

Ash management plan of CESC Ltd—An overview

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ABSTRACT

CESC Ltd; Calcutta, in its three power generating station viz Titagarh, Southern and Budge-Budge generating about 625 MW of power on coal based boilers, produces about 2,850 TPD of coal ash. The ash management cell of CESC earmarking some areas of ash utilisation, viz. cement replacement, row sub-base construction, air-port tarmac, structural fills, agro-application as a soil amendment, light weight aggregate and other value added products, has started working towards achievement in the ash utilisation. The overall management of CESC over all the three generating power stations and management of individual power station are briefly discussed.

Key words : *Cement replacement, Row sub-base construction, Structural fills, Light weight aggregate*

1.0 INTRODUCTION

Historically, Indian power utility sector has been mostly dependent on high ash run-of-mine (ROM) coal for power generation. With increasing demand of Thermal Power, coal consumption has been rising at a steady rate which, coupled with increasing high capacity open cast mining operation, including high degree of mechanisation, has resulted in consequential deterioration in Coal quality. The current coal consumption being slated to increase more than two fold by 2006 AD (fresh 215 million tonnes to 500 million tonnes), it is likely to escalate the current coal ash generation from 85 million tonnes to a staggering figure 200 million tonnes by 2000 AD endangering not only the surrounding environment, but also the process sterilizing huge tracts on scarce agri-land.

The coal ash utilisation in India is a meagre 2% only in the truest sense, as compared to near complete utilisation in the western world. To address this challenging situation, MOE & F Govt of India, has rightly initiated stringent steps in the form of issuance of draft Gazette Notification for mandatory utilisation of coal ash by power utilities over a specified time span or to face the consequences.

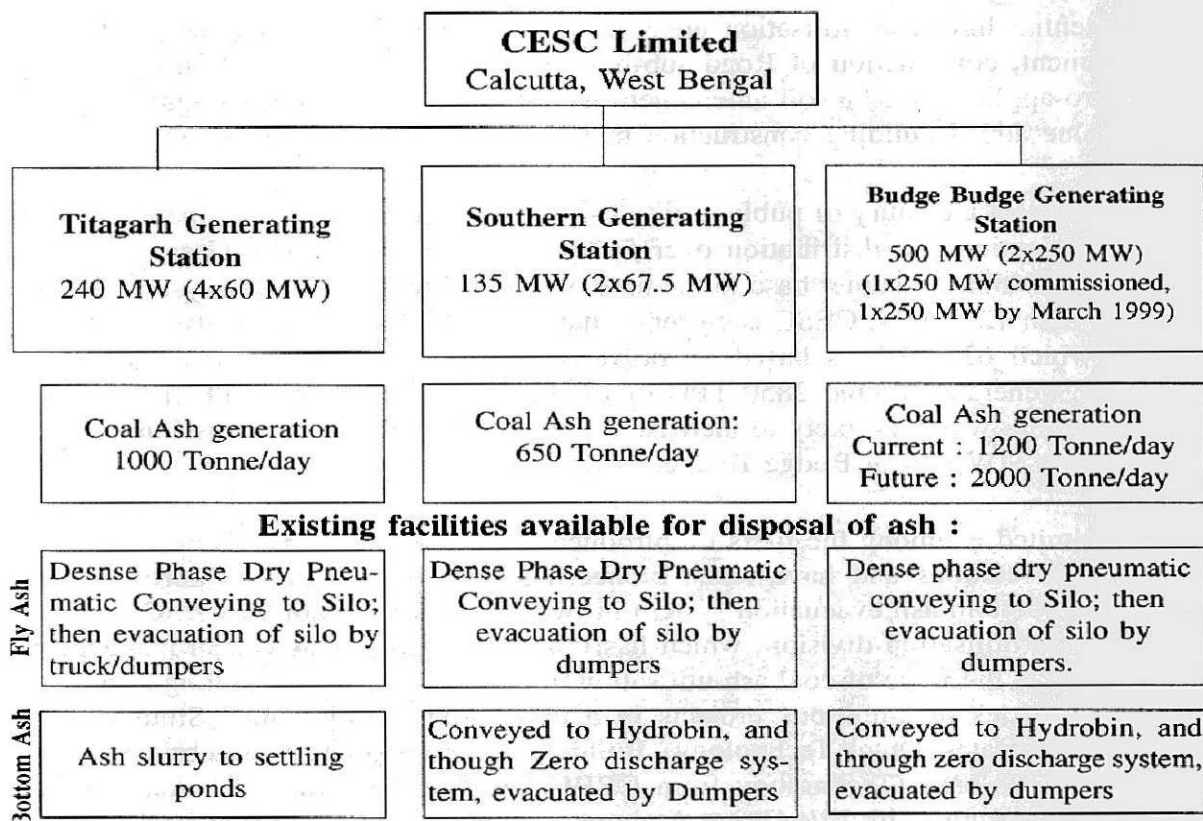
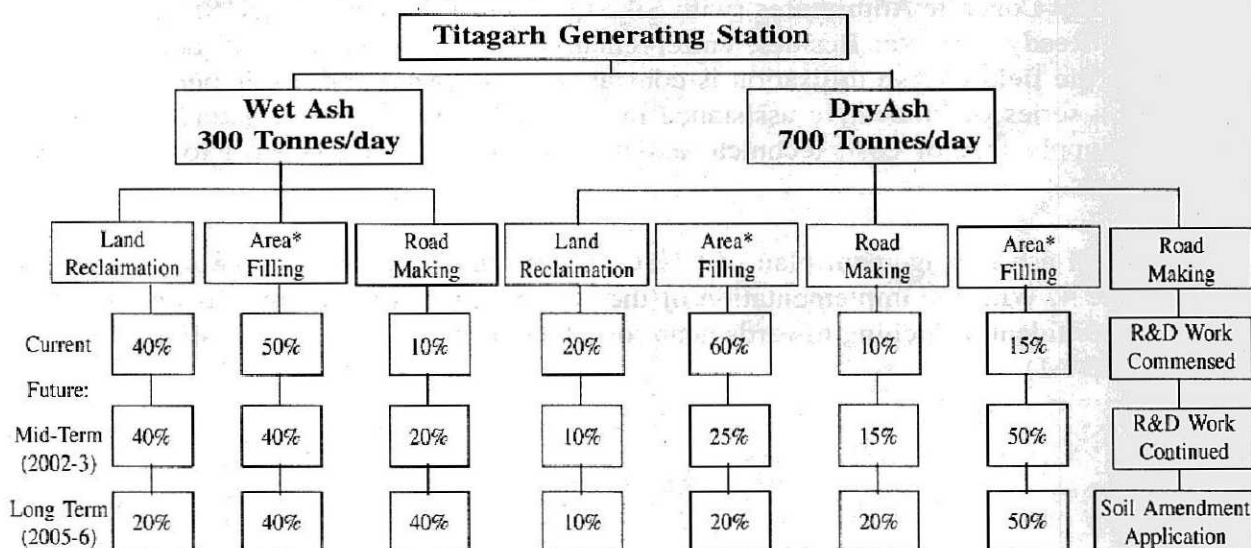
2.0 ASH UTILISATION AREAS AND MANAGEMENT

The potential bulk ash utilisation areas earmarked in Indian context are in Cement Replacement, construction of Road sub-base airport tarmac, embankments, structural fills, agro-application as a soil amendment manufacture of light weight aggregates and other value added building construction materials etc.

CESC Limited, a century of public utility company of RPG Group is in the business of power generation and distribution over 567 sq. km licensed area of Greater Calcutta Metropoly with a consumer base to the tune of 1.5 million having peak system demand of more than 1200 MW. CESC is currently having and a installed capacity of 815 MW, out of which 625 MW is based on pulverised fuel (PF) fired boiler route. CESC, currently, generates around 2850 TPD of Coal ash from three of its PF fired thermal power stations, which is likely to increase to 3650 TPD, with the commissioning of the second 250 MW unit at Budge Budge.

CESC Limited is among the firsts to introduce dry ash evacuation system in all its PF fired power stations and have taken pioneering steps in introducing "Zero-discharge system" in bottom ash evacuation system in two of its power stations. CESC has a full fledged Ash utilisation division, which has drawn a comprehensive ash management plan to tackle the issue of coal ash utilisation in current, mid-term and long term basis, through a series of ambitious projects in a multi-prong fashion like, Sintered Light Weight Aggregates (Dutch Technology), Building Materials (like sintered bricks, blocks, etc). Road sub-base (Technology from CRRI-New Delhi), Cement Clinker Grinding cum Blending unit (with M/s Gujrat Ambuja Cement), Agro applications (with Bidhan Chandra Krishi Viswavidyalaya, Kalyani, West Bengal), Asbestos (with Assam Asbestos), Quality Concrete Admixtures (with Sika Qualcrete), Embankments, Structural and land fill, Ready Mix etc. Besides, entrepreneurial development in small and medium sector in the field of Ash utilisation is constantly encouraged and developed by CESC through a series of innovative assistance in the form of land, infrastructure, sustained fly ash supply free of cost, technical assistance and marketing support to the extent feasible etc.

The overall ash management plan of CESC (power station wise) is projected in Table 1 to Table 4. With the implementation of the said plan in a time bound fashion, CESC is quite confident of inching towards near complete utilisation of its coal ash generation by 2005-6 AD.

Table 1 : Overall Ash management Plan of CESC Ltd., Calcutta**Table 2 : Ash management plan of Titagarh power generating station of CESC Ltd**

* As required by various Govt. organisations like CMDA, Housing Board and for CESC's own internal use

Table 3 : Ash management plan of Southern generating station of CESC Ltd

Southern Generating Station							
Wet Ash 300 Tonnes/day				DryAsh 600 Tonnes/day			
Land Reclamation	Road Making	Land Reclamation	Area* Filling	Road Making	Flyash-Clay Bricks (Conventional)	Cement Manufacturing	
Current	100%	0%	30%	35%	5%	30%	0%
Future :							
Mid-Term (2002-3)	80%	20%	0%	0%	5%	45%	50%
Long Term (2005-6)	60%	40%	0%	0%	0%	0%	100%

* As required by various Govt. organisations like CMDA, Housing Board and for CESC's own internal use

Table 4 : Ash management plan of Budge Budge power generating station of CESC Ltd

Budge Budge Generating Station								
Wet Ash Current : 300 Tonnes/day Mid/Long Future: 300 Tonnes/day			DryAsh Current : 1000 Tonnes/day Mid/Long Future : 1700 Tonnes/day					
Land Reclamation	Area* Filling	Road Making	Land Reclamation	Area* Filling	Road Embankment Making	Land Reclamation	Area* Filling	Road Making
Current	25%	65%	10%	28%	55%	2%	15%	—
Future :								
Mid-Term (2002-3)	25%	65%	10%	10%	10%	4%	25%	50%
Long Term (2005-6)	25%	65%	10%	0%	0%	4%	35%	60%

Disposal of ash, as required in emergency

*Current : Emergency Ash Dyke (24 Acres)

* Future : Dense Phase Ash Slurry Disposal System
M Emergency Ash Pond Area (60 Acres)

* As required by various Govt. organisations like CMDA, Housing Board and for CESC's own internal use

3.0 CONCLUSION

India has adequate capability in the form of scientific forum and R&D set up to develop indigenous, commercially viable "No waste technologies" in the area of Ash Utilisation. Aggressive approach in all matters right from planning R&D activities, bench and pilot scale testing upto commercialisation of ash utilisation units have to be taken up in a top priority basis so that all ash utilisation ventures should be viewed as a commercially viable industrial segment in successfully converting environmentally hazardous waste into ecofriendly wealth. Since the ash utilisation segment currently is in an infant stage, right kind of patronage from various concerned Govt./Semi-Govt./Quasi. Govt. bodies in the form of much deserved fiscal benefits, concession, incentives, complimentary project financing and market support has to be extended - which would be catalytic is ushering a new era in the area of Ash Utilisation.