

# **TENDER SPECIFICATION**

**BHEL: PSSR: SCT: 1378**

**FOR**

Handling at Site Stores / Storage yard, Transportation to site of work,  
Erection, Testing and Commissioning of Control & Instrumentation  
Package for Unit- 11 of 1x500 MW Unit

at

## **KOTHAGUDEM THERMAL POWER PROJECT**

**Kothagudem, Khammam Dist, Andhra Pradesh.**

### **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

**TENDER SPECIFICATION NO: BHEL: PSSR: SCT: 1378**

NAME OF WORK

Handling at Site Stores / Storage yard, Transportation to Site of Work, Erection, Testing and Commissioning of Controls & Instrumentation Package for Unit-11 of 1 x 500MW at KothagudemTPP, Kothagudem, Khammam District, Andhra Pradesh

(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:



**BHEL PSSR SCT 1378**  
**KOTHAGUEM TPS EXPANSION (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 RATE
<b>ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS</b> <i>For Scope of Work, Refer Clause 6.3.4</i>					
1.	A.1.1	PD Type Flow meter	2 sets*		
2.	A.1.2, A.2.1, A.3.1, A.4.2, A.4.7.5, B.1.1, C.1.1.1, D.3.2.1, E.2.1.1, E.3.1, F.1.2.1, F.1.5.2, F.1.6.1, F.2.1.9, F.2.4.3, A.2.2, A.3.2, A.4.4, A.4.7.6, C.1.1.2, E.2.1.2	Pressure Gauges/ DP Gauges	506 Nos.		
3.	A.1.3, A.3.3, A.4.3, A.4.7.4, B.1.2, B.2.2, C.1.1.3, D.3.2.2, E.2.1.6, E.3.3, F.1.2.2, F.1.5.5, F.1.6.4, F.2.1.3, F.2.4.2	Temperature Gauges with Thermowell (capillary/ stem type)	347 Nos.		
4.	B.1.6	Thermocouple Assembly for APH	4 sets*		
5.	B.1.3, B.2.1, D.3.2.3, E.1.1.1, E.2.1.7, E.4.1, F.1.2.8, F.1.5.4, F.1.6.3, F.2.1.1, A.4.7.1, D.3.2.5, E.2.1.8, F.1.2.10, F.2.1.2	RTDs/ Thermocouples with thermowell	542 Nos.		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
<b>ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS</b> <i>For Scope of Work, Refer Clause 6.3.4</i>					
6.	A.4.8.1	MTM T/Cs of route length 10 to 14 Mtrs (6 mm OD)	20 Nos.		
7.	A.4.8.2	MTM T/Cs of route length 16 to 20 Mtrs (6 mm OD)	59 Nos.		
8.	A.4.8.3	MTM T/Cs of route length 22 to 26 Mtrs (6 mm OD)	102 Nos.		
9.	D.3.2.4	MTM Thermocouples, 30 Mtr – flexible type	53 Nos.		
10.	A.1.4, A.2.3, A.3.4, A.4.1, B.1.4, C.1.1.4, D.3.2.6, E.2.1.4, F.1.2.9, F.1.5.1, F.1.5.3, F.1.6.2, F.2.1.7, A.1.7, A.2.4, A.3.5, A.4.5, C.1.1.5, D.3.2.7, E.2.1.5	Pressure/ DP Switches	181 Nos.		
11.	A.4.7.7	Flow Switches	3 Nos.		
12.	A.1.5, A.4.7.2, B.1.5, F.2.1.4	Temperature Switches	20 Nos.		
13.	A.1.6, C.1.1.6, E.3.2, F.2.1.11, F.2.4.1	Level Switches (float type)	33 Nos.		
14.	D.3.2.8, F.1.2.7	Level switches (capacitance type)	20 Nos.		
15.	D.3.2.9, F.2.1.12	Level Switches (conductivity type) with electrodes, vessels and electronic units etc.	4 sets*		
16.	F.2.1.13	Level Switches with amplifier, bar probe including interconnecting cable	7 sets*		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
<b>ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS</b> <i>For Scope of Work, Refer Clause 6.3.4</i>					
17.	D.3.2.11, E.2.1.3, F.1.2.4, F.2.1.5, D.3.2.10, F.1.2.5, F.1.2.6, F.2.1.6, F.2.1.16	Pressure/ DP Transmitters	378 Nos.		
18.	F.2.1.17	Temperature Transmitters	2 Nos.		
19.	E.2.1.9, F.2.1.10	Level Transmitters with probes, electronic units etc.	10 sets*		
20.	A.4.7.8	Electronic Flow Transmitters	3 Nos.		
21.	D.3.2.15	Electronic Water level indicator	2 sets*		
22.	F.1.6.5	Moisture Sensor Probes	2 Nos.		
23.	F.2.1.14	Position Transmitter for Extraction NRV	10 Nos.		
24.	A.3.8	Pneumatic Pressure Controllers with Pneumatic Transmitter	1 set*		
25.	A.1.9	Speed Regulator/ Air Lock Valves/ Air Sets	12 sets*		
26.	A.1.11, A.2.5, A.3.6, D.3.2.13	Air Filter Regulators	65 Nos.		
27.	D.3.2.12, E.2.1.11	I/P Converters	50 Nos.		
28.	A.3.7	Purge Meter cum DP regulator	24 Nos.		
29.	A.1.8	Flame Scanner Head Assembly	24 sets*		
30.	A.1.12	FSSS Local Oil Gun Maintenance Switch Box	12 Nos.		
31.	A.1.13	H.E.A. Excitor box Assembly with accessories	12 sets*		
32.	A.2.9	Burner Tilt Shear Pin Failure Indication Box	4 Nos.		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
<b>ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS</b> <i>For Scope of Work, Refer Clause 6.3.4</i>					
33.	A.2.10	Heavy Duty Limit Switch (for Burner Tilt )	16 Nos.		
34.	A.3.9	Ultrasonic Coal Flow Monitor, along with accessories	7 sets*		
35.	A.4.6	ERV Controller with Pressure Switch	2 sets*		
36.	A.4.9	Electronic Water Level Indicator along with Display Units, Ascetor Unit and other accessories.	2 sets*		
37.	A.4.10	Sonic tube leak detection system along with Panel and other accessories.	1 set*		
38.	B.1.7	Rotor Stoppage System with accessories	2 sets*		
39.	B.1.8	ON/OFF Switch Box including light assembly	2 sets*		
40.	E.2.1.10	Speed measuring loop for BFPDT Governing System	6 sets*		
41.	D.3.9.1	Vibration Monitoring System (VMS) for Fans, Mills and Pumps, along with 66 sets of velocity type pick-ups, 1 No. Control Panel and other accessories.	1 set*		
42.	E.2.2.1	Vibration Monitoring System for BFP Drive Turbine with 16 Nos. probes, Monitor, and other accessories	2 sets*		
43.	E.1.1.5	Vibration Monitoring Panel for 2 TDBFPs, BP and 1 MDBFP & BP	1 No.		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
<b>ERECTION/COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS</b> <i>For Scope of Work, Refer Clause 6.3.4</i>					
44.	E.1.1.6	Reverse Rotation Monitoring System for BFP & CEP along with 3 Nos. Probes, monitor and other accessories	1 set*		
45.	D.3.7.1	Coal Bunker Level Monitoring System along with 56 sets of Sensors and other accessories.	1 set*		
46.	D.3.6.1	SOX/NOX/CO analyzer, along with Sample Handling System consisting of 1 No. local analyser cabinet and other accessories. The analyser to be installed at 35 ML of chimney	1 set*		
47.	D.3.6.2	O2 Analyser along with Electronic Unit and other accessories.	2 sets*		
48.	D.3.6.3	Opacity Analyser to be installed at 75 ML of chimney. Including two Nos. of transceiver units, an air compressor unit and other accessories.	3 sets*		
49.	D.3.8.1	Steam and water analysis system, SWAS consisting of: Primary Cooler Rack: 2 Nos., Chiller Unit : 1 No., Wet Panel: 1 No., Dry panel: 1 No., Conductivity Racks: 2 Nos., sensors/ analysers and other accessories	1 set*		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
<b>ERECTION/COMMISSIONING OF UCB/ CONTROL ROOM MOUNTED INSTRUMENTS</b> <i>For Scope of Work, Refer Clause 6.3.4</i>					
50.	D.3.3.3, D.3.3.4, D.3.3.5	Recorders- 3 point/ 6 point / 30 point	7 Nos.		
51.	D.3.3.1, D.3.3.2, F.1.7.1	Electronic /Digital Indicators (Bar Graph Indicators, Temperature Indicators etc.)	25 Nos.		
		<b><i>Master Slave Clock System</i></b>			
52.	D.3.5.1	Master clock control panel	1 No.		
53.	D.3.5.2	Slave clock	20 Nos.		
54.	D.3.5.3	GPS Antenna along with around 100 Mtrs antenna cable from antenna to GPS Receiver	1 set*		
55.	D.3.5.4	RS232 Data Cable	1000 Mtrs		
56.	D.3.5.5	RG 58 Coaxial Cable	3,000 Mtrs		
57.	D.3.5.7	GI Conduit pipe, 19 mm OD	1,000 Mtrs		
<b>REMOVAL, CALIBRATION, REFIXING AND COMMISSIONING OF INSTRUMENTS</b> <i>For Scope of Work, Refer Clause 6.3.4</i>					
58.	F.1.3.1, F.1.3.2	Pressure/ DP Gauges	15 Nos.		
59.	B.2.3, E.1.1.2, E.4.2, F.1.3.3	Temperature Gauges	52 Nos.		
60.	F.1.2.3, F.1.3.9	Flow Gauge/ Flow Meters	7 Nos.		
61.	F.1.3.7, F.2.1.8	Pressure/ DP Switches	20 Nos.		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
62.	F.1.3.8	Level Switches	7 Nos.		
63.	F.1.3.10	Conductivity Cells	2 Nos.		
64.	F.1.3.5, F.1.3.6	Pressure/ DP Transmitters	10 Nos.		
65.	F.2.1.15	Position Transmitters	18 Nos.		
66.	F.1.3.11	PW Conductivity Indicator	1 No.		
<b>CALIBRATION (AS REQUIRED), ERECTION, REMOVAL AND NORMALIZATION FOR EDTA CLEANING</b>					
<i>For Scope of Work, Refer Clause 6.3.4</i>					
67.	G.1.1	MTM thermocouple length 10 Mtrs	12 Nos.		
68.	G.1.2	Junction boxes - 12 way/ 6 way/ 24 way	10 Nos.		
69.	G.1.3	Compensating cables 2 P x 0.5 sq. mm	200 Mtrs		
70.	G.1.4	Compensating cables 6 P x 0.5 sq. mm	300 Mtrs		
71.	G.1.5	Pressure gauges	5 Nos.		
72.	G.1.6	Drum MTM thermocouple adaptor fabrication - 1/4 inch NPT(M) x 1/4 inch OD SS	2 sets*		
73.	G.1.7	16 P x 0.5 sq. mm cable for Teletel Drum level indication	500 mtrs		
74.	G.1.8	3c x 2.5 sq. mm power cable Teletel Drum level indication	100 mtrs		
75.	G.1.9	9 port lamp indication at control room and 9 port switching at Drum floor	1 set*		
76.	G.1.10	Switchboards with switches	3 Nos.		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
<b>ERECTION/COMMISSIONING OF PNEUMATIC POWER CYLINDERS (REGULATING TYPE)</b> <i>For Scope of Work, Refer Clause 6.3.9</i>					
77.	A.2.11.1	For ID Fans I/L Control	2 Nos.		
78.	A.2.11.2	Cold Air Regulating Dampers	7 Nos.		
79.	A.2.11.3	Hot Air Regulating Dampers	7 Nos.		
80.	A.2.11.4, A.2.11.5	PA Fan/ FD Fan Vane Regulating Dampers	4 Nos.		
81.	A.2.11.6	Power Cylinders for SADC	64 Nos.		
82.	A.2.11.7	Dynavane Filter Bleed Air Damper	1 No.		
<b>ERECTION/COMMISSIONING OF PNEUMATIC ACTUATORS (ON/OFF TYPE)</b> <i>For Scope of Work, Refer Clause 6.3.9</i>					
83.	A.2.13.1	Scanner Air Emergency Damper	1 No.		
<b>ERECTION/COMMISSIONING OF UPS/ BATTERY/ BATTERY CHARGER WITH DBs</b> <i>For Scope of Work, Refer Clause 6.3.3, 6.3.1</i>					
84.	D.3.13.1	2 x 80 KVA, UPS comprising of Servo controlled voltage stabilizer cubicle, Isolation Transformer Cubicle-1 & 2, UPS-1 & 2	1 set*		
85.	D.3.13.2	ACDB	2 Nos.		
86.	D.3.13.3	UPS Battery, NiCd, 192 cells, along with wooden rack, and other accessories	2 sets*		
87.	D.3.10.1	24V DC Battery Charger with DCDB for SG/TG and BOP	2 sets*		
88.	D.3.10.2	24V DC Battery for SG/TG and BOP	2 sets*		
89.	D.3.11.1	24V Battery Charger for CW Pump	1 set*		

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SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
90.	D.3.11.2	24V DC Battery for CW Pump	1 set*		
91.	D.3.12.1	24V Battery Charger for FOPH	1 set*		
92.	D.3.12.2	24V DC Battery for FOPH	1 set*		
<b>ERECTION/COMMISSIONING OF PANELS</b> <i>For Scope of Work, Refer Clause 6.3.1</i>					
93.	A.3.10	Gravimetric Feeder Panel	7 Nos.		
94.	C.1.3.1	Control Panel for HP Dosing System	1 No.		
95.	D.3.4.1	Alarm Annunciator Panels (Suite of 4 panels)	1 No.		
96.	D.3.4.2, D.3.4.3	Alarm Annunciator Panels/ Digital Buffer Cabinets (Suite of 2 panels)	2 Nos.		
97.	F.1.1.1	Generator Instrumentation Cabinet	1 No.		
98.	F.1.1.2	Gas Analyser Cabinet including sensor, analyser etc.	1 set *		
99.	F.1.1.3	Annunciation Cabinet	1 No.		
<b>ERECTION/COMMISSIONING OF DCS PACKAGE</b> <i>For Scope of Work, Refer Clause 6.3.2</i>					
100.	D.1.1.1, D.2.1.1, D.2.1.2, D.3.1.1, D.4.1.2	Single Cubicles	14 Nos.		
101.	D.1.1.2, D.2.1.3, D.3.1.2	Suite of Two Cubicles	36 Nos.		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
102.	D.1.1.3, D.2.1.4, D.3.1.3	Suite of Three Cubicles	7 Nos.		
103.	D.1.1.4	Suite of Four cubicles	1 No.		
104.	D.4.1.3	CRT Desk	1 set*		
105.	D.4.1.1	Computer Stations Engineer Workstation, 'maxStorian' Station, Operator Work Stations, maxLINK Stations	18 sets*		
106.	D.4.2.1	Ethernet Cable	15,250 Mtrs		
107.	D.4.4.3	Laying of Fibre Optic Cable, along with HDPE Conduit	2200 Mtrs		
<b>ERECTION/TESTING OF LOCAL INSTRUMENT ENCLOSURES/ RACKS (LIE/LIR)/GAUGE BOARDS</b> <i>For Scope of Work, Refer Clause 6.3.6</i>					
108.	D.3.19.1	LIE, type A of size: 1450 x 800 x 2300 mm; Approximate weight: 375 kg	8 Nos.		
109.	D.3.19.2	LIE, type B of size: 1100 x 800 x 2300 mm; Approximate weight: 300 kg	20 Nos.		
110.	D.3.19.3	LIE, type C of size: 700 x 600 x 2100 mm; Approximate weight: 250 kg	1 No.		
111.	D.3.19.4	LIR, type A of size 2150 x 650 x 2150 mm; Approximate weight: 325 kg	23 Nos.		
112.	D.3.19.5	LIR, type B of size 1650 x 650 x 2150 mm; Approximate weight: 250 kg	16 Nos.		

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SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
113.	D.3.19.6	LIR, type C of size 1150 x 650 x 1600 mm; Approximate weight: 500 kg	14 Nos.		
114.	E.1.2.1	LGB Assembly for Feed Water Service for BFP (along with instruments) Approximate Size 1400 x 550 x 1900 mm; Weight = 200 kg each.	3 Nos.		
115.	E.1.2.2	LGB Assembly for Seal and Cooling Water Service of Booster Pump & BFP (along with instruments) Approximate Size 1400 x 550 x 1900 mm ; Weight = 200 kg each.	3 Nos.		
116.	E.1.2.3	LGB Assembly for Oil Service of TDBFP/ MDBFP (along with instruments) Approximate Size 1400 x 550 x 1900 mm ; Weight = 200 kg each.	3 Nos.		
117.	E.1.2.4	LGB Assembly for CEP set (along with instruments) Approximate Size 1400 x 550 x 1900 mm; Weight = 200 kg each.	1 No.		
118.	E.1.2.5	LIR assembly for 2 TDBFPs (along with instruments) Approximate Size 2000 x 650 x 2200 mm; Weight = 300 kg each.	1 No.		
119.	E.1.2.6	LIR assembly for MDBFP (along with instruments) Approximate Size 1200 x 600 x 2200 mm; 200 kg each.	1 No.		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
120.	E.1.2.7	LIR assembly for CEPs (along with instruments) Approximate Size:1200 x 600 x 1500 mm; Weight = 200 kg	1 No.		
121.	E.1.2.8	LIR assembly for CEPs (along with instruments) Approximate Size:2000 x 650 x 2200 mm; 300 kg	1 No.		
<b>ASSEMBLY AND ERECTION OF JB MOUNTING FRAMES</b> <i>For Scope of Work, Refer Clause 6.3.6</i>					
122.	D.2.4.1 to D.2.4.9	Assembly and installation of Mounting Frames with loose supplied prefabricated materials like slotted angles, channels etc.	21 Nos.		
<b>LAYING, TERMINATION &amp; TESTING OF CABLES</b> <i>For Scope of Work, Refer Clause 6.3.10</i>					
123.	A.5.1.1	Flame Scanner Cable (2P x 1 sq. mm cable)	4,200 Mtrs		
		<i>PVC/FRLS, shielded, armoured Cu cables</i>			
124.	A.5.1.2, A.5.1.6, D.2.2.1, D.3.15.1, D.3.15.5	2P X 0.5/ 1.5 sq. mm cable	54,000 Mtrs		
125.	A.5.1.3, D.2.2.2, D.3.15.2, D.3.15.6, E.1.5.1	4P X 0.5 sq. mm cable	1,21,980 Mtrs		
126.	A.5.1.4, D.3.15.3, D.3.15.7	8P X 0.5 sq. mm cable	58,440 Mtrs		
127.	D.3.15.4, D.3.15.8	12 pair x 0.5 sq. mm cable	35,900 Mtrs		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
128.	A.5.1.5	16 P X 0.5 sq. mm cable	600 Mtrs		
129.	E.1.5.2	4 Triad, 0.5 sq. mm cable	1000 Mtrs		
	<b><i>Compensating Cables</i></b>				
130.	A.5.1.7, D.2.2.4, D.2.2.5, D.3.15.9, D.3.15.12	2 Pair x 0.5 sq. mm to 1.3 sq.mm compensating cables	14,100 Mtrs		
131.	D.3.15.10	4 pair x 1.0 sq.mm compensating cable	8,000 Mtrs		
132.	D.3.15.11	6 pair x 1.0 sq.mm compensating cable	18,000 Mtrs		
	<b><i>PVC, FRLS, Armoured Control/ Power Cables</i></b>				
133.	A.5.1.8, D.2.2.3, D.4.4.2	4 C/ 5C x 1.5 sq. mm, control cable	13500 Mtrs		
134.	A.5.1.9	10 C x 1.5 sq. mm, control cable	6000 Mtrs		
135.	A.5.1.10	19 C x 1.5 sq. mm, control cable	3400 Mtrs		
136.	A.5.1.11, D.3.5.6	2 C/ 3C x 2.5 sq. m, cable	7500 Mtrs		
137.	D.3.16.1	1 C x 630 sq.mm, Cu cables	700 Mtrs		
138.	D.3.16.2	1 C x 95 sq.mm, Cu cables	22,000 Mtrs		
139.	D.3.16.3	1 C x 16 sq.mm, Cu cables	10,000 Mtrs		
140.	D.3.16.4	2 C x 6 sq.mm, Cu cables	15,000 Mtrs		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
<b>ERECTION OF CABLE TRAYS &amp; DUCTS</b> <i>For Scope of Work, Refer Clause 6.3.11</i>					
<i>Perforated Type Cable Trays</i>					
141.	A.5.2.4, D.3.17.1, E.1.5.3	50 mm wide Cable Tray	3,600 Mtrs		
142.	A.5.2.1, D.3.17.2	100 mm wide Cable Tray	8,000 Mtrs		
143.	A.5.2.2, E.1.5.4	150 mm wide Cable Tray	1800 Mtrs		
144.	A.5.2.3	300 mm wide Cable Tray	500 Mtrs		
<i>Cable Ducts With Covers</i>					
145.	D.2.3.1	60 x 60 x 1000 mm	200 Nos.		
146.	D.2.3.2	180 x 100 x 1000 mm	100 Nos.		
147.	D.2.3.3	250 x 100 x 1000 mm	100 Nos.		
<b>ERECTION OF JUNCTION BOXES/PB BOXES</b> <i>For Scope of Work, Refer Clause 6.3.12</i>					
148.	A.5.3.1, C.1.2.1, D.3.18.1, A.5.3.2, C.1.2.2, D.3.18.2, E.1.4.1, A.5.3.3, C.1.2.3, D.3.18.3, D.3.5.8, D.2.5.2, D.2.5.3, F.2.7.2, A.4.8.4, A.4.8.5	Junction Boxes, 12 way to 36 way, including RJCBs	288 Nos.		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
149.	A.5.3.4, D.3.18.4, F.2.7.4, D.2.5.1, D.3.18.5, D.3.18.6, F.2.7.3, D.3.18.7	Junction Box, 48 way to 96 way	131 Nos.		
150.	F.2.7.1	Junction Box (Pedestal and Proximeter JB)	15 Nos.		
151.	A.4.8.6	Power Distribution Boxes for RJCBs	2 Nos.		
152.	A.5.3.5, D.2.5.4	Push Button Boxes/ Fire Protection Switch Box	7 Nos.		
<b>ERECTION/TESTING OF IMPULSE PIPES</b> <i>For Scope of Work, Refer Clause 6.3.5</i>					
153.	F.1.8.5, F.2.6.7	AS Pipe, 13.5 x 2.6	64 Mtrs		
154.	F.1.8.2, F.2.6.6	AS pipe, 21.3 x 2.3 / ½" SCH 40 (21.3 x 2.77)	735 Mtrs		
155.	E.2.3.3	AS Pipe, ½" SCH 80	700 Mtrs		
156.	D.3.14.1	AS P22- ½" NB XXS , P22	600 Mtrs		
157.	D.3.14.2	AS Pipe, ¾" SCH 80, P22	250 Mtrs		
158.	F.1.8.4, F.2.6.1, E.1.3.1	CS pipe, 13.5 x 2.6/ 16 x 2.6	1940 Mtrs		
159.	F.1.8.1, F.2.6.3	21.3 x 2.3 CS pipe	710 Mtrs		
160.	A.5.5.1, C.1.4.1, D.3.14.4, E.2.3.1	CS pipe, ½" SCH 80	5500 Mtrs		
161.	D.3.14.5	CS Gr C- ½" NB SCH 160	1200 Mtrs		
162.	D.3.14.6	CS Gr B- ¾" NB SCH 80	2,100 Mtrs		
163.	A.5.5.2, D.3.14.3	CS pipe, 1" SCH 80	1900 Mtrs		
164.	E.2.3.2	CS Pipe, 60.3 x 3.91	100 Mtrs		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
165.	F.2.6.2	CS Tube DN-80	20 Mtrs		
166.	E.2.3.4	SS tube, 12.7 x 2.1 mm	300 Mtrs		
167.	F.1.8.6, F.2.6.5	SS pipe, 13.5 x 2.6 mm	400 Mtrs		
168.	F.1.8.3, F.2.6.4	SS Tube, D=21.3 x 2.6	1130 Mtrs		
169.	D.3.14.7	A213 TP 316 – ½” NB SCH40 SS	1,000 Mtrs		
170.	D.3.14.8	A312 TP 316 ¾” NB SCH80 SS	750 Mtrs		
171.	D.3.14.9	A312 TP 316 ¾” NB SCH160 SS	750 Mtrs		
<b>ERECTION OF EARTHING MATERIALS</b> <i>For Scope of Work, Refer Clause 6.3.14</i>					
172.	D.3.20.5	GI Wire, 8 SWG	2500 Mtrs		
<b>ERECTION OF HOSES, TUBES etc.</b> <i>For Scope of Work, Refer Clause 6.3.7</i>					
173.	A.1.10, A.2.6	Copper Tube, OD 8 mm/ ¼"	2850 Mtrs		
174.	D.3.20.4, E.2.3.5	SS tube, 6 mm/ ¼" OD	270 Mtrs		
175.	A.2.7	1" size Teflon Hose of 3M length	4 Nos.		
176.	A.2.8	¼" size Teflon Hose of 2M length	64 Nos.		
<b>ERECTION/TESTING OF GI PIPE (HEAVY DUTY)</b> <i>For Scope of Work, Refer Clause 6.3.8</i>					
177.	C.1.5.1, D.3.20.2	NB 15 x 3.25/ ½" pipes	4950 Mtrs		
178.	C.1.5.2, D.3.20.3	NB 25 x 4.05/ 1" pipes	850 Mtrs		
179.	C.1.5.3	NB 40 x 4.05	110 Mtrs		
180.	C.1.5.4	NB 50 x 4.05	400 Mtrs		

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
181.	C.1.5.5	NB 100 x 5.4	160 Mtrs		
<b>FABRICATION/ERECTION OF STRUCTURAL STEEL</b> <i>For Scope of Work, Refer Clause 6.3.13</i>					
182.	A.5.4.1, D.3.20.1, E.1.6.1, E.2.2.3, F.2.3.1, F.2.3.2	Structural Steel for fabrication of supports/ LIRs/ canopy	28 MT		
<b>CHECKING &amp; COMMISSIONING OF THE FOLLOWING ERECTED BY OTHER AGENCY</b> <i>For Scope of Work, Refer Clause 6.3.18</i>					
183.	B.1.10, B.2.5.1, E.4.3.2,	Lub Oil Skid for Pulversier, FD/ ID/ PA Fans, Air Preheater	17 sets* <sup>\$</sup>		
184.	E.1.1.7	Hydraulic Coupling of MDBFP	1 set* <sup>\$</sup>		
185.	F.2.5	Condenser Vacuum Pump, including CVP PLC and related field instruments	2 sets* <sup>\$</sup>		
186.	A.3.11.1	Gravimetric Feeders	7 sets* <sup>\$</sup>		
187.	A.4.11.2	Direct Water Level Gauges	2 Nos. <sup>\$</sup>		
188.	A.2.13.7	Burner Tilt Power Cylinders	4 Nos. <sup>\$</sup>		
189.	A.2.13.2, A.2.13.3, A.2.13.4, A.2.13.5, A.2.13.6, E.4.3.3	Pneumatic Actuators of ON/OFF Type	84 Nos. <sup>\$</sup>		
<p>\$ Rate to be quoted for checking/ commissioning only</p>					

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
190.	A.1.15	Pneumatic Valves: Trip Valves	47 Nos. \$		
191.	A.1.16, A.4.11.3, C.1.6.1, E.2.1.13	Pneumatic Valves: Control Valves	37 Nos. \$		
192.	F.2.8	NRV Valves, Stop Valves, Control Valves, HP/LP Bypass Valves	40 Nos. \$		
193.	B.1.9	Solenoid Valves	2 Nos. \$		
194.	E.2.1.12	Position Transmitters	8 Nos. \$		
195.	A.2.14.1	Furnace Temperature Probe (Cr-Al Thermocouples)	2 Nos. \$		
196.	B.2.4, E.1.1.4, E.4.3.1, F.1.4.1 → F.1.4.18	Checking the healthiness of Temperature Elements (RTDs)	418 Nos. \$		
197.	A.4.7.3, A.4.11.1, F.1.3.4, F.2.8.2	Flow Indicators/ Flow Meters/ Flow Switches	10 Nos. \$		
198.	D.3.2.14	Checking of Bypass Rotameters	14 Nos. \$		
199.	A.1.14, A.3.11.2, A.3.11.3, F.2.8.3	Checking of Limit Switches	137 Nos. \$		
200.	E.1.1.3	Checking of BFP motor speed switch	2 Nos. \$		
201.	A.5.6.1	Electrical Actuators for Valves/ Dampers, including loop checking	300 Nos. \$		
\$ Rate to be quoted for checking/ commissioning only					

\* Lump sum rate to be quoted per set

SIGNATURE OF BIDDER

SL.NO.	BOM REF.	DESCRIPTION	QTY	UNIT RATE	TOTAL RATE
	<b><i>Instrument Racks</i></b> <b><i>Removal, calibration and refixing of rack mounted instruments, checking solenoid valves, drives, including wiring on the rack etc.</i></b>				
202.	E.2.2.2	Governing Console Board for BFPDT	2 sets* <sup>\$</sup>		
203.	F.2.2.1	Governing System Control Rack for Main Turbine	1 set* <sup>\$</sup>		
204.	F.2.2.2	LP Bypass Rack	1 set* <sup>\$</sup>		
205.	F.2.2.3	Supply Unit Racks for HP Valve-1, HP Valve-2, IP Valves	3 sets* <sup>\$</sup>		
206.	F.2.2.4	Seal Oil Rack	1 set* <sup>\$</sup>		
207.	F.2.2.5	Stator Water Rack	1 set* <sup>\$</sup>		
208.	F.2.2.6	Seal Oil Level / Pr Txr Instrument Rack	1 set* <sup>\$</sup>		
209.	F.2.2.7	Stator Water DP Instrument Rack	1 set* <sup>\$</sup>		
210.	F.2.2.8	H2 Dryer Unit	1 set* <sup>\$</sup>		
211.	F.2.2.9	Gland Steam And Seal Steam Oil Supply Units	2 sets* <sup>\$</sup>		
212.	F.2.2.10	TD BFP Pump Coupling Engage Oil Supply Unit	2 sets* <sup>\$</sup>		
\$ Rate to be quoted for checking/ commissioning only					

TOTAL (Rupees in figures) .....

Total (Rupees in words).....

\* Lump sum rate to be quoted per set

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Notes:

1. The quantities 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 column after satisfying all terms and conditions of tender specification.
3. Tenderers are requested to quote 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 authorized signature in all pages.

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\* Lump sum rate to be quoted per set

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