

# TENDER SPECIFICATION

NO: BHE/PW/PUR/DBBDT-ELE/1065

FOR HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, COMMISSIONING AND HANDING OVER OF DAVR, ELECTROSTATIC PRECIPITATOR, SOOT BLOWER SYSTEM, VARIABLE FREQUENCY DRIVES FOR ID FANS, CABLING PACKAGE, AND ASSOCIATED EQUIPMENTS FOR ELECTRICAL PACKAGE FOR 2X600 MW DBPL RAIGARH PROJECT.

AT

BARADARHA IN JANJGIR - CHAMPA DISTRICT IN CHHATTISGARH STATE

## VOLUME :II – PRICE BID

BOOK NO.



**BHARAT HEAVY ELECTRICALS LIMITED**

(A GOVERNMENT OF INDIA UNDERTAKING)

POWER SECTOR - WESTERN REGION

SHREEMOHINI COMPLEX

345, KINGSWAY - NAGPUR 440 001

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**Name of JOB: HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, COMMISSIONING AND HANDING OVER OF DAVR, ELECTROSTATIC PRECIPITATOR, SOOT BLOWER SYSTEM, VARIABLE FREQUENCY DRIVES FOR ID FANS, CABLING PACKAGE, AND ASSOCIATED EQUIPMENTS FOR ELECTRICAL PACKAGE FOR 2X600 MW DBPL RAIGARH PROJECT.**

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**BARADARHA IN JANJGIR - CHAMPA DISTRICT IN CHHATTISGARH STATE**

EARNEST MONEY DEPOSIT: Please see Notice Inviting Tender.

LAST DATE FOR: Please see Notice Inviting Tender.

TENDER SUBMISSION:

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING **VOLUME-I** , **VOLUME- II** AND **VOLUME-IBCD** ARE ISSUED TO:

M/s. ....

PLEASE NOTE:

THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)

Place: Nagpur

Date:

**BHEL PSWR**  
**VOLUME-II PRICE BID (SCHEDULE OF RATES QUANTITIES)**  
**T.S.No. BHE/PW/PUR/DBBDT-ELE-1065**

Sl. No.	Description of items	UOM	Quantity	Unit Rates in Figures (In Rs)	Unit Rates in Words (In Rs)	Total Amounts (In Rs)	APPLICABLE for Terms of Payment
<b>SECTION-E1A: CABLE TRAYS AND ACCESSORIES</b>							<b>I.1</b>
E1A.1	Ladder type 600(W) x 120 (H) mm	Mtr	20000				
E1A.2	Ladder type 450(W) x 120 (H) mm	Mtr	6250				
E1A.3	Ladder type 300(W) x 120 (H) mm	Mtr	11950				
E1A.4	Ladder type 150(W) x 120 (H) mm	Mtr	12000				
<b>SECTION-E1B: FLEXIBLE CABLE TRAY SUPPORT AND ACCESSORIES</b>							<b>I.1</b>
E1B.1	Base plate for double support channel	No	100				
E1B.2	Base plate for single support channel	No	175				
E1B.3	Double support channel	Mtr	3400				
E1B.4	Single support channel	Mtr	3380				
E1B.5	Canti lever arm (C/A) – for 600 mm wide cable trays	No	6220				
E1B.6	Canti lever arm (C/A) – for 450 mm wide cable trays	No	320				
E1B.7	Canti lever arm (C/A) – for 300 mm wide cable trays	No	5070				
E1B.8	Canti lever arm (C/A) – for 150 mm wide cable trays	No	1000				
E1B.9	90 Degree Angle fitting	No	2220				
E1B.10	Clamp for double channel (CC2)	No	50				
E1B.11	Clamp for single channel (CC1)	No	4800				
E1B.12	Beam clamp	No	250				
E1B.13	Tray clamp for ladder type cable tray	No	3500				
<b>SECTION-E2A : LT POWER CABLES (Generally Unarmoured/Armoured)</b>							<b>I.2</b>
E2A.1	3.5C X 120sqmm Aluminium	Mtrs.	9000				
E2A.2	3C X 50sqmm Aluminium	Mtrs.	6000				

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E2A.3	3C X 50sqmm Copper	Mtrs.	800				
E2A.4	3C X 10 sqmm Aluminium	Mtrs.	3000				
E2A.5	3C X 6 sqmm Aluminium	Mtrs.	35000				
E2A.6	3C X 2.5sqmm Copper	Mtrs.	220000				
E2A.7	2C X 120sqmm Aluminium	Mtrs.	100000				
E2A.8	2C X 6sqmm Copper	Mtrs.	1000				
E2A.9	2C X 2.5sqmm Copper	Mtrs.	42400				
E2A.10	1C X 70 sqmm Copper multistranded	Mtrs.	200				
<b>SECTION-E2B : LT CONTROL CABLES (Generally Unarmoured/Armoured, Screened/Unscreened)</b>							<b>1.2</b>
E2B.1	14C ,2.5 sqmm Copper	Mtrs.	10800				
E2B.2	12C ,2.5 sqmm Copper, 1.1kV Armoured PVC insulated	Mtrs.	2000				
E2B.3	10C ,1.5 sqmm Copper	Mtrs.	46000				
E2B.4	10C ,2.5 sqmm Copper	Mtrs.	53000				
E2B.5	7C, 1.5 sqmm Copper	Mtrs.	42000				
E2B.6	5C, 4 sqmm Copper, 1.1kV Armoured PVC insulated	Mtrs.	10000				
E2B.7	5C ,2.5 sqmm Copper, 1.1kV Armoured PVC insulated	Mtrs.	12000				
E2B.8	4C ,1.5 sqmm Copper(Screened)	Mtrs.	108000				
E2B.9	3C 2.5 sqmm Copper	Mtrs.	63600				
<b>SECTION-E2C : HT POWER CABLES</b>							<b>1.2</b>
E2A.1	3C X 300sqmm HT XLPE 6.6kV Grade	Mtrs.	5000				
E2A.2	1C X 630sqmm HT XLPE 6.6 kV Grade	Mtrs.	5000				

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<b>SECTION-E3 : JUNCTION BOXES AND PUSH BUTTON</b>							<b>I.3</b>
E3.1	Start Stop Push Button Station 180X100X250 mm approx.	Nos.	336				
E3.2	Junction box for Hoper ,Support& Shaft heaters 450X150X300 mm approx.	Nos.	208				
E3.3	Junction box for Hopper thermostat, ALI-high, start stop push button 300x150x400 mm	Nos.	64				
<b>SECTION-E4 : STRUCTURAL STEEL</b>							<b>I.4</b>
E.4.1	Structural Steel fabrication & installation ( MS angle, Channel, Plate etc)	MT	30				
<b>SECTION-E5 A: SWITCHGEARS / MCC /PCC</b>							<b>I.5</b>
E5A.1	Soot Blower Motor control Center, double front, Approx overall dimension 18000(L)x2400(H)x1000(W),approx WT 11.4 T approx., shall be supplied in eight to ten loose shipping sections	Nos	2				
E5A.2	LT main Switch Board, double front, Approx overall dimension 10400(W)x1700(D)x2450(H),approx weight 8.0 MT, shall be supplied in eight to ten loose shipping sections	Nos	8				
E5A.3	Auxiliary Control Panel, Approx Overall Dimension 12600X1700X2450 mm, approx Weight of each panel 9.0 MT and supplied in loose shipping sections	Nos	8				
<b>SECTION-E5 B : STARTER PANEL/BOXES/POWER DISTRIBUTION BOX/MARSHALLING BOXES</b>							<b>I.5</b>
E5B.1	Electronic Control Panel, Overall dimensions approx.600X550X2000mm, approx.Weight of each panel 0.3MT. BAPCON CONTROLLER approx .dimension 280 x 210 x 210 mm, 5 Kg approx., rotary switches, etc along with cables and connectors, shall be supplied loose for mounting in the panel at site	Nos	160				
E5B.2	RAPPER CONTROL PANEL Overall dimension approx.1000X650X2000 mm, approx.Weight of each panel 0.30 MT. 2 Nos. RAPCON Electronic modules for each panel (along with cables connectors ) size 280 x 210 x 210 mm shall be supplied loose for mounting in the panel at site	Nos	8				
E5B.3	IOS PANEL overall dimension approx.1000x500x2050 mm,approx. Weight of panel 0.2 MT along with loose accessories such as IOS PC, Computer Furniture, Data Logger PC, Printer -1 No. PC termination box, peripheral cables etc.	set	2				
E5B.4	DC motor starter panels, etc (DC JOP, DC EOP, Seal oil panel), including resistance boxes. Approx weight 0.5 MT and approx. dimension 1000x800x2200 mm each.	Nos	6				
<b>SECTION-E5C: PANELS</b>							<b>I.5</b>
E5C.1	Generator ,Generator Transformer ,UAT Transformer- Control ,protection & Metering panels .Approx dimension of each panel 1000x1000x2300(H),approx weight 600kg each panel	set	2				
<b>SECTION-E5D : DIGITAL AUTOMATIC VOLTAGE REGULATOR FOR BRUSHLESS EXCITAION SYSTEM</b>							<b>I.5</b>
E5D.1	Transportation from store / storage yard to erection site , Erection, Assembly, Testing & Commissioning of Digital Excitation Equipments / System , System consist of DAVR panels & accessories as per tender specification.	Set	2				

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<b>SECTION-E5E : VARIABLE FREQUENCY DRIVE SYSTEM FOR ID FANS</b>								<b>I.5</b>
E5E.1	Transportation from stores / storage yards to erection site , erection , assembly , testing & commissioning of VARIABLE FREQUENCY DRIVE of ID FANS consist of Load Converter Inverter Panels,Adapter Panels,Control Panels. Reactors ,Transformers, Vacuum Breakers, flexible coupling and associated accessories, as per tender specification.	Set	4					
<b>SECTION- E 5F: MISCELLANEOUS EQUIPMENTS</b>								<b>I.5</b>
E5F.1	Ash Level Indicator comprising of level probe with extension lagging pipe, Electronic Unit, Interconnecting Cabling, Conduit, etc.	Set.	320					
<b>SECTION-E 6 : EARTHING PROTECTION STRIPS</b>								<b>I.6</b>
E6.1	65 x 12 mm/ 10 mm GI earthing flat	Mtrs.	2700					
E6.2	50 x 6 mm GI earthing flat	Mtrs.	12500					
E6.3	30 X 5 mm GI earthing flat	Mtrs.	9700					
E6.4	25 X 3 mm GI earthing flat	Mtrs.	1700					
E6.5	GI wire 3.15 dia	Mtrs.	18000					
E6.6	GI earthing wire 8 SWG	Mtrs.	4000					
<b>SECTION -E7 :HT BUS DUCTS</b>								<b>I.7</b>
E7.1	Isolated Phase Bus Duct (16.5 KV) for interconnection of Generator, Generator Transformers, UAT 1 and UAT 2 along with all accessories & auxiliaries as described in the Tender Specification.	set	2					
<b>SECTION- E8 :OIL FILLED TRANSFORMERS(GT,ST,UAT)</b>								<b>I.8</b>
E8.1	1-phase 250 MVA, 420/√3 /21 KV, ONAN/ONAF/OFAF Cooled <b>Generator Transformer</b> including all accessories, piping, cabling etc. as described in Tender Specification.	No	7					
E8.2	90/45-45 MVA, 400/11.5-11.5 kV, 3-phase <b>Station Transformer (ST)</b> , OLTC , ONAN/ONAF/OFAF including all accessories, piping, cabling etc as described in tender specification. Also including two nos Neutral Grounding Transformer (NGR) for each ST.	No	2					
E8.3	12.5/16 MVA, 3-phase 11/6.9 kV <b>Unit Auxiliary Transformer (UAT)</b> including all accessories, piping, cabling etc as described in tender specification. Also including one Neutral Grounding Transformer (NGR) for each UAT.	No	4					
E8.4	12.5/16 MVA, 11/6.9 kV, 3-phase <b>Station Auxiliary Transformer (SAT)</b> , ONAN/ONAF cooled, including all accessories, piping, cabling etc as described in tender specification.	No	2					
E8.5	25.2/31.5 MVA, 3-phase 21/11.5 kV ONAN/ONAF cooled <b>Unit Transformer (UT)</b> including all accessories, piping, cabling etc as described in tender specification.	No	4					

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<b>SECTION-E 9 : ONLY TESTING &amp; COMMISSIONING</b>							<b>I.9</b>
E9.1	Heating elements for Hopper Heater of ESP	No	3840				
E9.2	Heating elements for Support Insulator Heater, Shaft Insulator Heaters of ESP	No	800				
E9.3	High Voltage Rectifier Transformers (95 KV peak, 1000 mA) including oil filtration.	No	160				
E9.4	Testing & Commissioning of Collecting, Emitting, GD Screen Motor	No	336				
E9.5	Testing and commissioning of 6.6 & 11KV HT motors including dryout.	No	52				
E9.6	Testing and commissioning of 415 V LT motors including dry out.	No	252				
E9.7	Generator system testing	Set	2				
E9.8	Testing and Commissioning of soot blower control panel, including mounting of mimic	No	2				
E9.9	Testing & Commissioning of Wall, Long Retractable, Air Heater Soot Blower	No	524				
E9.10	Testing & Commissioning of Furnace temperature probe (including solenoids, thermocouple, etc)	No	4				
E9.11	Thermostats including Calibration.	No	176				
E9.12	Electrically (LT) Operated Valves, Dampers and Gates with Actuators, Limit Switches etc. (Regulating & ON/OFF Type).	No	1000				
<b>SECTION -E 10 : Other items</b>							<b>I.10</b>
E10.1	HT Terminations	Nos.	200				
<b>Grand Total in figures (In Rs)</b>							
<b>Grand Total in Words Rs.....</b>							

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