

		বিপ্লব পল BHEL	Ref : CE/416/MAITREE/CONO/PS			
			Rev. : 01			
			Page: 01 of 11			
		PROJECT : MAITREE 2x660MW STPP				
		CUSTOMER : BIFPCL, BANGLADESH				
COPY RIGHT AND CONFIDENTIAL THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.		PURCHASE SPECIFICATION FOR CO & NO_x ANALYZER				
		REVISIONS :	APPROVED BY			
			PUNIT P SINGH			
			PREPARED BY	ISSUED	DATE	
			PREETHAM V	416	06/09/2019	

CONTENTS

SECTION	DESCRIPTION	PAGES
A	SCOPE OF SUPPLY	06
B	TECHNICAL REQUIRMENTS	02
C	PRICING SHEET	01

SECTION- A

PROJECT SCOPE OF SUPPLY

PROJECT REQUIREMENT:

NAME of Owner / End user: BIFPCL, BANGLADESH

Project: MAITREE 2x660MW – 04 Nos.

SCOPE OF SUPPLY:

1. Flue Gas analyzer systems as per Specification CE/416/MAITREE/CONO/PS. Quantity as above for the project. Unit rates to be provided for all major items in the offer. Typical instrument parameters for the project:

DESCRIPTION	TAG NOS.	MEDIUM	RANGE	PRESSURE	TEMP.	REMARKS
CO AT ECO OUTLET	01HNA31CQ004 01HNA41CQ004	FLUE GAS	0-500 ppm	(-)92 mmWC	359 °C	Combined Analyzer
NO _x AT ECO OUTLET	01HNA31CQ003 01HNA41CQ003	FLUE GAS	0-1000 ppm	(-)92 mmWC	359 °C	

2. Mandatory spares as below, one set for the project:

SL NO.	DESCRIPTION	QUANTITY	REMARKS
1	CO & NO _x ANALYZER		
1.1	CO & NO _x ANALYZER	01 No. each of Complete Instrument of each make and type	
1.2	Electronic Card Assemblies of each type	10%	
1.3	Set of gaskets/ 'O' Rings	02 Sets	
1.4	Temperature sensor & Heater Assembly	20%	
1.5	Consumables like filter elements, light sources etc.	100%	
1.6	Calibration gases of all types and ranges	One year Supply	

3. Following separate documents to be furnished for the project in the event of order:

3.1 Drawings, Data Sheets, Technical Literature – 2 sets.

- 3.2 Test Certificates/ Reports and Calibration Reports, for approval, before dispatch of items. The calibration reports shall correspond to range of the analyzer as per the instrument schedule.
- 3.3 O & M Manuals - 2 Sets (1 Set to BHEL-EDN & 1 Set to Site with Consignment).
4. Erection and Commissioning for offered system
- Erection Supervision, Total Commissioning and Handing over of the offered system to Owner / End user.
 - BHEL will arrange for To & Fro Tickets from Kolkata to Maitree Site, Boarding & lodging, local conveyance for the vendor at Maitree site. A minimum of three site visits may be required for both the instruments. Each visit shall be of 3-4 days at site excluding the travel time. Visa for the vendor representative will be arranged by BHEL. Medical insurance for the visiting representative to be arranged by the bidder.
- 5 Specific Requirement: Vendors to quote/ confirm the following project specific requirements:
-  5.1 **For CO & NOx analyzer: Location of analyzer/ analyzer probe is at ECO Outlet duct. Ducts size is 8mx8m (Approx.). Dust load at this location shall be 60-70 g/Nm3.**
- 5.2 Vendors to confirm project specific technical requirement as per CE/416/MAITREE/CONO/PS Rev. 00. Any deviation w.r.t this spec to be clearly indicated in the offer.
- 5.3 **The bidder should have executed/ completed work of “Design, supply, erection & commissioning of offered Analyzer and shall have proven performance of working for the analyzer in power plant, at least one unit of such equipment installed in power plant of capacity 500MW or above and have been running successfully for at least two years as on 22/09/2015.**
- 6 Unit rates for all major items to be provided for any addition/deletion during detailed engineering.

NOTE 1: Offers not meeting the above Cl. No. 5.3 with suitable documentation/ customer certificates will not be evaluated. Offers of such bidders will be rejected.

NOTE 2: Bidder to submit the below BIFPCL Supplier Questionnaire along with all details & documents for evaluation along with the offer. The same will be submitted to BIFPCL/ FICHTNER for approval of bidder.



SUB-VENDOR QUESTIONNAIRE
(Information marked with asterisk (*) is mandatory)
(APPLICABLE FOR SERVICE/ WORK CONTRACTS)

FICHTNER

Name of the proposed SERVICES/ WORKS *

1. **Name of Proposed Sub-Vendor *:** _____

Website *: _____

2. **Address of Regd. Office *:**

Details of contact person *:

Name _____

Mobile no. _____

Desig. _____

E-mail: _____

• **Country of Head Office ***

• **Field of activities ***

3. **Address of Works***

Details of contact person:

Name _____

Mobile no. _____

Desig. _____

E-mail: _____

4. **Branch / Liaison office in Dhaka***

Details of contact person:

Name _____

Mobile no. _____

Desig. _____

E-mail: _____



SUB-VENDOR QUESTIONNAIRE

FICHTNER

5. Annual Turnover * & Profit in past three years *:

#	Annual Turnover in Mn USD	Profit After tax in Mn USD
2015-2016		
2014-2015		
2013-2014		

6. Present & Peak Manpower Handled Status*:

Division Status	Permanent Manpower			Peak Manpower		Remarks
	Graduate		Diploma	Number	Project	
	Technical	Non-Technical				

- a) Enclose organization chart of the proposed works (Y / N)
- b) Enclose Organization chart of QA / QC Deptt. (Y / N)
- c) Enclose List of Qualified Welders with process etc. (Y / N)
- d) Enclose List of Qualified NDT personnel with area (Y / N)

7. Approval/ Certificates by National/ International standards/ accredited agency applicable for the proposed services/ works

8. Furnish Experience list of the proposed services/ works *

9. Enclose End User's operational feedback certificate for the proposed services/ works *.

10. Enclose list of equipment & machinery specific to the proposed services/ works*.

This should include name of equipment, capacity, year of manufacturing & nos. etc.:

11. Enclose list of Site Infrastructure & Services Available *

11. Quality management*

11.1 General

11.1.1 Work Instruction for different processes available. (Y / N)
if yes, furnish list.

11.1.2 Records generated during inspection maintained & available for review? (Y / N)

11.1.3 Statistical quality control techniques used? (Y/N)
If yes please furnish details.

11.1.4 ISO certificate for the works available? (Y/ N)
If yes, enclose copy of the certificate.

11.1.5 Quality & HSE Manual for the works available (Y / N)
If yes, enclose copy of the manual.

11.2 Corrective action

11.2.1 Specifically confirm whether System for identifying & disposition of Non
Conformity in the process / product is available (Y / N)

11.2.2 Specifically confirm whether System for Customer complains & their satisfactory
disposal is available. (Y / N)

11.3 Documentation Control

11.3.1 Procedure available for documentation control (Y / N)

11.4 Control of Inspection, measuring & testing equipment.

11.4.1 Procedure for calibration of testing & measuring instrument available. (Y / N)

12. Certification of sub-vendor *

I CERTIFY THAT THE INFORMATION SUPPLIED HEREIN (INCLUDING ALL PAGES ATTACHED) IS CORRECT.

SEAL

Name

M/S.

SIGNATURE

DESIGNATION

MOBILE NO

EMAIL

PLACE

DATE

13. Certification by Main Supplier *:

ABOVE INFORMATION HAVE BEEN VERIFIED AND FOUND IN ORDER TO COMPLY WITH TECHNICAL SPECIFICATION AS PER EPC-CONTRACT.

SEAL

Name

M/S.

SIGNATURE

DESIGNATION

MOBILE NO

EMAIL

PLACE

DATE

NOTE:

1. COLUMN SHALL NOT BE LEFT UNFILLED. IN CASE OF NOT APPLICABLE / NOT AVAILABLE, THE SAME SHALL BE INDICATED IN THE PROVIDED SPACE.
2. IN CASE PROVIDED SPACE IS NOT ADEQUATE, INFORMATION SHALL BE PROVIDED AS AN ATTACHMENT.
3. PRODUCT CATALOGUE FOR THE PROPOSED EQUIPMENT / ITEM / PROCESS, IF AVAILABLE, SHALL BE ENCLOSED

SECTION- B

TECHNICAL REQUIREMENT FOR CO & NO_x ANALYZER AT ECO OUTLET:

1. General requirements:

- | | |
|----------------------------------|---|
| 1.1. Output signals Analog | : 2x 4-20 mA DC (galvanically isolated) |
| 1.2. Alarm Output | : 1NO+1NC rated at 230V AC, 5A |
| 1.3. Zero and span adjustment | : To be provided with range selection facility |
| 1.4. Ambient temperature | : 50 Deg. C |
| 1.5. Indication | : Backlit LCD/ LED |
| 1.6. Enclosure | : Weather protection for analyzer mounted inside analyser panel shall be IP-22 or better. Else weather protection class of analyser shall be IP-55. |
| 1.7. Type of Electronics | : Microprocessor based. |
| 1.8. Digital Signal Transmission | : 2x RS 232 or RS485 link to be provided |
| 1.9. Calibration | : Auto and Manual (Zero & Span). Automatic calibration interval shall be full selectable |
| 1.10. Error Diagnostic | : To be Provided |

2. Technical requirements for CO & NO_x analyzer:

- | | |
|--|---|
| 2.1 Type of instrument | : Insitu type analyzer |
| 2.2 Principle of measurement | : Infrared |
| 2.3 Measurement units | : ppm and mg/Nm ³ |
| 2.4 Measurement range | : 0-1000ppm (programmable) selectable at any value in between. |
| 2.5 Measurement averaging | : 10 sec to 60 minutes (selectable) |
| 2.6 Accuracy | : ± 1 % of measured value |
| 2.7 Temperature Drift | : $\leq \pm 2\%$ / 10 Deg C |
| 2.8 Repeatability | : 2% of Full scale |
| 2.9 Response time (up to 90% of full scale) | : less than 5 seconds or better for 90% of full scale |
| 2.10 Operating Temperature range | : 0-400°C at ECO Outlet |
| 2.11 Probe material | : Stainless Steel 316L |
| 2.12 Filters for purging system | : to be provided |
| 2.13 Accessories | : - Purging system to be provided with blowers or compressor along with all required accessories. Purge fail alarm to be provided. Automatic backflush/ blowback facility shall be provided.
- Shutter mechanism for automatic isolation of lens during purge air failure shall be provided. |
| 2.14 Dynamic Input Normalization | : Correction for temperature & pressure to be provided (as applicable). Vendors to consider all applicable accessories for the same. Also provision for keypad entry of inputs to be provided. |
| 2.15 All interconnecting cabling (on as required basis) between the accessories of the CO analyzer including cables up to JB to be provided by the bidder. | |
| 2.16 Power supply (nominal) | : 240 V AC Single phase, 50 Hz. |
| 2.17 Process flange | : To be provided to suit the duct thickness. |

- 2.18 Calibration gas cylinders filled in 10 Ltrs. WC carbon cylinders to be provided for span & zero gas with necessary pressure gauges, SS regulators & SS gauges, SS fittings etc.
- 2.19 Bidder to provide all required mounting accessories for JB's and instruments such as stub, counter flange, mating flange on probe suiting the above, Gaskets and Fasteners tubes/fittings, mounting brackets/pads, etc. as required.

3. **Packing Instructions:**

- 3.1 Packaging of equipment shall be sea worthy.
- 3.2 Items should be packed first with triple layer polythene sheet, Critical fragile items to be wrapped in bubble wrap.
- 3.3 High Quality Pine wood packing is required above the triple layer packing sheet. Fumigation certificate of wood used is must for all the consignment
- 3.4 Translucent Window to be provided in bigger packages for Bangladesh customs inspection.
- 3.5 BHEL's Corporate Quality will inspect the packing standard at Customs Warehouse in Chennai for each shipment.
- 3.6 Proper handling instructions to be pasted on the package.
- 3.7 In case any rejection of package by BHEL's Corp Quality during physical verification at Customs Warehouse in Chennai, it is vendor's responsibility to set the packing right by making a visit to Customs Warehouse in Chennai and rectify.
- 3.8 Items with shelf life will be ordered as separate line item. Delivery date will be just before Sept-2020 for such items. Bidder to indicate these items separately in the offer.

4. Warranty of 36 months shall be applicable to all the items offered.

Note 3: Blowers or compressors are to be offered for the CO Analyzer, if purging is required for the CO analyzer. Instrument air connection will not be provided by BHEL. However, if purging is not required for the CO analyzer, the same has to be proved during commissioning. In case the CO analyzer is not able to perform satisfactorily without the purging system, bidder to replace the offered CO analyzer with a different Model/Make or with suitable modification without any cost-implication to BHEL.

Bidder shall furnish Clause-wise compliance / deviation list along with the offer, which is mandatory for evaluating the offer. The deviations to be clearly mentioned in the offer and acceptance of these deviations will be subject to customer approval. If Bidder incurs any additional cost for the withdrawal of any deviation, the same shall be borne by the bidder without any cost implication to BHEL.

Bidder to contact BHEL for any Pre-Bid queries well in advance before submitting the offer.

SECTION- C

A. Vendors to offer unit prices as per details below:

SL NO	Description	Unit	Qty/ Unit	Total Qty. For MAITREE	Unit Price (Rs.)	Total Price (Rs.)
1	CO & NOx analyzer	Nos.	02	04		
2	Accessories for CO & NOx analyzer including Mounting Accessories for JB's and instrument with stub, counter flanges, mating flanges & fasteners.	Set	02	04		
3	Calibration Gas Cylinders	Set	02	04		

NOTE 4: - Unit rates of all items to be quoted. These unit rates will be used for addition/deletion during execution. The offer shall be treated as incomplete without the unit prices and shall be rejected.

B. Mandatory Spares for MAITREE 2x660MW:

SL NO.	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL PRICE
1	CO & NOx ANALYZER			
1.1	CO & NOx ANALYZER	01 No. each of Complete Instrument of each make and type		
1.2	Electronic Card Assemblies of each type	10%		
1.3	Set of gaskets/ 'O' Rings	02 Sets		
1.4	Temperature sensor & Heater Assembly	20%		
1.5	Consumables like filter elements, light sources etc.	100%		
1.6	Calibration gases of all types and ranges	One year Supply		

NOTE 5: For Percentage calculation total quantity of the project to be considered. If exact items as indicated in the mandatory spares list are not available for the offered system, then functionally equivalent item shall be offered by the bidder. Unit prices offered will be used for any addition/deletion during execution.