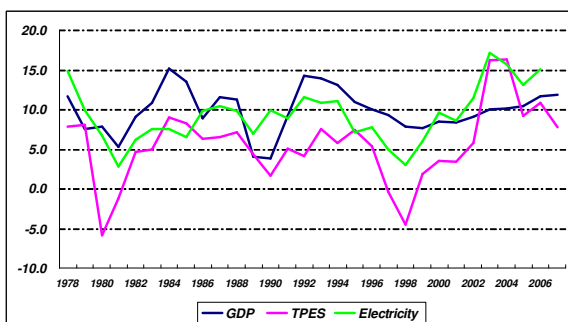


Energy Security

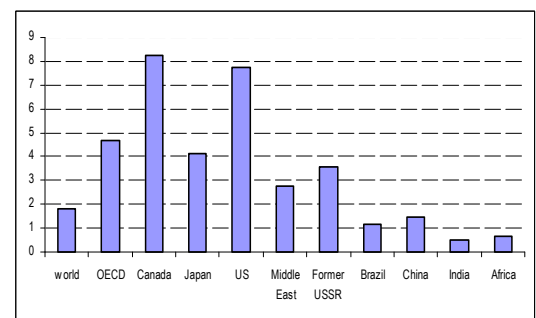
Energy Security

- Elusive nature of 'energy security', highly contextual
- Availability – natural endowment, markets
- Accessibility – technical and geopolitical
- Affordability – economic
- Acceptability – environment and social
- All have domestic and international dimensions

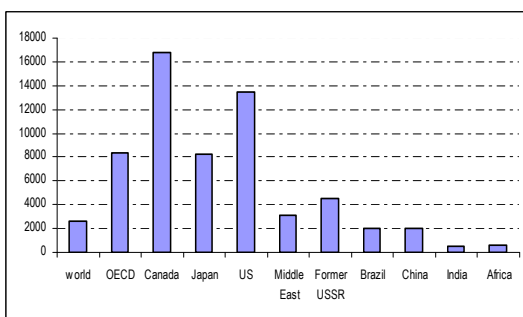
Annual GDP, energy & electricity consumption growth rate (1978-2007)



Energy consumption per capita (2006)



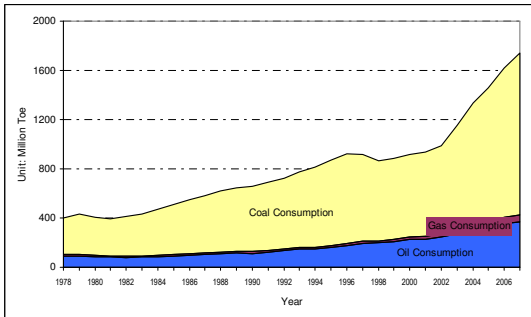
Electricity consumption per capita (2006)



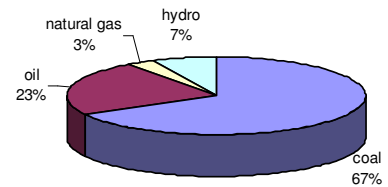
Industrialisation & Urbanisation

- 2007, China contributes to 6% of world's GDP, but consumed over 30% and 55% of world's steel and cement.
- Urbanisation rate: 78% in OECD, 61% in middle-income countries, and 46% in China
- By 2020, urbanisation in China reaches middle-income countries' level.
- Another 300 million people move to cities where energy consumption is 3.5-4 times higher

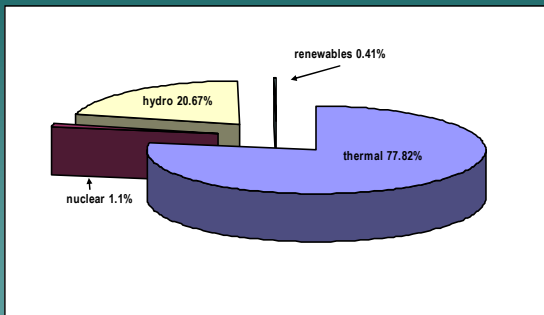
Sources of energy consumption (1978-2007)



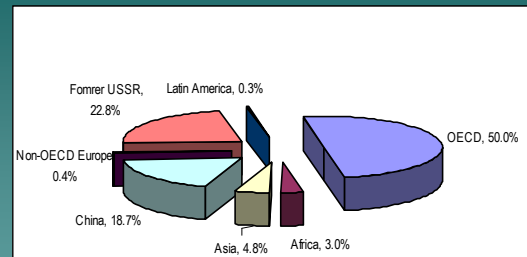
Primary Energy Consumption 2007



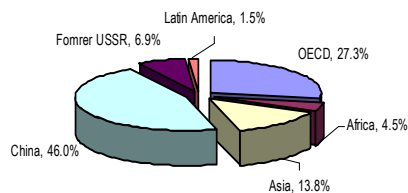
Sources of installed power generation capacity (2006)



Proportion of coal production (1973)



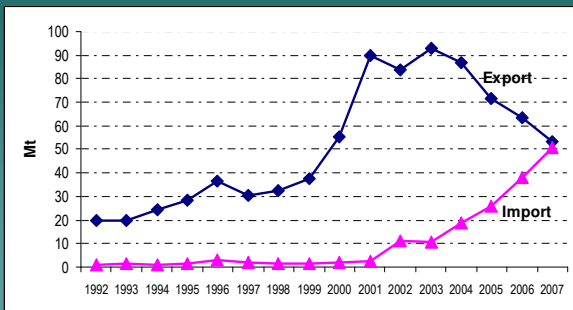
Proportion of coal production (2007)



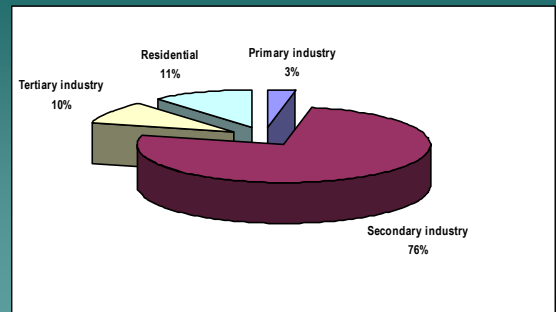
Coal

- Remain the most important source of energy
- High-quality of coal is gone
- Remote, deep and poor quality
- Development of two markets – exports in north and northwest and imports in coasts
- Imports from Australia, Indonesia, Vietnam, Mongolia

Trade in Coal



Shares of electricity consumption (2006)



Environment

- Share of CO₂ emission: 5.7% in 1973 and 20.2% in 2006
- CO₂ emission per capita 73% of world's average in 2003 and at par in 2006
- Economic, social, and political costs
- Short-term vs. long-term solutions

Nuclear Energy

- Clean, safe, competitive energy
- 2008, 10 NPPs start construction in the world; 8 in Asia and China hosts 6
- 2009, 5 were just announced
- Targets: 40GW to 60-70GW by 2020
- Issues: uranium, fuel cycle, technology, human capital
- Competition for markets