



## **Expression of Interest (EoI)**

**EoI No.: WEBEL/EOT/COM/21-22/00009 Dated: 14-06-2021  
(2nd Call)**

### **Empanelment of Vendors for setting up of Online Continuous Effluent Monitoring System at Sewage Treatment Plant (STP)**

Issued by:

West Bengal Electronics Industry Development  
Corporation Limited (WBEIDC),  
(A Govt. of West Bengal Undertaking)  
Webel Bhavan, Block-EP & GP, Sector-V,  
Salt Lake, Bidhan Nagar,  
Kolkata: -700091

**Abbreviation**

Abbreviations	Descriptions
BOD	Bio-Chemical Oxygen Demand
COD	Chemical Oxygen Demand
CPCB	Central Pollution Control Board
FC	Fecal Coliform
IOT	Internet of Things
MOC	Multivariate optical computing
NGT	National Green Tribunal
PCC	Pollution Control Committees
STP	Sewage Treatment Plant
TSS	Total Suspended Solids
WBEIDC LTD.	West Bengal Electronics Industry Development Corporation Limited
WBPCB	West Bengal Pollution Control Board

## Content

<b>Section A: Instruction to Bidders .....</b>	<b>5</b>
<b>Section B: Eligibility Criteria .....</b>	<b>6</b>
<b>Section C: General Terms &amp; Conditions .....</b>	<b>10</b>
<b>Section D: Special Terms &amp; Conditions .....</b>	<b>11</b>
<b>Section E: Terms of Reference.....</b>	<b>14</b>
<b>a. Introduction.....</b>	<b>14</b>
<b>b. Objective .....</b>	<b>15</b>
<b>c. Scope of Work .....</b>	<b>15</b>
<b>d. Technical Specifications .....</b>	<b>19</b>
<b>e. Other Requirements.....</b>	<b>32</b>
<b>Section F: Annexures .....</b>	<b>34</b>
<b>a. Annexure I: Covering Letter for submission of EoI .....</b>	<b>34</b>
<b>b. Annexure II: Details of the Responding Bidder .....</b>	<b>35</b>
<b>c. Annexure III: Financial Capability .....</b>	<b>36</b>
<b>d. Annexure IV: Declaration for not being blacklisted .....</b>	<b>37</b>
<b>e. Annexure V: Details of Projects undertaken .....</b>	<b>38</b>

**Expression of Interest (EoI) No.: WEBEL/EOT/COM/21-22/00009**

West Bengal Electronics Industry Development Corporation Limited (WBEIDC Limited), under the aegis of Department of IT & Electronics, Government of West Bengal invites EoI for the work detailed in table below:-

*Table 1*

Brief Description of Work	Tender Document Money (Rs) [Non-refundable] (Online)	Earnest Money Deposit (EMD) (Rs) [Refundable] (Online)	Last Date and Time of Bid Submission (Online)	BID Opening Date and Time (Online)
Setting up of Online Continuous Effluent Monitoring System (OCEMS) for functional Sewage Treatment Plants (STPs)	Rs 10,000 (Ten Thousand ) only	Rs. 1,00,000 (Rupees One Lakh Only)	28-06-2021 12:00 PM	30-06-2021 3:00 PM

The timelines for the EoI are mentioned in Table 1 below:

*Table 2: Description of the work and timelines*

1.	EoI No. & Date	WEBEL/EOT/COM/21-22/00009
2.	Tender issuing entity	West Bengal Electronics Industry Development Corporation(WBEIDC) Limited
3.	Date of uploading EoI	14-06-2021
4.	Documents download start date(Online)	14-06-2021
5.	Last date & time of Bid Submission	28-06-2021 12:00 PM
6.	Date & time of Bid Opening	30-06-2021 3:00 PM
7.	Venue of Bid Submission & Bid Opening	Online

8.	WBEIDCL Contact Person for any further clarifications	<p>For Commercial Queries, Contact:</p> <p>a. Wing Commander Pratul Show(Retired) G.M.(Commercial) E-Mail: <a href="mailto:pratul.show@webel-india.com">pratul.show@webel-india.com</a></p> <p>b. Mr. Kausik Halder Assistant Manager (Commercial) E-Mail: <a href="mailto:halder.kausik@webel-india.com">halder.kausik@webel-india.com</a></p> <p>For Technical Queries, Contact:</p> <p>c. Mr. Arup Ratan Bhattacharya, Advisor, WML Division Email: <a href="mailto:arup.bhattacharya@webel-india.com">arup.bhattacharya@webel-india.com</a></p>
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### Section A: Instruction to Bidders

- a. Intending bidders may download the EoI document directly from the website <https://wbtenders.gov.in>.
- b. Each bidder needs to obtain a Class-II or Class-III Digital Signature Certificate (DSC) for submission of EoI from the approved service providers on payment of requisite amount.
- c. The digitally signed EoI response should be submitted in the website <https://wbtenders.gov.in>
- d. Submission of EoI response will be done as per time schedule stated mentioned in the Table 1 of this document.
- e. Limited tendering will be done among the qualified bidders evaluated by the EoI evaluation committee of WBEIDC. The decision of the committee will be final and absolute in this aspect. The list of qualified bidders will be displayed in the website <https://wbtenders.gov.in> and notified to each successful bidder.
- f. For any queries regarding this EoI, please contact with WBEIDC Limited contact persons as mentioned in the Table 1 of this document on or before last date of submission of queries. No queries will be entertained after this timeframe.
- g. EoI responses are to be submitted online to the website before the prescribed date & time using the Digital Signature Certificate (DSC). Virus scanned and duly digitally signed copies of the documents are to be uploaded.
- h. In the event of e-filing, intending bidders may download the tender documents from the website <https://wbtenders.gov.in> directly. Necessary cost of tender documents (tender fees) of Rs.

10,000 (Rupees Ten Thousand Only) has to be remitted through Net banking or through RTGS NEFT through the [https://wbtenders.gov.in //portal](https://wbtenders.gov.in//portal) as per G.O 3975-F(Y) dated 28th July, 2016 issued by Finance department Govt. of West Bengal.

- i. The bidder shall pay an EMD of Rs. 1,00,000 (Rupees One Lakh only) through Net banking or through RTGS NEFT through the [https://wbtenders.gov.in //portal](https://wbtenders.gov.in//portal) as per G.O 3975-F(Y) dated 28th July, 2016 issued by Finance department Govt. of West Bengal.

**EoI response should contain:**

- ✓ This EoI document, with all pages signed by the authorized signatory
- ✓ Covering letter (as per Annexure-I)
- ✓ General information of the bidder (as per Annexure-II)
- ✓ Financial capabilities of the bidder (as per Annexure-III)
- ✓ Credentials of the bidder along with relevant work orders, agreements and completion certificates
- ✓ Declaration of non-blacklisting (as per Annexure-IV)
- ✓ The details of the project executed as per format mentioned in Annexure-V and Work Order copies along with project completion certificates from the customers duly attested.
- ✓ Understanding and technical write-up on scope of work and approach & methodology.
- ✓ Valid scanned copies of the following documents:
  - Certificate of Incorporation,
  - Power of attorney establishing the authorized signatory (mandatory for partnership firms)
  - Audited Balance Sheets and Profit & Loss Statements for the Financial Years 2017-2018, 2018-2019 and 2019-2020

**Section B: Eligibility Criteria**

The bidder must possess the requisite prior experience, financial strength and technical capability in providing the services necessary to meet the requirements as described in the EoI document. The Bidder is required to meet all eligibility criteria mentioned below in order to qualify.

#	Basic Requirement	Specific Requirements	Documents Required to be submitted
1	Annual Sales Turnover	1. Average annual turnover of not less than Rs. 3 Crores in last three financial years (FY 2017-2018, 2018-2019 and 2019-2020). 2. The firm must have been a profit-making organization for the last three financial years (FY 2017-2018, 2018-2019 and 2019-2020).	<ul style="list-style-type: none"> <li>Audited Financial Accounts &amp; certificates from the statutory auditor / Chartered Accountant</li> <li>Balance sheet and Profit &amp; Loss Statement from the statutory auditor or Chartered Accountant</li> </ul>
2	Work experience	The bidder should have implemented minimum three Online Continuous Effluent Monitoring System (OCEMS) at different STPs (ongoing/ completed) in India. Value of each of the assignment must be greater than INR 20 Lacs	<ul style="list-style-type: none"> <li>For completed projects: Work Order and Completion Certificate issued by the client</li> </ul> <b>Or</b> <ul style="list-style-type: none"> <li>For ongoing projects: Work Order and satisfactory certification from client.</li> </ul>
3	Quality Certification	The bidder / OEM must have following certification : ISO- 9001 / ISO IEC 17025:2018 / ISO 45001	<ul style="list-style-type: none"> <li>Copies of the valid certificates from authorized agencies</li> </ul>
4	Testing facility	The bidder should have tie up with any NABL accredited R &D LAB	<ul style="list-style-type: none"> <li>Copies of the valid documents</li> </ul>
5a	Legal Requirement	The responding firm must not be blacklisted by any Government Department, Ministry or Agency in any country for breach of ethical conduct or fraudulent practices during the last three years.	<ul style="list-style-type: none"> <li>The bidder must provide self- declaration in the company's letter head (as per Annexure-IV)</li> </ul>

#	Basic Requirement	Specific Requirements	Documents Required to be submitted
5b	Legal Entity	<ul style="list-style-type: none"> <li>The bidder should have existence in India for last five (5) years at the end of 31<sup>st</sup> March 2020.</li> <li>The bidder shall be solvent at the date of bidding</li> </ul>	<ul style="list-style-type: none"> <li>Certificates of incorporation for Company/ Partnership Deed / Proprietorship firm self-declaration</li> <li>Certificate from Statutory auditor / Chartered Accountant for existence of firm for last five years along with last three years balance sheet.</li> </ul>
5c	Other legal documents	<ul style="list-style-type: none"> <li>Trade License</li> <li>GST Certificate</li> <li>Income Tax Return ( Last 3 years )</li> <li>GST Registration</li> <li>Copy of PAN</li> <li>Articles of Association/ Company Registration (depending on company type)</li> </ul>	<ul style="list-style-type: none"> <li>Copy of the valid documents</li> </ul>
6	Manpower Capability	<ul style="list-style-type: none"> <li>The bidder should preferably have minimum 20 professionals including 10 professionals having experience in execution of projects on OCEMS/ On-line Analyzers /IOT on its pay-roll for last 2 years in India.</li> </ul>	<ul style="list-style-type: none"> <li>Undertaking from the Signing Authority/ HR Head to this effect. Also submit bio-data of all technical persons</li> </ul>
7	Adherence to the statutory regulatory	<ul style="list-style-type: none"> <li>The bidder has to abide by all the guidelines issued by Central Govt., CPCB/SPCB and other regulatory</li> </ul>	<ul style="list-style-type: none"> <li>Undertaking from the Signing Authority to this effect.</li> </ul>



#	Basic Requirement	Specific Requirements	Documents Required to be submitted
	norms / guidelines	authorities associated in this assignment	
8	Power of Attorney	<ul style="list-style-type: none"> <li>The bidder shall submit the Power of Attorney of Authorization for signing the bid in Rs.100.00 Non Judicial Stamp Paper.</li> </ul>	<ul style="list-style-type: none"> <li>Scanned copy of Power of Attorney needs to be uploaded</li> </ul>
9	Submission of authorization from OEM	<ul style="list-style-type: none"> <li>In case if the bidder is not the OEM, then OEM has to authorize the bidder</li> </ul>	<ul style="list-style-type: none"> <li>Scan copy of the letter</li> </ul>
10	Submission of EMD	<ul style="list-style-type: none"> <li>The Bidder shall pay EMD of Rs. 1,00,000 (Rupees one lakh only) through net banking or through RTGS/NEFT in the portal of the website: <a href="https://wbtenders.gov.in">https://wbtenders.gov.in</a> as per G.O 3975-F(Y) dated 28th July 2016 issued by Finance Department, Govt. of West Bengal. For details regarding payment procedure &amp; guideline on the same, bidders are advised to follow the mentioned order and portal.</li> </ul>	<ul style="list-style-type: none"> <li>Scanned copy of the EMD needs to be uploaded</li> </ul>
11	Submission of Tender Document Fee	<ul style="list-style-type: none"> <li>Bidder should submit Tender Document Fee of Rs. 10,000 (Rupees ten thousand only) in the form of Demand Draft from any Scheduled Bank in favour of WBEIDC LTD. payable at Kolkata.</li> </ul>	<ul style="list-style-type: none"> <li>Scanned copy of tender fee needs to be uploaded</li> </ul>

**Note:**

- The Bids shall be submitted only by the Bidder; no consortium is allowed in this Bid. Declaration in this regard needs to be submitted.
- No Sub contracting will be allowed
- In absence of any of the above, the bid will be treated as non-responsive and hence shall be rejected.

The duration of the empanelment is for 3 years from the date of signing of Letter of Empanelment and it may be renewed for another 2 (two) equal terms i.e. 1 (one) year each based on the evaluation of the performance of the bidder in each year.

### **Section C: General Terms & Conditions**

#### **i. Schedule of the EoI Document**

- a. The EoI response must be received by WBEIDC Limited before the scheduled time.
- b. Beyond scheduled submission time, no response will be accepted by WBEIDC Limited and returned unopened to the Bidder.
- c. WBEIDC Limited shall not be responsible for any delay or non-receipt of the EoI response. No further correspondence on the subject will be entertained.
- d. The EoI Response submitted by fax, e-mail etc. shall not be considered. No correspondence will be entertained on this matter
- e. WBEIDC Limited reserves the right to modify and amend any of the above-stipulated condition/criteria depending upon project priorities vis-à-vis urgent commitments.

#### **ii. Clarification regarding EoI document**

- A prospective Bidder requiring any clarification about the EoI document and scope of work may contact the concerned person through e-mail/ letter as mentioned above.
- No queries from the prospective Bidders will be entertained after the date & time mentioned in this document.
- After opening of EoI responses, if tender committee feels, they may ask for supporting documents in respect of the claim of the bidder and the bidder must submit supporting document as well as written clarifications required by the committee within three days.

### **iii. Language of EoI**

The EoI response submitted by the bidder should be in English language only. All the documents relating to the EoI (including brochures) supplied by the firm should also be in English, and the correspondence between the Bidder & WBEIDC Limited will be in English language only.

### **iv. Formats and Signing of EoI**

The original EoI shall be neatly typed and shall be signed by an authorized signatory/ signatory on behalf of the Bidder. The authorization shall be provided by written Power of Attorney accompanying the EoI. The person or persons signing the EoI shall initial all pages of the EoI, except for unamended printed literature. The EoI shall contain no interlineations, erasure or overwriting. In order to correct errors made by the Bidder, all corrections shall be done & initialed with date by the authorized signatory after striking out the original words completely.

## **Section D: Special Terms & Conditions**

### **1. Preparation of EoI**

EoI shall be submitted in accordance with the following instructions:

- i. EoI shall be submitted in the prescribed forms. All signatures shall be in longhand. Where there is conflict between the words and the figures, the amount in words shall govern.
- ii. All notations must be in typed. No erasures or overwriting will be permitted.
- iii. EoI shall not contain any recapitulation of the work to be done. Alternative EoI will not be considered unless called for. No written, oral, electronic, telegraphic or telephonic EoIs for modifications will be acceptable.
- iv. EoIs shall be uploaded to the website as notified on or before the date and time set for the opening of EoIs in the Instruction to Bidder section.
- v. EoIs subject to any conditions or stipulations imposed by the bidder are liable to be rejected.
- vi. Every page of the EoI document must be signed with date and company seal by the bidder. This is required to show that the bidder has accepted all the terms and conditions mentioned in this EoI document.

### **2. Opening of EoI**

The EoIs shall be opened at the time set forth in the document.

**3. Acceptance of EoI**

The acceptance of the EoI will rest with the accepting authority who is not bound to accept any EoI and reserves the right to reject in part or in full any or all EoI(s) received without assigning any reason thereof.

**4. Awarding of contract**

- i. WBEIDC will use limited tendering for price discovery amongst the empaneled vendors for their individual project. WBEIDC will use QCBS for awarding the contract for the respective individual project. The evaluation will be made on the basis of QCBS with 80:20 ratio, where the weightage on the Technical part will be 80 percent and the 20 percent weightage to be given in commercial. The bidder with the highest total score would be declared successful.
- ii. The “Empaneled Vendors” will sign the contract with WBEIDCL within 15 working days of the release of notification and submission of fixed performance security. After signing of the contract, no variation in or modification of the terms of the contract shall be made except by mutual written amendment signed by both the parties.

**5. Technical Evaluation**

Technical Evaluation of the bids would be carried out on following criteria:

- A. Bidder’s Technical Proposals (30 Marks)
- B. Proof of Concept (70 Marks)

A. Bidder’s Technical Proposals (30 Marks)

#	Technical Evaluation Criteria	Description	Supporting Documents	Marks
A1	Bidder’s understanding of the project requirements	<ul style="list-style-type: none"> <li>• Clarity and depth of understanding of the project’s objectives, scope and requirements by the bidder – <b>5 Marks</b></li> </ul>	Write-up / presentation / demonstration in supporting of the criteria	10

#	Technical Evaluation Criteria	Description	Supporting Documents	Marks
		<ul style="list-style-type: none"> <li>Bidders understanding on OCEMS and how the project components would be delivered to meet project requirements – <b>5 Marks</b></li> </ul>		
A2	Compliance to specified functional requirements	<p>Compliance to Functional Requirement Specifications as mentioned in Terms of Reference (Technical Specifications). The level of compliance will be computed as follows:</p> <ul style="list-style-type: none"> <li>Fully Compliant (Y) = 2</li> <li>Partly Compliant (P) = 1</li> <li>Non-Compliant (N) = 0</li> </ul> <p>The marks will be awarded based on the above marking scheme. The overall score will be based on the Pro rata basis.</p>	Supporting documents in conformance to the level of compliance	20

**B. Proof of Concept (70 Marks)**

- The eligible bidders will be asked to give a demonstration on the proposed OCEMS solution. The Proof of Concept should depict how the entire system will work as per the Technical Specifications mentioned under **Section E** of this EoI document. The bidder’s proposal would be evaluated on the basis of the documents submitted along with this demonstration.
- The demonstration of the equipment/solution will have to be arranged by the bidder before the Tender committee during proof of concept assessment on a convenient date after opening of the bid. If any or all the equipment are not found suitable and/or up to the mark by the members of the Tender Committee, the same shall be liable to be rejected. The decision of

Tender Committee will be taken as final. The bidder is liable for the cost of equipment/product of demonstration and the demonstrated item(s) will not be accepted.

#	<b>Section D: Special Terms &amp; Conditions, 5. Technical Evaluation- B. Proof of Concept (70 Marks):- Parameter based distribution of marks under Proof of Concept (PoC): Total Marks- 70: The following activities may be conducted either at Webel's Premise at Salt Lake or at a Site near by Kolkata.</b>	Max. Marks
D1	Complete Integration & demonstration of the system	15
D2	Sensors Parametric validation: 2 marks for each sensor ( any deviation from the specification will be considered as zero marks for that particular sensor)	15
D3	Sensors Calibration Check with range adjustability: 2 marks for each sensor (bidder has to arrange for water sample and standard reference for calibration check.)	15
D4	Display of sensor readings with proper resolutions in the Controller and also in a standard PC terminal using Window OS based serial communication application or equivalent	10
D5	User friendliness of the Dashboard Application software covering all desired feature. Details of API are to be provided	5
D6	Data connectivity & system endurance test for 3 days: (Preferably two sets of sensors & controller are to be integrated & monitored data recoding & drift in sensor reading will be monitored). Note: Any deviation in result or loss of data will induct 0 marks.	10

**To qualify the technical evaluation, the bidder must score a minimum of 60 marks**

Measurement Parameter Ref section E: Terms of reference under scope of work Point no i: Supply & Installation of the Online Analyzer: Provision should be there to measure Fecal Coliform (FC) and insertion of data in the Dashboard/System for monitoring & record.

## **Section E: Terms of Reference**

### **a. Introduction**

Central Pollution Control Board (CPCB) has already issued an directive (vide letter no. b29016/04/06PCI-1/5401 dated 05-Feb-2014) to the State Pollution Control Boards( SPCBs) and Pollution Control Committees (PCC) to take necessary steps to install online effluent quality and

common emission monitoring system to track the discharge of the pollutants from 17 categories ( as per the list available under 1st Revised Guideline for Continuous Emission Monitoring System, August 2018 by CPCB) of industries including Sewage Treatment Plants (STPs).

WBEIDC Limited as a nodal agency of Department of IT & Electronics, Government of West Bengal through this EoI intends to select competent Vendor/ Firm/ System Integrator / OEM to set up Online Continuous Effluent Monitoring System (OCEMS) for all functional STPs at different locations in West Bengal to monitor the effluent quality. The selected bidder will implement the OCEMS at the site and provide solutions for online monitoring of the pollutants discharged from those units. The desired solutions must comply with the guideline set by the CPCB (“Guidelines for Online Continuous Effluent Monitoring System dated 17-11-2014” & the 1st Revised Guideline for Continuous Emission Monitoring System, August 2018).

#### **b. Objective**

The main objectives of this assignment include the following:

- Automation of all major steps involved in traditional analysis like sample collection, preservation, transportation, sample pre-treatment etc. through Online Analyser and thus leading to time saving.
- Continuous measurement of data
- Availability of real time data from the site with minimum human interventions
- Ease of data validation and accuracy
- Ready availability of required data to the generator, so that the corrective actions may be taken up if required without any delay.
- Provision of timely information through Online Analyzer, in case of sudden disturbance in the system so that preventive actions may be taken immediately.

#### **c. Scope of Work**

The responsibilities of the selected firm are mentioned below (but not limited to):

##### **i. Supply and Installation of the Online Analyzers-**

Online Analyzer should be based on the latest technology i.e. UV Vis Absorption Spectroscopy (Double beam with entire spectrum scanning) so that the measurement is performed in-situ

for COD, BOD and TSS. Temperature measurement should be done for compensation purpose. Online Analysers shall also be provided to measure other parameters such as pH, Ammoniacal Nitrogen, Total Nitrogen, Phosphates. Flow meters (ultrasonic type / any better suitable technology) are also to be supplied and installed in the channel/ drain /pipe provided for carrying the effluent from within the premises of the STP.

The basic prerequisite of the Online Analyser should be as per the guidelines mentioned in the “1st Revised Guideline for Continuous Emission Monitoring System, August 2018” published by Central Pollution Control Board. The minimum specification for the Analyser include the following:

- a. Method:
  - i. COD,BOD & TSS : UV/ Visible optical absorption spectroscopy
  - ii. For pH, Ammoniacal Nitrogen, Nitrite, Total Nitrogen, Phosphates, Flow: Should be as per the CPCB recommended technologies mentioned in 1<sup>st</sup> revised guideline for continuous Emission Monitoring Systems, August. 2018
- b. Measuring range should be flexible and may be calibrated as per the requirement of the sites before deployment
- c. Accuracy of measurement: should with within the range given in CPCB guideline for individual sensors.

## **ii. Installation of CCTV& UPS**

The selected vendor will have to supply and install IP Camera with Pan/ Tilt/ Zoom, 5x or above focal length, resolution 352 X 240 pixel or above with night vision capability. The connectivity of the camera should be provided to the central server located at SPCB through the web portal on a 24 X 7 basis with minimum one month data to be kept as backup retrieval. The selected vendor shall also provide UPS of adequate capacity (minimum 30 minutes backup time with full load after power outage).

## **iii. Installation of Data Acquisition and Communication device**

The IoT device for data acquisition and data communication should be installed at the site along with the Online Analyser. These devices will take the output from sensors in terms of Analogue/ Digital signals, process it and provide the output. The following prerequisites should be followed while selection of the IoT devices:



- a. Device should support RS232/RS485.
- b. Should provide seamless support for Analogue Analyser with 4-20mA, 0-10V etc.
- c. The device should support any industrial grade effluent monitoring Analysers.
- d. The offered solution should provide secured encrypted data communication with Central Server using industry standard IoT protocol.
- e. Hardware should have provision for a non-volatile memory to record data for at-least one year of continuous operation in case of loss of signal or power failure. After resumption of power, stored data will be transmitted to the server
- f. System should provide seamless communication between Industry and Regulatory Authority/SPCB through API.

#### **iv. Installation of application for data management**

The selected vendor has to provide a State-of-the-art application with Cloud Service Provider (Govt. empaneled) OR on premise deployment so as to ensure data connectivity on a 24 x 7 basis. They need to provide login credentials to all the concerned departments, SPCB & WBEIDC Limited. The software application should have two way communication, so that the data from the system can be seen whenever desired and remote access of the controller/ data logger can be taken to visualize the immediate status of the system. The data along with diagnostic and calibration details should be transmitted to the SPCB and WBEIDC Limited. The basic functional capabilities of such system software shall include:-

- i. Pre-configured reports as per the Regulatory requirements
- ii. Ad-hoc reporting and analytics on all captured data with interactive dashboards
- iii. Data analysis capturing parameter limits and rules pre-configured as directed by Central Pollution Control Board and SPCB
- iv. Real-time Data Integrity & Data Quality monitoring (Real Time charts, Average value with prescribed limits)
- v. Dashboard application to be provided to all the concerned stakeholders
- vi. Live Alerts and Alarms on all monitored parameters
- vii. Remote calibration, configuration and complete protocol integration with diagnostics

- viii. Features to capture parameter readings daily, weekly or monthly basis for future evaluation
- ix. System should be scalable to handle multi analyzers connected over real time.
- x. System should be capable of analyzing the data with statistical tools and shall have the capabilities of statistical data analysis (customizable) for avg, min, max and diurnal variation.
- xi. Capable of comparison of parameters of different locations in user selectable time formats, i.e. in graphical and tabular formats compatible to MS Excel, MS Word, \*. Txt etc.
- xii. Capability of comparison data with respect to standard/ threshold values.
- xiii. Auto report and auto mail, SMS generation facilities
- xiv. Provide data export facility on continuous basis through central system to other systems.

Note: Mobile App feature is desirable for ease of communication, which provides real time data from the STP effluent system on mobile using secured login with Real Time Alerts available on the mobile.

#### **v. Operation & Maintenance Support**

The selected vendor has to perform the O&M services as per the guidelines of the CPCB and make the system available on a 24 X 7 basis. The selected vendor should also ensure availability of qualified and trained personnel to perform O&M services in site. The selected vendor has to perform instrument calibration and validation check for all the sensors as per the guidelines mentioned in the 1st revised guideline for continuous Emission Monitoring Systems, August. 2018 by CPCB. The process to be followed in checking are mentioned below:

- Daily Check: Data Transmission, System Diagnostics alarms
- Monthly Check: Sensors and system cleaning, data backup and parameter calibration as specified in the guidelines of CPCB
- Periodic Check: System validation with known standards, Laboratory and online parameters comparative

The selected vendor shall ensure that the spare parts should be available for at least 07 years after Installation of the system.

- vi. **Other Accessories:** The vendor will have to provide any other hardware which may be needed for smooth functioning of the OCEMS.

**The discharge standard:**

As per the Hon'ble National Green Tribunal order dated 30.04.2019<sup>1</sup>, the applicable treated Discharge standards for STPs for Mega & Metropolitan Cities to be:

- pH – 5.5 – 9.0
- BOD – 10 mg/l
- TSS – 20 mg/l
- COD – 50 mg/l
- Nitrogen- Total- 10 mg/l
- Phosphorous-Total (For Discharge into Ponds, Lakes) - 1.0 mg/l
- Fecal Coliform (FC) ( Most Probable number per 100 milliliter, MPN/ 100 ml : Desirable – 100 & Permissible 230

**d. Technical Specifications**

- i. Minimum Technical Specification for Smart Controller:

<b>Sr No</b>	<b>Item</b>	<b>Description of Requirement</b>	<b>Compliance</b> (to be filled in by the bidder, Y/P/N along with data, page reference in manual, deviation if any)
1	Basic Requirement	Controller should have the latest features of highly advanced Multi Parameter Controller having capability of handling all the Sensors in a single controller configuration and more as and when required.	

<sup>1</sup> As per the order from Hon'ble National Green Tribunal order dated 30.04.2019, Annexure -1 , Page 10-12

		<ul style="list-style-type: none"> <li>• With Sensor ID recognition</li> <li>• High EMI, RFI interference immunity</li> <li>• Control unit should have suitable panel keyboard for quick selection of software functions</li> <li>• With optional integrated back up controller function</li> <li>• Lightning protection</li> <li>• The Controller should be able to power all the sensors and terminals or accessories attached to it without having to need any additional power sources in the system.</li> <li>• The system should start automatically after the power is reset to the system (in case of power failure). In case of link failure, there should be auto reconnect facility.</li> <li>• The system should have Service mode for cleaning/calibration/maintenance activities.</li> </ul>	
2	Display	<ul style="list-style-type: none"> <li>• Graphic display of adequate size with backlight</li> </ul>	
3	Power Consumption	<ul style="list-style-type: none"> <li>• The controller should be low power consuming. Bidder to provide details about power requirement</li> </ul>	
4	Input Voltage	Input voltage 90 - 264 VAC, 50/60 Hz	
5	Output, Communication	<ul style="list-style-type: none"> <li>• Galvanically separated current outputs (0/4-20 mA) that can be assigned arbitrarily</li> <li>• USB-interface for data transfer, upgrading firmware etc.</li> </ul>	

		<ul style="list-style-type: none"> <li>• It should be possible to download the data via the USB interface.</li> </ul>	
6	Data Logger	<ul style="list-style-type: none"> <li>• Internal integrated Data logger with minimum data memory for saving one year's data</li> <li>• The controller should store the sensor configurations and calibration data</li> <li>• The supplier should provide the firmware update free of cost as and when they are available for the life time of the system.</li> </ul>	
7	Accessibility	<ul style="list-style-type: none"> <li>• The system should be fully programmable with multiple levels of access control with help of Electronic-Key for data security and protection against non-authorized access to avoid any tampering or changes to the system configuration by unauthorized access.</li> </ul>	
8	Status LED	<ul style="list-style-type: none"> <li>• The system should have status LEDs regarding function and status of the system.</li> </ul>	
9	Operating Temperature	<ul style="list-style-type: none"> <li>• Ambient Conditions Operating temperature: -4 °C ... +55 °C</li> <li>Storage temperature: -10 °C ... +65 °C</li> </ul>	
10	MOC	<ul style="list-style-type: none"> <li>• Non corrosive</li> </ul>	
11	Protection Rating	<ul style="list-style-type: none"> <li>• Protection Rating IP 66 / equivalent to NEMA 4X for controller. Integrated Lightning Protection: According to EN 61326 enhanced overvoltage protection for the entire system, implemented in each component.</li> </ul>	

12	Certifications	<ul style="list-style-type: none"> <li>Electromagnetic Compatibility: EN 61326, Class B; FCC Class A, EMC for indispensable operation</li> </ul>	
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ii. Minimum Technical Specification for COD, BOD, TSS Sensor:

Sr No	Item	Description of Requirement	Compliance (to be filled in by the bidder, Y/P/N along with data, page reference in manual, deviation if any)
1	Basic Requirement	Continuous Effluent Monitoring of BOD, COD, TSS with UV-Vis Full Spectrum Technology <ul style="list-style-type: none"> <li>Multi Parameter probe ideal for monitoring of BOD/COD/TSS in Waste water</li> <li>The Sensor should have optimized referencing for excellent zero point and long term stability.</li> <li>The Sensor should provide compensation of interferences by evaluation of the whole measured spectrum.</li> </ul>	
2	Measurement Principal	Measurement of full wave lengths spectra (UV-VIS Spectrometry) from 200 – 720 nm, as per the CPCB Guideline	
3	Calibration	Multipoint calibration (At least 2 points)	
4	Reagent Free	<ul style="list-style-type: none"> <li>The Sensor should not use any reagents and spare parts like WIPERS and should be easy to use and operate without any running costs.</li> <li>The sensor should be completely reagent free for operation.</li> </ul>	

<b>Sr No</b>	<b>Item</b>	<b>Description of Requirement</b>	<b>Compliance</b> (to be filled in by the bidder, Y/P/N along with data, page reference in manual, deviation if any)
5	Measurement	Must be direct In-Situ measurement in outlet of waste water treatment plant	
6	Inbuilt Cleaning	The sensor must be preferably with efficient integrated ultrasonic cleaning facility or any other chemical free cleaning.	
7	MOC	The MoC must be Titanium Material to sustain the sensor in highly corrosive wastewater environment.	
8	Sensor Cable	The Sensor cable supplied along with the sensor has to be 15 Meters and it should not be affected by acids and presence of highly corrosive media in sample.	
9	Light Source	Xenon Flash Lamp.	
10	Accuracy	Accuracy in Standard Solutions: +/-5 % of the measured value with lab results	
11	Measuring Range	<ul style="list-style-type: none"> <li>• COD: 0 - 800 mg/l (typical), should support upto 0-1500mg/l</li> <li>• BOD: 0 - 600 mg/l (typical), should support upto 0-3800mg/l</li> <li>• TSS: 0 - 800 mg/l</li> <li>• Should be configurable, calibration to be possible for different ranges</li> </ul>	
12	Operating Temperature	Operating temperature: 0 °C to +45 °C; Storage temperature: -10 °C to +50 °C	

<b>Sr No</b>	<b>Item</b>	<b>Description of Requirement</b>	<b>Compliance</b> (to be filled in by the bidder, Y/P/N along with data, page reference in manual, deviation if any)
13	Protection Rating	Protection type: IP 68 for both Sensor and Cable	
14	Certifications	TUV/MCERT/USEPA	

iii. Minimum Technical Specification for pH Sensor:

<b>Sr No</b>	<b>Item</b>	<b>Description of Requirement</b>	<b>Compliance</b> (to be filled in by the bidder, Y/P/N alongwith data, page reference in manual, deviation if any)
1	Basic Requirement	<p><b><u>pH Sensor Specifications:</u></b></p> <ul style="list-style-type: none"> <li>• Integrated temperature measurement and compensation should be provided in the pH sensor.</li> <li>• Sensor check function to detect broken glass of the pH electrode.</li> <li>• The pH sensor should have galvanically separated input.</li> <li>• Calibration data should be stored automatically in the sensor.</li> <li>• Sensor calibration can be done in the laboratory or field.</li> </ul>	



<b>Sr No</b>	<b>Item</b>	<b>Description of Requirement</b>	<b>Compliance</b> (to be filled in by the bidder, Y/P/N alongwith data, page reference in manual, deviation if any)
		<ul style="list-style-type: none"> <li>• Signal Output – Analog / Digital</li> <li>• Sensor Check function/Diagnostics should be available</li> <li>• Temperature Sensor should be integrated in the pH sensor</li> <li>• Protection type : IP 68 for both Sensor and Cable</li> </ul>	
2	Measurement Principal	Electro-Chemical	
3	Reagent Free	The pH combination electrodes should require very little maintenance and there should be no electrolyte replacement.	
4	MOC	Stainless Steel or better (Electrode should have protection for the electrode)	
5	Sensor Cable	The Sensor cable supplied along with the sensor has to be 15 Meters and it should not affected by acids and presence of highly corrosive media in sample.	
6	Voltage Protection	Transient Voltage Protection should be integrated in the sensor	
7	Measuring Range	<ul style="list-style-type: none"> <li>• Measuring Range: pH: 2- 12 at least considering the wastewater environment (Sensor should be designed for waste water application)</li> <li>• Measuring: -5 to 60 Deg C</li> </ul>	

Sr No	Item	Description of Requirement	Compliance
8	Operating Temperature	-5 to +45 Deg C	(to be filled in by the bidder, Y/P/N alongwith data, page reference in manual, deviation if any)
9	Certifications	TUV/MCERT/USEPA	

iv. Minimum Specification for Ammoniacal Nitrogen and Nitrate Nitrogen

Sr No	Item	Description of Requirement	Compliance
1	Basic Requirement	<p><u>Ammoniacal Nitrogen and Nitrate Nitrogen Sensor</u></p> <p><u>Specifications:</u></p> <ul style="list-style-type: none"> <li>• Integrated Chloride measurement and compensation should be provided in the Nitrate Nitrogen sensor.</li> <li>• Calibration data should be stored automatically in the sensor.</li> <li>• Sensor calibration can be done in the laboratory or field.</li> <li>• Signal Output – Analog / Digital</li> </ul>	(to be filled in by the bidder, Y/P/N alongwith data, page reference in manual, deviation if any)

		<ul style="list-style-type: none"> <li>• Sensor Check function/Diagnostics should be available in the Ammoniacal nitrogen and Nitrate Nitrogen sensor</li> <li>• protection type : IP 68 for both Sensor and Cable</li> </ul>	
2	Measurement Principal	Potentiometric, Common reference electrode, two measuring electrodes, one compensation electrode	
3	Reagent Free	The Ammoniacal Nitrogen and Nitrate Nitrogen electrodes should require very little maintenance and they should not require any add on chemical for continuous measurement.	
4	MOC	Stainless Steel or better	
5	Sensor Cable	The Sensor cable supplied along with the sensor has to be 15 Meters and it should not be affected by acids and presence of highly corrosive media in sample.	
6	Voltage Protection	Transient Voltage Protection should be integrated in the sensor	
7	Measuring Range	Measuring Range: <ul style="list-style-type: none"> <li>• Ammoniacal Nitrogen: 0- 200.0 mg/l at least considering the wastewater environment</li> <li>• Nitrate Nitrogen: 0- 200.0 mg/l at least considering the wastewater environment</li> <li>• Chloride (for compensation): 0.0 to 200 mg/l</li> </ul>	
8	Calibration	Matrix adjustment against any reference value, 2-point-calibration possible with multiple standard solution	
9	Measurement Accuracy	$\pm 5\%$ of measured value $\pm 0.2$ mg/l in standard solutions	
10	Operating Temperature	-5 to + 45 Deg C	

11	Certifications	TUV/MCERT/USEPA	
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v. Technical Specification for Centralize Data Connectivity to Pollution control Server:

Specification for IoT Hardwar Including Power Supply and Enclosure:

Sr No	Item	Description of Requirement	Compliance <small>(to be filled in by the bidder, Y/P/N alongwith data, page reference in manual, deviation if any)</small>
<b>IoT Gateway</b>			
1	Basic Requirement	<ul style="list-style-type: none"> <li>• IoT Cloud Connector intelligent hardware which works on the latest IoT and M2M technologies and provides dual persistent connectivity with the centralized monitoring platform. This cloud connector supports major communication media with redundancy.</li> <li>• Cloud Connector has internal data logging memory for network failure or data exhaustion on GPRS and WAN. Logged data will be automatically sent to the platform on service resumption.</li> <li>• Cloud connector supports GPRS (GSM), WiFi, LAN (Ethernet) which provide redundancy and choice as per the availability of media and fulfill the CPCB direction.</li> </ul>	•
2	Serial Interface	<ul style="list-style-type: none"> <li>• Ports: RS232 / RS422/ RS485 (half and full Duplex), USB</li> <li>• Flow Control: Hardware and software flow control</li> </ul>	•

		<ul style="list-style-type: none"> <li>Throughput: Up to 230 Kbps</li> <li>Connector: Screw Terminal</li> <li>Full- and half-duplex</li> </ul>	
3	Environmental	<ul style="list-style-type: none"> <li>Operating Temperature : -10°C ~ + 50°C</li> </ul>	•
4	Network	<p><b>Network Protocols</b></p> <ul style="list-style-type: none"> <li>Web-based user interface, set-up wizard, console</li> <li>Log viewer, save / load configuration, NTP, SMS, OTA remote configuration,</li> </ul> <p><b>Routing</b></p> <p>DHCP, static routing, port-forwarding, traffic routing, static/dynamic DNS, DNS proxy, NAT, STP.</p> <p><b>VPN</b></p> <ul style="list-style-type: none"> <li>PPTP client, L2TP, IPSec, GRE, Open VPN client /server / pass- through Security</li> <li>Zone-based firewall, VLAN, DMZ, HTTPS local and remote connection, SIM PIN</li> </ul>	
5	Clock	<ul style="list-style-type: none"> <li>Real-Time Clock with synchronization from GSM network and NTP</li> <li>RTC with an approx. 100-day data retention period</li> </ul>	•
6	Approvals	<ul style="list-style-type: none"> <li>CE, FCC, PTCRB</li> </ul>	•
<b>Data Acquisition Module</b>			
7	Inputs port	08 (fully Differential)	
8	Isolation	1500Vrms – Field To Logic, 1500Vrms – RS485 To Logic, 1500Vrms – Field To RS485	
9	Scan Rate	Configurable , milli seconds to minutes	
10	Resolution	16Bit or higher	
<b>Enclosure</b>			

11	Ingress Protection	IP 66 to EN 60529/09.2000 Complies with NEMA 4.	
12	Approval	UL,CSA	
<b>Power Supply</b>			
13	SMPS	DIN RAIL SMPS Power Supply	
14	Input	<b>Input Voltage:</b> 88 ~ 132VAC/176 ~ 264VAC by switch 248 ~ 370VDC <b>Frequency:</b> 47-63Hz Efficiency:80% or better	
15	Protections	Protection type : Shut down o/p voltage, re-power on recover Protections: Short circuit / Overload / Over voltage / Over temperature	
16	Output	24VDC@5A (Range 24-28)	

vi. Requirements for Centralized Monitoring Software -

It should meet the following CPCB guidelines:

- a) Capable of collecting data on real time basis without any human intervention.
- b) Can submit real time data through different data formats like XML & JSON.
- c) Two way real time persistent communication.
- d) The data generation, data pick up, data transmission; data integration at server end is automatic.
- e) The submitted data shall be available to the SPCBs and CPCB for immediate corrective action.
- f) Raw data will be available simultaneously to SPCBs / PCCs and CPCB.
- g) In case of delay in collection of data due to any reason, the data transmission is marked delayed data and reports of delayed data are displayed on the portal.
- h) No manual data handling is permitted.
- i) Data validation is permitted only through the administrator and data changes recorded with date and time stampings.

- j) Configurations of the systems once set up (through remote procedure) and verified, cannot be changed. In case any setting change is required it should be notified and recorded through the authorized representatives only.
- k) The data submitted electronically shall be available to the data generator through internet, so that corrective action if any required due to submission of erroneous data can be initiated by the industry.
- l) Capable to verify the data correctness which means at any given point of time the regulatory authorities/data generator should be able to visualize the current data of any location's specific parameter.
- m) Data validation with two stage/three stage validation and fixed responsibilities of stakeholders as below;
  - i. Industry (Data Generator):
  - ii. SPCBs / PCCs:
  - iii. CPCB:
- n) Change Request Management: window for requesting data changes due to actual field conditions shall be provided to the industry in line to SPCB to consider the request or not.
- o) The site surrounding environmental conditions shall also be recorded along with other environmental parameters, as these have the potential to affect the system adversely and corrupt the data generated.
- p) System has capability to depict data at the actual location of industry over the map.
- q) The software is capable of analyzing the data with statistical tools and shall have the following capabilities:
  - Statistical data analysis (customizable) for average, min., max., diurnal variation.
  - Comparison of parameters of different locations in user selectable time formats i.e. in graphical and tabular formats compatible to MS Excel, Pdf, \*.txt etc.
  - Capability of comparison of data with respect to standards/threshold values.
  - Auto report and, auto mail generation etc.
  - Providing calibration database for further validation/correction of data.
  - Channel configuration for range, units etc.

- Providing data in export format on continuous basis through central/station Computer system to other system.
- Data transmission through different media like GPS, CDMA, Normal phone line, Data cards, Broadband, 3G etc. (at least any two media supported).
- Data Storage for next five years.

Note:

- The Centralized Monitoring Software must be audited by the CERT-In empaneled auditor before implementation in the production environment.

e. **Other Requirements**

- i. Web based user interface that can be accessed from anywhere using a web browser
- ii. Its required to support different make devices and analyzers so that other analyzers like CEMS (Continuous Emission Monitoring System) and PM (Particulate Matter) Analyzers can be integrated into one software.
- iii. Inbuilt analytics – Dashboard and reporting
- iv. Real time alerts on email - Intelligent alerts allow you to monitor noncompliance bases on exceptions.
- v. Remote Device Management – Remotely upgrade firmware; reboot devices, device diagnostics by vendor.
- vi. Remote setting of correlation and calibration data.
- vii. Multiple user access and access control
- viii. Persistent two way connection for real time two way communications.
- ix. API to integrate system with other enterprise systems.
- x. View all our different plants in a single software and on a map view
- xi. Tamper Proof - Audit logs to trace which user did which actions
- xii. Secure - High security through SSL/TLS communication between device and servers. Password protected access to users.
- xiii. Automated backups protect from data loss.

**Note:**



- The above scope of work is indicative and shall be finalized based on actual requirement of user department.
- The vendors must adhere to all the guidelines as specified by National Green Tribunal (NGT) (<https://greentribunal.gov.in/>) & Central Pollution Control Board (CPCB) (<https://cpcb.nic.in/>)
- The vendors also need to adhere to all the guidelines and acts published by Government of India.
- The vendors must implement all recommendation published time to time by NGT/ CPCB and other agencies of GoI as well as West Bengal Pollution Control Board within the specified time limit.

## Section F: Annexures

### a. Annexure I: Covering Letter for submission of EoI

(To be submitted on the letterhead of the bidder)

(Date)

To,

General Manager (Commercial),

WBEIDC,

Webel Bhavan, Block-EP & GP, Sector-V,

Salt Lake, Bidhan Nagar,

Kolkata: 700091

**Ref:** EoI No WEBEL/EOT/COM/21-22/00009

**Sub:** Submission of EoI for “Setting up of Online Continuous Effluent Monitoring System for functional STPs”

Dear Sir/Madam,

We have examined the EoI document, we, the undersigned, herewith submit our EoI in response to your EoI no. \_\_\_\_\_ dated \_\_\_\_\_ for “Setting up of Online Continuous Effluent Monitoring System for functional STPs”, in full conformity with the said EoI document.

- i. We have read the provisions of the EoI document and confirm that these are acceptable to us. We further declare that additional conditions, variations, deviations, if any, found in our EoI shall not be given effect to.
- ii. We agree to abide by this EoI, consisting of this letter, the detailed response to the EoI and all attachments, for a period of 180 days from the date of submission of the bid.
- iii. We would like to declare that we are not involved in any major litigation that may have an impact of affecting or compromising the delivery of services as required under this assignment and we are not under a declaration of ineligibility for corrupt or fraudulent practices

- iv. We would like to declare that there is no conflict of interest in the services that we will be providing under the terms and conditions of this EoI.
- v. We hereby declare that all the information and statements made in this EoI are true and accept that any misrepresentation contained in it may lead to our disqualification.
- vi. We understand you are not bound to shortlist / accept any EoI you receive

Sincerely,

Signature of Authorized Signatory and Seal of the bidder

Name:

Designation:

Date:

**b. Annexure II: Details of the Responding Bidder**

1.	Name of the company	
2.	Official address	
3.	Phone No. And Fax No.	
4.	Corporate Headquarters Address	
5.	Phone No. And Fax No.	
6.	Web Site Address	
7.	Details of Company's Registration (Please enclose copy of the company registration document)	
8.	Name of Registration Authority	
9.	Registration Number and Year of Registration	

10.	ISO 17025:2017 certification and its validity	
11.	Company's Revenue for last 3 years (Year wise)	
12.	Company's net worth for the last year	

### c. Annexure III: Financial Capability

#### **FINANCIAL CAPABILITY**

(EoI No. WEBEL/EOT/COM/21-22/00009 )

#### **FINANCIAL INFORMATION**

Sl. No.	Name of the Bidder	Turnover (Rs/Lakh)		
		2017-18	2018-19	2019-20
1				

**d. Annexure IV: Declaration for not being blacklisted**

Self-declaration for not being blacklisted by any Government Entity  
(To be submitted on the Letterhead of the responding firm)

(Date)

To,

General Manager (Commercial),

West Bengal Electronics Industry Development Corporation Limited (WBEIDC),

Webel Bhavan, Block-EP & GP, Sector-V,

Salt Lake, Bidhan Nagar, and Kolkata:-700091

**Ref:** EoI for “Setting up of Online Continuous Effluent Monitoring System for functional STPs”,  
Ref no. : WEBEL/EOT/COM/21-22/00009; dated 14-06-2021

**Sub:** Submission of EoI for “Setting up of Online Continuous Effluent Monitoring System for functional STPs”.

Dear Sir/Madam,

In response to the above mentioned EoI I/We, \_\_\_\_\_, as \_\_\_\_\_  
<Designation> of M/s \_\_\_\_\_, hereby declare that we are having unblemished past record and are not declared blacklisted or ineligible to participate for bidding by any State/Central Government, Semi-Government or PSU.

Sincerely,

Signature of Authorized Signatory and Seal of the bidder

Name:

Designation:

Date:

**e. Annexure V: Details of Projects undertaken**

Assignment Name:		
Location in India:		Duration of Assignment:
Name of Client:		Total Project Value:
Address of the Client:		Value of the services provided by the bidder:
Start date:	Completion date:	No. of person-months of the assignment:
Narrative description of Project:		
Description of actual services provided:		