



Expression of Interest from Prospective Vendors for Water System equipment (De-Ionised Water package, Refrigerant/ Chiller / Radiator Cooling System)

Extension of due date for EoI

Subject: Expression of Interest from Prospective Vendors for Water System equipment (De-Ionised Water package, Refrigerant/ Chiller / Radiator Cooling System).

This has reference to the Expression of Interest (EoI) published on BHEL's website i.e. www.bhel.com **EoI Ref No.: BHEL/PESD/EoI/BOP/002, Rev 00 Dated 09.11.2023**, seeking interest from prospective Vendors who can supply one or more of the below equipment for Electrolyser package.

- i). Water System includes De-Ionised Water with range of rating suitable for kW to MW scale Electrolyser Stack system.
- ii). Cooling System like Refrigerant/Chiller/Radiator Cooling with range of rating suitable for kW to MW scale Electrolyser Stack system.

Based on the requests received from prospective Vendors, the due date for receiving the proposals against the EoI has now been extended up to **31st December 2023**.

The interested Prospective Vendors shall ensure that their response, along with the details requested as per Annexures of the EoI, is received by BHEL on or before **31st December 2023**.

Contact details for submission of response is as below:

Mr. Chintan Gajera Manager Proposals & New Business, Project Engineering & Systems Division Unit Bharat Heavy Electricals Limited (BHEL), Hyderabad, India, PIN 502032 Tel:(+91)- 40-23184759, 8885528244 E-Mail: chintangajera@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
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Date of Issue: 4th December 2023

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
INDIA

Notice seeking

Expression of Interest

from

Prospective Vendors

for

Water System equipment

(De-Ionised Water package, Refrigerant/ Chiller /

Radiator Cooling System)

for the BOP of Electrolysers

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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	09.11.2023
2	Last date of Submission of EOI response (BHEL will reserve the right of extension of the date)	05.12.2023

2.2 CONTACT DETAILS:

All the correspondence shall be marked to the following:

Mr. Chintan Gajera Manager Proposals & New Business, Project Engineering & Systems Division Unit Bharat Heavy Electricals Limited (BHEL), Hyderabad, India, PIN 502032 Tel:(+91)- 40-23184759, 8885528244 E-Mail: chintangajera@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
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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 Netc.

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

HYDROGEN BUSINESS

4.1 National Green Hydrogen Mission

India has declared a goal to become energy independent by 2047 and achieve Net Zero by 2070.

Green Hydrogen, produced using renewable energy, has the potential to play a key role in such low-carbon and self-reliant economic pathways.

The National Green Hydrogen Mission aims to provide a comprehensive action plan for establishing a Green Hydrogen ecosystem and catalysing a systemic response to the opportunities and challenges of this sunrise sector.

4.2 BHEL's plan in Hydrogen Business Value Chain

BHEL is taking steps to manufacture of Electrolysers and address EPC business in Hydrogen Value Chain.

BHEL is setting up a new manufacturing facility, for integrating the equipment of Electrolyser Package at Karkhiyaon, Varanasi.

The design and supply of BOP equipment of Electrolyser will be arranged by PE&SD – Unit of BHEL located at Hyderabad.

Dedicated teams are working in mission mode for development of in-house Alkaline Electrolyser stack.

BHEL is also exploring collaborations with leading Electrolyser OEMs to address immediate EPC Business opportunities in Hydrogen market.

SECTION – 5

EOI

5.1 OBJECTIVE OF THIS NOTICE:

The objective of this Notice is to seek EOI from prospective Vendors who can supply one or more of the below equipment for Electrolyser package.

- (i) Water System includes De-Ionised Water with range of rating suitable for kW to MW scale Electrolyser Stack system.
- (ii) Cooling System like Refrigerant/Chiller/Radiator Cooling with range of rating suitable for kW to MW scale Electrolyser Stack system.

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

Vendors are expected to furnish their

- Details of their Product range in Hydrogen (Electrolysers, Fuel Cells etc.)
- Product Catalogues, Datasheets, Presentations etc.
- Past Track record (PTR) for supply of above equipment

5.3 ELIGIBILITY 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 register the vendors in their Supplier Directory as a regular supplier.

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

6.1 Deionised Water Package:

Hydrogen generation through alkaline based Electrolyser requires a De-ionised water of required quality for efficient working and better life of the Stack & other component. BHEL is looking for the OEMs, who can supply De-Ionised (DI) water package based on project requirement ranging from various sizes as mentioned below:

- Typical size of the DI water package = 10 litres/hr. to 1000 litres/hr.

Inlet water to DI package: The Inlet water shall be from the various sources like Bore water, Surface water, Sea water, Ponds etc. based on the various project requirement. The Inlet water quality shall be specified for case to case basis as per requirement.

Outlet water quality required from DI package:

- Typical Deionised water required is mentioned below:-

Parameter	Requirement
Conductivity	< 0.5 μ S/cm

The DI package can be combination of (UF+RO) / (UF+RO+EDI) or any other combination to achieve the above desired water quality.

6.2 Cooling System (Refrigerant/ Chiller /Radiator based Cooling)

There are several cooling requirement in the complete system of Electrolyser Stack along with Balance of Stack. The hydrogen gas mixture separated from stack and Electrolyte shall be cooled to the desired level to meet the proper working for the system. Hence complete cooling system, which will comprise either Refrigerant cooling or Chiller based cooling or Radiator based cooling system is required. The sizes shall be based on the total capacity of the plant.

We are looking for the OEM who can design, manufacture & supply the Cooling system of the plant based on the cooling requirement of the Plant based on project requirement ranging from various sizes. Typical range for cooling for Gas cooler/ Electrolyte cooler is as below:

- Typical cooling range for Gas/ Electrolyte: From 75°C to 40°C

All the Equipment mentioned above shall be suited to Hydrogen Electrolyser and Fuel cell application.

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 Hydrogen (Electrolyser, Fuel Cells etc.)	-	
4.	Product(s) technical datasheet	-	

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:	
<i>Willing to get registered as a Supplier in BHEL's Supplier Directory</i>	<i>Yes / No</i>
Attached are copies of original documents of	
<ul style="list-style-type: none">○ 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 7 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	

(Signature & Seal)