Presentation

on

Challenges of Coal Availability

by

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FRAMEWORK

- Power Sector Overview
- Coal Scenario
- Challenges for the Power Sector.
- Way Forward.
Power sector overview
Economic Growth- Demand Driver of the Power Sector

- Rapid and sustained growth is predicted to continue for the foreseeable future in India.

- To drive this growth commensurate growth in the power sector is also needed.

- As per Central Electricity Authority (CEA) projection country is estimated to face a peak power shortage of 10.6 percent in the current fiscal.

- Present high peak and energy deficits in the country have necessitated a rapid augmentation of Generation capacities.
Projected Capacity Requirement

Key Imperatives:

- Attracting investment in power sector
- Ensuring matching fuel availability
- Additional manufacturing capacity
- Effective project management

Source: Integrated Energy Policy GOI
If Indian Economy has to grow at the rate of 9%. Power Sector also has to grow at the rate of 9%.

Source: CEA/ MOP, GOI
### 12th Plan Capacity Addition

**FUEL-WISE**

<table>
<thead>
<tr>
<th>FUEL</th>
<th>COAL</th>
<th>HYDRO</th>
<th>NUCLEAR</th>
<th>GAS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>62695</td>
<td>9204</td>
<td>2800</td>
<td>1086</td>
<td>75785</td>
</tr>
</tbody>
</table>

- Coal: 62695 MW
- Hydro: 9204 MW
- Nuclear: 2800 MW
- Gas: 1086 MW
- Total: 75785 MW
Coal Scenario
## Coal Reserves in India  
**(Billion Tonnes)**

<table>
<thead>
<tr>
<th></th>
<th>Proved</th>
<th>Indicated</th>
<th>Inferred</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Coking</strong></td>
<td>19</td>
<td>14</td>
<td>2</td>
<td>35</td>
</tr>
<tr>
<td><strong>Non-Coking</strong></td>
<td>99</td>
<td>128</td>
<td>31</td>
<td>258</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>118</td>
<td>142</td>
<td>33</td>
<td>293</td>
</tr>
</tbody>
</table>

- At present rate of production of 540 Million Ton/Year, proven reserves will last for more than 200 Years.

- Although India has the fourth largest reserve of coal in the world, it is not able to meet its domestic demand.
Demand – Supply Gap in Coal Production

CAGR: 7.44%

CAGR: 0.75%
## Coal Demand-Supply Scenario in the Power Sector

*(Fig in Million Tonnes)*

<table>
<thead>
<tr>
<th>S.No</th>
<th>Details</th>
<th>2012-13</th>
<th>2016-17</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Indigenous coal requirement</td>
<td>455</td>
<td>842</td>
</tr>
<tr>
<td>b)</td>
<td>Indigenous coal availability from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i)</td>
<td>CIL</td>
<td>347</td>
<td>415</td>
</tr>
<tr>
<td>ii)</td>
<td>SCCL</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>iii)</td>
<td>Captive mines</td>
<td>25</td>
<td>100</td>
</tr>
<tr>
<td>c)</td>
<td>Total availability of indigenous coal</td>
<td>402</td>
<td>550</td>
</tr>
<tr>
<td>d)</td>
<td>Shortfall in indigenous coal availability (a-c)</td>
<td>53.0</td>
<td>242</td>
</tr>
<tr>
<td>e)</td>
<td>Requirement of imported coal to meet the shortfall in indigenous coal availability</td>
<td>46.0</td>
<td>168</td>
</tr>
<tr>
<td>f)</td>
<td>Requirement of imported coal for imported coal based projects</td>
<td>24.0</td>
<td>40</td>
</tr>
<tr>
<td>g)</td>
<td>Total requirement of imported coal (e+f)</td>
<td>55.0</td>
<td>208</td>
</tr>
</tbody>
</table>

*Source: CEA / MOP, GOI*
Reason for coal shortage

- Coal sector is the exclusive domain of state owned coal India limited and its subsidiaries.

- But CIL alone is not able to meet the total demand from the consumers.

- To boost up production Captive-mining policy was introduced in 1993.

- 218 coal blocks with geological reserves of about 50 billion tonnes have been allocated to eligible public and private companies.
Reason for coal shortage

- Out of these 218 coal blocks, only 30 coal blocks have come into production, so far.

- The reason for delay in development of this block is lack of forest and environment clearances, land acquisition clearances & R&R issues.

- Another contributing factor of coal shortage is poor evacuation due to logistic constraints.

- Indian railways run passenger and freight on the same track and difference in speed of two types of trains erodes capacity utilization.
Challenges for the Power Sector
Impact of coal shortage

- Due to demand supply mismatch the worst hit is the thermal power plants, which account for bulk of the electricity generated in the country.

- For Units commissioned after 31.03.2009, CIL is committing only 65 per cent of the LOA quantity.

- Developers have structured the financial plan of their projects based on the coal linkage quantity (LoA) granted (85% requirement).

- If a developer does not get coal as per LOA, it will fail in debt service commitment and in turn financial institutions’ non-performing assets (NPA) goes up. There will be total cascading effect on the economy.
Impact of coal shortage

- As per the information furnished by Ministry of Finance on power Sector Exposure, the total amount of loan sanctioned by PSU Banks for generation is about Rs. 3.48 lac crores.

- The under utilization of the power plants will therefore have a significant financial impact on the Financial Institutions.

- This will also impact funding of additional power generating capacity and hence the capacity addition programme during 13th Plan will be affected.
Impact of coal shortage

PLF VIS A VIS CAPACITY ADDITION TREND OF ALL INDIA THERMAL POWER

### Impact of Coal Shortage

<table>
<thead>
<tr>
<th>Year</th>
<th>PLF (%)</th>
<th>Coal Based Installed Capacity (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>78.60</td>
<td>76049</td>
</tr>
<tr>
<td>2008-09</td>
<td>77.20</td>
<td>77649</td>
</tr>
<tr>
<td>2009-10</td>
<td>77.50</td>
<td>84198</td>
</tr>
<tr>
<td>2010-11</td>
<td>75.07</td>
<td>95918</td>
</tr>
<tr>
<td>2011-12</td>
<td>73.32</td>
<td>112022</td>
</tr>
</tbody>
</table>

The chart above illustrates the trend of PLF (Plant Load Factor) and coal-based installed capacity addition for all India thermal power from 2007-08 to 2011-12.
Impact of coal shortage

PLF VIS A VIS CAPACITY ADDITION TREND OF NTPC
Major Issues

- Less ACQ: During 2012-13, Coal Supply is merely sufficient for 67-68% PLF
- Non compliance of NCDP (New coal distribution policy).
- Coal Quality Related Issues: Large difference in GCV at Mine and at Station.
- Inadequate Washed Coal - Many power stations at load centres do not get washed coal.
- Cumbersome Procurement process of Imported Coal
- Railway Logistic Issues/Route Constraints
- Port Constraints
WAY FORWARD FOR COAL SECTOR
Measures to improve Domestic coal availability

- Detail exploration needs to be enhanced to bring more coal reserves under the proven category for further mining.

- World over mining is totally mechanised with the use of high capacity Shovels, Dumpers and other mining equipments. There is a need to upgrade mining methodology in India.

- To extract more coal from under ground mine latest technology like Long Wall technology needs to be considered.

- In-pit crushing & conveying technology as an alternative for large volume handling.
Single window clearance for land, water, mineral, environment and forest, etc

- At present land, water, mineral, environment and forest, etc are administered by different independent departments and ministries at the state and central levels.

- It is suggested that a single window agency at the state and central level may process the application.

- A single window committee will help to streamline the entire approvals process and bring about speed and consistency in decision-making in time bound manner.
Need of Policy Reform

- Coal mining through public private partnership (PPP) Model.

- PPP has been successfully adopted in various infrastructure sectors like highways, airports, ports, metro rail etc.

- The adoption of PPPs in coal mining would enable not only additional investment but also adoption of latest technology, best practices and efficiency.

- To allow Private entity for commercial Coal mining.

- In the present form private companies are allowed captive mining in specified end-use sectors like power, steel and cement sectors which are unlikely to attract big investment and technology in the sector.
WAY FORWARD FOR POWER SECTOR
GOI-Initiatives for Fuel Security

- Setting up of Coal Regulator
- Inland Waterways
- ACQ Review
- Cap on e-Auction Volume
- Use of Washed Coal
- Coal Linkages as per Merit of the plant
- Adequate crushing facility at Mine end
Short term Action plan

- Tie up through Bi Lateral MOU.
- Signing of FSA / MOU for new units commissioned after 31.03.2009
- Import of Coal
- Inland Waterways
- ACQ Review-Taken up with Ministry
- A step towards ensuring Quality
- 100% Participation in E-Auction.
Medium Term Action Plan

- Speedy development of captive mines
- Boiler design to accommodate at least 30% blending with high GCV coal
- Finalising Long Term Import and Import Policy

Long Term Action Plan

- Based on Requirement 5 – 20 years down the line, apply for captive mines
Thank You
# Equivalent PLF

<table>
<thead>
<tr>
<th>SN</th>
<th>DESCRIPTION</th>
<th>CAPACITY (MW)</th>
<th>ACQ (MMT)</th>
<th>SUFFICIENT FOR PLF (%)</th>
<th>COAL REQT. AT 100% PLF (MMT)</th>
<th>COAL REQT. AT 90% PLF (MMT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Units commissioned before March 2009</td>
<td>23895</td>
<td>124.9</td>
<td>79</td>
<td>159</td>
<td>143</td>
</tr>
<tr>
<td>2.0</td>
<td>Units commissioned after March 2009 to till date</td>
<td>7960</td>
<td>21.5</td>
<td>41</td>
<td>53</td>
<td>48</td>
</tr>
<tr>
<td>3.0</td>
<td>Units to be commissioned after today to till 2015</td>
<td>3230</td>
<td>9.4</td>
<td>43</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>4.0</td>
<td>TOTAL</td>
<td>35085</td>
<td>156</td>
<td>67</td>
<td>234</td>
<td>210</td>
</tr>
</tbody>
</table>

Sp Coal of 2011-12 considered