, 414000, 290000, 180000 and 19000 numbers of prepaid meters respectively. In addition, installation of 2,00,00,000 smart-prepaid-meters is underway. After installation of these pre-paid meters virtually there will be no accounts receivable of pre-paid meter consumers.

Installed prepaid meters up to August, 2019			
Utility	Single phase	Three phase	Total
BPDB	10,87,718	20,465	11,08,183
REB	4,59,990	600	4,60,590
DPDC	3,83,295	30,688	4,13,983
DESCO	2,69,326	18,434	2,87,760
WZPDCL	1,76,990	3,111	1,80,101
NESCO	18,435	459	18,894
<b>Total</b>	<b>23,95,754</b>	<b>73,757</b>	<b>24,69,511</b>

Moreover, due to introduction of pre paid meters, system loss has been reduced significantly and also demand at consumer level reduced. Power Division has set a target to bring all big & medium consumers under pre-paid meter. A program to install unified pre-paid meters in all distribution entities is ongoing. Government has taken initiatives to replace analog meters by prepaid meters within next three years.



## RENEWABLE ENERGY

The government has set target to generate 10% of the total electricity from renewable sources. In order to achieve the targets, different plans have already been adopted. The Solar Home Systems (SHS) program of Bangladesh has been acclaimed as one of the most successful initiatives in the world. Till now more than 5.5 million solar systems have been installed throughout the country. Most of the projects, under the plan, are expected to be implemented by the private entrepreneurs.

### Electricity generation targets from renewable sources up to 2021.

Type	2019	2020	2021
Solar	250	300	250
Wind	180	300	300
Biomass/ Biogas	1.5	2.5	3.5
Hydro	1	2	2
Total	432.5	604.5	555.5



20 MW Solar in Teknaf



## STRATEGY OF POWER SYSTEM MASTER PLAN-2016

The Power System Master Plan-2016 (PSMP) has been adopted considering the scarcity of natural gas and a gradual increase in demand for electricity generation. According to the PSMP, under long-term plan, there are targets of achieving electricity generation capacity of 24,000 MW against a demand of 19,000 MW in 2021, 40,000 MW against a demand of 33,000 MW in 2030 and 60,000 MW against demand of 52,000 MW. A summary of Government's future plan is given below:

Sl. No.	Description	August 2019	2021 (PSMP 2010)	2030 (PSMP 2010)	2041 (PSMP 2016)
1.	Installed Capacity (MW)	22,329*	24,000	40,000	60,000
2.	Electricity Demand (MW)	14,000	19,000	33,000	52,000
3.	Transmission Line (Ckt. KM)	11,650	12,000	27,300	34,850
4.	Grid Substation Capacity (MVA)	41,195	46,450	1,20,000	2,61,000
5.	Distribution Line (KM)	5,37,000	6,00,000	6,60,000	7,83,000
6.	Per Capita Generation KWh)	510	700	715	1,475
7.	Access to Electricity (%)	94	100	100	100

\*Including captive & RE



Mymensingh 210 MW Combined Cycle Power Plant

## INITIATIVE OF UNDERGROUND SUBSTATION

The government has taken an initiative to modernize the power distribution system in Dhaka through setting up underground cable lines in some selected areas. The move also aims to increase the longevity and reliability of the power distribution system under the DPDC and DESCO areas. The project also aims to reduce the System loss, System Average Interruption Duration Index and System Average Interruption Frequency Index in the power distribution areas.



## ICT ACTIVITIES IN BANGLADESH POWER SECTOR

Power Division is using ICT in the forefront in order to provide improved services to the consumers through enhancement of institutional capability and establishment of good governance with transparency and accountability. The significant initiatives on ICT are mentioned below:



Underground Substation Concept Diagram

- Online application for electricity connection has been established. As a result the transaction cost for getting electricity connection has been reduced significantly. The applicant can also receive Demand Note through online.
- Mobile phone and online electricity bill payment system has been introduced.
- Personnel Management Information System (PMIS) has been introduced in the Power Division and its all entities in order to improve human resource management.
- An integrated audit management software has been introduced in all Power Sector entities for quickly resolving audit objections.
- Online software for monthly coordination meeting has been introduced. Now Power Division can conduct paperless meeting which significantly reduces time and cost.

- Smart pre-paid metering system is introduced in all distribution utilities. Government has fixed the target to replace existing analog meters by prepaid meters within next five years. This will reduce system loss, customer sufferings and significantly reduce bill outstanding.



Smart Prepaid metering system

- Automated Remote Meter System has been established at all generating stations and grid level. Remote metering is also introduced in High Tension (HT) consumers. It improves energy auditing system and provides on line real time meter reading data for billing.



- Online project monitoring system has also been introduced. All the Project Directors can send monthly progress report through online. Power Division accumulates all submitted reports through online as well for project review meeting.
- Initiative has been taken to introduce Digital complain disposal system in all distribution entities.
- Call centers will be established to receive and dispose consumers' complain and concerns.
- e-tendering method has been introduced in order to bring transparency in public procurement.
- e-filing system in the Power Division has been introduced.

## **BANGLADESH ENERGY AND POWER RESEARCH COUNCIL**

The Power Division attached utmost importance to technological development in order to ensure the transformation of power sector necessary for energy security considering the multi-dimensional use of power and energy. The Parliament has enacted an Act to form Bangladesh Energy and Power Research Council (BEPRC) in order to encourage the invention of new techniques and improvement through new researches from nationally and internationally acclaimed researchers and scientists.

## **POWER SECTOR POLICIES AND LEGISLATIONS**

Government has taken measures to change and update policy and legislation framework to create an investment friendly environment and to provide improved customer service. The major acts, policies and guidelines are mentioned below :

1. Electricity Act, 2018.
2. Power & Energy Fast Supply Enhancement (Special Provision Act.)
3. Bangladesh Rural Electrification Board (REB) Act, 2013.
4. Bangladesh Energy Regulatory Commission Act, 2003.
5. Private Sector Power Generation Policy of Bangladesh, 1996.
6. Renewable Energy Policy of Bangladesh, 2008.
7. Policy Guideline for Small Power Plant in Private Sector, 1998.
8. Policy Guidelines for Power Purchase from Captive Power Plant, 2007.
9. Policy Guidelines for Enhancement of Private Participation in the Power Sector, 2008.

**INCENTIVES**

- Exemption from corporate income tax for a period of 15 years.
- Plant and equipment (full value) and spare parts (10% of original plant cost) without payment of customs duties, VAT and any other surcharges.
- Repatriation of equity along with dividends.
- Tax exemption and repatriation facilities on royalties, technical know-how and technical assistance fees.
- Avoidance of double taxation on the basis of bilateral agreements.
- The Bangladeshi currency, Taka is freely convertible for FDI.

**PAYMENT GUARANTEE**

- Implementation Agreement (IA) and PPA ensure fair and reasonable risk allocation and payment by the Purchaser is guaranteed by GOB.
- Two component tariff - 'Capacity Price' and 'Energy Price' ensures sufficient cash flow to recover investment and return.
- Payments under the PPA continue in the event of fuel supply disruption or dispatch failure.
- Payment under the PPA is ensured by Letter of Credit.
- Payment to 'Escrow Account' ensures lenders re-payment.
- Tariff based bidding.
- Capacity Charge : ensures reasonable return on investment.
- Energy Charge : fuel cost is pass through item in the tariff.
- Sovereign guarantee from the Government for obligations of Government entities through Implementation Agreement (IA).
- Assistance in getting clearances from various agencies.
- Attractive incentive package.

**INVESTMENT OPPORTUNITIES**

Government is committed for providing electricity to all by 2020. To achieve targeted GDP growth 24000 MW power to be generated by 2021 and 60,000 MW by 2041. From FY 2008-09 to FY 2018-19, around USD 19 billion has been invested in Power Sector. Out of that the public sector investment is equivalent to around USD 11.5 billion and in private sector projects worth around USD 7.5 billion. About USD 8.0 Billion is invested under ECA financing. Still huge investment is required. It is not possible for Government alone unless private sectors are heavily involved. This is definitely a challenging task but not impossible.



Investment Requirement (in billion US\$)			
	2017-2021	2022-2031	2032-2041
Generation	10	13	20
Transmission	7	6	10
Distribution	4	5	10
<b>Total</b>	<b>21</b>	<b>24</b>	<b>40</b>

## WAY FORWARD

Growth rate of power has been 1.5 percent more than the GDP growth rate during the last decade in Bangladesh. Despite the higher growth in power sector reliable power is still unmet, and affects the desired infrastructural development in other sectors of the economy. Gradual increase of the contribution of industrial sector in GDP shows the indication of modernization of Bangladesh economy.



As a result, 15,573 MW power has been added to the national grid in the meantime. About 94% population of the country has now access to power, which is expected to rise up to 100% with in one year. Aiming to reduce the production cost, the government has emphasised on developing large scale, coal based power plants. Power and energy sector is highly capital intensive most of which is exhausted in buying machineries. As such, the government is taking effective steps to reduce the transaction costs. The cost of electricity generation depends on the price of the fuel. As such, the Government has taken steps for fuel diversification along with an emphasis on renewable energy. The Power Division is committed to ensure reliable electricity for all by 2020 through its strategic and long-term planning.

