

**BHARAT HEAVY ELECTRICALS LTD., BHOPAL**  
**HYDRO MACHINERY DEVELOPMENT STATION**

**Corrigendum**

Sealed tenders are invited from the bidders, for the following work as per details given below :

1. Name & details of the work :

Name of Work	Completion Period Month(s)	NIT No. & Date
<i>Consultancy for Design-vetting of Francis Turbine water-passage. (Refer detailed description and scope of work along with the deliverables in Annexure 1 )</i>	Maximum of 04 Months from the date of Order	HLE/WP/001 08.01.09

- i) Last Date & Time of Submission of Tender – 26.02.09 time 3.30 pm IST
- ii) Date & Time of Opening of Tender - 27.02.09 time 2.30 pm, IST

2. The fully signed & sealed Tender is to be sent to

Tender Room,  
Ground Floor,  
Administrative Building,  
BHEL, Piplani, Bhopal  
Madhya Pradesh  
India - 462022

Contact Phone No – 91-755-2506533, Fax – 91-755-4201937

3. Details of Tender Documents :

1.	Technical Specification and scope of Work	Annexure -1	1 page
2.	Instructions to Bidders	Annexure -2	4 pages
3.	Techno-Commercial bid Part-1	Annexure -3	2 pages
4.	Price bid Part-2	Annexure -4	1 page

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## **Annexure -1**

### **Technical Specification and Scope of Work :**

This is a proposal for Hydraulic design-vetting for a pre-supplied Francis Turbine Hydraulic Profile for a given hydraulic condition (Specific speed). The pre-supplied Hydraulic profile would contain information about spiral casing dimensions, stay vane profile, Guide vane profile, Runner blade profile & Draft tube profile for a particular specific speed Hydro-Turbine. The above profile would be given in the format mutually decided at a later date. The task of Consultant /Consulting firm would involve investigation of the hydraulic design of each component of the passage (from spiral casing inlet to Draft tube outlet). Also component to component interaction is to be studied. If required, we can also present to the Consultant the results of 3D viscous & turbulent CFD analysis. We can also supply information about the experimental model tests performed on a small scale model with above furnished hydraulic profile. Consultant should also comment (if possible) about the suitability of the above passage for a given maximum head. Consultant / Consulting firm should also propose guide-vane end clearances and upper and lower labyrinth clearances for such specific speed design. Also, a mention of expected run-away speed and axial hydraulic thrust would be desirable. We propose to use The Consultant's /Consulting firm's report of design-vetting as an internal validation document for the design or use it for further improvement/optimization purposes.

### **Deliverables :**

The Consultant/ consulting firm is expected to make a detailed study of the Hydraulic profile and prepare a short report commenting on the design of individual components, CFD analysis (if reqd.) and experimental model test results (if reqd.). The comments should also include the possible modifications suggested for improving the Hydraulic efficiency.

The report should also carry comments about the surface finish of various model components and their effects on performance, proposed Guide vane end clearances, upper and lower labyrinth clearances with their effects on efficiency and other precautions to be taken while model manufacturing and erection.

**Further, after submission of Project report, the lead Consultant is required to visit BHEL, Bhopal for 4 working days for discussions on report.**

**General Instructions for the bidders**

1. Tender documents can be downloaded from Web site- [www.bhel.com](http://www.bhel.com) or [www.bhelbhopal.com](http://www.bhelbhopal.com).

**3.0 INSTRUCTIONS AND GUIDELINES TO BIDDERS**

**3.1 INTRODUCTION :**

Bharat Heavy Electricals Limited (BHEL) is an ISO-9001:2000 certified premier Engineering and Manufacturing organization with majority share-holding by Government of India. BHEL is catering to the core infrastructure sectors of Indian economy viz. Power Generation and Transmission, Industry, Transportation and Renewable energy. BHEL has been in this business for almost five decades now. In India BHEL has 14 manufacturing units, 4 Power Sector Regions, 8 Service centres and 15 Regional offices besides host of Project sites spread all over India and abroad. BHEL supplied equipment account for more than 65% of the total installed Generating capacity in India and contribute approx. 73% of the total power generation in the country. More details about the entire range of BHEL's products and operations can be had by visiting our web site [www.bhel.com](http://www.bhel.com) or [www.bhelbpl.com](http://www.bhelbpl.com).

Hydro Turbines are a major product of manufacturing unit located in Bhopal, Madhya Pradesh in Central India. BHEL, Bhopal has a wide and rich experience of supplying various types of hydro turbines and hydro generators for more than 150 projects. In around 50 years of operation BHEL has supplied & commissioned Hydro Turbine sets of around 18000 MW. BHEL also has an in-house NABL-certified Hydro turbines and Pumps Model Testing Laboratory conforming to the relevant International standards.

**3.2 TENDERER TO INFORM HIMSELF FULLY:**

- 3.2.1** The bidder shall closely peruse all the clauses, specifications, requirements etc., indicated in the tender documents, before quoting. Should the bidder have any doubt about the meaning of any portion of the tender specifications or find discrepancies or omissions in the specifications or if the tender documents are found to be incomplete or require clarifications on any of the technical aspects, scope of work etc., he shall at once contact the official inviting the tender, before submission of the tender.
- 3.2.2** Bidders are advised to study all the tender documents carefully. Any submission of tender by the Bidder shall be deemed to have been done after careful study and examination of the tender documents and with the full understanding of the implications thereof. The specifications and terms and conditions shall be deemed to have been accepted unless otherwise specifically commented upon by the bidder in his offer.

**3.3 PROCEDURE FOR SUBMISSION & OPENING OF BIDS**

- 3.3.1** Bids are invited **in TWO parts**, as described below, on or before the due date & time indicated in the Tender Notice.

## **PART-I: TECHNO-COMMERCIAL BID**

This part shall consist of the following:

- a. **Technical Specifications including all items of Table-1 & Table -2, Annexure-3** duly filled. **The bidder should offer only as per the Complete Scope of Technical Specification.** BHEL reserves the right to accept or reject the technical offer. Price bids of only techno-commercially successful bidders will be opened.

## **PART-II : PRICE BID**

Price bid of only techno-commercially qualified bidders shall be opened.

Price bid containing PRICES only in English Language in both Words and Figures.

**Price-Bid should be submitted in Table-3 , Annexure -4 duly filled.**

Price Bid should not contain any technical details and/or Commercial Terms & Conditions as the same are supposed to be contained in PART-I only so that the same can be evaluated before opening of Price Bid(s).

### **3.4 MARKING ON ENVELOPE**

Part-I & Part-II offers shall be submitted in TWO sealed envelopes super-scribed as follows:

**PART-I:**

- 1. TENDER ENQUIRY NO. AND DESCRIPTION**
- 2. DUE DATE OF OPENING**
- 3. "TECHNO-COMMERCIAL BID".**

**PART II:**

- 1. TENDER ENQUIRY NO AND DESCRIPTION**
- 2. "PRICE BID".**

**Un-sealed envelopes or envelopes not super-scribed as above may not be accepted/considered. Sealed Part-II envelope can be kept inside Part-I envelope also.**

### **3.5 BID SUBMISSION**

- 3.5.1 Bids shall be addressed to the official inviting Bids by name and designation and sent at the following address:

**Tender Room,  
Ground Floor,  
Administrative Building,  
BHEL, Piplani, Bhopal- 462022.  
Contact Phone No – 91-755-2506533, Fax – 91-755-4201937,**

- 3.5.2 Bids submitted by post shall be sent by "REGISTERED POST" / International Courier only and shall be posted with due allowance for any postal delay. Bids received after the Due Date and Time of opening are liable to be rejected.

### **3.6 BID OPENING**

- 3.6.1 PART-I (Techno-Commercial Bid) is to be opened on the due date and time as specified in the Tender Notice, in the presence of bidders who may like to attend. Part-II (Price Bid) shall be opened subsequently.

3.6.2 Date and time of Price Bid (Part-II) opening shall be intimated to the technically and commercially acceptable bidders only.

3.6.3 Unsolicited bids shall not be entertained. Unsolicited revised Price Bids also, shall not be entertained at any stage of the tendering process.

### **3.7 VALIDITY OF OFFER**

Offer shall be kept valid for at least two months from the due date of Tender, for BHEL's acceptance.

### **3.8 DEVIATIONS**

Bids shall be submitted strictly in accordance with the Technical specification (annexure- 1) of the Tender Enquiry. However, deviations if any should be clearly brought-out separately.

### **3.9 LANGUAGE & CORRECTIONS**

3.9.1 The bidder shall quote the rates in English language and international numerals only. The metric system of units shall be used, for the purpose of tender.

3.9.2 Bidder shall fill the tender documents issued by BHEL in ink or in typed formats. Each page of the bid shall be signed by the bidder.

3.9.3 All entries shall be filled in neat and legible handwriting. No over-writings erasures and corrections are permitted and may render such bids liable for rejection.

3.9.4 However, if any cancellations, corrections and insertions are in the bid, the bidder shall duly attest the same.

### **3.10 REJECTION OF BID AND OTHER CONDITIONS**

BHEL reserves to itself, full rights for the following without assigning any reasons, whatsoever:

- a) To reject any or all the bids.

### **3.11 TENDER EVALUATION**

3.11.1 Value should be indicated both in words as well as in figures. If there is a difference between price quoted in words and figures or if there is any other price discrepancy, lower value(s) will be considered for evaluation & ordering.

## **4.0 COMMERCIAL TERMS AND CONDITIONS FOR BIDDERS**

### **4.1 DELIVERY**

Delivery period shall be within a maximum of 16 weeks from the date of conformation of placement of order.

## 4.2 RATES

- 4.2.1 Lump-sum value of the entire scope (annexure -I) including the Cost of Consultants visit to India is to be quoted in both Figures and Words in Part-II (price-Bid). All applicable taxes as per Indian Government laws shall be payable extra as per actuals. ***{Incase of International bidders the tax liabilities as per the native Country's law shall be paid by the Bidder himself. The Price quoted shall be inclusive of all tax liabilities of the native country of the Bidder}.***
- 4.2.2 Rates shall remain FIRM without any variation till completion of the Contract.
- 4.2.3 In case of International Bidders the Exchange rate on the date of opening of Techno-Commercial bid (Part-I) shall be taken for evaluation.
- 4.2.4 In case of Income Tax deduction, BHEL will issue TDS (Tax Deducted at Source) which can be claimed by the bidder in their native Country and payment to the Bidder will be net of Income Tax. Pl. confirm acceptance of this condition. In case of non-acceptance of this, the same will be loaded on your price for evaluation.

## 4.3 PAYMENT TERMS

The payment would be made in two stages :

Stage (1) - Successful completion of work and receipt of Final Completion report (80% of the total value).

Stage(2) - After lead Consultant's visit to BHEL Bhopal for discussions on report (remaining 20% of the total value).

The payment will be made within a maximum of 30 days of presenting the invoice. There would be no intermediate stage payments other than mentioned above.

## 4.4 PENALTY FOR DELAY

If the completion of project (submission of Final report & visit of Consultant for discussions on report) is delayed from the agreed/ proposed schedule, a penalty of 0.5% (of total value) per week would be imposed subjected to a maximum of 10% , if the delay is not on account of BHEL or Force-Majeure conditions.

## 4.5 CONFIDENTIALITY

**Bidder shall, at all times, undertake to maintain complete confidentiality** of all data, information, drawings & documents, etc. belonging to BHEL and also of the procedures, reports, input documents, manuals, results and any other company documents discussed and/or finalized during the course of execution of the order/contract.

## 4.6 ACCEPTANCE OF ORDER

**Letter of acceptance of the Work order is to be submitted within two weeks of receipt of Work Order.**

**For Payments through Telegraphic transfer, details of account, Bank, place etc. may be provided later.**

**TECHNO-COMMERCIAL BID - Part -1****Qualifying Criteria :**

The Consultant / Consulting firm should have expertise and experience (at least 5 years) in developing hydraulic profiles of Hydro turbines and should have developed hydraulic profile of at least one High Head Francis type Hydro turbine in the head range of 200m. or above and output greater than 25 MW and with specific speed less than 100 m-kw. This hydraulic profile should have been used in a Project running successfully for at least one year.

The Consultant should have also performed at least one Consultancy project concerning Hydraulic design of Hydro Turbine in last three years.

The Consultant / Consulting firm should not be a partner/associate to any of the major Hydro Turbine Manufacturers and should be ready to accept of a Secrecy clause of maintaining strict Confidentiality of the data / information related to this Consultancy project.

**TABLE - 1**

<b>S.No.</b>	<b>Criteria</b>	<b>Description</b>
1.	Details of Experience in developing Hydraulic Profiles including number of years and names of Projects for which Hydraulic design has been completed.	
2.	Details of hydraulic designing of High head Francis for Project which is successfully operating	
2.a.	Name of the Project	
2.b.	Location	
2.c.	Turbine output x Number of Units	
2.d.	Operating head range	
2.e.	Rated speed	
2.f.	Specific speed (at rated head and rated output)	
2.g.	Year of Commissioning	
3.	Details of at least One Consultancy project concerning Hydraulic Design of Hydro Turbine in last three years.	
3.a.	Name & Description of the project	
	Date of Completion	
4.	Statement detailing the Status of bidder (Consultant/Consulting firm) with respect to any association with major hydro turbine manufactures	
5.	Acceptance of Secrecy/Confidentiality clause (Clause No. 4.5 of Annexure -1 )	YES /NO
6.	Bidder should have and submit PF no. and ESI No./ Medical policy, Service Tax registration No. for executing the contract. <b>International Bidders are exempted from this Clause.</b>	

**TABLE -2**

<b>S.No.</b>	<b>Description</b>	<b>Remarks / Comments</b>
1.	Acceptance of complete Technical scope of work as per Annexure -1	Yes / No
2.	Acceptance of deliverables as per Annexure -1	Yes / No
3.	Acceptance of Payment terms and conditions (clause 4.3 of Annexure -2)	Yes / No Comments if any
4.	Validity of quoted price -(acceptance of clause 3.7 of Annexure -2)	Yes /No Comments if any
5.	Proposed Delivery schedule (Also refer clause No. 4.1 of Annexure -2)	
6.	<p>The schedule to Invite the Lead-Consultant to BHEL for final discussions for a period of 4 working days would be taken at a mutually acceptable date.</p> <p><i>(Bidder shall inform self that, BHEL shall take care of the to and fro Economy-class air-fare (of Lead-Consultant) from the International Airport in India (preferably Delhi / Mumbai) to BHEL, Bhopal. Further, all requirements of Lodging, Boarding and Conveyance during Transit in India and during the Consultant's stay in Bhopal will be taken care by BHEL).</i></p>	Yes / No
7.	Acceptance of clause 4.2.4 (pl. refer Annexure 2)	Yes / No

Deviation in any of the six items in Table -2 above must be clearly brought out as Deviations and should be a part of Techno-Commercial bid Part-I .



**Price Bid - Part -2****TABLE -3**

<b>S.No.</b>	<b>Description</b>	<b>Value (Both in Figure and Words)</b>
1.	Lump Sum value of Entire Technical Specifications, scope and Deliverables as per Annexure -1 <b>including</b> the Cost of Consultants visit to India. This would include, to and fro, air-fare and other transit costs from Consultant's native place to any International Airport in India (preferably Delhi / Mumbai).	
2.	Cost of, to and fro, travel from the International airport in India (Delhi /Mumbai) to BHEL, Bhopal including transit (if any) in India, and boarding , lodging and local conveyance charges in Bhopal.	This will be taken care by BHEL and is not required to be indicated.
3.	During Consultant's stay in Bhopal, per diem Charges if any.	