



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY

NOTICE INVITING TENDER

Phone: +91 431 257 7421

Email : vkaruna@bhel.in

Web : www.bhel.com

TWO PART BID

Enquiry
Number:

Enquiry
Date:

Due date for submission
of quotation:

Tender to be submitted in two Parts

2741900022

06.12..2019

03.01.2020

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity	(Indigenous Vendors) Matl. will be Delivered to
10	Online Water Quality Monitoring System as per the technical specification and commercial conditions applicable (to be downloaded from web site (http://www.bhel.com) http://www.bhel.com/tender/tender_home.php or https://eprocure.gov.in/epublish/app)	1 Set	FOR, BHEL Stores, PPPU, Thirumayam- 622 507

Important points to be taken care during submission of offer

1. Vendor should quote as a package only.
2. Material shall be delivered to: Indigenous Vendors: As stated above.
3. Delivery required 4 month including PDI from the date of purchase order.
4. Erection & Commissioning period required 5 week from the date of intimation by BHEL to vendor for deputation of their Engineers for E&C.
5. EMD for this Tender will be (not less than): INR 40,000/-
6. Compliance Form Nos.: TRY/IND/07 to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
7. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions (refer MM / CE / GENL / 001 - EMD) including bank guarantee formats and list of consortium banks, commercial terms check-list can be downloaded from BHEL web site (<http://www.bhel.com>) http://www.bhel.com/tender/tender_home.php or from the Government tender website <https://eprocure.gov.in/epublish/app> under above Enquiry reference.

(This is not an E-tender, please submit your offer in hard copies)

Tenders should reach us before 14:00 hours on the due date
Tenders will be opened at 14:30 hours on the due date
Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present

Yours faithfully,
For BHARAT HEAVY ELECTRICALS
LIMITED

V. Karunakaran 6/12/19
DGM / Capital Equipment / MM

**Part A:- Pre-Qualification Criteria for Installation of Online Water Quality Monitoring System for Sewage Treatment Plant at
BHEL, PPPU - Thirumayam**

Sl No	BHEL's Requirement	Vendor's Response
1	Bidder shall be either an OEM or an authorised dealer for water quality monitoring instruments meeting the TNPCB guidelines. In case of dealers, vendor should provide valid dealership certificate.	
2	Bidder should have designed, supplied and installed "Online Continuous Water Quality Monitor" of pollution parameters, for water/ sewage treatment plants. Vendor shall submit at least one purchase order/ work order as proof of the same.	
3	Performance certificate from at least one of the reputed customers regarding satisfactory performance of the complete water quality monitoring system supplied to them should be provided along with the offer.	
4	The data uploading to TNPCB has to be done only through the TNPCB approved software vendor. Hence, the vendor should submit the proof of collaboration with the software vendor through whom data uploading to TNPCB would be done, along with the offer.	

Part B:- Technical Specifications for Installation of Online Water Quality Monitoring System for Sewage Treatment Plant at BHEL, PPPU - Thirumayam

Sl No	BHEL's Desired Parameter/ Specification	Vendor's Response
1.0	General Requirements	
1.1	Installation and commissioning of a real time web uploading system (online water quality monitoring system) for uploading of water quality parameters of the Sewage Treatment Plant (STP) available at BHEL, PPPU - Thirumayam. The monitored data have to be captured in a common PC which will be located in the control room near the STP. PC (with specification mentioned below) will be provided by BHEL. This PC should be used to upload the water quality data to internet via a public domain IP address. Suitable Server Software shall be installed in this PC by the vendor only through the TNPCB approved software vendor. Suitable front end web page to monitor the parameters from the server shall be developed/ provided by the vendor.	
1.2	Vendor is advised to visit the site and get all details as may be required, prior to submitting the offer. On award of the work, vendor shall have to depute their engineer to site to collect data and for technical discussion with BHEL's personnel.	
1.2	The following parameters are to be measured online at the outlet of the sewage treatment plant. A. COD: 0-500 mg/l B. BOD: 0-500 mg/l C. Total Suspended Solids (TSS): 0-500 mg/l D. pH: 4.0-9.0 E. Flow of raw water at the inlet: 0-250 lpm F. Flow of treated water at the outlet: 0-200 lpm G. Totalized reading of raw water and treated water	
1.3	All softwares supplied shall be along with appropriate comprehensive licenses for permanent use of the software. The scope shall include free upgrade of vendor's software for the data acquisition system, monitoring and web uploading, for a period of at least 5 years from date of commissioning of the system. The vendor should support for upgrading as and when required during this period.	
2.0	Specifications of Online Water Quality Analyser	

2.1	Analyser description	Microprocessor based system for simultaneous and continuous measurement of COD, BOD, TSS and pH of STP treated water.	
2.2	Measurement principle	UV spectroscopy for COD, BOD and TSS. pH sensors for pH measurement.	
2.3	Measurement range	A. COD: 0-500 mg/l B. BOD: 0-500 mg/l C. Total Suspended Solids (TSS): 0-500 mg/l D. pH: 4.0-9.0	
2.4	Ambient temperature	Up to 50 deg C.	
2.5	Accuracy	COD, BOD, TSS: 5% to 10% of full scale pH: ± 0.1 pH	
2.6	Response time	Within 10 seconds	
2.7	Display	Touch screen LCD backlit alpha numeric display.	
2.8	Output signal	RS485 or similar digital output. Vendor to specify.	
2.9	Interference	Interference minimization techniques should be incorporated to reduce the effects of interference between pressure and flow variations.	
2.10	Sampling unit	The analyzer should consist of a sampling system including suction pump, filters, flow meter, valve, flanges, switching system between sample and calibration lines etc. Vendor to specify details in the offer along with drawings.	
2.11	Power supply	BHEL will provide 230 V AC, 50 Hz raw power supply at a single point. Vendor has to do necessary routing of cables for distribution of power.	
2.12	UPS	UPS of suitable rating to provide at least one hour back-up for the water quality monitoring system and the PC (which will be provided by BHEL) should be supplied by the vendor. Calculation of UPS rating should be attached along with the offer.	

2.13	Power rating of the system	Vendor to specify.	
2.14	Calibration facility	Built-in online auto zero calibration for COD/BOD/TSS with OFFSET correction and manual span calibration for COD/BOD/TSS/pH should be incorporated in the instrument. Auto calibration unit should be supplied with required calibration solution with regulators and all required accessories.	
2.15	Analyser housing	IP65 or higher.	
2.16	Dimension	Vendor has to mention the physical dimension of the equipment.	
2.17	Calibration certificate	Calibration certificate/ test certificate from authorized agency should be provided during material supply.	
2.18	Make and model	Only reputed makes like Forbes Marshall, GO Systemelektronik, Dkktoa or equivalent reputed make acceptable to BHEL. Vendor has to mention the make and model no of the instrument in the offer.	
3.0	Flow Monitoring		
3.1	Measurement ranges	Flow of raw water at the inlet: 0-250 lpm Flow of treated water at the outlet: 0-200 lpm	
3.2	Details of existing setup for flow measurement	Electromagnetic Flowmeter Make: ABB, Model: FEP321 Recorder Make: Brainchild; Model: VR18 -4300-121-610	
3.3	Current requirement	The vendor has to suitably collect the inflow and outflow data from the flowmeters and the recorder and communicate the same to "TNPCB Water Quality Watch" website through the PC and internet facility provided by BHEL. Totalizer function should be incorporated to record the per day volume of raw water and treated water.	
4.0	Data Acquisition System		

4.1	The data from the online analyzers and the flowmeters have to be collected by a Data Acquisition System (DAS) to the PC and the data have to be uploaded to a dedicated web server through internet via a broadband connection (to be provided by BHEL) with static IP address of 1 Mbps speed. The static IP address will be given to the vendor. The vendor has to do the necessary configuration to upload the data to TNPCB Water Quality Watch. Whenever required, the uploaded live data can be accessed with the IP at TNPCB office by logging on to the remote server IP address. A copy of the data should be saved in the local PC also. After completing the configuration, the vendor has to share the website, user-id and password to BHEL for regular monitoring.		
4.2	PC connectivity	Through USB/ RS485 the data have to be connected to the PC provided by BHEL the specification of which is mentioned below. If any accessories are required for interconnection, it would be in vendor's scope.	
4.3	Interface device, if required	Devices suitable for various signal inputs with high isolation between input power supply and output shall be supplied by the vendor.	
5.0	Documents to be sent along with the offer		
5.1	Technical datasheets of all the offered hardware.		
5.2	Connection diagram/ block diagram and P&I diagrams.		
5.3	Performance certificate of online water quality monitoring system from at least one of the customers of the vendor.		
6.0	Documents to be supplied with materials		
6.1	Three sets of following documents (hard copies) in English should be supplied. One copy in CD should also be supplied.		
6.2	O&M manual of all the equipment.		
6.3	Detailed drawings of the system.		
6.4	Complete master list of parts (BoM) used in the system.		
6.5	Recommended list of spares for 2 years.		
6.6	Electrical wiring diagram of the system.		
6.7	The supplier should produce valid calibration and test certificates for all the instruments and the supplier should provide details of the sources from where BHEL can get the certificates in future.		

7.0	Drawing approval		
7.1	The supplier shall send the drawings within 2 weeks from the date of PO, along with complete bill of materials to BHEL for approval before proceeding for manufacture.		
8.0	Pre-Dispatch Inspection		
8.1	Pre-dispatch inspection shall be carried out at supplier's works. The supplier should produce the wiring diagrams, manuals, test reports and calibration reports of the components used in the system during the pre-dispatch inspection.		
9.0	Erection and Commissioning		
9.1	The supplier has to take full responsibility for carrying out the erection, start up, testing of the water quality monitoring system and all other supporting equipment.		
9.2	All required tools, equipment and instruments for erection and commissioning should be brought by the supplier.		
9.3	The scope of the vendor shall include laying of cables, cable trays, power cables, signal cables, communication cables, sample line etc. and all civil work at site like mounting of analyzers, sample handling systems, arranging necessary grouting and civil foundation work, provision of canopy for the system etc.		
9.4	Commissioning spares required for commissioning of the water quality monitoring system shall be brought by the supplier on returnable basis.		
10.0	Acceptance (tests/ activities to be performed by vendor after commissioning)		
10.1	Vendor should demonstrate all features of the complete system to BHEL personnel.		
10.2	Supplier's representatives should impart training for BHEL personnel regarding operation and maintenance of the online water quality monitoring system.		
10.3	The supplier has to co-ordinate with TNPCB officials and should demonstrate the functioning (performance prove out) of the system as per their requirement.		
11.0	BHEL's Scope		
11.1	BHEL will provide desktop PC and broadband connection with following specifications		
11.2	Operating system	Windows 7 professional version.	
11.3	System type	64 bit operating system.	

11.4	Processor	Intel i5-2400 CPU @ 3.10 GHz.	
11.5	RAM	4 GB	
11.6	Monitor	17" LCD monitor.	
11.7	Accessories	Keyboard, mouse.	
11.8	Broadband connection	Uplink speed: 1 Mbps Modem will be provided by BHEL. One fixed external IP will be provided. Configuration of the modem so as to access the server from outside shall be done by the vendor.	
11.9	Power supply	BHEL will provide only 230 V, 50 Hz AC supply at the control room of STP. Vendor to provide UPS of suitable rating for the online water quality analyser system and the PC.	
12.0	Guarantee: The vendor should offer guarantee for the complete system including all the hardware and software components for 24 months from the date of commissioning at BHEL, PPPU - Thirumayam.		