सी एस पी जी सी एल
CSPGCL

CHHATTISGARH STATE POWER GENERATION CO. LTD.

छत्तीसगढ़स्टेट पावर जनरेशन कंपनी लिमिटेड
(A Govt. of Chhattisgarh Undertaking)
(छत्तीसगढ़ शासन का एक उपक्रम)
CIN: U40108CT2003SGC015821

No. 03-01/Env/TS-20/449 Raipur Dtd 16 MAR 2020

CHHATTISGARH STATE POWER GENERATION CO. LTD.

(A Govt. of Chhattisgarh Undertaking)

Invitation for Expression of Interest for Sale of Dry Fly Ash from 2x500MW Atal Bihari Vajpayee Thermal Power Station(ABVTPS)Distt. Janjgir Champa.

ABVTPS of CSPGCL is a coal based Thermal Power Station situated in Distt. Janjgir Champa Chhattisgarh State, India with an installed capacity of 1000 MW (2x500 MW). ABVTPS produce dry fly ash approx. 14 LMT in a year and dry fly ash is being used by various agencies, parties and cement manufacturing companies as required by them.

CSPGCL invites **"Expression of Interest (EOI) for Sale of Dry Fly Ash from 2x500MW Atal Bihari Vajpayee Thermal Power Station(ABVTPS)Distt. Janjgir Champa."** from interested parties /agencies for supply of dry fly Ash from its ash silos on chargeable basis in **an environment friendly manner.**

Interested parties may download the detailed information from company website and are requested to submit their requirement as per format available at website **www.cspc.co.in**

How to apply: Last date for submission of EOI is 25th April 2020. Details relating to the manner and place of submission of EOI and some brief information may be accessed from the website **www.cspc.co.in** Interested parties, if required, may contact:

Regd Office : O/o E.D. (O&M:Gen), 5th Floor, Vidyut Sewa Bhawan, Dangania, Raipur, Chhattisgarh.
Telephone no- 07712574421 E mail: ceomgen@yahoo.co.in

This announcement is not an offer or commitment for fly ash tie up.

Executive Director (O&M :Gen)
CSPGCL :Raipur

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Submission of EOI
For collection of Dry Fly Ash
(to be printed on the letter head of the interested party/agency and signed)
(This is only an enquiry to assess the requirement of interested parties for Lifting Dry Fly Ash from Ash Silos of ABVTPS Janjgir Champa without any obligation. Duly filled and signed form in original to be sent by post or handed over in person)
(Last date for submission of EOI is 25th April 2020.)

E.D.(O&M:Gen)
5th floor, Vidyut Sewa Bhawan
Dangania, Raipur
Chhattisgarh

Dear Sir,

We are interested in lifting dry fly ash from ash silos of ABVTPS Janjgir Champa. We submit the following details of our firm and requirement.

1	Name of the Company and Address	
2	Whether the company is govt.firm / private –owned	
3	Mailing address of the company	
4	Are you, manufacturer of fly ash based product or agency supplying to the industries?	1. Fly ash based product manufacturer 2. Supplier of ash to industries
5	Proposed end use of fly ash	1. Cement (PPC) 2. Ready Mix Cement(RMC) 3. Fly ash bricks 4. Fly ash blocks 5. Others (please specify)
6	Year of Experience in the Business	
7	Annual Turnover of the Business	
8	Location and Agency other details	1.Distance of ash utilization unit from ABVTPS Janjgir Champa C.G. 2.Address: 3.Details of license/registration (if available)
9	Quantity requirement in Tonnes of fly ash from ABVTPS Janjgir Champa	
10	Quantity that can be collected every day in Tonnes from ABVTPS Janjgir Champa	
11	Mode of collecting /transporting from	1) Bulkers

	ABVTPS Janjgir Champa	2) Closed Trucks.
12	Name and Designation of the contact Person	
13	Contact Number	
14	e-mail ID	
15	Any other relevant information	
16	Whether willing enter into long term MOU (Yes/No.)	
17	Price offered by the party (Rs. /MT) at the Plant Silo*	
18	Period of Requirement (in No. of Years)	1 Year

*Excluding taxes, duties & freight

We understand that fly ash quantity to be supplied would be "As is where is basis'" from plant silo chute and we have to arrange transportation at our own cost in bulkers/closed trucks. We are liable and responsible for the payment towards any taxes, duties, levies, octroi etc. Applicable/enforced (by State/Central Government) from time to time during the tenure of the contract.

(Authorised Signatory)

Place:
Date:
(Seal of the company)
For Web Site
CSPGCL

Terms and Conditions

1. The scope of EOI includes lifting of Dry Fly Ash for the purpose of Export from Ash Silos of ABVTPS Janjgir Champa.

2. Dry fly ash from ABVTPS Janjgir Champa silos shall be provided on 'As is where is basis'.

3. The interested parties should be manufactures of fly ash based products like Cement, ready mix cement(RMC),Asbestos, fly ash bricks ,blocks, tiles etc or any agency interested for supply of fly ash to manufacturing units.

4. The Interested party/agency shall make their own arrangement for transportation of Dry Fly Ash from plant silos of ABVTPS Janjgir Champa and for movement of men, machinery, other equipment etc. required for lifting the dry fly ash from plant silos.

5. The issue of fly ash from plant silos will be on chargeable basis.

6. Order may be placed for full quantity or part quantity as decided by CSPGCL and in case of same discovered rates, order will be placed on proportionate basis.

7. **Qualifying Requirements for the bidders:**

(i) Bidder should have average turnover for the last three financial year should be at least Rs 2,10,00,000/-.The Audited Balance Sheet and P&L account of the last three years and other documents shall be submitted in technical bid to ascertain the soundness of the bidders financial position.
(ii)Work experience criteria during previous 3 years:-

(i) The bidder should have at least 1 Order for lifting fly ash from any Thermal Power Station amounting Rs 1.68 Cr. Or,
(ii) The bidder should have at least 2 Orders for lifting fly ash from any Thermal Power Station amounting Rs 1.26 Cr each Or,
(iii)The bidder should have at least 3 Orders for lifting fly ash from any Thermal Power Station amounting Rs 84.00Lacs each.

8. **EMD @1% of the value of offer quantity** by the interested party/agency by way of demand draft in favour of " AM CAU CSPGCL, RAIPUR' may be enclosed along with tender. Tenders without EMD shall be summarily rejected.
The EMD will not carry any interest.

9. Interested party/agency shall ensure proper care and constant vigil of ash transportation activities and shall not cause any damage to any existing properties, which may result in Environmental hazards in the nearby area.
10.Successful party/agency shall have to abide by the guidelines of the Central Government/State Government regarding fly ash utilization issued from time to time. The agency shall ensure compliance of Ministry of Environment and Forests Notification Number S.O. 763(E) dated 14.09.1999 (as amended till date) and will be fully responsible for it.

11. CSPGCL reserves the right to access the capability of the applicant and viability of proposal, based on verification of documents and if required, cross verification of Utilization of Dry Fly Ash at their Unit, for enlistment of the capable applicant(s).

12. All possible measures would have to be taken by the agency to avoid pollution to the satisfactory of the plant officials. Similarly, while transporting, no spillage of fly ash would be permitted to avoid air pollution. If the process adopted by the agency is found deficit, CSPGCL shall have right to stop the issue of fly ash.

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SPECIAL CONDITIONS OF CONTRACT

1) **Scope of Supply**

a. Owner(CSPGCL) would be in a position to make available allocated quantity of fly ash subject to availability, Force Majeure conditions and unplanned outage of the Unit 1,& 2 (2X500 MW) of Atal Bihari Vajpayee Thermal Power Station Janjgir Champa CSPGCL.
b. The Owner reserves the right to supply the quantity not lifted by the buyers to any other party (Bidder/Non-Bidder) at the sole discretion of the Owner. First preference will be given to the successful bidders.
c. Quantity: - Approx. 14 Lakh MT / Annum
d. Period: - 01 Year

2) **Working Hours**

a. Delivery of fly ash is intended to be given on all days excluding national holidays or as per Engineer-in-Charge.

3) **Delivery Point**

a. CSPGCL would deliver fly ash from the discharge chute of designated Ash silo chute of Unit 1, & 2 of ABVTPS .
b. Fly ash shall be considered to have been delivered as it passes into the buyer's vehicle at the loading point.

4) **Quality of fly ash**

Owner would deliver dry fly ash at designated delivery point(s) i.e. Ash Silo Chute on "as available" basis.

5) **Methodology for Pricing**

a. Price chargeable to buyer(s) shall be the price discovered resulting from the bids received as per the methodology described in Clause 7 in Rupees per MT.
b. All statutory duties / taxes / levies shall be charged extra.

6) **Price & Bidding Methodology**

The minimum FLOOR PRICE of Fly Ash is Rs 10 .00 (Rupees Ten only) per Metric Ton.

7) **Evaluation Criterion of Bids**

Price Discovery and Quantity for allocation

a. 80% of the tendered quantity i.e 11.2 LMT will be the lower limit for bid evaluation below which the tender will be declared unsuccessful.
b. For cumulative annual quantities quoted by bidders between 80% of the tender quantity (0.8 x 14, 00,000 MT) to 100% of tender quantity (14, 00,000 MT), the price at which maximum revenue is generated will be the discovered price. In such case, the quantity quoted by the bidder at the discovered price will be allocated to the bidder.
c. Bids at discovered price based on above will be the successful bids and quantity will be allocated to them as per Clause 7 b.

8) **Award Criteria**

a. The bidder shall be awarded the quantity as quoted at discovered price. If cumulative quantity at discovered price is more than tendered quantity, CSPGCL reserves the right to allocate the quantity to such bidders in prorata basis at discovered price.

9) **Award price:**

a. Discovered Price shall be the award price and shall remain firm for a period of **ONE YEAR** i.e actual period of contract with firm.

10) **Period of Supply**

a. Duration of Supply of fly ash from ABVTPS Plant of CSPGCL will be for a period of **ONE YEAR** from the date of commencement of lifting of fly ash. Lifting of ash shall be initiated within one month from the date of order.

11) **Upward Quantity Flexibility**

a. If requested by the Buyer the Owner may consider supply of additional quantity over & above the allocated quantity subject to availability and at the sole discretion of the Owner (CSPGCL) at the prevailing price.

12) **Payment Terms & Bank Charges**

a. Successful bidder have to submit advance payment of amount value of one month of off-take quantity at the time of signing the contract in form of DD
b. Delivery shall be made against advance payment in the form of Demand Draft in favor of " Sr AO Atal Bihari Vajpayee Thermal Power Station, Janjgir Champa'. Advance shall be adjusted against delivery on monthly basis.
c. All bank charges shall be borne by the buyer.

13. **SECURITY DEPOSIT**:

a) Before starting the lifting of ash, each buyer shall arrange to deposit an amount **equivalent to 5% value of the agreed/firmed up annual quantity of ash to be lifted**, in the form of DD in favour of AM CAU CSPGCL, RAIPUR'.as Non-interest bearing Security Deposit (SD) with CSPGCL for the faithful performance of the contract. This security deposit will stand as performance guarantee on behalf of the buyer. If a buyer fails to perform the contract within its terms and conditions or commits breach or deviates from any of the terms of the contract, the owner shall have the right to forfeit the security deposit of that buyer.
b) The SD submitted by the buyers shall be valid for whole period of the contract. It can be claimed by the buyers immediately after one month of expiry of faithful performance of contract.
c) The security deposit shall not carry interest.

14) **Weighment for invoicing**

a. Fly ash shall be issued based on actual weighment at CSPGCL Weigh Bridge Weight so recorded shall be considered final.

15) **Compensation against shortfall during regular off take/Penalty:**

a. After commencement of first off take, buyer will be required to lift fly ash on regular basis in accordance with agreed quantity as per contracted schedule. The buyer shall have to lift the minimum 90% of total annual contracted quantity / annual adjusted quantity (in case of short supply) on prorata basis. In case buyer fails to lift the minimum quantity (minimum 90% of total annual quantity, however for imposing penalties for less quantity lifting will be applicable on quarterly basis after completion of minimum 3 months period from start of lifting fly ash and will be monitored further on quarterly basis upto contract period) on prorate basis, compensation amount @ 5% of the awarded/prevailing price (rounded to the nearest whole

number on the higher side) will be charged on value of the shortfall quantity (90% of annual contracted / annual adjusted quantity on prorata basis – Actual quantity lifted, for the period under review).

b. Compensation shall be calculated for all three consecutive months on cumulative basis. The compensation will be calculated within 15 days following the three consecutive months under study. Compensation due on a buyer, if not deposited separately will be deducted from the advance available or recovered from the SD of the buyer. However, gross compensation amount during a year will be limited to the SD amount. The compensation amount deducted from SD if any shall be replenished by the buyer in the SD account within 15 days notwithstanding which the supply of fly ash to the buyer will be stopped. Supplies will be started only after the 'deducted amount from SD' is replenished. Any decrease in supply of fly ash to the buyer due to non replenishment of the compensation amount will be in the account of the buyer.

c. Consecutive three monthly quantity shall be considered from the scheduled date of start till completion of three months and subsequently so on till expiry of contract.

16) **Termination of Contract**

16.1 In case, fly ash off take falls below 80% of the contracted or adjusted quantity, whichever is lower, during any three consecutive months on cumulative basis, Owner reserves the right to terminate the contract by giving 15 days notice in writing of their intentions to do so and in such an event the buyer shall not be entitled to any compensation from the Owner. In the event of termination of contract, the liquidated damages will be payable by the buyer @ 5% of the awarded/prevailing price (rounded to the nearest whole number on the higher side) for the short fall quantity below 90% of the contracted / adjusted quantity, whichever is lower for the consecutive three months. The gross amount of liquidated damages / compensation, if any (combined) for a year of the contract if contract is for more than one year, shall be limited to the SD amount. Consecutive three months shall be considered from the scheduled date of start till completion of three months and subsequently so on till expiry of contract

16.2 The Owner also reserves the right to terminate the contract in the event of breach of contract by the buyer giving 15 days notice in writing of their intentions to do so and in such an event the buyer shall not be entitled to any compensation from the Owner. In the event of termination of contract for any reasons of breach of contract, liquidated damages equivalent to amount of SD shall be payable by the buyer.

16.2.1 Following will constitute breach of contract:

a. Delay in first off-take by Buyer from committed date by more than three months.

b. Buyer is not complying with operational and safety requirements and neglecting instructions of Engineer-In-Charge.

c. Buyer has failed to discharge his obligations according to the terms & conditions of contract.

16.3Contract for sale of fly ash may be terminated at any time depending on the policy of the Government and/or other concerned authorities. Owner reserves the right for withdrawal of the contract in the interest and safety of the plant and the Company by giving 15 days notice in writing to the buyer.

17) **Shortfall in supply by Owner**

a. Fly Ash is a product of coal combustion, which again is subject to the demand of electricity in the areas allocated by the regulatory authorities. Scheduled and unscheduled shutdowns also affect generation of electricity and thus generation of Fly Ash. Though all efforts will be made to maintain contracted quantity of Fly ash available, Owner does not guarantee availability of Fly Ash as per contracted quantity regularly and will not be liable for any compensation or damages for non delivery of required quantity of the fly ash.
b. In case Owner is unable to provide the average monthly/three consecutive monthly contracted quantity of fly ash due to any reasons including forced outages of the plant, congestions etc. Owner in respect of each buyer shall accordingly adjust the average monthly/three consecutive monthly contracted quantity downward. Under such circumstances the determination of compensation referred at Clause 15 above shall be computed with respect to adjusted yearly / three consecutive monthly contracted quantity.
c. Determination of monthly quantity i.e. for any three months for termination of Contract in case of short supply by the Owner shall also be computed w.r.t. quantity made available to the buyer on monthly / quarterly (i.e. for any three consecutive months) as stated in Clause 17 b.
d. Owner may offer additional quantity of fly ash at a later date subject to availability, if agreed by buyer. The quantity so offered and agreed by buyer at a later stage, will form a part of the annual contracted/adjusted quantity.

18) **Taxes, Duties, Levies etc.**

a. The Bidder shall be liable and responsible for payment of all statutory levies in the form of taxes, duties, octroi including GST etc. on the Supply of fly ash. Such statutory liabilities, if any, shall be paid by bidder extra at actual.
b. All fly ash will be sold on Ex Silo / Ex Works basis. Regarding exports of fly ash by the buyer, it is the responsibility of the buyer to fulfill their export obligations as may be required, and any shortfall in this regard shall be to the account of the buyer only. The buyer indemnifies the Owner against all such liabilities and losses on failure to fulfill the export obligations, if any.

19) **Delivery**

a. Buyer should depute his authorized representative to the power plant for co-ordination and taking delivery of fly ash.

b. Delivery will be from Silo Chutes to bulkers / closed trucks / rail rakes only, which are suitable for loading from designated silos. Open trucks will not be allowed to take delivery. Rail loading can be either in bulk through pneumatic loading or through bags (see Annexure III for details w.r.t rail transportation). Bags for filling of fly ash and manpower for loading the filled bags in to the vehicle/rake shall be arranged by the buyer at its own cost.

c. Owner has right to suspend the delivery of Fly Ash if advance amount is not available with the Owner by the required date and such suspension of delivery shall be to the account of buyer.

20) **Responsibility during Transportation**

The buyer will be responsible for any kind of injuries or accidents caused to their employees or laborers or any other person and Owner will not be liable in the matter. If any action is brought against the Owner for payment of damages or compensations, the buyer shall indemnify the Owner from all such action or claim from damages/compensation. If the Owner is held liable for any compensation, buyer shall forthwith compensate the Owner if any, such claim arose after expiry of the contract period.The Buyer's transporter(s) shall have valid license and meet the statutory compliance requirement of State Govt. / Central Govt./ Concerned Authorities for transportation of the specified goods.

21) **Billing**

a) Owner will issue Exit gate pass on daily basis monitoring total quantity of fly ash lifted on each day this will be recorded and mutually signed daily and a copy of the same shall be delivered to the Buyer(s)

b) Owner will issue an invoice showing the quantity of the fly ash delivered for each month, along with applicable duty/taxes/cess etc. which shall be adjusted against the advance payment made by the buyer(s) as per Clause 12

c) Any Statutory form for claiming rebate shall be submitted by the buyer to the Owner for claiming such rebate. In case buyer fails to submit within one month of the designated quarter, GST will be charged at full applicable rates.

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22) **Guidelines for loading, unloading and nuisance free transportation of all Types of fly ash including bottom ash etc.** generated by Thermal Power Stations- Issued by Central Pollution Control Board Delhi 2013.The bidder should strictly adhere to the "Guidelines (Attached as Annexure IV) for loading, unloading and nuisance free transportation of all Types of fly ash including bottom ash etc. generated by Thermal Power Station (Issued by Central Pollution Control Board Delhi 2013) .

23) Intrested agencies/patries are requested to go through the terms and conditions of the EoI and submit their EoI/offer for purchase of dry fly ash fom ash silos of 2x500MW ABVTPS. The EoI in prescribed format dully filled and signed along with other necessary detailes may be submitted in sealed envelops in the following address:

Office of E.D. (O&M:Gen), 5th Floor, Vidyut Sewa Bhawan,Dangania, Raipur, Chhattisgarh. Telephone no- 07712574421 E mail: ceomgen@yahoo.co.in.

ED (O&M:Gen)
CSPGCL Raipur

Annexure III

Few aspects relating to transportation of fly ash by rail is elaborated for incorporation, if required / applicable

1.0 In case, rail loading facility is already available at a Power Plant, necessary terms & conditions related to rail loading may be decided by the Power Plant.

Few points have been elaborated w.r.t rail transportation which may not be exhaustive.

Power Plant may utilize the points or decide alternatively.

2.0 Rail wagons/ rake to be arranged by the buyer.

2.1 Loco may be provided by the supplier for hauling of rake from the exchange yard of the Power Plant to the silos for loading fly ash, then weigh and back to exchange yard on chargeable basis (charges to be calculated by the Power Plant).

2.2 Rail loading can either be through bags (50 kgs or one tonne) or bulk loading. For transportation of fly ash by rail by the awardees, all permissions/authorization for loading and all charges / taxes / duties / demurrage / levies etc. towards the same will be to the account of the buyer. However where inputs are required by Railways from CSPGCL, the same shall be done by CSPGCL. Further, in case where loading of fly ash is delayed due to technical or due to any other problem of CSPGCL, demurrage charges may be borne by CSPGCL i.e. normally related to bulk or one tonne bag loading. Loading of 50kg bags should be the Contractors responsibility and demurrages charges, etc if any shall be to his account.

2.3 Before commencement of supply of fly ash by rail, the buyer will be required to submit an additional guarantee in the form of Demand Draft in favor of " AM CAU CSPGCL, RAIPUR' by the supplier as security to cover any possible demurrage or other charges (say transportation etc.) as levied by railways to CSPGCL.

2.4 Additional factors for facilitating transportation by rail:

a) Buyers are encouraged to send their own private rakes especially initially to streamline the process so as to avoid demurrage charges.

b) In case railway owned rakes are sent, Power Plant may assess for demurrage and any other possible (overload penalty) charges and insist or negotiate as far as possible that buyer shall be liable for payment of demurrage charges etc. at both loading and unloading end initially till the process is streamlined. However in case the buyer does

not agree, and in order to explore transportation of fly ash by rail, conditions as mentioned in para 2.2 above or as decided by the Power Plant may be followed. Thereafter, Power plant may decide accordingly.

c) If only one party is awarded for transportation of fly ash by rail, the buyer shall obtain co - user permission from railways and place indent for supply of fly ash by rail.

d) If more than one party is awarded for supply of fly ash by rail, a 'forum' (a consortium) may be formed of all the rail awarded parties, which will become co – user to CSPGCL and place indent to the railways on behalf of each member as per requirement

Any other modus operandi as suggested by Railways or as possible may be followed.

3.0 EIC to coordinate and finalize the process of supply of fly ash by rail as per above and/or in consultation with Railways.

NB:

1) The above may be suitably modified for the Power Plant and additions / deletions if any may be done based on actual conditions and requirement and in consultation with railways.

2) In case where transportation of fly ash is expected to commence by rail during the currency of the contract, a clause related to transportation by rail may be included in the bid document.

Annexure - VI

UNDERTAKING

(On Official Letter head of the Buyer)

To

Date:

CSPGCL,

Dagania, Raipur

Subject: Undertaking for Usage of Fly Ash in Cement / construction / or other ash based Product / industry.

Dear Sir,

This is to certify that we M/S ----------the bidder for CSPGCL (Atal Bihari Vajpayee Thermal Power Station) Fly Ash against Bid Specification No ---------- _____ that the Fly Ash, if allocated to us, shall be used in Cement manufacturing / construction / or other ash based product / industry.

Thanking you,

(Signature of authorized person)

(Name & Designation)

(Seal/ Stamp of Company)

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GUIDELINES FOR LOADING, UNLOADING AND NUISANCE FREE TRANSPORTATION OF ALL TYPES OF FLYASH, INCLUDING BOTTOM ASH ETC. GENERATED BY THERMAL POWER STATIONS

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Central Pollution Control Board
Delhi
December 2013

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1.0 Introduction

Indian coal is generally of low grade having high ash content ranging from 40-48 % and thus large quantity of ash is being generated at coal/lignite based Thermal Power Stations in the country, which is the source of pollution of both air and water. During 2012-13 about 163 million tonnes of flyash was generated. It is expected that during 12th& 13th Plans, more than 100000 MW power generation capacity is likely to be added which would be resultingin an increase of ash generation by about two folds by the year 2022. The quantum of fly ash to be handled, therefore,would be much more than in the past.

As per the conventional practices, ash is disposed in slurry form to the ash ponds and the overflow from the ash pond after adequate settling time used to be discharged in nearby water bodies. This mode of ash disposal wasnot only causes air & water pollution but also requires large land area for its disposal. However, after implementation of the recommendations made under Corporate Responsibility for Environmental Protection (CREP) in the year 2003, power plants have been asked to stop discharge of ash pond overflow water an'drecycle it back to the plant for different usages.

1.1 To protect the environment, conserve top soil and prevent dumpingdisposal& of ash generated from coal/lignite based fired thermal power plants on land and for restricting the excavation of top soil for manufacturing of bricks and building materials, Ministry of Environment & Forests, Government of India,issued directions vide Notification nos. S.O 763 (E) dated September 14,1999 and as amended in the years2003 &2009 (S.O. 979(E) &2804 (E) dated August 27, 2003 &November 03, 2009 respectively) touse hundredper cent of flyash generated by thermal power plants in a time bound manner.The Notification also emphasized that flyash shall be ~tilised for m.:mufacturing of bricks, tiles, cement, concrete etc., construction of ,roads within 100 kms radius from thermal power pants and backfilling/reclamation of abandoned mines/ quarry (both underground and open cast) shall be done with flyash, if located within 50 kms radius from thermal power plants.

1.2 As per the 2009 Notification on fly ash utilisation, .transportation of fly ash should be in an environmentally sound manner.Fflyash is categorised as high volume low effect waste under Hazardous Waste (Management& Handling) Rules, 2008(S.O. 2265(E) dated September 24, 2008) and thus excluded from the category of Hazardous waste. The guidelines for transportation offlyash havenot been prepared by Central Pollution Control Board, so far. However, the consent under Air (prevention& Control of Pollution) Act, 1981 issued by State Pollution Control Boards envisagesthat flyash should be transported in an environmentally friendly manner.

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1.3 The Hon'ble Supreme Court of India in its Order dated August 13, 2013 &September 24, 2013, in the matter of DamodarValley Corporation&Ors Vs BKB Transport (P) Ltd.& Company,SLA No. 30381of 2011, directed CPCB to frame guidelines for loading, unloading, utilization and nuisance free transportation of all types of flyash, including flyash, bottom ash etc. generated by thermal power stations prepared at the earliest. In line with the directions of Hon'ble Supreme Court, CPCB accordingly constituted a Committee to prepare the desired guidelines.

2.0 The Committee

To evaluate and suggest all aspects of handling and transportation of flyash like, in plant handling/storage, transportation to the user's/disposalsite, road and rail tankers, transfer by boats, barges for export, closed tankers etc, a Committee under the chairmanship of Sh. T.K. Dhar, Former Executive Director (Environment and R&R), NTPC wasconstituted vide Office Order dated October 07, 2013.The composition and Terms of Reference (ToR) of the Committee are given in Annexure I.

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The committee met on October 23, 2013 & November 21, 2103 at CPCB, Delhi. The committee discussed the current practices for handling and disposal of flyash& bottom ash, its utilisation and transportation modes and environmental issues involved. Based on the suggestions and recommendation of the Committee, guidelines onloading, unloading and transportation of flyash, bottom ash & pond ashwere prepared.

3.0 Flyash Utilisation

3.1 Utilisation of Flyashgained momentum only after enactment of Notification by the Ministry of Environment & Forests, Government of India in the year 1~99. During the past decade, flyash utilisation has increased by more than six folds from 9 % (1996-97) to about 61% in the year 2012-13 (source :CEA). The major modes of flyash utilisation are as under:-

Cement manufacturing	4~P/o
Ash Dyke raising	12%
Reclamation of Low lying areas	11%
Road construction	6%
Brick manufacturing	9%
Backfilling in Mines	10%
Others	11%

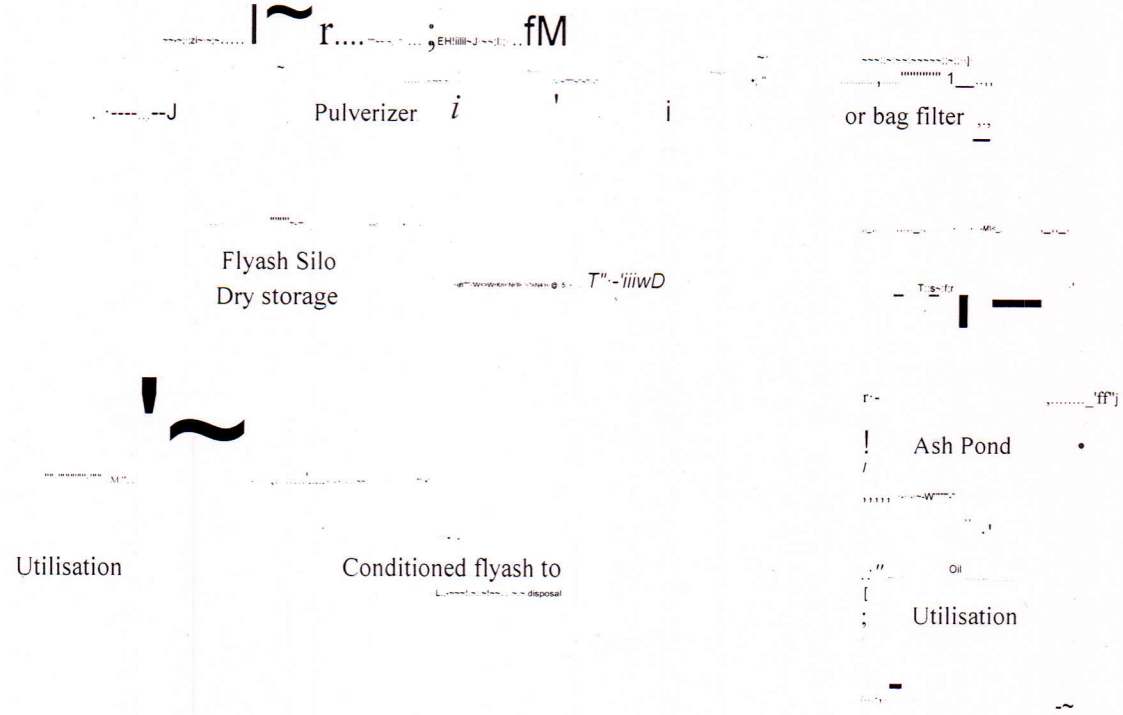
Flyash is also being exported at few thermal power plants to nearby countries such as BanglaDesh and Dubai.

The balance flyash is stored into ash ponds. The filled - in abandoned ash ponds or ash mounds are reclaimed with top soil cover and development of green belt (by planting local species)over it.

3.2 Though, flyash utilisation has gained momentum progressively over the years, however, still further efforts required to explore new areas of ash utilisation.With suitable safeguards, mine backfilling including disposal of flyash in abandoned quarries and road construction especially in the Construction of National Highways .and Expressways could be the major mode of flyash utilisation in the near future as these areas have vast potential. It would perhaps be desirable that Ministry of Environment & Forests, Government of India with feedbacks from CPCB and other SPCBs takes periodic reviews with the concerned Ministries for sorting out the bottlenecks such as declaring a list of abandoned mines, making adequate provisions in respective schedules for flyash utilisation by the Indian Road Congress &construction agencies etc.

4.0 Current Practice for Handling. & Disposal of Flyash& Bottom ash (within the power plant)

Flyash is collected in dry form from ESP hopper and disposed either in dry form or through wet slurry form. While, bottom ash falls from the bottom of the boiler is disposed in wet slurry form into the ash ponds.



Following technologies are conventionally used for handling & disposal of flyash and bottom ash from ESPs Hoppers and Boiler bottom within the plant or upto the ash pond area:

- Pneumatic conveying
- Lean slurry disposal system
- Medium Concentration slurry disposal system
- High Concentration slurry disposal system
- Dry (moist) Conveying system through belt conveyor/tube belt conveyor.

Amongst the above technologies, Pneumatic conveying, Medium Concentration slurry disposal system, HighConcentration slurry disposal system, Dry (moist) Conveying system through belt conveyor/tube belt conveyor are recommended.

The dry ash is typically conveyed pneumatically from the ESP or filter fabric Hoppers oc1 storage silos where it is kept dry, pending utilization or further processing, or to a system where the dry ash is mixed with water and conveyed (sluiced) to an on-site storage pond.

The dry ashcollected is normally stored and handled using equipment and procedures similar to those used for handling portland cement:

- Fly ash is stored in silos, domes and other bulk storage facilities
- Fly ash can be transferred using air slides, bucket conveyors and screw conveyors, or it can be pneumatically conveyed through pipelines under positive or negative pressure conditions

Dry fly ash collected can also be suitably moistened with water and wetting agents, as applicable, using specialized equipment (conditioned) and hauled in covered dump trucks for such special applications as structural fills. Water conditioned fly ash can also be suitably stockpiled at jobsites. Exposed stockpiled material must be kept moist or suitably covered to prevent fugitiveemissfon.

5.0 Modes for loading, unloading and transportation of flyash, bottom ash & pond ash for utilisation (Outside the power plant)

Existing practices

Flyash is generally transported either from flyash Silo or from ash pond upto distances varying from less than 1 Km to 50 Kms using the following modes of transportation:

5.1 Flyash or pond ash is generally transported by tractor trollies or trucksby the brick manufacturers and road construction agencies depending upon the requirement and distance of transport. Loading and unloading of flyash or pond ash is done mechanically which are likely to cause pollution by way of fugitive emission or spillages during loading, un- loading and transportation.

5.2 As cement plants need dry flyash,some of the power plants earlier made arrangement for loading of flyash in the trucks directly from ESP hoppers which used to cause severeair pollution due to fugitive dust emission. To overcome the fugitive dust emission problem, cement plants thereafter constructed silos for intermediate collection and storage of flaysh on their own inside the premises of thermal power plants whereby flyashwas transferred directly from ESP hoppers pneumatically and loaded into the trucksthrough telescopic chute which curbs fugitive emission during loading. As a follow up of the recommendations of CPCB under Corporate Responsibility for Environmental Protection (CREP), thermal power plants subsequently took initiatives to construct silos for intermediate storage of dry flyash and made arrangements for proper ~oading of fly ash to the trucks.Fiyash from these silos after loading is transported to the cement plantseither by Bulkers or by Trucks covered with tarpaulins.

Photograph showing flyash loading into truck & bulker through telescopic chute avoiding fugitive emission

5.3 Flyash is also transported to abandoned mines by trucks covered suitably with tarpaulins.TalcherThermal Power Plant of NTPC is currently transporting fly ashslurry to theabandoned mine pitthrough a pipeline toa distance of about 9 kms . However, due to non-availability of abandoned mines, mine backfilling usingflyash is being done in very few thermal power plants.As per the 2009 notification, flyash disposal in abandoned mines or quarry should be done

under the guidance of Director General of Mine Safety (DGMS) and the power plant authorities shall regularly monitor the ground water in the surrounding area to assess ground water contamination , if any.

6.0Environmental issues

During transportation of flyash, fugitive dust emission is bound to arise if proper and adequate measures are not taken. Loading, unloading of flyash in carriage vehicles, movement of vehicles on haulage road if water sprinkling is not res.orted to and wheels of vehicles are major sources of fugitive dust emission. Flaysh may also become air borne, if trucks/tankers are overfilled, and notadequately covered at top.

7.0 Guidelines for loading, unloading, storage, transportation of flyash

Based o~ the present modes of flyash utilisation and to augment flyash utilisation in future, the committeeis of the view that there isan imperative need to explore future possibilities in other areas which are yet to be exploited to increaseflyash utilisation. The power :plants need to maximise dry collection of fly ash& bottom ash besides adopting adequate measures to prevent fugitive dust emission during loading, unloading, storage, transportation and various uses of dry as well as ash from ash pond.Following guidelines are, therefore, suggested for prevention of pollution and augmentation of flyash utilisation

7.1 Maximise dry collection of fly ash and bottom ash

The implementation of following suggestiorisdepend upon the requirement of end users of fly ash/ bottom ash.

a. Coarse fly ash from first field of ESP Hoppersneed to be collected and storedseparately into the coarse fly ash silo.

b. Fine flyash from second field onwards of ESP Hoppersshould be collected separately. For some specific usage, fine flaysh may be passed throughCiassifier for further separation of fine fly ash and stored in separate silo.

c. Bottom ash which is not utilised prese~tly could alsobe collectedin dry form and converted into a valuable resource if processed to match the end use specification. The dry bottom ash removal and its transportation is certainly more environment friendly, compared to that of wet ash removal and transport system. Wet collection & disposal of bottom ash should be minimised as far as possible .

7.2Loading,Unloading and Storage

Installation of Bag Filters with dry flyasbcollection and storage in Silos at loading and unloading points are standard pra~tices at both locationsi.eloading at power plant site as well as at the unloading point at user'ssite. Suggestions for further improvement in existing practices are as. under:

a. Current practice of loading of fly ash in Bulkers / Tankers requires improvement at the stage of i loadingof fly ash in Tankers. The opening telescopic chutes should beclosed and confined to avoid fugitive dust emission .

b. The Pollution Control Equip~ent / Cascade Filters, attached with fly ash loading Chuteshould b~ periodicallycleanedalong with regular scheduled maintenance of,, Bag Filter to avoid choking and malfunctioning of Bag Filter. It would mitigate the dust emission during loading of fly ash.

c. Malfunctioning of level sEmsorscan be avoided, with regular maintenance, to prevent over filling of fly ash in Tankers.

d. The Weigh Bridge tobe install.ed under fly ash loading chute to fill just the required quantity of fly i ash in Tankers so that rejection and emptying out of fly ash in opery areas is avoided which otherwise results in heavy fugitive emission all around.

e .. Opening of Tankersneed tobe closed and properly locked during transportation of fly ash. Automatic opening / close system need tobe installed without fail.

f. Current practice of unloading of fly ash from Tanker to Storage Hopper through pneumatic system is certainly good.But it -as. however, been observed that the leakage of: fly ash occur at bends and joints of transportation pipe line. The fly ash beingabrasive in nature causes damage at bends and joint locations.Fiy ashshould , therefore be transported through PVC coated MS pipes jo avoid the abrasion otherwise it may lead to leaka'geof flyash. The mechanical unloading system should be envisaged to avoid high pressure, more power consumption and dust leakage from unloading pipe lines.As far as possible, number of bends should be minimised.

g. The fly ash storage silo should tobe made up of anti-abrasive or anti corrosive material.It is prefer~ed to provide concrete silo/hopper to avoid leakages.

h The bottom ash dischargedfrolllboiler bed, may be transported pneumatically in dry form / in slurry form to the ash pond.

i. Proper functioning of all the level sensor of Storage Hopper has to be ensured to avoid any possible spillage from Hopper opening.

j. The Bag Filter made of anti-abrasive material/cloth be provided with telescopic chute.

k. Dumping of ash in Ash pond should be loaded mechanically in moist condition so that the ash doesnot get air borne and pose fugitive dust problem.

7.3 Transportation

Flyash transportation has many challenges like distance to be transported, form of ash i.e. dry or wet ash, user'srequirement , economic feasibility , requirement of surrounding vicinity and many more: site specific issues. Over and above, in any case control of dust emission during transportation is prime concern and more challenging being a non-point source of pollution and larger area coverage due to movement from one place to other passing through various receptors.As flyash is used by different users for different purpose such as cement

manufacturing, brick manufacturing, min.e back filling, road construction and filling of low lying area, the handling and transportation have to accordingly suggested. Following modes of transportation and precautions, to avoid fugitive dust emission are, therefore, suggested for qifferent end usersof flyash or bottom ash as the case may be:

a. Cement/ Asbestos manufacturing

I. Specially designed Road Tankers/ ~ulkers or mechanically designed covered Trucksand provided with automatic loading and unloading through compressor / vacuum pumps mount~d on th.e tankersneed only to b~ used

II. Special designed railway wagons similar to Bulkers/Tankers rieed to be,used for transportation

III. Dedicated boats and bargers sHould only carryflyash containers for transportation of flyash . Specially qesigned jetty with automatic loading and unloading system for transportation bf flyash from sil~ to container should be developed.

b. Flyash based Brick, Tiles, Blocks etc. manufacturing:

I. Tankers/ Bulkers or mechanically d~signed covered Trucksneed to be used II. Tractor trolleys with box type cove~ on top with hydraulic unloading system needonly to be deployedfor transportation of dry or wet fly ash, while traversing through habilitated arE;as otherwise, Tractor trolleys suitably covered with good quality of tarpa~lin (made of HDPE)could be allowedto transport flyash for shorter distance say upto a distance of about 10 Kms.

c. Mine/ abandoned quarry back 1filling

I. Tankers/ Bulkers or mechanically designed covered Trucksneed to be used

II. Pipe conveyors, wherever feasible, based on the topography of the area should be used.

IIL Thermal Power Plants using wet ash disposal, if permitted can transport ash slurry directly to abandoned mine through ash slurry pipe line .

d. Road construction and filling qf low lying area

I. Tankers/ Bulkers or mechanically designed covered Trucksneed to be used.

e. Other miscellaneous purposes

I. Tankers/ Bulkers or mechanically designed covered Trucksneed only to be used

7.3.1 The user agency shall obtain prior approval of design of Road Tankers/ Bulkers 'ormechanically covered Trucks, as the case may be, from the concerned State Pollution Control Board.

In no case, flyash or bottom ash shall be allowed to be transported by open trucks / trollies irrespective of distance or end use.

7.4 Code of Practicesfor general •maintenance of roads, vehicles and conditioning of flyash

a. Thermal power plants and use agency collectively shall ensure that flyash is transported in environmentally sound manner following the ·guidelines prescribed by CPCB

b. Roads inside power plant and tha~ of flyash user agency should be paved and plantationof adequate width should be done at both sides. Mechanised Road Sweepers should be deploy~d. In addition, adequate arrangementsfor water sprinkling should be made to suppress fugitive dust emission, if any generated.

c. Thermal power plants and user agencies should make arrangements (two stages) for washing of wheels of: the vehicles (Bulkers/trucks) before they leave out for the main road.

' ; be transported should be conditioned with water to maintain 15% moisture at the dis8osal point so that ash does not get air nd cause fugitive emission.

equate free board in trucks should be kept to avoid overflow/spillage during transportation.

f. In case of any spillage enroute dyring transportation of flyash, the agency shall ensure that spilled ash is collec~ed and transported to the disposal/usage site immediately

g. All the Bulkers and trucks responsible for carrying flyash should have valid Pollution Under Control certificates.

h. The speed limit of vehicles carrying flyash should be strictly enforced and in no case same shall exceed 40 km per hour.

i. State Pollution Control Boardsshall indicate clearly mode of transportation and method *bf* loading and unloading while granting the consent.

j. Transportation of flyashthrough thicklythrough thickly populated areas populated areas should be avoided as for as possible.

k. General awareness/ training programmes be organised regularly for tanker operating staff like drivers and clean'erson the impact of hazards of fly ash.

echanically

designed truck Small bulkers designed for transportation of flyash by tractors