Coal Movement for Power Plants through Inland Water Transport

Inland Waterways Authority of India

27th November, 2009
Present Scenario

• Thermal Power Plants main source of energy (70%) in India
• At least 11 TPS located in the vicinity of Ganga (NW 1) & Brahmaputra (NW 2)
• So far, railways dominant mode of transport for coal – whether domestic or imported
• Shortfall in wagon availability along with 120% line occupancy ratio on Eastern, South Eastern & East Coast railway routes pose major transport bottleneck
• CEC study reveals negligible coal stock at plants impacting electricity generation
• Power shortage has caused production loss of about Rs.43,000 crore in 2008-09*
• Indians spend over Rs.30,000 crore every year to run their power back up systems

* Study by MAIT & Emerson Network Power
Coal shortage for NTPC plants in WB & Bihar

- CEA reports reveal that Farakka & Kahalgaon STPS are facing coal shortage due to inadequate coal availability in linked ECL mine (Rajmahal)
- Against requirement of 27 MMT p.a, present supply 17 MMT p.a by ECL
- This can at best go up to 24 MMT p.a – clear shortfall of 3 MMT p.a
- Due to Andal – Santhia single-line section, railways could not supply more than 7 rakes per day from other sources including imported coal
- NTPC has reported annual coal shortfall of 1.2 MMT for Farakka & 1.6 MMT for Kahalgaon STPS to IWAI
- Unit -6 of Farakka (500 MW) to be commissioned by Dec.2010 & those of Barh from 2013 onwards
- Coal demand & supply gap likely to worsen despite best efforts of CIL
NTPC power plants

- **International Coal Ventures Pvt. Ltd. (ICVL)** – a JV company of CIL, NTPC, SAIL, RINL, NDMC – seriously scouting for coal mines in Australia, Indonesia etc.
- Import of 28 MMT of thermal coal permitted in current year of which NTPC allowed to import 12.5 MMT
- In 2008 - 09, orders for import of 8.2 MMT of thermal coal for NTPC power plants were placed but only 5.4 MMT could be received
- Dependence on imported coal likely to continue
Present status of NW 1

- Investments over last ten years in NW 1 by IWAI have led to –
  - 2.5 – 3 m LAD Haldia to Farakka
  - 2.0 m LAD from Farakka to Varanasi
  - 1.5 m LAD from Varanasi to Allahabad

- LAD of 2.5 – 3 m available for 210 days in entire stretch & with more dredgers, can become possible for at least 300 days

- Night navigation facilities up to Varanasi by March & Allahabad by Dec. 2010

- To facilitate safe navigation, DGPS station at Bhagalpur operational & those proposed at Katwa, Patna & Varanasi likely to become operational by March 2011

- Stage set for movement of bulk cargo on NW 1
Distances

Haldia - Farakka (Water)- 526 Km.

Farakka - Kahalgaon (Water)- 148 Km - Barh- 190 Km.

NTPC coal project
Logistics Solution for Coal

Mid Stream Transshipment Point

Diamond Harbour

Sagar Islands
Logistics Solution for Coal

NTPC, Farakka

Merry go Round

Diamond Harbour
Project Details

- 43 Barges (1500 m.t.) - Rs.258 crore
- Trans-shipper - Rs.115 crore
- Material Handling equipments - Rs.206 crore
- Terminals - Rs. 33 crore
- Other costs - Rs. 48 crore
- Total - Rs.660 crore
Cost Comparison

- **IWT** cost per m.t. at Farakka – Rs.650
- Comparative Railway cost per m.t. - Rs.650
- IWT cost per m.t. at Kahalgaon – Rs.935
- Comparative **Railway** cost per m.t. - Rs.1170 (Paradip to Kahalgaon)
- IWT cost includes savings of Rs.225 per m.t. from use of Panmax vessels & return cargo of fly ash
Coal Movement through IWT- Critical issues

- MoU between IWAI & NTPC signed in Sept. 2008
- Feasibility study by IL&FS
  - coal received at Trans-shipper placed at Sagar Islands
  - can be taken to Farakka & Kahalgaon through IWT
  - at rates competitive with present payments
- Transportation can commence 18 months from date of signing of contract

- **Bottleneck:** a long term contract for supply of coal through IWT for about 7-10 yrs. required from NTPC as supplier needs to invest Rs.600 crore+

- For imported coal, NTPC / its agents will need to firm up long term coal import contracts

- Government will need to permit NTPC to import 3 MMT coal through IWT for Farakka & Kahalgaon; Fuel Transport Agreement (FTA) for 10 yrs
Way Forward for NTPC project

• Global bid will attract logistics players who will make the requisite investment in mega trans-shippers, barge operations & terminal facilities

• Facilities provided by IWAI such as fairway, night navigation facilities will be described in bid document

• Floating of tender, award of contract & payment could be through NTPC or its agents

• Parties to bid for bringing coal from coal mine / trans-shipper to coal stack yard of Farakka & Kahalgaon STPS

• NTPC to make investment in setting up coal handling facilities on river terminal at Kahalgaon & Barh

• Fly ash as return cargo for export (to Bangladesh) from power plants will further improve viability
Other Benefits

- 3 MMT (2.1 btkm) for Farakka / Kahalgaon alone will give fuel savings of Rs.84 crore and other economic savings of Rs.306 crore per annum.
  (Arrived on the basis of NCAER -2008 Report)
- NTPC coal transportation project may pave the way for similar movement for other existing / upcoming power plants – domestic or imported.
- Private investment of about Rs.5000 crore can take place in next five years in barges, trans-shippers, loading / unloading facilities.
- Generation of additional power
THANK YOU FOR YOUR CONSIDERATION
## Details of IWT Freight Cost

( In Rs. Per m.t.)

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Particulars</th>
<th>Farakka</th>
<th>Kahalgaon</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Barge Movement</td>
<td>625</td>
<td>770</td>
</tr>
<tr>
<td>2</td>
<td>Trans-shipper</td>
<td>90</td>
<td>140</td>
</tr>
<tr>
<td>3</td>
<td>Material handling (O&amp;M)</td>
<td>135</td>
<td>210</td>
</tr>
<tr>
<td>4</td>
<td>Terminal costs</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>875</strong></td>
<td><strong>1160</strong></td>
</tr>
</tbody>
</table>
# Existing Transport Cost to NTPC

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Particulars</th>
<th>Haldia-Kahalgaon</th>
<th>Paradip-Kahalgaon</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Railway Freight</td>
<td>488.40</td>
<td>804.00</td>
</tr>
<tr>
<td>2</td>
<td>Port Charges</td>
<td>370.00</td>
<td>366.00</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>858.40</strong></td>
<td><strong>1170.00</strong></td>
</tr>
</tbody>
</table>

( In Rs. Per m.t.)

70% of Kahalgaon’s imported coal comes via Paradip
Distances
Haldia - Farakka (Water)- 526 Km.
Farakka - Kahalgaon (Water)- 148 Km - Barh- 190 Km.
Paradip - Haldia (Coast)- 220 Km.
Talcher - Paradip (Rail)- 195 Km.
Movement of Domestic coal

• IWT also offers possibility for taking coal from Mahanadi coal fields to Farakka & Kahalgaon if coal made available at Paradip
  – Rail link – Talcher to Paradip -195 km.
  – Coastal link – Paradip to Haldia – 220 km.

• IWT can also be used to transport coal to Jogighopota and then by rail to Bongaigaon TPS in Assam

• Separate Feasibility Study for the same being undertaken