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TENDER SPECIFICATION

TENDER NO. BHEL/ NR/SCT/GADARWARA/C&I/PACKAGE- A&B /1011

FOR

"Erection, Testing, Commissioning, Post commissioning, Trial operations ,PG Test assistance & handing over of all C&I equipment of Package-A (Unit No.1) of 2x800 MW GADARWARA STPP, Distt: Narsinghpur (M.P.)"

PART II – PRICE BID

(Package-A)



**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**



ISO 9001, ISO 14001,
OHSAS 18001 & SA 8000
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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TENDER NO. BHEL/ NR/SCT/GADARWARA/C&I/PACKAGE- A&B /1011

IMPORTANT NOTE

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THIS TENDER SPECIFICATION ISSUED TO:

M/S-----

ANNEXURE-A

RATE SCHEDULE FOR "PACKAGE-A (UNIT NO. 1)"

ITEM NO.	DESCRIPTION OF WORK	TOTAL VALUE "A" IN INR (IN FIGURES AND WORDS)
1.0	TOTAL LUMP SUM PRICE OF PACKAGE 'A' FOR "ERECTION, TESTING, COMMISSIONING & HANDING OVER OF ALL C&I EQUIPMENTS OF PACKAGE-A (UNIT NO. 1) OF 2X800 MW GADARWARA STPP, DISTT-NARSINGHPUR (M.P.)	

Notes:

1. The rates of individual item for the entire scope of work as define in BOQ Chapter X shall be arrived as per Calculation defined in Annexure-B.
2. The derived item rate will remain firm throughout the contract period.

ANNEXURE-B

FOR PACKAGE- 'A' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF ANNEXURE-A					
SL NO.	ITEM DESCRIPTION	UNIT	QTY	Factor	Item Rate (in INR) = (A*Factor)/ 1000000
	PANELS/RACKS/CONSOLES				
	SG & TG CONTROL PANEL				
1	suit of one panel (approx. weight 400kg, 750(L) X 800(B) X 2415(H) mm	No.	4	560.442	
2	TG Siemens Panel (suit of one panel) (approx. weight 300kg, 1200(L) X 800(B) X 2200(H) mm	No.	9	560.437	
3	suit of two panels (approx. weight 800kg, 1500(L) X 800(B) X 2415(H) mm	No.	11	962.614	
4	suit of three panels (approx. weight 1200kg, 2250(L) X 800(B) X 2415(H) mm	No.	10	1306.618	
5	suit of Four panels (approx. weight 1600kg, 3000(L) X 800(B) X 2415(H) mm	No.	8	5491.150	
6	suit of five panels (approx. weight 2000kg, 3750(L) X 800(B) X 2415(H) mm	No.	2	1705.598	
7	DAVR panel (approx. 4053x800x2145 mm)	No.	1	3777.744	
8	Steam Leak Detection System Panel alongwith PC Station Size - 800x2315x800	No.	1	1594.987	
9	BLR. MAINTANENCE SYSTEM -NOTE BOOK PC	No	1	173.800	
10	DC SCANNER AIR FAN STARTER Size - 900X1120X375 mm	No	1	841.015	
11	Gas Analyser cabinet 2200x1000x800	No.	1	494.622	
12	CARBON-IN-ASH ANALYSER CONTROL CABINET	No	1	557.048	
13	ON LINE COAL FLOW MEASUREMENT SYSTEM -CONTROL CABINET Size -1200x1600x500	No	5	976.674	

14	ON LINE COAL FLOW MEASUREMENT SYSTEM -PC	No	1	172.789	
15	Coal Flow Monitor Assembly	Nos	9	473.796	
16	DC Starter Cubicle 2000mm X 1500mm X 450mm	No	2	469.197	
17	Open type transmitter rack 2000mm X 1250mm X 600mm	Nos	12	303.171	
18	Governing console board 1200mm X1900mm X 450mm	No	2	773.025	
19	INSTRUMENTATION PANEL (ALSTOM SUPPLY)				
19.1	RACK-12RX-1,4 WITH 1 JBS,1 UB ,INST HARD	No	2	303.171	
19.2	RACK-8RX-2,3 WITH 1JBS,1 UB ,INST HARDW	No	2	303.171	
19.3	RACK-4RX-5 WITH 1 JBS,1 UB ,INST HARDWAR	No	1	303.171	
19.4	ENCLOSURE-10EX-1 WITH 1 JB, 1 UB ,INST H	No	1	303.171	
20	Acoustic Steam leak detection system panel(ASLD)	No	1	1557.968	
21	Acoustic pyrometer remote cabinet including PC station (Size -1400 x 2365 x800 mm)	Set	1	700.028	
22	FTP LOCAL STARTER Box 650x1000x300 mm	No.	2	367.629	
23	Elevator control Panel	No.	2	388.628	
24	SCANNER AIR FAN STARTER	No.	1	841.015	
25	HART Management System for SMART Transmitter Panel dimension 1200X800X2415 mm	Set	1	2462.048	
26	AH Main Control Panel Size -1830x1881x611 mm Weight - 363 Kgs	No.	2	532.148	
27	AH LCS Sector Plate 1&2 Drive Panel Size -645x610x203 mm Weight - 45 Kgs	No.	8	294.188	
28	HWL-1,HWL-2 & MEFCV PANEL Size - 600X600X250 mm Weight - 100 kg	No.	1	492.139	
29	SOOT BLOWER MCC Size - 22100x2250x1000 mm	No.	1	7067.580	

30	Furnace Flame Viewing System –Remote Panel Size -800x2100x600 mm Weight- 500 Kgs	No	1	610.047	
31	Furnace Flame Viewing System –Camera Control Box Size -1220x1470x610 mm Weight -100 Kgs	No	4	661.295	
32	Furnace Flame Viewing System –Zoom Control Box Size -400x300x210 mm Weight -27 Kgs	No	1	409.149	
33	Gr. Feeder Remote Panel Size- 1200x2315x600	No	9	649.461	
34	Gr. Feeder Integral Panel Size- 600x750x350	No	9	280.137	
35	Relay based Lube Oil Purifier Control Cabinet Size - 1400x800x300	No	1	557.048	
36	SAG Cabinet in CCR	No.	1	557.048	
37	Moisture Measuring System				
37.1	Indicator cum controller placed in Control Room & Sampling System in Field	No.	1	757.847	
38	H2 Gas Analyser Cabinet Size- 2200x1000x800	No.	2	407.568	
39	GROUND BRUSH MONITORING SYSTEM Size - 400 X 320 X 120	Set	1	430.683	
40	STARTING RESISTOR FOR DC SEAL OIL MOTOR Size - 650 X 600 X 600	No.	1	469.155	
	PADO + SIMULATOR				
41	Servers for PADO	Nos	6	636.574	
42	Workstations for PADO clients	Nos	10	172.789	
43	Printers(A4 & A3 Colour Laser Jet, Inkjet, Dot Matrix) With Printer Table and accessories	No.	11	62.078	
44	Computer Tables alongwith chairs	No.	20	1131.797	
45	UTPC Cables	Mtr	1600	0.829	
	HMI HARDWARES				
46	Online UPS alongwith Cabinet for Servers	Nos	4	636.574	
47	Workstations for clients	Nos	12	172.789	
48	Unit Control Desk for HMI Workstations	Nos	1	3334.645	
49	CCTV system (4 cameras, 4 local control boxes, Remote panel)	Set	1	2121.913	

50	24V DC PS System each set comprising of 4X100% Rectifier Banks , 1X100% DCDB and 1 battery Health Monitoring System (SG & TG C&I)	Set	2	3384.876	
51	UPS DISTRIBUTION BOARDS				
51.1	240V UPS DISTRIBUTION BOARDS Size- 1400X2365X800 mm	No.	1	354.196	
51.2	240V UPS DISTRIBUTION BOARDS Size- 1200x800x600 mm	No.	4	354.196	
52	AC CONTROL SUPPLY PANEL 1000mm(W) x 800mm(D) x 2315mm(H)	No.	1	558.778	
	LIE/LIR/LGB				
53	Local Instrument racks (LIR) Type B Size- 2200X1330X800 mm	No.	6	298.889	
54	Local Instrument racks (LIR) Type C Size - 2200x1010x800 mm	No.	25	294.183	
55	LOCAL INSTRUMENT RACK , Type-B Size - 1330x800x2300 mm	No.	2	298.889	
56	LOCAL INSTRUMENT RACK 2400x500x2200		6	303.171	
57	LOCAL INSTRUMENT RACK 1500x500x1600	No.	2	303.171	
58	Local Instrument enclosures (LIE), Type-A Size - 1250x2300x800	No	1	352.697	
59	Local Instrument enclosures (LIE), Type-B Size - 930x2300x800	No	3	298.889	
60	Local Gauge Board (LGB)	No.	14	356.046	
61	PRESSURE INSTRUMENTS RACKS Assembly/welding and installation of Instrument Racks with loose supplied prefabricated materials of suitable size, like equal/unequal angles, canopy mounting plates, LHS/RHS stands etc., necessary welding, fixing with fasteners and grouting	No	10	251.098	
	INSTALLATION,CALIBRATION & COMMISSIONING OF LOCAL/FIELD INSTRUMENTATION/EQUIPMENT				
62	Temperature gauges/Pressure gauges/ Diff. Pressure gauge	No.	1039	26.361	
63	Temp. Transmitter /Pressure Transmitters / Differential pressure/Position transmitters	No.	1050	36.773	

64	Level Transmitter/Level gauge	No.	32	81.172	
65	Vibration Transducers/Monitor/ Detectors/Element	No.	68	45.987	
66	Temp. switches/Pressure switches /DP switches	No.	79	32.287	
67	Proximitors	No.	32	32.406	
68	E/P Transducers	No.	8	46.003	
69	Limit Switches	No.	125	18.579	
70	Speed Switch/Speed Detector	No.	9	56.098	
71	Flow meters/Flow transmitters	No.	2	74.079	
72	Axial shift Detector	No.	3	73.397	
73	Shaft Expansion Detedtor	No.	4	73.397	
74	Casing Expansion Detedtor	No.	2	73.397	
75	Level switch/Level switch(Conductivity type)/ Level switch(Float type) / Level Instruments/ Field Switches (RF Type)	No.	89	86.177	
76	Electronic/Guided Wave Radar /Ultrasonic type level Transmitters	No.	175	89.757	
77	ERV Controller Box Size -508x610x279 mm	No.	6	778.084	
78	FSSS SCANNER HEAD ASSY WITH ELECTRONICS	No.	40	123.633	
79	FLAME SCANNER 19" SINGLE EURO CARD RACK WITH ELECTRONICS 431.3mm(W) x 205mm(D) x 128mm(H)	No.	10	123.055	
80	FSSS LGM SWITCH BOX	NO	20	65.175	
81	Oxygen analyser	Set	4	422.359	
82	Thermocouples(K/R type)	No.	467	66.964	
83	Cr Al Thermocouple	No.	24	31.375	
84	RTDs	No.	561	30.231	
85	Thermowells	No.	288	24.742	
86	Thermometer(Bimettalic)/Gas filled/MIS	No.	48	25.571	
87	MTM Thermo Couple up to 48 M (duplex)	No.	772	72.726	
88	Burner Tilt shear pin failure indication box	No.	4	114.729	
89	Furnace temp. Probe starter boxes	No.	2	153.941	
90	Air Filter Regulators	No.	92	24.512	
91	INSTALLATION & FABRICATION OF STRUCTURAL STEEL	MT	1	895.280	
	CONTROL/SIGNAL/SCREENED/POWER CABLES LAYING,DRESSING,CLAMPING & TERMINATION				

	<u>LT Sheilded /Screened Cable//FRLS/Power cable</u>				
92	2P X 0.5 SQ MM	Mtr	28450	0.443	
93	2P X 1.3 /1.5 SQ MM	Mtr	14000	0.495	
94	4P X 0.5 SQ MM	Mtr	184150	0.549	
95	8P X 0.5 SQ MM	Mtr	76500	0.735	
96	12P X 0.5 SQ MM	Mtr	21700	0.788	
97	2C X 2.5 SQ MM	Mtr	15700	0.405	
98	3C X 2.5 SQ MM	Mtr	86200	0.405	
99	5C X 2.5 SQ MM	Mtr	6000	0.487	
100	7C X 2.5 SQ MM	Mtr	13000	0.536	
101	10C X 2.5 SQ MM	Mtr	12500	0.592	
102	16C X 2.5 SQ MM	Mtr	3500	0.904	
103	19C X 1.5 SQ MM	Mtr	7200	0.933	
104	4C X 1.5/2.5 MM CONTROL CABLE	Mtr	12380	0.593	
105	6C X 1.5/2.5 CONTROL CABLE	Mtr	380	0.604	
106	18C X 1.5/2.5 CONTROL CABLE	Mtr	7580	0.604	
	<u>LT XLPE Power Cables</u>				
107	1C - 25- CU ARMoured LT XLPE CABLE	Mtr.	5500	0.628	
108	2C-50- AL POWER CABLE	Mtr.	750	0.644	
109	2C-25- AL POWER CABLE	Mtr.	1000	0.717	
110	2C-10- AL POWER CABLE	Mtr.	3000	0.605	
111	3C - 35- AL ARMoured LT XLPE CABLE	Mtr.	830	0.724	
112	3C X 16 SQ MM	Mtr	2600	0.724	
113	4C - 1.5 -AL- ARMoured LT XLPE CABLE	Mtr.	1400	0.382	
114	1C - 95- CU ARMoured LT XLPE CABLE	Mtr.	6670	2.577	
115	1C - 630- CU ARMoured LT XLPE CABLE	Mtr.	500	3.698	
116	4C - 2.5- CU ARMoured LT XLPE CABLE	Mtr.	10000	0.724	
117	2P - 0.5 SQMM - T/C EXTENSION CABLE	Mtr.	6500	0.471	
118	2P Thermocouple Cable	Mtr.	7200	0.519	
119	16P Thermocouple Cable	Mtr.	2000	0.424	
120	20P Thermocouple Cable	Mtr.	2000	0.402	
121	Multipair Instrumentation Cable	Mtr.	10300	0.400	
122	Coaxial Cable	Mtr.	1680	0.829	
123	Ethernet Cable	Mtr.	800	0.667	
124	Optical Fibre Cable	Mtr.	300	2.174	
	CABLE TRAYS COMPLETE WITH COUPLER PLATES, FASTENERS, CLAMPS AND FIXING HARDWARES ETC ERECTION INCLUDING SUPPORT & COVERS FABRICATION				
125	Ladder/ Perforated type Cable tray, W=50mm	Mtr	2600	3.602	

126	Ladder/ Perforated type Cable tray, W=100mm	Mtr	2900	4.405	
127	Ladder/ Perforated type Cable tray, W=150mm	Mtr	4176	4.993	
	IMPULSE PIPES/ TUBES ALONG WITH FITTINGS				
128	CS Pipe Size :21.3x3.73	Mtr	1130	7.866	
129	CS Pipe Size : 16x2.6	mtr	1500	7.847	
130	CS Pipe Size :60.3x3.91	Mtr	130	9.981	
131	SS Pipe Size : 26.7x7.82	Mtr	60	6.085	
132	AS Pipe Size: 21.3x3.73	Mtr	150	5.754	
133	CS Pipe Size :21.3x7.47	Mtr	30	7.847	
134	CS Pipe Size :21.3x4.78	Mtr	200	7.847	
135	Cr-Al Pipe Size : 21.3x3.73	Mtr	500	7.351	
136	SS Tube Size : 12.7 x 2.1	Mtr	2000	6.108	
137	SS Tube Size : 6X1.5	Mtr	70	6.743	
138	CS Tube 88.9 X 4	Mtr	80	7.261	
139	CS Tube 13.5X2.6	Mtr	304	5.603	
140	CS Tube 21.3X2.3	Mtr	160	6.365	
141	CS Tube 33.7X3.38	Mtr	2	8.023	
142	AS Tube 13.5X2.6	Mtr	103	12.898	
143	AS Tube 21.3X2.77	Mtr	310	5.760	
144	T91 Tube 13.5x2.6	Mtr	39	13.335	
145	T91 Tube 21.3x7.47	Mtr	350	13.335	
146	1/2" CS Pipe SCH 80	Mtr	1800	6.859	
147	1/2" CS Pipe SCH 160	Mtr	250	7.153	
148	3/4" CS Pipe SCH 80	Mtr.	2050	8.175	
149	3/4" AS Pipe SCH 80	Mtr.	400	8.129	
150	1/2" AS Pipe SCH 160	Mtr	850	8.178	
151	GI pipe 1/2" NB	Mtr	3650	3.913	
152	1/2" OD SEAMLESS COPPER TUBE	Mtr	2310	3.668	
153	1/4" OD COPPER TUBE	Mtr	740	2.258	
154	3/4" OD COPPER TUBE	Mtr	40	2.258	

155	1" OD COPPER TUBE	Mtr	50	0.849	
156	1/4" SIZE SS DOUBLE BRAIDED TEFLON HOSE	Nos	115	8.084	
157	1/2" SIZE SS DOUBLE BRAIDED TEFLON HOSE	Nos	15	14.315	
158	1" SIZE SS DOUBLE BRAIDED TEFLON HOSE	Nos	5	16.167	
159	1/2" ID PVC HOSE PIPE	Mtr	108	14.205	
	JUNCTION BOXES/INDICATION BOXES/LOCAL CONTROL STATIONS				
160	JB 12 way	No.	20	46.431	
161	JB 24 way	No.	205	46.670	
162	JB 48 way	No.	97	61.185	
163	JB 72 way	No.	43	61.977	
164	FRP JUNCTION BOX FOR 4TT-JB-A&B	No.	43	53.761	
165	FRP JUNCTION BOX FOR 8TT-JB-A&B	No.	14	53.761	
166	COMMISSIONING/CALIBRATION/TESTING of control valves, on/off valves, /pneumatic valves, actuators, power cylinders etc.				
167	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	3486.789	
168	Pulversier Lube oil System. The scope of work includes removal of instruments calibration, refixing, checking cable connection from JB to instruments etc.approx..instrument per set RTD's (Duplex PT 100) -10 Nos Temp. gauge -2 Nos Pr. Transmitter -4 Nos Diff. Pr. Transmitter -2 Nos Pr. Gauge -5 Nos Level Transmitter -2 Nos Level gauge -1 Nos Flow Transmitter -2 Nos	Set	9	364.644	
169	Lub oil skids for FD/ ID/ PA Fans The scope of work includes removal of instruments calibration, refixing, checking cable connection from JB to instruments etc. The approximate total quantity of instruments for all the 06 Nos skids put together is given below :	Set	6	537.641	
	DP Switch with Local Indicator				
	Pr. Gauge - 13 Nos				

	Temp. gauge - 06 Nos				
	Pr. Transmitter - 02 Nos				
	Level Transmitter - 04 Nos				
	Flow Indicator with Flow Switch - 01 No.				
	DP Gauge - 01 No				
	DP Switch - 01 No				
	Pr. Switch - 4 Nos				
	Level Switch - 02 Nos				
	Flow Indicator cum transmitter- 03 Nos				
	Flow Indicator - 03 Nos				
170	Commissioning of Pneumatic Actuators	Nos	26	46.276	
171	Commissioning of Electric Actuators	Nos	6	53.686	
172	Commissioning of Globe Valves/ Manual operated Gate valves /Control valves	Nos	125	59.413	
173	Commissioning of motor operated dampers	Nos	15	113.959	
174	Commissioning of Solenoid Valves	Nos	272	43.500	
175	Commissioning of Pneumatic Dampers/ SADC	Nos	153	91.033	
176	Commissioning of Power Cylinders	Nos	14	51.186	

Note: Item Rate will be calculated as below:

A X Factor
10,00,000

Where A= Lumpsum Quoted value as per **Annexure-A**

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“Erection, Testing, Commissioning, Post commissioning, Trial operations ,PG Test assistance & handing over of all C&I equipment of Package-B (Unit No. 2) of 2x800 MW GADARWARA STPP, Distt: Narsinghpur (M.P.)”

PART II – PRICE BID

(Package-B)



Bharat Heavy Electricals Limited
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Power Sector – Northern Region,
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THIS TENDER SPECIFICATION ISSUED TO:

M/S-----

RATE SCHEDULE FOR "PACKAGE-B (UNIT NO. 2)"

ITEM NO.	DESCRIPTION OF WORK	TOTAL VALUE "B" IN INR (IN FIGURES AND WORDS)
1.0	TOTAL LUMP SUM PRICE OF PACKAGE 'B' FOR "ERECTION, TESTING, COMMISSIONING & HANDING OVER OF ALL C&I EQUIPMENTS OF PACKAGE-B (UNIT NO. 2) OF 2X800 MW GADARWARA STPP, DISTT-NARSINGHPUR (M.P.)	

Notes:

- 1. The rates of individual item for the entire scope of work as define in BOQ Chapter X shall be arrived as per Calculation defined in Annexure-D.**
- 2. The derived item rate will remain firm throughout the contract period.**

ANNEXURE-D

FOR PACKAGE- 'B' CALCULATION RATIO FOR DIFFERENT ITEMS BASED UPON TOTAL QUOTED VALUE AS PER RATE SCHEDULE OF ANNEXURE-C					
SL NO.	ITEM DESCRIPTION	UNIT	QTY	FACTOR	Item Rate (in INR) = (B*Factor)/ 1000000
	PANELS/RACKS/CONSOLES				
	SG & TG CONTROL PANEL				
1	suit of one panel (approx. weight 400kg, 750(L) X 800(B) X 2415(H) mm	No.	3	573.004	
2	TG Siemens Panel (suit of one panel) (approx. weight 300kg, 1200(L) X 800(B) X 2200(H) mm	No.	9	572.998	
3	suit of two panels (approx. weight 800kg, 1500(L) X 800(B) X 2415(H) mm	No.	5	984.19	
4	suit of three panels (approx. weight 1200kg, 2250(L) X 800(B) X 2415(H) mm	No.	7	1335.9	
5	suit of Four panels (approx. weight 1600kg, 3000(L) X 800(B) X 2415(H) mm	No.	8	5614.23	
6	suit of five panels (approx. weight 2000kg, 3750(L) X 800(B) X 2415(H) mm	No.	2	1743.83	
7	DAVR panel (approx. 4053x800x2145 mm)	No.	1	3862.42	
8	Steam Leak Detection System Panel alongwith PC Station Size - 800x2315x800	No.	1	1631.366	
9	DC SCANNER AIR FAN STARTER Size - 900X1120X375 mm	No	1	859.866	
10	Gas Analyser cabinet 2200x1000x800	No.	1	505.709	
11	CARBON-IN-ASH ANALYSER CONTROL CABINET	No	1	569.534	
12	ON LINE COAL FLOW MEASUREMENT SYSTEM -CONTROL CABINET Size -1200x1600x500	No	5	998.565	

13	ON LINE COAL FLOW MEASUREMENT SYSTEM -PC	No	1	176.661	
14	Coal Flow Monitor Assembly	Nos	9	484.416	
15	DC Starter Cubicle 2000mm X 1500mm X 450mm	No	2	479.714	
16	Open type transmitter rack 2000mm X 1250mm X 600mm	Nos	12	309.967	
17	Governing console board 1200mm X1900mm X 450mm	No	2	790.351	
18	INSTRUMENTATION PANEL (ALSTOM SUPPLY)				
18.1	RACK-12RX-1,4 WITH 1 JBS,1 UB ,INST HARD	No	2	309.967	
18.2	RACK-8RX-2,3 WITH 1JBS,1 UB ,INST HARDW	No	2	309.967	
18.3	RACK-4RX-5 WITH 1 JBS,1 UB ,INST HARDWAR	No	1	309.967	
18.4	ENCLOSURE-10EX-1 WITH 1 JB, 1 UB ,INST H	No	1	309.967	
19	Acoustic Steam leak detection system panel(ASLD)	No	1	1592.89	
20	Acoustic pyrometer remote cabinet including PC station (Size -1400 x 2365 x800 mm)	Set	1	715.719	
21	FTP LOCAL STARTER Box 650x1000x300 mm	No.	2	375.869	
22	Elevator control Panel	No.	2	397.339	
23	SCANNER AIR FAN STARTER	No.	1	859.866	
24	HART Management System for SMART Transmitter Panel dimension 1200X800X2415 mm	Set	1	2517.23	
25	AH Main Control Panel Size -1830x1881x611 mm Weight - 363 Kgs	No.	2	544.075	
26	AH LCS Sector Plate 1&2 Drive Panel	No.	8	300.782	

	Size -645x610x203 mm Weight - 45 Kgs				
27	HWL-1,HWL-2 & MEFCV PANEL Size - 600X600X250 mm Weight - 100 kg	No.	1	503.17	
28	SOOT BLOWER MCC Size - 22100x2250x1000 mm	No.	1	7225.99	
29	Furnace Flame Viewing System –Remote Panel Size -800x2100x600 mm Weight- 500 Kgs	No	1	623.72	
30	Furnace Flame Viewing System –Camera Control Box Size -1220x1470x610 mm Weight -100 Kgs	No	4	676.117	
31	Furnace Flame Viewing System –Zoom Control Box Size -400x300x210 mm Weight -27 Kgs	No	1	418.32	
32	Gr. Feeder Remote Panel Size- 1200x2315x600	No	9	664.018	
33	Gr. Feeder Integral Panel Size- 600x750x350	No	9	286.416	
34	Relay based Lube Oil Purifier Control Cabinet Size - 1400x800x300	No	1	569.534	
35	SAG Cabinet in CCR	No.	1	569.534	
36	Moisture Measuring System				
36.1	Indicator cum controller placed in Control Room & Sampling System in Field	No.	1	774.834	
37	H2 Gas Analyser Cabinet Size- 2200x1000x800	No.	2	416.703	
38	GROUND BRUSH MONITORING SYSTEM Size - 400 X 320 X 120	Set	1	440.336	
39	STARTING RESISTOR FOR DC SEAL OIL MOTOR Size - 650 X 600 X 600	No.	1	479.671	

	PADO + SIMULATOR				
40	Printers(A4 & A3 Colour Laser Jet, Inkjet, Dot Matrix) With Printer Table and accessories	No.	11	63.4697	
41	Computer Tables alongwith chairs	No.	20	1157.17	
	HMI HARDWARES				
42	Unit Control Desk for HMI Workstations	Nos	1	3409.39	
43	CCTV system (4 cameras, 4 local control boxes, Remote panel)	Set	1	2169.47	
44	24V DC PS System each set comprising of 4X100% Rectifier Banks , 1X100% DCDB and 1 battery Health Monitoring System (SG & TG C&I)	Set	2	3460.74	
45	UPS DISTRIBUTION BOARDS				
45.1	240V UPS DISTRIBUTION BOARDS Size- 1400X2365X800 mm	No.	1	362.135	
45.2	240V UPS DISTRIBUTION BOARDS Size- 1200x800x600 mm	No.	4	362.135	
46	AC CONTROL SUPPLY PANEL 1000mm(W) x 800mm(D) x 2315mm(H)	No.	1	571.303	
	LIE/LIR/LGB				
47	Local Instrument racks (LIR) Type B Size- 2200X1330X800 mm	No.	6	305.588	
48	Local Instrument racks (LIR) Type C Size - 2200x1010x800 mm	No.	25	300.776	
49	LOCAL INSTRUMENT RACK , Type-B Size - 1330x800x2300 mm	No.	2	305.588	
50	LOCAL INSTRUMENT RACK 2400x500x2200		6	309.967	
51	LOCAL INSTRUMENT RACK 1500x500x1600	No.	2	309.967	
52	Local Instrument enclosures (LIE), Type-A Size - 1250x2300x800	No	1	360.602	
53	Local Instrument enclosures (LIE), Type-B Size - 930x2300x800	No	3	305.588	
54	Local Gauge Board (LGB)	No.	14	364.027	

55	PRESSURE INSTRUMENTS RACKS Assembly/welding and installation of Instrument Racks with loose supplied prefabricated materials of suitable size, like equal/unequal angles, canopy mounting plates, LHS/RHS stands etc., necessary welding, fixing with fasteners and grouting	No	10	256.726	
	INSTALLATION,CALIBRATION& COMMISSIOINGOFLOCAL/FIELD INSTRUMENTATION/EQUIPMENT				
56	Temperature gauges/Pressure gauges/ Diff. Pressure gauge	No.	1039	26.9519	
57	Temp. Transmitter /Pressure Transmitters / Differential pressure/Position transmitters	No.	1050	37.597	
58	Level Transmitter/Level gauge	No.	32	82.9911	
59	Vibration Transducers/Monitor/ Detectors/Element	No.	68	47.0181	
60	Temp. switches/Pressure switches /DP switches	No.	79	33.011	
61	Proximity sensors	No.	32	33.1326	
62	E/P Transducers	No.	8	47.0342	
63	Limit Switches	No.	125	18.995	
64	Speed Switch/Speed Detector	No.	9	57.355	
65	Flow meters/Flow transmitters	No.	2	75.739	
66	Axial shift Detector	No.	3	75.0417	
67	Shaft Expansion Detector	No.	4	75.0417	
68	Casing Expansion Detedtor	No.	2	75.0417	
69	Level switch/Level switch(Conductivity type)/ Level switch(Float type) / Level Instruments/ Field Switches (RF Type)	No.	89	88.1083	
70	Electronic/Guided Wave Radar /Ultrasonic type level Transmitters	No.	175	91.7687	
71	ERV Controller Box Size -508x610x279 mm	No.	6	795.524	
72	FSSS SCANNER HEAD ASSY WITH ELECTRONICS	No.	40	126.404	
73	FLAME SCANNER 19" SINGLE EURO CARD RACK WITH ELECTRONICS 431.3mm(W) x 205mm(D) x 128mm(H)	No.	10	125.813	

74	FSSS LGM SWITCH BOX	NO	20	66.636	
75	Oxygen analyser	Set	4	431.826	
76	Thermocouples(K/R type)	No.	467	68.4647	
77	Cr Al Thermocouple	No.	24	32.0787	
78	RTDs	No.	561	30.9089	
79	Thermowells	No.	288	25.2961	
80	Thermometer(Bimettalic)/Gas filled/MIS	No.	48	26.1439	
81	MTM Thermo Couple up to 48 M (duplex)	No.	772	74.3559	
82	Burner Tilt shear pin failure indication box	No.	4	117.301	
83	Furnace temp. Probe starter boxes	No.	2	157.391	
84	Air Filter Regulators	No.	92	25.0609	
85	INSTALLATION & FABRICATION OF STRUCTURAL STEEL	MT	1	915.347	
	CONTROL/SIGNAL/SCREENED/POWER CABLES LAYING,DRESSING,CLAMPING & TERMINATION				
	<u>LT Sheilded /Screened Cable//FRLS/Power cable</u>				
86	2P X 0.5 SQ MM	Mtr	28450	0.45294	
87	2P X 1.3 /1.5 SQ MM	Mtr	14000	0.50585	
88	4P X 0.5 SQ MM	Mtr	184150	0.5613	
89	8P X 0.5 SQ MM	Mtr	76500	0.75097	
90	12P X 0.5 SQ MM	Mtr	21700	0.80611	
91	2C X 2.5 SQ MM	Mtr	15700	0.41415	
92	3C X 2.5 SQ MM	Mtr	86200	0.41415	
93	5C X 2.5 SQ MM	Mtr	6000	0.49831	
94	7C X 2.5 SQ MM	Mtr	13000	0.54759	
95	10C X 2.5 SQ MM	Mtr	12500	0.60545	
96	16C X 2.5 SQ MM	Mtr	3500	0.92438	
97	19C X 1.5 SQ MM	Mtr	7200	0.95417	
98	4C X 1.5/2.5 MM CONTROL CABLE	Mtr	12380	0.60611	
99	6C X 1.5/2.5 CONTROL CABLE	Mtr	380	0.61714	
100	18C X 1.5/2.5 CONTROL CABLE	Mtr	7580	0.61714	
	<u>LT XLPE Power Cables</u>				
101	1C - 25- CU ARMOURED LT XLPE CABLE	Mtr.	5500	0.64173	
102	2C-50- AL POWER CABLE	Mtr.	750	0.65828	
103	2C-25- AL POWER CABLE	Mtr.	1000	0.73328	

104	2C-10- AL POWER CABLE	Mtr.	3000	0.61873	
105	3C - 35- AL ARMOURED LT XLPE CABLE	Mtr.	830	0.74056	
106	3C X 16 SQ MM	Mtr	2600	0.74056	
107	4C - 1.5 -AL- ARMPURED LT XLPE CABLE	Mtr.	1400	0.39051	
108	1C - 95- CU ARMOURED LT XLPE CABLE	Mtr.	6670	2.63504	
109	1C - 630- CU ARMOURED LT XLPE CABLE	Mtr.	500	3.78053	
110	4C - 2.5- CU ARMOURED LT XLPE CABLE	Mtr.	10000	0.74056	
111	2P - 0.5 SQMM - T/C EXTENSION CABLE	Mtr.	6500	0.48119	
112	2P Thermocouple Cable	Mtr.	7200	0.53051	
113	16P Thermocouple Cable	Mtr.	2000	0.43389	
114	20P Thermocouple Cable	Mtr.	2000	0.41142	
115	Multipair Instrumentation Cable	Mtr.	10300	0.41142	
116	Coaxial Cable	Mtr.	1680	0.84783	
117	Ethernet Cable	Mtr.	800	0.68171	
118	Optical Fibre Cable	Mtr.	300	2.22241	
	CABLE TRAYS COMPLETE WITH COUPLER PLATES, FASTENERS, CLAMPS AND FIXING HARDWARES ETC ERECTION INCLUDING SUPPORT & COVERS FABRICATION				
119	Ladder/ Perforated type Cable tray, W=50mm	Mtr	2600	3.68314	
120	Ladder/ Perforated type Cable tray, W=100mm	Mtr	2900	4.50401	
121	Ladder/ Perforated type Cable tray, W=150mm	Mtr	4176	5.105282	
	IMPULSE PIPES/ TUBES ALONG WITH FITTINGS				
122	CS Pipe Size :21.3x3.73	Mtr	1130	8.04274	
123	CS Pipe Size : 16x2.6	mtr	1500	8.02276	
124	CS Pipe Size :60.3x3.91	Mtr	130	10.2048	
125	SS Pipe Size : 26.7x7.82	Mtr	60	6.2212	
126	AS Pipe Size: 21.3x3.73	Mtr	150	5.88336	

127	CS Pipe Size :21.3x7.47	Mtr	30	8.02276	
128	CS Pipe Size :21.3x4.78	Mtr	200	8.02276	
129	Cr-Al Pipe Size : 21.3x3.73	Mtr	500	7.51614	
130	SS Tube Size : 12.7 x 2.1	Mtr	2000	6.2444	
131	SS Tube Size : 6X1.5	Mtr	70	6.89372	
132	CS Tube 88.9 X 4	Mtr	80	7.42394	
133	CS Tube 13.5X2.6	Mtr	304	5.72828	
134	CS Tube 21.3X2.3	Mtr	160	6.50755	
135	CS Tube 33.7X3.38	Mtr	2	8.20278	
136	AS Tube 13.5X2.6	Mtr	103	13.1876	
137	AS Tube 21.3X2.77	Mtr	310	5.88882	
138	T91 Tube 13.5x2.6	Mtr	39	13.6341	
139	T91 Tube 21.3x7.47	Mtr	350	13.6341	
140	1/2" CS Pipe SCH 80	Mtr	1800	7.01311	
141	1/2" CS Pipe SCH 160	Mtr	250	7.31354	
142	3/4" CS Pipe SCH 80	Mtr.	2050	8.35791	
143	3/4" AS Pipe SCH 80	Mtr.	400	8.31076	
144	1/2" AS Pipe SCH 160	Mtr	850	8.36082	
145	GI pipe 1/2" NB	Mtr	3650	4.0004	
146	1/2" OD SEAMLESS COPPER TUBE	Mtr	2310	3.75026	
147	1/4" OD COPPER TUBE	Mtr	740	2.30903	
148	3/4" OD COPPER TUBE	Mtr	40	2.30903	
149	1" OD COPPER TUBE	Mtr	50	0.86779	
150	1/4" SIZE SS DOUBLE BRAIDED TEFLON HOSE	Nos	115	8.26478	
151	1/2" SIZE SS DOUBLE BRAIDED TEFLON HOSE	Nos	15	14.6356	
152	1" SIZE SS DOUBLE BRAIDED TEFLON HOSE	Nos	5	16.5298	
153	1/2" ID PVC HOSE PIPE	Mtr	108	14.5233	
	JUNCTION BOXES/INDICATION BOXES/LOCAL CONTROL STATIONS				
154	JB 12 way	No.	20	47.4716	
155	JB 24 way	No.	205	47.716	

156	JB 48 way	No.	97	62.5567	
157	JB 72 way	No.	43	63.3664	
158	FRP JUNCTION BOX FOR 4TT-JB-A&B	No.	43	54.9662	
159	FRP JUNCTION BOX FOR 8TT-JB-A&B	No.	14	54.9662	
160	COMMISSIONING/CALIBRATION/TESTING of control valves, on/off valves, /pneumatic valves, actuators, power cylinders etc.				
161	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	3564.94	
162	Pulversier Lube oil System. The scope of work includes removal of instruments calibration, refixing, checking cable connection from JB to instruments etc.approx..instrument per set RTD's (Duplex PT 100) -10 Nos Temp. gauge -2 Nos Pr. Transmitter -4 Nos Diff. Pr. Transmitter -2 Nos Pr. Gauge -5 Nos Level Transmitter -2 Nos Level gauge -1 Nos Flow Transmitter -2 Nos	Set	9	372.817	
163	Lub oil skids for FD/ ID/ PA Fans The scope of work includes removal of instruments calibration, refixing, checking cable connection from JB to instruments etc. The approximate total quantity of instruments for all the 06 Nos skids put together is given below : DP Switch with Local Indicator Pr. Gauge - 13 Nos Temp. gauge - 06 Nos Pr. Transmitter - 02 Nos Level Transmitter - 04 Nos Flow Indicator with Flow Switch - 01 No. DP Gauge - 01 No DP Switch - 01 No Pr. Switch - 4 Nos Level Switch - 02 Nos Flow Indicator cum transmitter- 03 Nos Flow Indicator - 03 Nos	Set	6	549.692	

164	Commissioning of Pneumatic Actuators	Nos	26	47.3133	
165	Commissioning of Electric Actuators	Nos	6	54.8892	
166	Commissioning of Globe Valves/ Manual operated Gate valves /Control valves	Nos	125	60.7448	
167	Commissioning of motor operated dampers	Nos	15	116.514	
168	Commissioning of Solenoid Valves	Nos	272	44.475	
169	Commissioning of Pneumatic Dampers/ SADC	Nos	153	93.07346	
170	Commissioning of Power Cylinders	Nos	14	52.33308	

Note: Item Rate will be calculated as below:

B X Factor
10,00,000

Where B= Lumpsum Quoted value as per **Annexure-C**