CHAPTER 10

POWER AND ENERGY

Electricity

Electricity plays a crucial role in the socio-economic development of any country. It is considered as the driving force of all development activities. In Bangladesh, the performance of the power sector is yet to reach a satisfactory level. Currently only 44 percent of the total population has access to electricity and per capita generation is only 174 kWh. This is very low compared with other developing countries. Reduction of poverty to a moderate level calls for GDP growth rate at 7-8 percent and achieving this growth rate requires increased access to electricity which should be in the region of 1.5 times of growth rate. The government is conscious of this situation and has already taken steps to bring about improvement in this sector. The government's vision is to provide electricity to all by the year 2020. Contribution of electricity in GDP and growth rate of electricity in last 7 years is presented below:

Table-10.1: Contribution of Electricity in GDP and its growth rate

Contribution	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08 (Provisional)
Contribution of electricity in GDP (%)	1.27	1.30	1.34	1.37	1.38	1.30	1.28
Growth rate of electricity (%)	7.78	7.29	9.19	8.58	7.45	1.08	4.29

Source: Bangladesh Bureau of Statistics

Generation Capacity and Demand

In FY 2007-08, the total installed generation capacity was 5305 MW with 3809 MW in public sector and 1496 MW in private sector (including REB). A good number of generation units, in the public sector, have become very old and thus operating at a much-reduced capacity. As a result, their reliability and productivity have fallen. For the last few years, actual demand outmatched supply exposing shortage of our generation capacity. Shortage of gas supply further exacerbated the supply situation. The fall of the water level of Kaptai Lake significantly reduced generation capacity of the Kaptai Hydroelectric power plant. In FY 2007-08, it was possible to supply 4130 MW of maximum demand (Public sector 2826 MW and IPP 1304 MW). The installed capacity by plant type and fuel type during FY 2007-08 are shown in figure 10.1 and 10.2.

Figure 10.1: Installed Capacity, FY 2007-08

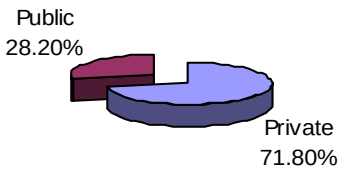
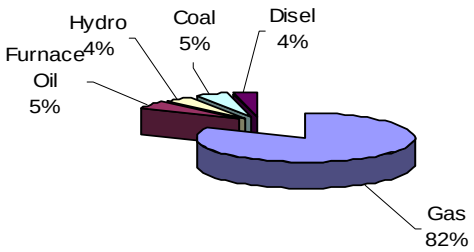
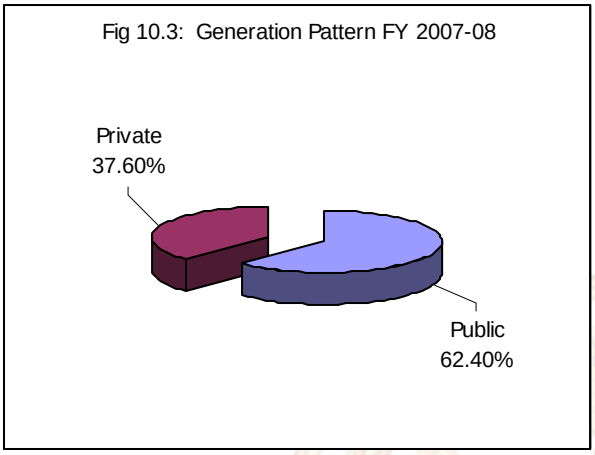


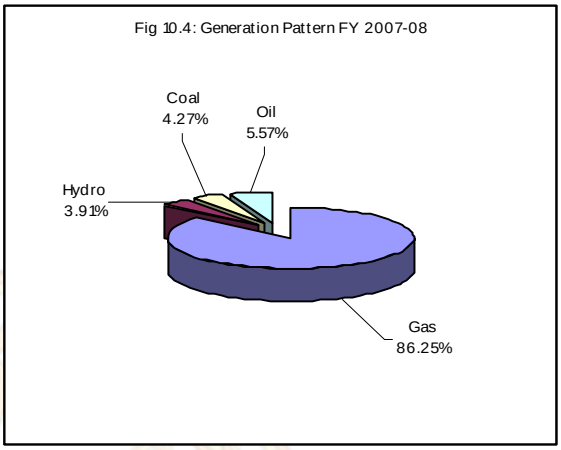
Fig 10.2: Installed Capacity (Fuel Type) FY 2007-08



Energy Generation

A total of about 24,305 million-kilowatt hours (Mkwh) of net energy (15,167.29 Mkwh in public sector and 9137.71 Mkwh in private sector) were generated during FY 2007-08 (excluding REB generation). Of the total net energy generation, 62.40 percent was generated in public sector while the remaining 37.60 percent was generated in the private sector. Of the total net energy generation 86.25 percent was gas based, 3.91 percent hydro bosed, 4.27 percent coal based and 5.57 percent oil based. Net generation by plant type and fuel type is shown in Figure 10.3 and 10.4 below.





In FY 1996-97, the natural gas consumption was 107,240 million cubic feet for power generation under BPDB power plants, which increased to 150,992 million cubic feet in FY 2007-08.

Maximum Generation

Mismatch between demand and supply, over the last few years, aggravated the country's powersituation. Maximum generation by the existing installations could not address power crisis. The nstalled capacity and maximum generation during the period from FY 1995-96 to FY 2007-08 are shown in Table-10.2.

Table-10.2: Installed Capacity and Maximum Generation

Fiscal Year	Installed capacity (MW)	Maximum generation (MW)
1995-96	2908	2087
1996-97	2908	2114
1997-98	3091	2136
1998-99	3611	2449
1999-00	3711	2665
2000-01	4005	3033
2001-02	4230	3218
2002-03	4710	3458
2003-04	4710	3622
2004-05	5025	3751
2005-06	5275	3812
2006-07	5262	3718
2007-08	5305	4130

Source: Bangladesh Power Development Board.

Power Development Programme

According to the base forecast of the Power System Master Plan drawn up in 2005, the maximum demand in 2009, 2012, and 2015 would be about 6,066 MW, 7,732 MW and 9,786 MW respectively**.** The demand is expected to be 13,993 MW in 2020. To meet the projected demand of electricity together with achieving reliable reserve margin, the government has undertaken a comprehensive

programme to build required number of power plants in phases by 2012. Table-10.3 shows planned power generation projects up to 2012.

Table-10.3: Power Generation Projects up to 2012

Sl. No.	Generating Station	Capacity (MW)	Expected Commissioning Date
	Under construction		
1	Sikalbaha 150 peaking Power Plant	150	FY 2010
2	Sylhet (Fenchuganj) 90 MW CCPP	90	Aug/08, Sept/08, Dec/08
3	Siddhirganj 2x120 MWV peaking power plant	240	FY 2009 (Dec/08)
4	**Small IPP**		
	BPDB		
	1. FENI 2. Tangail	22 22	Nov/08 Nov/08
	3. Barabkundu 4. Jangalia	22 33	Jan/09 April/09
	5. Narshingdi	22	Nov./08
	REB	121	
5	**Rental (3 years)**		
	1. Fenchuganj 2. Ashuganj	50 50	Sept./2008 Octr./2008
	3. Sylhet (Kumargaon)	50	July/2008 (running since 9.7.08)
	4. Shajibazar	50	Aug/2008
	5. Khulna 6. Bhola	40 34.50	June/2008 (running since 11.6.08) Sept/2008
	7. Bogra	20	Sept/2008
6	**Rental (15 years)** 1. Fenchuganj	50	May/ 2009
	2. Shajibazar 3. Bogra	80 20	January/ 2009 Aprl//08 (running since 11.4.08)
	4. Kumargaon	10	Oct.//2008
	Sub-Total	**1166.2**	
	Under-Processing		
1	Khulna 150 MW Peaking PP	150	FY 2010
2	Sirajganj 150 MW Peaking Power Plant	150	FY 2010
3	Chandpur 150 MW CCPP	150	FY 2010
4	Sylhet 150 MW MW CCPP	150	FY 2010
5 6	Siddhirganj 2x150 MW Peaking Power Plant 210 MW Khulna Thermal Power Station	300 210	FY 2010 FY 2011
7	Bhola 150 MW CCPP	150	FY 2011
8	Horipur 360 MW CCPP	360	FY 2012
9	Bheamara 450 CCPP	450	FY 2012
10	Bibiana 450 MW CCPP	450	FY 2012
11	Sirajganj 450 MW Combined Circle IPP **Sub-Total**	450 **2970**	FY 2012
	New Addition		
1	Barapukuria 125 MW (3rd Unit) Coal fired TPS	125	FY 2012
2	Kaptai Hydro Power Plant extension 2x50 MW	100	FY 2012 (As per DPP)
	Sub-Total	**225**	
	Total	**4361.2**	

Source: Power Division.

Transmission System

Power Grid Company of Bangladesh (PGCB)

As a part of the restructuring process of power sector in Bangladesh, PGCB was created with the objective of bringing corporate environment including increase in efficiency, establishment of accountability and dynamism in accomplishing its functions. PGCB's mandate is to operate, maintain and develop reliable transmission system for the country. It is also responsible for expansion of the grid network through installation of new transmission line and grid substations.

Power generated by different power plants is transmitted to the national grid system through its 230 kV and 132 kV transmission lines. In 1996, when PGCB was formed, the total lengths of 230 kV and 132 kV line were 838 ckt km and 4755 ckt km respectively which increased to 1144 ckt km and 4962 ckt km respectively by FY 2000-01. At present, there is a network of 1466.5 ckt km of 230 kV line and 5577.6 ckt km of 132 kV line throughout the country.

Steps taken to improve the Transmission System:

To improve the transmission system of the country, the company has so far completed the following transmission projects:

(1) Comilla-Meghnaghat-Haripur 230 kV Transmission Line and Turn in and out of existing Ghorashal-Haripur 230 kV Line at Rampura
(2) Hasnabad-Aminbazar (Savar)-Tongi and Haripur-Meghnaghat 230 kV Transmission Line.
(3) Joydebpur-Kabirpur-Tangail 132 kV Double ckt Transmission Line,
(4) Khulna-Ishurdi and Bogra-Barapukuria 230 kV Transmission Line.
(5) Second East West Electrical Interconnector (Ashuganj-Jamuna Multipurpose Bridge-Serajganj 230 kV Transmission Line)
(6) Natore-Rajshahi 132 kV Single Circuit Transmission Line.

Table 10.4 below shows the ongoing projects of PGCB with physical progress up to June 2008.

Table 10.4: Projects under implementation by PGCB up to June 2008

Sl No.	Name of the Project	Physical Target up to June' 08 (%)	Physical Progress up to June' 08 (%)	Financing Status
1	Ishurdi-Baghabari-Serajganj-Bogra 230 Kv Transmission line. (Implementation Period : 2002-03 to 2008-09)	92.89	83.12	ADB, KfW, Suppliers Credit and Bangladesh Govt.
2	Khulna-Ishurdi and Bogra-Barapukuria 230 Kv Transmission line. (Implementation Period : 2001-02 to 2007-08)	100.00	100.00	ADB, NDF, KfW, SIDA, Suppliers Credit, PGCB's own finance and Bangladesh Govt.
3	Second East-West Electrical Interconnector (Ashuganj-Jamuna Multipurpose Bridge-Serajganj 230 Kv Transmission Line). (Implementation Period: 2002-03 to Dec' 07)	100.00	100.00	ADB & Bangladesh Govt.
4	National Load Despatch Centre (NLDC) (Implementation Period: 2003-04 to 2008-09)	73.32	76.26	ADB & Bangladesh Govt.
5	Shunt Compensation at Grid Substations by Capacitor Banks (Phase-1). (Implementation Period: 2005-06 to 2008-09)	29050	29.16	ADB & Bangladesh Govt.
6	Construction and Extension of Grid Substations including Transmission line facilities (Phase-1). (Implementation Period : 2005-06 to 2008-09)	50.00	40.00	ADB, JBIC & Bangladesh Govt.
7	Three Transmission Line. (Implementation Period : 2006-07 to 2009-10)	12.20	17.10	ADB & Bangladesh Govt.
8	Meghnaghat-Aminbazar 400 Kv Transmission Line (Phase-1). (Implementation Period: 2006-07 to 2008-09)	10.50	0.50	ADB & Bangladesh Govt.
9	Aminbazar-Old Airport 230 Kv Transmission Line and Associated Sub-Stations. (Implementation Period : 2006-07 to 2009-10)	14.00	12.30	ADB & Bangladesh Govt.
10	Transmission Efficiency Improvement through Reactive Power Compensation at Grid Substation and Reinforcement of Goalpara Substation. (Implementation Period: Feb-08 to June-2010.)	1.00	0.75	KfW & Bangladesh Govt.

Source: Power Division

Future Development Plan of PGCBt

Government has already undertaken a massive plan to strengthen the transmission system and fulfill the future demand of electricity with the aim of reaching electricity to all by 2020. As a part of achieving the target, another 9 (nine) projects are under active consideration of PGCB as per Prioritized Investment Plan (Three Years Road Map for Power Sector Reform). Besides these, PGCB has undertaken a long term plan as per Power System Master Plan (PSMP) guidelines to improve the infrastructure of transmission system.

Distribution System

Bangladesh Power Development Board

Distribution System of the Power Development Board comprises of 33 Kv, 11 Kv and 0.4 Kv lines. In FY 1996-97, the total distribution line in the BPDB system was 37,011 km, which has increased to 47,479 km by FY 2007 (including WZPDCL). About 329 Km new distribution lines have been added to BPDB distribution system this year. Total distribution lines in BPDB system is about 27,713 Km in FY 2007-08 (excluding WZPDCL). The number of consumers has also increased to 17,83,295 in FY 2007-08 from 11,56,672 in FY 1995-96.

Sale of Electricity by BPDB

Total electricity sale in PDB system was 22,622.06 MKWH in FY 2007-08. The share of the total PDB's sale was 23.01 percent to DESA, 11.38 percent to DESCO, 38.26 percent to REB, 6.08 percent to WZPDC and 21.28 percent to BPDB's own retail consumers.

System Loss and Distribution Loss

BPDB/GoB is committed to bring down the system loss to an acceptable limit. Various steps are being taken to reduce the system loss. In FY 2007-08, the system loss was 6.92 percent (on net generation). The distribution loss in BPDB system came down to 14.43 percent in FY 2007-08 from 16.58 percent in the previous year. System loss (% of net generation) and distribution loss (% excl. bulk) of BPDB are shown in Table-10.5.

Table -10.5: System loss of BPDB

Fiscal Year	System loss (% of net generation)	Distribution loss (%) excl. bulk
1996-97	16.0	28.28
1997-98	16.5	29.82
1998-99	16.8	30.56
1999-00	15.4	27.73
2000-01	13.85	26.11
2001-02	12.62	24.50
2002-03	11.35	22.35
2003-04	10.16	21.33
2004-05	9.29	20.00
2005-06	7.86	19.06
2006-07	7.03	16.58
2007-08	6.92	14.43

Source: Bangladesh Power Development Board

Accounts Receivable

Accounts receivable is a matter of serious concern for BPDB which is greatly effecting its liquidity situation. In FY 2007-08, it stood at Tk. 3919.60 crore, which was equivalent to 8.79 months bill. DESA alone has Tk. 3162.66 crore outstanding receivable, which is equivalent to 34.51 months bill. Accounts receivable of BPDB at the end of FY 2007-08 is presented in Table 10.6 below.

Table- 10.6: Accounts receivable of BPDB

Fiscal Year	Accounts receivable (In crore Tk)
1996-97	1348.23
1997-98	1729.81
1998-99	2464.53
1999-00	2789.22
2000-01	3354.99
2001-02	3671.74
2002-03	3993.80
2003-04	4368.10
2004-05	4397.71
2005-06	4500.94
2006-07	3982.10
2007-08	3919.60

Source: Bangladesh Power Development Board

Dhaka Electric Supply Authority (DESA)

On March 06, 1990, Dhaka Electric Supply Authority (DESA) was created by separating former Dhaka Electric Supply from the Bangladesh Power Development Board (BPDB). DESA started functioning formally October 01, 1991. It took some time for DESA to bring about a change in its performance. System loss of the former Dhaka Electric Supply was 38.26 percent. The average system loss of DESA during FY 2007-08 has come down to 18.49 percent (%). The number of consumers at the time of formation of DESA was 4266 78 and it stands at 655908 as of June 2008.

Electricity Import and Revenue Collection

Import of electricity of DESA from BPDB was 2260 MKWH in the year of creation of DESA i.e. in FY 1991-92. Import has increased gradually and reached to 5203.922 MKWH in FY 2007-08.

Year wise electricity import, revenue collection and system loss of DESA since its inception is presented in Table 10.7.

Table-10.7: Year wise Import, Revenue Collection and System loss of DESA

Fiscal Year	Total Electricity Import (MKWH)	Revenue Collection (Crore Taka)	System Loss (%)
1991-92 (9 months)	2259.885	320.08	35.55
1992-93	3356.390	467.03	31.20
1993-94	3696.357	474.16	31.33
1994-95	4162.396	584.09	30.00
1995-96	4550.851	599.79	29.47
1996-97	4935.532	708.36	27.29
1997-98	5418.941	793.48	27.89
1998-99	5946.635	809.63	24.84
1999-00	6504.047	1000.73	25.72
2000-01	7240.456	1141.05	25.68
2001-02	7833.191	1427.32	25.05
2002-03	8306.079	1591.86	23.05
2003-04	6144.932	1514.96	26.21
2004-05	5044.797	1253.03	21.94
2005-06	5300.971	1369.82	20.13
2006-07	5232.577	1731.27	20.68
2007-08	5203.922	1603.422	18.49

Source: Dhaka Electric Supply Authority (DESA), Power Division

Accounts Receivable and Accounts Payable:

DESA collects about 90 percent of its billed amount in each month. Total 'Accounts Receivable' of DESA up to June 2008 since its creation is about Tk. 485.36 crore. Table 10.8 shows year-wise Accounts Receivable and Accounts Payable of DESA.

Table-10.8: Year wise Accounts Receivable and Accounts Payable of DESA

(Crore Taka)

Fiscal Year	Accounts receivable (cumulative)	Accounts Payable
October 1991	213.10	107.18
June 1992	237.90	200.18
June 1993	300.10	288.59
June 1994	429.20	466.00
June 1995	508.60	658.07
June 1996	626.20	812.78
June 1997	792.80	1022.33
June 1998	998.10	1463.26
June 1999	1244.19	2120.51
June 2000	1396.51	2616.21
June 2001	1480.73	3058.30
June 2002	1540.14	3430.33
June 2003	1699.26	2923.20
June 2004	1592.46	3086.49
June 2005	689.31	3019.98
June 2006	809.89	3086.47
June 2007	502.20	2757.85
June 2008	485.36	2627.25

Source: Dhaka Electric Supply Authority (DESA), Power Division

Dhaka Electric Supply Company Ltd. (DESCO)

Growth

Starting from a consumer base of 71,161 and load demand of 90 MW in 1998, the Company has grown to cater to 3,85,037 consumers with a load demand of 505 MW as of June 2008, recording an increase of 441 percent and 461 percent respectively over the last ten years. During the same period, the Company's gross fixed assets, including capital works in progress, increased from Tk.1302 million to Tk. 9204 million with a growth of 607 percent, while the shareholders equity increased from Tk. 1212 million to Tk. 4599 million, recording a growth of 279.5 percent.

Technical Activities

The major technical activities completed in FY 2007-08 are highlighted below:

- Installation of a 10/14 MVA transformer at Bashundhara 33/11 KV Sub-station.
- Expansion and upgradation of distribution network by 49.67 Km of 11KV O/H Line, 2.75 Km of 11KV U/G Cable Line and 44.19 Km of LT Line, including installation of 181 distribution transformers executed by DESCO's own fund.

Data Acquisition System (DAS)

DESCO has a plan to implement its own SCADA in phases. In the first phase DESCO has taken up a project of DAS of its own fund. An agreement has been signed with Bureau of Research Testing and Consultation (BRTC), BUET to acquire a "Data Acquisition System (DAS)" for the network of DESCO on 17 July, 2007. Work under the project has already commenced. Efficient energy management (proper load management of the system and equipment, reduction of system technical loss, maintenance of suitable power factor for the system) will be possible when implementation of the project is completed.

Major Projects (2006-2010)

- ECNEC on October 2005 approved a DESCO project titled "Strengthening DESCO's Electric Distribution Network" to strengthen power supply facilities in Mirpur area. The project due for completion by June 2009 has a total cost of Tk. 2885.2 million. GoB's contribution for the project is Tk. 692.4 million while the rest amount will be financed by ADB against ADB Loan No. 2332-BAN under the scope of sustainable Power Sector Development Program-II (SPSDP-II) of ADB.

- ECNEC approved another project in October 2005 titled "Upgrading and Expanding Distribution System in Gulshan Circle" to be completed by June 2010 for Gulshan area in order to meet the growing demands of the system. The total cost of the project is Tk. 3998.4 million out of which Tk. 1280.4 million will be financed by GOB, Tk. 26.5 million will be financed by DESCO and the rest will be financed by ADB against the ADB Loan No. 2332-BAN under the scope of Sustainable Power Sector Development Program-II (SPSDP-II) of ADB.

Future Plan

A new area named "Purbachal Model Town" is being developed by RAJUK in north east of DESCO area on eastern bank of Balu River under Narayangonj District. The electrical network development for this area will be undertaken by DESCO. The load demand of Purbachal Model Town is expected to be about 500 MW by the year 2020.

Commercial and Technical Activities

Key commercial and technical activities conducted and the performances during FY 2001-02 to 2007-08 are summarized below in Table 10.9.

Table-10.9: Commercial and Technical Highlights of DESCO

Description	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	Increase/ Decrease (8-2)
1	2	3	4	5	6	7	8	9
Commercial Activities								
Energy Import (MKWh)	673.09	855.79	1739.87	1842.89	2023.22	2191.46	2573.76	(+) 1900.67
Energy Import (MTk.)	1354.51	1850.44	3775.52	3999.07	4390.39	4946.36	6151.29	(+) 4796.78
Energy Sales (MKWh)	493.62	675.57	1405.03	1536.31	1695.55	1897.00	2293.03	(+) 1799.41
Energy Sales (MTk.)	1470.03	2216.75	4902.32	5428.08	6280.06	7219.58	9101.76	(+) 7631.73
System Loss (%)	26.66	21.06	19.24	16.64	16.20	13.44	10.91	(-) 15.75
Collection Ratio (%)	89.04	74.10	87.33	97.07	99.11	104.40	99.93	(+) 10.89
C I. Ratio (%)	65.30	58.50	70.93	80.92	83.06	90.37	89.03	(+) 23.73
Consumers	108182	205803	241964	259580	281960	347614	385037	(+) 276855
Technical Activities								
33/11KV Sub-stations (No.)	6	13	13	13	16	19	21	(+) 15
Capacity of 33/11KV Sub-stations	200/280	425/593	425/593	430/602	620/868	680/952	760/1064	(+) 560/784
Maximum Demand (MW)	149.90	315.24	351.82	377.25	397.60	451	505	(+)355.1
33KV Overhead Line (KM)	17.20	73.70	76.70	76.70	76.70	82.80	82.80	(+) 65.6
33KV Underground Line (KM)	37.80	70.30	125.30	142.80	143.80	182.20	182.20	(+) 144.4
11KV Overhead Line (KM)	169	536	552	600	720	860.40	910.07	(+)741.07
11KV Underground Line (KM)	43	205	205	238	262	314.35	317.10	(+) 274.1
LT Line (KM)	422	991	1030	1105	1250	1473.25	1517.44	(+) 1095.44
Distribution Transformer (No.)	1555	3369	3594	3785	4106	4316	4497	(+) 2942

Source: Dhaka Electric Supply Company Ltd (DESCO)

Disconnection/Reconnections

Services to 34,842 defaulting consumers were disconnected during FY 2007-08 with the help of Magistrates and by Company's own staff. Moreover, 12,555 illegal consumers were traced, lines disconnected and regularized during the year. Such illegal connections totaled 12,848 in the previous year.

During 2007-08, a total of 30,966 consumers were given re-connection on recovery of their outstanding dues and realization of penalty as applicable. An aggregate amount of Tk. 363.52million was realized from defaulting consumers while Tk. 93.28 million was realized against penal bills.

New Connections

During FY 2007-08, a total of 37,423 new connections were given as against 22,868 in the preceding year. The total number of connections of DESCO at the end of FY 2007-08 stands at 3,85,037.

Metering

The meter being the 'cash box' of the Company, special efforts ware made to change defective meters, sealing of meters and inspection of meters on a regular and continuous basis round the year. During FY 2007-08, a total of 36,761 defective meters were changed, 39,209 meters were sealed and 94,135 meters were inspected.

Billing/Collection

Considering sales at Tk. 9101.761 million and collection at Tk. 9095.304 million, the billing collection ratio works out at 99.93 percent as against 104.40 percent in previous year (2006-07). The Collection/ Import (C.I) ratio also changed from 90.37 percent to 89.03 percent in 2007-08.

Accounts Receivable

The Company maintains a system of continuous monitoring of accounts receivable by way of monthly reports and analysis. The Accounts Receivable/ Sales ratio works out to 22 percent in 2007-08 as against 26 percent in the previous year.

Prepaid Metering

A total of 7,356 pre-paid meters have already been installed in Uttara area. Sectors 4, 6, 8, 1, 3 & 7 of Uttara have already been covered and sectors 5, 13 & 14 of Uttara are under implementation. Sectors 9, 10, 11 and 12 will be covered next phase. In order to facilitate continuous supply of pre-paid meter in future, DESCO has set up a "Pre-paid meters Production Unit" with the technical assistance of IICT, BUET at Mirpur.

Rural Electrification Board (REB)

Rural Electrification programme has registered remarkable progress since its inception. The Board through its 70 PBSs has constructed 215,002 km of distribution lines as of June, 2008. A total of 72,35,142 connections was given in 48,327 villages. Of which domestic connections stand at 62,20,973, irrigation 1,39,800, commercial 7,42,194, industrial 1,19,279 and others 12,896.

On going Projects under REB

Under the revised ADP for FY 2007-08, REB has been provided with an allocation of Tk 909,10.00 lakhs (Tk.400,00.00 lakh in local currency and Tk.509,10.00 lakhs in Project aid) for implementation of 14 projects (11 investment projects and 3 technical assistance projects).

For remote areas, where power can not be provided in conventional way, REB has taken up 3 renewable energy projects with a target to provide 22000 domestic connections through Solar Home Systems. As of June 2008, about 13,000 domestic connections have been given.

REB purchases electricity from PDB and sells to its consumers. The Table 10.10 shows the statistics of purchase and sale of electricity of REB in FY 2007-08:

Table 10.10: Purchase and Sale of Electricity among the Consumers by REB

Year/month	MWH purchased	MWH sold/consumed						Average System loss of 70 PBS (%)
		Domestic	Industry	Commercial	Agricultur	Others	Total	
FY 2007-08								
July' 2007	768554	339681	254995	49277	9735	1232	654920	12.20
Aug' 2007	796776	360952	255126	52654	9571	1291	679594	12.35
Sept' 2007	802802	395585	251030	53906	7933	1227	709681	12.44
Oct' 2007	743558	392838	212246	56090	9621	1221	672016	11.97
Nov' 2007	629160	315848	219161	48163	13810	1170	598152	11.73
Dec' 2007	660517	265982	233565	44689	15653	1126	561015	11.83
Jan' 2008	767674	301740	241611	48890	103796	1143	697180	11.80
Feb' 2008	811461	289675	227242	47764	176025	1173	741897	11.80
Mar' 2008	903619	280196	191573	53185	262224	1125	788303	11.68
April' 2008	882983	303773	235914	52605	199669	1182	793143	11.57
May' 2008	761587	315605	258632	52539	41176	1204	669156	11.35
June' 2008	750597 Meter Grid 723398 Sub-station	337169	230184	56325	12842	1227	637747	15.05 Meter Grid 11.73 Sub-station

Source: Rural Electrification Board (REB)

The Table 10.11 shows the payable amount of bill to PDB and receivable amount of bill from the consumers:

Accounts Receivable

Table 10.11: Accounts Receivable and Accounts Payable of Purchase and Sale of Electricity of REB

Fiscal Year	Accounts receivable (Months)	Accounts receivable (In Crore Tk.)	Aging of Accounts Payable (PDB Bill outstanding) (In Crore Tk.)
1994-95	2.14	50.36	0.69
1995-96	2.10	55.68	0.72
1996-97	2.49	74.26	0.71
1997-98	2.46	91.25	1.47
1998-99	2.49	127.14	3.57
1999-00	2.30	149.33	14.85
2000-01	2.23	186.41	55.04
2001-02	2.21	235.00	42.75
2002-03	1.92	268.72	42.34
2003-04	1.81	302.22	32.46
2004-05	1.85	344.66	9.02
2005-06	2.00	428.89	12.89
2006-07	1.72	374.32	12.64
2007-08	1.54	376.57	1.12

Source: Rural Electrification Board (REB)

Box 10.1: Reforms and Efficiency Improvement measures:

The government is committed to implement reform program for the overall improvement in the power sector. A number of reform programmes has been taken up for implementation for improvement of management efficiency in generation, transmission and distribution. Some of them have already been implemented. The implementation status is highlighted below:

- Ashuganj Power Station has been converted to Ashuganj Power Station Company Ltd. (APSCL) and started functioning since June 2003.
- Electricity Generation Company of Bangladesh (EGCB) has been created to look after the generation at Siddirganj Power Station area. Siddirganj (2x120 MW) Power Station Project (under construction) and Siddirganj (2x150 MW) Power Station Project will be implemented by EGCB.
- Power Grid Company of Bangladesh (PGCB) and Dhaka Electric Supply Company (DESCO) were created in 1996. PGCB has taken over the total transmission system from BPDB in December 2002.
- West Zone Power Distribution Company Ltd. (WZPDCL) has taken over distribution business from BPDB and started functioning since October 2003.
- Operation of North-West Zone Power Distribution Company Ltd. (NZPDCL) is under process. Top management has already been recruited.
- Operation of North-West Zone Power Generation Company (NWZPGC) is under process.
- South Zone Power Distribution Company (SZPDCL) has been registered in the Joint Stock Company and Firms on 6th May 2008.
- Creation of Central Zone Power Distribution Company (Mymenshingh and Sylhet Zone) is in progress. BPDB has sent MOU and AOA to the Power Division for approval and Power Division has initiated process for vetting from relevant Committee/ Division.
- Computerized billing systems are being introduced in each distribution unit.
- Bangladesh Power Development Board will be converted in to a Holding Company under the Company's Act 1994. Foreign consultants have already submitted the final report for proper implementation of Holding Company.

Future Plan

The government has prepared a Power System Master Plan to realize its vision. According to the plan, installed capacity will rise to 16,643 MW by the year 2020. During this period transmission and distribution line will reach 12,000 km and 477,558 km respectively. Future plan of the government up to 2020 is presented in Table 10.12.

Table 10.12: Future Plan of Power Sector Development

Sl. No.	Items	FY 2007 (Provisional)	FY 2009	FY 2012	FY 2020
1.	Installed Capacity, MW	5269	6,000	9,449	16,643
2.	Maximum Demand, MW	3,785 (actual gen)	6,066	7,732	13,993
3.	Net Generation, MkWh	23,267	31,028	39,647	72,222
4.	Transmission Line, km	7,044	9,077	9,653	12,000
5.	Grid Substation Capacity, MVA (a) 230 KV & 230 KV (b) 132 KV	 5,175 7,219	 6,850 10,990	 12,910 13,990	 19,075 27,367
6.	Distribution Line (km)	2,71,142	3,14,000	3,45,530	4,77,558
7.	Number of Consumers (million)	10.33	10.60	12.75	20.77
8.	Number of Village Electrified	50,360	59,000	69,571	84,000
9.	Per Capita Generation, kWh	165	200	260	450
10.	Access to Electricity (in percentage)	43	52	65	100

Source: Bangladesh Power Development Board

Fuel and Mining Sector

Natural Gas

In Bangladesh natural gas is one of the important sources of energy that accounts for 75 percent of the commercial energy demand of the country. Till now 23 gas fields have been discovered in the country. The estimated recoverable reserve (proved and probable) of the 23 gas fields is 20.631 TCF. The reserve of Bangura gas field in Block 9 is being assessed. As of June 2008, total 7.722 TCF gas has already been produced leaving only 12.909 TCF recoverable reserve gas.

The total gas reserve and extractable gas and cumulative gas production up to June 2008 are shown in Table 10.13.

Table 10.13: Total Gas Reserve, Extractable Gas and Cumulative Production of Gas up to June 2008

In Billion Cubic Feet (BCF)

Gas field	Recoverable Reserve (Proved + Probable)	Cumulative Production upto June 2008 (Provisional)	Remaining Recoverable Reserve (Proved+ Probable)
PRODUCING:			
BAKHRABAD	1049.00	680.29	368.71
HABIGANJ	3852.30	1531.37	2320.93
JALALABAD	836.50	451.42	385.08
KAILASHTILLA	1903.30	432.73	1470.57
MEGHNA	119.60	35.84	83.76
NARSINGDI	215.10	86.84	128.26
RASHIDPUR	1401.20	430.26	970.94
SYLHET	478.70	187.97	290.73
SANGU*	848.50	439.71	408.79
SALDA NADI	116.10	54.92	61.18
TITAS	5127.50	2851.84	2275.66
BEANIBAZAR	170.20	51.82	118.38
FENCHUGANJ	282.80	50.37	232.43
FENI	130.00	60.79	68.81
MOULVIBAZAR	359.60	113.13	246.47
BIBIYANA	2400.80	168.36	2232.44
BANGURA	122.40	47.23	75.17
NOT IN PRODUCTION :			
BEGUMGANJ	32.70	0.00	32.70
KUTUBDIA*	45.50	0.00	45.50
SEMUTANG	150.30	0.00	150.30
SHAHBAZPUR	465.60	0.00	465.60
PRODUCTION SUSPENDED:			
CHHATAK	473.90	26.46	447.44
KAMTA	50.30	21.10	29.20
TOTAL	**20,631.50**	**7,722.45**	**12,909.05**

Source: Energy and Mineral Resources Division

* Offshore field

Presently, 79 wells in 17 gas fields are in production. The producing gas fields are: Titas (14 wells), Bakhrabad (4 wells), Habiganj (9 wells), Rashidpur (5 wells), Kailashtilla (6 wells), Sylhet (2 wells) Narsingdi (2 wells), Meghna (1 well), Saldanadi (2 wells), Fenchuganj (1 well), Sangu (6 wells), Jalalabad (4 wells), Beanibazar (2 wells), Feni (3 wells), Moulavibazar (4 wells) and Bangura (2

wells) and Bibiyana (12 wells). A total of 600.72 billion cubic feet (BCF) gas was produced in the fiscal year 2007-2008, while in the fiscal year 2006-2007 total gas production was 562.13 BCF, i.e. gas production growth rate was 6.85 percent in FY 2007-2008.

Year and sector wise gas consumption and demand are shown in Table 10.14 and 10.15 respectively.

Table 10.14: Consumption of Natural Gas by Sector and Year

In Billion Cubic Feet (BCF)

Fiscal Years	Produc-tion	Sectors									Total Sales
		Power	Fertilizer	Industry	Captive Power	Tea Estates	B. Fields (Seasonal)	Commer-cial	Domestic	CNG	
1991-92	188.48	88.10	61.60	13.40		0.70	0.20	2.90	11.60	0	178.50
1992-93	210.98	93.30	69.20	15.20		0.70	0.20	2.40	13.50	0	194.50
1993-94	223.76	97.30	74.50	20.26		0.70	1.10	2.87	15.40	0	212.13
1994-95	247.38	107.40	80.50	24.24		0.60	1.10	2.88	18.86	0	235.58
1995-96	365.51	110.90	90.98	27.31		0.72	0.99	3.00	20.71	0	254.61
1996-97	260.99	110.82	77.83	28.62		0.71	0.48	4.49	22.84	0	245.79
1997-98	282.02	123.55	80.07	32.32		0.74	0.39	4.61	24.89	0	266.57
1998-99	307.48	140.82	82.71	35.79		0.71	0.35	4.71	27.02	0	292.11
1999-00	332.35	147.62	83.31	41.52		0.64	0.35	3.85	29.56	0	306.85
2000-01	372.16	175.27	88.43	47.99		0.65	0.44	4.06	31.85	0	348.69
2001-02	391.53	190.03	78.78	53.56		0.72	0.53	4.25	36.74	0	364.61
2002-03	421.16	190.54	95.89	63.76		0.74	0.52	4.56	44.80	0.23	401.04
2003-04	454.59	199.40	92.80	46.49	32.03	0.80	0.12	4.83	49.22	1.94	427.66
2004-05	486.75	211.02	93.97	51.68	37.87	0.80	0.00	4.85	52.49	3.62	456.30
2005-06	526.72	222.72	88.58	63.44	49.02	0.76	0.00	5.24	57.13	6.71	493.61
2006-07	562.22	221.10	93.47	77.48	62.51	0.75	0.00	5.66	63.25	11.99	536.21
2007-08	600.72	234.28	78.67	92.19	80.23	0.80	0.00	6.60	69.02	22.82	584.61

Source: Energy and Mineral Resources Division

Table-10.15: Sector-wise Demand for Natural Gas

(In Billion Cubic Feet)

Sector	2007-08	2008-09	2009-10	2010-11
Power	234.3	257.6	278.2	300.5
Captive	80.2	102.4	120.9	142.6
Fertilizer	78.7	94.0	94.0	94.0
Industry	92.2	111.6	133.9	160.7
Commercial	6.6	6.4	6.8	7.3
Brick Field (Seasonal)	0.0	0.0	0.0	0.0
Domestic	69.0	79.3	88.9	99.5
Tea-Estates	0.8	1.0	1.0	1.0
CNG	22.8	34.7	58.9	88.4
*System Loss	16.1	20.0	20.5	20.0
Total	600.7	707.0	802.5	913.9

Source: Energy and Mineral Resources Division

*Including own use.

In Bangladesh**,** exploration and development of new gas fields to meet the increasing demand of gas has become imperative**.** To intensify exploration activities, the whole country has been divided into 23 blocks. As a result, International Oil Companies have signed 10 Production Sharing Contracts (PSCs) for 12 acreage blocks. Out of these, 02 PSCs have already expired. Currently, 08 PSCs are in force in 10 acreage blocks.

Table: 10.16 shows the Production Sharing Contracts (PSCs) signed with the International Oil Companies for exploration hydrocarbon.

Table 10.16: **Production Sharing Contracts (PSCs) for hydrocarbon exploration**

International Oil Company	Exploration Block	Area	Remarks
Chevron Bangladesh Limited.	13, 14	Sylhet, Moulvibazar	Gas Producing
Chevron Bangladesh Limited.	12	Sunamganj, Habiganj	Gas Producing
Cairn Energy Sangu Field Limited/ Haliburton Energy Inc.	16	Bay of Bengal.	Gas Producing.
Tullow Bangladesh Limited/ Rexwood/ Okland	17, 18	Cox's Bazar, Bay of Bengal.	Exploration activities are on going.
Tullow Bangladesh Limited/ Niko Exploration (Block-9) Limited/BAPEX	9	Gazipur, Narsingdi, Comilla & Chandpur.	Development and gas producing activities are going on.
Chevron Bangladesh Limited/ BAPEX	7	Barisal, Patuakhali, Pirojpur, Jhalakati, Barguna and Bay of Bengal.	Exploration activities are on going.
Cairn Energy Exploration (Bangladesh) Limited/BAPEX	5	Khulna, Satkhira, Bagerhat, Bay of Bengal.	Exploration activities are on going.
Cairn Energy Exploration (Bangladesh) Limited/BAPEX	10	Laxmipur, Noakhali, Bhola, Bay of Bengal.	Exploration activities are on going.

Source: Energy and Mineral Resources Division

Meanwhile, Cairn Energy has discovered an offshore gas field called Sangu in Block 16. It has been producing gas since 1998 under production sharing contract and contributing to our national gas supply grid. In 2005, a separate agreement was signed with Cairn to further explore three ring- gas fenced prospects i.e. Hatia, Monpura and Magnama in block # 16. Chevron (the then Unocal) discovered two gas fields called Moulavibazar and Bibiyana in blocks 14 and 12 respectively. On successful completion of development activities, Chevron has been producing gas from Moulvibazar gas field since April 2005. The first phase development work of Bibiyana gas field has been completed and gas production started from 18th March 2007. Now the second phase development work of Bibiyana gas field is going on. Tullow also discovered Bangora-Lalmai gas field in block # 9. Tullow is implementing development activities in Bangora-Lalmai gas field and simultaneously supplying gas to the national grid through Long Term Testing. Besides these, offshore area of the country has been divided into 28 new blocks and an international tender has been floated by the Government in February 2008 to start exploration activities in offshore areas under Production Sharing Contract. 7 IOCs, in response, have submitted bids for 15 blocks. Evaluation of the bids has been completed and the report is a waiting Government's approval.

To meet the increasing demand of gas, several important projects are being implemented such as- GOB funded Shahbazpur Gas Field Development Project, Operation Capability Strengthening project, Mubarakpur Oil/Gas Exploration Well Drilling Project, Gas Supply to Sylhet Combined Cycle Power Plant and Shahjalal Fertilizer Factory etc. and self financed projects like Reservoir Management Project, Installation of MSTE plant in Beanibazar and Kailashtilla gas fields, Installation of condensate fractionation plant in Rashidpur gas field, Drilling of new wells in Habiganj and Narsingdi gas fields, Drilling of new wells in Titas gas field, Redevelopment of Bakhrabad gas field (1st phase), Recompilation of Meghna well # 1. An opportunity has been created for expansion of gas network to

the western and south-western zone of the country by implementing of ADB funded "Gas Transmission and Development Project (GTDP)". Under GTDP, a total of 356 km gas transmission pipelines will be constructed to transport gas to the western and south-western region of the country. These pipelines are; (i) Monohardi-Dhanua, Elenga-East Bank of Jamuna gas transmission pipeline (51 km) (ii) West Bank of Jamuna Bridge-Nalka, Hatikumrul-Iswardi-Bheramara gas transmission pipeline (87 km), (iii) Bonpara-Rajshahi gas transmission pipeline (53 km) (iv)Bheramara-Khulna gas transmission pipeline (165 km). Moreover, 04 compressor stations will be installed at Muchai (01), Elenga (01) and Ashuganj (02) under GTDP project. Besides, to supply gas to Siddirganj Peaking Power plant, Bakrabad –Siddirganj gas transmission pipeline is being implemented by World Bank financing.

LPG

The annual consumption of Liquefied Petroleum Gas (LPG) in Bangladesh is about 40,000 tons. Out of which the LPG Plant at Kailashtilla has been producing LPG with production capacity of 5000 tons per annum from the NGL being extracted by MSTE plant from the relatively more wet gas stream of Kailashtilla gas field. To meet the on going demand of LPG, another NGL fractionation plant at Kailashtila with the capacity of 110 MT/day is recently implemented with GOB finance. The Raw-materials NGL is extracted from the Gas fields which contains relatively more wet gas from Kailashtila, Beanibazar, Jalalabad etc. and is being processed for producing LPG, MS and Diesel. The capacity of the plant is to produce 8,560 MT LPG, 13140 MT Petrol and 14600 MT Diesel per year.

CNG

Vehicle conversion to Compressed Natural Gas (CNG) is being promoted by the government and use of this mode of fuel has become immensely popular. Uncontrolled emission from motor vehicles especially from two stroke three-wheeler baby taxis and diesel buses was a major cause for air pollution in urban areas specially Dhaka City. This was the main source of air pollution as well as responsible for poor visibility for the city of Dhaka, and other major cities of the country. Eye irritation, respiratory illness, cardio vascular diseases were common phenomenon to city dwellers. Natural gas of Bangladesh consists of typically more than 96 percent methane and practically contains no sulfur. Increasing the usage of CNG substantial led to the improvement in air quality in urban areas.

Within the gas network areas, public and private entrepreneurs have set up of 250 CNG filling stations (99 at Dhaka, 19 at Savar, 28 at Gazipur, 7 at Narshindi, 9 at Narayangonj, 19 at Comilla, 6 at Feni, 3 at Kishorginj, 16 at Sylhet, 30 at Chittagong, 7 at Bogra, 1 at Brahmanbaria, 2 at Tangail, 2 at Manikgonj, 1 at Pabna, 1 at Lakhipur) and 121 CNG conversion workshops. Total number of CNG converted vehicle in the country stands at 137,987. Installation of 14 CNG filling stations is under process in various parts of the country. It may be mentioned here that 26 CNG filling stations will be installed under Dhaka Clean Fuel Project on different highways under ADB financing. These filling stations will be installed on 6 highways i.e. Dhaka-Chittagong, Dhaka-Sylhet, Dhaka-Mymenshing, Dhaka-Aricha, Dhaka-Sirajgonj-Bogra, Dhaka-Mawa. A total of 5,000 CNG kits and 6,000 CNG Cylinders will be procured under this project of which 2,500 CNG kits and 3,000 cylinders have already been procured.

CNG activities is keeping positive role in economy of the country. At present on average monthly 58.14 MMCM CNG is being used which is equivalent to 69.77 million liter petrol/octane. As a result US$ 67.77 million is being saved per month and US$ 813.29 million annually.

Coal

Bangladesh has 5 coal fields and the reserve is about 2,700 million tonnes. The 5 coal fields discovered so far are Barapukuria, Khalashpir, Phulbari, Jamalgonj and Dighipara. The reserve is equivalent to 37 tcf gas. So far, only one field, i.e. Barapukuria, has been developed under a Chinese supplier's credit. Commercial production of Barapukuria coal mine commenced from 10 September 2005 with the targeted capacity of one million metric ton per year. But the targeted capacity could not be reached as yet due to some constraint/limitation, on average 0.40 million metric tonnes of coal was extracted in each year. Most of coal is used in 2x125 MW power plant while a small portion is used in coal based industries. It is mentioned here that up to June 2008, about 1,368,390 metric tonnes of coal was produced.

Hard Rock

Commercial production of Madhyapara hard rock mine started in May, 2007 with the targeted capacity of 16.50 lakh metric tonns per year (5,500 tons per day). Since its inception to June 2008, about 742,230 metric tonnes hard rock was extracted from Madhyapara hard rock mine. The extracted hard rock is used for the various construction works like flood control, coastal and town protection, embankment construction and maintenance of bridges, roads, highways, railways, river training, high rise buildings and other construction works.

Fuel Demand and Supply System:

Bangladesh Petroleum Corporation (BPC) has completed development and expansion of fuel reserve system by modernizing and upgrading the fuel supply system conforming to international standard for international and domestic flights. Apart from this, BPC is responsible for development and expansion of fuel reserve system throughout the country. Currently, its total fuel stock capacity is 8.53 lakh metric tons.

The following two tables (Table- 10.17 and 10.18) present the information on import of refined and crude petroleum commodities by Bangladesh Petroleum Corporation during FY 1997-98 to 2008-09:

Table 10.17: Import of Crude Petroleum Commodities

Fiscal Year	Quantity (Metric Ton)	C & F Price (Million US Dollar)	Crore Tk.
1997-98	11,44,048	151.56	714.10
1998-99	9,55,874	98.10	473.72
1999-00	12,36,049	218.68	1110.96
2000-01	13,37,121	290.73	1598.60
2001-02	12,24,707	220.19	1277.78
2002-03	13,31,003	289.30	1693.03
2003-04	12,52,424	314.12	1848.43
2004-05	10,63,208	364.01	2261.98
2005-06	12,53,285	552.12	3750.69
2006-07	12,11037	659.09	4455.06
2007-08	11,40,190	817.16	5609.81
2008-09 (Provisional)	12,00,000	895.15	6212.34

Source: Bangladesh Petroleum Corporation

Table 10.18: Import of Refined Petroleum Commodities

(Quantity in Metric ton, Value in Crore Tk)

Fiscal Year	JP-1, Kerosene, Petrol, Octane and Diesel		Lubricating	
	Quantity	Value	Quantity	Value
1997-98	1734874	1275.04	39742	57.53
1998-99	2221872	1350.10	39961	45.62
1999-00	1823400	2021.23	50229	86.41
2000-01	2068913	2999.20	29918	69.34
2001-02	2072300	2535.62	15316	30.59
2002-03	2213899	3319.35	1911	5.10
2003-04	2262348	4015.81	6516	18.38
2004-05	2691750	7213.88	10189	38.14
2005-06	2380533	9382.77	5137	35.53
2006-07	2536092	10542.88	778	4.36
2007-08	2283073	16821.22	8495	50.94
2008-09 (Provisional)	2612000	18228.60	10000	84.74

Source: Bangladesh Petroleum Corporation

BPC's Financial Loss in Marketing Imported Finished Products and Refined Products:

BPC incurred a loss of Tk. 7.61 crores during FY 2002-03 FY from marketing of imported POL products. Such loss resulted from lower local sales price (transfer price) against higher purchase price. In FY 2002-03, BPC contributed Tk.2766.13 crores to the national exchequer on account of import duty and tax. During FY 2003-04 BPC incurred an annual trade deficit of Tk. 958.93 crore against contribution of Tk. 3087.28 crore to the national exchequer as import duty and tax. During FY 2004-05 BPC incurred loss Tk. 2386.73 crore while its contribution to national exchequers was Tk. 2745.77 crore. BPC incurred a loss of Tk. 3250.02 crore in FY 2005-06 while it deposited Tk. 2828.19 crore to the national exchequer during the same period and in 2007-08 the loss of BPC stood at Tk. 6272.80 crore while BPC deposited Tk. 3018.00 crores in the same year. BPC estimated a loss of Tk. 14123.63 crores in FY 2008-09, whereas expected deposit to the National Exchequer during the same period is Tk. 6876.92 crores.

Bangladesh Energy Regulatory Commission (BERC)

Bangladesh Energy Regulatory Commission (BERC) has been established as an independent and impartial organization with the responsibility to create an atmosphere conducive to private investment in the generation of electricity and transmission, transportation, storage and marketing of energy as well as to ensure transparency in the management, operation and tariff determination in this sector; to protect consumer's interest and to promote a competitive market. The Commission started functioning from April 2004. At present, the Commission comprises of a Chairman, 4 members and 20 officers and staff.

Bangladesh Energy Regulatory Commission Act 2003 authorizes BERC to issue licenses for generation of electricity and transmission, transportation and marketing of electricity, gas resources and petroleum products. The Commission also determines tariff in accordance with the policy and methodology in consultation with the government of Bangladesh.

During FY 2007-08, the government has allocated Tk. 1.00 crore as budget support to the commission. During the same period the commission has earned about TK. 3.41 crores through

various fees and charges. So far the BERC has issued 285 electricity generation licenses. The commission has also been working to issue licenses for gas and petroleum sectors.

Bangladesh Petroleum Institute:

Bangladesh Petroleum Institute (BPI) was established in 1981 under the Ministry of Energy and Mineral Resources. Government decided to develop BPI as a well organised and a high technology based training institute capable of undertaking R&D, data management and providing Post Graduate Diploma education for those working for the oil, gas and mineral sector. As per the Bangladesh petroleum institute (BPI) act 2004, a Governing Board has been constituted with 10 members chaired by the Secretary, Energy and Mineral Resources Division. All activities of BPI are being carried out according to the directives of its Governing Board.

Right from its inception, BPI has been working to identify the potential areas of finding oil and gas by doing photo-geology, log interpretation, seismic geological and geophysical interpretation modeling and different other studies and have prepared 25 research/technical reports, so far. Since its inception in 1982 till June 2008, BPI has organized 263 training courses, seminar and workshops, and a total of 4921 participants have participated in the training courses.

Hydrocarbon Unit

Hydrocarbon Unit (HCU) is playing an important role in the upstream activities of oil and gas sector of the country. After completion of Resource Assessment (2001) in the petroleum sector of the country, HCU completed the "Gas Reserve Estimate Study: 2003". According to this study, the present scenario of the gas reserve (including provisional reserve figure of Bangura gas field) is as follows:

Total Gas Reserve	: 28.62 Tcf
Total Recoverable Reserve	: 20.63 Tcf
Cumulative Production (Up to June, 2008)	: 7.73 Tcf
Remaining Reserve (Up to June 2008)	: 12.90 Tcf

A mini-data Bank has been established in HCU with some selected data on gas reserve, undiscovered gas resources and gas production and consumption. The HCU has recently been inducted as permanent body within the Energy and Mineral Resources Division.

Geological Survey of Bangladesh (GSB)

Geological Survey of Bangladesh (GSB) is entrusted with the tasks of exploration, discovery and evaluation of mineral deposits, and research in different disciplines of geosciences. To strengthen the mineral exploration and evaluation activities, the department is implementing various development projects. Important outcomes of these projects are the discovery of coal deposits at Barapukuria and Dighipara of Dinajpur District and Khalashpir of Rangpur District. Besides these, glass sand, white clay, limestone, peat and gravel deposits have been discovered in different places of the country. At present GSB, is implementing the following 3 (Three) projects:

1. “Geo-scientific Activities for Mineral Investigation (2004-08)’’– a development programmme under revenue budget having a cost of Tk.350.00 lakh. Under this programme 12 activities have been completed during FY 2007-08. Based on the data from 05 drill holes under this program, the proved reserve of the deposits has been estimated to be 150 millions metric tons. GSB completed one drilling at Shamnagar/ Chintamon area of Birampur upazila in Dinajpur District during 2007-08 and found hard rock at 288.03 meter depth.
2. “Geological exploration for identification of mineral resources and the area vulnerable to natural hazards in the coastal parts of Bangladesh (2006-09)’’ at a project cost of Tk.1670.00 lakh. During 2007-08 FY 2450 sq. km. areas have been mapped in 20 Upazilas of Noakhali, Feni, Chittagong and Barisal Districts.
3. ‘’Modernisation of drilling equipment and accessories to the Geological Survey of Bangladesh for investigation of mineral resources (2005-08)’’ at a project cost of Tk. 952.57 lakh. Under this project a rig with required accessories has been procured.
4. “Building Ground Information System, Dhaka City (2007-09)” with a cost of Tk. 294.90 lakh. During FY 2007-08 field work has been completed about 30 percent of the total area. Data and map collection almost completed.

Beside these, Geological Survey of Bangladesh is also implementing “Data sharing, geological and geomorphological mapping with subsurface information of Dhaka, Chittagong and Sylhet City Corporation” under MoU between GSB and CDMP.