Economy of Bangladesh at a Glance

- **Official Name**: People’s Republic of Bangladesh
- **Political System**: Parliamentary Democracy
- **Area**: 147,570 km²
- **Population**: 154 million
- **Total Exports**: USD 27 billion (FY2013)
- **Total Imports**: USD 34 billion (FY2013)
- **Remittance**: USD 14.5 billion (FY2013)
- **Forex Reserve**: USD 18 billion
- **GDP total**: USD 131 b (FY 2013)
- **GDP Per Capita**: USD 1044 (FY 2013)
- **Power Capacity**: 10,000 MW
Bangladesh has maintained consistent growth and never defaulted on its internal or external debt obligations despite the Asian and Global Financial Crises, numerous political upheavals and countless natural disasters. This consistency is practically unrivaled amongst countries of a similar level of development.

- **Cyclone 2B**: Casualty: 400 people, 8,000 cattle.
- **Very severe tropical Cyclone BOB 01**
- **Asian Economic Crisis**
- **Very severe cyclonic storm BOB 06**: 300,000 affected, 8755 homes destroyed.
- **Slowdown after 9/11**
- **MFA Phase Out**
- **Oil Price reaches >US$140/b**
- **Economic Crisis**

- **Tropical Cyclone 04B**: Casualty: 650 people, 17,000 cattle.
- **Most severe flooding in modern history**: 66% of the land affected, 1000 deaths, 26,000 livestock lost, 16,000 km roads damaged.
- **Severe Floods**: 36% of the country flooded, 36 mn people affected.
- **Cyclone Sidr**: 3500 people killed. Major floods: 500 died, 30% of the country affected.
- **Tropical catastrophic cyclone**

**GROWTH IS REMARKABLY STABLE AGAINST ALL SHOCKS**

Resilient growth despite regular political, environmental and external setbacks.
With sustained GDP Growth, Electricity demand is increasing at a rate of 9 - 12%.

To meet this demand growth, power sector is facing challenges mainly:
- Shortage of primary fuel supply from indigenous resources
- Financing capital intensive power projects
Strategic Policy on Power

- Fuel diversity and sustainable supply of primary fuel
- Private sector participation in power generation
- Harnessing renewable energy resources
- Demand Side Management (DSM) and Energy Efficiency improvement program
- Regional Co-operation on Cross Boarder Power Trade
Bangladesh’s Power Sector: At a Glance

- Generation Capacity : 10,213 MW
- Electricity Growth : 9% (FY-2013) ; 12% (FY-2012)
- Total Consumers : 14.2 Million
- Transmission Lines : 9,300 km
- Distribution Lines : 290,000 km
- Per Capita Generation : 321 kWh (including Captive)
- Access to Electricity : 62% (including 7% RE)
Primary Fuel Supply Options
Fuel Mix: FY-2010 & 2013

Total Net Generation: 29,247 MkWh

FY-2010:
- Gas: 89.21%
- FO: 3.00%
- Diesel: 1.76%
- Hydro: 2.50%
- Coal: 3.53%

Total Net Generation: 38,229 MkWh

FY-2013:
- Natural Gas: 78.12%
- Hydro: 2.34%
- FO: 1.95%
- Diesel: 3.02%
- Coal: 3.02%
- Furnace Oil: 14.56%
Primary Fuel Options: Indigenous Resources

- **Gas:** Only 16 tcf proven reserve; No significant gas discovery in recent years; Depleting gas reserve restricts gas based generation expansion; R/P ration is only about 20 years.

- **Hydro:** Present capacity 230 MW and average energy generation - 800 GWh; **No further significant potential**

- **Coal:** Total 3.2 billion ton reserve in 5 mines; Near term option; Base Load

- **Renewable:** Present capacity only 120 MW; still high cost
Primary Fuel Supply Options: Import

Import Options as Indigenous resources are Inadequate

- Coal Import: Indonesia, Australia, South Africa
- LNG Import
- Oil - Volatile Market
- Nuclear
- Regional Hydro Power Import- Cross Boarder Trade
Long Term Power Generation Expansion Plan
<table>
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<tr>
<th>FY</th>
<th>GDP growth rate</th>
<th>Elasticity</th>
<th>Effect of DSM</th>
<th>Electricity growth rate</th>
<th>Total Demand without DSM</th>
<th>Total Demand with DSM</th>
<th>Off-grid captive demand</th>
<th>Grid System Demand with DSM</th>
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<tr>
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Typical Demand Curve

Typical demand for FY 2012-2013

Load (MW)
### Power Generation Plan: Primary Fuel Sources by 2030

<table>
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<tr>
<th>Sl. No.</th>
<th>Description</th>
<th>Capacity (MW)</th>
<th>%</th>
<th>Possible Location(s)</th>
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<tr>
<td>1</td>
<td>Domestic Coal</td>
<td>11,250</td>
<td>51</td>
<td>North West Region at Mine Mouth</td>
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<tr>
<td>2</td>
<td>Imported Coal</td>
<td>8,400</td>
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<td>Chittagong and Khulna</td>
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<td>3</td>
<td>Domestic Gas/LNG</td>
<td>8,850</td>
<td>23</td>
<td>Gas- Near Load Centers</td>
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<td>LNG- Near Costal Area</td>
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<td>Bahrampur - Bheramara, Silchar - Fenchuganj, Purnia- Barapukuria-Bongaigaon, Myanmar - Chittagong</td>
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<td>5</td>
<td>Nuclear</td>
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<td>Rooppur</td>
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<tr>
<td>6</td>
<td>Others (Oil, Hydro and Renewable)</td>
<td>2,700</td>
<td>7</td>
<td>Near Load Centers</td>
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<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>38,700</strong></td>
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Road Map for Coal Power Development (as of 2030)

**Domestic Coal**
- K-D-P 6x1000 MW USC
- K-D-P 8x 600 MW USC

**Import Coal**
- Meghnaghat 2x600MW
- Zajira/New Meg 3x600MW
- Chittagong 3x660MW
- Moheshkhali/Matarbari 4x600MW
- Khulna 2x660MW (Dom Future)

**Total 19,200MW (New)**

**Coal Center**
- Chittagong
- Matarbari
- Moheshkhali Island
Regional Power Exchange: Possibilities

- **PURNIA → BARAPUKURIA**
  - 500 MW [2013-]
  - 500 MW [2018-]

- **BHERAMARA → BHERAMARA**
  - 1000 MW

- **BAHARAMPUR → BHERAMARA**
  - 1000 MW

- **FENCHUGANJ → FENCHUGANJ**
  - 500 MW

- **SILCHAR → FENCHUGANJ**
  - 500 MW

- **TRIPURA → COMILLA**
  - 100 MW

- **MYANMAR → CHITTAGONG**
  - 500 MW
Bangladesh – India Co-operation on Power Trade

- Bangladesh-India signed a MOU on 11.01.2010 to promote technical, bilateral co-operation in power sector development.

  - **Salient Features of MOU**
    - Exchange of power
    - Grid connectivity between the two countries

- Joint technical team proposed an interconnection between Bheramara in Bangladesh and Baharampur in India.
  - Establishment of 400 KV, 100 km double circuit line from Bheramara to Baharampur and back-to-back HVDC station at Bheramara
  - 500 MW power import by 2013
First Regional Power Inter-Connection Line
Grid Interconnection Project

Implementation Status:

400 kV Transmission line (Bangladesh part):

- Contract Signed : 30-Dec-2010
- Contractor : Cobra, Spain
- Consultant : PGCIL, India
- Target of Completion : May, 2013
- Actual Completion date: 30th June, 2013
- Line energized : 30th August, 2013
Implementation Status:

**Back-to-Back HVDC Station at Bheramara:**

- Contract Signed: 29-Mar-2011
- Contractor: SIEMENS, Germany
- Target of Completion: July, 2013
- HVDC station charging: 27th September, 2013
- Test power flow: 27th September, 2013
- Commercial operation date: 5th October, 2013
Possible Next Cross Border Interconnections

Case-1

Case-2

Case-3
Expected Benefits

- Diversity of power sources will ensure energy security
- Reduced dependency on liquid fuel based power
- Availability of power at competitive price
- Development of hydro resources in North-Eastern India, Nepal, Bhutan and Power Trade among neighboring countries will bring economic benefits to all the countries.
- Establishment of ‘Regional Power Market’ is utmost priority for maximizing benefits and ensuring energy security in South Asia
Thank you
Historical Energy Net Generation (GWh) in Bangladesh

Net Energy Generation in GWh