



Centre for Fuel Studies and Research

Seminar on 'FUEL SUBSIDIES'
Forum of Environmental Journalists,
Mumbai, March 8, 2011

Agenda



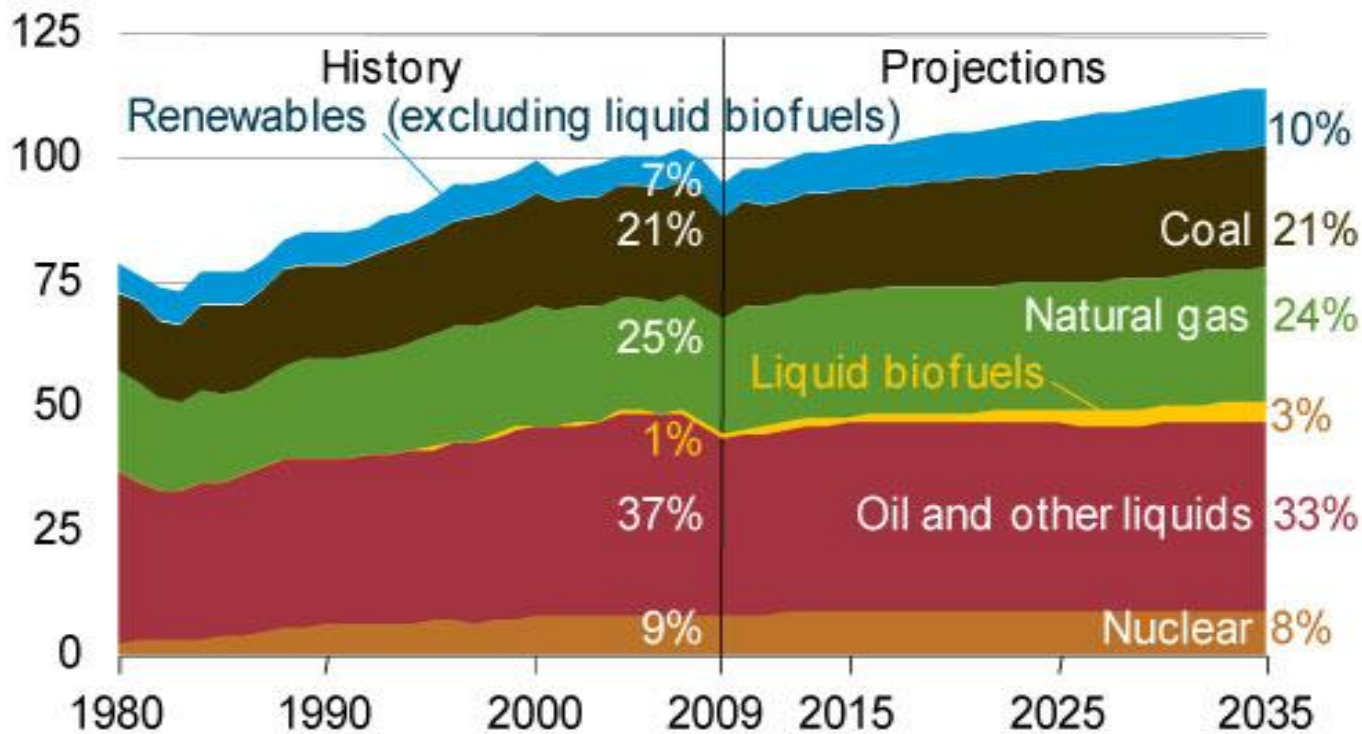
- Role of 'Fossil Fuel' in the Energy Basket
 - World
 - India
- Challenges ahead for India
 - Energy Security and Sustainability
 - Given and Hidden Subsidies
 - Coal, Petroleum Products
 - Depleting Resource
 - Climate Change
- Some examples of hidden subsidies
 - Corporate → Free Electricity (!)
 - Diesel for private cars
 - Impact of accidents
 - Coal Life Cycle
 - Impact of Subsidies & Climate Change

World Energy Scenario



Figure 7. Energy consumption by fuel, 1980-2035

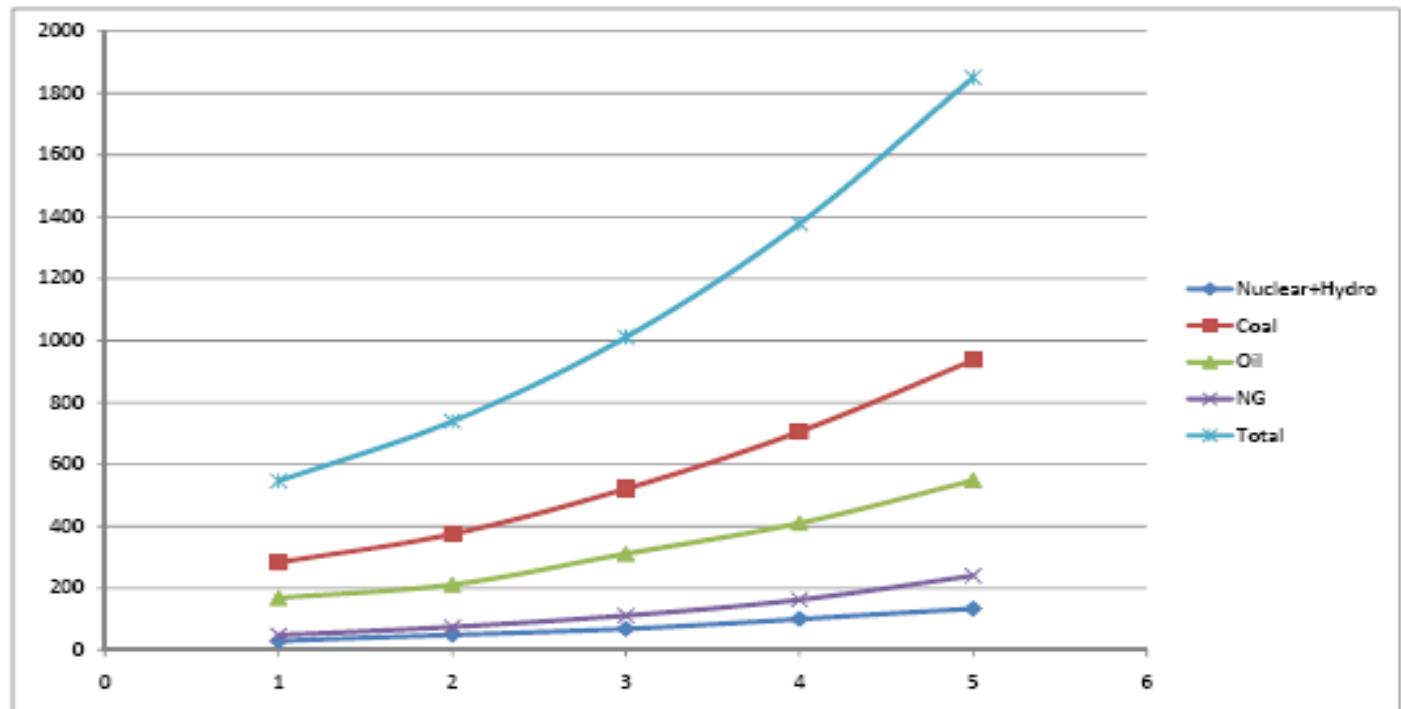
Primary energy consumption (quadrillion Btu per year)



Indian Energy Scenario



	HYDRO + NUCLEAR		COAL		OIL		NG		Total
2011-12	29	5	283	52	168	34	48	9	546
2016-17	49	7	375	50	211	33	74	10	739
2021-22	68	7	521	51	311	32	111	11	1011
2026-27	100	7	706	51	410	30	162	12	1378
2031-32	133	7	937	51	548	30	240	12	1850



Indian Energy Scenario



- Coal → continue to be the backbone
- Oil / Natural Gas → Marginal replacement of oil with Gas
- Nuclear / Renewable → Not significant impact
- Security / Sustainability
- Coal Reserves → to last over 100 years
 - Security not an issue

Indian Energy Scenario



■ Sustainability

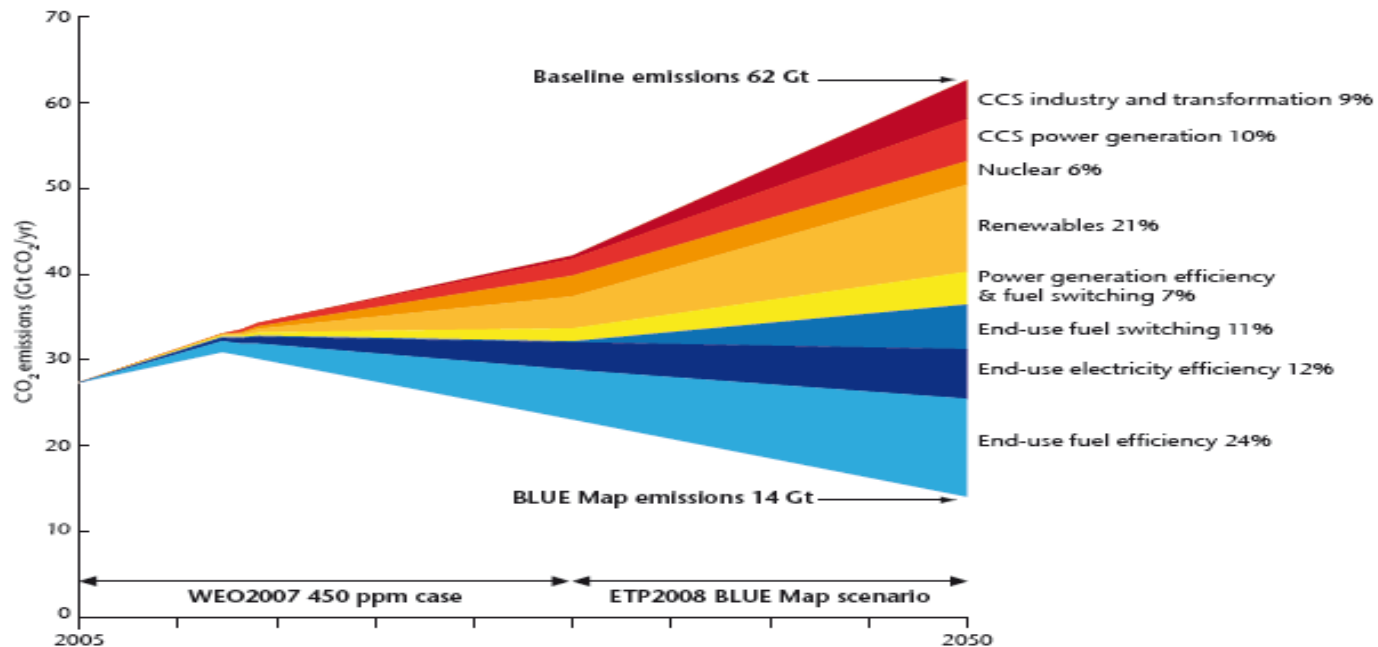
- Climate Change : CO₂ emission
- Fossil Fuel Key to CO₂ emission
- Present to Critical level
 - 390ppm to 450 ppm (2°C)
- Reduction by 2030 to 2005 level and thereby to bring down further by 2050

Indian Energy Scenario



■ Sustainability – Portfolio of Technology

Figure 1: CCS delivers one-fifth of the lowest-cost GHG reduction solution in 2050



Source: IEA, *Energy Technology Perspectives* (2008a).

Indian Energy Scenario



- Cost of CO₂ control
 - Clean Coal Technology
 - Efficiency, case of CO₂ capture
 - IGCC, Oxy fuel
 - Retrofit Old Thermal Plants
 - Costs of CO₂ Capture/Storage
 - Nuclear, Renewable
 - End-use efficiency etc.
 - How to meet the cost?
 - Fossil Fuel Culprit ?

Hidden Subsidies – some examples



- Electricity → Coal → Corporate, Household
 - Agro sector subsidy
 - Huge losses piled up by components of SEBs
- Transport Sector
 - Diesel subsidy, mass transport, goods movement
 - Private cars using diesel?
- Costs of accidents & environment implications
 - BP's spill 20 billion dollars
 - Environmental (marine life)

Hidden Subsidy – Coal Lifestyle



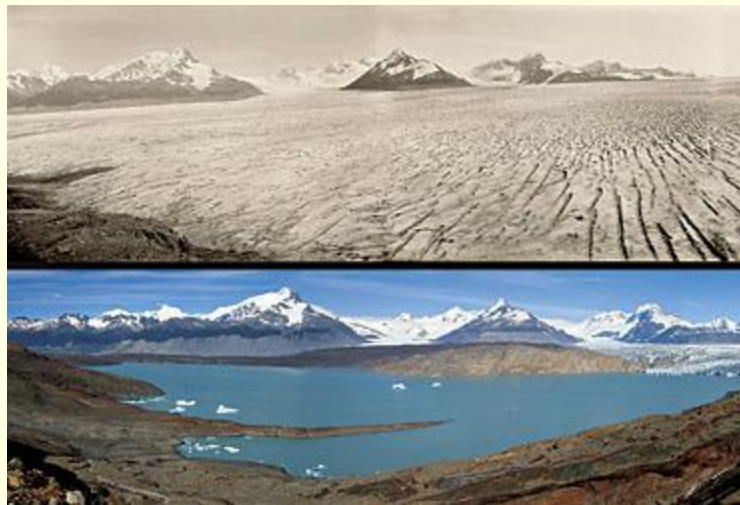
■ Coal Mining – Utilization

- Health
- Pollution
- Residue
- Accidents
- Estimate(Harvard Medial School)
 - 10 -100 m \$/tonne of coal
- 2500 - 25000 Crores!

Sustainability at costs & How?



- Follies of yesteryears
- Fossil fuels – depleting resource
 - Taxation policy
- Was climate change known? , ignored?
- Subsidy fossil fuel
 - Discourage Renewable economics
 - Should be taxed instead of subsidy (!)
- Better late than never



1928

2004

Upasala Glacier, South American Andes, Argentina

Thank You