

TENDER SPECIFICATION

BHEL: PSSR: SCT: 1419

FOR

Handling at Site Stores / Storage yard, Transportation to site of work, Erection, Testing and Commissioning of Control & Instrumentation Package for Unit- 2 of 1x500 MW Unit

at

BELLARY THERMAL POWER PROJECT

Kudithani, Bellary Dist, Karnataka.

PART – II PRICE BID

BOOK NO:



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035.

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector, Southern Region
690, Anna Salai, Nandanam, Chennai – 35

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NAME OF WORK

Handling at Site Stores / Storage yard, Transportation to Site of Work,
Erection, Testing and Commissioning of Controls & Instrumentation
Package for Unit-2 of 1 x 500MW at BellaryTPP, Kudithani, Bellary
District, Karnataka.

(PRICE BID)

PART II

Issued to
M/s.

For and on behalf of
BHARAT HEAVY ELECTRICALS LIMITED

Additional General Manager/Contracts

(This tender document is not transferable)

Place: Chennai-600 035.

Date:

NOTE TO RATE SCHEDULE:

1. The quantities indicated in Qty column are approximate and are liable for variation and alteration at the discretion of BHEL. The work executed shall be measured and priced at unit rate quoted by the contractor and accepted by BHEL.
2. The Tenderer is expected to fill up the rate column after satisfying all terms and conditions of Tender Specification.
3. Tenderers are requested to quoted their rates, only in the price bid (part II) provided by BHEL. Quoting of rates in any other form / formats will not be entertained.
4. Tenderers are requested to affix their company seal and authorised signature in all pages .

SIGNATURE OF THE TENDERER

BELLARY TPS UNIT 2 (1 X 500 MW)
RATE SCHEDULE FOR
ERECTION, TESTING AND COMMISSIONING OF C&I PACKAGE

Before filling the Rates, the bidder shall go through the detailed specification of all the items given in the detailed Bill of Materials(BOM) as well as Scope of Work specified in Section VI

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS <i>For Scope of Work, Refer Clause 6.3.4</i>					
1.	A.1.1	PD Type Flow meter	2 sets*		
2.	A.1.4, A.2.3, A.3.2, A.4.2, B.1.1, C.1.1, D.3.2.1, E.2.1.1, E.3.1, G.1.2.1, G.1.4.2, G.1.5.1, G.2.1.9, G.2.6.3, A.2.2, A.3.3, A.4.4, D.3.2.2, E.2.1.2	Pressure Gauges/ DP Gauges	593 Nos.		
3.	A.1.6, A.3.5, A.4.3, A.4.8.4, B.1.2, B.2.2, C.1.2, D.3.2.3, E.2.1.6, E.3.3, G.1.2.2, G.1.4.5, G.1.5.4, G.2.1.3, G.2.6.2	Temperature Gauges with Thermowell (capillary/ stem type)	382 Nos.		
4.	B.1.5	Thermocouple Assembly for APH	4 sets*		
5.	A.4.7	Thermocouple Assembly for Smart Soot Blowing System	48 Sets*		

- Lump sum rate to be quoted per set
- \$ Rate to be quoted for checking/ commissioning only

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS <i>For Scope of Work, Refer Clause 6.3.4</i>					
6.	A.4.8.1, B.1.3, B.2.1, D.3.2.4, D.3.2.5, E.1.1, E.2.1.7, E.2.1.8, E.4.1, G.1.2.8, G.1.2.10, G.1.4.4, G.1.5.3, G.2.1.1, G.2.1.2	RTDs/ Thermocouples with thermowell	575 Nos.		
7.	A.4.9.1, A.4.9.2	MTM T/Cs of route length 10 to 16 Mtrs (6 mm OD)	141 Nos.		
8.	A.4.9.3	MTM T/Cs of route length 18 to 20 Mtrs (6 mm OD)	40 Nos.		
9.		MTM T/Cs of route length 22 to 30 Mtrs	5 Nos.		
10.	A.1.5, A.2.4, A.3.4, A.4.1, B.1.4, C.1.3, D.3.2.6, E.2.1.4, G.1.2.9, G.1.4.1, G.1.4.3, G.1.5.2, G.2.1.7, A.1.3, A.2.1, A.3.1, A.4.5, D.3.2.7, E.2.1.5, G.2.1.8	Pressure/ DP Switches	213 Nos.		
11.		Flow Switch	1 No.		
12.	A.1.7, A.4.8.2, G.1.2.3, G.2.1.4	Temperature Switches	19 Nos.		
13.	A.1.2, C.1.4, D.3.2.13, E.3.2, G.2.1.11, G.2.6.1	Level Switches (float type)	95 Nos.		
14.	D.3.2.12, G.1.2.7,	Level switches (capacitance type)	14 Nos.		
15.	D.3.2.14, G.2.1.13	Level Switches (conductivity type) with electrodes, vessels and electronic units etc.	5 sets*		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS <i>For Scope of Work, Refer Clause 6.3.4</i>					
16.	D.3.2.19, D.3.2.20, E.2.1.3, G.2.1.6, G.1.2.4, G.1.2.5, G.2.1.5	Pressure/ DP Transmitters	291 Nos.		
17.	D.3.2.15	Level Transmitters (Displacement Type)	11 Nos.		
18.	D.3.2.16, G.1.2.6	Level Transmitters (DP Type)	24 Nos.		
19.	D.3.2.17	Hydrostatic Level Transmitter	1 No.		
20.	D.3.2.18	Level Transmitters (Pressure type)	4 Nos.		
21.	E.2.1.9, G.2.1.10	Level Transmitters with probes, electronic units etc.	10 sets*		
22.	D.3.2.8	Flow Transmitters	67 Nos.		
23.	D.3.2.9	Flow Transmitter (Annubar Type)	1 Set *		
24.	A.4.6	Temperature Transmitters	48 Nos.		
25.	G.1.5.5	Moisture Sensor Probes	2 Nos.		
26.	G.2.1.12	Position Transmitter for Extraction NRV	10 Nos.		
27.	A.3.8	Pneumatic Pressure Controllers with Pneumatic Transmitter	2 sets*		
28.	A.1.8	Speed Regulator/ Air Lock Valves/ Air Sets	12 sets*		
29.	A.1.10, A.2.5, A.3.6, D.3.2.22	Air Filter Regulators	76 Nos.		
30.	D.3.2.21, E.2.1.11	I/P Converters	47 Nos.		
31.	A.3.7	Purge Meter cum DP regulator	14 Nos.		
32.	A.1.13	Flame Scanner Head Assembly	24 sets*		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS <i>For Scope of Work, Refer Clause 6.3.4</i>					
33.	A.1.11	FSSS Local Oil Gun Maintenance Switch Box	12 Nos.		
34.	A.1.12	H.E.A. Excitor box Assembly with accessories	12 sets*		
35.	A.2.11	Burner Tilt Shear Pin Failure Indication Box	4 Nos.		
36.	A.2.12	Heavy Duty Limit Switch (for Burner Tilt)	16 Nos.		
37.	A.3.9	Ultrasonic Coal Flow Monitor, along with accessories	7 sets*		
38.	A.1.14	6 Nos. Flame scanner amplifier Racks	1 Set *		
39.	D.3.2.10	Level Gauge (float and chord type)	2 Sets.		
40.	D.3.2.11	Level Gauge (direct mounting type)	2 Nos.		
41.	A.4.11	ERV Controller with Pressure Switch	2 sets*		
42.	A.4.12	Electronic Water Level Indicator along with Display Units, Ascetor Unit and other accessories.	2 sets*		
43.	A.4.13	Sonic tube leak detection system along with Panel and other accessories.	1 set*		
44.	B.1.6	Rotor Stoppage System with accessories	2 sets*		
45.	B.1.7	ON/OFF Switch Box including light assembly	2 sets*		
46.	E.2.1.10	Speed measuring loop for BFPDT Governing System	6 sets*		
47.	D.3.8.1	Control Cabinets for Vibration Monitoring System for Pumps, Fans & Motors, along with loose supplied accessories	3 sets*		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS <i>For Scope of Work, Refer Clause 6.3.4</i>					
48.	D.3.8.2	Velocity Transducers, along with Sensor Extension cable and SS conduit for Vibration Monitoring System for Pumps, Fans & Motors ** Installation of sensors will be by vendor.	88 sets.**		
49.	E.2.2.1	Vibration Monitoring System for BFP Drive Turbine with 13 Nos. probes, Monitor, and other accessories	2 sets*		
50.	E.1.1.2	Reverse Rotation Monitoring System for BFP & CEP along with Probes, monitor and other accessories	1 set*		
51.	B.2.4	Opacity Monitoring System Along with 1 No. Local Control Unit, Air Blower and other accessories	4 sets*		
52.	D.3.5.1	Coal Bunker Level Monitoring System along with accessories.	1 set*		
53.	D.3.4.1	CO Analyser to be installed at 88 ML of chimney Including one No. transmitter unit, air compressor unit and other accessories.	1 set*		
54.	D.3.4.2	O2 Analyser along with Electronic Unit and other accessories.	2 sets*		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS <i>For Scope of Work, Refer Clause 6.3.4</i>					
55.	D.3.4.3	Opacity Analyser to be installed at 88 ML of chimney. Including two Nos. of transceiver units, an air compressor unit and other accessories.	3 sets*		
56.	D.3.4.4	SOX/NOX analyzer, along with Sample Handling System consisting of 1 No. local analyser cabinet and other accessories. The analyser to be installed at 88 ML of chimney	1 set*		
57.	D.3.7.1	Steam and water analysis system, SWAS consisting of: Primary Cooler Rack: 1No., Chiller Unit:1 No., Wet Panel: 1 No., Dry panel: 1 No., Conductivity Racks: 2 Nos., sensors/ analysers and other accessories	1 set*		
		<i>Master Slave Clock System</i>			
58.	D.3.16.1	Master clock System Panel	1 No.		
59.	D.3.16.2	Slave clocks	20 Nos.		
		<i>CCTV System</i>			
60.	D.3.17.1	CCTV system consisting of 3 Nos. Panels, cameras, Control rack, monitor, associated loop cabling etc.	1 set*		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
ERECTION/COMMISSIONING OF UCB/ CONTROL ROOM MOUNTED INSTRUMENTS <i>For Scope of Work, Refer Clause 6.3.4</i>					
61.	D.2.1.6, D.3.3.3, D.3.3.4	Recorders- 3 point/ 6 point / 24 point	7 Nos.		
62.	D.2.1.5, D.3.3.1, D.3.3.2, G.1.6.1, G.1.6.2	Electronic /Digital Indicators (Bar Graph Indicators, Temperature Indicators etc.)	41 Nos.		
63.	G.1.6.3, G.1.6.4	Pressure/ Temperature Indicators (Moving Coil Type)	4 Nos.		
64.	G.1.6.5	Vibration Indicator along with Selector Switch	4 Nos.		
REMOVAL, CALIBRATION, REFIXING AND COMMISSIONING OF INSTRUMENTS <i>For Scope of Work, Refer Clause 6.3.4</i>					
65.	F.3.2, G.1.3.1, G.1.3.2	Pressure/ DP Gauges	19 Nos.		
66.	B.2.3, E.1.1.3, E.4.2, G.1.3.3	Temperature Gauges	44 Nos.		
67.	F.3.3, G.1.3.6	Pressure/ DP Switches	12 Nos.		
68.	F.3.1, G.1.3.7	Level Switches	22 Nos.		
69.	G.1.3.4, G.1.3.5	Pressure/ DP Transmitters	10 Nos.		
70.	G.1.3.9	Conductivity Cells	2 Nos.		
71.	G.1.3.10	PW Conductivity Indicator	1 No.		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
CALIBRATION (AS REQUIRED), ERECTION, REMOVAL AND NORMALIZATION FOR EDTA CLEANING <i>For Scope of Work, Refer Clause 6.3.4</i>					
72.	H.1.1	MTM thermocouple length 10 Mtrs	10 Nos.		
73.	H.1.2	Junction boxes - 12 way/ 6 way/ 24 way	10 Nos.		
74.	H.1.3	Compensating cables 2 P x 0.5 sq. mm	200 Mtrs		
75.	H.1.4	Compensating cables 6 P x 0.5 sq. mm	300 Mtrs		
76.	H.1.5	Pressure gauges	5 Nos.		
77.	H.1.6	Drum MTM thermocouple adaptor fabrication - 1/4 inch NPT(M) x 1/4 inch OD SS	2 sets*		
78.	H.1.7	16 P x 0.5 sq. mm cable for Teletel Drum level indication	500 mtrs		
79.	H.1.8	3c x 2.5 sq. mm power cable Teletel Drum level indication	100 mtrs		
80.	H.1.9	7 port lamp indication at control room and 9 port switching at Drum floor	1 set*		
81.	H.1.10	Switchboards with switches	3 Nos.		
ERECTION/COMMISSIONING OF PNEUMATIC POWER CYLINDERS (REGULATING TYPE) <i>For Scope of Work, Refer Clause 6.3.9</i>					
82.	A.2.13.3	For ID Fans I/L Damper	2 Nos.		
83.	A.2.13.4	Cold Air Regulating Dampers	7 Nos.		
84.	A.2.13.5	Hot Air Regulating Dampers	7 Nos.		
85.	A.2.13.2	PA Fan/ FD Fan Blade Pitch control Dampers	4 Nos.		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
86.	A.2.13.1	Power Cylinders for SADC	64 Nos.		
87.	A.2.13.6	Dynavane Filter Bleed Air Damper	1 No.		
ERECTION/COMMISSIONING OF PNEUMATIC ACTUATORS (ON/OFF TYPE) <i>For Scope of Work, Refer Clause 6.3.9</i>					
88.	A.2.14.1	Scanner Air Emergency Damper	1 No.		
ERECTION/COMMISSIONING OF UPS WITH DBs <i>For Scope of Work, Refer Clause 6.3.3, 6.3.1</i>					
89.	D.3.9.1	130 KVA UPS comprising of UPS-1& 2, Variac Cubicle, Servo controlled voltage stabilizer, Battery Current Sharing Cubicle etc.	1 set*		
90.	D.3.9.2	ACDB	2 Nos.		
91.	D.3.9.3	UPS Battery, NiCd, 192 cells, along with wooden rack, and other accessories	2 sets*		
ERECTION/COMMISSIONING OF PANELS <i>For Scope of Work, Refer Clause 6.3.1</i>					
92.	A.3.10	Gravimetric Feeder Panel	7 Nos.		
93.	C.4.1	Control Panel for HP Dosing System	1 No.		
94.	D.3.6.1, D.3.6.2, D.3.6.3	Alarm Annunciation System Panels	8 Nos.		
95.	F.1.1	PLC Panel for Raw Water Pumps.	1 No.		
96.	F.1.2	Relay Control panel for Misc Pumps	3 Nos.		
97.	G.1.1.1	Generator Instrumentation Cabinet	1 No.		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
98.	G.1.1.2	Gas Analyser Cabinet including sensor, analyser etc.	1 set *		
99.	G.1.1.3	Annunciation Cabinet	1 No.		
ERECTION/COMMISSIONING OF DCS PACKAGE <i>For Scope of Work, Refer Clause 6.3.2</i>					
100.	D.1.1, D.2.1.1, D.2.1.2, D.3.1.1, D.4.4	Single Cubicles	14 Nos.		
101.	D.1.2, D.2.1.3, D.3.1.2, D.3.1.3	Suite of Two Cubicles	35 Nos.		
102.	D.1.3, D.2.1.4, D.3.1.4, D.3.1.5	Suite of Three Cubicles	7 Nos.		
103.	D.1.4	Suite of Four cubicles	2 Nos.		
104.	D.4.1	Unit Control Desk	1 set*		
105.	D.4.2	67" Large Video Screen along with CPU and other loose supplied items.	3 sets*		
106.	D.4.3	Computer Stations Engineer Workstation, 'maxStorian' Station, Operator Work Stations, maxLINK Stations etc.	22 sets*		
107.	D.4.5	Network Enclosures	5 Nos.		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
ERECTION/TESTING OF LOCAL INSTRUMENT ENCLOSURES/ RACKS (LIE/LIR)/GAUGE BOARDS <i>For Scope of Work, Refer Clause 6.3.6</i>					
108.	D.3.10.1	LIE, type A of size: 1450 x 800 x 2300 mm; Approximate weight: 800 kg	27 Nos.		
109.	D.3.10.2	LIR, type A of size 2150 x 650 x 2200 mm; Approximate weight: 600 kg	37 Nos.		
110.	E.1.5.1	LGB Assembly for Feed Water Service for BFP (along with instruments) 1400 x 550 x 1900 mm; 200 kg approx..	3 Nos.		
111.	E.1.5.2	LGB Assembly for Seal and Cooling Water Service of Booster Pump & BFP (along with instruments) 1400 x 550 x 1900 mm ; 200 kg approx.	3 Nos.		
112.	E.1.5.3	LGB Assembly for Oil Service of TDBFP/ MDBFP (along with instruments) 1400 x 550 x 1900 mm ; 200 kg approx.	3 Nos.		
113.	E.1.5.4	LGB Assembly for CEP set (along with instruments) 1400 x 550 x 1900 mm; 200 kg approx.	1 No.		
114.	E.1.5.5	LIR assembly for 2 TDBFPs (along with instruments) 2000 x 650 x 2200 mm; 300 kg approx.	1 No.		
115.	E.1.5.6	LIR assembly for MDBFP (along with instruments) 2000 x 650 x 2200 mm; 300 kg approx.	1 No.		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
116.	E.1.5.7	LIR assembly for CEPs (along with instruments) 2000 x 600 x 1500 mm; 200 kg approx.	1 No.		
117.	E.1.5.8	LIR assembly for CEPs (along with instruments) 2000 x 650 x 2200 mm; 300 kg approx.	1 No.		
ASSEMBLY AND ERECTION OF JB MOUNTING FRAMES <i>For Scope of Work, Refer Clause 6.3.6</i>					
118.	D.2.5.1 TO D.2.5.9	Assembly and installation of Mounting Frames with loose supplied prefabricated materials like slotted angles, channels etc.	21 Nos.		
LAYING, TERMINATION & TESTING OF CABLES <i>For Scope of Work, Refer Clause 6.3.10</i>					
119.	A.5.1.1, A.5.1.2	Flame Scanner Cable/ Special Cable for Heat Flux Sensor (2P x 0.5 sq. mm/ 1 sq. mm)	5800 Mtrs		
120.	D.4.6	Ethernet Cable	13725 Mtrs		
121.	D.3.16.3, D.3.17.2	Coaxial Cable, including conduit	600 Mtrs		
122.	D.3.17.3, D.4.8	Laying of Fibre Optic Cable, along with HDPE Conduit (termination of FO cable is excluded)	4000 Mtrs		
	<i>PVC/FRLS, shielded, Armoured/ Unarmoured Cu cables</i>				
123.	D.3.11.13	1P X 1.5 sq. mm cable	1,000 Mtrs		
124.	A.5.1.3, A.5.1.8, D.2.2.1, D.2.2.4, D.3.11.3, D.3.11.8, D.3.11.14, F.2.1, F.2.6	2P X 0.5/ 1.5 sq. mm cable	89,200 Mtrs		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
125.	A.5.1.4, C.3.1, D.2.2.2, D.3.11.4, D.3.11.9 E.1.4.2, F.2.2, F.2.7, D.2.2.5	4P X 0.5 sq. mm / 2T X 0.5 sq.mm cable	1,81,850 Mtrs		
126.	D.3.11.5, E.1.4.1	6P x 0.5 sq.mm / 4T x 0.5 sq. mm cable	1500 Mtrs		
127.	A.5.1.5, D.3.11.6, D.3.11.10, F.2.3, F.2.8	8P X 0.5 sq. mm cable	74,400 Mtrs		
128.	A.5.1.6, D.3.11.7, D.3.11.11, F.2.4, F.2.9, A.5.1.7	12 pair x 0.5 sq. mm / 16 P X 0.5 sq. mm cable	46,350 Mtrs		
129.	D.3.11.12, F.2.5, F.2.10	24P X 0.5 sq.mm cable	41,000 Mtrs		
	<i>Compensating Cables</i>				
130.	A.5.1.9, D.2.2.6, D.2.2.7, D.3.11.1, D.3.11.2	2 Pair x 0.5 sq. mm to 1.3 sq.mm compensating cables	16,400 Mtrs		
131.		4 pair/ 6 pair compensating cable	1,000 Mtrs		
	<i>PVC, FRLS, Armoured/ Unarmoured Control/ Power Cables</i>				
132.	A.5.1.10, A.5.1.16, D.3.16.4	2 C/ 3C x 1.5/2.5 sq. m, cable	5800 Mtrs		
133.	A.5.1.11, A.5.1.12, D.2.2.3, D.4.7	4 C/ 5C x 1.5 sq. mm, control cable	17,000 Mtrs		
134.	A.5.1.13	7C X 1.5 sq. mm, control cable	8750 Mtrs		
135.	A.5.1.14	10 C x 1.5 sq. mm, control cable	22050 Mtrs		
136.	A.5.1.15	19 C x 1.5 sq. mm, control cable	3100 Mtrs		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
137.	D.3.11.15	Earthing Cable, 2 C x 10 sq .mm, Cu	1000 Mtrs		
138.	D.3.11.16	Earthing Cable, 1 C x 70 sq .mm/ 120 sq.mm, PVC, Cu	200 Mtrs		
ERECTION OF CABLE TRAYS & DUCTS <i>For Scope of Work, Refer Clause 6.3.11</i>					
	<i>Perforated Type Cable Trays</i>				
139.	A.5.2.1, D.3.12.1, E.1.4.3	50 mm wide Cable Tray	3,955 Mtrs		
140.	A.5.2.2, D.3.12.2	100 mm wide Cable Tray	5,350 Mtrs		
141.	A.5.2.3, E.1.4.4	150 mm wide Cable Tray	1,695 Mtrs		
142.	A.5.2.4	300 mm wide Cable Tray	100 Mtrs		
	<i>Cable Ducts With Covers</i>				
143.	D.2.4.1	60 x 60 x 1000 mm	200 Nos.		
144.	D.2.4.2	180 x 100 x 1000 mm	100 Nos.		
145.	D.2.4.3	250 x 100 x 1000 mm	100 Nos.		
ERECTION OF JUNCTION BOXES/PB BOXES <i>For Scope of Work, Refer Clause 6.3.12</i>					
146.	A.2.9, A.5.3.1, A.5.3.2, C.2.1, C.2.2, D.2.3.2, D.2.3.3, D.3.8.3, D.3.13.1, D.3.13.2, D.3.13.3, E.1.3.1, E.1.3.2, G.2.4.4	Junction Boxes, 8 way to 36 way, including RJCBs	414 Nos.		

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SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
147.	A.5.3.3, D.2.3.1, D.3.13.4, D.3.13.5, D.3.13.6, D.3.13.7, G.2.4.2, G.2.4.3	Junction Box, 48 way to 96 way	373 Nos.		
148.	G.2.4.1	Junction Box (Pedestal and Proximeter JB)	15 Nos.		
149.	A.2.10, A.4.10, D.2.1.7	Push Button Boxes/ Fire Protection Switch Box	6 Nos.		
ERECTION/TESTING OF IMPULSE PIPES <i>For Scope of Work, Refer Clause 6.3.5</i>					
150.	G.1.7.5, G.2.3.7	AS Pipe, 13.5 x 2.6	70 Mtrs		
151.	G.1.7.2, G.2.3.6	AS pipe, 21.3 x 2.3 / ½" SCH 40 (21.3 x 2.77)	735 Mtrs		
152.		AS Pipe, ½" SCH 80	100 Mtrs		
153.	A.5.5.3	AS Pipe, ½" SCH 160	200 Mtrs		
154.	D.3.14.5	AS Pipe, ½" NB XXS , P22	750 Mtrs		
155.	D.3.14.6	AS Pipe, ¾" SCH 80, P22	350 Mtrs		
156.	E.1.2.1, G.1.7.4, G.2.3.1	CS pipe, 13.5 x 2.6/ 16 x 2.6	1940 Mtrs		
157.	G.1.7.1, G.2.3.3	CS pipe, 21.3 x 2.3	710 Mtrs		
158.	A.5.5.2, C.6.1, D.3.14.4, E.2.3.1	CS pipe, ½" SCH 80	5900 Mtrs		
159.	D.3.14.3	CS Gr C- ½" NB SCH 160	1200 Mtrs		
160.	D.3.14.2	CS Gr B- ¾" NB SCH 80	1750 Mtrs		
161.	A.5.5.1, D.3.14.1	CS pipe, 1" SCH 80	600 Mtrs		
162.	E.2.3.2	CS Pipe, 60.3 x 3.91	100 Mtrs		

- Lump sum rate to be quoted per set
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SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
163.	G.2.3.2	CS Tube DN-80	20 Mtrs		
164.	E.2.3.4, G.1.7.6, G.2.3.5	SS tube, 12.7 x 2.1 mm/ 13.5 x 2.6 mm	380 Mtrs		
165.	D.3.14.7, G.1.7.3, G.2.3.4	SS Tube, 21.3 x 2.3/ ½” SCH 40 (21.3 x 2.77)	2380 Mtrs		
166.	D.3.14.8	A213 TP 316 ½” NB SCH160 SS	750 Mtrs		
167.	E.2.3.3	Cr-Al Pipe 21.3 x 3.73	660 Mtrs		
ERECTION OF EARTHING MATERIALS <i>For Scope of Work, Refer Clause 6.3.14</i>					
168.	A.5.4.2	GI Flat, 50 X 6 mm	665 Mtrs.		
169.	D.3.15.5	GI Wire, 8 SWG	2000 Mtrs		
ERECTION OF HOSES, TUBES etc. <i>For Scope of Work, Refer Clause 6.3.7</i>					
170.	A.1.9, A.2.6, D.3.15.4	Copper Tube, OD 8 mm/ ¼"	4125 Mtrs		
171.	E.2.3.5	SS tube, 6 mm/ ¼" OD	60 Mtrs		
172.	A.2.7	¼" size Teflon Hose of 2M length	64 Nos.		
173.	A.2.8	1" size Teflon Hose of 3M length	4 Nos.		
ERECTION/TESTING OF GI PIPE (HEAVY DUTY) <i>For Scope of Work, Refer Clause 6.3.8</i>					
174.	C.5.1, D.3.15.2	NB 15 x 3.25/ ½" pipes	6800 Mtrs		
175.	C.5.2, D.3.15.3	NB 25 x 4.05/ 1" pipes	1055 Mtrs		
176.	C.5.3	NB 40 x 4.05	110 Mtrs		

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
177.	C.5.4	NB 50 x 4.05	400 Mtrs		
178.	C.5.5	NB 100 x 5.4	160 Mtrs		
FABRICATION/ERECTION OF STRUCTURAL STEEL <i>For Scope of Work, Refer Clause 6.3.13</i>					
179.	A.5.4.1, B.3.1, D.3.15.1, E.1.6.1, E.2.2.2, G.2.2.1, G.2.2.2, G.2.5	Structural Steel for fabrication of supports/ LIRs/ canopy/ mounting frames for LPB stations	28 MT		
CHECKING & COMMISSIONING OF THE FOLLOWING ERECTED BY OTHER AGENCY <i>For Scope of Work, Refer Clause 6.3.18</i>					
180.	B.1.8.2, B.2.5.2, E.4.3.2	Lub Oil Skid for Pulversier, FD/ ID/ PA Fans, Air Preheater	17 sets* ^{\$}		
181.	E.1.7.2	Hydraulic Coupling of MDBFP	1 set* ^{\$}		
182.	G.3.1	Condenser Vacuum Pump, including CVP PLC and related field instruments	2 sets* ^{\$}		
183.	G.3.2	Oil Centrifuge Unit	2 Nos. ^{\$}		
184.	A.3.11.1	Gravimetric Feeders	7 sets* ^{\$}		
185.	A.4.14.2	Direct Water Level Gauges	2 Nos. ^{\$}		
186.	A.2.15.1	Burner Tilt Power Cylinders	4 Nos. ^{\$}		
<p>\$ Rate to be quoted for checking/ commissioning only</p>					

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SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
187.	A.2.15.2, A.2.15.3, A.15.4, A.2.15.5, E.4.3.3, E.4.3.4	Pneumatic Actuators of ON/OFF Type	63 Nos. \$		
188.	A.1.15.2	Pneumatic Valves: Trip Valves	47 Nos. \$		
189.	A.1.15.3, A.4.14.3, C.7.1, E.2.4.1, F.4.1	Pneumatic Valves: Control Valves	58 Nos. \$		
190.	G.3.3	NRV Valves, Stop Valves, Control Valves, HP/LP Bypass Valves	40 Nos. \$		
191.	B.1.8.1, G.3.6	Solenoid Valves	32 Nos. \$		
192.	E.2.4.2, G.3.4	Position Transmitters	27 Nos. \$		
193.	B.2.5.1, E.1.7.1, E.4.3.1, G.1.3.12	Checking the healthiness of Temperature Elements (RTDs)	415 Nos. \$		
194.	A.4.8.3, A.4.14.1, D.3.2.23, G.1.3.8, G.1.3.11	Flow Indicators/ Flow Meters/ Flow Switches	37 Nos. \$		
195.	A.1.15.1, A.3.11.2, G.3.5	Checking of Limit Switches	155 Nos. \$		
196.	A.2.15.6, F.4.2	Electrical Actuators for Valves/ Dampers, including loop checking	434 Nos. \$		
\$ Rate to be quoted for checking/ commissioning only					

- Lump sum rate to be quoted per set
- \$ Rate to be quoted for checking/ commissioning only

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL
	<i>Instrument Racks</i> <i>Removal, calibration and refixing of rack mounted instruments, checking solenoid valves, drives, including wiring on the rack etc.</i>				
197.	E.2.4.3	Governing Console Board for BFPDT	2 sets* ^{\$}		
198.	G.3.7	Governing System Control Rack for Main Turbine	1 set* ^{\$}		
199.	G.3.8	LP Bypass Control Rack	1 set* ^{\$}		
200.	G.3.9	Supply Unit Racks for HP Valve-1, HP Valve-2, IP Valves	3 sets* ^{\$}		
201.	G.3.10	Seal Oil Rack	1 set* ^{\$}		
202.	G.3.11	Stator Water Rack	1 set* ^{\$}		
203.	G.3.12	Seal Oil Level / Pr Transmitter Instrument Rack	1 set* ^{\$}		
204.	G.3.13	Stator Water DP Instrument Rack	1 set* ^{\$}		
205.	G.3.14	H2 Dryer Unit	1 set* ^{\$}		
206.	G.3.15	Gland Steam And Seal Steam Oil Supply Units	2 sets* ^{\$}		
207.	G.3.16	TD BFP Pump Coupling Engage Oil Supply Unit	2 sets* ^{\$}		
Total					

- Lump sum rate to be quoted per set
- \$ Rate to be quoted for checking/ commissioning only

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