

TENDER SPECIFICATION BHEL: PSSR: SCT: 2209

FOR

Erection, Testing & Commissioning of Control and Instrumentation works for the Flue Gas Desulphurization (FGD) system and its auxiliaries for all five Units and Common Systems of FGD including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, at 5 x 800 MW Yadadri Thermal Power Project.

VOLUME –II

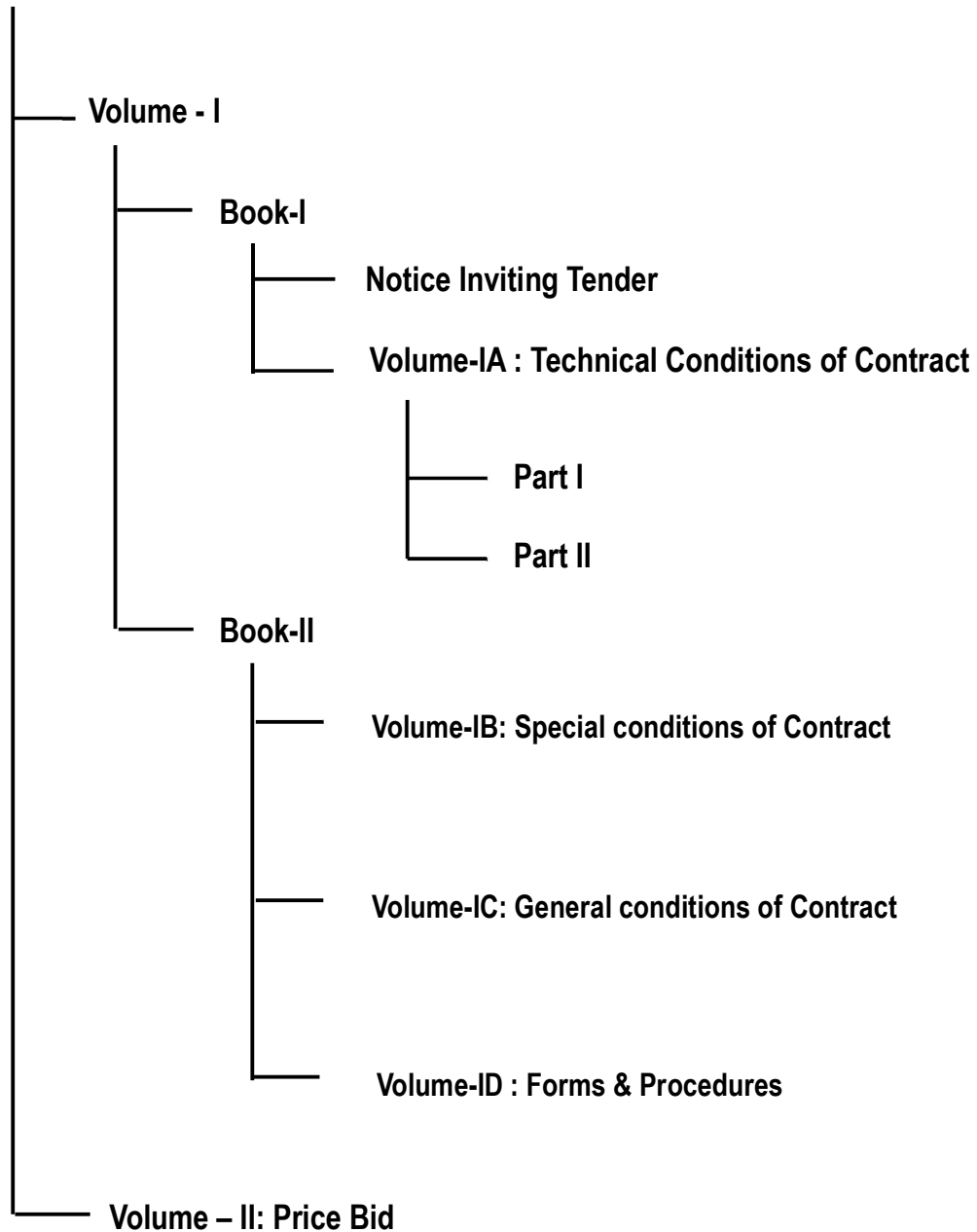
PRICE BID



BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector – Southern Region
BHEL Integrated Office Complex, TNEB Road
Pallikaranai, Chennai - 600100

TENDER SPECIFICATION CONSISTS OF

Tender Specification



NOTICE INVITING TENDER

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NOTICE INVITING TENDER

PART A

Instruction to Bidders:

1. The quantity indicated in the BOQ / Price bid (Part C) is approximate only and is liable for variation. Payment will be as per actual quantity executed as certified by BHEL Engineer.
2. Tenderers are requested to affix their company seal and authorized signature in all pages.
3. Bidders shall quote 'Total Amount' in the format enclosed as a separate Excel File in BHEL NIC e-Procurement portal for the subject tender and upload the same under 'Packet details - > Tender covers -> Finance '(Cover Type Description – Price Bid)'' and same shall be taken into account for evaluation and awarding and hence, shall be complete in all respect for the full scope of work defined in specification and in accordance with terms & conditions of the tender. Any other entry elsewhere in the price bid shall be treated as Null and Void. Quoting of rates in any other form/ formats will not be entertained.
4. The above mentioned 'Total amount' is for the entire Bill of Quantity (BOQ) given in Part -C of the Price Bid.
5. BHEL has pre-fixed the weightages for the amount of individual items of Bill of Quantity with respect to the 'Total Amount' in Part-C.
6. Based on the pre-fixed weightages, the amount for the individual items of the Bill of Quantity shall be arrived at. This amount shall be rounded off to the nearest rupee.
7. Based on the quantities of individual item and the amount arrived in SI No: 6 above, unit rate of individual items shall be derived. This unit rate shall be rounded off to four decimal places.
8. Bidders to note that this is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived at as per SI No.7 above.

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount	
I	ERECTION AND COMMISSIONING OF LOCAL/FIELD MOUNTED INSTRUMENTS, DEVICES, SWITCHES				
C.3.5, D.1.2. 6	Pressure Transmitters / DP Transmitters / DP Type flow transmitters/Conductivity Transmitters/DP type LT	Nos	317	.0105222	
C.3.6, D.1.2. 1,D.1. 2.2	Level Transmitter (Guided Wave/Ultrasonic/Capacitance Type) along with accessories	Nos	82	.0119259	
B.1.1 0,B.1. 11,B.1 .8,C.3. 2,D.1. 2.5	Pressure / DP Gauge/Reverse Rotation Indicators/Discharge indicators/ Rotameter	Nos	217	.005478	
B.1.9, C.3.3	Temperature Gauge, Temperature Gauge with Thermowell	Nos	70	.0025375	
C.3.7	Pressure / Differential Pressure Switch / Temperature Switch	Nos	18	.0005857	
B.1.1, B.1.2, B.1.3, B.1.4, B.1.5, C.3.4, D.1.2. 7	Temperature Elements(RTD)/Thermocouple with Thermowell/RTD with Thermowell) / Flow Elements/Thermocouple with threaded connection	Nos	320	.0101606	

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount	
B.1.7, C.3.1, D.1.2. 4	Flow Switch/Flow meter/Flow Indicator/Vacuum Switch	Nos	100	.0051886	
B.1.6	Temperature Transmitter	Nos	250	.0092264	
D.1.2. 3	Level Gauge	Nos.	1	.0000891	
II	ERECTION AND COMMISSIONING OF SPECIAL INSTRUMENTS				
C.6	High Temp/Low Temp O2 Analyzer	SET	5	.0036934	
C.4	Analysers (Ammonia Leak Detection/Density/Ph/Conductivity)	SET	17	.0021502	
C.5	CO/Velocity/HF/Mercury/ pH/ NOX/SOX/NH3/Gas Flow/SO2 Analyzer including all accessories	SET	20	.0507977	
III	ERECTION AND COMMISSIONING OF UPS/BATTERY & BATTERY CHARGER				
C.9.1	2X80 kVA UPS	SET	1	.0029969	
C.9.1 0	2X90 kVA UPS	SET	1	.0033715	
C.9.1 8,C.9. 9	UPS BATTERY: Lead Acir Plante Battery: 535AH/360V -Made of 2 banks of 180 cells each	SET	2	.0086258	
C.9.1 1,C.9. 2	ACDB	Nos	4	.0061063	
IV	ERECTION AND COMMISSIONING OF CONTROL PANELS AND RELATED ACCESSORIES				

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount	
,C.9.1 7,C.9.8	Battery Health Monitoring System Panels	SET	2	.0008424	
,C.13	Network Panels	Nos	2	.0005154	
,A.5.1, A.5.2, D.1.1	Local Control Panels for GGH, Belt Filter, etc.	Nos	13	.0054756	
,C.16	VFD Panel Approx. Overall Dimensions Length (mm) - 2392, Height (mm) - 2755, Depth (mm) - 1255 Weight (kg) - Approx 6500 Kg	Nos	5	.0285498	
V	Shifting from Stores to place of erection, placement, Alignment & erection of Panels				
,C.1.1, C.1.4	Suite of One Cubicles	Nos	15	.0024711	
,C.1.5	Suite of Two Cubicles	Nos	6	.0015498	
,C.1.2	Suite of Three Cubicles	Nos	8	.0033735	
,C.1.3	Suite of Four Cubicles	Nos	17	.0078146	
VI	Minor Alignment, Electrical Interconnection, Testing and Commissioning of Panels				
,C.2.1, C.2.4	Suite of One Cubicles	Nos	15	.0037067	
,C.2.5	Suite of Two Cubicles	Nos	6	.0023249	
,C.2.2	Suite of Three Cubicles	Nos	8	.0050597	
,C.2.3	Suite of Four Cubicles	Nos	17	.0117215	

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount	
VII	INSTALLATION AND COMMISSIONING OF HMI SYSTEM WITH COMPLETE ACCESSORIES AND CONNECTIVITY				
,C.12. 3	Printers (Laser Jet/Dotmatrix A4/A3/COLOUR/BW/Multifunction Printer)	Nos	2	.000213	
,C.12. 1,C.12 .2	OWS with Monitor/Servers (incl. monitor) /Stations/User PC/OPC Client along with mini UPS	SET	6	.0010529	
VIII	INSTALLATION OF FURNITURES				
,C.14. 2	Operator Desk-3 Section with Accessories	SET	2	.0031929	
,C.14. 1	Computer Table/Printer Table/Chairs	SET	2	.0001879	
IX	ERECTION AND COMMISSIONING OF JB/PUSH BUTTONS				
,B.2.1, B.2.2, D.1.5, D.1.6, D.1.7	Junction Boxes upto 48 way	Nos	79	.0040714	
X	ERECTION AND COMMISSIONING OF LIE/LIR				
,C.11. 1,C.11 .2,C.1 1.3	Local Instrument Enclosures	SET	21	.0067541	
XI	ERECTION AND COMMISSIONING OF SOLENOID OPERATED VALVES				

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount	
,D.1.1 0	Solenoid Operated Valves with Manifolds and tubing	Nos.	41	.0009688	
XII	FABRICATION AND INSTALLATION OF STRUCTURAL STEEL				
,A.2,C .8,D.1. 9.1	STRUCTURAL STEEL (ISMC/ISMB/ANGLE/FLATS etc)	MT	84	.0808841	
XIII	LAYING OF POWER CABLES				
,C.9.1 2,C.9. 13,C.9 .3,C.9. 4	84.2sqmm Nyvin Cable N000/1Cx109 Sqmm - Nyvin Cable UN 0000	Mtrs	1,160	.0032424	
XIV	TERMINATION OF POWER CABLES				
,C.9.1 6,C.9. 5	84.2sqmm Nyvin Cable N000/1Cx109 Sqmm - Nyvin Cable UN 0000	Nos	28	.0002324	
XV	LAYING AND TERMINATION OF INDIVIDUAL & OVERALL SHIELDED (TYPE G/F), TWISTED PAIR, ARMoured/UNARMoured CABLES, KX TYPE CABLES, OFC, OTHER SPECIAL CABLES				
,A.3.1, A.3.9, D.1.4. I	2PX0.5 SQMM/ 2TX0.5SQMM/ 2PX1.5SQMM/ 2PX1.31SQMM/ 2PX16AWG KX/NX/RX/G CABLE, Heat Flux Sensor Cable 2P, Flame Scanner Cable, 3P, 3P X 1.0 SQ.MM, 2TX 1SQMM, 2P X 1 SQmm, 1PX1.5 sqmm, 1T X 1.5 SQMM, 1P X 16AWG	Mtrs	136,160	.0713617	
,A.3.2, A.3.5	4PX0.5 SQMM/ 6PX0.5SQMM, F/G CABLE, 4PX1.31 SQ.MM KX, 6 PairX1.31 SQ.MM, 16 AWG, KX Type, 4PX1.5 sqmm 4Px1 SQMM, 6Px1.5 SQMM, 6Px1 SQMM	Mtrs	217,000	.1326851	

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount	
,A.3.3, A.3.6	8PX0.5 SQMM CABLE, 8PX1.31SQMM KX Type, 8PX1.5 SQMM, 8PX1 SQMM, 8T X 1.5 SQMM	Mtrs	147,000	.1219847	
,A.3.4, A.3.7	10Tx1.5 SQMM, 12PX0.5 SQMM, 12PX1.31 SQMM KX CABLE, 12Px 1.5 SQMM, 12Px1 SQMM	Mtrs	85,000	.0853849	
,C.15. 1,C.9, 14,C.9 .15	CAT-6 UTP CABLES/Ethernet Cables	Mtrs	9,980	.003487	
,C.9.6, C.9.7	RS-485/RG-58 CABLE	Mtrs	5,480	.0055048	
,A.3.8	20PX0.5 SQMM	Mtrs	50,000	.0545939	
,C.15. 2	Laying of Optical Fibre Cable	Mtrs	6,000	.0055031	
,C.15. 3	Splicing of Optical Fibre Cable	Nos	32	.0003885	
XVI	ERECTION OF CABLE TRAYS WITH/WITHOUT COVER				
,A.1.1	PERFORATED CABLE TRAYS 50 MM WIDE	Mtrs	500	.002424	
,A.1.2	PERFORATED CABLE TRAYS 100 MM WIDE	Mtrs	500	.0030354	
XVII	INSTALLATION, TESTING AND COMMISSIONING OF EARTHING SYSTEMS (GS/GI)				
,A.4.1	FLAT 50X6mm	Mtrs	200	.0007163	
,A.4.2, A.4.3	GI Wire 8SWG/GI Wire 14SWG	Mtrs	1,000	.0004368	

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount	
XVIII	ERECTION AND TESTING OF IMPULSE PIPES CS/AS/SS PIPES, TUBES				
,C.10.1,C.10.2	CS tubes/pipes upto 1 inch, 16X2.6mm, 13.5 X 2.6	Mtrs	16,000	.1530377	
,D.1.8.2,D.1.8.3	SS Tube upto 1 inch, 8 mm OD X 1 mm	Mtrs	612	.0017909	
,D.1.8.1	SS Pipe 1/2 inch Schedule 40/40S	Mtrs	339	.0030944	
XIX	ERECTION AND TESTING OF HOSES, TUBES & GI PIPES				
,C.7.1	1/2 inch GI Pipe	Mtrs	7,250	.0354642	
,C.7.2	1 inch GI Pipe	Mtrs	375	.0028662	
XX	CHECKING & COMMISSIONING OF THE FOLLOWING ERECTED BY MECHANICAL AGENCY				
,D.1.3.1,D.1.3.2	Limit Switch	Nos.	2	.000036	
XXI	REMOVAL, CALIBRATION AND REFIXING OF INSTRUMENTS, CHECKING SOLENOID VALVES, DRIVES, INCLUDING WIRING ON THE RACK ETC ERECTED BY OTHER AGENCIES				
,B.3	Oxidation Blower Skid	SET	10	.0020829	
XXII	Electronic Earth Pit				

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Ref.No.	Description	Unit of Measurement	Qty.	Weightage for amount of each item (Nearest to the 7 decimal points) w.r.t the total amount
E.1	Treated Earth pit of CI pipe 3000 m long with funnel and accessories including all civil works in hardrock by drilling, filling of earth pit with alternate layer of chrcoal & salt as per IE specification and making of brick chamber, with both side plastering, supply and fixing of manhole CI cover plate/RCC Slab etc. complete as per IS 3043 (only 100 mm CI pipe shall be supplied by BHEL). If desired resistivity is not achieved then Bentonite mix to be used by the contractor. Supply of Bentonite mix is in the scope of bidder	SET	15	.0064609