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

The Energy and Resources Institute (TERI)
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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:

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


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 China\(^1\)

- **Massive Investment Requirement**: To deliver sustained GDP growth of 8.0% till 2031-32\(^2\), 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**
- Central: 57%
- State: 32%
- Private: 11%

**Transmission**
- State: 55%
- Central: 45%

**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)

**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)

Source(s): CEA General Review 2005 and Ministry of Power
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 Volume was estimated at 11 bn. kWh in 2003-04, about 3.0% of the total electricity generation

- PTC India Limited
- Private Trading Licensees

Source(s): CEA General Review 2005 and Ministry of Power
Industry Structure – Oil & Gas

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

- 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

- **IOCL**: 42%
- **HPCL**: 10%
- **BPCL**: 14%
- **Others**: 8%
- **Reliance**: 26%

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

Number of retail outlets

- **IOCL**: 50%
- **HPCL**: 24%
- **BPCL**: 24%
- **EOI**: 1%
- **RIL**: 1%

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

**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**

Source: MoPNG
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
  o Free from licensing
  o Greater flexibility for Captive Generation
• Transmission
  o Independent System Operation by Load Dispatch Centers
• Distribution
  o Multiple distribution licensees in supply area
  o Progressive elimination of cross-subsidies
  o 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

License Area
- Consumer 1
- Consumer 2
- Consumer ‘n’

Transmission Utility
- CGS
- State Utilities
- Private Generation

Distribution Utility
- CGS
- State Utilities
- Private Generation

Trading Licensee
- CGS
- State Utilities
- Private Generation

State Distribution Licensee
- CGS
- State Utilities
- Private Generation

Transmission
- CGS
- State Utilities
- Private Generation

Distribution Open Access
- CGS
- State Utilities
- Private Generation

Transmission by Transco for a transmission charge
- CGS
- State Utilities
- Private Generation

License Area
- Bulk Consumer
- Retail Consumer
- Captive Consumer

CGS
State Utilities
Private Generation

Consumer
Retail
Captive
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

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

1970s

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:
  o Power generation
  o Iron & Steel production
  o Cement production and
  o 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