### TENDER SPECIFICATION

#### No. BHE/PW/PUR/PLT-CNI/600

**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 1X250 MW UNIT # 2

ΑT

NEW PARLI THERMAL POWER STATION
DISTT BEED, MAHARASHTRA



PART: II - PRICE BID

#### **BHARAT HEAVY ELECTRICALS LIMITED**

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

# BHARAT HEAVY ELECTRICALS LIMITED (A GOVERNMENT OF INDIA UNDERTAKING) POWER SECTOR - WESTERN REGION SHREEMOHINI COMPLEX 345, KINGS WAY - NAGPUR 440 001

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 1X250 MW UNIT # 2

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THESE TENDER DOCUMENTS CONTAINING <b>PART-I</b> TECHNICAL BID AND <b>PART-II</b> PRICE BID (REVISION-01), ARE ISSUED TO:
M/s
PLEASE NOTE:
THESE TENDER DOCUMENTS ARE NOT TRANSFERABLE.
TENDERER SHALL NOTE THAT THEIR OFFER WILL BE CONSIDERED SUBJECT TO THE APPROVAL OF BHEL'S CUSTOMER
For Bharat Heavy Electricals Limited
Dy GEN MANAGER (PURCHASE) PLACE: NAGPUR

**BHEL:PSWR: Nagpur** 

DATE:

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Tender No. BHE/PW/PUR/PLT-CNI/415

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 1 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
A-1	Control Panel (approx L1000 X B1000 X H2500, 400Kg ) - one panel	19	Nos		
A-2	Control Panel (approx L1001 to 1500 X B1000 X H2500, 800 Kg) - suit of two panels	18	Nos		
A-3	Control Panel (approx L1501 to 2250 X B1000 X H2500, 1200 Kg) - suit of three panels	15	Nos		
A-4	Control Panel (approx L2251 to 3000 X B1000 X H2500, 1600 Kg) - suit of four panels	1	Nos		
A-5	Electrical heat tracer panel and accessories	1	Set		
A-6	Unit Control panel	1	Set		
<b>A-</b> 7	Electrical control panel 1900x1000x2355	1	Set		
A-8	Master and Slave Clock system	1	Set		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 2 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
A-9	Generator Instrumentation cabinet including annunciator (1230 x 1060 x 2550, 600 Kgs)	1	No		
A-10	220/240 VAC UPS	1	Set		
A-11	Vibration monitoring system for Fans and Pulverisers	1	Set		
A-12	Vibration monitoring system for main turbine	1	Set		
A-13	Vibration monitoring system for BFP/CEP/ACWP	1	Set		
A-14	DC motor starter box for scanner fan	1	No		
A-15	Mill inerting system control box 755 X 340 X 1345, local mounted	3	Nos		
A-16	Control panels for Centrifuges	2	Nos		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 3 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
A-17	Positioner cabinets (380x380x210) for LPBP CV1, LPBP CV2, Spray water CV	3	Nos		
A-18	Conrol Panel for HP dosing system (1500x800x700, 0.4 MT)	1	No		
A-19	Burner Tilt Shear Pin Failure Indication Box	4	Nos		
A-20	Air Heater Rotor Stoppage Alarm Box	2	Sets		
A-21	Condenser Vacuum pump system	1	Set		
A-22	Local Instrument racks (LIR)	40	Nos		
A-23	Local Instrument enclosures (LIE)	35	Nos		
A-24	NETWORK PANELS (800x800x2100)	3	Nos		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 4 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
A-25	WALL MOUNTED NETWORK ENCLOSURES (500x600x600)	1	Sets		
A-26	HART MANAGEMENT SYSTEM CABINET	1	Set		
A-27	Pulverizer screw conveyer monitoring system	3	Set		
A-28	Pulverizer 'Delta P' Panel (1600x550x2000, 1.5MT)	3	Set		
A-29	Electronic Water Level Indicator (EWLI)	5	Sets		
A-30	Hydrogen Purity analyser	1	No		
A-31	SWAS Sample handling system with racks & Sample conditioning panel with chiller	1	Sets		
A-32	Analyzer Panel including various analyzers (Approx. dim. 5000 x 2300 x 750 mm)	1	Sets		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 5 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
A-33	Furnace Temperature probe	2	Nos		
A-34	Smart wall Blower sysetm	1	Set		
A-35	Steam Tube leak detection sysetm	1	Set		
B-1	Direct Water Level Gauge	2	Sets		
B-2	Solenoid valves (3 way, AC/DC, 1/4", 1/2", 1", NPT/BSP, single/dual coil)	113	Nos		
B-3	HEA Exciter system	12	Sets		
B-4	Flame Scanner Head Assembly	20	Nos		
B-5	Relay / Latch relay with base	2	Nos		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 6 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
B-6	Air filter regulators / Lubricators (1/2", 1", 0-6KG, 0-10 KG)	138	Nos		
B-7	Speed Regulators / Air lock valves in oil gun corner rack	12	Nos		
B-8	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	17	Sets		
B-9	Printers (80/132 col Dot Matrix, A3 Inkjet, A3 Laserjet, etc)	7	Sets		
B-10	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	3	Sets		
B-11	Laboratory Setup for Customer	1	Set		
B-12	Microphone including junction / control box and acessories for Mill DP level control	3	Sets		
B-13	CO Analyzer (in situ type)	1	Sets		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 7 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
B-14	O2 (OXYGEN ) Analyzer	6	Nos		
B-15	SO2 Analyzer (in situ type)	1	Nos		
B-16	NOX Analyzer (in situ type)	1	Nos		
B-17	Dust emission monitor (Installation at around 50 M in chimney)	1	Sets		
C-1	Console inserts (to be mounted on Backup desk)	2	Sets		
C-2	Vertical indicators (moving coil / bar graph)	20	Nos		
C-3	Digital / bargraph indicators	11	Nos		
C-4	Recorder 24 / 30 Channel	2	Nos		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 8 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
C-5	Recorder 3 channel	2	Nos		
C-6	Speed switch / Speed detector	2	Nos		
C-7	Moisture Sensor probe and dew point monitor	1	Set		
C-8	Rotor Earth fault Detector	1	Nos		
C-9	Pressure Switch / DP Switch / DP indicating switch	200	Nos		
C-10	Temperature Switch / Thermostat	40	Nos		
C-11	Float type Level Switch	46	Nos		
C-12	Electronic Level Switch (with amplifier, etc), Capacitance or conductivity type	10	Nos		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 9 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
C-13	Electronic Level Transmitter (with amplifier, etc), Capacitance or conductivity type	6	Nos		
C-14	Flow switch (Mechanical / Electronic)	13	Nos		
C-15	Pressure Gauge / DP gauge	476	Nos		
C-16	Temperature Gauge (all types)	358	Nos		
C-17	Level Indicator / Level Gauge	16	Nos		
C-18	Flow indicator / Flow Gauge / Flow meter/Acoustic flow meter (coal)	6	Nos		
C-19	Pressure / DP / Flow (DP type) / Level -Transmitter	380	Nos		
C-20	Level Transmitter (displacer type)	3	Nos		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 10 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
C-21	Flow Transmitter (Pulse / mass flow / target type) including flanges	2	Nos		
C-22	Thermocouple / RTDs with thermowell (all types) along with converters wherever applicable	590	Nos		
C-23	MTM Thermocouple upto 17 M length	56	Nos		
C-24	MTM Thermocouple over 17 M upto 22 M length	70	Nos		
C-25	Thermocouple assy with 6 / 9 Cr-Al MI T/C along with integral JB	2	Nos		
C-26	I/P converters	65	Nos		
C-27	Pneumatic Pressure controller with accessories	1	Nos		
C-28	Pneumatic Temperature controller with accessories	7	Nos		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 11 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
D-1	Fan Lube oil skid	9	Sets		
D-2	Rack mounted instruments commissioning	3	Sets		
D-3	Coal Feeder local instruments commissioning	6	Nos		
D-4	Electrical regulating drives: (Valve, damper, scoop)	6	Nos		
D-5	Pneumatic regulating drives: (Valve, damper) incl SADC, Burner tilt	140	Nos		
D-6	Commissioning of Hydraulic actuators	14	Nos		
D-7	ERV Controller	2	Nos		
D-8	Corner valve/ Trip valves commissioning	40	Nos		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 12 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
D-9	Open/Close type pneumatic gates / dampers / valves	60	Nos		
D-10	Only healthiness checking of embedded RTD / T/C	340	Nos		
D-11	Limit Switches (checking and adjusting only).	45	Nos		
D-12	LP Dosing system (Approx. dim.1000 x 800 x 300, 3.0 MT)	1	Set		
D-13	CWP Butterfly valves	3	Sets		
E-1	GI earthing wire	2500	Meters		
E-2	GI Pipe (1/2", 1") Heavy grade	2250	Meters		
E-3	GI Pipe (1.5 ", 2")	10	Meters		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 13 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
E-4	Copper tube 6mm/8mm / 1/4" (Sheathed / bare)	2700	Meters		
E-5	Copper tube 1/2" to 1" (Sheathed / bare)	150	Meters		
E-6	Hoses- 1/2" to 1", SS/Teflon, Braided/unbraided, upto 5M length	90	Nos		
E-7	Perforated cable tray and accessories (with or without cover) 50mm	3300	Meters		
E-8	Perforated cable tray and accessories (with or without cover) 100mm	4500	Meters		
E-9	Perforated cable tray and accessories (with or without cover) 150mm	1400	Meters		
E-10	Cable duct 60 x 60 x 1000	250	Meters		
E-11	Cable duct 100 x 100 x 1000	60	Meters		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 14 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
E-12	Cable duct 180 x 100 x 1000	50	Meters		
E-13	Cable duct 250 x 60 x 1000	40	Meters		
E-14	Screened Copper Cable 2P x 0.5 sqmm armoured / unarmoured	60000	Meters		
E-15	Screened Copper Cable 4P x 0.5 sqmm armoured / unarmoured	77650	Meters		
E-16	Screened Copper Cable 6P x 0.5 sqmm armoured / unarmoured	14000	Meters		
E-17	Screened Copper Cable 8P x 0.5 sqmm armoured / unarmoured	94000	Meters		
E-18	Screened Copper Cable 10P / 12P x 0.5 sqmm armoured / unarmoured	2050	Meters		
E-19	Screened Copper Cable 1P/2C x 1.5 sqmm armoured / unarmoured	7600	Meters		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 15 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
E-20	Screened Copper Cable 2P/4C x 1.5 sqmm armoured / unarmoured	23000	Meters		
E-21	Screened Copper Cable 5C/7C x 1.5 sqmm armoured / unarmoured	5000	Meters		
E-22	Screened Copper Cable 10C x 1.5 sqmm armoured / unarmoured	5000	Meters		
E-23	Screened Copper Cable 19C x 1.5 sqmm armoured / unarmoured	3300	Meters		
E-24	Screened Copper cable 2C x 2.5 sq. mm armoured/ unarmoured	6500	Meters		
E-25	Compensating cable 2P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	5000	Meters		
E-26	Compensating cable 4P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	6000	Meters		
E-27	Compensating cable 6P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	5600	Meters		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 16 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
E-28	Copper Cable 2 or 3 triad, 0.5/1.5 sqmm armoured/unarmoured	1000	Meters		
E-29	Copper Cable 6 triad, 0.5/1.5 sqmm armoured/unarmoured	500	Meters		
E-30	Laying, etc of Optical fibre cables on cable trays, conduits etc (termination supervision by other agency) with minor civil works	2100	Meters		
E-31	Network UTP Cables (special termination using UTP connectors involved)	10800	Meters		
E-32	2P/ 4C x 1.5 sqmm control cable	50	Meters		
E-33	5C X1.5 control cable	500	Meters		
E-34	MS Flat 50 x 6 mm	50	Meters		
F-1	Assembly of JB mounting frames (approx 1100 x 500 x 800)	5	Nos		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 17 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
F-2	Assembly of JB mounting frames (approx 1500 x 800 x 1800)	3	Nos		
F-3	Assembly of JB mounting frames (approx 2000 x 900 x 1800)	5	Nos		
F-4	Assembly of JB mounting frames (approx 2600 x 500 x 1800)	3	Nos		
F-5	Assembly of local gauge board 1400 x 450 x1900 mm	7	Nos		
F-6	FSSS Local Oil Gun Maintenance Switch Box	12	Nos		
F-7	Junction boxes upto 48 way	310	Nos		
F-8	Junction boxes above 48 way	95	Nos		
F-9	CJCB Junction boxes upto 48 way	10	Nos		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 18 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
F-10	CJCB Junction boxes above 48 way	36	Nos		
F-11	2PB or 3PB Pushbutton box	10	Nos		
F-12	Impulse pipe CS 1/2" SCH 40 (D21.3 x 2.76 mm)	50	Meters		
F-13	Impulse pipe CS 1/2" SCH 80 (D21.3 x 3.73 mm)	3250	Meters		
F-14	Impulse pipe CS 3/4" SCH 80 (D25 x 4 mm)	2200	Meters		
F-15	Impulse pipe CS 1/2" SCH 160 (D21.3 x 4.78 mm)	1000	Meters		
F-16	Impulse pipe AS 1/2" SCH 40 (D21.3 x 2.76 mm)	250	Meters		
F-17	Impulse pipe ASTM A 335 P22 1/2 " Sch XXS	800	Meters		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 19 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
F-18	Impulse pipe ASTM A 335 P22 3/4 " Sch 80	300	Meters		
F-19	Impulse pipe CS 1" SCH 40 (D33.4 x 3.37 mm)	50	Meters		
F-20	Impulse pipe CS 1" SCH 80 (D33.4 x 4.55 mm)	200	Meters		
F-21	Impulse pipe SS 1/4" (D12.7/13.5 x 2.1/2.6 mm)	1000	Meters		
F-22	Impulse pipe SS 1/2" SCH 160	750	Meters		
F-23	SS tube D6 x 1.0/1.5mm	100	Meters		
F-24	Impulse pipe CS 1/4" (D13.5 x 2.6 mm)	690	Meters		
F-25	Impulse pipe CS (D17.2 x 1.8 mm)	1200	Meters		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 20 of 21)

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
F-26	CS tube DN 80	88	Meters		
F-27	Impulse pipe SS ½" (D21.3 x 2.6 mm) Sch 40	1570	Meters		
F-28	Impulse pipe AS 1/4" (D13.5 x 2.6 mm)	400	Meters		
F-29	Impulse pipe 1/4" (D13.5 x 3.2 mm)	1500	Meters		
F-30	Impulse pipe 1/2" (D21.3 x 3.2/3.6 mm)	1000	Meters		
F-31	Impulse pipe 1/2" (D21.3 x 4.78 mm)	200	Meters		
F-32	Plant Control Desk / CRT desk	1	Sets		
F-33	Computer furniture for all Servers, PCs, Printers	1	Sets		

Power Sector: Western Region: Nagpur Tender Specification No. No. BHE/PW/PUR/PLT-CNI/600 (Part-II: Price Bid) Rate Schedule (Page 21 of 21)

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 1x250 MW UNIT # 2 AT NEW PARLI THERMAL POWER STATION DISTT BEED, MAHARASHTRA

SN	DESCRIPTION	TOTAL QTY	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
F-34	Structural steel for fabrication	25	Tons		
F-35	MS Sheet 3 to 4 mm thick	5	Sq. M.		
	Grand total in figures (Rs)	1			

Grand Total in words : Rupees