

**DETERMINATION OF THE LONG-TERM TREND OF GREEN
HOUSE GAS EMISSIONS FROM ENERGY SECTOR OF
BANGLADESH**

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Introduction

- Energy is the basic necessity.
- Close relationship between per capita income and energy consumption.
- Production and utilization of energy cause environmental degradation.
- Energy sectors are responsible as the main source of GHG emission.

Present scenario of per capita carbon emission in Bangladesh

Year	Total CO ₂ emission (million tones)	Per capita CO ₂ emission (Kg)
1994	4.44	41.5
2004	11.0	79.3

Table: Carbon Di-Oxide Emissions In 1990 and 2004

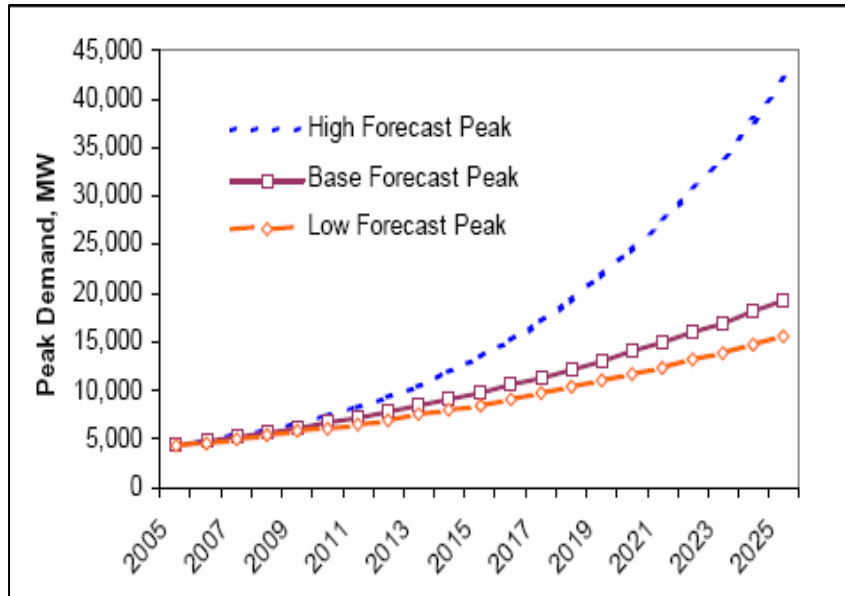
- 2.5 times growth in emissions with an annual growth rate of 6.7%
- In per capita term the CO₂ emission has increased about two times.

Bangladesh commitment to clean environment

- Bangladesh is committed along with the international community to reach the Millennium Development Goal (MDG) and the sustainable development is the central issue
- Bangladesh is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC)
- The international responses to the climate challenge are focused more on controlling the global greenhouse gas (GHG) emission.

ELECTRICITY DEMAND FORECAST

Bangladesh Power Development Board – 2006



	Base Case	High Case	Low Case
Year	(GWh)	(GWh)	(GWh)
2005	21964	22336	21964
2010	33828	37652	31533
2015	50,306	68,924	43,697
2020	72,222	126,17	60,553
2025	100,083	217,13	80,982

PEAK DEMAND FORECAST (MW)



2015	9,786	13,408	8,501
2020	13,993	24,445	11732
2025	19,312	41,899	15,626

High: Compound Growth Rate 2005 – 2025 GDP 8% , Energy and Peak 12%

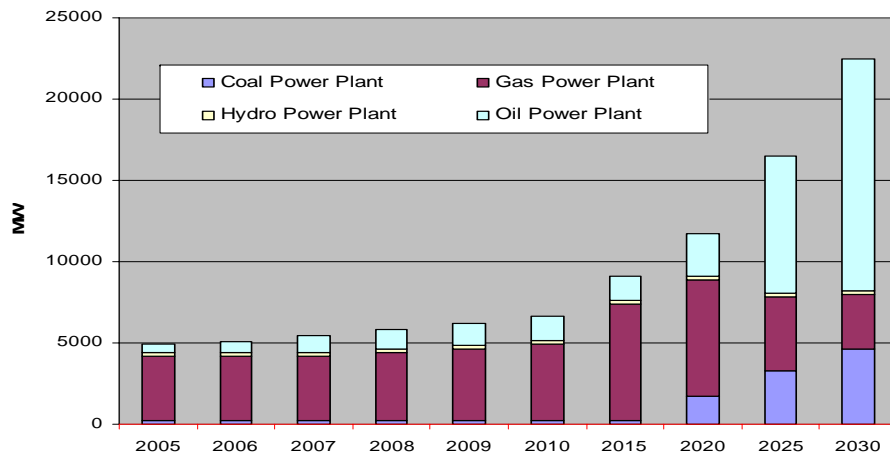
Base: Compound Growth Rate 2005 – 2025 GDP 5.2 % , Energy 7.9%, Peak 7.8%

Low: Compound Growth 2005 – 2025 GDP 4.5% , Energy and Peak 6.7%

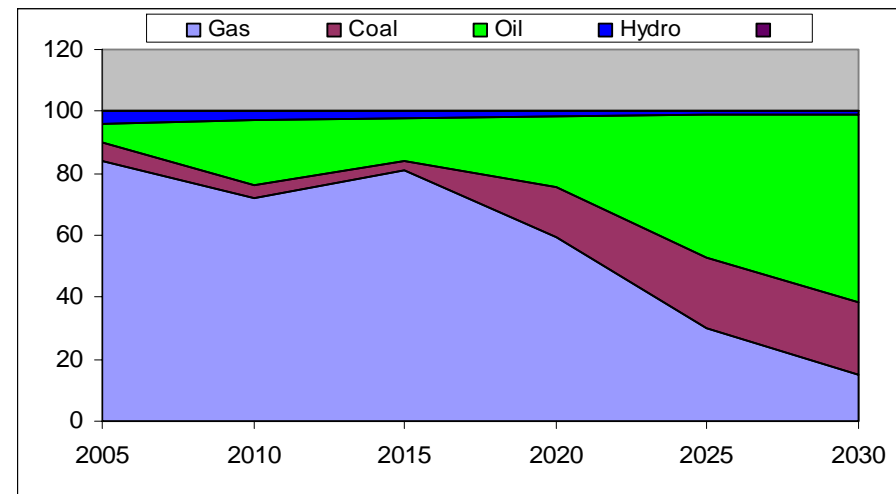
Results of BASE CASE

Limited Gas and Early Introduction of Coal: Base Scenario

- Maximum utilization of indigenous gas and coal
- No more gas based power plant from 2015
- Addition of coal based power plant from 2015



Total installed capacity of GPP



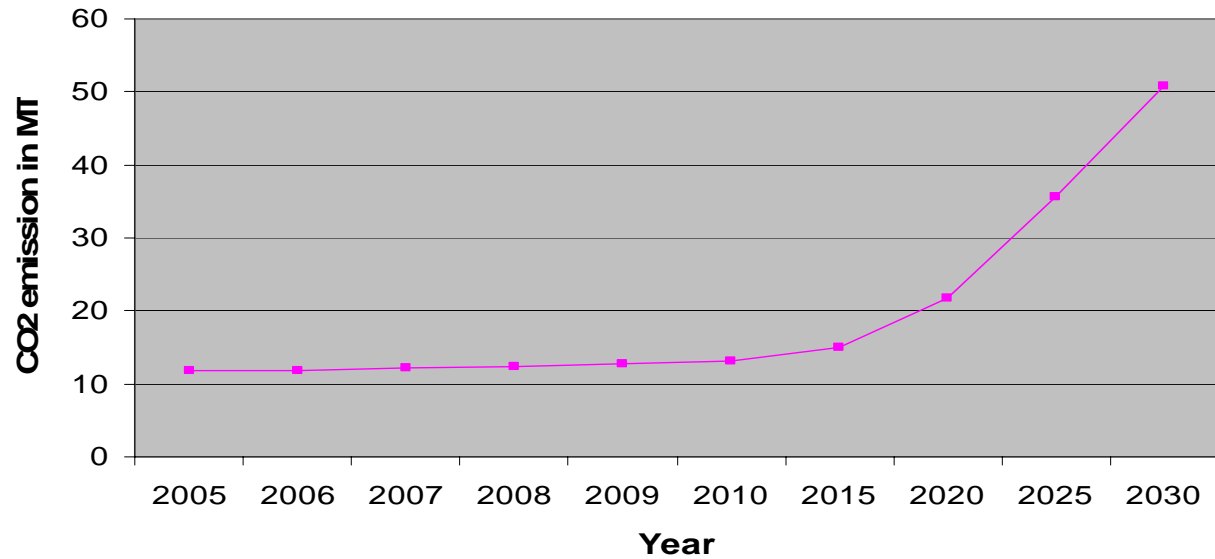
Final Energy Mix

Even in case of low economic growth scenario, the 95% proven gas and 85% proven coal will be exhausted by 2030 and the country will completely rely upon imported fuel

A Significant amount of GHG emissions observe under this scenario

CO2 emissions from Base Case

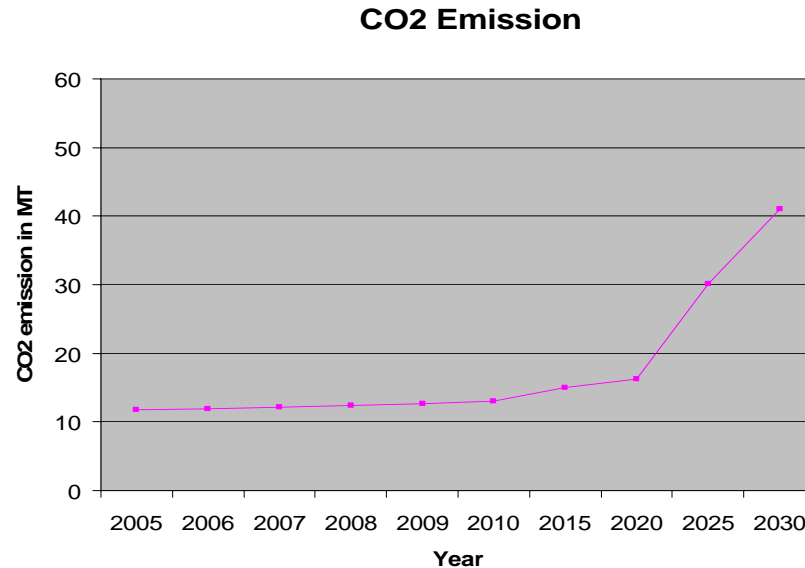
CO2 Emission



By 2025, the GHG emissions will be 4 times higher than present value

Possible way to mitigate GHG emission

Introduction of NPP: 600 MW by 2015, 600 MW by 2020 and 2000 MW by 2025



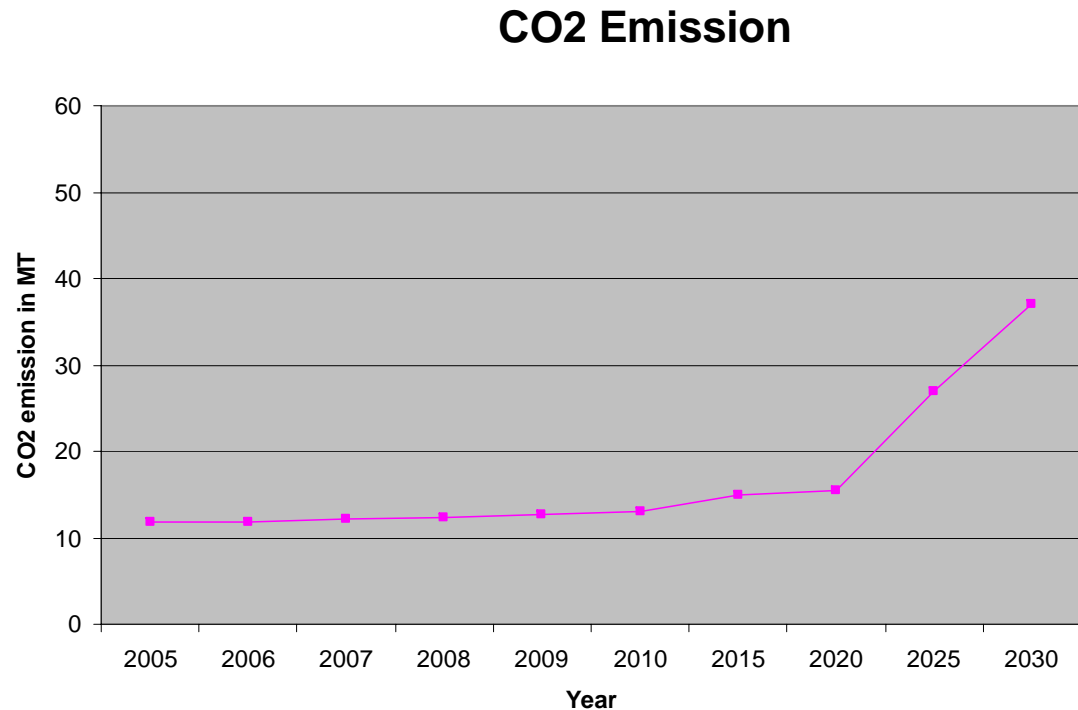
No huge renewable

Possible way to mitigate GHG emission

Introduction of NPP: 600 MW by 2015, 600 MW by 2020 and 2000 MW by 2025

Introduction of Renewable: 100 MW by 2015, 500 MW by 2020 and 1000 MW by 2025

Both NPP and renewable starts after 2015



Conclusions

- A strategic action plan of sustainable energy for poverty reduction and environmental protection is necessary.
- Environmental dimensions of energy is one of the key issues of energy planning.
- Think of alternative energy resources which emit low GHG emission.
- Options of alternative energy
 - ❖ Nuclear Energy
 - ❖ Renewable Energy
- It will bring opportunities for carbon trading and financial support in the Post-Kyoto Protocol Period.