

TENDER SPECIFICATION

No. BHE/PW/PUR/RGIT-CNI/1146

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 **4X600 MW JPL RAIGARH PROJECT Unit #1 and #4.**

AT

**Village: Tamnar, Tehsil: Gharghoda, Dist: Raigarh,
State: Chhatisgarh**

VOLUME :II – PRICE BID-1145



BHARAT HEAVY ELECTRICALS LIMITED

(A GOVERNMENT OF INDIA UNDERTAKING)

POWER SECTOR - WESTERN REGION

SHREEMOHINI COMPLEX

345, KINGSWAY - NAGPUR 440 001

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**Village: Tamnar, Tehsil: Gharghoda, Dist: Raigarh,
State: Chhatisgarh**

EARNEST MONEY DEPOSIT: Please see Notice Inviting Tender.

LAST DATE FOR: Please see Notice Inviting Tender.

TENDER SUBMISSION:

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING **VOLUME-I-Tech Bid**, **VOLUME- II-Price Bid** AND **VOLIME-IBCD Rev-01 Rev-01** ARE ISSUED TO:

M/s.

PLEASE NOTE:

THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)

Place: Nagpur

Date:

Job: E, T and C of C&I PACKAGE at Unit 1 & 4 of 4X600MW FOR JPL Raigarh							
Sl. No.	Description of items	UOM	Quantity	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)	APPLICABLE for Terms of Payment
11.0	Cable tray and Accessories						11.0
11.0.1	Perforated cable tray and accessories (with or without cover) 50mm	Meter	7710				
11.0.2	Perforated cable tray and accessories (with or without cover) 100mm	Meter	13650				
11.0.3	Perforated cable tray and accessories (with or without cover) 150mm	Meter	3615				
11.0.4	Perforated cable tray and accessories (with or without cover) 3000mm	Meter	190				
12.0	Cable laying including earthing wires						13.0
12.0.1	Screened Copper Cable 2P x 0.5 sqmm armoured / unarmoured	Meter	114700				
12.0.2	Screened Copper Cable 4P x 0.5 sqmm armoured / unarmoured	Meter	478900				
12.0.3	Screened Copper Cable 8P x 0.5 sqmm armoured / unarmoured	Meter	652900				
12.0.4	Screened Copper Cable 10P / 12P x 0.5 sqmm armoured / unarmoured	Meter	86500				
12.0.5	Screened Copper Cable 16P x 0.5 sqmm armoured / unarmoured	Meter	4000				
12.0.6	Screened Copper Cable 20P x 0.5 sqmm armoured / unarmoured	Meter	26000				
12.0.7	Screened Copper Cable 1P/2C or 3C x 1.5 sqmm armoured / unarmoured	Meter	5200				
12.0.8	Screened Copper Cable 5C/7C x 1.5 sqmm armoured / unarmoured	Meter	1200				

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12.0.9	Screened Copper Cable 10C/12C x 1.5 sqmm armoured / unarmoured	Meter	13000				
12.0.10	Screened Copper Cable 19C x 1.5 sqmm armoured / unarmoured	Meter	7000				
12.0.11	Power Copper Cable 3C x 2.5 sqmm armoured / unarmoured	Meter	5000				
12.0.12	Power Aluminium Cable 3C x 6 sqmm armoured / unarmoured	Meter	500				
12.0.13	Power Aluminium Cable 3C x 10 sqmm armoured / unarmoured	Meter	300				
12.0.14	Compensating cable 1P/2P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	23600				
12.0.15	Compensating cable 4P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	28000				
12.0.16	Compensating cable 6P x 1.3 sqmm type Tx/Sx/Kx unarmoured/armoured	Meter	20000				
12.0.17	Laying, etc of Optical fibre cables on cable trays, conduits etc (termination supervision by other agency) with minor civil works	Meter	7960				
12.0.18	Network UTP Cables (special termination using UTP connectors involved)	Meter	20000				
12.0.19	GI earthing wire	Meter	3000				
12.0.20	Cable duct 60 x 60 x 1000	Meter	400				
12.0.21	Cable duct 180 x 100 x 1000	Meter	200				

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12.0.22	Cable duct 250 x 100 x 1000	Meter	200				
12.0.23	Hoses-1/4", 1/2", 1", SS/Teflon, Braided/unbraided, upto 5M length	Meter	212				
12.0.24	Flexible pipe 1"	Meter	100				
12.0.25	Flexible pipe 2"	Meter	20				
14.0	Junction box/Push Button station						14.0
14.0.1	Junction boxes upto 48 way	No	462				
14.0.2	Junction boxes above 48 way	No	336				
14.0.3	2PB or 3PB Pushbutton box	No	8				
15.0	Conduits/Impulse pipe/tubes						15.0
15.0.1	Impulse pipe CS ½" SCH 80 (D21.3 x 3.73 mm)	Meter	1600				
15.0.2	Impulse pipe SA106 GRB (D33.4 x 4.55 mm)	Meter	2200				
15.0.3	Impulse pipe CS GR C 1/2" NB SCH 80	Meter	6750				
15.0.4	Impulse pipe CS GR C 1/2" NB SCH 160	Meter	2200				
15.0.5	Impulse pipe CS GR C 3/4" NB SCH 80	Meter	5500				
15.0.6	Impulse pipe CS GR B 26.7 x 3.91 mm	Meter	400				
15.0.7	Impulse pipe ASTM CS GR C 1" NB SCH 80	Meter	3380				

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15.0.8	Impulse pipe AS 3/4" SCH 80	Meter	1000				
15.0.9	Impulse pipe AS P22 1/2" NB SCH XXS	Meter	2050				
15.0.10	Impulse Pipe AS TPH316H 1/2" NB SCH 40	Meter	1500				
15.0.11	Impulse Pipe AS TPH316H 1/2" NB SCH 160	Meter	1200				
15.0.12	Impulse pipe CS 3/4" SCH 80	Meter	1000				
15.0.13	Impulse pipe SS 16 mm OD (for primary water system)	Meter	1400				
15.0.14	Impulse Pipe SS TP312 1/2" NB SCH40	Meter	2070				
15.0.15	Cr-Al Impulse Pipe 21.3 X 3.73	Meter	1320				
15.0.16	GI Pipe (1/2", 1") Heavy grade	Meter	8300				
15.0.17	Seamless CS tube 13.5 x 2.6 mm	Meter	1106				
15.0.18	Seamless CS tube 21.3 x 2.3 mm	Meter	940				
15.0.19	CS tube 33.7 x 3.38 mm	Meter	4				

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15.0.20	CS tube DN 80	Meter	80				
15.0.21	Seamless AS tube 13.5 x 2.6 mm	Meter	24				
15.0.22	Seamless AS tube 21.3 x 2.3 mm	Meter	850				
15.0.23	SS tube 6x 1.5 mm	Meter	120				
15.0.24	SS tube 12.7 x 2.1 mm	Meter	600				
15.0.25	Seamless SS tube 13.5 x 2.6 mm	Meter	60				
15.0.26	Seamless SS tube 21.3 x 2.3 / 2.6 mm	Meter	644				
15.0.27	Copper tube 6mm/8mm / 1/4" (Sheathed / bare)	Meter	4700				
15.0.28	Copper tube 3/8" (Sheathed / bare)	Meter	40				
15.0.29	Copper tube 1/2" to 1" (Sheathed / bare)	Meter	70				
15.0.30	HDPE Flexible Pipes(25mm minimum internal dia.)	Meter	7800				
15.0.31	Flexible GI pipes(0.5")	Meter	20000				

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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	Tons	60				
16.0.2	Aluminium strip (300 x 25 x 2 mm)	No	1800				
16.0.3	Assembly of JB mounting frames (approx. dim.1100 x 500 x 765 mm)	No	2				
16.0.4	Assembly of JB mounting frames (approx. dim. 1600 x 718/858 x 1700 mm)	No	4				
16.0.5	Assembly of JB mounting frames (approx. 2600 x 470 x 1700 mm)	No	2				
16.0.6	Assembly of JB mounting frames (approx. 1100 x425 x 700 mm)	No	2				
16.0.7	Assembly of JB mounting frames (approx. 3100 x718 x 1700 mm)	No	2				
16.0.8	Assembly of JB mounting frames (approx. dim.1100 x 718 x 1700 mm)	No	2				
16.0.9	Assembly of JB mounting frames (approx. 2100 x 470 x 1700 mm)	No	2				
16.0.10	Assembly of JB mounting frames (approx. 2100 x 718 x 1700 mm)	No	2				
17.0	Panels/Cubicles/Racks/Enclosures/Monitors/Computer/Computer peripheral/PLCs/UPS/Batteries						17.0

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17.0.1	Assembly of local gauge board (1400 x 450 x1900 mm)	No	16				
17.0.2	Control Panel (approx. weight 400kg, 1000(L) X 1000(B) X 2500(H) mm) - one panel	No	19				
17.0.3	Control Panel (approx. weight 800kg, 1500(L) X 1000(B) X 2500(H) mm) - suit of two panels	No	58				
17.0.4	Control Panel (approx. weight 1200kg, 2250(L) X 1000(B) X 2500(H) mm) - suit of three panels	No	31				
17.0.5	Control Panel (approx. weight 1600kg, 3000(L) X 1000(B) X 2500(H) mm) - suit of four panels	No	2				
17.0.6	Gravimetric Coal feeder control panel(Approx Dim. 1200 x 600 x 2315)	No	16				
17.0.7	Control panels for Centrifuges	No	4				
17.0.8	Electrical control board	Set	2				
17.0.9	Transducer and AVT panel	No	2				
17.0.10	HP dosing system	No	2				
17.0.11	LP Dosing sysetm	Set	4				

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17.0.12	NETWORK PANELS (approx. 800 x 800 x 2100 mm)	No	12				
17.0.13	Vibration monitoring system for Fans and Pulverisers	Set	2				
17.0.14	Vibration monitoring system for main turbine / generator	Set	2				
17.0.15	Vibration monitoring system for TDBFP	Set	2				
17.0.16	DC motor starter box for scanner fan	No	2				
17.0.17	Burner Tilt Shear Pin Failure Indication Box	No	8				
17.0.18	Air Heater Rotor Stoppage Alarm Box	Set	8				
17.0.19	Steam leak detection (STLD) system panel (approx. 800(L) x 2315(B) x 800(H) mm)	Set	2				
17.0.20	Electronic Water Level Indicator (EWLI)	Set	4				

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17.0.21	Condenser vacuum pump system	Set	2				
17.0.22	Generator Instrumentation cabinet including annunciator (approx. weight 450 Kg, 2200 x 1000 x 800 mm)	No	2				
17.0.23	Positioner cabinets (approx. 380 x 380 x 210 mm) for LPBP CV1, LPBP CV2, Spray water CV	No	6				
17.0.24	Local Instrument racks (LIR)	No	120				
17.0.25	Local Instrument enclosures (LIE)	No	70				
17.0.26	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	41				
17.0.27	Printers (80/132 col Dot Matrix, A3 Inkjet, A3 Laserjet, etc)	Set	12				
17.0.28	LVS (Large Video Screen) made up of 5X1 matrix. Each LVS of DLP/LCD type, Rear projection type, 67 or 70 inches diagonal size, with 1400x1050 resolution non interlaced	Set	8				
17.0.29	Computer furniture for all Servers, PCs, Printers	Set	1				

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17.0.30	Plant Control Desk / CRT desk	Set	2				
17.0.31	230/240 V UPS System and battery with ACDB	Set	2				
17.0.32	Condenser online tube cleaning system	Set	2				
17.0.33	Debris Filter	Set	2				
17.0.34	Grounding Brush Monitor	No	2				
18.0	Instruments/Devices including sensors/Cells/Probes etc						18.0
18.0.1	Latching relay 24V, 5A	No	4				
18.0.2	Moisture Sensor probe and dew point monitor	Set	2				
18.0.3	Conductivity Sensor and Transmitter	No	8				
18.0.4	Conductivity cells and switch	No	6				
18.0.5	Furnace Temperature probe including local panel/box and all accessories	No	4				
18.0.6	Air filter regulators / Lubricators (1/4", 1/2", 1", 0-6KG, 0-10 KG)	No	88				

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18.0.7	Speed Regulators / Air lock valves in oil gun corner rack	No	32				
18.0.8	Solenoid valves (3 way, AC/DC, 1/4", 1/2", 1", NPT/BSP, single/dual coil)	No	288				
18.0.9	Pneumatic Pressure controller with accessories	No	1				
18.0.10	Heavy Duty Limit Switch	No	4				
18.0.11	Speed switch / Speed detector	No	4				
18.0.12	Pressure Switch / DP Switch / DP indicating switch	No	282				
18.0.13	Temperature Switch / Thermostat	No	10				
18.0.14	Float type Level Switch	No	4				
18.0.15	Electronic Level Switch (with amplifier, etc), Capacitance or conductivity type	No	36				
18.0.16	Vacuum switch	No	6				
18.0.17	Flow switch (Mechanical / Electronic)	No	8				

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18.0.18	Pressure / DP / Flow (DP type) / Level -Transmitter	No	1071				
18.0.19	Flow Transmitter (Pulse / mass flow / target type) including flanges	No	59				
18.0.20	Speed transmitter	No	12				
18.0.21	Position Transmitters	No	70				
18.0.22	Electronic Level Transmitter (with amplifier, etc), Capacitance or conductivity type / Guided Wave Radar(GWR) transmitter	No	48				
18.0.23	Pressure Gauge / DP gauge/DP Indicator	No	830				
18.0.24	Temperature Gauge (all types)	No	446				
18.0.25	Level Indicator / Level Gauge	No	36				
18.0.26	Direct Water Level Gauge (DWLG)	Set	4				
18.0.27	Flow indicator / Flow Gauge / Flow meter/Acoustic flow meter (coal)	No	16				
18.0.28	Thermocouple / RTDs with thermowell (all types) along with converters wherever applicable	No	1474				

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18.0.29	MTM Thermocouple upto 17 M length	No	34				
18.0.30	MTM Thermocouple over 17 M upto 22 M length	No	152				
18.0.31	MTM Thermocouple over 22 M upto 28 M length	No	194				
18.0.32	MTM Thermocouple over 28 M upto 35 M length	No	68				
18.0.33	SADC Cylinders	No	144				
18.0.34	HEA Exciter system	Set	32				
18.0.35	Flame Scanner Head Assembly	No	56				
18.0.36	Vertical indicators (moving coil / bar graph)	No	6				
18.0.37	Flow integrators	No	1				
18.0.38	Digital / bargraph indicators	No	10				
18.0.39	Recorder 24 / 30 Channel	No	2				

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18.0.40	Recorder 3 channel	No	2				
18.0.41	Rotor Earth fault Detector	No	2				
18.0.42	Hydrogen Purity analyser	No	2				
18.0.43	CO Analyzer (Cross Duct Insitu type)	No	4				
18.0.44	O2 (OXYGEN) Analyzer	No	8				
18.0.45	SOx/NOx/CO Analyzer (Insitu type)	No	2				
18.0.46	Dust emission monitor (Installation at around 88 M in chimney)	Set	2				
18.0.47	SWAS Sample handling system with racks & Sample conditioning panel with chiller	Set	2				
18.0.48	SWAS Analyzer Panel including various analyzers	No	2				
18.0.49	I/P converters	No	136				
18.0.50	Reverse Rotation indication switch	No	6				

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18.0.51	Purge meter	No	32				
19.0	Commissioning and Testing activities for Equipments erected by other agencies, like control valves, on/off valves, electrical/pneumatic valves, actuators, solenoid						19.0
19.0.1	Coal Feeder local panel/ instruments commissioning	No	16				
19.0.2	Electrical regulating drives: (Valve, damper, scoop)	No	108				
19.0.3	Pneumatic regulating drives: (Valve, damper) incl Burner tilt	No	348				
19.0.4	Commissioning of Hydraulic actuators	No	40				
19.0.5	Corner valve/ Trip valves commissioning	No	96				
19.0.6	Open/Close type pneumatic gates / dampers / valves	No	170				
19.0.7	ERV Controller (approx. weight 10kg, 400 x 350 x 190 mm)	No	4				
19.0.8	Pulveriser Lube oil skid	Set	16				
19.0.9	Fan Lube oil skid	Set	16				

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19.0.10	Primary water skid	Set	2				
19.0.11	Only healthiness checking of embedded RTD / T/C	No	1000				
19.0.12	Limit Switches (checking and adjusting only).	No	150				
110.0	Power Cylinders						110.0
110.0.1	Mill Discharge Valve power cylinders (set of four)	Set	16				
111.0	Miscellaneous items (items not covered under above heads)						111.0
111.0.1	Master and Slave Clock system	Set	1				
111.0.2	HART MANAGEMENT SYSTEM including CABINET	Set	1				
Grand Total in figures (In Rs)							
Grand Total in Words Rs.....							