NTPC LIMITED
CC-OS
EOC, Noida

Sub: Qualifying Requirement for Vendor Enlistment for supply of Grinding Ball for Ball-and-Tube type coal Pulveriser.

A)	MEG Details		
	1.0	MEG NO.	46 MEG-02
	2.0	MEG DESCRIPTION	Grinding Ball for Ball-and-Tube type coal Pulveriser.
	3.0	RESPONSIBILITY CENTRE	CC

B) **Technical Criteria of QR:**

Option-1

The applicant should be a manufacturer of coal pulverisers and should have supplied ball and tube pulveriser to at least two coal fired units, each of 200 MW or higher capacity, located at two different power stations and which have been commissioned at least two years prior to the date of application with the same type of Grinding Balls (Forged Steel / Hi-chrome/ Ceramic inserted / Low alloy Cast Iron / Manganese steel etc.) as offered by the applicant.

Option-2

a) The applicant should be a manufacturer of grinding balls of types (Forged Steel / Hi-chrome/ Ceramic inserted/ Low alloy Cast Iron / Manganese steel etc.) as offered by him.

AND

b) The applicant should have executed order(s) for grinding media Balls of same type as offered by him during last five years (from the date of Application for enlistment) in the any of the following mode
   i. Single order with quantity of at least 500 MT **or**
   ii. Two orders with quantity in each order not less 300 MT.

AND

c) The applicant's manufacturing & testing facilities should include following

Manufacturing facilities:

1. Induction/cupola/Induction Arc Furnace for melting iron
2. Casting /Moulding (for Cast Balls)/ Forging Facility (Forged Balls)
3. Heat Treatment facility

Testing facilities:

1. Hardness tester.
2. Microscope of desired magnification to clearly validate the microstructure.
3. Spectrometer.

C)	**Other Document to be submitted:** In addition to the documents required in support of meeting technical requirements as stated above, following documents are required to be submitted by the applicant:- 1. At least one PO and maximum three PO(s) along with execution proof of highest executed values of similar work during last five years from the date of application. The definition of similar works is as defined at NOTE-1 below. Copy of Invoice / completion certificate from the concerned buyers in support of successful execution of supply against the PO(s). The POs submitted against execution capability are not meant for qualifying requirement (QR) fulfilment. The applicant can submit the PO(s) used for QR fulfilment for execution capability also, subject to meeting the definition of similar works. 2. Audited balance sheet including Profit & loss statement for the previous three completed financial years reckoned from the date of application. In cases where audited results for the last financial year as on the date of application are not available, the financial results certified by a practicing Chartered Accountant shall be considered acceptable. In case, the applicant is not able to submit the Certificate from practicing Chartered Accountant certifying its financial parameters, the audited results of three consecutive financial years preceding the last financial year shall be considered for evaluating the financial parameters. Further, a Certificate would be required from the CEO/Authorized Signatory for the application stating that the financial results of the Company are under audit as on the date of application and the Certificate from the practicing Chartered Accountant certifying the financial parameters is not available. 3. Latest Annual Report /NSIC/SSI/MSME registration certificates /BIS license /ISO certificate/certificate of registration from concerned excise department/ any other statutory document as a proof of being manufacturer of the required material. The submitted document should be valid as on the date of application. 4. Any other documents in addition to the above which the applicant wants to submit. NOTE-1: Similar work: Supply of grinding balls for Ball –and Tube type of pulveriser. NOTE-2: The executed value means basic value of quantity of similar works executed/ supplied against the reference PO (also applicable to partly executed POs as on date of application). Where PO value is composite (i.e. including taxes etc.), the applicant to give item-wise break-up of composite PO value mentioning basic values, Taxes etc.

NTPC LIMITED
CC-OS
EOC, Noida

Sub: Technical Specification for Vendor Enlistment for supply of Grinding Ball for Ball-and-Tube type coal Pulveriser.

A)	MEG Details		
	1.0	MEG NO.	46 MEG-02
	2.0	MEG DESCRIPTION	Grinding Ball for Ball-and-Tube type coal Pulveriser.
	3.0	RESPONSIBILITY CENTRE	CC
B)	**Technical Specification:** **The intended Technical details of materials (grinding balls) are attached below in Annexure. The applicant may note that this annexure will be a part of specific tender after enlistment is completed.**		

DRAFT TECHNICAL SPECIFICATIONS FOR GRINDING BALLS FOR TUBE MILLS TYPE ---------- COAL PULVERISERS

1.0 Intent of the Specification

The intent of the specification is to procure GRINDING BALLS for Ball & Tube Mills model: *(MODEL TO BE SPECIFIED BY STATION)* coal pulverizers of *(MAKE TO BE SPECIFIED BY STATION) Make* operating at NTPC, *(STATION NAME TO BE SPECIFIED)*

It is not the intent to specify completely herein, all aspects of material selection and manufacturing process, nevertheless, the grinding balls shall confirm in all aspects to high standards of material quality, manufacturing process and workmanship and shall be capable of performing in continuous commercial operation, in a manner acceptable to the Owner, who will interpret the meaning of specification, drawings and shall have right to reject or accept any work or material which in his assessment is not complete to meet the requirement of this specification.

Bidder is requested to carefully examine and understand the specification and seek clarifications, if required, to ensure that they have understood the specification. The Bidder's offer should not carry any sections like clarifications, interpretations and/or assumptions.

2.0 Project Information

Name of the Project : *(STATION TO SPECIFY)*

No. and size of Units : *(STATION TO SPECIFY)*

Type of Coal Pulverisers : *(STATION TO SPECIFY)*

No. of coal Pulverisers : *(STATION TO SPECIFY)*

Total number of pulverisers for which grinding balls are required (Nos. of coal Pulverisers per unit x No. of units) : *(STATION TO SPECIFY)*

Initial loading of grinding balls in a mill: 1).....mm = ...MT
2).....mm =.....MT
3).....mm =.....MT

Rated coal grinding capacity of the pulverizer ..... MT/Hr

Guaranteed hours of operation of the pulverizers for which grinding ball is being procured ..... Hrs

Size of the ball to meet top up requirement of all pulverizers ....mm

3.0 BRIEF DESCRIPTION & GENERAL OPERATION & MAINTENANCE PRACTICES OF BALL & TUBE MILLS OF THE STATION:

The Ball & Tube Mills pulverize the raw coal supplied from the raw coal feeders and supply coal to the Boiler after pulverization. The raw coal is supplied from ---- --- ends of the Mills. The coal pulverized in the Mill is carried by primary air which enters into the Mill from ---- ends. The Mill nominal capacity is *(STATION TO SPECIFY)* TPH. The Mill is fitted with specially profiled Hi-Chrome Liners. Presently, the mills are operated with Hi-chrome Balls. The normal operating mill Power/current of these Mills is *(STATION TO SPECIFY THE RANGE)* KW/Ampere for all types of coal to ensure the desired output *(STATION TO SPECIFY THE RANGE)* tons per hour of pulverized coal at the rated fineness. The rated fineness shall not be less than 70 % through 200 mesh and 99% through 50 mesh.

Ball top up / charging is done to maintain the mill power within the specified limits as specified above. The practice is to charge Balls of ----- mm size at the interval of one month or, as per the requirement to ensure the targeted mill power to get the mill throughput. Mill Liners are replaced after an operating life of more than 30000 hours or, later based on the Mill output.

The mill operation is done with the available coal as mentioned in the Annexure-1 attached. General Operation and Maintenance of the Mills are carried out as per the O&M manual of the manufacturer.

The bidder may apprise himself of all operating and maintenance practices of the station and the operating hours of all the Mill Liners as on the date of bidding if they so desire.

4.0 Scope of the Proposal:

4.1 The scope of the proposal shall include manufacturing, testing, packaging, transportation, delivery on F.O.R site basis of grinding balls for Ball & Tube Mills, *(MODEL TO BE SPECIFIED BY STATION)* type Coal Pulverisers. The scope of proposal shall also include supervision of *installation of 1st lot and subsequent top up of grinding balls in the test mill (as defined in 4.3 below).*

4.2 The Balls shall be procured for operation of all *(NO. OF MILLS TO BE SPECIFIED BY STATION)* Mills for a period of 10000 hours or, a cumulative of *(NO. OF MILLS x 10000 TO BE SPECIFIED BY STATION)* operating hours of all *(NO. OF MILLS TO BE SPECIFIED BY STATION)* mills including initial charge of test mill. However, operation of the test mill for 10000 operating hours (as defined in 4.3 below) is mandatory.

4.3 **Test Mill:**

4.3.1 Definition & Purpose of Test Mill: A Test Mill is one of the Mills selected from amongst the *(NO. OF MILLS TO BE SPECIFIED BY STATION)* Mills which is identified by the owner for the purpose of establishing the consumption rate of the Grinding balls supplied against the purchase order. The mill shall be preferably selected such that at least 15000 operating hours of the installed mill liners are completed so that the performance of the mills with the end life of the liners can also be assured. The owner in addition to the top-up ball charge of *(STATION TO*

SPECIFY TOP-UP BALL SIZE) mm size for all *(NO. OF MILLS TO BE SPECIFIED BY STATION)* mills ,shall also procure Grinding media for initial charge as specified at clause no. 2 for the initial charging in the test Mill.

4.3.2 Initial **Ball charging in the Test Mill :** Ball charging shall be done within 15 days of receipt and acceptance of the Balls of all 3 different sizes as specified at clause no.2 as ordered in the Purchase Order. The vendor's representative may like to be present if they so desire. The owner shall intimate 48 hours in advance to the vendor for this purpose. If the Vendor's representative fails to come and witness, the owner has the liberty to carry out the Initial Ball charging in the test Mill. The data regarding the initial power and the date of Ball charge shall be intimated to the Vendor subsequently.

The test mill shall be emptied of all the balls charged in it earlier. The Mill shall be loaded with initial charge as mentioned at clause no. 2.0. The mill shall run for 8-10 hours after initial ball charge and the initial power consumption at full load of the Mill shall be jointly recorded by the owner and the vendor.

4.3.3 **Top-up Ball charge in the Test Mill:** The Mill shall be operated with the initial power level + / - 10 % throughout the 10000 operating hours from the time of initial Ball charge. *(STATION TO SPECIFY)* mm dia. Balls supplied against the Purchase Order shall be utilized for top-up charge in the Test Mill. Whenever the Power comes to 5 to10% below the initial Power level, Ball charging shall be carried out in the Test Mill. Top-up shall be done till the power level reaches upto a maximum of initial Power level jointly recorded.

4.3.4 **Discontinuation of Test Mill:**

If the owner finds problems in the Mill output or, any other problems in the Grinding media such as significant breakage of ball, high wear rate etc, the vendor must address the problem immediately. Vendor's representative have to reach site and address the problems to the satisfaction of the owner failing which, the test shall be discontinued and the case shall be settled as decided by the owner.

.4 The specifications of grinding balls quoted by the vendor must be compatible with special profiled high chrome liner (with Chromium content of 22-28% and hardness of 600 BHN minimum). The bidder / vendor can take the necessary information in this regard from the owner.

4.5 Bidders shall be required to offer the grinding balls of all the different sizes which shall meet the following requirement of purchaser:

(1) Quantity of grinding ball of all the sizes required for a test mill for initial charging
(2) Top up quantity of grinding ball required for 10000 hrs of operation of a test mill
(3) Top up quantity of grinding ball required for 10000 hrs of operation of all the other mills. Quantity required for all mill shall be extrapolated from the quantity estimated in the test mill.

Example: Suppose, a bidder estimates that the type of Balls offered by him for the type of coal as given in annexure-1 for delivering the rated mill output at the

rated fineness as mentioned in 3.0 above shall be consumed @115.3578 grams / ton of coal crushed, then for a cumulative of 10 mills x10000 operating hours = 100000 operating hours (i.e. for 90TPH x 100000 = 9000000 tons of estimated coal crushing), the vendor shall be required to offer, 1038.22 i.e 1039 MT of Grinding Balls in his bid in addition to the initial charge as defined in clause 2.0 for the test mill.

4.7. The quantity of top-up grinding ball of *(STATION TO SPECIFY)* mm size offered in the bid shall be from within the range of *(STATION TO SPECIFY. Assuming wear rate of 70 gm per ton of coal crushed)* MT to *(STATION TO SPECIFY assuming wear rate of 200 gm per ton of coal crushed)* MT for a successful operation of a cumulative of *(NO. OF MILLS x 10000 TO BE SPECIFIED BY STATION)* operating hours of all *(STATION TO SPECIFY)* Mills.

5.0. Evaluation Criteria

The bids submitted in accordance to clause- 4.0 above where the offered quantity of grinding ball of *(STATION TO SPECIFY)* mm size excluding the quantity for the initial charge in the Test mill is more than *(STATION TO SPECIFY)* MT will not be considered for evaluation and shall be rejected. Further no evaluation credit will be given for offered quantity of grinding ball of *(STATION TO SPECIFY)* mm size excluding the quantity for the initial charge in the Test mill less than *(STATION TO SPECIFY)* MT and bidder has to be supply the minimum quantity as specified in 4.7 above.

The evaluation of the bids shall be based on the total price of the offered quantity by vendor including initial charge of test mill. Further vendor will be required to quote same rate for all size of balls.

Example: Suppose, Bidder-A estimates that the type of Balls offered by him for the type of coal as given in annexure for delivering the rated mill output at the rated fineness as mentioned in 3.0 above shall be consumed @115.3578 grams / ton of coal crushed, then for a cumulative of 10mills x 10000 = 100000 operating hours (i.e. for 90TPH x 100000 = 9000000 tons of estimated coal crushing), the bidder shall be required to offer, 1038.22 i.e 1039 MT of Grinding Balls in his bid excluding the initial charge quantity of test mill. In addition to this vendor has to supply initial charge as mentioned at clause 2, for the test mill. If the landed rate quoted by him is Rs.80000 per MT, then, the total price shall be (1039+100)x 80000 = 9.112 crores (100 MT as the initial charge of the test mill including 30 mm , 40 mm& 50 mm balls)..

Similarly, if bidder-B considers that his balls will be consumed @210 gms / ton of coal crushed, then the bidder shall quote 1890 MT. Since, it is more than 1800 MT, his offer shall be rejected.

Again, if bidder-C considers that his balls will be consumed @60 gms / ton of coal crushed, then as per the bidder, the top-up charge comes to 540 MT, but, vendor has to supply 630 MT and no credit shall be given to the bidder. His offer shall be evaluated for 630 + 100 = 730 MT including the initial ball charge in the test mill. If the landed rate quoted by him is Rs.90000 per MT, then, the total price shall be (630+100)x 90000 = 6.57 crores)

So, in the above evaluation, Bidder-C is the winner even if the unit price quoted

by him is more than that of Bidder-A.

6.0. Coal Characteristics

The range of coal and ash characteristics which is likely to be supplied to the mills is enclosed at Annexure-1. Bidder is requested to familiarize themselves with the detailed coal and ash characteristics, if required.

7.0. Material of Construction

The material of construction of grinding balls shall be selected taking into account highly abrasive nature of coal resulting from coal contamination with silica, sand and Alpha-quartz. The coal and ash data is specified in Annexure-1 and same shall be considered for selection of Grinding Ball material and for offering guarantee of Grinding Balls.

S.No.	Name of Wear Part	Choice of Material
1.	Grinding Balls	Manganese steel , Forged Steel, High Chrome, Hi-Chrome with Ceramic inserts, Low alloy Cast Iron Balls etc.

The Vendor has to furnish the name of the Material offered, its major physical properties, main chemical composition and confirmation to the dimensional requirements in Schedule-II. The offered material shall be same for the entire lot to be supplied. Offers with different composition for different lots shall be rejected.

8.0. Guarantees:

The quantity of grinding balls for top-up to be supplied such that 10000 hrs of operation of the test mill and a cumulative operation of *(NO. OF MILLS x 10000 TO BE SPECIFIED BY STATION)* operating hours of all *(STATION TO SPECIFY)* Mills including that of the test mill can be achieved. In addition, the vendor shall also supply inititial charge as per sl no. 3 .

Guaranteed grinding ball quantity:

8.1.1 The guaranteed trial period (GTP) shall be 10000 hours for the test mill. The guaranteed grinding ball quantity for the test mill shall be taken as one/number of mill of the total top-up ball charge of *(STATION TO SPECIFY)* mm of each lot supplied, size as mentioned in Schedule-I of this specification by the vendor for top-up ball charge in the test mill during the GTP.

8.1.2 The guaranteed grinding ball quantity shall be such that the mill capacity of the test mill shall not be less than 90% of its capacity (Initially agreed for test mill between owner and vendor) at rated fineness as defined in 2.0 above for the specified range of coal as mentioned in annexure-1 during the GTP.

8.1.3 **Delivery Schedule**

Full ordered quantity of grinding ball to be received at purchasers store within 12 month from the date of clear commercial order in 06 equal lots at an interval of 02 month. The first lot of delivery shall commence within two months from the date of receipt of commercially clear order and shall comprise of a mix of all the three

sizes of balls required for initial charging of the test mill + 1/6th the quantity of size of ball required for regular top up. Subsequent deliveries shall be equal to the lot of 1/6 th MT of top up size of balls. Further NTPC may ask to advance the supply to meet the station requirements. The guaranteed grinding ball quantity shall be applicable to the top-up Ball charge of 50 mm. size which shall be supplied in equal lots as mentioned in Scheduled-I of this specification by the vendor.

8.1.4 The guaranteed grinding ball quantity shall be valid for complete range of coal and ash characteristics specified in Annexure-1. No correction in guaranteed grinding ball quantity shall be allowed within the above range of coal and ash characteristics.

8.2 **Conditions for Calculation of Guaranteed Ball consumption rate;**

8.2.1 The guarantee / warrantee on grinding ball quantity shall be demonstrated on the test mill.

8.2.2 The calculation of Grinding Balls consumed shall be calculated in the test mill at nearly the same mill power as it was immediately after the initial ball charge with the Grinding balls supplied by the vendor against the purchase order. A jointly signed MOM mentioning the initial mill power shall be maintained for this purpose.

8.2.3 The test mill shall run at initial Mill power taken after initial ball charge and at the end of GTP.

8.2.4 The mill power/current shall be the readings taken from energy meters/ampere meter fitted at station for equipment power measurement. Vendor has to accept the same readings. The average mill power of a day shall be the reference power.

8.2.5 The total quantity of Balls charged as top-up after initial charge shall be taken as the quantity of Balls consumed in the test mill. The records maintained by NTPC shall be the reference document.

8.2.6 At the end of GTP, while calculating total consumption of top up quantity in the test mill, if it is observed that final power/current of the test mill is not at par with the initial power/current then normalization shall be done considering IKW/Ampere equal to ------- MT of grinding ball. After normalization the deemed consumption of grinding ball shall be calculated.

8.2.6 1/(N)number of mills of each supplied lot selected at random by the owner shall be used for top-up in the test mill.

8.2.7 However, the owner at its discretion, based on the intermediate Grinding Ball Consumption rate computed as mentioned in 8.3.1, shall keep reserved top-up ball charge of *(STATION TO SPECIFY)* mm size sufficiently for the test mill for successful completion of GTP.

8.2.8 The cumulative operating hours of the Test mill shall be as per the records of NTPC for calculation of GTP.

8.2.9 The vendor can also keep the record of mill power and running hours. Also, the vendor is required to ensure availability of Grinding Balls for all the *(STATION TO SPECIFY)* Mills as per schedule-I for ensuring successful mill operation so that the station generation is not hampered.

8.3.0 Computation of Pulveriser wear part guarantee:

8.3.1 ***Intermediate Grinding Ball consumption rate:*** Computation of intermediate Grinding Ball consumption rate in the test mill shall be carried out at regular intervals of 2000 hours. This shall be extrapolated for prediction of the final Grinding ball consumption rate at the end of GTP. In case, the final Grinding ball

consumption rate predicted is less or, equal to the offered quantity, no action is required to be taken by the vendor. But, if the predicted final ball consumption rate shall be more than the offered quantity, the vendor has to submit an action plan within a week of completion of the intermediate interval of 2000 hours. On demand of the owner, the vendor shall furnish additional Bank guarantee to ensure supply of the additional quantity during the mutually agreed supply programme. A jointly signed record shall be maintained for the test mill.

8.3.2 ***Final Grinding Ball consumption rate:*** The final Grinding Ball consumption rate shall be computed for the test mill at the end of the GTP. At the end of GTP, the total quantity of Balls consumed (top-up charge) (say X MT) in the Test Mill so as to have the mill power same as at the time of initial ball charge shall be the Grinding Ball consumption rate for the test mill. The total Grinding ball consumption in all *(STATION TO SPECIFY)* mills taken together shall be *(STATION TO SPECIFY)* X MT. The final Grinding Ball consumption rate shall be considered for calculation of liquidated damage for shortfall in Guaranteed Ball consumption rate as detailed in 8.4 below.

8.4. **Liquidated Damage for Shortfall in Guaranteed Ball Consumption rate:**

8.4.1 Liquidated damages shall be levied for exceeding the guaranteed grinding ball consumption quantity. No credit shall be given to the vendor if the Ball consumption in the test mill is less than the Guaranteed Ball Consumption.

8.4.2 As calculated in 8.3.2 above, if *(STATION TO SPECIFY THE NO. OF MILLS)*X is the total calculated ball consumption for all *(STATION TO SPECIFY THE NO. OF MILLS)* mills and Y is the guaranteed Top-up Ball charge offered for the successful operation of 10000 hours of the test mill (Refer Schedule-I), then the shortfall shall be: *(STATION TO SPECIFY)*X-*(STATION TO SPECIFY)* Y MT.

8.4.3 If the shortfall as calculated above is upto 10% of the total ordered quantity of top-up ball charge ((*STATION TO SPECIFY)* mm size) as mentioned in Schedule-V, then penalty shall be levied for the shortfall quantity on pro-rata basis and amount shall be deducted from PBG.

8.4.4 If the shortfall as calculated is beyond 10% of the total ordered quantity of top-up ball charge ((*STATION TO SPECIFY)* mm size) as mentioned in Schedule-V, then penalty shall be levied @1.5 times of the shortfall quantity as calculated above.

Example: Suppose, the vendor has offered / guaranteed 100 MT (Y) as the top-up charge required for successful operation of the test mill for 10000 hours in Schedule-I, then for a station with 10 mills, the total guaranteed top-up ball charge is 1000 MT (10Y) for all the 10 mills. Suppose, at the end of the GTP of the test mill, keeping the mill power same, the total top-up ball charged in the test mill during the GTP is found to be:

<u>Case-I:</u> 108 MT (X), then the deemed ball consumption for all 10 mills shall be 1080 MT (10X). So, the shortfall quantity is 80 MT, which is 8% above the guaranteed grinding ball consumption rate. So, penalty will imposed on prorota basis on ordered price.

<u>Case-II:</u> 125 MT (X), then the deemed ball consumption for all 10 mills shall be 1250 MT (10X). So, the shortfall quantity is 250 MT, which is 25% above the guaranteed grinding ball consumption rate. So, the penalty will be imposed 1.5 times the shortfall quantity.

Case-III: 95 MT (X), then there is no shortfall, but also, no credit shall be given to the vendor for the same.

9.0. Quality Assurance & Inspection:

Bidder shall provide the necessary information on Quality Assurance Program containing the overall Quality management and Procedures, which the Bidder proposes to follow during various stages of manufacturing of the specified Grinding Balls. The contactor shall also submit a detailed manufacturing quality plan in the format enclosed at Annexure - II detailing out the tests/checks carried out by the manufacturer, during various stages of manufacturing for NTPC approval. The quality Plan shall be accompanied with the entire plant standards, reference documents, acceptance norms, procedures and specifications. The indicative tests/checks, which shall necessarily form part of the Quality plan, are as follows:

i. Dimensions with the help of Go- No Go gauge. Tolerance shall be as per schedule-II
ii. Chemical Composition and heat treatment.
iii. Mechanical properties and measurement of hardness.
iv. Metallurgical test: Micro-structure examination will be carried out on samples selected at random.
v. Surface defects of the Grinding Balls shall be examined visually. The Inspector if required may ask for DPT at random.

The approved Quality Plan shall indicate NTPC witness points (Customer hold points) for which the contractor shall give I5 days inspection advance notice for undertaking inspection.

(Note for stations)

The technical specification includes following forms which need to be duly filled by the Bidder and submitted along with the bid proposal:
Schedule - I : Guarantee Declaration
Schedule - II : Technical Data Sheets
Schedule - III : Information Regarding Quality Assurance Plan
Schedule - IV : Schedule of Rates and prices
Schedule - V : Delivery Schedule.
Schedule – VI : Qualifying requirements

Station are requested to include these forms in the bidding documents and ensure that these forms are submitted along with the bid, Station may like to add additional forms and other terms and condition of contract while preparing the bidding documents.

Annexure-1

RAW COAL CHRACTERISTICS AT NTPC, *(STATION TO SPECIFY)*

Proximate Analysis	**Range** %
Moisture (Total)	*(STATION TO SPECIFY)*
Ash	*(STATION TO SPECIFY)*
HGI	*(STATION TO SPECIFY)*

ASH ANALYSIS AT NTPC, ----------

Silica	*(STATION TO SPECIFY)*
Alumina	*(STATION TO SPECIFY)*

SCHEDULE –I

TECHNICAL SPECIFICATION FOR PROCUREMENT OF GRINDING BALLS FOR *(STATION TO SPECIFY)***COAL PULVERISERS OF NTPC** *(STATION TO SPECIFY)*

(GUARANTEE DECLARATION)

Tender document No: _____

Bidder's Name & Address: _____

_____

Dear Sir,

We declare that the wear life of Grinding Balls and material specification for Grinding Balls offered in this bid are guaranteed by us. We further declare that in the event of any deficiencies in meeting the guarantees Indicated below as established In accordance to the bidding documents, you may at your discretion accept the Grinding Balls after assessing the liquidated damages as specified in clause 8.4 of bidding documents or reject the Grinding Balls and recover the payment already made.

Sl.No	Guaranteed Parameter	Guaranteed Figures
1.0	Quantity of grinding ball offered as per the tender requirement ,Based on the estimated wear life taking the coal quality as given in Annexure-I and the operating and Maintenance practices into consideration at NTPC, *(STATION TO SPECIFY)*)	
1.1	For 10000 operating hours of the Test Mill, the maximum quantity of Top-up charge of Balls *(STATION TO SPECIFY)* mm size is guaranteed to be :	_____ MT
2.0	**Guarantee for Material Composition & Mechanical properties**	The chemical composition and mechanical properties of the Grinding Balls offered shall confirm to the specifications as given in Schedule-II. In all the lots of supply, we confirm that the specification shall be complied.

Date:

Place:

Signature

Printed Name

Designation

Common Seal

Note : Any Variation to the stipulated conditions under which Guarantees are to be met will not be permitted and Bid with such variation are liable to be rejected.

SCHEDULE –II

TECHNICAL SPECIFICATION FOR PROCUREMENT OF GRINDING BALLS FOR *(STATION TO SPECIFY)* COAL PULVERISERS OF NTPC *(STATION TO SPECIFY)*

(Technical Data Sheets)

Tender document No: _____

Bidder's Name & Address: _____

_____

Sl. No	Description	Grinding Balls
1	Name of manufacturer	
2	Location of Manufacturing unit	
3	Model of coal pulveriser	*(STATION TO SPECIFY)*
4	Number of Pulverisers	*(STATION TO SPECIFY)*
5	Weight of Grinding Balls offered to be supplied for all Mills including initial charge of test mill.	
6	Guaranteed make-up charge for the Test Mill for 10000 operating hours	
7	Tolerances in Size of Grinding Balls to be supplied *(STATION TO SPECIFY or, rectify as per the station ball sizes)*	Nominal size — Acceptable size: 50 mm : 48-54.3 mm 40mm. : 39-43.3 mm 30 mm.: 29-32.3 mm
8	Name of the material	
9	Surface hardness (in Rc)	minimum
10	Other Physical properties of materials	Pl. give details
11	Chemical composition of material	Pl. give details

Date:

Place:

Signature

Printed Name of Vendor

Designation

Common Seal

SCHEDULE -III

TECHNICAL SPECIFICATION FOR PROCUREMENT OF GRINDING BALLS FOR *(STATION TO SPECIFY)***COAL PULVERISERS OF NTPC** *(STATION TO SPECIFY)*

(Information regarding quality assurance program)

Tender document No: _____

Bidder's Name & Address: _____

_____

Dear Sir,

We hereby provide the necessary information on quality assurance program containing the overall quality management and procedures, which we propose to follow during various stages of manufacturing the specified Grinding Balls. (Bidder to mention the Plant standards, Reference standards etc.)

Date: Signature

Place: Printed Name

Designation

Common Seal

Note: Continuation sheets of like size and format may be used as per Bidder's requirement and shall be annexed to this Attachment.

SCHEDULE - IV

TECHNICAL SPECIFICATION FOR PROCUREMENT OF GRINDING BALLS FOR *(STATION TO SPECIFY)* **COAL PULVERISERS OF NTPC** *(STATION TO SPECIFY)*

(SCHEDULE OF RATES AND PRICES)

Tender document No: _____

Bidder's Name & Address: _____

_____

ITEM	DESCRIPTION	QUANTITY OFFERED (in MT)	UNIT PRICE PER MT (₹)	TOTAL PRICE PER MT (₹)
1	Grinding Balls *(STATION TO SPECIFY)* mm as per specification for Test Mill			
2	Grinding Balls – *(STATION TO SPECIFY)* mm as per specification for Test Mill			
3	Grinding Balls – *(STATION TO SPECIFY)* mm as per specification for Test Mill & Top-up charge			
	TOTAL			

* Price per ton quoted for all three sizes of grinding balls must be same.

Date:

Place:

Signature

Printed Name of Vendor

Designation

Common Seal

SCHEDULE - V

TECHNICAL SPECIFICATION FOR PROCUREMENT OF GRINDING BALLS FOR ---------- COAL PULVERISERS OF NTPC

(DELIVERY SCHEDULE)

Tender document No: _____

Bidder's Name & Address: _____

_____

SL.	ITEM DESCRIPTION	Lot No.	Qty. (in MT)	Delivery date at Station
1	Grinding Balls – *(STATION TO SPECIFY)* mm as per specification for Test Mill	I1		
2	Grinding Balls – *(STATION TO SPECIFY)* mm as per specification for Test Mill	I1		
3	Grinding Balls – *(STATION TO SPECIFY)* mm as per specification for Test Mill	I1		
4	Grinding Balls – *(STATION TO SPECIFY)* mm as per specification for Top-up charge in all *(STATION TO SPECIFY)* Mills	T1		
5	Grinding Balls – *(STATION TO SPECIFY)* mm as per specification for Top-up charge in all *(STATION TO SPECIFY)* Mills	T2		
6	Grinding Balls – *(STATION TO SPECIFY)* mm as per specification for Top-up charge in all *(STATION TO SPECIFY)* Mills	T3		
7	Grinding Balls – *(STATION TO SPECIFY)* mm as per specification for Top-up charge in all *(STATION TO SPECIFY)* Mills	T4		
8	Grinding Balls – *(STATION TO SPECIFY)* mm as per specification for Top-up charge in all *(STATION TO SPECIFY)* Mills	T5		
9	Grinding Balls – *(STATION TO SPECIFY)* mm as per specification for Top-up charge in all *(STATION TO SPECIFY)* Mills	T6		

Note: Bidder must note that the 1st lot shall comprise of all the Balls required for the Test Mill and one Sixth of the Top-up charge i.e. (I1+I2+I3+T1) offered of all *(STATION TO SPECIFY)* Mills. The Top-up Ball charge shall be supplied in Six equal lots from the offered quantity.

Date:
Place:

Signature
Printed Name of vendor
Designation
Common Seal