

# Energy Scenario-India

## Energy Security Requirements

# ENERGY SECURITY

- Vasudev  
Kutumbakam
- Global Village
- Common concern  
for energy security
- Find Joint solution
- X Border free  
energy flow



# Some Interesting Facts

- To fight against poverty India needs a GDP growth of 8% per annum
- Average annual world economic growth  
1997-2020                      3.2%  
Energy growth                      2.1%  
Elasticity                      0.68%  
Thus India grows                      5.4%

# Inefficient Growth & Inefficient Power Production

- Percentage of Installed Power Actually Supplied to the Grid
- India 66%
- Pakistan 53%
- Bangladesh 52%
- Sri Lanka 41%
- Nepal 48%

# BUT!!!

- Historically India's elasticity was more than unity (one) for the 1953-2000 period
- China's Energy consumption-GDP Ratio is four times higher than that of US

China                      1.2 toe/'000 US \$

US                              0.3 toe/'000 US \$

# Poverty, Hunger and Power Access



Poverty, Hunger are  
inversely  
proportional to  
Power Access

# Relation Between Poverty & Power

COUNTRY	% POVERTY	%ELECTRICITY ACCESS
SRILANKA	25%	63%
INDIA	28%	56%
PAKISTAN	32%	40%
NEPAL	41%	39%

# Concern over India's Energy Security WHY???

- To achieve tremendous growth rate of GDP to fight poverty. 8% GDP- 5.4% Energy
- India's level of crude oil self sufficiency

1989-90	63%
2000-01	30%
2004-05	27%
- Gas Demand now 100 mscm/day  
2025 400 mscm/day

- Indian Hydro-carbon resources estimated at 29 Billion Tonnes
- But 6.8 BI Tonnes upgraded as in-place reserves i.e.28%. But the world average is 40% !!!
- Require 350,000 MW by 2020

# Solution and Strategy

- X Border Networking of Energy for its free flow
- Sri Lanka Potential:
  - Energy Cost Sri Lanka           6.5 to 8 cents
  - Energy Cost India               5.8 to 6.8 cents
  - Wheeling charges               0.6 to 0.8 cents

Thus three lines from Madurai and one line from Tuticorin in India to Sri Lanka is possible

- Bangladesh Potential
  - Eastern Bangladesh supply electricity to Tripura and Mizoram
  - NE Indian States supply electricity to Western Bangladesh
  - Gas Pipeline from Myanmar and Bangladesh to India and Pakistan

- Paksitan Potential
  - Gas Pipeline from Iran to India
  - Gas Pipeline from Turkmenistan to Inida
  - Share India's Hydel and Nuclear Electricity

# Hydro Power Potential

Country	Potential MW	Installed MW	Utilization
Bangladesh	1,897	230	12.1 %
Bhutan	16,280	432	2.6
India	148,701	25,587	17.2
Nepal	42,130	527	1.2
Sri Lanka	2,423	1,137	46.9
TOTAL	211,431	27,913	13.2

# GAS Potential

- LNG Route- Qatar, Abudhabi, Indonesia, Australia, Malaysia, Oman
- Pipeline Route- Turkmenistan, Iran, Myanmar, Bangladesh

# Coal Bed Methane

- India has reserves of 22 mcmd for 25 yrs
- Good for Electricity generation for 6000MW

# Nuclear Energy

- Just 2.7% of Total energy from Nuclear
  - France more than 70 %
  - Sweden around 50%
  - Germany around 25%
  - Japan around 25%
- India Should participate in ITER &
- Generation IV Nuclear Reactor

# Petroleum Sector

- Should build up stockpiling capacity
  - From 15 days to 45 days of stock piling capacity is required
  - GOI formed Indian Strategic Petroleum Reserves Ltd in June 2004
  - 5 Million Tonnes of additional capacity Two sites with 2.5 MT with \$300 Million Dollors identified

# Petroleum Sector

- New Exploration License Policy NELP for 90 Blocks in the country
- Pursuing upstream investment overseas

# Delhi Power Privatisation Experiment

- Delhi Power distribution was privatised in 2002 July
- AT&C Losses brought down by 14.4%
- Annual revenue collection
  - 2001-02      Rs 3010 crore
  - 2005-06(E)   Rs 5475 crore
  - 81.2% increase with only 174 increase in power supply

- Out 13500 workers, 6000 took VRS and thus the power distribution is more efficient

- THANK YOU