



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

Expression of Interest
from Prospective Consultant
with expertise in
**Electrochemical Systems - Electrolysers, Fuel Cells
or Flow Batteries**
for BHEL Corporate R&D, Hyderabad

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SECTION-1 DISCLAIMER

1.1 The information contained in this Expression of Interest (EOI) document is provided to the Prospective Consultant, 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 Consultant 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 Consultant who reads or uses this invitation to EOI document.

Prospective Consultant 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 Consultants.

Even after selection of suitable Prospective Consultant, 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 Consultant 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 Consultant 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	28.11.2025
2	Last date of Submission of EOI response (BHEL will reserve the right of extension of the date)	18.12.2025

2.2 CONTACT DETAILS:

All the correspondence shall be marked to the following:

Mr Ashutosh Mishra Sr. Manager Clean Energy Systems Lab, Corporate R&D Bharat Heavy Electricals Limited (BHEL), Hyderabad, India, PIN 500042 Tel:(+91)- 8006550050 E-Mail: ashutosh.mishra@bhel.in	Mrs. Vibha S Surya Deputy General Manager Clean Energy Systems Lab, Corporate R&D Bharat Heavy Electricals Limited (BHEL), Hyderabad, India, PIN 500042 Tel:(+91)- 9880461273 E-Mail: vibha@bhel.in
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2.3 GUIDELINES FOR EOI SUBMISSION

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

The language for all correspondence shall be English.

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, 9 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 90 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.

SECTION – 4

EOI

4.1 OBJECTIVE OF THIS EOI:

The objective of this EOI is to on board prospective Consultants / domain experts (Indian or Global) who have hands-on experience in R&D, Design, Engineering, Manufacturing etc. of Electrochemical Systems – Electrolysers, Fuel Cells or Flow Batteries and their components.

4.2 INFORMATION REQUIRED FROM RESPONDENTS TO EOI:

Consultants are expected to furnish

- Filled in Annexures 1 & 2 as per SECTION 6
- Work Experience certificate / detailed CV with project descriptions, Contract/consulting history with industry or research institutes and Portfolio of past projects (without confidential details) in Electrolyser, Flow Battery, Fuel Cell area covering job titles and duration.
- Details (Non-confidential) of Technical Papers Published, Patents/ Copyrights filed/registered in areas of Electrochemical Characterization and Development of their components.

4.3 ELIGIBILITY CONDITIONS FOR PROSPECTIVE CONSULTANT

1. Overall Experience & Qualification:

- Experience in one or more of the following areas:
 - Minimum 5 years' experience in Electrochemical Systems - Electrolysers, Fuel cells or Flow batteries and development of their Components
 - Should have been actively involved in R&D projects, new product development & manufacturing and Electrochemical Characterization
- Qualification:
 - Preferably a Master's degree with relevant experience in abovementioned areas

Domain Specific / Technical Experience (in one or more of the following areas):

- **Electrochemical Characterization & Analysis:**
 - Cyclic Voltammetry (CV), Linear Sweep Voltammetry (LSV)
 - Electrochemical Impedance Spectroscopy (EIS), Tafel analysis for kinetics evaluation
 - Chronopotentiometry / Chronoamperometry for stability testing
 - Rotating Disc Electrode & Rotating Ring Disc Electrode (RDE/RRDE) testing for intrinsic catalytic activity.
 - Ability to interpret data, perform EIS curve fitting, and generate comparative analysis to link electrochemical performance to physical properties.

- **Electrode Design, Fabrication & Optimization:**

- Fabrication Methods: Expertise in any of the fabrication methods:
 - Electrodeposition / Electroless Deposition
 - Thermal spray (Plasma)
 - Sintering
- Process Knowledge: Hand on experience in Catalyst ink/ slurry formulation, Chemical/electrochemical activation and use of porous substrates
- Scale up Experience: Must have experience in projects involving electrodes with a minimum active area of 400 cm². Preferable experience of manufacturing processes, optimization and quality aspects of large area Electrodes.
- Material Characterization techniques: preferable knowledge of SEM, EDS, XRD, Porosity & Pore size characterization etc.

- **Experience in other Stack components:**

- Bipolar Plates (BPPs):
 - Experience in material selection, flow field design and manufacturing processes
 - Understanding of requirements for electrical conductivity, corrosion resistance, and pressure drop management.
- Membranes & Separators:
 - Knowledge of porous diaphragms and key properties like ionic conductivity, gas crossover, chemical stability, and mechanical strength.
- Gas Diffusion Layers (GDLs) / Porous Transport Layers (PTLs):
 - Experience in selecting and characterizing porous substrates, electrolyte transport, electrical contact, and current distribution.
- Membrane Electrode Assemblies (MEAs) & Cell Assembly:
 - Knowledge of MEA integration methods, catalyst coating on membrane, substrate etc.
 - Experience with gasket/seal selection and stack assembly techniques

4.4 RESULT OF EOI:

Based on the data furnished, BHEL will register the consultant in their Consultants Directory for utilising their domain expert services.

4.5 INSTRUCTIONS

- a) A prospective Consultant 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 Consultants are advised to regularly visit BHEL's website for clarifications, modifications if any.

- b) BHEL at their sole discretion may Communicate with the Consultant for evaluation and may call for physical / virtual interaction, if required.

4.6 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 prospective Consultant during or after completion of EOI process, if it is found there was a material misrepresentation by any such prospective consultant or the prospective consultant 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 Consultant in the EOI. Any such verification or lack of such verification by BHEL shall not relieve the Prospective Consultant of his obligations or liabilities hereunder nor will it affect any rights of BHEL.

4.7 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-5

CHECK LIST FOR DOCUMENTS TO BE FORWARDED ALONG WITH EOI

Prospective Consultant 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.	Domain Specific information	Annexure-2	
3.	Work Experience certificate / detailed CV	-	
3.	Details (Non-confidential) of Technical Papers Published, Patents/ Copyrights filed/registered in areas of Electrochemical Characterization and Electrode development	-	

SECTION-6 Annexure – 1

General Information

Date:

Name of company / individual	
Country of origin of company / individual:	
Year of constitution/ Date of Birth:	
Correspondence Address:	
Mobile Number of the Concerned Person:	
Email id of the Concerned Person:	

(Signature of Authorized Signatory)

Name:

Designation:

Address:

Date:

SECTION-6 Annexure – 2

Domain Specific Information

Date:

Qualification:	
Total years of experience:	
Employment Status	☐ Superannuated ☐ Freelance ☐ Currently Employed Specify details-----
Areas of Specialization (<i>Please tick the option and specify no. of years of Experience</i>)	☐ Flow Battery ----- Years ☐ Electrolyser -----Years ☐ Fuel Cell -----Years

Domain Specific Experience:

(Please choose option “Y” or “N” in case of “Y”, mention relevant areas of experience in each domain)

Domain	Yes/No	Mention Relevant Areas
Electrochemical Characterization & Analysis	☐ Yes ☐ No	
Electrode Design, Fabrication & Optimization	☐ Yes ☐ No	
Material Characterization Tools	☐ Yes ☐ No	
Materials & Manufacturing Experience	☐ Yes ☐ No	
Experience in other Stack components:		
Bipolar Plates	☐ Yes ☐ No	
Membranes & Separators	☐ Yes ☐ No	
GDLs /PTLs	☐ Yes ☐ No	
(MEAs) & Cell Assembly	☐ Yes ☐ No	
Experience in Software, Simulation & Analysis	☐ Yes ☐ No	

Significant Patents/ Copyrights/ Technical Papers in Area of Specialization enclosed	☐ Yes ☐ No	
Work Experience Certificate or detailed CV with project descriptions, Contract/consulting history with industry or research institutes and Portfolio of past projects (without confidential details), Patents, Copyrights, Technical Papers etc. enclosed .	☐ Yes ☐ No	

(Signature of Authorized Signatory)

Name:

Designation:

Address:

Date: