#### TENDER SPECIFICATION

#### No. BHE/PW/PUR/HZI-CLE/527

FOR

HANDLING AT SITE STORES/STORAGE YARD, TRANSPORTATION TO SITE OF WORK, COMPLETE ERECTION, CHECKING OF CALIBRATION, TESTING, ASSISTANCE FOR COMMISSIONING, TRIAL OPERATION, FINAL PAINTING AND HANDING OVER OF CONTROL & INSTRUMENTATION AND ELECTRICAL WORKS FOR 1x80 MW CAPTIVE POWER PLANT.

ΑT

Zawar, Zinc Ore Mines, Village-Zawar, Tahasil-SARADA, Dist.- Udaipur, Rajasthan



PART: II (PRICE BID SPECIFICATION)

#### **BHARAT HEAVY ELECTRICALS LIMITED**

(A Govt. of India Undertaking)
POWER SECTOR - WESTERN REGION
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

#### No. BHE/PW/PUR/HZI-CLE/

ΑT

Zawar, Zinc Ore Mines, Village-Zawar, Tahasil-SARADA, Dist.- Udaipur, Rajasthan

Earnest Money Deposit: Please see Special Conditions of Contract.

Last date and time for Tender Submission: Please obtain updated information from

web page <u>www.bhel.com</u> → Tender Notifications

→ View Corrigendums.

These tender	documents	containing	Part- I	Technical	Bid and	Part- II	Price	Bid are
issued to:								

M/s.	 	 	 	٠.	 			٠.									

#### **PLEASE NOTE:**

- 1) THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.
- 2) BIDDER SHALL NOTE THAT THEIR OFFER WILL BE CONSIDERED SUBJECT TO THE APPROVAL OF BHEL'S CUSTOMER.

For Bharat Heavy Electricals Limited

DGM (Purchase)

Place: Nagpur

Schedule of Rates and Quantities (Page 1 of 15)

Job: Handling, Transportation, Erection, Testing, Checking of Calibration, Assistance for Commissioning, Final painting and Handing Over of C&I and Electrical package of at 1x80 MW Captive power Plant at Zawar, Zinc Ore Mines, Village-Zawar, Tahasil-SARADA, Dist.-Udaipur, Rajasthan, in accordance with the scope specified in Tender Specification with associated amendments, clarifications etc. Items of work are as follows.

SN	DESCRIPTION	QTY	иом	UNIT RATE (Rs)	TOTAL RATE (Rs)
SECTIO	N A - CONTROL PANELS, LOCAL PANELS, COMPOSITE SYSTEMS AND FI	ELD DI	EVICES		
A.1	max DNA based Electronic Control Panel for FSSS, Soot Blowers , SADC, EHTC,TP, TSE, GSPC,APRDS and ATRS Functions.(approx dimension L750 X B800 X H2415), Weight 400 Kg per panel.	17	Nos		
A.2	max MMI (Details are as follows)	•	1		
A.2.1	max Engineering Station, Link Station, Operator Station, Storian System and accessories	7	Nos		
A.2.2	max Network Panel (approx. dimension 600x800x2355mm)	1	Nos		
A.2.3	Printers for Max system, colour inkjet, laser jet, dot matrix along with print server	7	Nos		
A.3	Flame Scanner Amplifier Panel (CJF07) (Approx 750x800x2415)	1	No		
A.4	DC motor starter box for scanner fan (Approx 800x400x1200)	1	No		
A.5	Pulveriser Lube oil skid	5	Sets		

Schedule of Rates and Quantities (Page 2 of 15)

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
A.6	Fan Lube oil skid	6	Sets		
A.7	Feeder Control Cabinet (600x400x1200)	5	Nos		
A.8	ERV Controller (350x290x180) approximate weight 5 kg	1	No		
A.9	Electronic Water Level Indicator (EWLI) with two numbers of remote display unit at UCD, Two display unit at operating floor and two numbers ascertor panels.	2	Sets		
A.10	Air Heater Rotor Stoppage Alarm Box	2	Set		
A.11	Soot Blower MCC 5400x1000x2400) Double front non-drawout type	1	No		
A.12	ESP MCC (11000x1700x2400) double front non-drawout type.	1	Nos		
A.13	Electronic Controller for ESP, (approx L700 X B650 X H2000), weight 300kg/controller	8	Nos		

	$\overline{}$	_	1	_	_
1	)	а	Τ	e	•

Schedule of Rates and Quantities (Page 3 of 15)

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
A.14	Rapcon control panel	1	Nos		
A.15	HEA Exciter system comprising of retract mechanism, transformer, spark rod and tip, flexible cable, hose, plug and accessories	12	Sets		
A.16	Flame Scanner Head Assembly with cable, JB and accessories	16	Sets		
A.17	AVR Control Panel 3050 (L)x750 (W)x2295 (H), Approximate total weight is 1000 Kg.	1	Nos		
A.18	Generator Relay and Control Panel along with Generator Control Desk and synchronising gear.	1	Nos		
A.19	CO <sub>2</sub> Panels,Cylinders and Piping for firefighting system for STG.	1	Set		
A.20	Turbosupervisory Equipment like, vibration sensor, Axial Shift, Expansion Probes along with proximeter, 3500 system rack, PC, cables and accessories.	1	Set		
A.21	Opacity Monitor System with accessories for ESP	1	Set		

П	_	+	_	
ப	а	ш	ᇴ	

Schedule of Rates and Quantities (Page 4 of 15)

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
A.22	Integrated Operating System (IOS) PC	1	Nos		
A.23	Local Instrument Racks	15	Nos		
A.24	INTEGRATED TESTING/ COMMISSIONING OF CONTROLS AND PROTECTIONS RELAY PANEL OF GENERATOR & ASSOCIATED EQUIPMENTS. (Scope of work as detailed in tender specification vide clause No. 4.15.13)	1	Sets		
A25	Generator Space Heater Panel	1	No		
A26	110V Control Supply Panel	1	No		
A27	Local Gauge Borad for Turbine, CEP and BFPs	5	Nos		
	SECTION B - FIELD INSTRUMENTS, CONTROLL	ERS (C	Details a	re as follows)	
B.1	Pressure Switch	50	Nos		

ח	ata.	
$\boldsymbol{L}$	aıc.	

Schedule of Rates and Quantities (Page 5 of 15)

SN	DESCRIPTION	QTY	иом	UNIT RATE (Rs)	TOTAL RATE (Rs)
B.2	Differential Pressure Indicator/ Differential Pressure Switch.	35	Nos		
B.3	Pressure Gauge/Draft Gauge	125	Nos		
B.4	Electronic Pressure Transmitters	25	Nos		
B.5	Electronic Differential Pressure Transmitter for measurement of flow, level etc.	5	Nos		
B.6	Temperature Switch(Stem / Capilliary type ), Thermostat	5	Nos		
B.7	Temperature Gauge with thermowell (both stem type and capillary type)	100	Nos		
B.8	Thermocouple with thermowell (all types except MTM for Boiler)	35	Nos		
B.9	MTM Thermocouple with clamp and clit.	40	Nos		

	$\overline{}$	_	1	_	_
1	)	а	Τ	e	•

Schedule of Rates and Quantities (Page 6 of 15)

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
B.10	RTD (simplex / duplex) with thermowell	20	Nos		
B.11	Level Switch	45	Nos		
B.12	Level Indicator / Level Gauge	15	Nos		
B.13	Ash level indicator along with sensing probe, cable and accessories.	8	sets		
B.14	Flow switch (Mechanical / Electronic)	1	Nos		
B.15	Flow indicator / Flow Gauge / Flow meter	1	Nos		
B.16	Flow Transmitter (Pulse / mass flow / PD type) including flanges and pulse amplifier	1	Nos		
B.17	Vibration measurement system for Fans (Make: Shenk Avery)	12	Nos		

Date:	Signature & Official Seal of Bidder

Schedule of Rates and Quantities (Page 7 of 15)

Job: Handling, Transportation, Erection, Testing, Checking of Calibration, Assistance for Commissioning, Final painting and Handing Over of C&I and Electrical package of at 1x80 MW Captive power Plant at Zawar, Zinc Ore Mines, Village-Zawar, Tahasil-SARADA, Dist.-Udaipur, Rajasthan, in accordance with the scope specified in Tender Specification with associated amendments, clarifications etc. Items of work are as follows.

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
B.18	Speed Pick up and measurement system	6	Nos		
B.19	I/P converters	35	Nos		
B.20	Air filter regulator	30	Nos		
B.21	Limit Switch	90	Nos		
B.22	Speed Regulator	12	Nos		
B.23	Air Lock Relay	12	Nos		
B.24	Solenoid Valves	55	Nos		
B.25	Thermostats for ESP	8	Nos		

Schedule of Rates and Quantities (Page 8 of 15)

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
B.26	Support insulator thermostat	1	Nos		
B.27	Disconnecting switch	4	Nos		
B.28	Air flow rotameter	2	Nos		
B.29	4x4" power cylinders for SADC system	40	Nos		
B.30	power cylinders for Fan Inlet Vanes	6	Nos		
	SECTION C- DEVICES ERECTED BY OTHER AGE	NCIES	(Details	are as follows)	
C.1	Only healthiness checking of embedded RTD / T/C in Pump/Fan motor bearings	40	Nos		
C.2	Limit Switches (checking and adjusting only).	30	Nos		

$\Box$	ata	•
$\boldsymbol{L}$	aic	

Schedule of Rates and Quantities (Page 9 of 15)

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
C.3	Commissioning of Pneumatic regulating drives: (Control Valve, )	40	Nos		
C.4	Commissioning of Open/Close type pneumatic gates / dampers / valves	60	Nos		
C.5	Commissioning of Mill Discharge Valve	5	Sets		
C.6	Commissioning of Electrical actuators	60	Nos		
C.7	Commissioning of Burner Tilt Powr Cylinders	4	Nos		
C.8	Oil filtration,Testing and commissioning of ESP Transformers	8	Nos		
C.9	Testing and commissioning of Heating elements in ESP (Hopper heater, support heater and shaft heaters)	150	Nos		

_		
D	ate	٠

Schedule of Rates and Quantities (Page 10 of 15)

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)			
C.10	Rotary switch in ESP	4	Nos					
C.11	Interlock Board in ESP	4	Nos					
C.12	Electrically Operated Hoist for ESP and Fans	4	Nos					
C.13	Central Lub Oil System	1	Set					
C14	Soot Blowers (LRSB and RSB)	6	Sets					
SECTIO	SECTION D - CABLE, CABLE TRAY, JBs, IMPULSE PIPE, STRUCTURAL STEEL AND OTHER HARDWARE (Details are as follows)							
D.1	Junction boxes12/24/ 36/48 way	120	Nos					

г	٦,	. 4	_	
	12	aт	$oldsymbol{\circ}$	•

Schedule of Rates and Quantities (Page 11 of 15)

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
D.2	Local start stop push buttons	20	Nos		
D.3	Impulse Pipe/ Tubes			NA	NA
D.3.1	S.S. Tube 12.7x2.1	150	М		
D.3.2	S.S. Tube 6.35X0.9	1500	M		
D.3.3	1/2 " Sch 40/80/160 CS Pipe	150	M		
D.3.4	1/2" Sch 40/80/160 SS / SA 106 Gr B Pipe	550	М		
D.3.5	Copper tube 6mm/ 8mm / 1/4"/ 3/4" (Sheathed / bare)	200	М		
D3.6	1 Inch Schedule 80 CS Pipe	100	М		

$\Box$	ata	•
$\boldsymbol{L}$	aic	

Schedule of Rates and Quantities (Page 12 of 15)

SN	DESCRIPTION	QTY	иом	UNIT RATE (Rs)	TOTAL RATE (Rs)
D3.7	Flexible Hose 1" / ½"	10	Nos		
D3.8	Flexible Hose ¼ "	32	Nos		
D.4	Perforated cable tray (with or without cover) 50mm in pieces of 2.5M	250	Nos		
D.5	Ladder / Perforated cable tray (with or without cover) 100mm in 2.5mts length	150	Nos		
D.6	Ladder / Perforated cable tray (with or without cover) 150mm in 2.5 mts length	425	Nos		
D.7	Cable Duct 250 x 100x1000mm with cover, tee, bends etc.	25	Nos		
D.8	Cable Duct60 x 60x1000mm with cover, tee, bends etc.	25	Nos		
D.9	Ladder/perforated type cable tray (with or without cover) 300mm	750	М		

	_				
1	)	а	t	ρ	•

Schedule of Rates and Quantities (Page 13 of 15)

Job: Handling, Transportation, Erection, Testing, Checking of Calibration, Assistance for Commissioning, Final painting and Handing Over of C&I and Electrical package of at 1x80 MW Captive power Plant at Zawar, Zinc Ore Mines, Village-Zawar, Tahasil-SARADA, Dist.-Udaipur, Rajasthan, in accordance with the scope specified in Tender Specification with associated amendments, clarifications etc. Items of work are as follows.

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
D.10	Ladder / perforated type cable tray (with or without cover) 450mm	150	M		
D.11	1/2" flexible conduit for cables	150	M		
D.12	GI Earthing flat 50mmX6mm	250	M		
D.13	GI Earthing flat 30mmX5mm	500	M		
D.14	GI Wire	3500	М		
D.15	UTP (Unsheilded Twistd Pair) Cable for networkig (in length of 300M)	1200	М		
D.16	Screened Copper Cable 1P / 2P x 0.5 sqmm armoured	3500	M		
D.17	Screened Copper Cable 4P x 0.5 sqmm armoured	8500	M		

Schedule of Rates and Quantities (Page 14 of 15)

SN	DESCRIPTION	QTY	иом	UNIT RATE (Rs)	TOTAL RATE (Rs)
D.18	Screened Copper Cable 8P x 0.5 sqmm armoured	4300	М		
D.19	Screened Copper Cable 10/12P x 0.5 sqmm armoured	250	M		
D.20	Screened Copper Cable 16P x 0.5 sqmm armoured	250	M		
D.21	1 sqmm PVC flexible cable	250	M		
D.22	Compensating cable 2P x 1.3 sqmm	100	М		
D.23	Copper Cable 2C x 1.5 sqmm armoured	400	М		
D.24	Copper Cable 3C x 1.5 sqmm armoured	1400	М		
D.25	Copper Cable 2P/4C x 1.5 sqmm armoured	7500	М		

	$\overline{}$	_	1	_	_
1	)	а	Τ	e	•

Schedule of Rates and Quantities (Page 15 of 15)

Job: Handling, Transportation, Erection, Testing, Checking of Calibration, Assistance for Commissioning, Final painting and Handing Over of C&I and Electrical package of at 1x80 MW Captive power Plant at Zawar, Zinc Ore Mines, Village-Zawar, Tahasil-SARADA, Dist.-Udaipur, Rajasthan, in accordance with the scope specified in Tender Specification with associated amendments, clarifications etc. Items of work are as follows.

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
D.26	Copper Cable 5C x 1.5 sqmm armoured	800	M		
D.27	Copper Cable 4P / 7C x 1.5 sqmm armoured	5000	M		
D.28	Copper Cable 10C x 1.5 sqmm armoured	8500	M		
D.29	10T x 1.5 sqmm cable	800	M		
D.30	Copper Cable 10P / 12 P x 1.5 sqmm armoured	1600	M		
D.31	4C / 2P shielded unarmoured cable for scanners	1500	М		
D.32	2C x 2.5 sqmm Cable	4500	М		
D.33	5C x 2.5 sqmm Cable	1000	M		

Schedule of Rates and Quantities (Page 16 of 15)

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
D.34	10C x 2.5 sqmm Cable	1500	М		
D.35	3C x4 sqmm Cable	1000	М		
D.36	2C x 6 sqmm Cable	250	М		
D.37	3C x 6 sqmm Cable	2500	М		
D.38	3C x 10 sqmm Cable	1000	М		
D.39	3C x 35 sqmm Cable	500	М		
D.40	2C x 70 sqmm Cable	3500	М		
D.41	Structural steel for fabrication	4	MT		

_		
D	ate	٠

Schedule of Rates and Quantities (Page 17 of 15)

Job: Handling, Transportation, Erection, Testing, Checking of Calibration, Assistance for Commissioning, Final painting and Handing Over of C&I and Electrical package of at 1x80 MW Captive power Plant at Zawar, Zinc Ore Mines, Village-Zawar, Tahasil-SARADA, Dist.-Udaipur, Rajasthan, in accordance with the scope specified in Tender Specification with associated amendments, clarifications etc. Items of work are as follows.

SN	DESCRIPTION	QTY	UOM	UNIT RATE (Rs)	TOTAL RATE (Rs)
GRAND '	TOTAL (IN FIGURES)		Rs.		
GRAND	TOTAL (IN WORDS): RUPEES			L	