

# TENDER SPECIFICATION

NO: BHE/PW/PUR/BRLT-ELE/1116

FOR HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, COMMISSIONING AND HANDING OVER OF CABLING, DAVR, SOOT BLOWER SYSTEM, VARIABLE FREQUENCY DRIVES FOR ID, FANS, BUS DUCTS, SWITCHGEAR, AND ASSOCIATED EQUIPMENTS FOR ELECTRICAL PACKAGE FOR UNIT-1 OF

2X600 MW JHABUA POWER LIMITED

AT

DIST – SEONI, (M P)

## 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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**2X600 MW JHABUA POWER LIMITED**

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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-Tech Bid**, **VOLUME- II-Price Bid** AND **VOLIME-IBCD Rev-01 Rev-01** ARE ISSUED TO:

M/s. ....

PLEASE NOTE:

THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)

Place: Nagpur

Date:

ELECTICAL PACKAGE FOR UNIT-1 OF 2X600 MW JHABUA POWER LIMITED AT DIST – SEONI, (M P)

Sl.no	Description of items	UOM	Quantity	Unit Rate In Figure(In Rs)	Unit Rate In Words (In Rs)	Total Amounts (In Rs)	TOP
<b>SECTION-E1: CABLE TRAYS AND ACCESSORIES</b>							<b>I.1</b>
E1.1	Ladder type 600(W) x 120 (H) mm	Mtr	15575				
E1.2	Ladder type 450(W) x 120 (H) mm	Mtr	1975				
E1.3	Ladder type 300(W) x 120 (H) mm	Mtr	4000				
E1.4	Ladder type 150(W) x 120 (H) mm	Mtr	6837				
E1.5	Perforated Type 50(W)x120(H)mm	Mtr	500				
<b>SECTION-E2A : LT POWER CABLES (Generally Unarmoured/Armoured)</b>							<b>I.2</b>
E2A.1	3.5C X 150sqmm Aluminium	Mtrs.	1700				
E2A.2	3.5C X 50sqmm Aluminium	Mtrs.	5000				
E2A.3	3.5C X 25sqmm Aluminium	Mtrs.	8000				
E2A.4	3.5C X 95sqmm Aluminium	Mtrs.	5000				
E2A.5	3C X 150sqmm Aluminium	Mtrs.	5000				
E2A.6	3C X 120sqmm Aluminium	Mtrs.	1000				
E2A.7	3C X 50sqmm Aluminium	Mtrs.	4000				
E2A.8	3C X 50sqmm Copper	Mtrs.	2200				
E2A.9	3C X 25 sqmm Aluminium	Mtrs.	17000				
E2A.10	3C X 10 sqmm Aluminium	Mtrs.	4900				
E2A.11	3C X 6 sqmm Aluminium	Mtrs.	14200				
E2A.12	3C X 2.5sqmm Copper	Mtrs.	80900				
E2A.13	2C X 120sqmm Aluminium	Mtrs.	59700				
E2A.14	2C X 50sqmm Aluminium	Mtrs.	3000				
E2A.15	2C X 25sqmm Aluminium	Mtrs.	5000				
E2A.16	2C X 2.5sqmm Copper	Mtrs.	54000				

ELECTICAL PACKAGE FOR UNIT-1 OF 2X600 MW JHABUA POWER LIMITED AT DIST – SEONI, (M P)

Sl.no	Description of items	UOM	Quantity	Unit Rate In Figure(In Rs)	Unit Rate In Words (In Rs)	Total Amounts (In Rs)	TOP
E2A.17	1C X 630sqmm Aluminium HT XLPE 6.6 kV Grade	Mtrs.	3000				
E2A.18	1C X 400sqmm Aluminium, 1.1kV Armoured	Mtrs.	6000				
E2A.19	1C X 120 sqmm Aluminium, 1.1kV Armoured	Mtrs.	1000				
E2A.20	1C X 70 sqmm Copper multistranded	Mtrs.	100				
E2A.21	1C X 35 sqmm Aluminium, 1.1kV Armoured	Mtrs.	4000				
<b>SECTION-E2B : HT POWER CABLES (Generally Unarmoured/Armoured, earthed/UNEARTHED GRADE)</b>							<b>1.2</b>
E2B.1	3C X 300sqmm Aluminium	Mtrs.	1500				
E2B.2	3C X 185sqmm Aluminium	Mtrs.	3300				
E2B.3	1C X 630sqmm Aluminium	Mtrs.	2000				
E2B.4	1C X 300sqmm Aluminium	Mtrs.	9000				
E2B.5	1C X 240sqmm Aluminium	Mtrs.	3500				
<b>SECTION-E2C : LT CONTROL CABLES (Generally Unarmoured/Armoured, Screened/Unscreened)</b>							<b>1.2</b>
E2C.1	19C ,2.5 sqmm Copper	Mtrs.	1000				
E2C.2	14C ,1.5 sqmm Copper	Mtrs.	500				
E2C.3	12C ,2.5 sqmm Copper	Mtrs.	44400				
E2C.4	7C, 2.5 sqmm Copper	Mtrs.	8000				
E2C.5	5C ,2.5 sqmm Copper, 1.1kV Armoured PVC insulated	Mtrs.	24000				
E2C.6	7C, 1.5 sqmm Copper	Mtrs.	500				
E2C.7	4C ,1.5 sqmm Copper(Screened)	Mtrs.	22800				
E2C.8	4C ,1.5 sqmm Copper	Mtrs.	500				
E2C.9	3C ,2.5 sqmm Copper	Mtrs.	16500				

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E2C.10	2C 2.5 sqmm Copper	Mtrs.	13300				
E2C.11	2C 1.5 sqmm Copper	Mtrs.	7000				
<b>SECTION-E3 : JUCTION BOXES AND PUSH BUTTON</b>							<b>1.3</b>
E3.1	Start Stop Push Button Station 180X100X250 mm approx.	Nos.	152				
E3.2	Start Stop Push Button Station Type A 110X110X122 mm approx.	Nos.	100				
E3.3	Start Stop Push Button Station ,type B 224X325X180 mm approx.	Nos.	5				
E3.4	Start Stop Push Button Station,type C 165X285X105 mm approx.	Nos.	20				
E3.5	Start Stop Push Button Station,type D 200X420X250 mm approx.	Nos.	2				
E3.6	Junction box for Hoper ,Support& Shaft heaters 450X150X300 mm approx.	Nos.	168				
E3.7	Junction box for Hopper thermostat, ALI-high, start stop push button 300x150x400 mm	Nos.	34				
<b>SECTION-E4 : STRUCTURAL STEEL</b>							<b>1.4</b>
E.4.1	Structural Steel fabrication & installation ( MS angle, Channel, Plate etc)	MT	15				
<b>SECTION-E5 A:SWITCHGEARS / MCC /PCC</b>							<b>1.5</b>
E5A.1	11kV Unit Switchgear Board #1A. Each board shall have 23 panels and supplied in loose sections. Approx.Overall dimension of each panel is approx. 820(W)x2692(H)x1810 to2355(D) mm, Each panels weight is approximately 1.5 MT.	Set	1				
E5A.2	11kV Unit Switchgear Board #1B. Each board shall have 26 panels and supplied in loose sections. Approx.Overall dimension of each panel is approx. 820(W)x2692(H)x1810 to2355(D) mm, Each panels weight is approximately 1.5 MT.	Set	1				
E5A.3	11kV Standby SwitchBoard. Each board shall have 17 panels and supplied in loose sections. Approx.Overall dimension of each panel is approx. 820(W)x2692(H)x1810 to2355(D) mm, Each panels weight is approximately 1.5 MT.	Set	1				
E5A.4	3.3kV Unit Auxiliary Switchgear Board. Each board shall have 32 panels and supplied in loose sections. Approx.Overall dimension of each panel is approx. 820(W)x2692(H)x1810 to2355(D) mm, Each panels weight is approximately 1.5 MT.	Set	1				
E5A.5	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	1				
E5A.6	LT main Switch Board, double front, Approx overall dimension 9950(W)x1300(D)x2450(H),approx weight 7.0 MT, shall be supplied in eight to ten loose shipping sections	Nos	4				
E5A.7	Auxiliary Control Panel, Approx Overall Dimension 9950X1300X2450 mm, approx Weight of each panel 7.0 MT and supplied in loose shipping sections	Nos	4				
E5A.8	Unit service Board, Approx Overall Dimension 7721X4673X10972 mm, approx Weight of panel 4.4 MT and supplied in loose shipping sections	Nos	1				
E5A.9	Turbine valve ACDB, Approx Overall Dimension 9756X6705X16495 mm, approx Weight of panel 6.0 MT and supplied in loose shipping sections	Nos	1				

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Sl.no	Description of items	UOM	Quantity	Unit Rate In Figure(In Rs)	Unit Rate In Words (In Rs)	Total Amounts (In Rs)	TOP
E5A.10	Turbine MCC, Approx Overall Dimension 8382X4978X13716 mm, approx Weight of each panel 4.8 MT and supplied in loose shipping sections	Nos	1				
E5A.11	Boiler valve and damper DB, Approx Overall Dimension 4876X3556X8229 mm, approx Weight of panel 1.10 MT and supplied in loose shipping sections	Nos	1				
E5A.12	Unit emergency switch board, Approx Overall Dimension 7010X4318X10972 mm, approx Weight of panel 4.3 MT and supplied in loose shipping sections	Nos	1				
E5A.13	CPU MCC, Approx Overall Dimension 8382X4064X13716 mm, approx Weight of panel 3.8 MT and supplied in loose shipping sections	Nos	1				
E5A.14	Fuel oil MCC, Approx Overall Dimension 10972X5689X19202 mm, approx Weight of panel 4.7 MT and supplied in loose shipping sections	Nos	1				
E5A.15	Boiler MCC, Approx Overall Dimension 10210X6562X16495 mm, approx Weight of panel 5.7 MT and supplied in loose shipping sections	Nos	1				
E5A.16	Unit service ACBD, Approx Overall Dimension 7670X5892X13716 mm, approx Weight of panel 4.6 MT and supplied in loose shipping sections	Nos	1				
E5A.17	Generator Circuit Breaker, Approx Overall Dimension 7620X3746X3557 mm, approx Weight of panel 8.4 MT and supplied in loose shipping sections	Nos	1				
<b>SECTION-E5 B : STARTER PANEL/BOXES/POWER DISTRIBUTION BOX/MARSHALLING BOXES</b>							<b>1.5</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	72				
E5B.2	RAPPER CONTROL PANEL Overall dimension approx.1000X500X2050 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	4				
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	1				
E5B.4	STATCON PANEL overall dimension approx.1000x500x2050 mm,approx. Weight of panel 0.3 MT STATCON CONTROLLER for each panel (along with cables connectors ) size approx. 280 x 210 x 210 mm shall be supplied loose for mounting in the panel at site.	sets	4				
E5B.5	DC motor starter panels, etc (DC JOP, DC EOP, Seal oil panel,Scanner Air Fan), including resistance boxes. Approx weight 0.5 MT and approx. dimension 1000x800x2200 mm each.	Nos	6				
<b>SECTION-E5C: PANELS</b>							<b>1.5</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	1				
E5C.2	BTS Panel. Approx.Overall dimension of each panel - 750(W)x2300(H)x800(D) mm, weight of each panel is approximately 1.0 MT.	Nos.	2				
<b>SECTION-E5D : DIGITAL AUTOMATIC VOLTAGE REGULATOR FOR BRUSHLESS EXCITAION SYSTEM</b>							<b>1.5</b>
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	1				
<b>SECTION-E5E : VARIABLE FREQUENCY DRIVE SYSTEM FOR ID FANS</b>							<b>1.5</b>

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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	2				
<b>SECTION- E 5F: MISCELLANEOUS EQUIPMENTS</b>							1.5
E5F.1	Ash Level Indicator comprising of level probe with extension lagging pipe, Electronic Unit, Interconnecting Cabling, Conduit, etc.	Set.	288				
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.	4				
<b>SECTION-E 6 : EARTHING PROTECTION STRIPS</b>							1.6
E6.1	65 x 12 mm/ 10 mm GI earthing flat	Mtrs.	8950				
E6.2	50 x 6 mm GI earthing flat	Mtrs.	1970				
E6.3	30 X 5 mm GI earthing flat	Mtrs.	7550				
E6.4	25 X 3 mm GI earthing flat	Mtrs.	1700				
E6.5	GI wire 3.15 dia	Mtrs.	18200				
E6.6	GI earthing wire 8 SWG	Mtrs.	3000				
<b>SECTION -E7A: HT BUS DUCTS (SPBD)</b>							1.7
E7A.1	11 kV SP Bus Duct from UT-1 to Switchgear Board-1A. Approx length 108 m	Set	1				
E7A.2	11 kV SP Bus Duct from UT-2 to Switchgear Board-1B. Approx length 94 m	Set	1				

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E7A.3	3.3 kV SP Bus Duct from UAT-1 to Unit Auxiliary Switchgear Board-B (UAS-B). Approx length 22 m	Set	1				
E7A.4	3.3 kV SP Bus Duct from UAT-2 to Unit Auxiliary Switchgear Board-B (UAS-B). Approx length 47 m	Set	1				
<b>SECTION -E7B :HT BUS DUCTS</b>							1.7
E7B.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	1				
<b>SECTION-E 9 : ONLY TESTING &amp; COMMISSIONING</b>							1.9
E9.1	Heating elements for Hopper Heater of ESP	No	1536				
E9.2	Heating elements for Support Insulator Heater, Shaft Insulator Heaters of ESP	No	360				
E9.3	High Voltage Rectifier Transformers (95 KV peak, 1000 mA) including oil filtration.	No	72				
E9.4	Testing & Commissioning of Collecting, Emitting, GD Screen Motor	No	152				
E9.5	Testing and commissioning of 6.6 &11KV HT motors including dryout.	No	26				
E9.6	Testing and commissioning of 415 V LT motors including dry out.	No	81				
E9.7	Generator system testing	Set	1				
E9.8	Testing and Commissioning of soot blower control panel, including mounting of mimic ,	No	1				
E9.9	Testing & Commissioning of Wall, Long Retractable, Air Heater Soot Blower	No	262				
E9.10	Testing & Commissioning of Furnace temperature probe (including solenoids, thermocouple, etc)	No	2				
E9.11	Thermostats including Calibration.	No	80				
E9.12	Electrically (LT) Operated Valves, Dampers and Gates with Actuators, Limit Switches etc. (Regulating & ON/OFF Type).	No	500				
<b>SECTION-E 10 : Other Items</b>							1.10
E10.1	HT termination		200				
<b>TOTAL AMOUNT IN FIGURES: Rs.</b>							
<b>TOTAL AMOUNT IN WORDS Rs.....</b>							