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TENDER SPECIFICATIONS

TENDER NO. BHEL/NR/SCT/ GGSRP BATHINDA / ELE / 659

FOR

Erection, testing, commissioning, post commissioning, trial operation and Handing over of all Electrical Equipment for Guru Gobind Singh Refineries Project (CPP) BATHINDA (153 MW) of HPCL MITTAL.

PART II – PRICE BID



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



**ISO 9001-2000, ISO 14001
and OHSAS 18001 certified
company
SubContract and Purchase
Deptt.**

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THIS TENDER SPECIFICATION ISSUED TO:

M/S-----

**BOQ CUM RATE SCHEDULE FOR ELECTRICAL WORKS AT GURU GOBIND SINGH REFINERIES PROJECT
(CPP) BATHINDA (153 MW) OF HPCL MITTAL**

TENDER NO. BHEL/NR/SCT/ GGSRP BATHINDA / ELE / 659

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	'TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
	HT/LT TRANSFORMERS:				
1	11/34.5kV,50MVA,ONAN,GENERATOR TRANSFORMER Total Weight 77MT Shipping Weight 65MT 8150x5600x 6600mm Oil Qty. 18000 ltr.	NO.	5		
2	33/6.6kV,25/31.5MVA,ONAF,STATIONAUX. TRANSFORMER Total Weight 50MT Shipping Weight 43 MT 5200X6200X5200 Oil Qty. 12000 ltr.	NO.	4		
3	6.6/0.433kV, 2.5MVA, ONAN, LV Distribution TRF. Total Weight 8 MT Shipping Weight 6 MT 3000x3500x3300mm Oil Qty. 1400 ltr.	NO.	12		
4	415/415V, 250kVA ,Lighting Transformers 1100x600x1500 800 KG	NO.	4		
5	415/415V,150kVA Emergency Lighting Transformers 1000x600x1200 500 KG	NO.	02		

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
6	33/33kV, 50MVA, ONAN, ICT. 68MT 8800x10200x 6100mm Oil Qty25000 ltr	NO.	02		
	SEGREGATED PHASE BUS DUCT				
7	Transportation from stores / storage yard to erection site, assembly, erection, welding, testing & commissioning of Segregated Phase Bus Duct (3150A) for interconnection of Generator& Generator Transformer LAVT, NGT along with all accessories & auxiliaries Enclosure Size:1450x500 mm Approx. length per unit 35 Mtr.	SET.	05		
	Transportation from stores / storage yard to erection site, assembly, erection, welding, testing & commissioning of Segregated Phase Bus Duct(3000A, 40 KA/1SEC) for interconnection of Station Aux. Transformers to 6.6kV Switch Boards Enclosure Size: 1300x800 mm Approx. Length per unit 15 mtrs. (estimated)				
8	Station Aux. Transformer to 6.6kV Switch Boards	SET	04		
9	Non-segregated Phase bus duct, 4000A, 50 KA/1SEC from 6.6 kV Switch Board to LT Switch gears(415V) Enclosure Size: 1000x500 mm Approx. Length per unit 20 mtrs. (estimated)	SET	12		

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
10	Neutral Grounding Resistor(6.6kV) for Station Aux. transformer Earthing 1500X1000X1500	SET	04		
	HT SWITCHGEAR				
	33kV SWITCH BOARD				
11	33kV Board#201 consists of approx. 70 panels , Approx. dimensions 52000X2800X2700 mm	SET	1		
	6.6kV SWITCH BOARD				
12	6.6kV Board#202: consists of approx. 31 panels , Approx. dimensions 26240X2750X2700 mm	SET	1		
13	6.6kV Board#203, consists of approx. 37 panels, Approx. dimensions 31160X2750X2700 mm	SET	1		
14	6.6kV Board#204, consists of approx. 20 panels Approx. dimensions 22960X2750X2700 mm	SET	1		
	LT SWITCHGEAR				
15	415 V, PCC-1 (11700x1754x2430)	No.	1		
16	415 V, PCC-2 (25000x1754x2430)	No.	1		

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SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	'TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
17	415 V, PCC-3 (10800x1754x2430)	No.	1		
18	415 V, PCC-4 (9900x1754x2430)	No.	1		
19	415 V, PCC-5 (16200X1754x2430)	No.	1		
20	415 V, PCC-6 (15300x1754x2430)	No.	1		
21	415V BOP MCC-1 (16000x1350x2430)	No.	1		
22	HRSG MCC-1&2 (9600x1350x2430)	No.	02		
23	415V GT MCC1&2 (15200x1350x2430)	No.	02		
24	415V,800A, VENT MCC-1 (16000x1350x2430)	No.	1		
25	415V ASB (13600x950x2430)	No.	1		
26	415V MLDB (7200x950x2430)	No.	2		

(SEAL AND SIGNATURES OF TENDERER)

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
27	220V,STATION DC ELDB (9600x944x2500)	No.	1		
28	110V, UPS DB (13600x950x2430)	No.	1		
29	220V, STATION DCDB (6400x950x2430)	No.	2		
30	STG MCC1&2&3 (12000x1350x2430)	No.	3		
31	AC SYSTEM MCC (9600x1350x2430)	No.	1		
32	415V BOILER MCC-1&2&3&4 (7600x1350x2430)	No.	04		
33	125 V DCDB 2460X900X2430	No.	02		
34	Start/Stop PB stations 180X285X125	No.	185		
35	Emergency Stop PB 145X245X116	No.	30		
	<u>CAPACITOR BANK</u>				
36	3120kVAR 7500X2500X4500	No.	02		

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
37	2865kVAR 7500X2500X4500	No.	02		
	<u>BATTERY SYSTEM</u>				
38	220 V STATION BATTERY Chargers (2500x830x2000)	Set	2		
39	220 V STATION Battery System (Ni-Cd) 800Ah,88 cells, (4370x830x2500)	Set	2		
40	125 V DC Battery System(Gas Turbine) 213Ah,98 cells 5005x416x1400	Set	2		
41	125 V DC BATTERY Charger 1700x850x2000	Set	2		
	HT POWER CABLES LAYING,DRESSING & CLAMPING				
	33kV (E) Armoured, Copper Conductor XLPE insulated FRLS outer-sheathed cable.				
42	1C x 630 Sq.mm	Mtr.	5000		
	6.6kV (UE) Armoured Copper Conductor XLPE insulated FRLS outer-sheathed cable.				
43	1C x 630 Sq.mm	Mtr.	2000		
	6.6kV (UE) Armoured; Al Conductor XLPE insulated FRLS outer-sheathed cable				
44	1C x 630 Sq.mm	Mtr.	2000		

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
45	3C x 300 Sq.mm	Mtr.	1000		
46	3C x 185 Sq.mm	Mtr.	3000		
	LT POWER CABLES LAYING,DRESSING & CLAMPING				
	1.1kV ,Armoured, Al Conductor ,PVC insulated FRLS outer-sheathed				
47	3.5C X 300 SQ MM	Mtr	8000		
48	3.5C X 185 SQ MM	Mtr	5000		
49	3.5C X 35 SQ MM	Mtr	15000		
50	3C X 120 SQ MM	Mtr	1550		
51	3C X 95 SQ MM	Mtr	5000		
52	3C X 70 SQ MM	Mtr	10000		
53	3C X 50 SQ MM	Mtr	11550		
54	3C X 35 SQ MM	Mtr	1500		
55	1CX120 SQ MM	Mtr	5000		
56	1CX95 SQ MM	Mtr	5000		
	1.1kV ,Armoured / Un-Armoured, Cu. Conductor ,PVC insulated FRLS outer-sheathed				

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	'TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
57	4C X 16 SQ MM	Mtr	10000		
58	3.5C X16 SQ MM	Mtr	800		
59	3C X16 SQ MM	Mtr	39250		
60	3C X10 SQ MM	Mtr	17400		
61	3C X 6 SQ MM	Mtr	32600		
62	3C X 4 SQ MM	Mtr	15420 0		
63	3C X 2.5 SQ MM	Mtr	6000		
64	2C X 16 SQ MM	Mtr	9000		
65	2C X 4 SQ MM	Mtr	15400		
66	1C X 2.5 SQ MM	Mtr	96000		
67	1C X 4 SQ MM	Mtr	22500		
68	1C X 6 SQ MM	Mtr	1000		
69	1C X 35 SQ MM	Mtr	500		
70	1C X 150 SQ MM	Mtr	1500		
71	1 C X240 SQ MM	Mtr	3000		

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	'TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
72	1 C X1000 SQ MM	Mtr	5000		
	CONTROL/SIGNAL/ CABLES LAYING,DRESSING & CLAMPING				
	1.1kV ,PVC insulated, FRLS outer-sheathed				
73	3C X 2.5 SQ MM	Mtr	30000		
74	5C X 2.5 SQ MM	Mtr	20000		
75	7C X 2.5 SQ MM	Mtr	20000		
76	10C X 2.5 SQ MM	Mtr	30000		
77	12C X 2.5 SQ MM	Mtr	10000		
78	16C X 2.5 SQ MM	Mtr	8000		
79	19C X 2.5 SQ MM	Mtr	8000		
80	24C X 2.5 SQ MM	Mtr	2000		
	CABLE TRAYS ERECTION INCLUDING SUPPORT & COVERS FABRICATION				
81	Ladder/Perforated Cable Tray, W=750mm	Mtr	8750		
82	Ladder/ Perforated type Cable tray, W=600mm	Mtr	12500		

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	'TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
83	Ladder/ Perforated type Cable tray, W=300mm	Mtr	2500		
84	Ladder /Perforated type cable tray, W=150mm	Mtr	9725		
85	Ladder /Perforated type cable tray , W=50mm	Mtr	2500		
	CABLE TRAY ACCESSORIES				
	Ladder/ Perforated type Horizontal 90 deg bend-1250/900/600 mm radius, Vertical 90 deg bend-1250/900/600 mm radius, Tees -1250/900/600 mm radius,				
86	750 MM Wide	No.	295		
87	600 MM Wide	No.	310		
88	300 MM Wide	No.	80		
	REDUCERS LADDER/ PERFORATED TYPE (50%LHS/50%RHS)				
89	750MM-600MM	No.	140		
90	600MM - 300MM	No.	90		
	INSTALLATION & FABRICATION OF STRUCTURE STEEL				
91	Channel , Angles, Flats, Plate etc.	MT	160		
	FIRE SEALING SYSTEM				

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	'TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
92	Fire Break Coatings for HT/LT Power Cables	SQM	800		
93	Fire Proofing materials for sealing of wall / floor openings and panel bottom	SQM	2500		
94	Fire Proofing sealing materials for cable duct and C& I Trays.	SQM	2000		
	EQUIPMENT EARTHING / LIGHTNING PROTECTION SYSTEM				
95	GI STRIP FLAT 75 X 10 mm	Mtr	10000		
96	GI STRIP FLAT 50 X 6 mm	Mtr	6000		
97	GI STRIP FLAT 35 X 6 mm	Mtr	6000		
98	8 SWG GI WIRE SOLID	Mtr	5000		
99	16 SWG GI WIRE SOLID	Mtr	6000		
100	3/8",5/8" DIA. GI FINE WIRE ROPE	Mtr	10000		
101	Copper Pipe Electrodes	Mtr	80		
102	65 mm dia Pipe electrodes, 3M long GI	Nos	200		
103	VERTICAL AIR TERMINATION ROD	No.	10		
	PLANT ILLUMINATION SYSTEM				
104	Bulk head luminaire suitable for 220V DC, 100W GLS incandescent lamps	Nos	190		

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
105	Recess mounted downlight luminaire for use with 220VDC, 100W GLS incandescent lamps suitable for false ceiling mounting	Nos	50		
106	Surface mounting general purpose basic pattern luminaires with high frequency electronic ballast and vitreous enameled reflector suitable for 2x36W fluorescent lamps	Nos	800		
107	Recess mounted decorative mirror optic luminaires with special aqua louvers suitable for linear fluorescent lamps 2xTL5 28W	Nos	600		
108	Corrosion resistant industrial batten luminaire suitable for 2x36W fluorescent lamps with electronic ballast for surface mounting on wall or ceiling	Nos	50		
109	High performance high bay luminaire with non integral control gear box suitable for HPMV 400W lamp	Nos	130		
110	Street light luminaire with POT optics reflector, heat resistant toughened glass cover, energy efficient copper ballast, electronic ignitor, power factor improvement capacitor etc., pre-wired upto terminal block suitable for HPSV 150W/70W lamp	Nos	130		
111	Street light luminaire with POT optics reflector, heat resistant toughened glass cover, energy efficient copper ballast, power factor improvement capacitor etc., pre-wired upto terminal block suitable for HPMV 125W lamp	Nos	70		
112	Well glass luminaire along with non integral control gear box suitable for use with HPMV 125W/80W lamp	Nos	725		
113	125W HPMV toughened heat resistant Well glass bowl cemented to the cast aluminium retaining ring and fixing to the housing with non integral control gear box	Nos	280		
114	100W GLS Lamps	Nos	250		

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
115	36/28W Fluorescent lamp	Nos	3500		
116	400/125/80W HPMV lamp	Nos	1275		
117	150W/70W HPSV lamp	Nos	150		
118	9 meter/3 meter/2 meter pole	Nos	470		
119	19/25/50mm GI conduit	Nos	2750		
120	25/50mm PVC conduit	Nos	650		
121	JB(4 way) rectangular cast Al /Steel JB 150X100X100 mm	Nos	750		
122	Saddle with saddle bar suitable for 25mm dia conduit with hardware	Nos	5000		
123	FSB-2 Flush mounted swbd with 2/3/5 nos 15A piano type switches & 15A receptacle with switch (modular type)	Nos	80		
124	Domestic type 5/15A socket with switch (Flush mounted modular)	Nos	45		
125	Industrial metal clad type 5/15A socket with switch	Nos	130		
126	63A TPN welding receptacles (Safe area/ Flameproof area)	Nos	55		
127	240V to 24V Supply module with hand lamp and 15 mtr cable	Nos	10		
128	6/12/18 way AC Indoor/ Outdoor Lighting Panels	Nos	80		
129	6 way DC Indoor/ Outdoor Lighting Panels	Nos	16		

SL NO	ITEM DESCRIPTION	UNIT	QTY	UNIT RATE (IN Rs.)	'TOTAL AMOUNT (IN Rs FIGURES AND WORDS)
130	30m-high High Mast Lighting System fitted with following: (i) 12 nos. Flood light fixtures, each fixture having 2 nos. of 400W HPSV Tubular lamps (ii) 2 nos. aviation fixtures of type LED (Medium intensity)	Nos	5		
	Panels				
131	DG AVR / DC/ NGR/Control Panel 1000X1000X2400(approx.)	No.	06		
132	SCAP Panel 1200X1300X2200	No.	22		
133	Generator Relay Panel 900x950x2400	No.	05		
134	Generator Control Panel 1200X800x2100	No.	03		
135	RTCC panels for OLTC 600x600x2000	No.	05		
136	DAVR Panel 1200X1200X2315	No.	05		
	Shifting				
137	Shifting of HT Transformers from BHEL store yard up to foundations.	No.	11		

TOTAL**Notes:**

- 1) All dimensions are in mm unless otherwise specified.

- 2) The contractor is required to quote unit-rate as well as total price against each item in the above schedule. Sub-total on each page shall be indicated and brought forward to next page and duly signed. The contractor shall ensure that grand total on this page is arithmatically checked and corrected and certified accordingly while signing below. Despite this if any calculation error is noticed after tender opening. BHEL reserves the right to deal with it as deemed fit at their end.
- 3) The quantities indicated against each item above are tentative and same are liable to vary depending upon the site requirement. The contractor has to erect/ commission all items indicated by BHEL Engineer for achieving unit wise milestone
- 4) The Rate shall be entered in figures as well as in words. In case of difference in rates between words and figures THE LESSER OF THE TWO will be treated as valid rate.
- 5) In case of omission in quoting any rate, the evaluation will be done considering the highest quoted rate obtained against that item but the work, if awarded, will be on the lowest quoted rate obtained against that item.
- 6) The bidders shall enter both 'Unit Rate' & 'Amount'. In case of any mismatch between 'Total Amount based on Unit Rate' & 'Total Amount as quoted', the higher of the two shall be considered for evaluation and the lower of the two shall be considered for award.
- 7) Evaluation of the bids shall be done based on total price against BOQ.