
Use of fly ash in Coal Mines

R K Chopra

Chief General Manager

National Workshop on Ash Utilization

12-11-2008

Sector wise Break-up of Coal demand

(In Million Tonnes)

Sector	IX Plan	X Plan	XI Plan Projected				
	2001-02 Actual off take	2006-07 Actual off take	2007-08 Actual	2008-09 BE	2009-10 Proj.	2010-11 Proj.	2011-12 Proj.
Coking Coal: Steel	29.84	39.26	39.31	44.00	56.85	62.41	68.50
Non Coking Coal:							
Power(Utilities)	249.23	307.87	342.95	378.00	404.45	441.94	483.00
Power Captive	19.22	28.43		38.00	45.00	50.68	57.06
Cement	15.22	19.70	23.50	25.00	28.93	30.38	31.90
Others	37.98	70.54	97.17	70.00	71.73	80.63	90.64
Total	351.49	465.79	502.93	555.00	606.97	666.04	731.10
Growth (%CAGR)	3.0	5.8	9.4				

Dependence on Coal

- About 55% of primary commercial energy supply and 70% of power generation are coal based
- Total primary commercial energy requirement is envisaged to increase from 327 MTOE in 2003-04 to 1858 MTOE in 2031-32
- Coal demand to be over 2 billion tonnes
- Share of coal to remain at about the same level
- Coal sector to grow at over 7% in the next 25 years as against 5% achieved in the last three decades

Electricity Generation Capacity-India (Utilities: 2006-07)

Mode	Capacity (MW)	% Share
Thermal	85576	65
Coal	70682	54
Gas	13692	10
Oil	1202	1
Hydro	34654	26
Nuclear	4120	3
Renewables	7760	6
Total capacity	1,32,110	100

Mode wise power generation-India (Utilities: 2006-07)

Mode	Energy generation in Bkwh	% Share
Thermal	527.457	80
Coal	431.126	65
Oil	2.489	0.40
Gas	63.719	10
Multifuel	9.172	1
Lignite	21.042	3
Hydro	113.359	17
Nuclear	18.607	3
Imports	3.097	0.5
Total	662.523	100

Environmental concerns

- Only 50% or 61 million tonnes out of 121 million tonnes of ash generated is being utilised
- Ash generation by 2011-12 is expected to reach 150-170 million tonnes
- Already 16000 hectares of land is under active ash ponds and obtaining land for additional ash disposal is a critical issue
- Alternatives to store ash generated are important
- New Thermal Plants of NLC which are currently under construction are provided with facility of fly ash disposal to cement/other companies

Meeting taken by JS (Thermal) on 20.09.2007

- Possible areas of ash utilisation in mines :
 - Stowing of underground mines
 - Filling of voids in opencast mines
 - Laying of haul roads
 - Mixing fly ash with overburden
- NTPC in consultation with CIL & MOC to identify specific mines for filling voids

NTPC's proposal of 9.10.2007

- Use of fly ash for reclamation of abandoned mines; stowing of underground mines; Use of ash along with overburden
- It is proposed to take up 3 pilot projects one each in SECL (Gevra Mine), NCL (Khadia Mine) and SCCL (Ramagundam mine)
- Concurrence of MOC was sought in this regard

Voids identified as of 2003

Company	Immediately available voids	Likely availability after 5 years	Likely availability after 10 years
ECL	68 mcm 105 sites	10 mcm 10 sites	60 mcm 7 sites
CCL	0.60 mcm 2 sites	15 mcm 1 site	Nil
NCL	25 mcm 2 sites	nil	Nil
MCL	13 mcm 1 site	19 mcm 1 site	9 mcm 1 site
Total	106.60 mcm 110 sites	44 mcm 12 sites	69 mcm 8 sites

Status of filling of Mine Voids with fly ash in coal companies

- **ECL:**
 - Completed in 2 sites
 - Being filled in 10 sites
- **BCCL:**
 - Completed in 1 site
 - Being filled in 1 site
- **CCL:**
 - Completed in 5 sites
 - Being filled in 1 site
- **MCL:**
 - Completed in 1 site
 - Identified 4 sites
- **WCL:**
 - Completed in 1 site
- **SCCL:**
 - Completed in 1 site

Response to NTPC's proposal by coal companies

- NCL has not agreed to the proposal of mixing ash in overburden for back filling due to operational constraints
- It has agreed to the proposal of using fly ash for haul road construction by taking up 1 km long demonstration project
- SECL has agreed for the proposed pilot project for dumping 5 mcm in Gevra OCP subject to some conditions

Response to NTPC's proposal by coal companies

- SCCL has also agreed to the proposal of pilot project for dumping 1 lakh cubic meters of fly ash along with overburden initially in one of their open pits subject to certain conditions

Response to NTPC's proposal by coal companies

- Already dumping of fly ash by TPS is being/ had been carried out in ECL, BCCL, CCL, MCL and WCL either on trial basis or on regular basis in about 25 sites
- In SCCL also fly ash dumping in one of their underground mines was carried out earlier

Response to NTPC's proposal by coal companies

- NTPC would need to workout details/ modalities in association with the coal companies taking in to account currently available sites for dumping without any hindrance to production from these mines

Response to NTPC's proposal by coal companies

- Based on the discussions between coal companies and NTPC, MOC may convene a meeting for sorting out any issues

Response to NTPC's proposal by coal companies

- The matter was further deliberated in a meeting held in MOC with NTPC and coal companies
- Coal companies were requested by MOC to make available suitable sites in consultation with NTPC for developing a pilot project to dispose off fly ash along with OB.
- NTPC was advised to approach coal companies directly for further course of action.



Thank You