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**TENDER NO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 6/893**

**FOR**

**“HANDLING AT SITE/STORES, TRANSPORTATION TO  
SITE OF WORK, PRE ASSY., ERECTION, TESTING,  
COMMISSIONING & HANDING OVER OF ELECTRICAL  
PACKAGE OF UNIT NO. 6 AT 2X500 MW ANPARA D TPS,  
DISTT. SONEBHADRA, U.P.”**

**PART- II – PRICE BID**



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

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**ISO 9001, ISO 14001 and  
OHSAS 18001 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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**IMPORTANT NOTE**

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THIS TENDER SPECIFICATION ISSUED TO:

M/S-----

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**RATE SCHEDULE**

**JOB: "HANDLING AT SITE/STORES, TRANSPORTATION TO SITE OF WORK, PRE ASSY., ERECTION, TESTING, COMMISSIONING & HANDING OVER OF ELECTRICAL PACKAGE OF UNIT NO. 6 AT 2X500 MW ANPARA D TPS, DISTT. SONEBHADRA, U.P."**

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
	<b>POWER TRANSFORMERS</b>				
1	<p><b>Transportation up to foundation, Assembly, testing &amp; commissioning of Three Phase , 400kV/11.5/11.5kV, 80/40/40 MVA, ONAF, STATION TRANSFORMER</b></p> <p>Core &amp; winding 62 MT</p> <p>Shipping Weight(N<sub>2</sub> filled) 85 MT</p> <p>Total Weight(with oil) 168MT</p> <p>Overall dimensions 16400X6500X9600 mm</p> <p>Oil Qty. 50800 ltr.</p>	NO.	1		
2	<p><b>Transportation up to foundation, Assembly, testing &amp; commissioning of Three Phase ,21/11.5kV, 25/20 MVA, ONAF, UNIT TRANSFORMER</b></p> <p>Core &amp; winding 26 MT</p> <p>Tank &amp; fittings 11 MT</p> <p>Shipping Weight(N<sub>2</sub> filled) 40 MT</p> <p>Total Weight (with oil) 64 MT</p> <p>Overall dimensions 9100x5100x6600</p> <p>Oil Qty. 23159 ltr.</p>	NO.	2		
	<b>Transportation up to foundation, Assembly, testing &amp; commissioning of SERVICE TRANSFORMERS</b>				

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
3	11/3.5kV,16 MVA,ONAN, Overall dimensions 7100X5300X5200 mm Oil qty. 7900ltr. 45 MT	NO.	02		
4	11/3.5kV,6.3 MVA,ONAN Overall dimensions 4550X3300X3500 mm Oil qty. 2820 ltr. Total wt. 13300 KG	NO.	02		
5	11kV/433V,2000kVA,Dry type Overall dimensions 3950X2550X2250 mm Total wt. 7000 KG	NO.	04		
6	11kV/433V,2000kVA,ONAN Overall dimensions 3250X2550X2550 mm Oil qty. 1300 ltr. Total wt. 6100 KG	NO.	04		
7	11kV/433V, 1600kVA,ONAN Overall dimensions 3370X3300X2500 mm Oil qty. 990 ltr. Total wt. 5000 KG	NO.	16		
8	11kV/0.433kV, 500kVA,ONAN 2700X2700X2800 mm 4700KG	NO.	02		
9	11kV/0.433kV, 750kVA,ONAN 2700X2700X2800 mm 4700KG	NO.	02		
	<b>NGR</b>				
10	11 kV,300 A	No.	4		
11	3.3kV,300A	No.	4		
	<b>ISOLATED PHASE BUS DUCT</b>				
12	Transportation from stores / storage yard to erection site, assembly, erection, welding, testing & commissioning of Isolated Phase Bus Duct for interconnection of	SET.	01		

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
	Generator & Generator Transformers, tap-off to unit transformers, SP&VT, LA &VT cubicles, NG cubicles ,air pressurisation equipments, flexible hoses ,CT/PT transformers, supporting structures along with all accessories & auxiliaries				
	<p><b>Delta Run 21kV, 11000A</b></p> <p>Enclosure Size: Round,OD1000 mm Thk 8 mm</p> <p>Conductor size: Round, OD 450 mm, Thk. 15 mm</p> <p>Phase to phase distance:1150 mm</p> <p>Approx. length per unit 95 Mtr.</p> <p><b>Main run 21kV, 19000 A</b></p> <p>Enclosure Size: Round,OD1500 mm Thk 8 mm</p> <p>Conductor size: Round, OD 800 mm, Thk. 16 mm</p> <p>Phase to phase distance:1750 mm</p> <p>Approx. length per unit 160 Mtr.</p> <p><b>Tap-off 21kV, 1600A</b></p> <p>Enclosure Size: Round ,780x4.78 mm</p> <p>Conductor size: Box formation 2 channel, OD 2x203.2 mm, Thk. 11.8 mm</p> <p>Phase to phase distance:1000mm</p> <p>Approx. length per unit 75 Mtr.</p> <p><b>SP and VT Cubicle for both the units consists of :</b></p> <p>Epoxy cast dry type VT –6 Nos., Lighting arrestor –03 Nos, Surge Capacitor –03 Nos, etc Weight of Cubicle approx. 3.5 MT, Dimension 2000 x 1800 x 3500 mm</p> <p><b>Neutral Grounding Cubicle( NGR-NGT) consist of</b></p> <p>a) Dry type epoxy cast NG transformer b) NG Resistor c) Dimensions 2500x 2500 x2000 mm</p> <p><b>Supporting structural steel approx. 80 MT</b></p>				

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
	<b>SEGREGATED PHASE BUS DUCT</b>				
	Transportation from stores / storage yard to erection site, assembly, erection, welding, testing & commissioning of Segregated Phase Bus Duct for interconnection of Unit/Station Transformers to 11kV Switch Boards				
13	<b>1600A</b> SPBD from Unit Transformers to 11 kV Unit Switch Board SPBD for interconnection of 11kV Unit Switch board to 11 kV Station Switch Board Enclosure Size: 450x1250 mm, Thk. 3.15 mm Conductor size: Rectangular, 2x101.6 mm, Thk. 6.68 mm Phase to phase distance:450mm	Mtr.	193		
14	<b>2500A</b> SPBD from Station Transformer to 11 kV Station Switch Board SPBD for interconnection of 11kV Unit Switch board to 11KV Station Switch Board Enclosure Size: 450x1250 mm, Thk. 3.15 mm Conductor size: Rectangular,2x127 mm, Thk. 8.05 mm Phase to phase distance:450mm	Mtr.	375		
15	<b>3000A</b> SPBD from Unit Transformer to 3.3 kV Switch Board Enclosure Size: 450x1250 mm, Thk. 3.15 mm Conductor size: Rectangular, 2x127 mm, Thk. 8.05 mm Phase to phase distance:450mm	Mtr.	98		
	<b>HT SWITCHGEAR-11 kV SWITCHBOARD</b>				

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
16	11kV,1600A, Board# 6BA consists of approx. 17 panels , Approx. dimensions of each panel 820X2301X2355 mm	Set	01		
17	11kV,1600A, Board# 6BB consists of approx. 16 panels , Approx. dimensions of each panel 820X2301X2355 mm	Set	01		
18	11kV,2500A, Board# 0BA consists of approx. 13 panels , Approx. dimensions of each panel 820X2301X2355 mm	Set	01		
19	11kV,2500A, Board# 0BB consists of approx. 19 panels , Approx. dimensions of each panel 820X2301X2355 mm	Set	01		
	<b>3.3 kV SWITCHBOARD</b>				
20	3.3kV,3000A,Unit Sw.Board # 6CA consists of approx. 38 panels , Approx. of each panel 820X2301X2355 mm	Set	01		
21	3.3kV,1250A, Board# 0CA consists of approx. 37 panels , Approx. dimensions of each panel 820X2301X2355 mm	Set	01		
	<b>LT BUS DUCT</b>				
22	Non –segregated LT 415 V,3000A/2500A	Mtr.	106		
	<b>LOW VOLTAGE SWITCHGEAR</b>				
23	415V, 3000A, UNIT. SERV. SWITCHBOARD-6DA Approximate Dimension: 12250 x 1000 x 2475 mm	No.	1		
24	415V,2500A, UNIT EMER. SWITCHBOARD -6DG Approximate Dimension: 12150 x 1200 x 2475 mm	No.	1		
25	220V MAIN DCDB -6FA Approximate Dimension: 5600 x 1000 x 2475 mm	No.	1		
26	415V ,1000A,BOILER MCC -6HA Approximate Dimension: 16000 x 1000 x 2475 mm	No.	1		

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
27	415V,250A, BOILER V&D MCC -6HB Approximate Dimension: 14000 x 1000 x 2475 mm	No.	1		
28	415V,630A, BOILER ACDB -6HC Approximate Dimension: 3750 x 1000 x 2475 mm	No.	1		
29	415V,250A, ESP & ID FAN AREA MCC -6HD Approximate Dimension: 3000 x 1000 x 2475 mm	No.	1		
30	415V ,1000A,TURBINE MCC -6KA Approximate Dimension: 12900 x 1000 x 2475 mm	No.	1		
31	415V,250A, TURBINE VALVE MCC -6KB Approximate Dimension: 12750 x 1000 x 2475 mm	No.	1		
32	415V ,630A,UNIT SERV. ACDB -6QA Approximate Dimension: 6750 x 1000 x 2475 mm	No.	1		
33	415V,630A, VENTILATION MCC-6TA Approximate Dimension: 8250 x 1000 x 2475 mm	No.	1		
34	415V,400A, ESP A/C & VENT MCC -6TB Approximate Dimension: 7500 x 1000 x 2475 mm	No.	1		
35	415V, 3000A,STN. SERV. SWITCHBOARD -0DA Approximate Dimension: 12000 x 1000 x 2475 mm	No.	1		
36	415 V SLURRY P/H & COMPRESSOR HOUSE-0DF Approximate Dimension: 10850 x 1200 x 2475 mm	No.	1		
37	415 V,1600A, SILO AREA SWBD.-0DI Approximate Dimension: 6750 x 1000x 2475 mm	No.	1		
38	415V ,1000A,STN. SERV. MCC -0QA Approximate Dimension: 12000 x 1000	No.	1		

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
	x 2475 mm				
39	415V,3000A, FUEL OIL P/H PMCC - ODD Approximate Dimension: 7500 x 1200 x 2475 mm	No.	1		
40	415V,3000A, FIRE WATER P/H SWBD.-ODE Approximate Dimension: 10850 x 1200 x 2475 mm	No.	1		
41	415V ,2500A,CW SERVICE SWBD.-ODC Approximate Dimension: 6000 x 1000 x 2475 mm	No.	1		
42	415V,3000A, COOLING TOWER SWITCHBOARD-6DF	No.	1		
43	415V,1000A, BOTTOM ASH MCC-0DH	No.	1		
44	415V,1000A, AIR WASHER MCC - 6SA	No.	1		
45	415V ,3000A,ADM. BUILDING SWBD-ODG	No.	1		
46	415V,400A, H2 PLANT MCC-0SB	No.	1		
47	415V,400A, WORKSHOP MCC-0SC	No.	1		
48	415V,1000A, SERVICE BUILDING MCC-0SD	No.	1		
49	415V ,1000A,CCR AC MCC-0TA	No.	1		
50	415V AC FUSE DB	No.	10		
51	220V DC FUSE DB	No.	4		
52	Local motor starters (up to 3.7 KW)	No.	75		
53	PUSH BUTTON STATIONS	No.	590		
	<b>JUNCTION BOXES</b>				
54	180x100x250 mm	No.	150		
55	250x150x400 mm	No.	40		
56	450x150x300 mm	No.	90		
	<b>BATTERY SYSTEM</b>				
57	220 V, 400A Float-cum-boost Chargers 1000x1350x(2200+100)mm 1300KG	Set	2		

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
58	220 V DC Battery System (Ni-Cd), 990Ah, 170 cells 1.14V,Single tier Double Row type 8550x3060x875 mm 12750KG	Set	2		
	<b>HT POWER CABLES LAYING,DRESSING,CLAMPING</b>				
	11/11kV, Unarmoured, Aluminium Conductor XLPE insulated FRLS outer-sheathed cable				
59	1C x 630 SQ. MM	Mtr.	10500		
60	3C x 185 SQ. MM	Mtr.	18300		
	3.3/3.3kV, Unarmoured, Aluminium Conductor XLPE insulated FRLS outer-sheathed cable				
61	3C x 185 SQ. MM	Mtr.	7500		
62	1C x 300 SQ. MM	Mtr.	300		
63	1C x 150 SQ. MM	Mtr.	900		
	3.3/3.3kV, armoured, Aluminium Conductor XLPE insulated FRLS outer-sheathed cable				
64	3C x 185 SQ. MM	Mtr.	900		
	<b>HT CABLE TERMINATION KITS/JOINT KITS</b>				
	11kV Indoor heat shrinkable type XLPE end termination kits				
65	1 C X630 SQ MM	No.	76		
66	3C X 185 SQ MM	No.	125		
	11 KV, Outdoor, heat shrinkable type Straight through joint kits				
67	1 C X630 SQ MM	No.	11		
68	3C X 185 SQ MM	No.	19		
	3.3KV, Indoor heat shrinkable/push on type XLPE End termination kits for				
69	3C x 185 SQ. MM	No.	161		
70	1C x 300 SQ. MM	No.	230		
71	1C x 150 SQ. MM	No.	22		
	<b>LT POWER CABLE LAYING,DRESSING,CLAMPING &amp;</b>				

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
	<b>TERMINATION</b>				
	1.1 kV, Armoured/Un armoured, Stranded Al/Cu conductor, XLPE/PVC insulation, Inner sheath PVC & PVC outer sheath, FRLS				
72	1 C X630 SQ MM	Mtr	34200		
73	1 C X400 SQ MM	Mtr	39000		
74	1 C X120 SQ MM	Mtr	16200		
75	1 C X35 SQ MM	Mtr	2400		
76	2 C X10 SQ MM	Mtr	6000		
77	2 C X25 SQ MM	Mtr	9600		
78	2 C X70 SQ MM	Mtr	2400		
79	2 C X120 SQ MM	Mtr	9600		
80	3 C X10 SQ MM	Mtr	22800		
81	3 C X25 SQ MM	Mtr	18000		
82	3 C X50 SQ MM	Mtr	4800		
83	3 C X95 SQ MM	Mtr	3000		
84	3C X 150 SQ MM	Mtr	3600		
85	3C X 240 SQ MM	Mtr	3600		
86	3.5CX240 SQ.MM,	Mtr.	1800		
87	3.5CX 150 SQ MM	Mtr	1800		
88	3.5 C X25 SQ MM	Mtr	23400		
89	3.5 C X50 SQ MM	Mtr	19200		
90	3.5 C X95 SQ MM	Mtr	1200		
91	4 C X10 SQ MM	Mtr	1800		
92	2 C X2.5 SQ MM Cu.	Mtr	75600		
93	2 C X6 SQ MM Cu.	Mtr	25200		
94	3 C X2.5 SQ MM Cu.	Mtr	99000		
	<b>LT SCREENED CONTROL CABLE</b>				
95	2P,0.5 SQ MM	Mtr	8280		
96	4P,0.5 SQ MM	Mtr	50620		
97	8P,0.5 SQ MM	Mtr	16300		
98	12P,0.5 SQ MM	Mtr	7900		
99	16P,0.5 SQ MM	Mtr	480		
100	20P,0.5 SQ MM	Mtr	1080		
	<b>LT CONTROL CABLE -1.1 kV, Unarmoured, Stranded Cu conductor,</b>				

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
	PVC insulation, Inner sheath PVC & PVC outer sheath, FRLS				
101	2Cx1.5 SQ MM	Mtr.	7000		
102	3 C X1.5 SQ MM	Mtr	42000		
103	5 C X1.5 SQ MM	Mtr	21000		
104	5 C X2.5 SQ MM	Mtr	18000		
105	7 C X1.5 SQ MM	Mtr	12000		
106	12 C X1.5 SQ MM	Mtr	3000		
107	16C X1.5 SQ MM	Mtr.	8200		
108	12 C X2.5 SQ MM	Mtr	10200		
109	19 C X1.5 SQ MM	Mtr	30000		
	<b>CABLE TRAYS COMPLETE WITH COUPLER PLATES, FASTENERS, CLAMPS AND FIXING HARDWARES ETC ERECTION INCLUDING SUPPORT &amp; COVERS FABRICATION</b>				
110	Galvanised Ladder/Perforated type cable tray, W=600mm	Mtr	31500		
111	Galvanised Ladder/ Perforated type cable tray, W=450mm	Mtr	2580		
112	Galvanised Ladder/ Perforated type cable tray, W=300mm	Mtr	10620		
113	Galvanised Ladder/ Perforated type cable tray, W=150mm	Mtr	4200		
114	Galvanised Ladder/ Perforated type cable tray, W=100mm	Mtr	1530		
	<b>CABLE TRAY ACCESSORIES</b>				
	<b>Ladder/ Perforated type Horizontal 90 deg bend-600 mm radius, Vertical 90 deg bend-600 mm radius, Tees -600 mm radius, Cross -600 mm radius</b>				
115	600 mm wide	No.	849		
116	450 mm wide	No.	165		
117	300 mm wide	No.	129		
118	150 mm wide	No.	42		
	<b>Ladder/Perforated type reducers(50% LHS/50%RHS)</b>				
119	600-450 mm wide	No.	66		

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
120	450-300 mm wide	No.	24		
120	<b>EQUIPMENT EARTHING</b>				
121	GS/GI FLAT 65 X 8 mm	Mtr	2500		
122	GS/GI FLAT 50 X 6 mm	Mtr	850		
123	GS/GI FLAT 30x5/25 X 6 mm	Mtr	7500		
124	GS/GI FLAT 25 X3 mm	Mtr	5500		
125	12 SWG/8WG GI WIRE	Mtr	10000		
126	40 MM DIA. 1000 MM LONG GS ROD	Mtr	108		
	Treated Earth pit, including Installation of 3 Mtr long, 40 NB/ 65 mm dia GS/ GI pipe	No.	140		
127	<b>RIGID/FLEXIBLE CONDUITS</b>				
128	GI pipe(1/2",1")	Mtr	250		
	GI pipe(2",3")	Mtr	100		
129	<b>FABRICATION/ ERECTION OF STRUCTURAL STEEL</b>				
	Structural Steel	MT	100		
130	<b>Erection ,commissioning of PANELS</b>				
131	Generator and UAT, ST transformers control, metering & protection panels along with PCs, Printers & other accessories 1000X1000X2295 mm	Set	01		
132	Data Concentrator Panel along with PCs, Printers & other accessories 1800x800x800 mm	Set	01		
	Digital Automatic Voltage Regulator	Set	01		
133	<b>VARIABLE FREQUENCY DRIVE SYSTEM FOR ID FANS</b>				
134	<b>VFD Transformer</b> 3000 KVA, 11/2.3 KV 3 Phase, ONAN Outdoor type transformer with HV, LV cable boxes, radiators, conservator tank, marshalling box etc.	No.	4		

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
	Total Weight: 9145 kg Overall Dimensions: 5000 x 3000 x 3200 mm Shipping Dimensions: 3650 x 2100 x 3000 mm Oil Qty : 1845 litres (approx.)				
135	SF6/Vacuum Circuit Breaker Overall dimensions 2360 x1835 x1650 mm, Weight 1400 KG	No.	4		
136	<b>DC Air core Reactor</b> Floor/channel mounting type 3.6 KV grade, 10 mH, 800 A rated air cored DC reactor housed in 3mm thick Aluminium cubicle with suitable input/output terminals Dimension: 1700 x 2000 x 2600 mm , Weight: 1800 kg	No.	4		
137	<b>LCI Drive Panel</b> comprising Control and Excitation Panel, Fan and Filter Panel with air duct for exhausting air and Bridge Panel Size: 3700 x 1450 x 2400 mm; Weight: 3000 kg	No.	4		
138	Control Panel for VFD Drives, including PC System for MMI Size: 800 x 1450 x 2400 mm; weight: 400 kg	Set.	02		
139	Adaptor Panel for VFD Drives Size: 600 x 1450 x 2400 mm; weight: 200 kg	No.	04		
140	O&M Panel	No.	01		
	CLC panel	No.	04		
141	<b>Erection &amp; Commissioning of Diesel Generating set</b>				
	1500 KVA, 3 phase, 415 V skid-mounted diesel generator set Overall dimension: 6000 x 2100 x 2600 mm Static Weight of DG Set: 13,500 kg Weight of Acoustic Enclosure : 10,000 kg	Set	02		
142	<b>ELECTRICAL COMMISSIONING</b>				
143	Electrical actuators for valves & dampers	No.	250		

S. N	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT
144	Position transmitter	No.	50		
	Erection & commissioning of Electrical Lab specifications as as per C I 2.4.N	Set	01		
	<b>TOTAL AMOUNT (IN RS.)</b>				

**NOTES:**

1. The quantities indicated above are tentative and are liable to vary depending upon the site requirement. The contractor has to handle / erect / commission all the items indicated by BHEL for achieving the milestones and completion of work.
2. Evaluation of bids shall be done on total price against this Rate Schedule / BOQ.
3. In case of any mismatch in Rate and amount on Price discrepancy, the same will be dealt as per clause No. 1.4 of GCC.
4. Electrical work of 2x500 MW Anpara D TPS is divided into two packages unit wise i.e. separately for unit no. 6 & 7. Each Package will be floated separately, the successful bidder of unit no. 6 work shall not be considered for the unit no. 7 work.

(Signature, date & seal of authorized representative of the bidder)

(Seal and Signature of Tenderer)