

# TENDER SPECIFICATION

NO: BHE/PW/PUR/RGIT-ELE/1052

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 4X600 MW JPL RAIGARH PROJECT Unit #2 and #3.

AT

**Village: Tamnar, Tehsil: Gharghoda, Dist: Raigarh, State : Chhatisgarh**

## 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

**BHARAT HEAVY ELECTRICALS LIMITED**

(A GOVERNMENT OF INDIA UNDERTAKING)  
POWER SECTOR - WESTERN REGION  
SHREEMOHINI COMPLEX  
345, KINGSWAY - NAGPUR 440 001

**TENDER SPECIFICATION NO. BHE/PW/PUR/RGIT-ELE/1052**

**Name of JOB:** 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 4X600 MW JPL RAIGARH PROJECT Unit #2 and #3.

AT

**Village: Tamnar, Tehsil: Gharghoda, Dist:  
Raigarh, State : Chhatisgarh**

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 VOLIME-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 NAGPUR  
VOL-II: PRICE BID(SCHEDULE OF RATE QUANTITIES)  
T.S.NO. BHE/PW/PUR/RGIT-ELE/1052

Sl.no	Description of items	UOM	Quantity	Unit Rate in Fig (In Rs)	Unit Rate in words (In Rs)	Total amount	APPLICABLE for Terms of Payment
<b>SECTION-E1A: CABLE TRAYS AND ACCESSORIES</b>							I.1
E1A.1	Ladder type 600(W) x 120 (H) mm	Mtr	9250				
E1A.2	Ladder type 450(W) x 120 (H) mm	Mtr	6250				
E1A.3	Ladder type 300(W) x 120 (H) mm	Mtr	3500				
E1A.4	Ladder type 150(W) x 120 (H) mm	Mtr	14750				
<b>SECTION-E1B: FLEXIBLE CABLE TRAY SUPPORT AND ACCESSORIES</b>							I.1
E1B.1	Base plate for single support channel	No	250				
E1B.2	Single support channel	Mtrs.	1750				
E1B.3	Cantilever arm (C/A) – for 600 mm wide cable trays	No	750				
E1B.4	Cantilever arm (C/A) – for 450 mm wide cable trays	No	3500				
E1B.5	Cantilever arm (C/A) – for 300 mm wide cable trays	No	750				
E1B.6	Cantilever arm (C/A) – for 150 mm wide cable trays	No	500				
E1B.7	90 Degree Angle fitting	No	500				
E1B.8	Clamp for single channel (CC1)	No	2500				

DATE  
PLACE

BHEL:PSWR NAGPUR  
VOL-II: PRICE BID(SCHEDULE OF RATE QUANTITIES)  
T.S.NO. BHE/PW/PUR/RGIT-ELE/1052

Sl.no	Description of items	UOM	Quantity	Unit Rate in Fig (In Rs)	Unit Rate in words (In Rs)	Total amount	APPLICABLE for Terms of Payment
E1B.9	Beam clamp	No	250				
E1B.10	Tray clamp for ladder type cable tray	No	3500				
E1B.11	Flat plate straight fitting PF2	No	250				
E1B.12	Flat plate tee fitting PF1	No	250				
<b>SECTION-E2A : LT POWER CABLES (Generally Unarmoured/Armoured)</b>							<b>I.2</b>
E2A.1	3.5C X 120sqmm Aluminium	Mtrs.	11800				
E2A.2	3C X 50sqmm Aluminium	Mtrs.	6000				
E2A.3	3C X 50sqmm Copper	Mtrs.	800				
E2A.4	3C X 10 sqmm Aluminium	Mtrs.	3300				
E2A.5	3C X 6 sqmm Aluminium	Mtrs.	49900				
E2A.6	3C X 2.5sqmm Copper	Mtrs.	239200				
E2A.7	2C X 120sqmm Aluminium	Mtrs.	100000				
E2A.8	2C X 2.5sqmm Copper	Mtrs.	39000				
E2A.9	2C X 6 sqmm Copper, 1.1kV Armoured	Mtrs.	40000				
E2A.10	1C X 120 sqmm Aluminium, 1.1kV Armoured	Mtrs.	3000				
E2A.11	1C X 70 sqmm Copper multistranded	Mtrs.	200				
E2A.12	1C X 35 sqmm Aluminium, 1.1kV Armoured	Mtrs.	14000				
<b>SECTION-E2B : HT POWER CABLES (Generally Unarmoured/Armoured)</b>							<b>I.2</b>

DATE  
PLACE

BHEL:PSWR NAGPUR  
VOL-II: PRICE BID(SCHEDULE OF RATE QUANTITIES)  
T.S.NO. BHE/PW/PUR/RGIT-ELE/1052

Sl.no	Description of items	UOM	Quantity	Unit Rate in Fig (In Rs)	Unit Rate in words (In Rs)	Total amount	APPLICABLE for Terms of Payment
E2B.1	1CX630 sqmm	Mtrs.	13500				
<b>SECTION-E2C : LT CONTROL CABLES (Generally Unarmoured/Armoured, Screened/Unscreened)</b>							I.2
E2C.1	19C ,1.5 sqmm Copper	Mtrs.	19800				
E2C.2	14C ,2.5 sqmm Copper	Mtrs.	16000				
E2C.3	12C ,2.5 sqmm Copper,	Mtrs.	74500				
E2C.4	10C ,1.5 sqmm Copper	Mtrs.	58000				
E2C.5	7C, 1.5 sqmm Copper	Mtrs.	65000				
E2C.6	5C ,2.5 sqmm Copper, 1.1kV Armoured PVC insulate	Mtrs.	23500				
E2C.7	4C ,1.5 sqmm Copper(Screened)	Mtrs.	110000				
E2C.8	3C 2.5 sqmm Copper	Mtrs.	63000				
E2C.9	3C 1.5 sqmm Copper	Mtrs.	6800				
E2C.10	2C 2.5 sqmm Copper	Mtrs.	12800				
<b>SECTION-E3 : JUCTION BOXES AND PUSH BUTTON</b>							I.3
E3.1	Junction Boxes 600x278x515mm approx.	Nos.	176				
E3.2	Junction Boxes 450x150x300mm approx.	Nos	32				
E3.3	Junction Boxes 250x150x400mm approx.	Nos	88				

DATE  
PLACE

BHEL:PSWR NAGPUR  
VOL-II: PRICE BID(SCHEDULE OF RATE QUANTITIES)  
T.S.NO. BHE/PW/PUR/RGIT-ELE/1052

Sl.no	Description of items	UOM	Quantity	Unit Rate in Fig (In Rs)	Unit Rate in words (In Rs)	Total amount	APPLICABLE for Terms of Payment
E3.4	Start Stop Push Button Station 180X100X250 mm approx.	Nos.	336				
<b>SECTION-E4 : STRUCTURAL STEEL</b>							<b>I.4</b>
E.4.1	Structural Steel fabrication & installation ( MS angle, Channel, Plate etc)	MT	106				
<b>SECTION-E5 A:SWITCHEGARS / 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 9400(W)x1700/1000(D)x2450(H),approx weight 9MT per panel, shall be supplied in eight to ten loose shipping sections	Nos	8				
E5A.3	Auxiliary Control Panel, Approx Overall Dimension 11800X1700X2450 mm approx, Weight of each panel 11.0 MTApprox. 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 280x210x210 mm, 400kg appr., rotary switches, etc along with cables and connectors, shall be supplied loose for mounting in the panel at site	Nos	160				

DATE  
PLACE

BHEL:PSWR NAGPUR  
VOL-II: PRICE BID(SCHEDULE OF RATE QUANTITIES)  
T.S.NO. BHE/PW/PUR/RGIT-ELE/1052

Sl.no	Description of items	UOM	Quantity	Unit Rate in Fig (In Rs)	Unit Rate in words (In Rs)	Total amount	APPLICABLE for Terms of Payment
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,sacnner air fan), including resistance boxes. Approx weight 0.5 MT and approx. dimension 1000x800x2200 mm each.	Nos	8				
<b>SECTION-E5C: PANELS</b>							
E5C.1	Generator ,Generator Transformer ,UAT Transformer- Control ,protection & Metering panels .Approx dimension of each panel 1000x1000x2300(H),approx weight 600kg each panel	Nos.	8				
<b>SECTION-E5D : DIGITAL AUTOMATIC VOLTAGE REGULATOR FOR BRUSHLESS EXCITAION SYSTEM</b>							1.5

DATE  
PLACE

BHEL:PSWR NAGPUR  
VOL-II: PRICE BID(SCHEDULE OF RATE QUANTITIES)  
T.S.NO. BHE/PW/PUR/RGIT-ELE/1052

Sl.no	Description of items	UOM	Quantity	Unit Rate in Fig (In Rs)	Unit Rate in words (In Rs)	Total amount	APPLICABLE for Terms of Payment
E.5D.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				
<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				
E5F.2	Opacity Monitor Consisting of Transmitter & Receiver, Electronic Unit, Air Blower unit, Weather Proof housings, Junction boxes, flexible hoses, mounting flanges with pipe for Transmitter, Receiver & Air blower, interconnec-ted cables etc. for mounting on ESP outlet duct.	Set.	8				
<b>SECTION-E 6 : EARTHING PROTECTION STRIPS</b>							<b>I.6</b>

DATE  
PLACE

BHEL:PSWR NAGPUR  
VOL-II: PRICE BID(SCHEDULE OF RATE QUANTITIES)  
T.S.NO. BHE/PW/PUR/RGIT-ELE/1052

Sl.no	Description of items	UOM	Quantity	Unit Rate in Fig (In Rs)	Unit Rate in words (In Rs)	Total amount	APPLICABLE for Terms of Payment
E6.1	50 x 6 mm GI earthing flat	Mtrs.	18500				
E6.2	30 X 5 mm GI earthing flat	Mtrs.	16200				
E6.3	GI wire diameter 3.15 SWG	Mtrs.	40400				
E6.4	GI earthing wire 8 SWG	Mtrs.	7000				
<b>SECTION -E7 :HT BUS DUCTS</b>							<b>1.7</b>
E7.1	Isolated Phase Bus Duct (22 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>1.8</b>
E8.1	1-phase 250 MVA, 420/ $\sqrt{3}$ /21 KV, ONAN/ONAF/OFAP Cooled <b>Generator Transformer</b> including all accessories, piping, cabling etc. as described in Tender Specification.	No	6				
E8.2	90/45-45 MVA, 400/11.5-11.5 kV, 3-phase <b>Station Transformer (ST)</b> , OLTC , ONAN/ONAF/OFAP 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				
<b>SECTION-E 9 : ONLY TESTING &amp; COMMISSIONING</b>							<b>1.9</b>

DATE  
PLACE

BHEL:PSWR NAGPUR  
VOL-II: PRICE BID(SCHEDULE OF RATE QUANTITIES)  
T.S.NO. BHE/PW/PUR/RGIT-ELE/1052

Sl.no	Description of items	UOM	Quantity	Unit Rate in Fig (In Rs)	Unit Rate in words (In Rs)	Total amount	APPLICABLE for Terms of Payment
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	46				
E9.6	Testing and commissioning of 415 V LT motors including dry out.	No	150				
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	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 termination	No	200				
<b>TOTAL AMOUNT IN FIGURES: Rs.</b>							
<b>TOTAL AMOUNT IN WORDS: Rs.....</b>							

DATE  
PLACE