adri


Coal Station


Vehicle Weighment


Loading from Open Yard

g Economic Sense to Fly Ash –

Generator's Perspective


Vehicle Parking


Water Spraying


Ash Mo

Presentation By : S S Kacker, AGM-ASH Utilization, NTPC Dadri

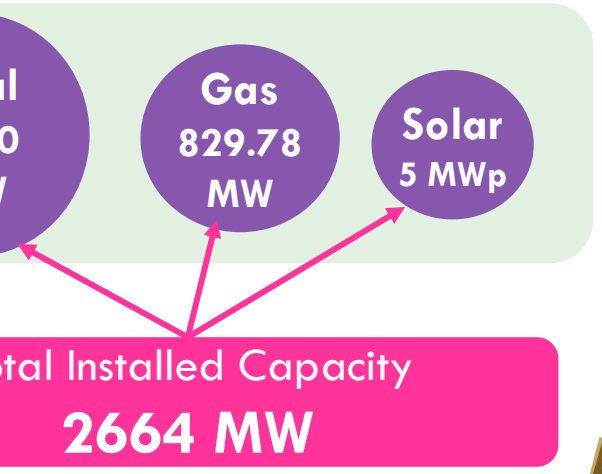
PC Limited – An overview

Installed Capacity

Present installed capacity of NTPC Group is 68,961.68 MW (including 14,365 MW through JVs/Subsidiaries) co
Stations (23 Coal based stations, 7 gas based stations, 1 Hydro station, 1 small hydro, 18 Solar PV and 1 Wind b
Venture stations (9 coal based, 4 gas based, 8 hydro, 1 small hydro 2 Wind and 2 Solar PV)

	NO. OF PLANTS
NTPC Owned	
Coal	23
Gas/Liquid Fuel	7
Hydro	1
Small Hydro	1
Solar PV	18
Wind	1
Total	**51**
Owned By JVs/Subsidiaries	
Coal	9
Gas/Liquid Fuel	4
Hydro	8
Small Hydro	1

Plant – An overview



Salient features	Coal	Gas	Solar
Installed Capacity	St-1: 4x210MW St-II: 2x490MW	829.78MW (GT: 4x131.19MW, & ST: 2x154.51MW)	5MW
Commissioned	Stg-1: Oct. '91 Stg-II: Jan.'10	May '92	Mar.'
Beneficiary states	Delhi , UP and other northern states	Delhi, UP and other northern states	Odis
Fuel source	CCL/ECL/NCL/BCCL/Pakri barwadih	Natural gas (Primary fuel), RLNG HSD (Alternate fuel) Through GAIL HBJ & IOCL Panipat	Natu radia
Cooling water source	Upper Ganga Canal		

MW PV SOLAR

neration = 7.946 MUs/year

O2 Emission = 6500 MT/year

15 MW SOLAR THERMAL

Coal Saving 3,250 MT/year (eq.3.66 MWe)

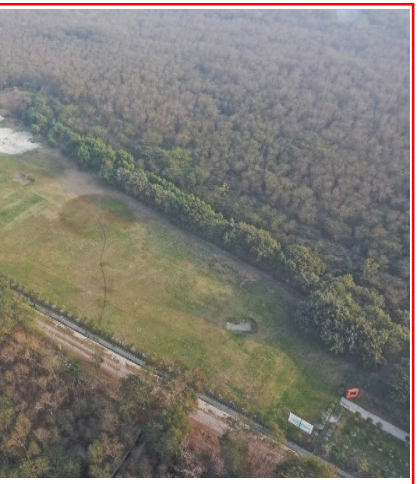
Reduction in CO2 Emission = ~4060 MT/year

WASTE – TO – ENERGY PLANT

Municipal Solid Waste (MSW) converted into Torrified Fuel

Biomass Pellet / Torri

Pellets co-firing for power



lt with 19 lac trees

FLUE GAS DE-DESULFURIS

Reduction in SOx emission

DRY SORBENT INJECTI

Reduction in SOx emission

SHI VIHAR

ecies of Migratory Birds species

ASH MOUND AREA

Design Area = 375 acres, 9 Hole Golf Course

RAIN WATER HARVESTING SYSTEM

Potential 12.09 lakh M3 during 2021

DRY ASH HANDLING S

100% ash utilization sinc

Contents

- Ash Handling System – Dry Ash extraction system
- Ash Utilization Overview
- New Initiatives: Ash Transportation from other N stations to Dadri for disposal through BTAP Wago
- Trial Operation conducted - Bulk Transport of Fly
- Promoting nearby Fly ash Based Brick Plants
- NTPC Dadri - Manufacturing of Fly Ash Bricks(96,0 brick/day) along with different type of fly ash produ
- Accident free –Ash management / utilization.
- Fugitive emission free – Ash handling/utilization – r water sprinkling and browsing in the surrouding

NTPC DADRI ASH HANDLING SYSTEM

- In NTPC Dadri, fly ash evacuation is being done from ESP to silo through pneumatic conveying system and bottom ash is being transported in slurry form from bottom ash hopper to hydrobin through hydro ejector system to Silo.
- It is completely in closed cycle to ensure zero fugitive emission and being disposed from silo itself through vacuum extraction to bulker.
- From hydrobin the decanted ash is being transported to temporary ash dyke through closed conveyor system for further disposal through.

Ash Utilization Overview

NTPC Dadri is utilizing 100% generated ash by awarding long-term/ short-term Sale contract/ agreements and also by free issue to Fly ash Brick/ Block Manufacturer.

After the MoP Advisory dt. 22.09.2021, all generated ash (i.e. Dry fly ash & Bottom Ash) is being utilized through open auction sale through MSTC e-auctioning.

NTPC Dadri, has for the first time successfully done e-auctioning of Sale of Bottom Ash As well as Sale of Open Yard Fly ash through MSTC.

Sale of Bottom ash started from 04.12.2021 & Sale of Open Yard Fly ash started from 28.02.2022.

Among all NTPC Plants, NTPC Dadri is utilising maximum ash on sale & generated maximum revenue as well.

Accident free operations since last 3 years.

Ash Utilization in last 5 Years

ASH UTILIZATION & REVENUE GENERATION IN LAST 5 YEARS

Financial Year	Ash Generation (in Lac MT)	Ash Utilization (in Lac MT)	Ash Utilisation (%)	Revenue (Crore Rs.)
2017-18	21.54	23.45	108.85	54.79
2018-19	22.35	22.36	100.05	62.63
2019-20	15.20	15.20	100.00	46.90
2020-21	9.41	9.41	100.08	30.02
1-22 (as on Feb.-22)	11.85	11.78	99.40	43.21
021-22 (Expected)	12.70	12.70	100.00	50.00

uction of Bottom Ash

auction of 5 Lakh MT of bottom ash done through MSTC in Nov' 202
d received overwhelming response.

bidders participated.

bidders were successful.

uction was done by bucket filling approach .

e duration of this contract is for one year.

e Price received in the range of Rs 130-140 per MT. Physical lifting
ctioned ash started in Dec' 2021.

evenue from sale of bottom ash in 2021-22 is Rs 0.80 Crores

uction of Fly Ash – temporary yard

auction of 2.50 Lakh MT of Fly ash (conditioned fly ash) done through MSTC in Jan
22 and received overwhelming response.

bidders participated.

bidders were successful.

ction was done by bucket filling approach .

e duration of this contract is for one year.

e Price received in the range of Rs 725-740 per MT. Physical lifting of auctione
n started in Feb' 2022.

venue from sale of bottom ash in 2021-22 is Rs 1.08 Crores

uction of Fly Ash – from SILO

auction through MSTC of 3 lac MT of Silo Dry fly ash is in the pipeli

e E-auction will be carried out using Bucket filling approach.

will be our effort to start sale of ash as early as possible after
mpletion of E-auction and completion of all formalities.

VANTAGES V/S DIS-ADVANTAGES

ADVANTAGES	DISADVANTAGES
All ash (fly, open yard fly & bottom) is being sold as per price derived in auction ; station is earning revenue.	The Ash brick manufacturers who were dependent on free ash supply are having difficult time. Since ash brick has to compete in market with the red brick. So competitive pricing is essential.
All sale is through proper sale order, deposit of CPG/SD , advance payment for ash quantity etc, hence it is binding both on the vendor and NTPC. All records are being maintained.	The free issue to Ash Brick manufacturers was base on approval of vendors based on committee recommendation. There was no sale order.
Adhocism in issue of sale is avoided. There is more transparency in the system.	Some vendors can raise the price in e-auction but thereafter not lift the ash due to price being high, leading to under-utilization of ash. High under utilization will require another e-auction for ash disposal.
	If an end user is not able to participate in the bidding due to any reason then the opportunity is lost for the duration of the contract.

New Initiatives: Ash Transportation through BTAP Wagons

NTPC Dadri Utilising 100% generated ash. Around 50% ash is utilised by cement industries & 50% utilised by brick manufacturer, traders, RMC, Asbestos industries etc.

Further in view of huge requirement of fly ash in NCR Region, fly ash is also being transported from other station to Dadri then issued to ash user.

NTPC Dadri has not only utilised its 100% generated ash but is also involved in dispatch of the transported ash as well as involve in other area for maximising the ash utilisation such as bulk transport of ash through container.

Sl. No.	Salient points	Capac
01	No. of Rake received	6
02	No. of wagons per train	51
03	Total Ash received	16440 MT

Trail Operation for Bulk Transport of Fly Ash

trial operation for Bulk transportation of ash has been conducted successfully on 27.12.2021 in association with M/s Frig
nology Pvt. Limited, Faridabad & M/s Pristine Logistics & Infra projects Limited, New Delhi at ash mound area.

his will open the another gate for transportation of ash for other stations which located in remote area to achieve 100%
zation target.
ial was taken for loading and unloading ash in from truck mounted container.

Promoting nearby Fly ash Based Brick Plants

o 60% Fly ash is used for nufacturing of fly ash bricks.

re are hundreds of brick plants aged for manufacturing of ash cks.

Utilisation deptt. visits nearby ck plants time to time.

NTPC Dadri Fly Ash Brick Plant

semi automatic brick plant with capacity of 80 thousand/ day brick manufacturing capacity is Operative in pl
remises.

his encourages the ash utilization & promotes the utilization of ash based bricks in civil construction.

new Initiative is taken up by NTPC R&D team NETRA i.e. Utilization of **Fly Ash in Geo Polymer for utilization**
oncrete road.

Manufacturing of different type of fly ash products

erent type of fly ash products are being manufactured at NTPC Dadri. These products are bein
d for in-house requirements as well as used for promotional purpose.

Fly Ash Bricks

230x110x70mm
ents upto 60% by weight
Confirming to IS-12894
ghter in weight than
onal clay bricks
sive Strength more than
/cm2

Fly Ash Block

Size of blocks is 290x185x125mm
Faster construction
Less mortar consumption
Most suitable for boundary walls
Plastering not required.
Decorative like stone masonry

Plain & Checkered Tiles

Size 250mmx250mmx22mm
Ash content 26%.
Can be made in different colours.

Kerb Stone & Paving Slabs

Products are manufactured with stone aggregate, sand, cement mixed in designed proportion with fly ash.

Kerb Stone & Paving Slabs

Fly ash contents up to 35 %
Durable Economical Self interlocking, no mortar Required for laying Faster and easy from Construction point of view.

Flower Pots

Ash contents Upto
Lighter in
Much cheaper than
Flower Pots and more
than earthen pots

ENSURING ACCIDENT FREE OPERATIONS AT DADRI-Safety Pep-Talk & Ash User Meet

NTPC Dadri, around 300 ash
cles are engaged daily for
ng of fly & bottom ash.

ly safety pep-talk &
nightly Special pep-talk
grammes & quarterly ash user
et is being organized at Site.

essary safety checks/
pliance is ensured before
y of ash vehicle.

uring safe & pollution free
cle movement inside/ outside
plant area.

Environment Protection: Water Spraying

uring safe & pollution free cle movement inside/ outside plant area.

vehicles are covered by paulin after filling with ash and vehicles are washed prior to from plant.

roads where ash vehicles ply sprayed with water through er bowser to control pollution.

Thanks