Expression of Interest

for

Consultancy for Review and Vetting of Design of High Pressure Turbine Bypass valve for AUSC parameters

EoI document Ref. No EoI/AUSCHPBV/2017/01 Rev.00

BHARAT HEAVY ELECTRICALS LIMITED,

HIGH PRESSURE BOILER PLANT

TIRUCHIRAPALLI - 620014

June 2017

1) Introduction

1.1 Bharat Heavy Electricals Limited (BHEL), a Government of India undertaking, is the largest Engineering and Manufacturing organization in India and is one of the leading international companies for providing total business solutions in the field of Power Generation & Transmission, Defense, Transportation, Oil & Gas, Telecommunication etc. The company has 17 Manufacturing Units, two Repair Units, four Regional Offices, eight Service Centers, eight Overseas Offices, six Joint Ventures, fifteen Regional Marketing Centers and current project execution at more than 150 project sites across India and abroad. The annual turnover of BHEL for the year 2014-15 was Rupees 30947 crore with a net profit of Rupees 1419 crore. BHEL's highly skilled and committed manpower of approximately 44905 employees, the best of manufacturing facilities and practices together with the latest technologies, has helped BHEL to deliver a consistent track record of performance. With the current order book exceeding 100000 crore, BHEL is poised for excellent future growth. Entire range of BHEL's products and operations can be obtained by visiting our web site www.bhel.com

1.2 In the field of Power Generation, the organization is involved in Design, Manufacturing, Erection and Commissioning of Power Plant Equipment with state of the art production facilities. BHEL has more than 50 years of experience in this field and capacity ranging up to 800 MW.

1.3 A consortium consisting of Indian companies and Institutes has been formed for development of Advance Ultra Super Critical 800 MW demonstration power plant in India. BHEL is a partner in this consortium. Through the available collective expertise, BHEL is working on issues related to material testing, high temperature design, erection, commissioning, plant operation and troubleshooting.

1.4 High Pressure Boiler Plant (HPBP) is one of the major units of BHEL. The HPBP at Tiruchirapalli was formed in 1965 mainly to establish a strong base in the areas of power generating equipment's manufacturing. Valves Division of HPBP is a leading manufacturer of different types of valves in India. Valves Division manufactures around 100000 valves a year.

1.5 As part of the AUSC development in India, development of High Pressure Turbine Bypass Valve (HPBV) was identified as one of the critical activities.

1.6 BHEL has developed the design of HPBV based on the in-house capability. The design parameters are 337.5 kg/cm^2 pressure and 718°C. The design is of a combined pressure reducing and desuperheating valve. Desuperheating is done by spraying water inside the valve in highly turbulent zone of the valve.

2) Present Expression of Interest

For the purpose of review and vetting of design of the High Pressure Turbine Bypass valve, BHEL intends to technically shortlist Organization or group of individuals of International Repute based on this EOI. Scope of the work envisaged shall be finalized after detailed discussions further on with shortlisted institutions/consultancy organizations.

BHEL shall receive applications pursuant to this EoI in accordance with the terms set forth herein, as modified, altered, amended and clarified from time to time by BHEL, and all applications shall be prepared and submitted in accordance with such terms on or before the date specified in this EoI.

3) Indicative Scope of work for Prospective Institution/Consultancy Organization

3.1 Review of conceptual design of the valve design and review of valve sizing for the given steam parameters.
3.2 Review of design of pressure containing parts of the valve
3.3 Review of design of individual components
3.4 Review of choice of materials including choice of hardfacing for different parts of the valve.
3.5 Review of creep- fatigue design analysis
3.6 Perform independent design calculations for the components for the design provided and suggest improvements, if any.
3.7 Review of heat treatment during various stages of manufacturing.
3.8 Review of selection of actuators
3.9 Review of the transient analysis carried out by BHEL
3.10 Dynamic analysis of the forces acting on the valve components during opening/closing of the valve.
3.11 Review of effect of thermal shock on components due to cold water spray done for desuperheating.

All above are the indicative requirements, however any other document/information/input required by BHEL for effective design review shall be decided in due course of Project.

4) Selection of Prospective Institution/Consultancy Organization

Based on the information provided under this EoI, the prospective organization/group of individuals shall be technically shortlisted. The details of the consultancy work will be finalized after technical discussions with the short listed institutions/consultancy organizations. The short listed institutions/consultancy organizations may further be evaluated on the basis of techno-commercial criterion during second stage of evaluation.

Detailed discussions on the terms and conditions of scope and confidentiality requirements would be held with the technically shortlisted prospective organization/group of individuals before the second stage of evaluation.

5) Brief Description of EoI Process

The interested prospective organization or group of individuals shall ensure that its response in the form of a signed letter comprising the application as per format enclosed at Annexure-A and details requested as per the Annexures-B of this EoI along with information and data required as per attachments and supporting documents thereof, is received by BHEL within four weeks of publication of this EoI. Alternatively, a signed copy of the EoI may be sent by e-mail as advance copy, to be followed by original signed copy which should reach BHEL within 7 days of e-mail communication.

The response shall necessarily be accompanied with details on the background of organization/group of individuals, experience in design of High Pressure turbine bypass valves of USC parameters of rating 500MW or above, list of designs reviewed of such valves. The responding prospective organization/group of individuals on submission of their response can be contacted/invited for further discussions.
The response may be sent at the following address:

Mr. C. Kathirvelu,
Additional General Manager,
Valves Engineering and R&D,
Building-6, First Floor
Bharat Heavy Electricals Limited,
HPBP, Trichy 620014,
Tamilnadu, India
Phone: 91-431-2575271
Email: ckv@bheltry.co.in

Any request for further information or clarification on the EoI document may be sent by mail to the address mentioned above. BHEL may respond to the queries raised/clarifications sought to the best of its ability. BHEL at its discretion may extend the due date for submission of EoI and the decision of BHEL in this respect would be final and binding on the respondents.

EoI submittals should be in English. Duly authorized representative shall sign on each page of the documents. EoI should be prepared in such a way so as to provide a straight forward, concise description of applicant's capabilities.

If at any time during the evaluation of EoI, BHEL requires any clarification on the documents submitted by the prospective parties, it reserves the right to request a clarification so as to complete the evaluation.

6) Miscellaneous

6.1 Right to accept or reject any or all Applications

Notwithstanding anything contained in this EoI, BHEL reserves the right to accept or reject any application and to annul the EoI process and reject all applications, at any time without any liability or any obligation for such acceptance, rejection or annulment, and without assigning any reasons therefore. In the event that BHEL rejects or annuls all the applications, it may, at its discretion, invite all eligible OEMs/suppliers to submit fresh applications.

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

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

6.2 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 the EoI process.

Annexure-A

Expression of Interest Letter

(To be submitted on the letter head of the party submitting the EoI)

To,
Mr. C. Kathirvelu,
Additional General Manager,
Valves Engineering and R&D,
Building-6, First Floor
Bharat Heavy Electricals Limited,
HPBP, Trichy 620014,
Tamilnadu, India
Phone: 91-431-2575271
Email: ckv@bheltry.co.in

Subject: EOI for being Consultancy Provider for Review & Vetting of Design of High Pressure Turbine Bypass valve for AUSC parameters

With reference to your EoI document Ref. No EoI/AUSCHPBV/2017/01 Rev.00 dated _____, we have examined the EoI document and understood its contents and hereby submit our application for pre-qualification for the aforesaid project.

1. We acknowledge that BHEL will be relying on the information provided in the Application and the documents accompanying such application for the aforesaid consultancy work, and we certify that all information provided in the application and Annexure-A are true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying such application are true copies of their respective originals.
2. We confirm to make available to BHEL, within the stipulated time, any additional information it may find necessary.
3. We agree and undertake to abide by all the terms and conditions of the EoI document.

In witness thereof, I / we submit this application under and in accordance with the terms of the EoI document.

Yours faithfully,
(Signature, name and designation of the Authorized Signatory
Name and seal of the Applicant)

Annexure-B

Information required to be furnished along with EoI

Sr. No.	DESCRIPTION OF REQUIREMENT	Relevant Document Attached (Yes/No)
1	Experience in number of years of thermal and mechanical design of high temperature turbine bypass valves supplied to power plants of rating 500MW or above. Experience profile along with academic/industry background of experts in related areas.	
2	List of design of high pressure and temperature control valves performed/reviewed/vetted for rating 500MW or above of USC parameters (Pressure 270 bar; temperature 620^{o}C) or above	
3	Experience in mechanical design of very high pressure and high temperature valves operating in the creep regime	
4	Experience in design of components operating at temperatures above 600 Deg. Celsius	
5	List of the High Pressure Turbine Bypass valve manufacturers to whom already consultancy services provided along with the brief nature of consultancy work	

(SIGNATURE)

Disclaimer

The information contained in this Expression of Interest document (the "EoI") or subsequently provided to Applicant(s), whether verbally or in documentary or any other form, by or on behalf of BHEL or any of its employees or advisors, is provided to Applicant(s) on the terms and conditions set out in this EoI and such other terms and conditions subject to which such information is provided.

This EoI is not an agreement and is neither an offer nor invitation by BHEL to the prospective Applicants or any other person. The purpose of this EoI is to provide interested parties with information that may be useful to them in the formulation of their application for qualification pursuant to this EoI.

BHEL also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Applicant upon the statements contained in this EoI.

The issue of this EoI does not imply that BHEL is bound to select and shortlist Applicants for next stage of the Project.