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**TENDER NO. BHEL/ NR/SCT/BARA/C&I/PACKAGE-A/912**

**FOR**

**“ERECTION, TESTING, COMMISSIONING & HANDING  
OVER OF ALL C&I EQUIPMENTS OF UNIT NO. 1 AND  
STATION C&I OF UNIT NO. 1, 2 &3 (PACKAGE-A) OF 3X660  
MW BARA STPP, DISTT: ALLAHABAD (U.P.)”**

**PART- II – PRICE BID**



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

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ISO 9001, ISO 14001 and  
OHSAS 18001 certified  
company  
SubContract and Purchase  
Deptt.

**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)**  
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**IMPORTANT NOTE**

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THIS TENDER SPECIFICATION ISSUED TO:

M/S-----

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**RATE SCHEDULE**

**JOB: "HANDLING AT SITE/STORES, TRANSPORTATION TO SITE OF WORK, PRE ASSY., ERECTION, TESTING, COMMISSIONING & HANDING OVER OF ELECTRICAL PACKAGE OF UNIT NO. 7 AT 2X500 MW ANPARA D TPS, DISTT. SONEBHADRA, U.P."**

S. NO.	ITEM DESCRIPTION	UNIT	Qty.	UNIT RATE	Total Amount (in Rs.)
	<b>PANELS/RACKS/CONSOLES</b>				
1	Control Panel (approx. weight 400kg, 900(L) X 900(B) X 2500(H) mm suit of one panel	No.	19		
2	Control Panel (approx. weight 800kg, 1800(L) X 1000(B) X 2500(H) mm suit of two panels	No.	54		
3	Control Panel (approx. weight 1200kg, 2700(L) X 1000(B) X 2500(H) mm suit of three panels	No.	36		
4	Control Panel (approx. weight 2000kg, 4500(L) X 1000(B) X 2500(H) mm suit of five panels	No.	1		
5	DAVR panel	SET	1		
6	Grounding Brush Monitor		1		
7	Electrical Control Panel 750x800x2415 mm	No.	1		
8	Electrical Interface System Panel(CAR-11) 750x800x2415 mm	No.	2		
9	Gas Analyser cabinet 1200x800x2110 mm	No.	2		
10	Acoustic Steam leak detection system panel(ASLD) 800x800x2415 Mm	No.	1		
11	Vibration Monitoring System 800X800X2415 mm	Set	2		
12	Acoustic pyrometer remote cabinet including PC station (approx. 1400 x 2365 x800 mm)	Set	1		
13	FTP LOCAL STARTER Box 650x1000x300 mm	No.	2		
14	Elevator control Panel	No.	1		
15	SCANNER AIR FAN STARTER 900x1120x375 mm	No.	1		

S. NO.	ITEM DESCRIPTION	UNIT	Qty.	UNIT RATE	Total Amount (in Rs.)
16	HART Management System for SMART Transmitter Panel dimension 1200X800X2415 mm	Set	1		
17	AH Main Control Panel 1830x2186x611 mm	No.	1		
18	AH LCS Sector Plate 1&2 Drive Panel 645x673x203 mm	No.	6		
19	HWL-1&2 and MEF Control valve Panel 600x600x210 mm	No.	1		
20	SOOT BLOWER MCC (23250 L X2250 H X1000 W )	No.	1		
21	Furnace Flame Viewing System – Remote Panel 700x700x2100 mm	No	1		
22	Furnace Flame Viewing System –Loca Panel 1220x1470x610 mm	No	2		
23	GRAVIMETRIC FEEDER REMOTE PANEL 1200 x 2315X600 mm	No.	7		
24	Gravimetric Feeder Integral Panel 600x750x350 mm	NO.	7		
25	NETWORK PANEL 800x800x2415 mm	No.	3		
26	Power Distribution Panel 2800x800x2415 mm	No.	1		
27	Starter cabinet for Emergency Lube Oil Motor, DC seal oil Motor 1000X800X2200 mm	No.	2		
28	Max engineer/max storian/max operator/max link stations/station supervisor/shift in charge terminal/MIS PC/PCAL PC/LVS PC/24" TFT monitor	Nos.	44		
29	PRINTERS(A4 & A3 COLOUR LASER JET, INKJET, DOT MATRIX) WITH PRINTER TABLE and accessories	No.	7		
30	LARGE VIDEO SCREEN(80") ,resolution 1400x1050 pixels	No.	6		
31	Ethernet switches-16 ports	Set	1		
32	Control Desk	Set	1		
33	Computer Furniture( for all servers ,pc,	Set	1		

S. NO.	ITEM DESCRIPTION	UNIT	Qty.	UNIT RATE	Total Amount (in Rs.)
	printer )				
	<b>LIE/LIR/LGB</b>				
34	Local Instrument racks (LIR) Type A 1650x2150x800	No.	38		
35	Local Instrument racks (LIR) Type B 1300x800x2150 mm	No.	29		
36	Local Instrument racks (LIR) Type C 800x850x1650 mm	No.	11		
37	Local Instrument enclosures (LIE) 1450x2200x950	No.	9		
38	Local Instrument enclosures Type B 1100x800x2300 mm	No.	12		
39	Local Instrument enclosures Type C 700x600x2100 mm	No.	2		
40	Local Gauge Boards(LGB) Approx. Size 1400x550x1900 mm	No.	10		
	<b>PRESSURE INSTRUMENTS RACKS (IR1 to IR7)</b>				
41	Rack of size 2150x700x2150 mm	No.	9		
42	Rack of size 1250x700x2150 mm	No.	9		
	<b>24 V DC BATTERY &amp; CHARGER SYSTEM</b>				
43	24 V DC Battery for SG and TG	Set	1		
44	24 V DC Battery for Station C&I	Set	1		
45	24 V DC Battery for (Common)	Set	1		
46	24 V DC Battery Charger for SG ,TG along with DCDB	Set	1		
47	24 V DC Battery Charger for Station C&I along with DCDB	Set	1		
48	24 V DC Battery Charger for Common along with DCDB	Set	1		
49	UPS system including ACDB & UPS batteries	Set	1		
	<b>INSTALLATION,CALIBRATION &amp; COMMISSIONING OF LOCAL/FIELD INSTRUMENTATION/EQUIPMENT</b>				
50	Flow meters/Flow transmitters	No.	186		

S. NO.	ITEM DESCRIPTION	UNIT	Qty.	UNIT RATE	Total Amount (in Rs.)
51	Temperature gauges/Pressure gauge Pressure gauge	No.	1416		
52	Temp. Transmitter /Pressure Transmitters / Differential pressure/Position transmitters	No.	862		
53	Level Transmitter/Level gauge	No.	190		
54	Temp. switches/Pressure switches /DP switches	No.	283		
55	Level switch/Level switch(Conductivity type)/ Level switch(Float type) / Level Instruments	No.	59		
56	Pneumatic Pressure controller with accessories	Set	1		
57	Electronic/Guided Wave Radar /Ultrasonic type level Transmitters	No.	383		
58	Limit switches	No.	56		
59	Conductivity cell	No.	6		
60	ERV Controller	No.	04		
61	ASLD sensor assy	No.	24		
62	Sonic tube & sensor assy	No.	24		
63	Field amplifier Box	Set	24		
64	Rotor Stoppage Alarm Box-including sensors for Air pre heaters	No.	2		
65	Reverse Rotation Monitoring system	No.	3		
66	Flame scanner head assy. Along with fibre optic cable length 130 “,lens barrel assembly	No.	32		
67	Microprocessor based Flame scanner amplifier	No.	8		
68	Hand Held HART communicator	Set	01		
69	Conductivity/Dissolved oxygen/sodium/pH/silica/analyser	No.	86		
70	Gas Analyser	No.	02		
71	Moisture sensor	No.	01		
72	Cathode conductivity	No.	15		
73	Flue gas analysers comprising of SOX/NOX/CO/Co2 analyzer.	Set	01		
74	Steam and water analysis system(SWAS)	Set	01		
75	Oxygen Analyser –Low temperature along with Electronic Unit and other	Set	10		

S. NO.	ITEM DESCRIPTION	UNIT	Qty.	UNIT RATE	Total Amount (in Rs.)
	accessories.				
76	Thermocouples(K/R type)	No.	444		
77	RTDs with thermo well	No.	755		
78	Cr- Al Thermocouple assy	No.	1379		
79	MTM Thermo Couple up to 32 M (duplex)	No.	359		
80	Thermo well	No.	40		
81	Thermometer(Bimettalic)/Gas filled/MIS	No.	27		
82	Co –AXL dial thermometer	No.	7		
83	Bearing Elerment	No.	16		
84	Burner Tilt shear pin failure indication box	No.	4		
85	Heavy Duty Limit switch(Burner tilt)	No.	20		
86	Furnace temp. Probe	No.	2		
87	HEA exciter box assembly	Set	20		
88	Air Filter Regulators	No.	65		
89	I/P Converters	No.	62		
90	Vibration Transducers/ Detectors/Element	No.	294		
91	Shaft Axial Detector	No.	2		
92	Proximitors	No.	6		
93	Solenoid Valves	No.	135		
94	Speed Regulators / Air lock valves in oil gun corner rack	No.	40		
95	Speed measuring loop	Set	6		
96	Coal bunker level Monitoring system consists of Ultrasonic level sensor-14 no. and transmitter-14 no., Extension cable 320 mtr, Junction box-8 no. and Local panel -02 nos	Set	1		
97	Recorder 3/6/24 channel	No.	1		
98	Electronic /Digital Indicators (Bar Graph Indicators, Temperature Indicators etc.)	No.	20		
99	Pressure/ Temperature Indicators (Moving Coil Type)	No.	5		
100	Speed switch / Speed detector	No.	4		
101	GPS based Master & Slave clock system	Set	1		
	<b>CONTROL/SIGNAL/SCREENED/POWER CABLES LAYING,DRESSING,CLAMPING &amp;</b>				

S. NO.	ITEM DESCRIPTION	UNIT	Qty.	UNIT RATE	Total Amount (in Rs.)
	<b>TERMINATION</b>				
102	2P X 0.5 SQ MM	Mtr	34115		
103	4P X 0.5 SQ MM	Mtr	192600		
104	8P X 0.5 SQ MM	Mtr	305250		
105	12P X 0.5 SQ MM	Mtr	24300		
106	20P X 0.5 SQ MM	Mtr	15000		
107	2P X 1.5 SQ MM	Mtr	11500		
108	4P X 1.5 SQ MM	Mtr	5000		
109	2C X 2.5 SQ MM	Mtr	3300		
110	3C X 2.5 SQ MM	Mtr	106700		
111	4C X 2.5 SQ MM	Mtr	4100		
112	7C X 2.5 SQ MM	Mtr	23000		
113	10C X 2.5 SQ MM	Mtr	24500		
114	14C X 2.5 SQ MM	Mtr	3200		
115	16C X 2.5 SQ MM	Mtr	3500		
116	19C X 2.5 SQ MM	Mtr	7550		
117	3C X 16 SQ MM	Mtr	1700		
118	2/3Tx 0.5/1.5 SQ MM	Mtr	5200		
119	2Px16 AWG T/C ext. cable	Mtr	16435		
120	4Px16 AWG T/C ext. cable	Mtr	2000		
121	6Px16 AWG T/C ext. cable	Mtr	50000		
122	Flame scanner cables	Mtr	6000		
123	UTP E-CAT cable	Mtr	5000		
124	Fibre optic cable	Mtr	3500		
125	Compensating cable	Mtr	3600		
126	Extension cable	Mtr.	960		
	<b>EARTHING MATERIAL</b>				
127	65 x 10 mm GI earthing flat	Mtr.	2340		
128	50 x 6 mm GI earthing flat	Mtr.	2820		
129	25x3 mm GI earthing flat	Mtr.	2260		
130	8SWG Galvanised steel wire	Mtr.	4660		
131	Earthing Pit	No.	1		
	<b>CABLE TRAYS COMPLETE WITH COUPLER PLATES, FASTENERS, CLAMPS AND FIXING</b>				

S. NO.	ITEM DESCRIPTION	UNIT	Qty.	UNIT RATE	Total Amount (in Rs.)
	<b>HARDWARES ETC ERECTION INCLUDING SUPPORT &amp; COVERS FABRICATION</b>				
132	Ladder/ Perforated type Cable tray, W=50mm	Mtr	4975		
133	Ladder/ Perforated type Cable tray, W=100mm	Mtr	6575		
134	Ladder/ Perforated type Cable tray, W=150mm	Mtr	3750		
135	Ladder/ Perforated type Cable tray, W=300mm	Mtr	14000		
136	Ladder/ Perforated type Cable tray, W=600mm	Mtr	12000		
137	<b>CABLE TRAY ACCESSORIES</b>				
	<b>Ladder/ Perforated type Horizontal 90 deg bend-600 mm radius, Vertical 90 deg bend-600 mm radius, Tees - 600 mm radius, Cross -600 mm radius</b>				
138	600 mm wide	No.	44		
139	300 mm wide	No.	62		
	<b>INSTALLATION &amp; FABRICATION OF STRUCTURAL STEEL</b>	Mtr			
140	ANGLE ,ISMC,PLATES etc	MT	44		
	<b>IMPULSE PIPES/ TUBES ALONG WITH FITTINGS</b>				
141	Copper Tube-6mm/8mm/1/4"	Mtr	4520		
142	1' CS Pipe SCH 80	Mtr	1025		
143	CS Pipe 21.3 x3.73	Mtr	400		
144	CS Pipe 60.3x3.91	Mtr	60		
145	1/2" CS Pipe SCH 80	Mtr	6000		
146	1/2" CS Pipe XXS	Mtr	500		
147	1/2" CS Pipe SCH 160	Mtr	1600		
148	3/4" CS Pipe SCH 80	Mtr.	3600		
149	1' AS Pipe	Mtr	1000		
150	1/2" AS Pipe SCH 160	Mtr	700		
151	1/2" AS Pipe SCH 80	Mtr	650		
152	1/2" AS Pipe XXS	Mtr	900		
153	1/2" SS Pipe SCH 40	Mtr	1500		

S. NO.	ITEM DESCRIPTION	UNIT	Qty.	UNIT RATE	Total Amount (in Rs.)
154	1/2" SS Pipe SCH 80	Mtr	450		
155	1/2" SS Pipe SCH 160	Mtr	300		
156	Cr-Al pipe 21.3x3.73	Mtr	330		
157	Seam less CS tube 13.5x2.6	Mtr	423		
158	Carbon steel tube 88.9x4	Mtr.	40		
159	Carbon steel tube 33.7x3.38	Mtr	2		
160	Seam less CS tube 21.3x2.3	Mtr	140		
161	Seam less AS tube 21.3x2.77	Mtr	710		
162	Seam less AS tube 13.5	Mtr	206		
163	SS Tube 12.7x2.1	Mtr	700		
164	SS Tube 6x1.5	Mtr	30		
165	GI pilica conduit with fittings(up to 1" size)	Mtr	1500		
166	GI pilica conduit with fittings(above 1" size)	Mtr	1500		
167	GI Rigid conduit up to 1"	Mtr	1500		
168	GI pipe 1/2" NB	Mtr	3600		
169	GI pipe 1" NB	Mtr	150		
170	Flexible conduiting /Rubber hoses/pipes	Mtr	1000		
	<b>JUNCTION BOXES/INDICATION BOXES/LOCAL STATIONS CONTROL</b>				
171	JB 12 way	No.	37		
172	JB 24 way	No.	145		
173	JB 36 way	No.	33		
174	JB 48 way	No.	118		
175	JB 64 way	No.	5		
176	JB 72 way	No.	53		
177	JB 96 way	No.	2		
178	6 way miniature Junction box	No.	32		
179	Local oil gun maintenance switch	No.	16		
180	Local start stop Push button	No.	11		
181	Erection & commissioning of C&I Lab specifications as as per C I 2.8.16	Set	1		

S. NO.	ITEM DESCRIPTION	UNIT	Qty.	UNIT RATE	Total Amount (in Rs.)
	<b>COMMISSIONING/CALIBRATION/TESTING of control valves, on/off valves, electrical/pneumatic valves, actuators, power cylinders etc.</b>				
182	Commissioning of Pneumatic actuators(Power cylinder) -On/Off type	No.	68		
183	Commissioning of Pneumatic actuators(Power cylinder) -Regulating type	No.	123		
184	SADC drives	No.	88		
185	Over fire air tilt drives	No.	4		
186	Commissioning of Pulversier Lub oil skid	Set	7		
187	Commissioning of ID/PA/FD fan lub oil skid	Set	6		
188	Commissioning of Electric actuators/dampers/valves Open/Close type	No.	55		
189	Gravimetric feeder mounted C&I Equipment like motion ,monitor sensor, micro switches, etc.	Set	7		
190	Commissioning of Control Valves	No.	51		
191	Commissioning of motorised actuators Open/close type	No.	56		
192	Commissioning of Pneumatic Valves/Safety relief valves/NRV	No.	50		
	<b>TOTAL AMOUNT (IN RS.)</b>				

**NOTES:**

1. The quantities indicated above are tentative and are liable to vary depending upon the site requirement. The contractor has to handle / erect / commission all the items indicated by BHEL for achieving the milestones and completion of work.
2. Evaluation of bids shall be done on total price against this Rate Schedule / BOQ.
3. In case of any mismatch in Rate and amount on Price discrepancy, the same will be dealt as per clause No. 1.4 of GCC.

(Signature, date &amp; seal of authorized representative of the bidder)