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TENDER NO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894

FOR

**“HANDLING AT SITE/STORES, TRANSPORTATION TO
SITE OF WORK, PRE ASSY., ERECTION, TESTING,
COMMISSIONING & HANDING OVER OF ELECTRICAL
PACKAGE OF UNIT NO. 7 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)**

TENDERNO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 2 OF17



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-----

TENDERNO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 3 OF17

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. 7 AT 2X500 MW ANPARA D TPS, DISTT. SONEBHADRA, U.P."

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

TENDER NO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 4 OF17

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
	of SERVICE TRANSFORMERS				
3	33/3.5kV,4000 KVA,ONAN Overall dimensions 4050X3600X3150 mm Oil qty.2150 Ltr. 10 MT	NO.	02		
4	11/3.5kV,16 MVA,ONAN, Overall dimensions 7100X5300X5200 mm Oil qty. 7900ltr. 45 MT	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.	02		
7	11kV/433V, 1600kVA,ONAN Overall dimensions 3370X3300X2500 mm Oil qty. 990 ltr. Total wt. 5000 KG	NO.	08		
8	3.3/0.433kV, 315kVA,ONAN	NO.	02		
	NGR				

TENDERNO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 5 OF17

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
9	11 kV,300 A	No.	4		
10	3.3kV,300A	No.	4		
	ISOLATED PHASE BUS DUCT				
11	Transportation from stores / storage yard to erection site, assembly, erection, welding, testing & commissioning of Isolated Phase Bus Duct for interconnection of Generator & Generator Transformers, tap-off to unit transformers, SP&VT,LA &VT cubicles, NG cubicles ,air pressurisationequipments, flexible hoses ,CT/PT transformers, supporting structures along with all accessories & auxiliaries	SET.	01		
	Delta Run 21kV, 11000A Enclosure Size: Round,OD1000 mm Thk 8 mm Conductor size: Round, OD 450 mm, Thk. 15 mm Phase to phase distance:1150 mm Approx. length per unit 95Mtr. Main run 21kV, 19000 A Enclosure Size: Round,OD1500 mm Thk 8 mm Conductor size: Round, OD 800 mm, Thk. 16 mm Phase to phase distance:1750 mm Approx. length per unit 160Mtr. Tap-off 21kV, 1600A Enclosure Size: Round ,780x4.78 mm Conductor size: Box formation 2 channel, OD 2x203.2 mm,				

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
	Thk. 11.8 mm Phase to phase distance:1000mm Approx. length per unit 75Mtr. SP and VT Cubicle for both the unitsconsists of : 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 Neutral Grounding Cubicle(NGR-NGT) consist of a) Dry type epoxy cast NG transformer b) NG Resistor c) Dimensions 2500x 2500 x2000 mm Supporting structural steel approx. 80 MT				
	SEGREGATED PHASE BUS DUCT				
	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				
12	1600A SPBD from Unit Transformers to 11 kV Unit Switch Board SPBD for interconnection of11kV 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	Mtr.	193		

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
	Phase to phase distance:450mm (Approx. total length 385 Mtr)				
13	2500A 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 Approx. Total length 750 Mtr	Mtr.	375		
14	3000A 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 Approx. Total length 195 Mtr	Mtr.	98		
	HT SWITCHGEAR-11 kV SWITCHBOARD				
15	11kV, 1600A, Unit Switch Board# 7BA consists of approx. 17 panels, Approx. dimensions of each panel 820x2301x2355 mm,	Set	01		
16	11kV, 1600A, Unit Switch Board# 7BB consists of approx. 16 panels, Approx. dimensions of each panel 820x2301x2355 mm	Set	01		

TENDER NO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 8 OF17

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
17	11kV,2500A, Station Switch Board# 0BC consists of approx. 13 panels , Approx. dimensions of each panel 820x2301x2355 mm	Set	01		
18	11kV,2500A, Station Switch Board# 0BD consists of approx. 19 panels , Approx. dimensions of each panel 820x2301x2355 mm	Set	01		
	3.3 kV SWITCHBOARD				
19	3.3kV,3000A,Unit Sw.Board # 7CA consists of approx. 38 panels , Approx. dimensions 8200X1809X2300 mm	Set	01		
20	3.3kV Station Switch Board# 0CB consists of approx. 15 panels , Approx. dimensions of each panel 820x2301x2651 mm	Set	01		
	LT BUS DUCT				
21	Non –segregated LT 415 V,3000A/2500A	Mtr.	106		
	LOW VOLTAGE SWITCHGEAR				
22	415V, 3000A, UNIT. SERV. SWITCHBOARD-7DA Approximate Dimension: 12250 x 1000 x 2475 mm	No.	1		
23	415V,2500A, UNIT EMER. SWITCHBOARD-7DG Approximate Dimension: 12150 x 1200 x 2475 mm	No.	1		
24	220V MAIN DCDB-7FA Approximate Dimension: 5600 x 1000 x 2475 mm	No.	1		
25	415V ,1000A,BOILER MCC-7HA Approximate Dimension: 16000 x 1000 x 2475 mm	No.	1		

TENDERNO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 9 OF17

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
26	415V,250A, BOILER V&D MCC-7HB Approximate Dimension: 14000 x 1000 x 2475 mm	No.	1		
27	415V,630A, BOILER ACDB-7HC Approximate Dimension: 3750 x 1000 x 2475 mm	No.	1		
28	415V,250A, ESP & ID FAN AREA MCC - 7HD Approximate Dimension: 3000 x 1000 x 2475 mm	No.	1		
29	415V ,1000A,TURBINE MCC-7KA Approximate Dimension: 12900 x 1000 x 2475 mm	No.	1		
30	415V,250A, TURBINE VALVE MCC - 7KB Approximate Dimension: 12750 x 1000 x 2475 mm	No.	1		
31	415V ,630A,UNIT SERV. ACDB-7QA Approximate Dimension: 6750 x 1000 x 2475 mm	No.	1		
32	415V,630A, VENTILATION MCC-7TA Approximate Dimension: 8250 x 1000 x 2475 mm	No.	1		
33	415V,400A, ESP A/C & VENT MCC-7TB Approximate Dimension: 7500 x 1000 x 2475 mm	No.	1		
34	415V,3000A,STN. SERV. SWITCHBOARD -0DB Approximate Dimension: 12000 x 1000 x 2475 mm	No.	1		
35	415 V ASH WATER RECOVERY	No.	1		

TENDERNO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 10 OF17

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
	SYSTEM SWBD.-0DJ Approximate Dimension: 9900 x 1000x 2475 mm				
36	415V ,1000A, Misc. SERV. MCC -0QB Approximate Dimension: 12000 x 1000 x 2475 mm	No.	1		
37	415V,3000A, COOLING TOWER SWITCHBOARD-7DF	No.	1		
38	415V AC FUSE DB	No.	10		
39	220V DC FUSE DB	No.	4		
40	Local motor starters (up to 3.7 KW)	No.	75		
41	PUSH BUTTON STATIONS	No.	590		
	JUNCTION BOXES				
42	180x100x250 mm	No.	150		
43	250x150x400 mm	No.	40		
44	450x150x300 mm	No.	90		
	BATTERY SYSTEM				
45	220 V, 400A Float-cum-boost Chargers 1000x1350x(2200+100)mm 1300KG	Set	2		
46	220 V DC Battery System (Ni-Cd), 990Ah,170 cells 1.14V,Single tier Double Row type 8550x3060x875 mm 12750KG	Set	2		
	HT POWER CABLES LAYING,DRESSING,CLAMPING				
	11/11kV,Unarmoured, Aluminium Conductor XLPE insulated FRLS outer-				

TENDERNO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 11 OF17

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
	sheathed cable				
47	1C x 630 SQ. MM	Mtr.	7000		
48	3C x 185 SQ. MM	Mtr.	12200		
	3.3/3.3kV,Unarmoured, Aluminium Conductor XLPE insulated FRLS outer-sheathed cable				
50	3C x 185 SQ. MM	Mtr.	5000		
51	1C x 300 SQ. MM	Mtr.	200		
52	1C x 150 SQ. MM	Mtr.	600		
53	3.3/3.3kV,armoured, Aluminium Conductor XLPE insulated FRLS outer-sheathed cable				
54	3C x 185 SQ. MM	Mtr.	600		
	HT CABLE TERMINATION KITS/JOINT KITS				
	11kV Indoor heat shrinkable type XLPE end termination kits				
55	1 C X630 SQ MM	No.	50		
56	3C X 185 SQ MM	No.	83		
	11 KV, Outdoor, heat shrinkable type Straight through joint kits				
57	1 C X630 SQ MM	No.	7		
58	3C X 185 SQ MM	No.	12		
	3.3KV, Indoor heat shrinkable/push on type XLPE End termination kits for				
59	3C x 185 SQ. MM	No.	107		
60	1C x 300 SQ. MM	No.	154		
61	1C x 150 SQ. MM	No.	14		
	LT POWER CABLE LAYING,DRESSING,CLAMPING&				

TENDERNO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 12 OF17

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
	TERMINATION				
	1.1 kV, Armoured/Unarmoured, Stranded Al/Cu conductor, XLPE/PVC insulation, Inner sheath PVC &PVC outer sheath, FRLS				
62	1 C X630 SQ MM	Mtr	22800		
63	1 C X400 SQ MM	Mtr	26000		
64	1 C X120 SQ MM	Mtr	10800		
65	1 C X35 SQ MM	Mtr	1600		
66	2 C X10 SQ MM	Mtr	4000		
67	2 C X25 SQ MM	Mtr	6400		
68	2 C X70 SQ MM	Mtr	1600		
69	2 C X120 SQ MM	Mtr	6400		
70	3 C X10 SQ MM	Mtr	15200		
71	3 C X25 SQ MM	Mtr	12000		
72	3 C X50 SQ MM	Mtr	3200		
73	3 C X95 SQ MM	Mtr	2000		
74	3C X 150 SQ MM	Mtr	2400		
75	3C X 240 SQ MM	Mtr	2400		
76	3.5CX240 SQ.MM,	Mtr.	1200		
77	3.5CX 150 SQ MM	Mtr	1200		
78	3.5 C X25 SQ MM	Mtr	15600		
79	3.5 C X50 SQ MM	Mtr	12800		
80	3.5 C X95 SQ MM	Mtr	800		
81	4 C X10 SQ MM	Mtr	1200		
82	2 C X2.5 SQ MM Cu.	Mtr	50400		
83	2 C X6 SQ MM Cu.	Mtr	16800		

TENDERNO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 13 OF17

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
84	3 C X2.5 SQ MM Cu.	Mtr	66000		
	LT SCREENED CONTROL CABLE				
85	2P,0.5 SQ MM	Mtr	5520		
86	4P,0.5 SQ MM	Mtr	36780		
87	8P,0.5 SQ MM	Mtr	11700		
88	12P,0.5 SQ MM	Mtr	5900		
89	16P,0.5 SQ MM	Mtr	320		
90	20P,0.5 SQ MM	Mtr	720		
	LT CONTROL CABLE -1.1 kV, Unarmoured, Stranded Cu conductor, PVC insulation, Inner sheath PVC & PVC outer sheath, FRLS				
91	2Cx1.5 SQ MM	Mtr.	7000		
92	3 C X1.5 SQ MM	Mtr	28000		
93	5 C X1.5 SQ MM	Mtr	14000		
94	5 C X2.5 SQ MM	Mtr	12000		
95	7 C X1.5 SQ MM	Mtr	8000		
96	12 C X1.5 SQ MM	Mtr	2000		
97	16C X1.5 SQ MM	Mtr.	8200		
98	12 C X2.5 SQ MM	Mtr	6800		
99	19 C X1.5 SQ MM	Mtr	20000		
	CABLE TRAYS COMPLETE WITH COUPLER PLATES, FASTENERS, CLAMPS AND FIXING HARDWARES ETC ERECTION INCLUDING SUPPORT & COVERS FABRICATION				
100	Galvanised Ladder/Perforated type cable tray, W=600mm	Mtr	21000		
101	Galvanised Ladder/ Perforated type cable tray, W=450mm	Mtr	1720		

TENDERNO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 14 OF17

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
102	Galvanised Ladder/ Perforated type cable tray, W=300mm	Mtr	7080		
103	Galvanised Ladder/ Perforated type cable tray, W=150mm	Mtr	2800		
104	Galvanised Ladder/ Perforated type cable tray, W=100mm	Mtr	1020		
	CABLE TRAY ACCESSORIES				
	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				
105	600 mm wide	No.	565		
106	450 mm wide	No.	110		
107	300 mm wide	No.	86		
108	150 mm wide	No.	28		
	Ladder/Perforated type reducers(50% LHS/50%RHS)				
109	600-450 mm wide	No.	44		
110	450-300 mm wide	No.	16		
	EQUIPMENT EARTHING				
111	GS/GI FLAT 65 X 8 mm	Mtr	2500		
112	GS/GI FLAT 50 X 6 mm	Mtr	850		
113	GS/GI FLAT 30x5/25 X 6 mm	Mtr	7500		
114	GS/GI FLAT 25 X3 mm	Mtr	5500		
115	12 SWG/8WG GI WIRE	Mtr	10000		
116	40 MM DIA. 1000 MM LONG GS ROD	Mtr	108		
117	Treated Earth pit, including Installation of 3 Mtr long, 40 NB/ 65 mm dia GS/ GI pipe	No.	140		
	RIGID/FLEXIBLE CONDUITS				

TENDERNO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 15 OF17

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
118	GI pipe(1/2",1")	Mtr	250		
119	GI pipe(2",3")	Mtr	100		
	FABRICATION/ ERECTION OF STRUCTURAL STEEL				
120	Structural Steel	MT	100		
	Erection ,commissioning of PANELS				
121	Generator and UAT, ST transformers control, metering & protection panels along with PCs, Printers & other accessories 1000X1000X2295 mm	Set	01		
122	Data Concentrator Panel along with PCs, Printers & other accessories 1800x800x800 mm	Set	01		
123	Digital Automatic Voltage Regulator	Set	01		
	VARIABLE FREQUENCY DRIVE SYSTEM FOR ID FANS				
124	VFD Transformer 3000 KVA, 11/2.3 KV 3 Phase, ONAN Outdoor type 123transformer with HV, LV cable boxes, radiators, conservator tank, marshalling box etc. 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.)	No.	4		
125	SF6/Vacuum Circuit Breaker Overall dimensions 2360 x1835 x1650 mm, Weight 1400 KG	No.	4		

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
126	DC Air core Reactor 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		
127	LCI Drive Panel 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		
128	Control Panel for VFD Drives, including PC System for MMI Size: 800 x 1450 x 2400 mm; weight: 400 kg	Set.	02		
129	Adaptor Panel for VFD Drives Size: 600 x 1450 x 2400 mm; weight: 200 kg	No.	04		
130	O&M Panel	No.	01		
131	CLC panel	No.	04		
	Erection & Commissioning of Diesel Generating set				
132	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	01		
	ELECTRICAL COMMISSIONING				
133	Electrical actuators for valves & dampers	No.	250		

TENDERNO. BHEL/ NR/SCT/ ANPARA D/ELECTRICAL/UNIT NO. 7/894	
PART- II – PRICE BID	PAGE 17 OF17

S. NO	ITEM DESCRIPTION	UNIT	Quantity	UNIT RATE	TOTAL AMOUNT (In Rs.)
134	Position transmitter	No.	50		
	TOTAL AMOUNT (IN RS.)				

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 is 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)