

# **TENDER SPECIFICATION**

**BHEL: PSSR: SCT: 1448**

**FOR**

Handling at Site Stores / Storage yard, Transportation  
to Site of Work, Erection, Testing and Commissioning  
of Electrical works including illumination

at

**PHASE-III, MRPL 122MW CO-GEN  
CPP, MANGALORE, KARNATAKA**

## **VOLUME –II**

### **RATE SCHEDULE**



**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: 1448**

for

Handling at Site Stores / Storage yard, Transportation to Site of Work, Erection, Testing and Commissioning of Electrical works including illumination for the MRPL Phase-III 122MW Co-Generation CPP at Mangalore, Karnataka

One set of Tender documents consisting of

- 1) TECHNOCOMMERCIAL BID - 2 copies
- 2) PRICE BID (Vol II) - 2 copies

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For and on behalf of  
**BHARAT HEAVY ELECTRICALS LIMITED**

**ADDL GENERAL MANAGER / CONTRACTS**

Place: Chennai -35  
Date:

**MRPL PHASE III REFINERY PROJECT**  
**122 MW CO-GENERATION CPP- MANGALORE**  
**RATE SCHEDULE FOR ELECTRICAL PACKAGE (INCLUDING ILLUMINATION)**

SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
		<b>ERECTION/ COMMISSIONING OF TRANSFORMERS/ BUSDUCTS</b>					
1.	E.4.1.1	45MVA, STG Generator Transformer (STGTR-6, STGTR-7)	2 Nos.				
2.	E.4.1.2	30/37MVA, GTG-1 Generator Transformer (GTGTR-1)	1 No.				
3.	E.4.1.3	40.5/50MVA, GTG-2 Generator Transformer (GTGTR-2)	1 No.				
4.	E.4.1.4	25/31.5MVA, Interconnecting Transformer. (TR3103)	1 No.				
5.	E.4.1.5	25/31.5MVA, Power Transformer-1/2 (TR3101/ TR3102) along with NGR	2 Nos.				
6.	E.4.1.6	Emergency Power Transformer (TR3104) along with NGR	1 No.				
7.	E.4.1.7	2.5MVA, Auxiliary Transformers (SAT1 to SAT8)	8 Nos.				
8.	E.5.1.1, E.5.1.2	250 KVA/ 150 KVA, Lighting Transformers	6 Nos.				
9.	E.1.1.1	11 kV, 2000 A, SP bus ducts for GTG-1 with Cable Panel, PTSP Cubicle, NG Cubicle, support structures etc.	1 set*				

SIGNATURE OF BIDDER

SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
10.	E.1.1.2	11 kV, 3590 A, SP bus ducts for GTG-2 with Cable Panel, CP & PTSP Cubicle, NG Cubicle, support structures etc.	1 set*				
11.	E.3.1.1	11 kV, 3150 A, SP bus ducts for STG along with Cable Panel, PTSP Cubicle, NG Cubicle, Adopter Box, support structures etc.	2 sets*				
12.	E.4.2.1	6.6 kV, 3000 A, SP bus ducts interconnecting Power Transformers to 6.6 kV Switchboards	20 Mtrs				
13.	E.4.2.2	415 V, 4000 A, non phase segregated bus ducts interconnecting Station Aux Transformers to PMCCs, of approximate Length 10 Mtrs each	8 Nos.				
		<b>ERECTION/ COMMISSIONING OF HT SWITCHGEAR</b>					
14.	E.4.3.1	33KV New Switch Board	1 set*				
15.	E.4.3.2	33KV ICT Breaker Panels	1 set*				
16.	E.4.3.3	33KV Expansion Panel (in existing CPP)	1 set*				
17.	E.4.3.4	6.6 KV Switchboard	1 set*				
18.	E.4.3.5	Earthing Trucks/ Breakers	6 Nos.				

SIGNATURE OF BIDDER

SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
		<b>ERECTION/ COMMISSIONING OF LT SWITCHGEAR/ CONTROL PANELS</b>					
19.	E.4.4.1	415V PMCC-1	1 No.				
20.	E.4.4.2	415V PMCC-2	1 No.				
21.	E.4.4.3	415V PMCC-3	1 No.				
22.	E.4.4.4	415V PMCC-4	1 No.				
23.	E.4.4.5	415V BOP MCC -1	1 No.				
24.	E.4.4.6	415V Ventilation MCC-1	2 Nos.				
25.	E.4.4.7	415V Water System MCC	1 No.				
26.	E.4.4.8	415V ASB	1 No.				
27.	E.4.4.9	415V MLDB	2 Nos.				
28.	E.4.4.10	415V AC ELDB	1 No.				
29.	E.4.4.11	110V Station DCDB & ELDB	1 No.				
30.	E.4.4.12	110V DCDB – 1, 2, 3 & 4	4 Nos.				
31.	E.4.4.13	110V UPS DB	1 No.				
32.	E.4.4.14	STG MCC-1 & 2	2 Nos.				
33.	E.4.4.15	AC System MCC	1 No.				
34.	E.4.4.16	415 V Boiler MCC-1, 2, 3 & 4	4 Nos.				
35.	E.4.4.17	HRSB MCC-1 & 2	2 Nos.				
36.	A.2.1.1	UB LT MCC cum PDB	4 Nos.				

SIGNATURE OF BIDDER

SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
37.	A.2.1.2	UB Soot Blower MCC	4 Nos.				
38.	E.2.1.1	415 V GT MCC	2 Nos.				
39.	D.1.1, D.2.1	DAVR for GTG/ STG	4 Nos.				
40.	E.1.2.1	Generator Relay Panels for GTGs	2 Nos.				
41.	E.3.2.1	Generator Relay Panel for STGs	2 Nos.				
42.	E.1.2.2	Data Concentrator Panel, along with PC and associated furniture	1 No.				
43.	D.2.2	ACDB Panels	2 Nos.				
44.	E.2.1.2	GT DCDB, 125 V DC (of length 4000 mm)	1 No.				
45.	E.2.1.3	GT DCDB, 125 V DC (of length 2460 mm)	1 No.				
46.	E.3.2.2	CO <sub>2</sub> Main Control Panel along with accessories for STG	2 sets*				
47.	E.4.4.18	Synchronisation Control & Annunciation Panels (SCAP)	1 No.				
48.	E.4.4.20	6.6 kV, 1500 KVAR Capacitor Bank, along with accessories	2 sets*				
49.	F.1.1	LT MCC for Diesel Generator Set	1 No.				
50.	F.1.2	Generator Control Panel for Diesel Generator Set	1 No.				
51.	F.1.3	Local Sensor Stand for Diesel Generator Set	1 No.				
52.	F.1.4	Neutral Grounding Resistor for Diesel Generator Set	1 No.				

SIGNATURE OF BIDDER

SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
		<i>VFD for Motor Driven FD Fan</i>					
53.	D.3.1.1	2100 KVA, VFD Transformer	4 Nos.				
54.	D.3.1.2	IGBT Based Converter /Inverter	4 Nos.				
55.	D.3.1.3	Breaker Resistor Panels	4 Nos.				
56.	D.3.1.4	ACB Panel	4 Nos.				
57.	A.1.1.1, A.2.1.3	DC Starter Box for DC Scanner Air Fan	6 Nos.				
58.	E.4.4.19	Wall Mounted Distribution Boards	2 Nos.				
59.	A.2.1.4, A.2.1.5, E.2.1.7, E.4.11.1, E.4.11.2, E.4.11.3, E.4.11.4	Start/Stop PB Stations including Emergency PBs and Local Control Stations	496 Nos.				
		<b>ERECTION/ COMMISSIONING OF BATTERY/ BATTERY CHARGER</b>					
60.	E.4.5.1	110V, 800 AH, Ni-Cd Station Battery bank	5 sets*				
61.	E.4.5.2	110V DC Station battery charger (Dual FCBC)	5 sets*				
62.	E.2.1.4, E.2.1.5	G.T. Battery Charger Dual FCBC	2 Nos.				

SIGNATURE OF BIDDER

SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
63.	E.2.1.6	GT Battery, 125 V DC battery along with accessories	2 sets*				
		<b>LAYING, TERMINATION &amp; TESTING OF CABLES</b>					
		<i>HT Power Cables/ Termination Kits/ Jointing Kits</i>					
64.	E.4.6.1	33kV(E), 1 Core x 630 sq. mm, Armoured, Cu cable	15,000 Mtrs				
65.	E.4.6.2	11kV(UE), 1 Core x 630 sq. mm, Armoured, Cu cable	6,100 Mtrs				
66.	E.4.6.3	6.6kV(UE), 3 Core x 300 sq. mm, Armoured, Al cable	6,500 Mtrs				
67.	E.4.6.4	6.6kV(UE), 3 Core x 185 sq. mm, Armoured, Al cable	10,500 Mtrs				
68.	E.4.6.5	HT Cable termination kits for 1 Core x 630 sq.mm, 33kV cable	130 Nos.				
69.	E.4.6.6	HT Cable termination kits for 1 Core x 630 sq.mm, 11kV cable	100 Nos.				
70.	E.4.6.7	HT Cable termination kits for 3 Core x 185 sq.mm, 6.6 kV cable	80 Nos.				
71.	E.4.6.8	HT Cable termination kits for 3 Core x 300 sq.mm, 6.6 kV cable	40 Nos.				
72.	E.4.6.9	Straight through jointing kit for 1 Core x 630 sq.mm, 33kV cable	12 Nos.				

SIGNATURE OF BIDDER

SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
		<b><i>HT Cabling Work between New CPP and existing CPP – work to be done in existing trench</i></b>					
73.	E.4.6.1	33kV(E), 1 Core x 630 sq. mm, Armoured, Cu cable	24,000 Mtrs				
74.	E.4.6.9	Straight through jointing kit for 1 Core x 630 sq.mm, 33kV cable	48 Nos.				
75.		Removal of Trench Slab, Refixing and sealing with bitumen tape	4000 Mtrs				
76.		Laying and Filling of sand in the trench, including supply	1000 cu m				
		<b><i>Laying of LT Power Cables (Note: Separate rate will be applicable for termination of the following cables)</i></b>					
77.	A.2.2.3, E.4.7.3	3.5 C x 35 sq. mm, Al cable	21,000 Mtrs				
78.	A.1.2.6	3.5 C x 50 sq. mm, Al	1,600 Mtrs				
79.	A.2.2.2, F.2.1	3.5 C x 70 sq. mm, Al cable	2,500 Mtrs				
80.	E.2.3.8	3.5 C x 95 sq. mm, Al cable	1,600 Mtrs				

SIGNATURE OF BIDDER

SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
81.	A.2.2.1	3.5 C x 120 sq. mm, Al cable	4,000 Mtrs				
82.	E.4.7.2	3.5 C x 185 sq. mm, Al cable	4,000 Mtrs				
83.	E.4.7.1	3.5 C x 300 sq. mm, Al cable	5,000 Mtrs				
84.	A.1.2.2, A.2.2.5, E.2.3.3	3 C x 16 sq. mm, Al/ Cu cable	20,500 Mtrs				
85.	E.2.3.4	3 C x 35 sq. mm, cable	1,800 Mtrs				
86.	E.2.3.5, E.4.7.8	3 C x 50 sq. mm, Al cable	8,700 Mtrs				
87.	E.2.3.6, E.4.7.7	3 C x 70 sq. mm, Al cable	11,000 Mtrs				
88.	E.2.3.7, E.4.7.6	3 C x 95 sq. mm, Al cable	10,000 Mtrs				
89.	A.1.2.1, E.4.7.4	3 C x 120 sq. mm, Al cable	4800 Mtrs				
90.	E.2.3.9	1 C x 120 sq. mm, Al cable	2100 Mtrs				

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SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
91.	A.1.2.8, A.2.2.4, E.4.7.19, F.2.2	4 C x 16 sq. mm, Cu cable	20,100 Mtrs				
92.	F.2.3	2 C x 16 sq. mm, Cu cable	500 Mtrs				
93.	E.4.7.5	3 C x 185 sq. mm, Cu, Armoured	12,000 Mtrs				
94.	E.4.7.17	1 C x 35 sq. mm, Cu, unarmoured	2500 Mtrs				
95.	E.4.7.16	1 C x 70 sq. mm, Cu, Unarmoured	2500 Mtrs				
96.	E.4.7.15	1 C x 120 sq. mm, Cu, Unarmoured	2500 Mtrs				
97.	E.4.7.14	1 C x 150 sq. mm, Cu, unarmoured	4000 Mtrs				
98.	E.4.7.13	1 C x 240 sq. mm, Cu, Armoured	2500 Mtrs				
99.	E.4.7.12	1 C x 1000 sq. mm, Cu, armoured	5000 Mtrs				

SIGNATURE OF BIDDER

SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
		<i>Termination of LT Power Cables</i>					
100	A.1.3.4, A.2.3.4, E.4.8.15	4 C x 16 sq. mm Copper	240 Nos.				
101	A.2.3.3, E.4.8.3	3.5 C x 35 sq. mm, Al cable	240 Nos.				
102	A.1.3.3	3.5 C x 50 sq. mm, Al	20 Nos.				
103	A.2.3.2	3.5 C x 70 sq. mm, Al cable	40 Nos.				
104	E.2.4.6	3.5 C x 95 sq. mm, Al cable	12 Nos.				
105	A.2.3.1	3.5 C x 120 sq. mm, Al cable	40 Nos.				
106	E.4.8.2	3.5 C x 185 sq. mm, Al, Armoured	50 Nos.				
107	E.4.8.1	3.5 C x 300 sq. mm, Al, Armoured	70 Nos.				
108	A.1.3.2, A.2.3.5, E.2.4.1	3 C x 16 sq. mm, Al/ Cu cable	140 Nos.				
109	E.2.4.2	3 C x 35 sq. mm, cable	20 Nos.				
110	E.2.4.3, E.4.8.8	3 C x 50 sq. mm, Al cable	112 Nos.				
111	E.2.4.4, E.4.8.7	3 C x 70 sq. mm, Al cable	140 Nos.				
112	E.2.4.5, E.4.8.6	3 C x 95 sq. mm, Al cable	90 Nos.				

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SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
113	A.1.3.1, E.4.8.4	3 C x 120 sq. mm, Al cable	60 Nos.				
114	E.4.8.5	3 C x 185 sq. mm, Cu, Armoured	160 Nos.				
115	E.4.8.11	1 C x 150 sq. mm, Cu, unarmoured	50 Nos.				
116	E.4.8.14	1 C x 35 sq. mm, Cu, unarmoured	30 Nos.				
117	E.4.8.13	1 C x 70 sq. mm, Cu, Unarmoured	30 Nos.				
118	E.2.4.7	1 C x 120 sq. mm, Al cable	12 Nos.				
119	E.4.8.12	1 C x 120 sq. mm, Cu, Unarmoured	30 Nos.				
120	E.4.8.10	1 C x 240 sq. mm, Cu, Armoured	30 Nos.				
121	E.4.8.9	1 C x 1000 sq. mm, Cu, armoured	60 Nos.				
		<b><i>Laying &amp; Termination of LT Power/ Control Cables</i></b>					
122	A.1.2.7, F.2.4	4 C x 4 sq. mm Copper	16100 Mtrs				
123	A.1.2.3, A.2.2.6, E.4.7.9	3 C x 10 sq. mm, Al	15,500 Mtrs				
124	A.1.2.4, A.2.2.7, E.1.3.3, E.2.3.2, E.3.3.3, E.4.7.11	3 C x 6 sq. mm, Al	52,000 Mtrs				

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SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
125	A.1.2.5, A.2.2.8, E.1.3.2, E.2.3.1, E.3.3.2, E.4.7.10	3 C x 4 sq. mm, Al	91,100 Mtrs				
126	E.4.7.18	1 C x 6 sq. mm, Copper	3500 Mtrs				
127	A.1.2.9, A.2.2.10, A.2.2.12, D.3.2.1, D.3.2.2	2 C x 1.5/ 2.5 Sq mm / 1 P x 1.5 sq. mm	33,300 Mtrs				
128	A.1.2.10, A.2.2.9, E.2.3.10, E.4.7.20, E.4.7.21, F.2.5	3 C x 2.5 Sq mm Copper	109,800 Mtrs				
129	D.3.2.3, E.1.3.4, E.3.3.4, E.4.7.22	4 C/5C x 1.5/2.5 sq mm Cu cable	12,500 Mtrs				
130	A.1.2.11, A.2.2.11, E.2.3.11, E.4.7.23	7 C x 2.5 Sq mm Copper	78,100 Mtrs				
131	E.1.3.5, E.3.3.5, E.4.7.24	10 C x 2.5 Sq mm Copper cable	36000 Mtrs				

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SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
132	A.1.2.12, E.2.3.12, E.4.7.25	12 C x 2.5 Sq mm Copper	32,500 Mtrs				
133	D.3.2.4, E.4.7.26	14 C/ 16 C x 1.5/2.5 sq mm Cu cable	10,000 Mtrs				
134	E.2.3.13, E.4.7.27	19 C x 2.5 Sq mm Copper cable	11,500 Mtrs				
135	A.1.2.13, E.2.3.14, E.4.7.28	24 C x 2.5 Sq mm Copper	7500 Mtrs				
		<i>Laying &amp; Termination of Instrumentation Cables</i>					
136	D.3.3.1	2 Pair x 0.5 sq. mm	2000 Mtrs				
137	D.3.3.2, D.3.3.4	4 Pair x 0.5 sq. mm	8000 Mtrs				
138	D.3.3.5	8 Pair x 0.5 sq. mm	2000 Mtrs				
139	D.3.3.3	12 Pair x 0.5 sq. mm	2800 Mtrs				
140	E.1.3.1, E.3.3.1	10 T x 0.5 Sq mm, shielded Copper cable	3200 Mtrs				

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SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
		<b>ERECTION OF CABLE TRAYS ALONG WITH ACCESSORIES</b>					
141	A.2.4.1	Ladder type Cable Tray, 150 mm wide	1500 Mtrs				
142	A.1.4.1, A.2.4.2, E.4.9.3	Ladder type Cable Tray, 300 mm wide	2225 Mtrs				
143	A.1.4.2, E.4.9.2	Ladder type Cable Tray, 600 mm wide	10245 Mtrs				
144	E.4.9.1	Ladder type Cable Tray, 750 mm wide	10,000 Mtrs				
145	E.4.9.4	Perforated tray, 600 mm wide	2500 Mtrs				
146	F.3.1	Perforated Tray 450 mm wide	100 Mtrs				
147	E.4.9.5	Perforated tray, 300 mm wide	1250 Mtrs				
		<b>ASSEMBLY AND INSTALLATION OF CABLE DUCTS AND ACCESSORIES</b>					
148	E.4.10.1	1200 mm width, 400 mm height, GI cable duct	1250 Mtrs				

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SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
149	E.4.10.2	800 mm width, 300 mm height, GI cable duct	750 Mtrs				
150	E.4.10.3	400 mm width, 200 mm height, GI cable duct	500 Mtrs				
		<b>FABRICATION &amp; ERECTION OF STRUCTURAL STEEL</b>					
151	E.4.12.1	Structural steel for fabrication of supports, frames etc.	160 M Tons				
		<b>ERECTION OF ABOVE GROUND EARTHING MATERIALS</b>					
152	E.4.13.1, E.4.14.1	Treated Earth pit, including installation of 65mm dia, 3m long GI Pipe electrodes, and supply of charcoal, salt etc. (includes pits for lightning protection also)	200 Nos.				
153	E.4.13.2	GI Strip 75 x 10 mm	9,000 Mtrs				
154	E.4.13.3	GI Strip 50 x 6 mm	5,000 Mtrs				
155	E.4.13.4	GI Strip 35 x 6 mm	5,000 Mtrs				
156	E.4.13.5	8 SWG GI Wire	5,000 Mtrs				

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SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
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157	E.4.13.6	3/8" Dia/ 5/8" Dia GI fine rope	8000 Mtrs				
158	E.4.13.14	Copper Pipe Electrodes (Driven electrodes)	80 Nos.				
159	E.4.13.10, E.4.13.7	1 C x 6 sq. mm/ 10 sq. mm Cu cable	9500 Mtrs				
160	E.4.13.8, E.4.13.11	1 C x 25 sq. mm/ 35 sq. mm Cu cable	5500 Mtrs				
161	E.4.13.9	1 C x 50 sq. mm Cu cable	2000 Mtrs				
162	E.4.13.12	1 C x 75 sq. mm Cu cable	2500 Mtrs				
163	E.4.13.13	1 C x 150 sq. mm Cu cable	4000 Mtrs				
		<b>ERECTION OF LIGHTNING PROTECTION MATERIALS</b>					
164	E.4.14.2	GI Strip 75 x 10 mm- Down conductors, including test link	1,000 Mtrs				
165	E.4.14.3	GI Strip 50 x 6 mm- Down conductors, including test link	1,000 Mtrs				
166	E.4.14.4	GI Strip 35 x 6 mm for roof conductors	1,000 Mtrs				

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167	E.4.14.10	Vertical Air Termination, 40 mm dia, 3 Mtr long GI/ GS Rod with spikes and sphere	20 Nos.				
		<b>MISCELLANEOUS ITEMS</b>					
168	E.4.16.1	GI Hume pipes (200 NB) for cable at road crossing	1000 Mtrs				
169	E.4.16.2	GI Conduits 100 mm dia, medium duty	100 Mtrs				
170	E.4.16.3	GI Conduits 150 mm dia, medium duty	100 Mtrs				
171	E.4.16.4	PVC Conduits, 200 mm dia	1200 Mtrs				
172	E.4.16.5	PVC Conduits, 100 mm dia	300 Mtrs				
173	E.2.2.1	Explosion proof Junction Boxes	43 Nos.				
174	E.2.2.2	Multi way JB, explosion proof, 60 terminals	7 Nos.				
175	E.2.2.3	Explosion proof Power/Control Junction Boxes (for DD & GD)	8 Nos.				
176	E.2.2.4	Explosion Proof PB Junction Boxes (for DD & GD)	4 Nos.				
177	E.2.2.5	Local Control Panel for DD	2 Nos.				
178	E.2.2.6	Enlarging of flame-proof motor terminal box gland holes, rethreading to suit cable gland/cable	30 Nos.				

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				In figures	In words	In figures	In words
179	E.2.2.7	Exhaust Area devices installation: Mounting/relocation of Exhaust JBs on GT Skid etc.	2 sets*				
		<b>ILLUMINATION PACKAGE</b>					
180	E.5.2.1 to E.5.2.8	Lighting Panels	124 Nos.				
181	B.1.1.1	HRSG-1 Stack Lighting	1 set*				
182	B.1.1.2	HRSG-2 Stack lighting	1 set*				
183	E.2.2.8	GT stack lighting	2 sets*				
184	E.2.2.9	Lighting of GT Enclosure / GT & Off Base Skids	2 sets*				
		<b><i>Lighting Fixtures</i></b>					
185	E.5.4.1	Bulk head luminaire with 100W incandescent lamps	300 Nos				
186	E.5.4.2	Recess mounted downlight luminaire with 100W incandescent lamps suitable for false ceiling mounting	50 Nos.				
187	E.5.4.3	Surface mounting general purpose basic pattern luminaires with electronic ballast and 2x36W fluorescent lamps	700 Nos.				
188	E.5.4.4	Bulkhead luminaire suitable for 100W incandescent lamps suitable for hazardous areas	15 Nos.				
189	E.5.4.5	Recess mounting decorative type luminaries with electronic ballast and 2x36W CFL lamps.	500 Nos.				

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SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
190	E.5.4.6	Industrial batten luminaire with 2x36W fluorescent lamps and electronic ballast for surface mounting on wall or ceiling.	45 Nos.				
191	E.5.4.7	High bay luminaire with non integral control gear box and 250W HPMV lamp	200 Nos.				
192	E.5.4.8	High bay luminaire with non integral control gear box and 250W HPMV lamp suitable for zones 1 & 2.	100 Nos.				
193	E.5.4.9	Street light luminaire with copper ballast, pre-wired upto terminal block suitable for HPSV 70W lamp	100 Nos.				
194	E.5.4.10	Well glass luminaire along with non integral control gear box and 125W HPMV lamp	1500 Nos.				
195	E.5.4.11	125W HPMV Well glass bowl cemented to the cast aluminium retaining ring and fixing to the housing with non integral control gear box suitable for hazardous areas	400 Nos.				
		<b><i>Lighting Poles/ Light Masts</i></b>					
196	E.5.5.1	2 Mtr Lighting Pole	1150 Nos.				
197	E.5.5.2	3 Mtr Lighting Pole	400 Nos.				
198	E.5.5.3	9 Mtr Lighting Pole	90 Nos.				
199	E.5.5.4	30 Mtr high, High Mast Lighting system, along with accessories.	5 Nos.				

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SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
		<i>Lighting Accessories</i>					
200	E.5.3.1	4 way conduit branching JB for 25 mm GI conduit	600 Nos.				
201	E.5.3.2	4 way 150x100x100mm rectangular cast Al/ sheet steel JB along with glands and TB	150 Nos.				
202	E.5.3.3	Lighting JB- round – 88 mm dia	50 Nos.				
203	E.5.3.4, E.5.3.5, E.5.3.6	Switchboards with piano type switches and receptacle	90 Nos.				
204	E.5.3.7	Domestic type 5/15 A socket with switch	50 Nos				
205	E.5.3.8	Industrial metal clad type 5/15A socket with switch	230 Nos.				
206	E.5.3.9	63 A, TPN Welding Receptacles	75 Nos.				
207	E.5.6.1, E.5.6.2	GI Conduit, 19 mm dia / 25 mm dia	13,000 Mtrs				
208	E.5.6.3	GI Conduit, 50 mm dia	750 Mtrs				
209	E.5.6.4	PVC Conduit, 25mm dia	1500 Mtrs				
210	E.5.6.5	PVC Conduit, 50mm dia	300 Mtrs				
211	E.5.6.6	Flexible PVC Conduit, 25mm dia	1000 Mtrs				

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SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
212	E.5.6.7	Met sec Channel	1500 Mtrs				
		<b><i>Lighting Wires/ Cables</i></b>					
213	E.5.7.1, E.5.7.2	1Cx2.5 sq.mm/ 4 sq.mm PVC insulated copper wire	123 km				
214	E.5.8.1	3 C x 2.5 sq. mm, Cu, armoured cable for illumination purpose	1000 Mtrs				
		<b>FIRE PROOF SEALING OF CABLES</b>					
		<b><i>Conventional fire proof sealing materials</i></b>					
215	E.4.15.1	Fire Break Coatings for HT/LT Power Cable (Spray type liquid on cables)	500 sq.m				
216	E.4.15.2	Fire proof materials for sealing of wall/ floor openings and panel bottom (Mineral wool type materials suitable for sealing both vertical & horizontal cable penetration)	1500 sq. m				
217	E.4.15.3	Fire proof materials for sealing of cable entry through conduits/trenches	300 sq.m				
		<b><i>MCT (Multi Cable Transit) System</i></b>					
218	E.4.15.4	MCT Stainless Steel Frames	30 Nos.				
219	E.4.15.5	MCT Blocks: RM 30 (10 – 25 sq.mm outer dia cables)	8000 Nos.				
220	E.4.15.6	MCT Blocks: RM 40 (21.5 – 34.5 sq.mm outer dia cables)	1400 Nos.				

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SL NO	BOM Reference	DESCRIPTION	QTY	UNIT RATE		TOTAL	
				In figures	In words	In figures	In words
221	E.4.15.7	MCT Blocks: RM 90 (48 – 71 sq.mm outer dia cables)	30 Nos.				
		<b>COMMISSIONING OF THE FOLLOWING ERECTED AS PART OF MECHANICAL EQUIPMENT</b>					
222	E.1.4.1	Gas Turbine Generator	2 Nos. \$				
223	E.3.4.1	28.5 MW Steam Turbine Generator	2 Nos. \$				
224	G.1.1	HT Motors	22 Nos. \$				
225	G.1.2	Soot Blowers (LRSB) including commissioning of 2 Nos. motors, setting of limit switches etc	40 Nos. \$				
226	G.1.3	LT Motors	40 Nos. \$				
227	G.1.4	Electrical Actuators for Valves/ Dampers	120 Nos. \$				
228	G.1.5	Hoists/ crane/ monorail	10 Nos.\$				

\$ Rate to be quoted only for commissioning

\* Lump sum rate to be quoted per set

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