



COMPETITION IN INDIA'S ENERGY SECTOR (Electricity, Oil & Gas and Coal)

The Energy and Resources Institute (TERI)

March 17, 2006

Presentation Outline

- Project Scope and Methodology
- The Competition Imperative
- Industry Structure
- Competition in Energy Sector
 - Electricity
 - Oil & gas
 - Coal
- The way forward



Competition in India's Energy Sector

Scope of Work (Electricity, Oil & Gas and Coal)

- Existing market size & structure of the energy sector and its impact on competition
- Likely impact of key Government Policies and Acts on competition
- Extent to which regulations have achieved the desired goals
- Institutional Reforms for Competition

Competition in India's Energy Sector

Project Methodology

- Literature Review
- International Experience
- Interaction with sector experts and stakeholders
- Stakeholder Consultations
- Review of sectoral linkages and other relevant issues
- Final Research Output and Dissemination

The Competition Imperative

- Need to bridge the demand-supply gap:

Energy Source	Demand	Supply	Gap/Shortage
Electricity (Jan 2006) (In Million KWh)	5,21,872	4,80,242	(41,630)
Oil (In MMT)	128	33*	(95)
Gas (In Mmscmd)	162.03	81.17	(80.86)
Coal (In MT)	415 MT	378.6	(36.4)

* Domestic Production

Source(s): Ministry of Power; Economic Survey 2005-06 & Planning Commission, MoPNG, Gail Infraline, Annual Report 2004-05, Ministry of Coal

KWh - Kilowatt hours, MMT - Million Metric Tonnes, MCM - Million Cubic Meter, MT - Million Tonnes; Mmscmd- Million standard cubic meter per day



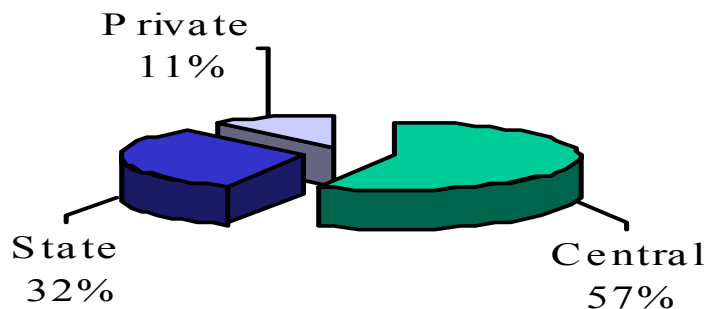
The Competition Imperative

- **Pricing structure:** Consumers pay one of the highest prices for energy in Purchasing Power Parity (PPP) terms e.g., in the electricity sector, average tariff on PPP basis in India is 30.8 cents/kWh, while it is 7.7 in US, 15.3 in Japan and 20.6 in China¹
- **Massive Investment Requirement:** To deliver sustained GDP growth of 8.0% till 2031-32², the requirements are:
 - Growth in primary energy supply by 3-4 times over current consumption
 - Electricity Installed Capacity should increase by 6-7 times
 - Annual coal requirement: Nearly 3 times over current demand
- **Energy Security**

(¹ - Mid Term Appraisal of the Tenth Plan; ² - Draft Integrated Energy Policy, Planning Commission)

Industry Structure - Electricity

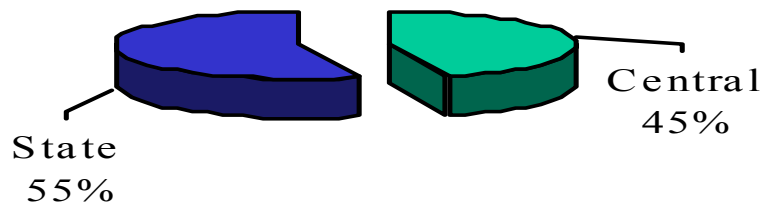
Generation



Installed Capacity: 63637 MW in 1990-91 to 123668 MW in 2005-06

- Central Generating Stations (CGS)
- Inter-State Generators
- State Utilities
- Other Govt. Organizations
- Independent Power Producers (IPPs)

Transmission

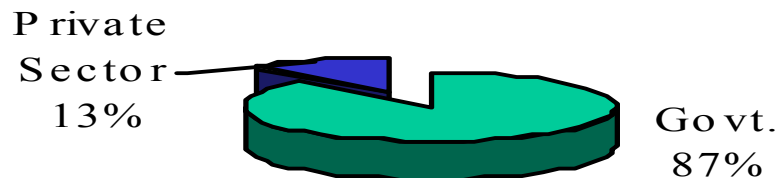


Bulk Transfer of Electricity (Voltages over 132 kV): 1,70,800 Ckm. in 1990-91 to over 2,65,000 Ckm. in 2005-06

- Central Transmission Utility (CTU)
- State Transmission Utilities (STUs)

Industry Structure - Electricity

Distribution



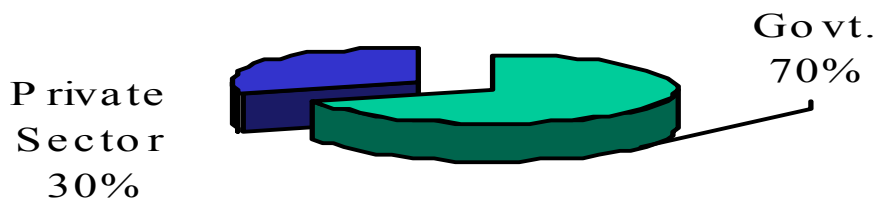
Energy Sales to increased from 3,39,598 Gwh in 2002-03 to 3,60,937 GWh in 2003-04

State Electricity Boards (SEBs)

Unbundled State Owned Entities

Private Distribution Companies in cities –
Delhi, Mumbai, Ahmedabad, Surat,
Kolkatta and Noida

Power Trading



Power Trading Volume was estimated at 11 bn. kWh in 2003-04, about 3.0% of the total electricity generation

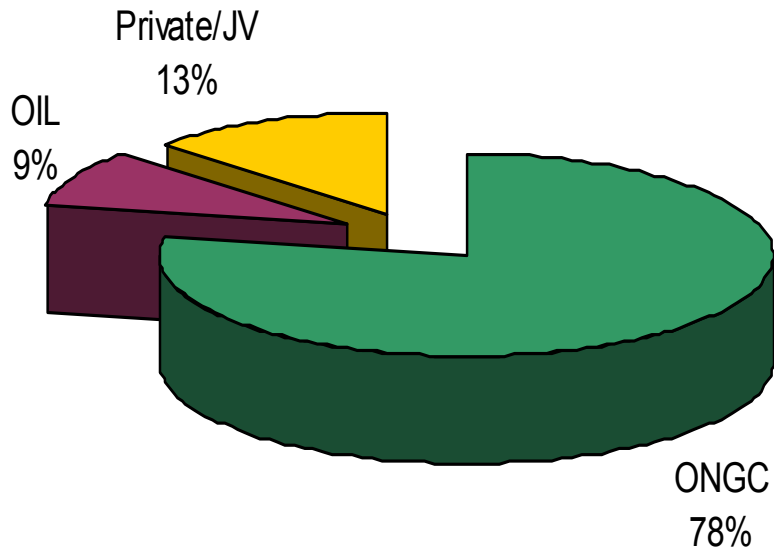
PTC India Limited

Private Trading Licensees

Industry Structure - Oil & Gas

**Total Domestic Crude Prod – 33MMT
Public - 87% ; Private – 13% (2004-05)**

Exploration & Production



Oil and Natural Gas Corporation Ltd.

— ONGC Videsh Limited.

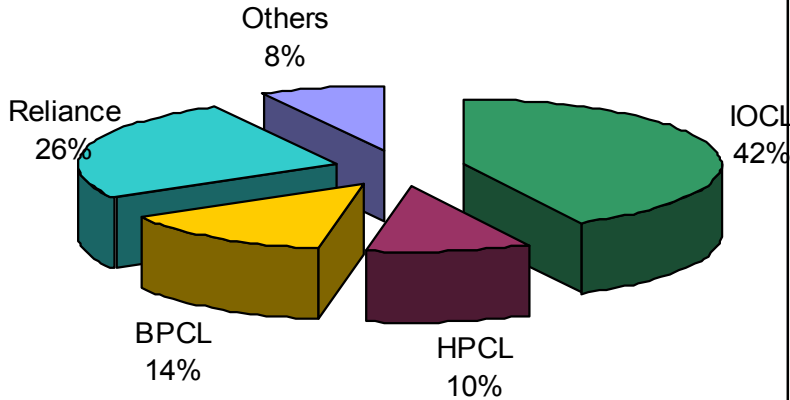
— **Oil India Ltd.**

— **Reliance, Cairn Energy, HOEC,
Premier Oil, GSPC etc.**

Source: Ministry of Petroleum and Natural Gas (MoPNG)

Industry Structure - Oil & Gas

Refining capacity



**Total Refining Capacity – 127.36 MTPA
(2005) Public - 74% ; Private – 26%**

Indian Oil Corporation Ltd.

IBP Ltd.

Chennai Petroleum Corporation Ltd.

Bongaigaon Refinery & Petrochemicals Ltd.

Hindustan Petroleum Corporation Ltd.

Oil & Natural Gas Corporation Ltd.

Mangalore Refinery & Petrochemicals Ltd.

OVAL

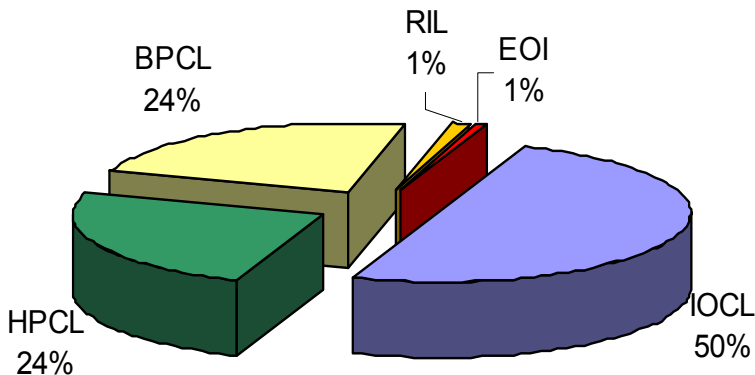
Bharat Petroleum Corporation Ltd.

Kochi Refineries Ltd.

Numaligarh Refineries Ltd.

Reliance Industries Ltd, Essar Oil Ltd, Shell

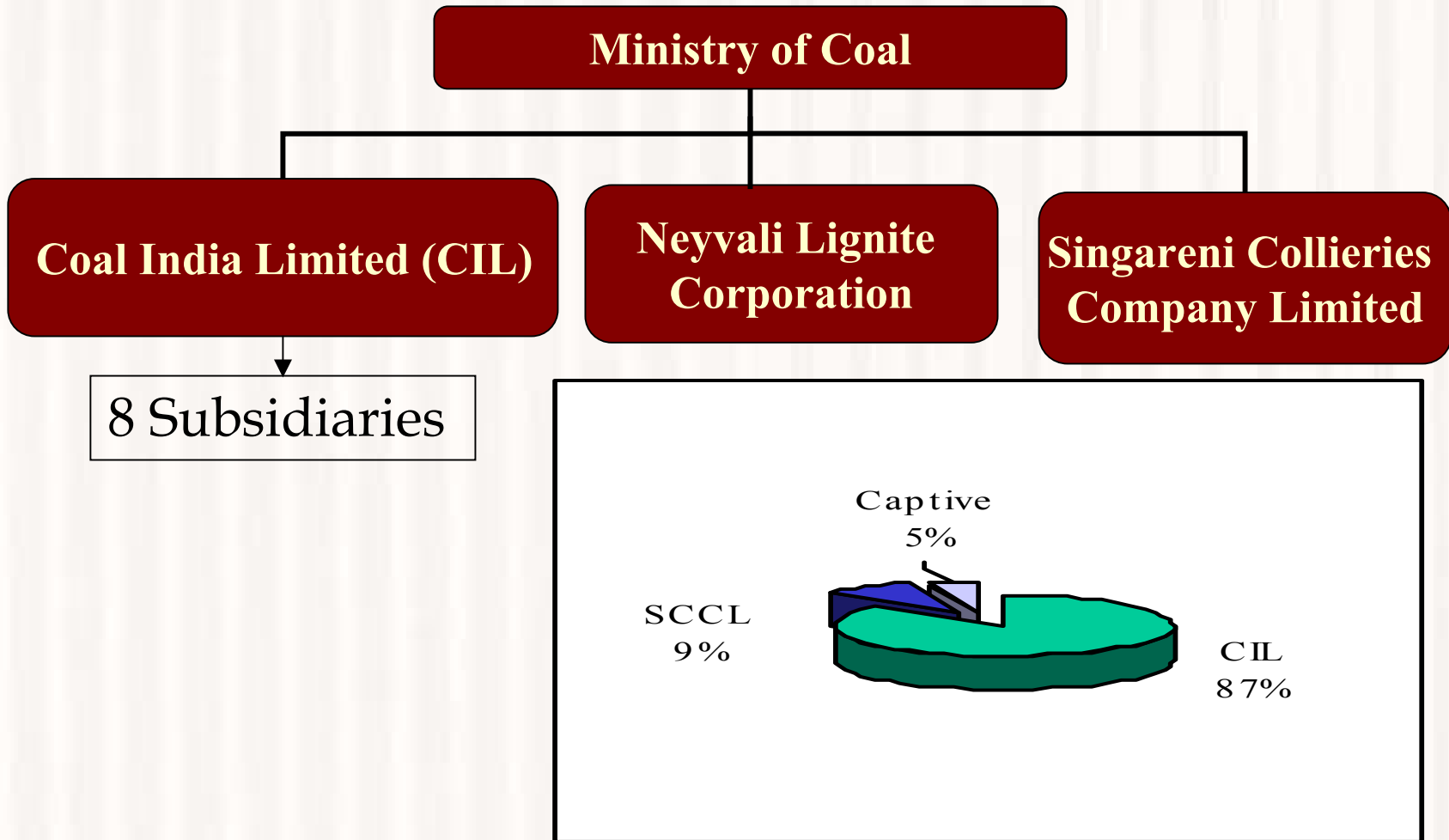
Number of retail outlets



**Total Retail Outlets – 27056 (2004)
Public - 98% ; Private – 2%**



Industry Structure - Coal



Source: Annual Report 2004-05, Ministry of Coal

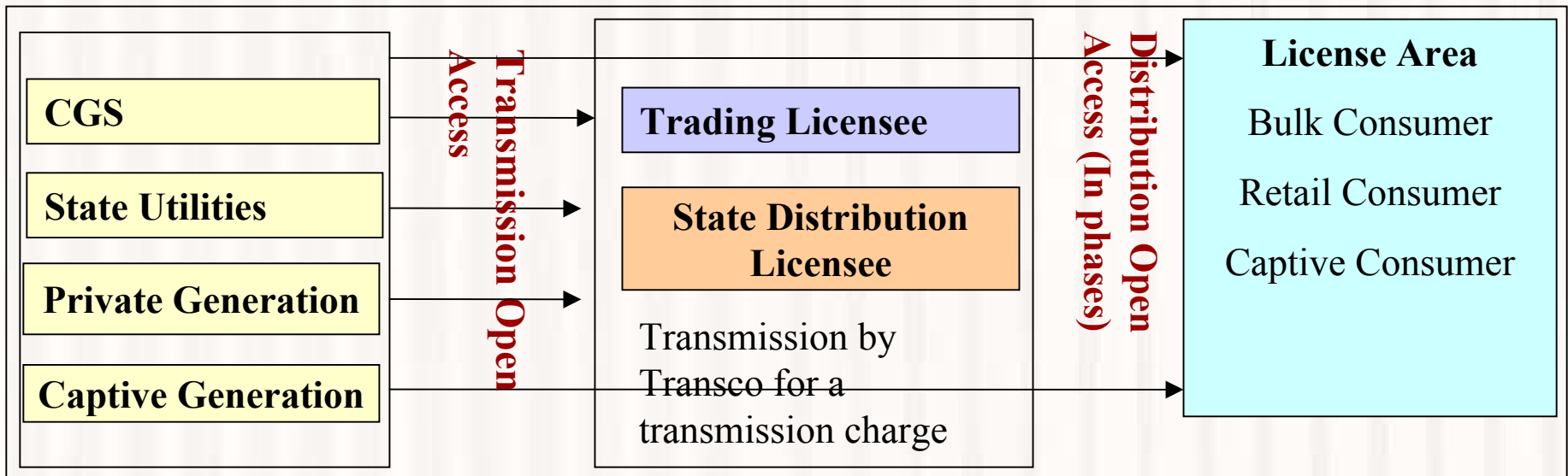
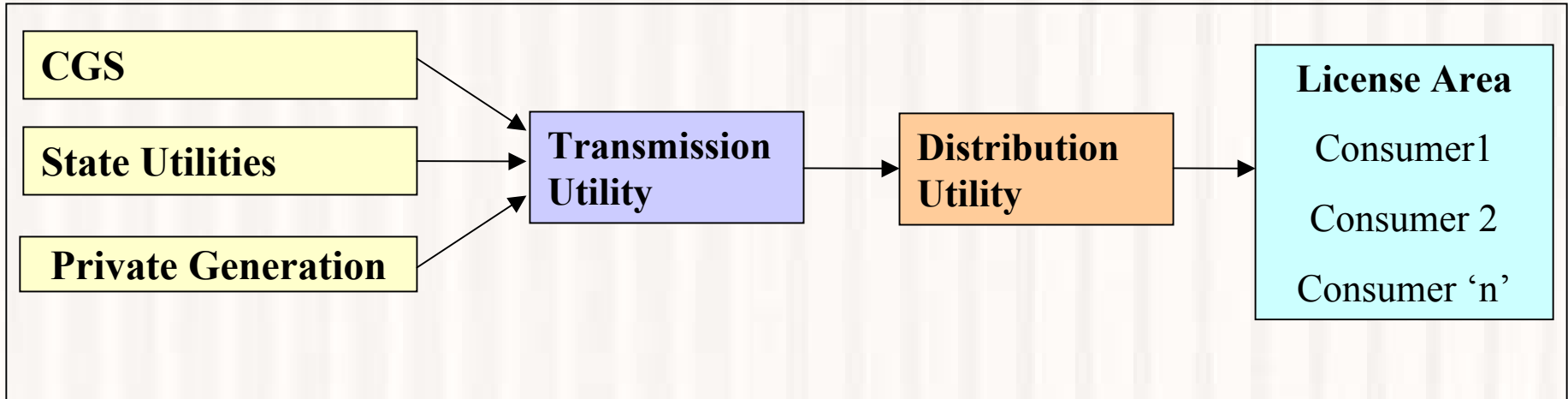


COMPETITION ISSUES IN THE ELECTRICITY SECTOR

Electricity Act 2003 – Key provisions promoting competition

- **Generation**
 - Free from licensing
 - Greater flexibility for Captive Generation
- **Transmission**
 - Independent System Operation by Load Dispatch Centers
- **Distribution**
 - Multiple distribution licensees in supply area
 - Progressive elimination of cross-subsidies
 - Unbundling of Distribution & Retail Supply
- Open Access (OA) to transmission (immediate) & OA to distribution network (phased)
- Trading recognized as an independent activity
- Establishment of Independent Regulator mandatory

Pre and Post EA 2003 Market Design



Competition Issues

- **Structural**
 - Dominance of public sector in the electricity supply chain
 - Resistance to unbundling
- **Policy**
 - Payment security from distributors
 - Availability and pricing of fuels
 - Level playing field
- **Regulatory**
 - Irrational end-user tariffs
 - Availability and pricing of transmission capacity
 - Non-discriminatory access to network
 - Regulatory capacity to handle competition issues

COMPETITION ISSUES IN THE OIL & GAS SECTOR

Competition Issues

- **Structural**
 - Dominance of PSU in the petroleum sector
 - GAIL monopoly in gas transmission
- **Policy**
 - Minimum investment of Rs 2000 crores required to enter marketing of transportation fuels
 - Government control on prices
 - Retail pricing of petrol, diesel kerosene and LPG – Way below IPP pricing
 - Subsidies - In 2004-05 under-recoveries from LPG and Kerosene amounted to Rs.17,842 crores and from petrol and diesel to around Rs.2,304 crores (MoPNG 2005)

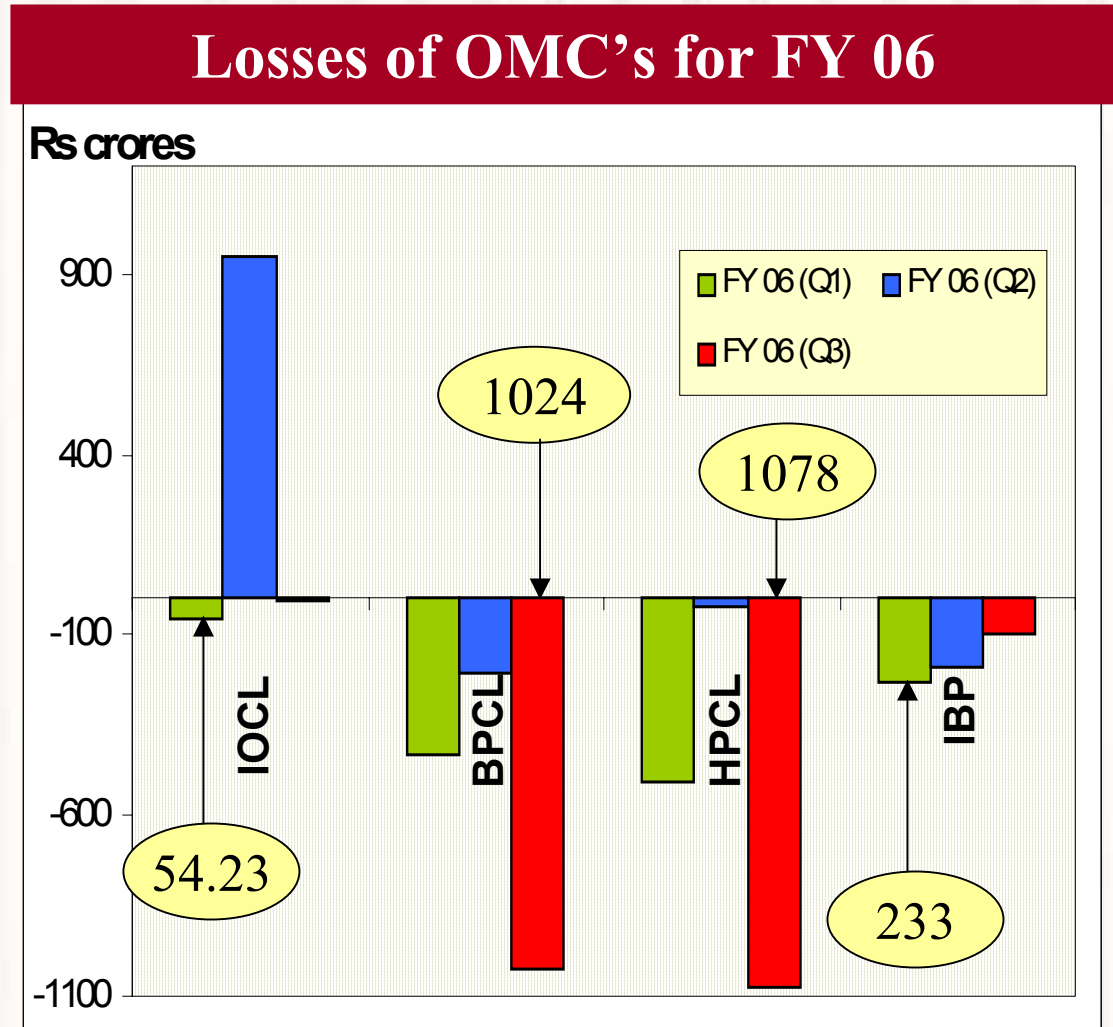
Competition Issues

- **Regulatory**

- Provisions of the proposed PNGRB Bill and its impact on competition
- Regulator to have a key role in protecting the interests of consumers by fostering fair trade and competition amongst the entities

Result of Pricing Distortions - An Example

- Erosion of competitiveness
- Under-recoveries by OMCs
- Private sector participation
- Irrational refinery margins
- Profits of Upstream companies?





COMPETITION ISSUES IN THE COAL SECTOR

Major Developments

**Prior to
1972/73**

- **Mostly in private hands, except for two public sector units namely SCCL and NCDC**

1970s

- **1972-73: Coal Mine Nationalisation Act**
- **1975: CIL formed as a holding company with 5 subsidiaries**

**Early
1990s**

- **1993: Amendment in the Act to allow captive mining by private operators: for captive consumption and not for sale**
- **1995-96: Budgetary support withdrawn**

1996

- **Integrated fuel policy: recommended restructuring of the sector to bring in competition; decontrol price and distribution in that order**

2000 - 06

- **Coal Mines (Nationalization) Amendment Bill 2000 to allow non-captive mining**
- **Pricing and distribution of coal fully deregulated (Colliery Control Order, 2000)**
- **Budget 2006-07: Some CIL reserved blocks opened for Captive Mining**

Essentials of Coal Mines (Nationalization) Act, 1973 and subsequent amendments

- Only public sector units allowed to mine coal for non-captive purposes
- Private sector allowed coal mining for their captive consumption for :
 - Power generation
 - Iron & Steel production
 - Cement production and
 - Coal washing
- Private sector allowed only in small & isolated pockets of coal deposits subject to certain conditions

Competition Issues

- **Structural**
 - The monopolistic structure of the Indian Coal Industry
- **Policy**
 - The Coal Mines (Nationalization) Act 1973
 - Ineffective Captive Mining Policy led to insufficient investment
 - Absence of level playing field
- **Regulatory**
 - Absence of a Coal Regulator

Status of Captive Mining in India

- 143 captive coal blocks identified for allocation
- 74 properties allotted so far
- 49 to Private Sector and 25 to Public Sector
- Only 8 properties producing a little over 8.0 MT in 2004-05

Impediments to private participation in Captive Mining

Captive Mining policy did not produce the desired result because

- The coal blocks offered were small and economies of scale was not possible
- The quoted reserves were uncertain and geological information supplied at huge cost upfront was scanty
- The blocks offered were far from developed infrastructure like rail, road, power etc

The Way Forward

- Furthering policy reforms
- Restructure the energy sector to facilitate contestability and reduce dominance
- Build regulatory capacity
- Advocacy

Thank you

