

"COURIER"

**Project Engineering
Management**

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)



Enquiry no.: PE/PG/RTC/E-5114/2015 dtd 10/11/2015

Due Date: 02/12/2015 BY 02.00 PM

Sub: - Open Tender Enquiry for Rate Contract of Wind Tunnel Experiment of RCC Chimney for various projects for two years

Dear Sir,

We are pleased to invite bids are invited from Institutes, Govt. accredited establishments of national repute having Wind Tunnel test facility to carry out test on aero-elastic models of Chimney of height 275m in two parts in two separate sealed cover for the subject tender

Your best quotation/offer for the above requirement, in line with our terms and conditions, should either be delivered in person or sent by COURIER/REGISTERED POST, to the official inviting tender(s). It shall be the responsibility of the bidder to ensure that the tender is delivered on or before the due date by 2 p.m. Part-I bids shall be opened at 3:30 p.m. on the due date in the presence of authorized representatives of the bidders, who may like to be present.

Sl. No.	Description for which rate contract desired	Expected number of testing during rate contract period of two years	Delivery required
1	Wind Tunnel Test for Chimney, Refer Technical specification no. PE-TS-20-620-C001 for detailed description.	10	Delivery Schedule as per given in Technical Specification. Vendor to make sincere efforts to meet project schedule.

Rate contract on firm price basis shall be valid for 2 year from placement of RC with a provision for further extension after review on mutual consent. Rate contract shall be decided on the basis of the Total amount considering (Service tax & Any other tax and duties) quoted as mentioned in price format (Annexure-I). enclosed herewith (quote strictly as per price format).

Rate Contract shall be done on overall L1 price to BHEL basic.

Pre-Qualifying Requirement (PQR): Wind Tunnel study

Bids are invited from Institutes, Govt. accredited establishments of national repute having Wind Tunnel test facility to carry out test on aero-elastic models of Chimney of height 275m to a minimum size in scale of 1:250 for all design conditions in standalone and interference conditions. In the wind tunnel, atleast 2 Wind tunnel tests of Chimneys of height atleast 180m should be completed in last 7 years and atleast one Chimney (of minimum height 180m) in last 3 years. The wind tunnel test is to be done complete including model preparation, instrumentations, analysed laboratory results (deflection & forces) and recommendations etc as per specification. Necessary documents to be submitted by bidders against PQR.

TERMS AND CONDITIONS:

1. Enquiry No., due date etc. must be legibly super scribed on the sealed envelopes.

Please reply to:
BHEL-PEM -Power Sector
Power Project Engineering Institute,
HRD & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301 (U.P.)

Phone: 0120-4213591, 4368749
Fax : 0120-4329055

Regd. Office:

BHEL House,
Siri Fort,
New Delhi-11049

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2. Deviations (Technical as well as Commercial), if any, shall be listed out separately. Technical deviations and Commercial deviations shall be furnished in separate sheets under the headings **"TECHNICAL DEVIATIONS"** and **"COMMERCIAL DEVIATIONS"** respectively, along with reasons for taking such deviations.
3. Standard pre-printed terms & conditions of the Tenderers shall not be considered valid.
4. Unsolicited fresh/revised Price Bids shall not be entertained.
5. Purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any/all tender(s) in part or full without assigning any reason whatsoever.
6. Purchaser reserves the right to split up the scope of the tender enquiry and place the orders for different scope/items with different bidders and also increase or decrease the quantity.
7. In the event of any contradiction in the terms and conditions mentioned the order of preference shall be N.I.T. covering letter/Commercial terms.
8. Instructions Regarding Centralised Tender Room:-
 - a) Vendors are advised to submit the tenders in the tender box, containing Part-I & II offers in separate covers, preferably cloth lined envelopes should be used, properly marked before due date and time.
 - b) The dispatch department shall not accept any tender in torn condition and return the same to the courier immediately with the Stamping "Returned to Sender-Package Damaged". Offers in damaged condition will not be considered and no request for extension on this account will be considered.
 - c) Bidder's representative shall deposit the offer in tender box only.
 - d) Bidders shall be allowed in the tender room in area identified for bidders and only one authorized representative from each bidder shall be allowed.
 - e) Bidder shall not be allowed to carry mobile/camera/ laptop in the tender room. The same shall have to be deposited at security in advance and taken back after tender opening.
 - f) Details of offers shall be read out to bidders and in no case the offers shall be handed over to any of the bidders for noting down.
 - g) Please ensure tender submission, minimum 1 hour before scheduled tender opening time. Late tenders shall not be accepted.
9. Late tenders are liable to be rejected.
10. Tenders and all correspondence thereof shall be addressed to the undersigned by name & designation and sent at the following address:
"M/s Bharat Heavy Electricals Ltd.,
Project Engineering Management,
Power Project Engineering Institute,
HRD & ESI Complex,
Plot No 25, Sector-16 A, Noida-201301 (U.P.)"

Kind Attn:

Sh Naresh Chandra Sharma -Sr. Engineer / MM - Ph 0120-421 3591 Email: ncsharma@bhelpem.co.in.
Sh. I P SINGH- Sr. Mgr./MM- Ph 0120-4368749

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11. Definition of Terms is also as per Commercial terms & conditions. These definitions will apply to all the tender documents including this Enquiry Letter.

12. Please note that for techno-commercial bid, detailed offers are to be submitted including the following along with the Price schedule as per BHEL format enclosed with NIT:-

- Acceptance of Commercial terms & conditions.
- Technical Deviations, if any.
- Separate sealed price-bid envelope mentioning name of the Tender in BOLD LETTER on the top of envelope.
- Unpriced price format duly filled in "Quoted" in each column/row.

13. All the above Tender Documents shall automatically become a part of the Order/Contract after its finalisation.

Following terms and conditions will be applicable for the contract:

- i. Payment terms: 100% payment on submission of final standard report duly certified by BHEL.
- ii. Report submission time: Institute shall complete the study and submit report as per technical specification to BHEL within 12 weeks from placement of order.
- iii. Liquidated Damages: BHEL shall recover from the seller, as agreed liquidated damages and not by way of penalty, a sum equivalent to half per cent (1/2%) of the total order/ contract price, excluding element of taxes per week or part thereof subject to a maximum of ten per cent (10%) of total order/contract price, excluding element of taxes, if the vendor has failed to submit study report within fixed delivery period as given above.
- iv. Service Tax paid by the Service Provider/ Contractor to the Government Authorities directly shall only be reimbursed at actuals against documentary evidence, but restricted to the rate and amount mentioned in the order/ contract. The offer should clearly indicate the percentage and the total amount of service tax.
- v. Statutory variations in service tax on service rendered by vendor himself on the rates prevailing at the time of delivery/ completion in comparison to the date of offer will be to the account of purchaser. No other variations such as on custom duty, exchange rate, minimum wages, price of controlled commodities, any other input etc. shall be payable by the purchaser.
- vi. Schedule Time: (as per actual project requirement)
- vii. EMD: Nil

Proposed Time Schedule:-

- 10 Week from date of issue of purchase order for submission of preliminary report.
- 14 Week from date of issue of purchase order for submission of details experimental report.

14. Validity of rates: After awarding the Rate contract Prices shall remain firm without any variation till completion of contract.

15. Rate contract on firm price basis shall be valid for 2 year from placement of RC value with a provision for further extension after review on mutual consent.

16. The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendor/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL web site <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud as soon as it comes to their notice.

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In case you are not submitting an offer against this enquiry, you are requested to send a regret letter with reason so as to reach us on or before the due date.

Yours faithfully,

For and on behalf of BHEL

(N C Sharma)
Sr. Engineer / MM

नाresh चन्द्र शर्मा / Naresh Chandra Sharma
अभियंता (एम.एम.) / Sr. Engineer (MM)
भारत भारी इलेक्ट्रिकल्स लिमिटेड / Bharat Heavy Electricals Ltd,
पावर सेक्टर-परियोजना इंजीनियरिंग प्रबंधन
Power Sector-Project Engineering Management
प्लॉट नं.-25, सेक्टर-16ए, नोएडा-201 301
Plot No. 25, Sector-16A, Noida-201 301

Encl:

- Technical specification **PE-TS- TS-20-620-C001**
- Annexure-1: Price schedule
- Annexure- II: List of projects

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PROJECT:

**TECHNICAL SPECIFICATIONS FOR WIND
TUNNEL EXPERIMENT OF RCC CHIMNEY**

SPECIFICATION NO. PE-TS-20-620-C001

SECTION

REV.NO. 0 DATE 20-07-2015

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TECHNICAL SPECIFICATIONS FOR WIND TUNNEL EXPERIMENT OF RCC CHIMNEY



SPECIFIC TECHNICAL REQUIREMENTS

Specification No.: PE-TS-20-620-C001
(Rev. 0)

**PROJECT:****TECHNICAL SPECIFICATIONS FOR WIND
TUNNEL EXPERIMENT OF RCC CHIMNEY**

SPECIFICATION NO. PE-TS-20-620-C001

SECTION

REV.NO. 0 DATE 20-07-2015

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1. General Requirement

- 1.01. Vendor shall conduct wind tunnel experiment with a scaled down model of chimney in an established wind tunnel to study the along and across behaviour of the subject chimney under wind loading for the cases as mentioned in Table-1.

Table-1

<u>Sl.No</u>	<u>Cases</u>
1	STAND ALONE CHIMNEY, WITHOUT FLUE LINER
2	STAND ALONE CHIMNEY, WITH FLUE LINER
3	INTERFERENCE CASE WITH ADJACENT STRUCTURES, WITHOUT FLUE LINER
4	INTERFERENCE CASE WITH ADJACENT STRUCTURES, WITH FLUE LINER

If design of the subject chimney involves strakes, then above mentioned cases should be repeated with strakes as well.

- 1.02. For every case of wind tunnel experiment, following parameters shall be noted and furnished in a detailed report.

- I. Natural frequency
- II. Bending Moment (at minimum four elevations)
- III. Shear Force (at minimum four elevations)
- IV. Deflection (at peak)

- 1.03. Dimensional analysis of subject chimney vis a vis the model, shall be conducted to find the various dimensional parameters.

This dimensional analysis shall be furnished in the detailed experiment report.

2. Wind Loading :

Wind loading will be in accordance with Indian Standard Code IS: 875 (Part 3), or any other international code for estimation of wind loads.

**PROJECT:****TECHNICAL SPECIFICATIONS FOR WIND
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The experiment should be conducted at all resonating wind speeds, below the design wind speed, and also up to 1.15 times the design wind speed, or as required by relevant IS/International codes, whichever is higher.

3. Material of construction

Material for preparation of aero-elastic model of the chimney shall be Fibre reinforced plastic or any other suitable material, as approved by BHEL, reflecting dynamic properties of subject chimney, whose properties may be dimensionally correlated with the grade of concrete of the subject chimney.

4. Vendor shall simulate the subject terrain in the wind tunnel, as per that given in IS 875 Part (III)
5. The wind tunnel experiment shall be carried out in a closed wind tunnel, having controlled and designed wind flow conditions, with the model of the chimney (Aero elastic) and all other major structures (rigid models for interference case) within the distance of 20 times the diameter of the chimney at the 2/3 height of the chimney.
6. The vendor shall simulate inside the wind tunnel actual prototype flow conditions for the experiment. The scale of the model shall be such that the boundary conditions (side wall and roof) in the wind tunnel shall not alter the targeted flow conditions. However, the scale of the model shall not be less than 1:250, as per IS 4998

7. Documents to be submitted by vendor

- i. Soft copy of Detailed experiment report.
- ii. 5 Hard copies of the experiment report.

ANNEXURE-I

Expected number of testing during rate contract period of two years

PRICE SCHEDULE (WIND TUNNEL TEST FOR CHIMNEY) FOR VARIOUS PROJECTS							
S. No.	ITEM DESCRIPTION	Expected No of Testing (Qty-Nos)	UNIT RATE EX WORKS(Rs.)	Total EX-WORKS (Rs.)	SERVICE TAX @ % (Rs.)	ANY OTHER TAX & DUTIES (Rs.)	TOTAL PRICE INCLUDING TAX & DUTIES (Rs.)
	1	2	3	4=(2 x 3)	5	6	7(4+5+6)
1	Preparation of an Aero-Elastic model for the subject chimney, and models for other structures in vicinity of the subject chimney. Detailed scope shall be as per Technical Spec No.. PE-TS-20-620-C001	10					
	TOTAL						

Note: For details of projects please refer Annexure-II

ANNEXURE

Expected number of wind tunnel tests to be carried out in next 2 years

Sn.	PROJECT
1	(5X800Mw) YADADRI (2 nos)
2	(4X660Mw) NTPC BARETHI (1 nos)
3	(1X660Mw) BHUSAVAL (1 nos)
4	(2X800Mw) KARIMNAGAR (1 nos)

Current EPC proposals which may result in contracts is **5 nos.**

Therefore, **total 10 nos.** of tests are expected in next 2 years.

20 % variation in the test quantity.