

# **Towards Revamping Power and Energy Sector: A Road Map**



Finance Division  
Ministry of Finance  
Government of the People's Republic of Bangladesh

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## Preface

"Vision-2021" of the Election Manifesto of the ruling party has inspired the entire nation towards fulfillment of a dream for a prosperous Bangladesh. This Vision consists of a number of innovative initiatives to lead the country towards higher economic growth. A commitment for achieving 8 percent growth in National Income by 2013, then raising it to 10 percent by 2017 and maintaining it there has been expressed. However, insufficient physical infrastructure facilities such as power and energy shortage are creating obstacles to reach this goal.

After assuming office, the present government has taken a number of steps to make the economic development plan more comprehensive, dynamic and pragmatic. Meanwhile, by revising the National Poverty Reduction Strategy-2, policy and strategy for rapid poverty alleviation have been made consistent with the Charter for Change. In addition, the Government is in the process of finalising of a ten-year long (2010-2021) Perspective Plan. And, to implement this plan, formulation of the Sixth Five-Year Plan (2011-2015) has also been taken up. Initiatives have been taken to enhance the period of Medium Term Budget Framework from 3 to 5 years.

In the past years, insufficient supply of power and energy impeded the achievement of higher growth in Bangladesh. Keeping this in view, the Government has identified power and energy sector as one of the five medium term priority sectors in the light of the Perspective Plan.

We assumed office at a time when the country was reeling from acute shortage of power and energy. The supply of power vis-a-vis demand is a disgraceful legacy of inefficiency and corruption of five long years and it is totally unacceptable. Gradual and fast development of this sector is a basic requirement for the economic progress of the nation. In order to improve the prevailing situation the Caretaker Government took some steps which we have continued without interruption. In order to meet the serious crisis of power shortage, from the outset, we have given the highest attention to attracting investment in the power and energy sector and increasing generation and distribution of Power risking substantial subsidy. I am confident that we shall be able to bring down this shortage problem to some tolerable level within a year and half and thus atone for the inherited sin of past inaction and negligence. In order to generate this additional power the Government has also taken various steps to develop the sources of primary energy. The coal fields will be exploited and developed. Import of Liquefied Natural Gas will be arranged. And existing gas fields will be developed and new exploration for Natural Gas will be intensified. Non-traditional sources and renewable energy sources will also be harnessed more.

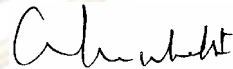
At present, 47 percent of the entire population has access to power supply. The per capita power consumption is only 220 kwh in the country which is much lower than that of other developing countries of the world. Under the circumstances, Government has taken up plans to set up new power plants having 9364 MW capacity in the period

2011-15. Moreover, actions are being taken by the Government to formulate and implement new policies in order to explore alternative sources such as atomic power, solar energy, biodigestor and mini hydro power. I am hopeful that with the added power generation, we can meet the growing demand of electricity arising out of advancement of agriculture, industry and service sectors.

Energy and power are capital intensive sectors. Involvement of the private sector along with Government in this sector is the need of the hour. For this purpose, the present Government has already arranged several "road-shows" at home and abroad to attract private and foreign investment. An infrastructure investment fund has just been launched with a seed money of Tk.16000 million in order to attract domestic and foreign investors.

This booklet is an effort to make the nation aware of various immediate, medium term and long term steps taken by the Government in power and energy sectors. I am very pleased to place it before this august Parliament as part of budget presentation. I firmly believe that, with the efforts of the Government along with domestic and foreign entrepreneurs of private sector, development-partners and the people at large, development of the power and energy sector will accelerate. We do not want power and energy sector to create any impediment in the march of Bangladesh toward a peaceful, progressive and prosperous country.

I take the opportunity to extend my sincere thanks to the Ministry of Power, Energy and Mineral Resources, Power Development Board and the officers of Finance Division who worked relentlessly to prepare this booklet. I would like to express my deep gratitude to the Honourable Adviser for Power and Energy Dr. Toufique-E-Elahi Chowdhury, Bir Bikram and the Honourable State Minister for Power, Energy and Mineral Resources Mr. Muhammad Enamul Huq.



( Abul Maal A. Muhith )  
Honourable Minister  
Ministry of Finance

# **Towards Revamping Power and Energy Sector: A Road Map**

## **1.0 Introduction and Background**

**1.1** The present Government is committed to implement “Vision 2021” for building Bangladesh as a happy, prosperous country of medium income through maintaining macro economic stability and achieving rapid economic growth by 2021. In the outline of Bangladesh Perspective Plan (2010-2021) projections of raising the existing 6 percent growth rate of GDP to 10 percent by 2021 and increasing the per capita income of US\$ 690 to around US\$ 2000 have been set up. A prerequisite for achieving this growth is the ensuring of adequate investment in National Priority Sectors.

**1.2** According to the Perspective Plan of the Government, a preliminary estimate of expected increase in investment in order to reach the projected GDP growth rate requires investment to be 32 percent of GDP by 2015 and 38 percent of GDP by 2021. Analyzing the investment situation of past years, it is observed that the contribution of public investment in the total investment has comparatively declined while the function of private sector has augmented. In the Fiscal year 2008-09, investment in public and private sector was respectively 19.6 and 4.6 percent of GDP. It is projected that this rate will increase to respectively 25.9 and 6.1 percent by 2015. The lion’s share of the mentioned investment will be achieved through Public-Private Partnership, Private Sector investment and Foreign Direct Investment. It need not be over emphasized that a strong infrastructure is necessary to attract private and foreign investment. The energy and power supply deficit in the existing infrastructure has become an impediment to achieve development goals. The Government is firm to create an investment-friendly atmosphere to attract private ventures according to the set target. The Government has given priority to infrastructure development especially in power and energy sector as means of attaining higher growth.

**1.3** Currently, the shortage in electricity production is about 1500-1800 MW as per the demand of peak hours. As the concept of applying Energy Mix has not been given due consideration there is an overwhelming dependence on natural gas as primary fuel for power generation. At present, 88 percent of the power plants are run by natural

gas. Due to limited gas extraction, these power plants cannot generate enough power. Moreover, around 63 percent of total production comes from public sector while private enterprises contribution is inadequate. In addition, there are also problems relating to management of the growing demand. The Government has already adopted a comprehensive plan to resolve the prevailing difficulties. According to the plan, the shortage of electricity production will be overcome through PPP (Public Private Partnership) and private investment alongside government investment by 2012, and electricity for all will be ensured by 2021. Besides, use of coal and other fuels will be enhanced in order to reduce dependence on natural gas for power generation. The demand for electricity will also be addressed through the use of renewable energy and regional cooperation. Initiatives have been taken to bring qualitative change in demand side management and use of fuels in order to save power and energy. In future, such initiatives will continue and will be well-arrayed.

**1.4** When the present Government assumed office, the power generation was 3525 MW which has now been increased to 4020 MW currently. The production capacity will be enhanced to 11,500 MW by 2015 and it requires USD 9.00 billion investment out of which USD 8.00 billion is expected to be provided by private sector. Development and investment in the power and energy sector is different from other sectors due to the sector specific characteristics. Huge primary asset accumulation and procurement are required for investment in the power and energy sector. Strategies have been made to meet this need by involving private sector with Government. Keeping this in view, the importance of external investment is infinite. On the other hand, consumer's economic consideration is given priority over commercial interests in price calculation of electricity, gas and other fuel oil. Efforts are continued to attract private ventures considering the risks in large primary investment and profit. However, estimation and reevaluation of power and other energy is required price is to be made more with commercial consideration in order to involve the private sector.

**1.5** The existing problems and solutions in power and energy sector are enumerated in Bangladesh Perspective Plan outline (2010-2021). The total production of power is targeted at 8,500MW by 2013, 11,500MW by 2015 and 20,000MW by 2021. To reach these goals the Government has taken immediate, short, medium and long term work-plans for enhancing power generation in order to ensure overall and balanced development of this sector.

**1.6** A modest effort has been made through this brochure to reveal the adopted plans and their implementations by the persistent efforts of the Government in order to resolve the prevailing situation of power and energy sectors before the Nation through the Parliament. The power shortages in Bangladesh along with reasons for lower per capita electricity consumption compared to other developing countries have been analyzed in this pamphlet. At the same time, in order to overcome the problems of power sector after identifying those, the steps taken so far and steps to be taken are discussed here. Priority has been given to arrange enhanced power generation, renovate and extend the infrastructure facilities for transmission and distribution, attract investors through private sector and PPP initiatives, encourage the use of renewable energy, create multifarious fuels, demand side management etc. to the develop power sector. Besides, plans, targets and possible achievements of the Government concerning regional cooperation have been represented separately in this booklet.

## **Power Sector**

### **2.0 Shortage of electricity**

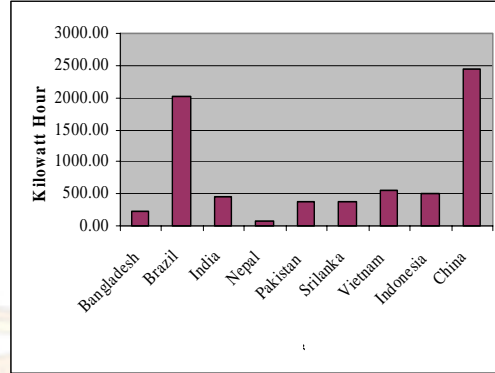
**2.1** Shortage of electricity may be considered in two forms. Firstly, reviewing the scenario of per capita electricity consumption and percentage of population having access to electricity in Bangladesh compared to other countries and; secondly, determining gap between demand and supply of electricity in perspective of country's economic situation and GDP growth.

### **2.2 Per capita electricity consumption**

**2.3** While analyzing the cause of electricity shortage it transpires that, at present our per capita electricity production is only 220 kw/hour. From table 1 and chart 1 it is seen that comparing with the per capita electricity consumption of BRICS countries (Brazil, Russia, India, China, and South Africa) as well as SAARC (South Asian Association for Regional Cooperation) countries such as Pakistan, Srilanka the per capita consumption of Bangladesh is very low.

**Table 1: Per Capita Electricity Consumption 2009 (Kwh)**

Bangladesh	220.00
Brazil	2023.76
India	443.54
Nepal	79.68
Pakistan	388.10
Srilanka	388.09
Vietnam	552.85
Indonesia	504.43
China	2443.57

**Figure 1: Per Capita Electricity Consumption**

Source: CIA World Factbook, 2009

#### 2.4 Access to Electricity

2.5 Only 47 percent of the total population has access to electricity. Presently (April 2010) the quantity of transmission and distribution line are respectively 8,359 Line Kilometer and 2,66,460 Line Kilometer. Besides the urban areas 53,281 villages have been brought under electricity coverage. In order to bring the total population under electricity coverage emphasis should be provided to produce electricity from renewable sources besides using non-renewable energy.

#### 2.6 Projection of demand for electricity

2.7 One of the aspects to the demand for electricity is the tremendous rise of intensity of electricity use with the pace of economic development. In 1980, there was electricity demand of 30 Gigawatt (GW) per 1000 crore taka of GDP which increased into 80 GW in 2002. With an economic growth of 12 percent on an average the capacity for electricity generation should double every six years. Considering the projection of economic growth the generation of electricity should increase 4 times to 20,000 MW by 2021.

#### 2.8 Power Sector: An update (April 2010)

<b>Installed Capacity</b>	<b>6,033 MW</b>
<b>Derated Capacity</b>	<b>5,480 MW</b>
<b>Production</b>	<b>3,900-4300 MW</b>
<b>Highest Production</b>	<b>4,606 MW (14 April 2010)</b>
<b>Electricity Demand (Peak Demand)</b>	<b>5,800 MW</b>
<b>Access to electricity</b>	<b>47 percent</b>
<b>Per capita electricity consumption</b>	<b>220 KWh</b>

Source: Power Division

**2.9** Demand for electricity is increasing with the improvement of living standard, increase of agricultural production, development of industries as well as overall development of the country; but due to the failure in the last few years to increase electricity generation capacity proportionately to the demand, there exists 1500-1800 Megawatt electricity shortage at present. Especially a huge shortage exists during the evening peak demand. Due to the crisis of gas supply, lack of necessary maintenance and rehabilitation of old power plants, it is not possible to utilize the total installed capacity. The shortage of electricity can be from the load-shedding made during the peak demand (5800 MW) of summer which is about 1800 Megawatt each day.

### **2.10 Electricity Generation Structure**

**2.11** Bangladesh Power Development Board (BPDB), Ashuganj Power Station Company Limited (APSCL), Electricity Generation Company of Bangladesh (EGCB) are producing electricity in the public sector. On the other hand, through IPP (Independent Power Producer) and through Rental electricity is produced in the private sector which is purchased by the Government at a fixed rate. Besides that big industries produce 1200 MW electricity for their own use from which additional 88 MW is supplied to the national grid. At present nearly 63 percent of total electricity production is produced from public entities. BPDB alone produces 46 percent of total electricity production. Statistics related to electricity generation from public and private sector is given in the following table 2 and Graph 2,3,4:

**Table 2: Statistics of electricity produced by government and private sectors (2010)**

Sectors	Government			Private			
	BPDB <sup>1</sup>	APSCL <sup>2</sup>	EGCB <sup>3</sup>	SIPP <sup>4</sup>	SIPP (BPDB)	SIPP (REB) <sup>5</sup>	Rental
Production Capacity (Derated) (MW)	2522	606	310	1271	99	226	446
Total (MW)	3438			2042			

Source: Power Division

<sup>1</sup> Bangladesh Power Development Board

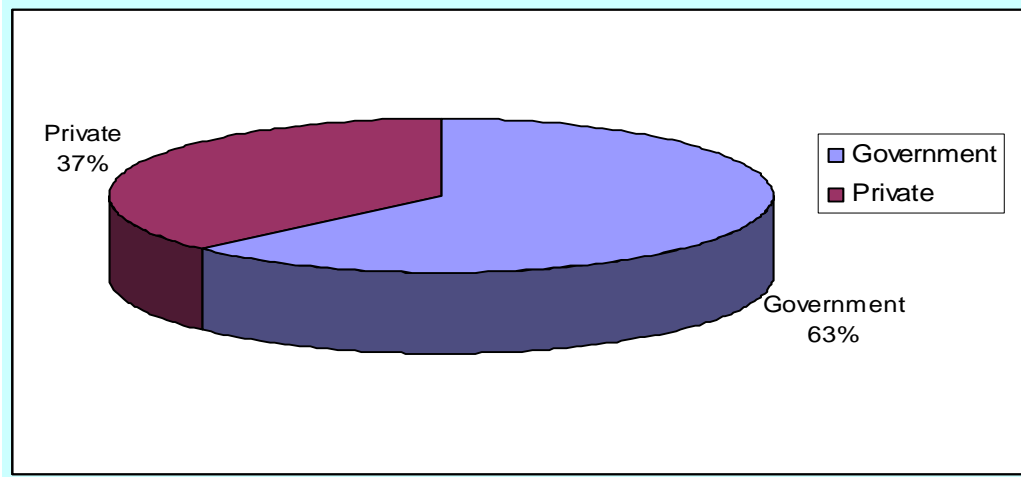
<sup>2</sup> Ashuganj Power Station Company Limited

<sup>3</sup> Electricity Generation Company of Bangladesh

<sup>4</sup> Small Independent Power Producer

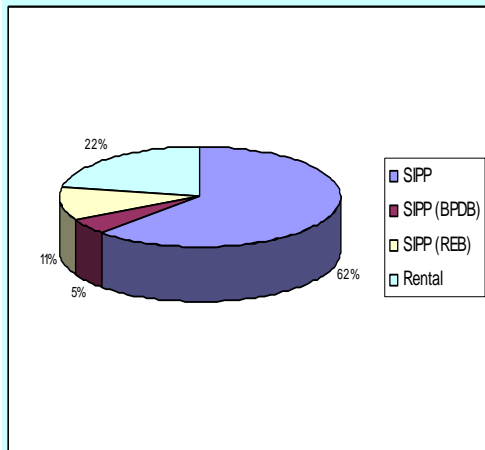
<sup>5</sup> Rural Electrification Board

**Figure 2: Electricity produced by government and private sectors**

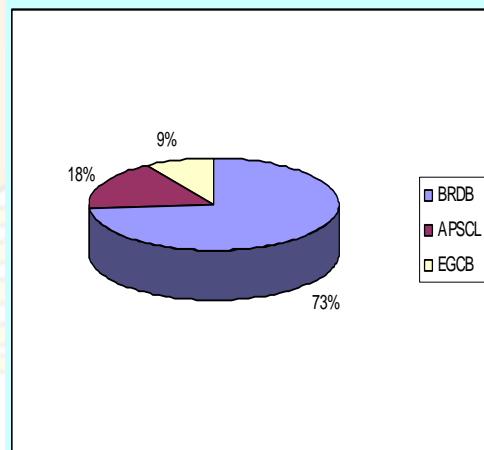


Source: Power Division

**Figure 3: Electricity produced by private producers**



**Figure 4: Electricity produced by the Government**



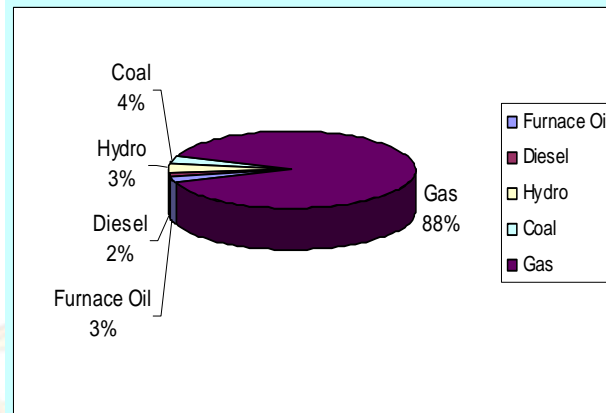
**2.12 Use of different types of energy**

**2.13** Natural Gas is used as primary energy in most of the existing power plants. 88 per cent of total electricity is produced from gas-based power plants. Besides gas, a small amount of electricity is produced using diesel, furnace oil and coal. In addition, almost 3 percent of total electricity is produced from Karnafuly Hydro Power Plant. Due to the increase of multiple use of gas in fertilizer, industries, factories and other sectors it is not possible to supply adequate quantity gas (extracted from the existing gas fields) to meet the demand of the power plants. Due to insufficiency of gas supply at present approximately 500MW less electricity is produced from existing power plants.

**Table 3: Rate of Use of different types of Energy in producing electricity**

Fuel	Percentage of use (2010)
Furnace Oil	2.81
Diesel	1.75
Hydro	3.39
Coal	3.77
Gas	88.29

**Figure 5: Rate of electricity produced from different types of fuel**



Source: Power Division

**2.14** From the above discussion it is evident that in the power sector the following issues are to be addressed with due importance at the moment:

- Inadequacy of supply of electricity compared to demand
- Dependency on single energy (gas) for electricity generation
- Investment or participation of private sector in electricity generation is at the minimum
- To meet the increasing demand of electricity huge amount of investment is needed, the lion's share of which should come from private sector or from public-private partnership
- Shortage of electricity is not attributed to generation alone but transmission and distribution are also responsible for the existing short fall
- Limited use of renewable energy

**2.15** The Perspective Plan of the Government and the Work Plan framed in according to the Perspective Plan towards mitigation of the above mentioned problems are discussed in the following chapters.

### **3.0 Power Sector in Outline Perspective Plan of Bangladesh**

**3.1** Following Vision for power sector development has been mentioned in the Outline Perspective Plan of Bangladesh (2010-2021):

- Electricity Generation in the country by 2013 - 8500 MW
- Electricity Generation in the country by 2015 - 11,500 MW
- Electricity Generation in the country by 2021 - 20,000 MW
- Electricity for all by 2021

Source: Outline Perspective Plan of Bangladesh (2010-2021)

**3.2** There is a planning of the Government of achieving the following objectives for making the vision a reality:

- To ensure energy security
- Making the power sector financially viable and able to facilitate economic growth;
- Increasing the sector's efficiency;
- Introducing a new corporate culture in the power sector entities;
- Improving the reliability and quality of electricity supply;
- Using natural gas (including imported LNG), coal and oil as the primary fuels for electricity generation;
- Increasing private sector participation to mobilize finance;

**3.3** The Following issues have been identified to reach the objectives

- Matching supply and demand for electricity;
- To ensure energy security for all;
- To reduce the consumption of natural gas, thereby releasing gas for use as fertilizer, or to increase the use of coal for electricity production to release gas for alternative use;
- Finalization of the coal extraction plan;
- Reasonable cost-effective price policy for gas, coal and electricity, these being under government control;
- Energy mix for electricity generation;
- Energy conservation;
- Promotion of renewable;
- Efficiency of the power sector; and
- Reduction of system loss.
- Importation of LNG

**3.4** To address the issues the following constraints, possibilities and strategies are identified:

**Constraints**

- Absence of adequate public and private investment in power generation;
- Absence of Cost Reflective Tariffs;
- Absence of Primary Energy Supply Chain.

**Possibilities**

- Coal-based power plants using domestic and imported coal;
- Rooppur Nuclear Power Plant;
- Availability of new gas both offshore and onshore;
- Public-Private Partnership Projects;
- Prospect of participation of local investors in the sector.
- Medium-term agreement to import LNG and steps to be taken

**Strategies:**

- To diversify the use of primary energy, such as gas, coal and liquid fuel, for power generation;
- To have provision for dual fuel in power plants wherever possible;
- To increase power generation through renewable sources, such as solar, wind, small hydro etc;
- To implement nuclear fuel based power plant;
- To finance power generation projects through Public-Private Partnership, government funding for IPP;
- To increase sector efficiency, reform measures must be implemented.

**4.0 Work Plan (2010-2015)****4.1 Power Generation**

**4.2** In the Outline of Perspective Plan of Bangladesh, the main driving force for the Power sector would be the Public Private Partnership (PPP) initiative. Power sector is characterized by time consuming nature of raising fund and requirement of large scale initial investments. To address these limitations through PPP initiative, Independent Power Producer (IPP) policy has been formulated in 1996. Private sector has been drawn in to the power generation through IPP, SIPP, Rental, Quick Rental and Joint Venture policies under the PPP framework. In addition, Road-Shows have been organised in London on 15-16 December, 2009 and in Singapore and USA on 25-29 January, 2010. These initiatives have prompted a huge positive response from the foreign investors.

**4.3** Under the yearly power generation plan, Government has taken initiatives to produce 792 MW by 2010, 920 MW by 2011, 2269 MW by 2012, 1675 MW by 2013,

1170 MW by 2014 and 2600 MW by 2015; in total 9426 MW of electricity. In addition to these, as large scale production plants requires 3-4 years of installation time, the Government has taken initiatives to set up 1000-1200 MW Quick Rental Power Stations which can produce electricity in the shortest possible time and help to reduce the power crisis in 2010 and 2011 to a tolerable level.

#### 4.4 Time bound Work Plans

4.5 According to the Outline Perspective Plan of Bangladesh, the time bound work plans for power generation are as follows:

#### 4.6 Immediate

4.7 Under the immediate plan, Quick Rental Stations will be established using liquid fuels and capable to produce electricity within 6-12 months. In the first phase, works are underway to set up plants with total capacity of 360 MW in three locations of the country which are expected to go into production by 2010. In addition, work is under way to set up quick rental power stations that can produce 1000-2000 MW in 2010 and by the first half of 2011 and another 432 MW from the private sector.

**Table-4: List of projects that will be implemented in 2010**

Sl No.	Name of the Power Station	Capacity (MW)	Fuel	Expected time of Completion	Current Status
<b>Quick Rental</b>					
1	Khulna	100	Diesel Oil	July 2010	Approved by Purchase Committee
2	Ghorashal	100	Diesel Oil	July 2010	Approved by Purchase Committee
3	Shidhdhirganj	100	Diesel Oil	September 2010	Approved by Purchase Committee
4	Madanganj	100	HFO <sup>6</sup>	December 2010	Agreement Signed
5	Kodda, Gazipur	100	HFO	December 2010	Agreement Signed
6	Khulna	115	HFO	December 2010	Agreement Signed
7	Shikolbaha/ Madanganj/ Syedpur/ Meghnaghat	400- 600	HFO	December 2010	Site selection and Negotiation underway
	Total	1015-1215			
<b>Other Projects</b>					
1	Shikolbaha 150MW Peaking Plant (PDB <sup>7</sup> )	150	Gas/ Oil	May 2010	GTGU Testing Started
2	Shidhdhirganj-2*120MW Peaking Plant (EGCB <sup>8</sup> )	120	Gas	May 2010 (2 <sup>nd</sup> Unit)	Erection Completed
3	Fenchuganj 90MW Combined Cycle Plant, CCPP (PDB)	90	Gas	July 2010	

<sup>6</sup> HFO: High Sulphur Furnace Oil

<sup>7</sup> PDB: Power Development Board

<sup>8</sup> EGCB: Electricity Generation Company of Bangladesh

Sl No.	Name of the Power Station	Capacity (MW)	Fuel	Expected time of Completion	Current Status
<b>Private Sector</b>					
4	Ashuganj (3 Year-Rental)	62	Gas	April 2010	Commercial production started since 07/04/2010
5	Fenchuganj (3 Year-Rental)	50	Gas	June 2010	
6	Bogra (3 Year-Rental)	20	Gas	-----	
7	Veramara, New Initiative (Rental)	100	Diesel	June 2010	Contract signed on 04/02/2010
8	Thakurgaon, New Initiative (Rental)	50	Diesel	June 2010	Contract signed on 04/02/2010
9	Nawapara, Jessore, New Initiative (Rental)	100	HFO	November 2010	Contract signed on 04/02/2010
10	Barisal, New Initiative (Rental)	50	HFO	December 2010	Contract signed on 15/02/2010
	Total	792			
	<b>Grand Total</b>	1807-2007			

Source: Bangladesh Power Development Board

#### 4.8 Short-Term

4.9 Under the short term plan, power stations that are liquid fuel based and implementable within 12 to 24 months will be established. Works for setting up power stations with a generation capacity of 920 MW under public sector has been started.

**Table-5: List of projects that will be implemented by 2011**

Sl No.	Name of the Power Station	Capacity (MW)	Fuel	Expected time of Completion	Current Status
<b>Public Sector (PDB)</b>					
1	Faridpur Peaking Power Plant	50	HFO	July 2011	Contract signed on 26/04/2010
2	Dohazari, Chittagong Peaking Power Plant	100	HFO	July 2011	Contract signed on 26/04/2010
3	Baghabari Peaking Power Plant	50	HFO	July 2011	NOA <sup>9</sup> Accepted on 31/03/2010
4	Hathazari Peaking Power Plant	100	HFO	July 2011	Contract signed on 26/04/2010
5	Daudkandi, Comilla Peaking Power Plant	50	HFO	July 2011	NOA Accepted on 31/03/2010
6	Katakhali, Rajshahi Peaking Power Plant	50	HFO	September 2011	Contract signed on 04/05/2010
7	Bera, Pabna, Peaking Power Plant	70	HFO	September 2011	Contract signed on 26/04/2010
8	Gopalganj Peaking Power Plant	100	HFO	September 2011	Contract signed on 26/04/2010
9	Santahar, Naogaon Peaking Power Plant	50	HFO	September 2011	Retender floated on 04/05/2010
10	Sylhet 150MW Combined Cycle Power Plant	150	Gas	December 2011	Contract signed on 08/02/2010
11	Chandpur 150MW Combined Cycle Power Plant	150	Gas	December 2011	Construction work underway
	<b>Total</b>	<b>920</b>			

Source: Bangladesh Power Development Board

<sup>9</sup> NOA: Notice of Acceptance

#### 4.10 Medium Term

4.11 Under the medium term plan, initiatives have been taken to set up power plants with a total generation capacity of 7714 MW that are implementable within 3 to 5 years time of which, 2600 MW will be coal based.

**Table-6: List of projects that will be implemented by 2012**

Sl No.	Name of the Power Station	Capacity (MW)	Fuel	Expected time of Completion	Current Status
<b>Public Sector</b>					
1	Ghorashal Peaking Power Plant (PDB)	200-300	Gas/Diesel	June 2012	Retender floated on 22/04/2010
2	Khulna 150MW Gas Turbine (GT) (NWPGC <sup>10</sup> )	150	Gas/Oil	June 2012	Evaluation of financial proposal underway
3	Shirajganj 150MW Gas Turbine (PDB)	150	Gas/Oil	June 2012	Tender evaluation in final stage
4	Kaptai Solar Plant (PDB)	5	Solar	June 2012	Under scrutiny of the Ministry
<b>Private Sector</b>					
5	Katakhali, Rajshahi Peaking Power Plant, IPP (PDB)	50	HFO	April 2012	Evaluation of PQ <sup>11</sup> underway
6	Syedpur Peaking Power Plant, IPP (PDB)	100	HFO	April 2012	Evaluation of PQ underway
7	Jamalpur Peaking Power Plant, IPP (PDB)	100	Gas/HFO	May 2012	PQ announced on 05/04/2010
8	Chapainawabganj Peaking Power Plant, IPP (PDB)	100	HFO	May 2012	PQ announced on 28/03/2010
9	Comilla Peaking Power Plant, IPP (PDB)	50	Gas/HFO	May 2012	PQ announced on 28/03/2010
10	Khulna Peaking Power Plant, IPP (PDB)	100	HFO	May 2012	PQ announced on 28/03/2010
11	Wind Power Plant, IPP (PDB)	100	Wind	June 2012	PQ announced on 12/04/2010
12	Solar Power Plant, IPP (PDB)	9	Solar	January 2012	PQ announced on 07/04/2010
13	Tangail 20MW, IPP (REB <sup>12</sup> )	20	HFO	June 2012	
14	Chandpur 15MW, IPP (REB)	15	HFO	June 2012	
15	Bhola 150-225MW, CCPP(2 <sup>nd</sup> unit, SC <sup>13</sup> )(GT <sup>14</sup> )	100	Gas	June 2012	Evaluation of PQ underway
16	Keraniganj 150-225MW, CCPP, SC (GT)	100	Gas/HFO	July 2012	PQ announced on 05/04/2010
17	Madanganj 150-225MW, CCPP, SC (GT)	100	Gas/HFO	July 2012	PQ announced on 05/04/2010
18	Bibiana 300-450MW (1st unit), CCPP, SC (GT)	200	Gas	August 2012	RFP <sup>15</sup> given
19	Bibiana 300-450MW (2nd unit), CCPP, SC (GT)	200	Gas	October 2012	Evaluation of PQ underway
20	Meghnaghat 300-450MW Combined Cycle(2 <sup>nd</sup> unit), Dual Fuel: GT unit	200	Gas/HFO	October 2012	Evaluation of PQ underway

<sup>10</sup> NWPGC: Northwest Power Generation Company

<sup>11</sup> PQ: Pre Qualification

<sup>12</sup> REB: Rural Electrification Board

<sup>13</sup> SC: Simple Cycle

<sup>14</sup> GT: Gas Turbine

<sup>15</sup> RFP: Request for Proposal

Sl No.	Name of the Power Station	Capacity (MW)	Fuel	Expected time of Completion	Current Status
<b>Both Public and Private Sector</b>					
21	Mymensingha Peaking Plant, (PDB and RPCL <sup>16</sup> )	150	Gas/HFO	June 2012	
22	Gazipur (RPCL)	50	Gas/HFO	June 2012	
23	Rauzan, Chittagong (RPCL)	20	Gas/HFO	June 2012	
	<b>Total</b>	<b>2269</b>			

Source: Bangladesh Power Development Board

**Table-7: List of projects that will be implemented by 2013**

Sl No.	Name of the Power Station	Capacity (MW)	Fuel	Expected time of Completion	Current Status
<b>Public Sector</b>					
1	Shidhdhirganj 2*150MW GT (EGCB)	300	Gas	June 2013	Tender evaluation report sent to World Bank
2	Bhola 150MW CCPP (PDB)	150	Gas	June 2013	Feasibility study underway
3	Barapukuria 125MW (3 <sup>rd</sup> unit) (PDB)	125	Coal	June 2013	Preparation of DPP <sup>17</sup> underway
4	Ashuganj 150 MW CCPP (APSCL <sup>18</sup> )	150	Gas	June 2013	Preliminary study underway
<b>Private Sector</b>					
5	Savar Peaking Power Plan	100	Gas/HFO	January 2013	Preparation of PQ underway
6	Kaliakoir Peaking Power Plan	100	Gas/HFO	January 2013	Preparation of PQ underway
7	Bibiana 350-450MW CCPP (ST)	100	Gas	August 2013	RFP issued
8	Srirajganj 300-450MW CCPP	300	Gas	June 2013	Purchase process will start shortly
9	Bhola 150-225 MW CCPP (2 <sup>nd</sup> unit) (SC) (GT)	50	Gas	June 2013	Evaluation of PQ underway
10	Keraniganj 150-225 MW CCPP (ST)	50	Gas/HFO	July 2013	PQ announced on 05/04/2010
11	Madanganj 150-225 MW CCPP (ST)	50	Gas/HFO	July 2013	PQ announced on 05/04/2010
12	Bibiana 300-450MW (2 <sup>nd</sup> unit, ST)	100	Gas	October 2013	Evaluation of PQ underway
13	Meghnaghat 300-450 MW (2 <sup>nd</sup> unit) (ST)	100	Gas/HFO	October 2013	Evaluation of PQ underway
	<b>Total</b>	<b>1675</b>			

Source: Bangladesh Power Development Board

<sup>16</sup> RPCL: Rural Power Company Limited

<sup>17</sup> DPA: Development Project Proposal

<sup>18</sup> APSCL: Ashuganj Power Station Company Limited

**Table-8: List of projects that will be implemented by 2014**

Sl No.	Name of the Power Station	Capacity (MW)	Fuel	Expected time of Completion	Current Status
<b>Public Sector</b>					
1	Haripur 360 MW CCPP (EGCB)	360	Gas	June 2014	Evaluation of PQ underway
2	Bheramara 360 MW CCPP (NWPGC)	360	Gas	June 2014	Scrutiny of DPP in the Ministry underway
3	Shidhdhrganj 450 MW CCPP (EGCB)	450	Gas	June 2014	
	<b>Total</b>	<b>1170</b>			

Source: Bangladesh Power Development Board

**Table-9: List of projects that will be implemented by 2015**

Sl No.	Name of the Power Station	Capacity (MW)	Fuel	Expected time of Completion	Current Status
<b>PPP/ IPP</b>					
1	Chittagong, PPP (Joint Venture)/IPP	1300	Coal	March 2015	Feasibility study will start soon
2	Khulna (South), PPP (Joint Venture)/IPP	1300	Coal	March 2015	Draft contract with NTPC under process
	<b>Total</b>	<b>2600</b>			

Source: Bangladesh Power Development Board

#### **4.12 Long Term**

**4.13** To achieve the targets mentioned above under the Outline of Perspective Plan of Bangladesh, growth of power generation capacity is estimated to be 10% every year and by the year 2012 the total generation capacity will be 20000 MW with a per capita electricity usage of 600 Kwh.

#### **4.14 Diversification of Energy Sources**

**4.15** According to the plan, high dependency on gas based power generation has been reduced in the short and medium terms and the plants that will be newly built are designed to be dual-fuel based. In addition, emphasis has been given to various power saving efforts so that the saved power can be transmitted to the other thrust areas. CFL (Compact Fluorescent Lamp) Distribution Program is due to start on June 19, 2010 through which a total of 200-350 MW of electricity can be saved.

**4.16** According to the energy source diversification plan, there is a continued effort to produce and buy captive power from renewable and non renewable sources. So far, contracts have been signed to purchase 88 MW of electricity from captive generation sources. Initiatives have been taken to import electricity from the neighboring countries and export (in future) through the sub-regional cooperation. According to a

decision at the Prime Minister level with India, works have already been started to build 400 KV transmission line and HVDC (High Voltage Double Circuit) sub stations through Regional Grid Interconnection. India has made the commitment to supply 250 MW of electricity from their “Unallocated Resource”.

**4.17** The use of renewable energy has risen considerably in the recent times in developed and developing countries. In Asia, India and China have achieved considerable success in innovating and using the technology of renewable energy. Although the initial installation cost of renewable energy is higher, but it will gradually decline and will come down within the purchasing capacity of the people. As the global reserve of fossil fuel is gradually decreasing, the Government has taken steps to extend and develop the use of renewable energy to ensure the future energy security. Under this plan, targets have been set to produce electricity from renewable sources as 5% of total production by the year 2015 and 10% by 2020. Renewable Energy Policy has also been adopted to attract and encourage the private sector. In addition, the Government is going to set up Sustainable Energy Development Authority (SEDA) has been set up to expand and develop renewable energy, to promote energy saving and energy efficiency and to create awareness among the users of electricity.

#### **4.18 Power Tariff**

**4.19** The per unit production cost of electricity is expected to rise (20%-30%) in the upcoming 2-3 years due to the installation of high cost liquid fuel based peaking plants which are implementable in 18-24 months. Accordingly, the Energy Regulatory Commission may increase the tariff of power step by step. However, power tariff will come down after 2014 as the implementation of gas and coal based power plants will be completed.

#### **4.20 Transmission and Distribution**

**4.21** In addition to power generation, it is very important to develop a dependable and quality power transmission and distribution network to ensure quality and uninterrupted power supply to the consumers. To transmit the newly produced power to the doorsteps of the consumer, it is urgently needed to build new transmission and distribution infrastructure in addition to renovation and preservation of old distribution networks.

**4.22** For resolving the electricity crisis, government has some plans for increasing electricity generation and at the same time has undertaken massive development plans for efficient and uninterrupted transmission and distribution system. At present total length of 230 KV electric line has been upgraded at 2644.5 circuit kilo meters and for 132 KV electric lines, the length is 5715 circuit kilometer. For strengthening the electricity transmission system and for meeting up the gradual increasing future demand for electricity, government has set a target of “Providing Electricity in every house by 2021”. As part of achieving this target, government has already undertaken a priority based investment plan (Three year road map for power sector reform) for the year 2007-09 under which massive work plan has been chalk out for building an additional 3000 kilo meter of transmission lines by 2015. In this regard, PGCB has undertaken activities for building concerned transmission lines for supplying electricity through regional cooperation.

**4.23** Up to December, 2009, about 117 lakhs customers have been provided with electricity connections through building 2,66,460 kilo meter distribution lines with necessary infrastructure. New projects are being undertaken for expanding the electrification program as well as for the development and capacity enhancement of the existing transmission and distribution system. Through these programs, initiatives have been made for building an additional 60,000 kilo meter distribution lines by 2015.

**4.24** Providing electricity in rural areas is an important feature of the distribution system. Up to December, 2009, Rural Electrification Board through their 70 associations has given a total number of 79,55,881 connections in 53,281 villages by building 2,21,749 kilo meter distribution lines. Out of the total connections, 68,75,627 nos are residential, 1,49,581 nos are irrigation, 7,87,844 nos are commercial, 1,29,218 nos are industrial and 13,611 nos are other types of connections. About half of the total power is provided by REB in the country. They mostly obtain this from Power Development Board since their own capacity for production is very little. Compared to the demand, their ability for transmission and distribution is limited. Their efficiency is also not beyond doubt. It is necessary to restructure this institution to turn it into a strong and professional body.

**4.25** Government has undertaken time-based work plan for generating electricity. For implementing these work plans, attempts have been undertaken by PGCB for constructing transmission lines and sub stations in order to supply the generated electricity in the load centers at different voltage level. Description of some major transmission projects are as follows:









































