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TENDER NO. DLI:BTD-3:R&M-C&I:10-037

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TENDER SPECIFICATIONS

TENDER NO. DLI:BTD-3:R&M-C&I:10-037

FOR

**Tender for the work of "C & I works of Boiler, TG and Station C& I
For R & M and Up-rating job of Unit # 3, 110 MW, GNDTP Bhatinda"**

PART II – PRICE BID



**Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northern Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301 (INDIA)**

RATE SCHEDULE

BILL OF QUANTITIES OF BOILER/TG/STATION C&I UNIT#3, BATHINDA					
S.No.	Item/details	Unit	Qty.	Rate/unit	Total
1	Replacement of DCS PANELS/FSSS/FLAME SCANNER/SADC /SOOT BLOWERS /RELAY LOGIC /SG PANELS/BOP Panels/DC scanner fan panel				
1.1	Suite of 3(2250 X 800 X 2415)	No.	12		
1.2	Suite of 2 (1500 X 800 X 2415)	No.	3		
1.3	Suite of 1(750 X 800 X 2415)	No.	8		
2	UPS				
2.1	UPS PANELS	Set	1		
2.2	ACDB	Set	1		
2.3	Battery bank for UPS OR SMF battery	SET	1		
3	24 V DC system				
3.1	Charger and DCDB	SET	2		
3.2	SMF-Battery bank in rack	SET.	2		
3.3	24 DC Charger for BOP/SG/TG	No.	3		
4	Bar graph indicators/Recorders/Totalisers/Indicators	No.	58		
5	Instruments scope includes calibration, mounting , fixing , clamping , complete erection .canopy etc if required				
5.1	TRANSMITTERS directly mounted with canopy, for pressure/level/DPT etc.	No.	208		
6	Temp. element				
6.1	RTDs	No.	36		
6.2	Thermo couples alongwith Thermowells	No.	250		
6.3	Thermometers	No	50		
7	Solenoid valves	No.	4		
8.1	Pressure switches/temp. switches/DP Switches//indicators	No.	58		
8.2	Pressure gauges/Temp. Gauges	No	60		
8.3	Level Gauges	NO	13		
8.4	Level Switches	NO	18		
9	SWAS SYSTEM comprises the following panels/systems/Air condition/ Cooling Water Headers/Piping. Sampling Lines/Impulse pipes rates will be extra.				
9.1	WET PANEL/ Dry panel	Set	2		

9.2	Primary rack etc	SET	2		
9.3	CHILLER unit 100 % redundancy	SET	1		
10	Conductivity Analyzers- 11 nos, PH analyzers – 6 nos, dissolved oxygen- 2 no, Silica analyzers – 2 no,Sodium Analysers-2,Hydrazine Analyser-1, Conductivity Analyser withdrawable type-2. The above analyzers are being supplied loose. These are to be mounted in the panels supplied and assistance is to be provided for their commissioning. Cables for these instruments are prefabricated. O2 Analysers,Hydrogen Analysers	NOS.	30		
11	Fixing of prefabricated LIR racks.	NOS.	58		
12	HMI SYSTEM consisting of the following items	Lot	1		
12.1	NETWORK PANEL size 800x800x2415 mm (WxDxH)	No	1		
12.2	Work Stations/MAX Storion with PC/Monitors	No.	13		
12.4	PRINTERS	No.	8		
12.5	Furniture for PC and Printers	No	8		
12.6	CRT desk	NO	1		
12.7	Placement of Other accessories, like UTP cables, Ethernet cables, Power distribution board,	LOT	1		
13	Fabrication of local racks if required to accommodate various instruments	TONS.	10		
14	Turbine supervisory system consisting of the following. The scope includes dismantling of existing cables/pickups , replacement of local panel/remote panel/proximometers/JBs ,installation of loose supplied racks in position, etc	Set	1		
14.1	Sensors/Speed Probes,Vibration Probes	NO	37		
15	Erection and commissioning of following Analyzers-				
15.1	Installation of SOX/NOX Analysis system with accessories and standard calibration units /cylinders/gas cylinder rack/FSHS boxes/Perma Pure Box,associated cabling, SS tubing,etc.Installation of Probes/Sensors/RTDs/Teflon Tube in duct leading to chimney.	Set	1		
15.2	CO-monitor consisting of transmitter, Receiver, blower, junction box and PVC pipe to connect the blower to transmitter and blower to receiver. The CO monitor is to be mounted in the duct leading to Chimney.	SET	1		

15.3	Opacity Analyser consisting of blowers,Tranceiver units, mounting of probes in duct leading to chimney, blower hoses, analyser panel, etc	Set	1		
15.4	Oxygen Analyser with all its accessories	Set	2		
16	Erection of impulse lines, cables, junction boxes, cable trays				
	Impulse lines laying work includes dismantling of old piping, provision of supports, routing, necessary branching with equal TEEs, reducers ,couplings , catch points, welding of root valves, socket welding and mounting with U clamps, hydraulic testing and painting work to include along with required welding consumables and paint, erection materials will be supplied. Welding should be carried out with qualified and certified welders.				
16.1	A 335 P22 ½” NB SCH 160	M	300		
16.2	A 312 SS 316 PIPE SCH160	M	1100		
16.3	A 312 TP316 ½” NB SCH 40	M	800		
16.4	A 106 GR C ½” NB SCH 160	M	800		
16.5	A 106 GR C ½” NB SCH 80	M	1500		
16.6	A 106 GR C ¾” NB SCH 80	M	1800		
16.7	A 106 GR C 1” NB SCH 80	M	700		
17	Laying and termination of Cables (armored / unarmored), copper conductor overall shielded including tagging, Ferruling, lugging and Glanding.cablling work includes removal of old cables from trays and returning them to customer's store/yard.Consumables such as ferrules, tie-belts, tags of reputed make are to be arranged by sub-contractor. Glands and lugs will be supplied by BHEL.				
17.1	12Pair/16P/24P X 0.5 Sq.mm, FRLS, shielded/armored	M	4500		
17.2	2P x 1.5 sq mm, 1.1KV,ATC,OL	M	15000		
17.3	1Pair/2P/4P/8P X 0.5SQmm,FRLS Armored/unarmoured/shielded	M	99850		
17.4	Compensating cables/ TC cables 2P/4P/6P X 1.5 sq mm, T/C EXTN	M	12000		
17.5	K type 2 pair and 4 Pair, 0.5 Sq mm ARM T/ C extension cable	M	7000		
17.6	RX type 2 pair 0.5 sq mm ARM, T/C extension cable	M	500		
17.7	Shielded cables 2P/4P x 0.5/1.5 mm ²	M	5331		
17.8	2C/4C X 1.5/2.5Sq.mm, FRLS, HRPVC	M	9050		

17.9	7C/10C/19C x 1.5/2.5 Sqmm	M	16500		
17.1'0	10 P X 0.6 sq mm, Probe cable	M	500		
17.1	Power cables, aluminum/copper armored				
17.11.1	3C x 2.5Sq.mm	M	20200		
17.11.2	3C x 6Sq.mm AI	M	1200		
17.11.3	1C x 16/25Sq.mm, FRLS, PVC	M	7500		
17.11.4	2C x 6 Sq.mm	M	6000		
17.11.5	1C x 95Sq.mm, FRLS,PVC	M	13000		
	If any additional cable/ gland/tray does not fall in any category , rates of next higher sized cable/gland/tray will be considered for payment				
18	Junction boxes installation and fixing in field				
18.1	12-way/24-way	No.	101		
18.2	36 way/48-way	no	22		
18.3	64 way/128-way-24V	no	10		
19	Impulse lines				
	GI pipes/copper tubing / SS tubing	Unit			
	1" GI/SS/CS pipes	m	120		
	½ " GI/SS/CS pipes	m	2500		
20	6mm/ 8 mm tubing of CU/SS /CS	m	1500		
21	Cable trays				
	Cable trays-perforated/ladder	Unit			
	>50mm & <150mm	m	6354		
	>150mm & above	m	500		
22	Calibration/checking/Testing of Actuators - electrical /pneumatic and control valves/dampers. Erection of above to be carried out by other agency	No	96		
23	Master Clock System	Set	1		
24	BHEL Vision Electrode Probe, EWLI, Ascetor cabinet, Local/Remote Display Unit etc	Lot	1		
25	ERV Controller for SH ERV	Set	1		
26	Flame Scanner Head Assembly including Fibre Optic cable/cable upto local JB, Lens barrel Assembly, Miniature 6-way JB, etc and other field work.	Lot	1		
27	Field Instrument work of FSSS/Oil Guns/burners/Milling System/HEA Ignitor boxes/spark rods/solenoids/Flow Transmitters/Local maintenance boxes	Lot	1		

28	Replacement of Soot blower MCC,local startor boxes and checking of soot blowers from local,remote and DCS.(Erection of Soot Blowers is excluded)	Lot	1		
29	UCB and FAP Display Unit	NO	4		
30	Air Filter Regulators	no	60		
31	I/P Converters	No	50		
32	Purge Meter	No	8		
33	Heavy Duty Limit Switch	No	8		
34	Furnace Temp. Probe Starter Box	No	1		
35	DC Motor Starter Box	no	1		
36	Plasma Display Unit	Set	1		
37	Electronic earth pit preparation for Station . C &I along-with all materials	no	2		
38	Total				

NOTE:**1**

The quantity mentioned for installation are indicative and shall be used for arriving the rate for each item. The quantity is likely to vary as the job is R & M in nature. Hence the final bill settlement shall be done as per the actual work carried out at site.

2

Identification/classification of the items and quantity shall be certified by BHEL Site Engineer for billing purpose. In all such cases the BHEL engineer decision is final and binding.

3

Contractor must quote for unit rates only where Quantities are mentioned. Where no quantity is mentioned ,no rate is to be quoted.

NOTES FOR RATE SCHEDULE

1. These rates shall be entered in figures as well as in words. In case of difference in rates between words and figures THE LESSER OF THE TWO will be treated as valid rate.
2. Accordingly taking into consideration all aspects thereof quoted above rates, further contractor confirms that he will not come with any other claim/compensation on account of any increase whatsoever during the entire period of execution including extended period if any.
3. In case of conflict between Unit Rate and Amount, 'Unit Rate' shall be considered for evaluation and award.
4. Evaluation and award shall be done considering all the items and respective quantities mentioned.
5. In case of omission in quoting any rate, the evaluation will be done considering the highest quoted rate obtained against that item. But the work, if awarded, will be on the lowest quoted rate obtained against that item.
6. Contractor's total quoted price as per rate schedule will be taken as tentative only. The contractor undertakes to erect / commission actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out on the basis of quantities actually erected at site and payments will also be regulated for the same.

(Seal and Signature of Tenderer)