

TENDER SPECIFICATION

No. BHE/PW/PUR/AMRT-CNI/882

FOR

HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, COMMISSIONING AND HANDING OVER OF CONTROL & INSTRUMENTATION WORKS FOR BOILER AND ITS AUXILIARIES, TURBOGENERATOR AND ITS AUXILIARIES, STATION C&I FOR 5X270 MW THERMAL POWER PLANT, AMRAVATI, U#1 to 5.

**ADDITIONAL AMRAVATI INDUSTRIAL AREA,
INDIABULLS POWER LTD
NANDGAONPETH, DIST- AMRAVATI
MAHARASHTRA**

VOLUME – II-PRICE BID



BHARAT HEAVY ELECTRICALS LIMITED

**(A Govt. of India Undertaking)
POWER SECTOR - WESTERN REGION
345, KINGS WAY - NAGPUR 440 001**

TENDER SPECIFICATION

No. BHE/PW/PUR/AMRT-CNI/882

FOR

HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, COMMISSIONING AND HANDING OVER OF CONTROL & INSTRUMENTATION WORKS FOR BOILER AND ITS AUXILIARIES, TURBOGENERATOR AND ITS AUXILIARIES, STATION C&I FOR **5X270 MW THERMAL POWER PLANT, AMRAVATI, U#1 to 5.**

AT

**ADDITIONAL AMRAVATI INDUSTRIAL AREA,
INDIABULLS POWER LTD
NANDGAONPETH, DIST- AMRAVATI
MAHARASHTRA**

THESE TENDER DOCUMENTS CONTAINING VOLUME-II PRICE BID IS ISSUED TO:

M/s.....
.....

(THESE TENDER DOCUMENTS ARE NOT TRANSFERABLE)
FOR BHARAT HEAVY ELECTRICALS LIMITED

ADDL. GENERAL MANAGER (PURCHASE)

PLACE: NAGPUR

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 3 of 15)

SL. NO.	DESCRIPTION	UOM	QTY	UNIT RATE IN FIGURE (in Rs)	UNIT RATE IN WORDS (in Rs)	TOTAL AMOUNT(in Rs)=(QTY X UNIT RATE)	App lica ble TOP
I1.0	Cable tray and Accessories						I1.0
I1.0.1	Perforated cable tray and accessories (with or without cover) 50mm	Meter	2162.5				
I1.0.2	Perforated cable tray and accessories (with or without cover) 100mm	Meter	13750				
I1.0.3	Perforated cable tray and accessories (with or without cover) 150mm	Meter	9125				
I1.0.4	Perforated cable tray and accessories (with or without cover) 300mm	Meter	375				
I2.0	Cable laying including earthing wires						I2.0
I2.0.1	Screened Copper Cable 2P x 0.5 sqmm armoured / unarmoured	Meter	163000				
I2.0.2	Screened Copper Cable 4P x 0.5 sqmm armoured / unarmoured	Meter	410000				
I2.0.3	Screened Copper Cable 8P x 0.5 sqmm armoured / unarmoured	Meter	491000				
I2.0.4	Screened Copper Cable 10P / 12P x 0.5 sqmm armoured / unarmoured	Meter	72000				
I2.0.5	Screened Copper Cable 16P x 0.5 sqmm armoured / unarmoured	Meter	2500				
I2.0.6	Screened Copper Cable 20P/24P x 0.5 sqmm armoured / unarmoured	Meter	27000				
I2.0.7	Screened Copper Cable 4P x 1.5 sqmm armoured / unarmoured	Meter	45000				

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 4 of 15)

I2.0.8	Screened Copper Cable 2P/4C x 1.3 sqmm armoured / unarmoured	Meter	25000				
I2.0.9	Screened Copper Cable 2P/4C x 1.5 sqmm armoured / unarmoured	Meter	58000				
I2.0.10	Screened Copper Cable 2C x 2.5 sqmm armoured / unarmoured	Meter	19000				
I2.0.11	Screened Copper Cable 3C x 2.5 sqmm armoured / unarmoured	Meter	214500				
I2.0.12	Screened Copper Cable 5C x 2.5 sqmm armoured / unarmoured	Meter	32500				
I2.0.13	Screened Copper Cable 7C x 2.5 sqmm armoured / unarmoured	Meter	58500				
I2.0.14	Screened Copper Cable 10C x 2.5 sqmm armoured / unarmoured	Meter	77500				
I2.0.15	Screened Copper Cable 16C x 2.5 sqmm armoured / unarmoured	Meter	15000				
I2.0.16	Screened Copper Cable 19C x 2.5 sqmm armoured / unarmoured	Meter	26500				
I2.0.17	Screened Copper Cable 3C x 6 sqmm armoured / unarmoured	Meter	8500				
I2.0.18	Copper Cable 2 or 3 triad, 0.5/1.5 sqmm armoured/unarmoured	Meter	5000				
I2.0.19	Compensating cable 1P/2P x 0.5 sq mm type Tx/Sx/Kx unarmoured/armoured	Meter	2500				
I2.0.20	Compensating cable 1P/2P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	32500				
I2.0.21	Compensating cable 4P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	25000				

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 5 of 15)

12.0.22	Compensating cable 6P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	40000				
12.0.23	Laying of Optical fibre cables on cable trays, conduits etc (termination supervision by other agency) with minor civil works	Meter	4000				
12.0.24	Network UTP Cables (special termination using UTP connectors involved)	Meter	30500				
12.0.25	GI earthing wire	Meter	2500				
12.0.26	Cable duct 60 x 60 x 1000	Meter	1005				
12.0.27	Cable duct 180 x 100 x 1000	Meter	365				
12.0.28	Cable duct 250 x 100 x 1000	Meter	315				
12.0.29	Hoses-1/4", 1/2" , 1", SS/Teflon, Braided/unbraided, upto 5M length	Meter	330				
12.0.30	Flexible pipe 1"	Meter	50				
12.0.31	Flexible pipe 2"	Meter	10				
14.0	Junction box/Push Button station						13.0
14.0.1	Junction boxes upto 48 way	No	1195				
14.0.2	Junction boxes above 48 way	No	15				
14.0.3	CJCB Junction boxes upto 48 way	No	5				
14.0.4	CJCB Junction boxes above 48 way	No	95				

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 6 of 15)

14.0.5	2PB or 3PB Pushbutton box	No	15				
14.0.6	Fire protection switch in IP65 box	No	10				
14.0.7	FSSS Local Oil Gun Maintenance Switch Box	No	60				
15.0	Conduits/Impulse pipe/tubes						14.0
15.0.1	Impulse pipe CS ½" SCH 80 (D21.3 x 3.73 mm)	Meter	18500				
15.0.2	Impulse pipe CS ½" SCH 160 (D21.3 x 4.78 mm)	Meter	12000				
15.0.3	Impulse pipe CS GR C 3/4" NB SCH 80	Meter	10500				
15.0.4	Impulse pipe ASTM CS GR C 1" NB SCH 80	Meter	300				
15.0.5	Impulse pipe SS ½" (D21.3 x 2.6 mm) Sch 40	Meter	2500				
15.0.6	Impulse pipe SS 1/2" SCH 160	Meter	3125				
15.0.7	Impulse pipe SS 3/4" SCH 80 (D25 x 4 mm)	Meter	10				
15.0.8	Impulse pipe AS ½" SCH 160 (D21.3 x 4.78 mm)	Meter	1000				
15.0.9	Impulse pipe ASTM A 335 P22 1/2 " Sch XXS	Meter	3750				
15.0.10	GI Pipe (1/2", 1") Heavy grade	Meter	15700				
15.0.11	Seamless CS tube 13.5 x 2.6 mm	Meter	1240				
15.0.12	Seamless CS tube 21.3 x 2.3 mm	Meter	2050				
15.0.13	CS tube 33.7 x 3.38 mm	Meter	5				

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 7 of 15)

15.0.14	CS tube D16 x 2.6	Meter	9500				
15.0.15	CS tube DN 80	Meter	100				
15.0.16	Seamless AS tube 13.5 x 2.6 mm	Meter	70				
15.0.17	Seamless AS tube 21.3 x 2.3 mm	Meter	2000				
15.0.18	Copper tube 3/8" (Sheathed / bare)	Meter	500				
15.0.19	Copper tube 6mm/8mm / 1/4" (Sheathed / bare)	Meter	10750				
15.0.20	Copper tube 1/2" to 1" (Sheathed / bare)	Meter	125				
16.0	Miscellaneous Structural steel including frames for Panels/Racks/Instruments, supports for cable tray/pipes/tubes, Canopies etc						16.0
16.0.1	Structural steel for fabrication	Ton	80.325				
16.0.2	Aluminium strip (25 x 3 mm)	Meter	4150				
16.0.3	Assembly of JB mounting frames (approx. 1100 x 765 x 500 mm)	No	10				
16.0.4	Assembly of JB mounting frames (approx. 1100 x 1515 x 500 mm)	No	10				
16.0.5	Assembly of JB mounting frames (approx. 1700 x 1600 x 718 mm)	No	10				
16.0.6	Assembly of JB mounting frames (approx. 1700 x 1600 x 850 mm)	No	10				

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 8 of 15)

16.0.7	Assembly of JB mounting frames (approx. 2600 x 1700 x 620 mm)	No	10				
17.0	Panels/Cubicles/Racks/Enclosures/Monitors/Computer/Computer peripheral/PLCs/UPS/Batteries						17.0
17.0.1	Assembly of local gauge board (approx. weight 650kg, 2200(L) x 300(B) x 1800(H) mm)	No	35				
17.0.2	Control Panel (approx. weight 400kg, 900(L) X 900(B) X 2500(H) mm) - one panel	No	45				
17.0.3	Control Panel (approx. weight 800kg, 1800(L) X 1000(B) X 2500(H) mm) - suit of two panels	No	135				
17.0.4	Control Panel (approx. weight 1200kg, 2700(L) X 1000(B) X 2500(H) mm) - suit of three panels	No	25				
17.0.5	Control Panel (approx. weight 1600kg, 3600(L) X 1000(B) X 2500(H) mm) - suit of four panels	No	5				
17.0.6	Control Panel (approx. weight 2000kg, 4500(L) X 1000(B) X 2500(H) mm) - suit of five panels	No	10				
17.0.7	Control Panel for HP dosing system (approx. weight 3000Kg, 1000(L) x 800(B) x 2000(H) mm)	No	5				
17.0.8	Gravimetric Coal feeder control panel(Approx weight 300 kg, approx. 1200 x 600 x 2315)	No	30				
17.0.9	Control panels for Centrifuges	No	2				
17.0.10	Transducer and AVT panel	No	5				

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 9 of 15)

17.0.11	Unit Control panel	Set	5				
17.0.12	Electrical control panel (approx. 1900(L) x 1000(B) x 2355(H) mm)	Set	5				
17.0.13	NETWORK PANELS (approx. weight 400kg, 900 x 900 x 2500 mm)	No	16				
17.0.14	Vibration monitoring system for Fans and Pulverisers	Set	5				
17.0.15	Vibration monitoring system for main turbine / generator	Set	5				
17.0.16	Vibration monitoring system for pumps	Set	5				
17.0.17	DC motor starter box for scanner fan (approx. weight 50kg, 375(L) x 900(B) x 1120(H) mm)	No	5				
17.0.18	Burner Tilt Shear Pin Failure Indication Box	No	20				
17.0.19	Air Heater Rotor Stoppage Alarm Box	Set	5				
17.0.20	Steam leak detection (STLD) system panel (approx weight 200kg, approx. 800(L) x 2315(B) x 800(H) mm)	Set	5				
17.0.21	Electronic Water Level Indicator (EWLI)	Set	20				
17.0.22	LP Dosing sysetm	Set	5				
17.0.23	Condenser vacuum pump system	Set	5				
17.0.24	Generator Instrumentation cabinet including annunciator (approx. weight 600 Kg, 1000 x 800 x 2200 mm)	No	5				

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 10 of 15)

17.0.25	Positioner cabinets (approx. 380 x 380 x 210 mm) for LPBP CV1, LPBP CV2, Spray water CV	No	15				
17.0.26	Local Instrument racks (LIR)	No	270				
17.0.27	Local Instrument enclosures (LIE)	No	160				
17.0.28	max Engineering / operator / storian / LAN / WAN / Shift in charge / stn in charge / gateway / interface PC / HART etc., PC/Server Station with ASCII Keyboard, Mouse & 21" Colour Monitor, individual UPS	Set	72				
17.0.29	Printers (80/132 col Dot Matrix, A3 Inkjet, A3 Laserjet, etc)	Set	24				
17.0.30	Computer furniture for all Servers, PCs, Printers	Set	5				
17.0.31	Plant Control Desk / CRT desk	Set	5				
17.0.32	LVS (Large Video Screen) made up of 5X1 matrix. Each LVS of DLP/LCD type, Rear projection type, 67 inches diagonal size, with 1024x768 resolution non interlaced	Set	20				
17.0.33	2 X 120 KVA, 220/240 V UPS System and ACDB	Set	5				
18.0	Instruments/Devices including sensors/Cells/Probes etc						18.0
18.0.1	Latching relay 24V, 5A	No	10				
18.0.2	Furnace Temperature probe including local panel/box and all accessories	No	10				

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 11 of 15)

18.0.3	Moisture Sensor probe and dew point monitor	Set	5			
18.0.4	Conductivity Sensor and Transmitter	No	10			
18.0.5	Air filter regulators / Lubricators (1/2", 1", 0-6KG, 0-10 KG)	No	290			
18.0.6	Speed Regulators / Air lock valves in oil gun corner rack	No	60			
18.0.7	Solenoid valves (3 way, AC/DC, 1/4", 1/2", 1", NPT/BSP, single/dual coil)	No	520			
18.0.8	Control valves with pneumatic actuators along with accessories	No	1			
18.0.9	Pneumatic Pressure controller with accessories	No	15			
18.0.10	Pneumatic Temperature controller with accessories		20			
18.0.11	Heavy Duty Limit Switch	No	150			
18.0.12	Speed switch / Speed detector	No	30			
18.0.13	Pressure Switch / DP Switch / DP indicating switch	No	775			
18.0.14	Temperature Switch / Thermostat	No	35			
18.0.15	Float type Level Switch	No	140			
18.0.16	Electronic Level Switch (with amplifier, etc), Capacitance or conductivity type	No	12			
18.0.17	Vacuum switch	No	15			
18.0.18	Flow switch (Mechanical / Electronic)	No	5			

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 12 of 15)

18.0.19	Ultrasonic Transmitters	No	5				
18.0.20	Pressure / DP / Flow (DP type) / Level - Transmitter	No	1535				
18.0.21	Level Transmitter (displacer type)	No	15				
18.0.22	Flow Transmitter (Pulse / mass flow / target type) including flanges	No	15				
18.0.23	Speed transmitter	No	30				
18.0.24	Position Transmitters	No	15				
18.0.25	Electronic Level Transmitter (with amplifier, etc), Capacitance or conductivity type / Guided Wave Radar(GWR) transmitter	No	80				
18.0.26	Pressure Gauge / DP gauge/DP Indicator	No	1638				
18.0.27	Temperature Gauge (all types)	No	990				
18.0.28	Level Indicator / Level Gauge	No	110				
18.0.29	Direct Water Level Gauge (DWLG)	Set	10				
18.0.30	Flow indicator / Flow Gauge / Flow meter/Acoustic flow meter (coal)	No	30				
18.0.31	Thermocouple / RTDs with thermowell (all types) along with converters wherever applicable	No	3264				
18.0.32	MTM Thermocouple upto 17 M length	No	240				

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 13 of 15)

18.0.33	MTM Thermocouple over 17 M upto 22 M length	No	370				
18.0.34	Purge meter for mill	No	60				
18.0.35	SADC Cylinders	No	280				
18.0.36	HEA Exciter system	Set	60				
18.0.37	Flame Scanner Head Assembly	No	100				
18.0.38	Hydrogen Purity analyser	Set	5				
18.0.39	O2 (OXYGEN) Analyzer	Set	30				
18.0.40	CO Analyzer (in situ type)	Set	5				
18.0.41	Flue Gas Analyzer (SOX/NOX/CO)	Set	5				
18.0.42	Dust emission monitor (Installation at around 88 M in chimney)	Set	5				
18.0.43	SWAS Sample handling system with racks & Sample conditioning panel with chiller	Set	5				
18.0.44	SWAS Analyzer Panel including various analyzers	Set	5				
18.0.45	Console inserts (to be mounted on Backup desk)	Set	10				
18.0.46	Vertical indicators (moving coil / bar graph)	No	10				
18.0.47	Digital / bargraph indicators	No	35				
18.0.48	Recorder 24 / 30 Channel	No	5				

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 14 of 15)

18.0.49	Recorder 3 channel	No	5				
18.0.50	Rotor Earth fault Detector	No	5				
18.0.51	I/P converters	No	490				
18.0.52	Rotameters	No	15				
18.0.53	Laboratory Setup for Customer	Set	1				
19.0	Commissioning and Testing activities for Equipments erected by other agencies, like control valves, on/off valves, electrical/pneumatic valves, actuators, solenoid valves, valves, limit switches, ERV controllers, power cylinders, Pressure & Temperature Guages/Transmitters,etc						19.0
19.0.1	Rack mounted instruments commissioning	Set	3				
19.0.2	Coal Feeder local panel/ instruments commissioning	No	30				
19.0.3	Electrical regulating drives: (Valve, damper, scoop)	No	140				
19.0.4	Pneumatic regulating drives: (Valve, damper) incl Burner tilt	No	545				
19.0.5	Commissioning of Hydraulic actuators	No	70				
19.0.6	Corner nozzle valve/ Trip valves commissioning	No	220				
19.0.7	Open/Close type pneumatic gates / dampers / valves	No	245				

BHARAT HEAVY ELECTRICALS LIMITED: PSWR: Nagpur
T.S. No. BHE/PW/PUR/AMRT-CNI/882
(RATE SCHEDULE) VOLUME-II PRICE BID (Page 15 of 15)

19.0.8	ERV Controller (approx. weight 25kg, 400 x 350 x 270 mm)	No	10				
19.0.9	Limit Switches (checking and adjusting only).	No	100				
19.0.10	Only healthiness checking of embedded RTD / T/C	No	1000				
19.0.11	Fan Lube oil skid	Set	45				
19.0.12	Pulveriser Lube oil skid	Set	30				
110.0	Power Cylinders						110.0
110.0.1	Mill Discharge Valve power cylinders (set of four)	Set	30				
111.0	Miscellaneous items (items not covered under above heads)						111.0
111.0.1	Master and Slave Clock system	Set	2				
112.0.2	HART MANAGEMENT SYSTEM including CABINET	Set	1				
TOTAL IN FIGURE (in Rs)							
TOTAL IN WORDS (in Rs)							