BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)
INDIA

Notice seeking

Expression of Interest

from

Prospective Vendors

for

Gas Cleaning System (Quench Based Venturi System cum Packed bed column system)

for the 2000TPD Coal to Ammonium Nitrate Plant to be set up by BCGCL at Jharsuguda Odissa State India

CONTENTS

SECTION-1

DISCLAIMER

1.1 The information contained in this Expression of Interest (EOI) document is provided to the Prospective Vendor, by or on behalf of Bharat Heavy Electricals Limited (BHEL) or any of its employees or advisors on the terms and conditions set out in this EOI document and all other terms and conditions subject to which such information is provided.

1.2 This invitation to EOI document does not purport to contain all the information that each Prospective Vendor may require.

This invitation to EOI document may not be appropriate for all persons, and it is not possible for BHEL, its employees or advisors to consider the business/investment objectives, financial situation and particular needs of each Prospective Vendor who reads or uses this invitation to EOI document.

Prospective Vendor should conduct his own investigations and analysis and should check the accuracy, reliability and completeness of the information in this invitation to EOI document and where necessary obtain independent advice from appropriate sources.

1.3 BHEL, its employees and advisors make no representation or warranty and shall incur no liability under any law, statute, rules or regulations as to the accuracy, reliability or completeness of the invitation to EOI document.

1.4 BHEL may at any time, in its absolute discretion, but without being under any obligation to do so, modify, amend or supplement the information in this invitation to EOI document.

1.5 The issue of this EOI does not imply that BHEL is bound to select and shortlist any or all the Prospective Vendor.

Even after selection of suitable Prospective Vendor, BHEL is not bound to proceed ahead with the participation in any or all business opportunities and in no case be responsible or liable for any commercial and consequential liabilities in any manner whatsoever.

1.6 The Prospective Vendor shall bear all costs associated with the preparation, technical discussion/presentation and submission of EOI.

BHEL shall in no case be responsible or liable for the costs regardless of the conduct or outcome of the EOI process.

1.7 Canvassing in any form by the Prospective Vendor or by any other agency on their behalf shall lead to disqualification of their proposals against this invitation to EOI.

SECTION-2

TIMELINES OF EOI PROCESS & CONTACT DETAILS

2.1 TIMELINE OF EOI PROCESS

The schedule of activities of the EOI Process shall be as follows -

Sl. No.	Description	Date
1	Publishing of Notice for EOI document	17.03.2026
2	Last date of Submission of EOI response (BHEL will reserve the right of extension of the date)	25.03.2026

2.2 CONTACT DETAILS:

All the correspondence shall be marked to the following:

Mr. Venkatesh Kunchamwar Sr Manager Proposals & New Business, Project Engineering & Systems Division Unit Bharat Heavy Electricals Limited (BHEL), Hyderabad, India, PIN 502032 Tel:(+91)- 40-23184639, 9491073774 E-Mail: kvenkatesh@bhel.in	Mr. Amit Kumar Sinha Deputy General Manager Proposals & New Business Project Engineering & Systems Division Unit Bharat Heavy Electricals Limited (BHEL), Hyderabad, India, PIN 502032 Tel:(+91)- 40-23182195, 9912565252 E-Mail: aks@bhel.in

2.3 GUIDELINES FOR EOI SUBMISSION

The Prospective Vendor shall forward their documents as part of EOI, to the e-mail of the contact persons indicated above.

The size of the e-mail (with attachments) may be restricted to 15 MB due to constraint at receipt. The attachments may be split and sent in no. of e-mails clearly mentioning in subject of mail 'Mail 1 of N', Mail 2 of N …. etc.

SECTION – 3

BHEL

3.1 BHEL

Bharat Heavy Electricals Limited (BHEL) is a Central Public Sector Enterprise under ministry of Heavy Industry and Public Enterprises, Government of India.

It is an integrated power plant equipment manufacturer and one of the largest engineering and manufacturing companies of its kind in India having a turnover of around US $ 2.6 billion and is a company listed in stock exchanges of India.

The company is engaged in the design, engineering, manufacture, construction, testing, commissioning and servicing of a wide range of products and services for the core sectors of the economy, viz. Power, Transmission, Industry, Transportation, Renewable Energy, Water Management, Oil & Gas and Defence with over 180 product offerings to meet the needs of these sectors.

BHEL has been in the business for more than 50 years and BHEL supplied power equipment account for about 58% of the total thermal generating capacity in India.

The company has highly skilled and committed manpower of approximately 30,000 employees spread across 16 manufacturing units, 4 project execution units, 8 service centres and 15 regional offices besides host of project sites spread all over India and abroad.

BHEL has its footprint in all the inhabited continents with references in 82 countries with cumulative overseas installed capacity of BHEL manufactured power plants nearing 10,000 MW.

BHEL invests more than 2.5% of turnover on R&D and innovation.

More details about the entire range of BHEL's products and operations can be seen at *www.bhel.com*.

3.2 PE&SD (Unit of BHEL)

Project Engineering & System Division (PE&SD) is a Unit of BHEL working on EPC basis and is located in Hyderabad, Telangana State in Southern India. It has capabilities to execute the projects on EPC basis and has rich experience of engineering the Captive Power Plants and has experience of executing wide variety of projects like Solar Power Plants, Railway Line Electrification and Sulphur Recovery Unit in Refinery.

SECTION – 4

PROJECT DETAILS

4.1 Coal India Limited (CIL) and Bharat Heavy Electricals Limited (BHEL) have formed a Joint Venture Company in the name of BHARAT COAL GASIFICATION AND CHEMICALS LIMITED (BCGCL), hereinafter also referred to as "OWNER" with its registered office at Bandhababal Old PO Belpah, BIT Colony, MCL (ln front, Bandhbahal Colony), Lakhimpur, Jharsuguda- 768211, Orissa.

4.2 Projects & Development India Ltd. (PDIL) has been appointed by OWNER for Preparation Detailed Feasibility Report (DFR) for setting up of High Ash coal-to-Ammonium Nitrate Plant at Lakhanpur area of Mahanadi Coalfields Limited, Jharsuguda district, Odisha and also the consultant for the project.

4.3 BHEL is identified for setting up the "Syngas Purification plant" for the project.

SECTION – 5

EOI

5.1 OBJECTIVE OF THIS NOTICE:

The objective of this Notice is to seek EOI from prospective Vendors who can supply Gas Cleaning System consisting of quenching for syngas is required for removing Particulate matter, HCl and other unwanted trace contaminants/ impurities from Syngas before further processing in LSTK#2 Syngas purification plant of BCGCL's 2000TPD Coal to Ammonium Nitrate plant.

The Gas Cleaning System (GCS) system will typically consists of the followings:

6.1.1 Gas to Gas Heat Exchanger

6.1.2 Quench Based Venturi Scrubber system

6.1.3 Packed bed Scrubber system

All other associated pumping systems, tanks, piping, valves, associated electrical, instrumentation, venting system, draining system etc.

5.2 EXPECTATIONS FROM RESPONDENTS TO THIS NOTICE (AS PART OF EOI):

Vendors are expected to furnish their

- Details of their Product range in Gas Cleaning System (Gas to Gas Heat Exchanger, Quench Based venturi Scrubber System, Packed bed column/scrubber system)
- Product Catalogues, Datasheets, Presentations etc.
- Past Track record (PTR) for supply of above equipment

5.3 ELIGIBLITY CONDITIONS FOR PROSPECTIVE VENDOR

The Prospective Vendor can be Private, Public or Government owned legal entity.

5.4 RESULT OF EOI:

Based on the data furnished, BHEL will shortlist the vendors for future/ firm enquiry.

5.5 INSTRUCTIONS

a) A prospective vendor requiring any clarification to the EOI documents may notify the same through e-mail or by post at the address indicated in Section 2 of this EOI.

BHEL will respond to any request for clarification or modification of the EOI

Prospective Vendors are advised to regularly visit BHEL's website for clarifications, modifications if any.

b) BHEL at their sole discretion may inspect the Vendor works / office / reference project sites etc. for the purpose of evaluation, if required.

5.6 MISCELLANEOUS:

Right to accept or reject any or all Applications:

i). Notwithstanding anything contained in this invitation to EOI, BHEL reserves the right to accept or reject any EOI and to annul the EOI Process and reject all EOIs at any time without any liability or any obligation for such acceptance, rejection or annulment and without assigning any reasons, thereof.

ii). BHEL reserves the right to disqualify any Prospective Vendor during or after completion of EOI process, if it is found there was a material misrepresentation by any such Prospective Vendor or the Prospective Vendor fails to provide within the specified time, supplemental information sought by BHEL.

iii). BHEL reserves the right to verify all statements, information and documents submitted by the Prospective Vendor in the EOI. Any such verification or lack of such verification by BHEL shall not relieve the Prospective Vendor of his obligations or liabilities hereunder nor will it affect any rights of BHEL.

5.7 Governing Laws & Jurisdiction:

The EOI process shall be governed by, and construed in accordance with, the laws of India and the Courts at New Delhi (India) shall have exclusive jurisdiction over all disputes arising under, pursuant to and / or in connection with this EOI process

SECTION-6

TECHNICAL DETAILS

6.2 The Gas Cleaning System(GCS) including quenching for syngas is required for removing Particulate matter, HCl and other unwanted trace contaminants/ impurities from Syngas before further processing in LSTK#2 Syngas purification plant of BCGCL's 2000TPD Coal to Ammonium Nitrate plant.

The Gas Cleaning System (GCS) system will typically consists of the followings:

6.2.1 Gas to Gas Heat Exchanger

6.2.2 Quench Based Venturi Scrubber system

6.2.3 Packed bed Scrubber system

6.2.4 All other associated pumping systems, tanks, piping, valves, associated electrical, instrumentation, venting system, draining system etc.,

6.3 BHEL is approaching an eminent engineering organization for Design, Engineering, Procurement, Fabrication, Painting, Testing, Supply, Installation and Commissioning of Gas cleaning system.

Bidder to design the internals of the packed bed scrubber system, Quench based Venturi scrubber system, Gas to Gas heat exchanger, pumps, piping and valves etc., based on the operating parameters.

6.4 The Raw Syngas (to be treated in the Quenching System) quality available at the Battery limit is as below:

6.4.1 The Raw Syngas to be treated:

Sl. No.	Description	Unit	Before Quenching System	After Quenching System
1.	Flow	Nm3/hr.	1,47,200 (100%)	*Vendor to inform the data*
2.	Turndown Ration		50% to 110%	
3.	Pressure at plant B.L.	kg/cm^2 (g)	27.25 ± 0.25	26.0 ± 0.5
4.	Temperature at plant B.L.	°C	325 ± 25	200 ± 10

6.4.2 Raw Syngas Quality:

Sl. No.	Description	Unit	Raw Syngas Composition (Before Quenching)	Tolerance	Raw Syngas Composition (After Quenching)
1	H_2O	mole-%	21.3	±2	***These components will get adjusted when syngas is washed.***
2	H_2	mole-%	24.5	±2	
3	CO	mole-%	31.7	±2	
4	CO_2	mole-%	19.8	±2	
5	CH_4	mole-%	2.1	±0.2	
6	N_2	mole-%	≤ 0.5		
7	Ar	mole-%	≤ 0.08		
8	H_2S	mole-%	≤ 0.15		
9	COS	mole-%	≤ 0.04		
10	NH_3	mole-%	≤ 0.6		
11	HCN	mole-%	≤ 0.04		
12	HCl	ppmv	20		**≤1**
13	Syngas particulate content	mg/Nm³	< 5		**< 0.1**

Note:

1. Standard specific gravity of the particulates shall be (air=1) 2 to 2.4

2. The typical Ash particle size distribution shall be as below:

Sl. No.	Particle size (Micron)	Wt %
1.	0-1	15
2.	1-2	25
3.	2-3	30
4.	3-4	20
5.	4-5	10

a) Trace Contaminants:

Sl.No	Element	Form	Likely composition	MU	Before GCS	Kg/Hr, considering syngas flow of 147200 Nm3/hr	mg/Nm3, considering syngas flow of 147200 Nm3/hr	After GCS
1.	Ni & Fe Carbonyls	Vapour	$Ni(CO)_4$, $Fe(CO)_5$	ppm wt	≤ 1.5	0.22	1.494	*< 1*
2.	Ca	Solid	CaO	ppm wt	≤ 66	9.73	66.100	*≤ 0.1*
3.	Mg	Solid	MgO	ppm wt	≤ 4	0.59	4.008	*≤ 0.1*
4.	Na + K	Solid	Na_2O, K_2O	ppm wt	≤ 135	19.89	135.12	*≤ 0.1*
5.	Pb	Solid	PbO, PbS, $PbCl_2$	ppb wt	≤ 1700	0.25	1.698	*≤ 25*
6.	V	Solid	V_2O_5	ppb wt	≤ 4000	0.59	4.008	*≤ 50*
7.	Hg	Vapour / Aerosol	Hg^o (elemental), $HgCl_2$	ppb wt	≤ 93	0.01	0.0679	*≤ 0.5*
8.	As	Solid	As_2O_3	ppb wt	≤ 140	0.02	0.1358	*≤ 3*
9.	Se	Solid	SeO_2	ppb wt	≤ 120	0.02	0.1358	*≤ 3*
10.	Cd	Solid	CdO, $CdCl_2$	ppb wt	≤ 45	0.01	0.0679	*≤ 0.3*
11.	Ba	Solid	BaO	ppb wt	≤ 8750	1.29	8.7635	*≤ 5*
12.	Be	Solid	BeO	ppb wt	≤ 175	0.03	0.2038	*≤ 1*
13.	Co	Solid	CoO, $CoCl_2$	ppb wt	≤ 400	0.06	0.4076	*≤ 1*
14.	Mn	Solid	MnO	ppb wt	≤ 9000	1.33	9.0353	*≤ 5*
15.	Sb	Solid	Sb_2O_3	ppb wt	≤ 400	0.06	0.4076	*≤ 1*
16.	Zn	Solid	ZnO, $ZnCl_2$	ppb wt	≤ 2300	0.34	2.309	*≤ 5*
	Total					**34.44 Kg**	**233.967 mg/Nm3**	

Note: Bidder to design and guarantee the Syngas Quenching System to achieve the parameters as above, suitable for Syngas purification unit (to be supplied by BHEL/ LSTK-2 contractor).

SECTION-7

CHECK LIST FOR DOCUMENTS TO BE FORWARDED ALONG WITH EOI

Prospective Vendor should submit following documents along with their Proposal:

Sl. No.	Document Description	Format	Bidder's confirmation (Yes / No / Not Applicable)
1.	General information	Annexure - 1	
2.	List of Executed/ Ongoing Projects	Annexure - 2	
3.	Product catalogue indicating product range in Gas Cleaning System particularly Syngas.	-	
4.	Product(s) technical datasheet	-	
5.	Executed projects reference Approved GA drawings, dispatch documents or customer certification letters etc		
6.	Detailed technical offer/ Approach paper depicting the solution to BHEL requirement of Gas Cleaning System		

SECTION-8

Annexure – 1

General Information

Date:

Legal name of company	
Country of constitution:	
Year of constitution:	
legal address in country of constitution:	
Mobile Number of the Concerned Person:	
Email id of the Concerned Person:	
Willing to get registered as a Supplier in BHEL's Supplier Directory	*Yes / No*
Attached are copies of original documents of o Articles of Incorporation or Documents of Constitution, and documents of registration of the legal entity named above.	

(Signature of Authorized Signatory)
Name:
Designation:
Address:
Date:

Annexure – 2

List of Commissioned / completed / Under Execution Projects in last 15 years

Date:

Prospective Vendor 's Legal Name:

Prospective Vendor should provide information of their executed projects

Equipment/ Item name	Brief description of the Equipment/ Item	Reference Project			Remark
		Name of the Project & Location	Capacity, Date of order and commissioning of the Equipment	Owner/Customer, Customer, contact address/ Tel./ Fax	

Note:
The Vendor [Sole Bidder / Any authorized bidder] should provide relevant experience of design and supply of Pressurized Venturi scrubber based Quenching System for Syngas/ similar gas application in last 15 years. The system should have been in operation for a minimum period of twelve (12) months as on date of issuance of tender. It may be possible that bidder might not have supplied above system in single PO, in such cases, BHEL shall accept the proven-ness criteria furnished by bidders i.e., if the part of this EOI are supplied in multiple POs, such that over all items of the tenders should have been supplied by the bidder in one or more PO and the same should be in successful operation for more than one year from the date of issuance of tender. However, in each PO, shall meet the technical parameters criteria.

(Signature & Seal)