
Global Workshop on Low Carbon Power Sector Development of Bangladesh

**Md. Abduhu Ruhullah, Member, Distribution
Bangladesh Power Development Board**

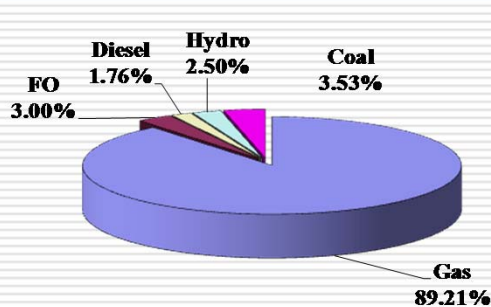
14 December, 2011

Bangladesh's Power Sector: At a Glance (FY 2011)

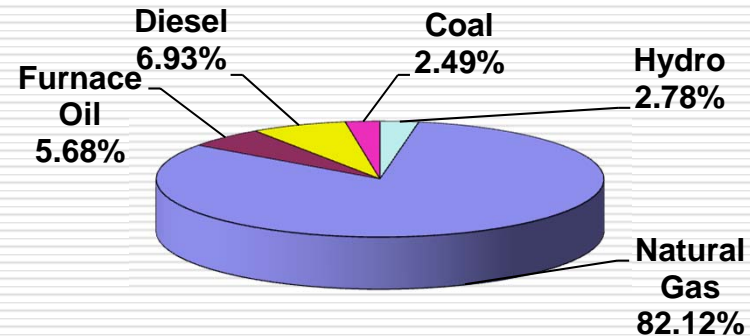
- ❑ Area : 147,570 km²
- ❑ Population : 158 million
- ❑ Electricity Growth : 10 % in FY-2011
(Av. 7 % since 1990)
- ❑ Generation Capacity : 7047 MW (Nov, 2011)
- ❑ Total Consumers : 12.5 Million
- ❑ Transmission Lines : 8,600 km
- ❑ Distribution Lines : 2,78,000 km
- ❑ Per Capita Generation : 252 kWh
- ❑ Access to Electricity : 50 %



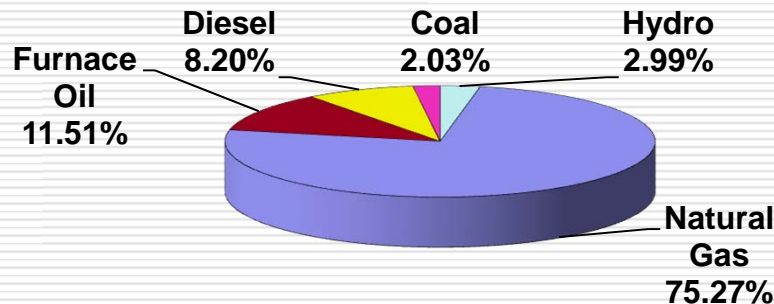
Energy Generation by Fuel Type in FY 2010 & FY2011



Energy Generation(FY10): 29,247 M kWh



Energy Generation (July,10-March,11): 21,259 M kWh



Energy Generation(July-11 To Sept. 11): 9,293 M kWh

- Energy Growth in FY11 is about 10 %
- High Dependence on Gas

Power System Master Plan (up to 2030)

- **Updates of PSMP 2006:** Due to change of planning perspective
- **PSMP 2010 :** Long term planning up to 2030
- **Study completion:** February 2011
- **Findings:**
 - Generation capacity requirement by 2021: 24,000 MW
 - Generation capacity requirement by 2030: 39,000 MW
 - Coal based generation capacity by 2030: 20,000 MW
 - Coal and Nuclear for base load power requirement
 - Cross Boarder Trade with neighboring countries

RENEWABLE ENERGY POLICY

- Policy effective in 2009
- Policy envisions:
 - 5% of total power from renewable sources by 2015
 - 10% of total power from renewable sources by 2020
- Policy demands (as of June 2011 Program):
 - 800 MW power from renewable by 2015
 - 2000 MW power from renewable by 2020
- A dedicated agency proposed:
Sustainable Energy Development Authority (SEDA)

Renewable Energy Development In Bangladesh: At a glance

Total Installed Capacity:

Installed Solar : 50 MWp

Wind Mill : 2 MW

Biomass : 250 kW

Under Procurement Process:

Solar : 35 MWp

Wind Energy : 50–200 MW

Waste to Electricity : 10 MW

TARGET FOR

500 MW SOLAR POWER DEVELOPMENT PROGRAMME

Category	Status
Commercial Solar Power Projects	340 MW
Social Solar Power Projects	160 MW
Total	500 MW

A. COMMERCIAL PROJECTS

	Program	Capacity (MW)
1	Solar Irrigation Pumps	150
2	Solar Power Mini Grid System	25
3	a) Solar Park at govt. land	115
	b) Solar Park at Railway Area	20
4	Solar Power in Private Commercial and Residential Buildings	10
5	Solar Power in Industries	20
	Total	340

B. Social Projects

	Program	Implementing Agency	Capacity (MW)
1	Solar electrification in Rural Health Center	M/O Health & FWF	50
2	Solar Electrification in Remote Educational Institutions	M/O Education	40
3	Solar electrification at Union Information Centers	LGDivision/ BCC	7
4	Solar Home System in Religious Establishments	M/O Religious Affairs	12
5	Solar electrification at Remote Railway Stations	Railway Division	10
6	Solar PV system in Government Offices	PWD	41

Primary Fuel Supply Scenario

- **Gas:** No significant gas discovery in recent years; off – shore and on – shore gas exploration initiatives & increased reserves in present fields may change the present scenario
- **Coal:** Near term option; Indigenous or Imported; Base Load;
- **Oil:** Volatile market; High price; For peaking duty
- **LNG:** Necessary to ensure secure and reliable gas supply
- **Nuclear:** Safe technology; No pollution; Expected to be future Base Load option

4. Natural Gas

- ❑ At present, major source of our energy is natural gas which contributing 70% of the total commercial energy supply and 85% of power generation capacity.
- ❑ After 2011, if no new gas fields are discovered then the gas supply will be declined and consequently the demand of coal will be increased as an alternate source of energy
- ❑ Till now 23 gas fields have been discovered in the country with an estimated proven recoverable reserve of 15.21 TCF. As of December 2007, from 17 gas fields a total of 7.42 TCF gas has been already produced leaving only 7.93 TCF recoverable gas.

5. Clean Coal

- ❑ At present only one underground coal mine (~0.8 m ton per year) and one coal base power station (250 MW Capacity).
- ❑ 5 Coal fields have been discovered in the NW part of the country.
- ❑ Total in situ geological deposits of coal at shallow depth (except Jamalganj, depth 640.24-1158.50 m) in the north western part of the country is estimated as 2200 million tons.
- ❑ Coal is high-quality, low-sulfur and can be used for all sort of thermal conversion; some coal has coking properties.
- ❑ 450 MT coal requirement for power production -2005-2025
- ❑ Projection-32837 MW from coal base power plant in 2025

6. NUCLEAR POWER

- ❑ Bangladesh in its first move to go for nuclear power signed a deal with Russia to meet its widening energy deficit.
- ❑ Russia will build two nuclear power plants, and each of the units will produce 1,000 megawatts of electricity
- ❑ Signed up the intergovernmental agreement in the capital Dhaka on 03 Nov 2011.
- ❑ The power plant will remain safe even if a massive earthquake and tsunami simultaneously take place or any aircraft weighing 4,000 tons crashes on it

7. Energy Efficiency

- Shifting peak load by changing shop closing times:
has reduced demand by 350 MW
- Staggering holiday has reduced demand by 150 MW
- Energy efficiency improvement program
 - About 10.5 million CFL was distributed in 2010 and 17.5 million will be distributed within 2013.
- Demand Site Management.
- Switch-Off Program
- Introduction of quality pre-paid and smart meters all over the country

Incentives

- ❑ Tariff based bidding
- ❑ Sovereign guarantee from the Government for obligations of Government entities through Implementation Agreement (IA) for renewable energy.
- ❑ Attractive incentive packages
- ❑ Exemption from corporate income tax for a period of 10 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
- ❑ Subsidies energy buying facilities from renewable energy producer like waste, on-grid solar power.

ADB & DPS SUPPORT EXPECTED FOR LOW CARBON EMISSION

Technical Support

- Technical Assistance (Project dependent):
 - Project Design
 - Preparation of Standard Procurement and Contract Documents
 - Detail Feasibility Study
 - Capacity Building

Financial Support

- Grant Support
- Low Interest Credit Support
(For Capital Cost Buy down)

