

TENDER SPECIFICATION BHEL: PSSR: SCT: 2216

FOR

Erection, Testing and Commissioning and Trial Operation including Supply and Application of Final Painting and Handling of materials at site BHEL stores / Client Stores/ Storage Yard, transporting to site of erection of Electrical, C&I works for Flue Gas Desulphurization (FGD) System at 1 x 800MW (KTPS FGD) Kothagudem Thermal Power Station, Stage VII, Unit 12, Telangana.

VOLUME –II

PRICE BID

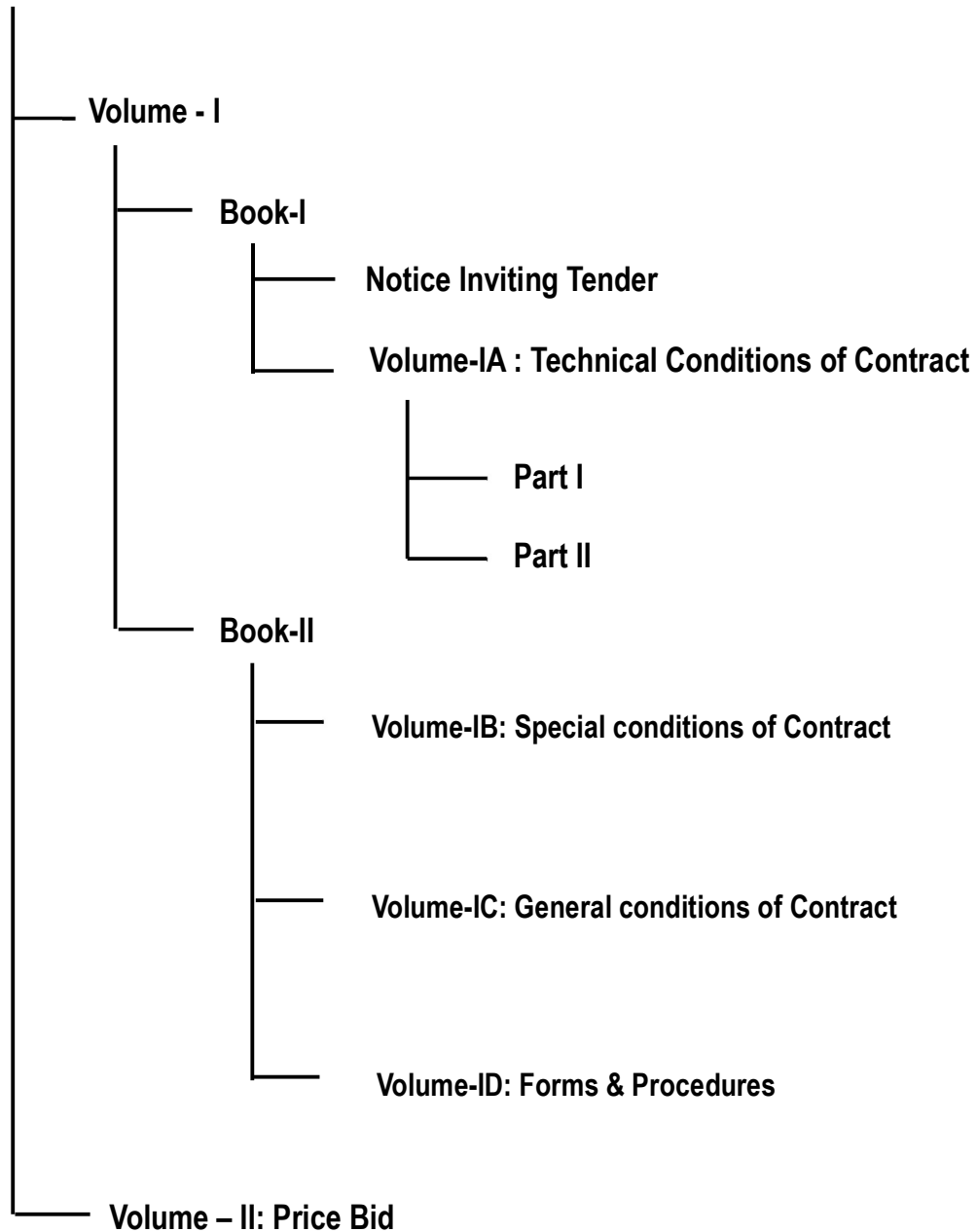


BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)

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. Total amount shall be excluding taxes.
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.

Part C : Bill of Quantities

Tender Specification for Electrical works, Control and Instrumentation (C&I) works for KOTHAGUDEM THERMAL POWER STATION STAGE-VII, UNIT#12, FGD at Telangana State Power Generation Corporation Limited (TSGENCO)

at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
--	PART 1 - HT ELECTRICAL WORKS	--		
I	ERECTION AND COMMISSIONING OF TRANSFORMERS	--		
B.1,	Station Transformer (ST), 50 MVA 400/11.5 KV 3 phase ONAN/ ONAF cooled, Total Weight including oil -136550 kg approx	Set	1	.018024
C.1,	FGD Auxiliary Transformer: 10 MVA, 11/3.6KV, 3 phase ONAN cooled, Dyn11, Set Station Transformer (ST), Total weight -38000 kg approx	Set	2	.0223853
C.3, C.2,	2000 KVA Cast Resin Dry Type FGD Service Transformer, 11 / 0.433 KV 3 phase, AN cooled / Dyn11, Weight of Shipment:7000 kg approx each.	Set	6	.0337871
II	ERECTION AND COMMISSIONING OF HT BUSDUCT	--		
D.1,	11 KV-2500 A SPBD BUSDUCT, including seal off bushing, rubber bellows, support steel structure, space heaters arrangement, grounding etc	Mtrs	559	.0633629
D.2,	3.3 KV-1600 A SPBD includes seal off bushing, rubber bellows, support steel structure, space heaters arrangement, grounding etc.	Mtrs	142	.0154791
III	ERECTION AND COMMISSIONING OF HT SWITCHGEAR	--		
A.1.1,	Unit Switchboard, 11 KV, 20 Panel, 3150 A, SWBD consists of 20 panels, 11 shipping sections. Overall panel sizes 16780 (L) x 2349 (D) x2805 (H). Approximate weight of shipping sections for one panel shipping section - 1250 Kg. & two panel shipping section - 2500 Kg.	Set	1	.0104868
A.3.1,	Feeder/ Busbar Earthing Breaker Truck for 11 KV Switchgear suitable upto 3150A	Set	3	.0005956
A.2.1,	3.3 KV, 20 Panel Unit Aux Switchboard,2000 A, SWBD consists of 20 panels of suitable 11 shipping sections. Overall panel sizes 16780 (L) x 2349 (D) x2805 (H). Approximate weight of shipping sections for one panel shipping section - 1250 Kg. & two panel shipping section - 2500 Kg.	Set	1	.0105589
A.4.1,	Feeder/ Busbar Earthing Breaker Truck for 3.3 KV Switchgear suitable upto 2000A	Set	2	.000397

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at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
IV	ERECTION AND COMMISSIONING OF INTERMEDIATE SUPPORTING PANELS AND ACCESSORIES / CONTROL PANEL SYSTEM AND ACCESSORIES	--		
A.5.1,	Data Concentrator Panel along with loose items size 800mm(W) x800mm(D) x 2000mm(H) approx. weight 200kg. HMI OWS computer with monitor - 2 nos, Assembling of loose supply items: computer table, chairs, Printer, UPS, Ethernet Switch, LIU, Laptop computer, Patch cards, connectors GPS antenna along with cables, GPS clock etc. Assembling of loose supply computer table, printer table chairs etc	Set	1	.0019548
E.1,	11 KV Neutral Ground Resistor (NGR) with NGR Cubicle of size 1.42(L) X 1.11(W) X 2.095(H) of weight approx. 600 kg and with Supporting Structures 250 kg	Set	1	.0013893
E.2,	3.3 kV Neutral Ground Resistor (NGR) with NGR Cubicle of size 0.83(L) X 1.05(W) X 1.99(H) of weight approx. 450 kg and with Supporting Structures 220 kg	Set	1	.0014573
V	LAYING OF HT CABLES 11KV (UE) ARMoured; ALUMINIUM CONDUCTOR, XLPE INSULATED PVC/FRLS OUTER SHEATHED CABLE.	--		
E.5.2,	11 KV 1C x 240 sqmm (AL)	Mtrs	2,000	.0030186
E.5.1,	11 KV 1C x 630 sqmm (AL)	Mtrs	8,000	.0224237
E.5.3,	11 KV 3C x 240 sqmm (AL)	Mtrs	500	.0016325
VI	LAYING OF HT CABLES 3.3KV (UE) ARMoured; ALUMINIUM CONDUCTOR, XLPE INSULATED PVC/FRLS OUTER SHEATHED CABLE.	--		
E.5.4,	3.3 KV 1CX240 Sq.mm (AL)	Mtrs	3,000	.007762
E.5.5,	3.3 KV 3CX185 Sq.mm (AL)	Mtrs	2,000	.0054211
VII	Installation of Cable Jointing kits, termination kits for 11 / 3.3 KV (UE) GRADE, XLPE Insulated aluminium conductor armoured cables for the following sizes.	--		
E.8.1,	Jointing Kit (XLPE) 11 KV 1C-630 sqmm Al Arm	Nos	10	.0015419

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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.6.2,	Termination Kit (XLPE) 11 KV 1C-240 sqmm Al Arm Al lug	Nos	18	.0017398
E.6.1,	Termination Kit (XLPE) 11 KV 1C-630 sqmm Al Arm Al lug	Nos	35	.0057773
E.6.3,	Termination Kit (XLPE) 11 KV 3C-240 sqmm Al Arm Al lug	Nos	15	.0026151
E.7.2,	Termination Kit (XLPE) 3.3 KV 1C-240 sqmm Al Arm Al lug	Nos	38	.0059553
E.7.1,	Termination Kit (XLPE) 3.3 KV 3C-185 sqmm Al Arm Al lug	Nos	16	.0025297
VIII	INSTALLATION OF HOT DIP GALVANIZED IRON / STEEL FLATS , Wires etc.	--		
N.3.31 , E.9.4,	GI WIRE 16 SWG	Mtrs	37,000	.006838
F.8.3, E.9.1,	GS FLAT 25 mm X 6 mm	Mtrs	3,350	.0085644
F.8.2, E.9.2,	GS FLAT 50 mm X 6 mm	Mtrs	4,225	.013274
F.8.1, E.9.3,	GS FLAT 75 mm X 10 mm	Mtrs	1,420	.0061671
E.9.5,	GS Rod 20 mm dia LONG 1000 mm vertical air termination, Test links (150 x 75 x 10)	Mtrs	40	.0055098
F.8.5,	G.S. WIRE 8 SWG	Mtrs	6,563	.0012129
IX	COMMISSIONING OF THE FOLLOWING ERECTED BY MECHANICAL CONTRACTOR	--		
A.6.1,	11 KV HT Drives	--	2	.000919

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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.6.2,	3.3 KV HT Drives	--	9	.0016298
--	PART 2 - LT ELECTRICAL WORKS	--		
I	ERECTION AND COMMISSIONING OF LT SWITCHGEAR ACDB/DCDB/MCC/PMCC	--		
H.1.7,	220V MAIN DCDB, rating 100A, Approximate Overall Weight (in kg) 3800, Set Approximate Dimension in mm (LxDxH): 3600X1000X2450, No. of Panels: 4 & No. of Shipping Sections: 2	Set	1	.0021793
H.1.5,	415V FGD WATER SYST MCC rating 400A, Approximate Overall Weight (in kg) 8550, Approximate Dimension in mm (LxDxH): 8100X1000X2450 No. of Panels: 9 & No. of Shipping Sections: 3 to 4	Set	1	.0050948
H.1.6,	415V CONTROL RROM AC & VENT ACDB rating 400A, Approximate Overall Weight (in kg) 11400, Approximate Dimension in mm (LxDxH): 10800X1000X2450 No. of Panels: 12 & No. of Shipping Sections: 5 to 6	Set	1	.0076513
H.1.4,	415V FGD DG MCC rating 1250A, Approximate Overall Weight (in kg) 12350, Approximate Dimension in mm (LxDxH): 11700X1300X2450 No. of Panels: 13 & No. of Shipping Sections: 5 to 6	Set	1	.0079727
H.1.3,	415V LHP PMCC rating 3000A, Approximate Overall Weight (in kg) 19900, Approximate Dimension in mm (LxDxH): 21000X1700X2450 No. of Panels: 20 & No. of Shipping Sections: 9 to 11	Set	1	.0110878
H.1.2,	415V FGD COMM PMCC rating 3200A, Approximate Overall Weight (in kg) 19950, Approximate Dimension in mm (LxDxH): 21000X1700X2450 No. of Panels: 21 & No. of Shipping Sections: 9 to 11	Set	1	.0114766

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at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
H.1.1,	415V FGD PMCC rating 3200A, Approximate Overall Weight (in kg) 20900, Approximate Dimension in mm (LxDxH): 21900X1700X2450 No. of Panels: 22 & No. of Shipping Sections: 9 to 11	Set	1	.0135009
H.1.9,	AC FUSE DB, rating 100A, Approximate Overall Weight (in kg) 250, 1500mmx1500mmx450mm (LXHxW), No. of Shipping Sections: 1	Set	2	.0004415
H.1.8,	DC FUSE DB, rating 100A, Approximate Overall Weight (in kg) 250, 1500mmx1500mmx450mm (LXHxW), No. of Shipping Sections: 1	Set	1	.0002207
II	ERECTION AND COMMISSIONING OF CONTROL PANEL SYSTEM	--		
H.5.1,	LT DATA CONCENTRATOR SYSTEM: Data concentrator panel along with loose items, approx. size 800mm x 2200mm x 800mm (LxHxW) aprox weight 300 kg along with computer and its accessories, printer, furniture- 1 set, UPS, CAT 5e Cables (1KM), ethernet switches, LIU, connector etc.	Set	1	.0021266
III	ERECTION AND COMMISSIONING OF CONTROL PANEL SYSTEM	--		
L.3.2, L.3.1, J.9.2,	VFD Panel for different Applications	Nos	5	.0025963
IV	ERECTION AND COMMISSIONING OF 415V LT NON SEGREGATED PHASE BUSDUCT	--		
H.2.3, H.2.2, H.2.1,	NSPBD TYPE BUSDUCT 3200A, 415 V	Mtrs	24	.0026672
V	LAYING OF LT POWER / CONTROL CABLES 1.1KV, XLPE INSULATED, GALVANISED STEEL ARMoured SINGLE / MULTICORE CABLES FRLS PVC. (AL/CU CABLES)	--		

Part C : Bill of Quantities

Tender Specification for Electrical works, Control and Instrumentation (C&I) works for KOTHAGUDEM THERMAL POWER STATION STAGE-VII, UNIT#12, FGD at Telangana State Power Generation Corporation Limited (TSGENCO) at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
N.3.33 , A.5.2,	1CX35 Sqmm (Al) / (Cu)	Mtrs	3,500	.0017249
J.3.4, F.1.3,	1CX120 Sqmm (Al), 1C 109 Sqmm	Mtrs	1,440	.0011976
F.1.4,	1CX400 Sqmm (Al)	Mtrs	1,000	.0012937
F.1.5,	1CX630 Sqmm (Al)	Mtrs	7,500	.0106266
F.1.6,	2CX6 Sqmm (Cu)	Mtrs	3,000	.0012937
F.1.7,	2CX10 Sqmm (Al)	Mtrs	500	.0002464
F.1.8,	2CX25 Sqmm (Al)	Mtrs	1,000	.0004928
F.1.9,	2CX95 Sqmm (Al)	Mtrs	1,500	.0012475
F.1.10 ,	3CX10 Sqmm (Al)	Mtrs	5,500	.00288
J.3.5, F.1.11 ,	3CX25 Sqmm (Al), 1CX84.2 Sqmm(Cu)	Mtrs	12,580	.0081372
F.1.12 ,	3CX50 Sqmm (Al)	Mtrs	10,000	.0086245
F.1.13 ,	3CX95 Sqmm (Al)	Mtrs	5,500	.0050823

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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
F.1.14	3CX185 Sqmm (Al)	Mtrs	1,500	.0019405
F.1.15	3CX240 Sqmm (Al)	Mtrs	1,500	.0016633
F.1.16	3.5CX25 Sqmm (Al)	Mtrs	1,000	.0006468
F.1.17	3.5CX50 Sqmm (Al)	Mtrs	4,500	.0033266
F.1.18	3.5CX95 Sqmm (Al)	Mtrs	500	.000462
F.1.19	4CX10 Sqmm (Al)	Mtrs	1,500	.0007392
VI	LAYING AND TERMINATION OF LT POWER / CONTROL CABLES 1.1KV, -- XLPE INSULATED, GALVANISED STEEL ARMoured SINGLE / MULTICORE CABLES FRLS PVC. (AL/CU CABLES)			
N.3.21	2CX2.5 Sqmm (Cu)	Mtrs	29,025	.0116223
N.3.23	3CX2.5 Sqmm	Mtrs	106,000	.0424448

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at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
F.4.2,	5CX2.5 Sqmm	Mtrs	34,000	.0146616
F.4.3,	7CX2.5 Sqmm	Mtrs	2,000	.0008624
F.4.4,	9CX2.5 Sqmm	Mtrs	18,500	.0091173
F.4.5,	12CX2.5 Sqmm	Mtrs	22,000	.0108422
F.4.6,	20CX2.5 Sqmm	Mtrs	10,000	.0058523
VII	END TERMINATION OF LT POWER / CONTROL CABLES -1.1KV PVC/FRLS ARMoured AL/CU CONDUCTOR PVC INSULATED, FRLS OUTER SHEATHED.	--		
F.2.1,	1C X 35 Sqmm (Al)	Nos	20	.0000296
F.2.2,	1C X 35 Sqmm (Cu)	Nos	4	.0000059
J.3.8, F.2.3,	1C X 120 Sqmm (Al), 1C 109 Sqmm	Nos	12	.0001364
F.2.4,	1C X 400 Sqmm (Al)	Nos	8	.0000966
F.2.5,	1C X 630 Sqmm (Al)	Nos	50	.0008193
F.2.7,	2C X 10 Sqmm (Al)	Nos	4	.0000039
F.2.8,	2C X 25 Sqmm (Al)	Nos	8	.0000089
F.2.9,	2C X 95 Sqmm (Al)	Nos	10	.0000582
F.2.10 ,	3C X 10 Sqmm (Al)	--	38	.0000737

Part C : Bill of Quantities

Tender Specification for Electrical works, Control and Instrumentation (C&I) works for KOTHAGUDEM THERMAL POWER STATION STAGE-VII, UNIT#12, FGD at Telangana State Power Generation Corporation Limited (TSGENCO) at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
J.3.9, F.2.11, ,	3C X 25 Sqmm (Al), 1CX84.2 Sqmm(Cu)	Nos	86	.0005881
F.2.12, ,	3C X 50 Sqmm (Al)	Nos	68	.0006116
F.2.13, ,	3C X 95 Sqmm (Al)	Nos	38	.0003652
F.2.14, ,	3C X 185 Sqmm (Al)	Nos	10	.0000148
F.2.15, ,	3C X 240 Sqmm (Al)	Nos	10	.0000884
F.2.16, ,	3.5C X 25 Sqmm (Al)	Nos	8	.0000646
F.2.17, ,	3.5C X 50 Sqmm (Al)	Nos	30	.0002911
F.2.18, ,	3.5C X 95 Sqmm (Al)	Nos	4	.0000583
F.2.19, ,	4C X 10 Sqmm (Al)	Nos	10	.0002717
F.2.6, VIII	2C X 6 Sqmm (Cu) ERECTION OF PRE FABRICATED CABLE TRAYS, with bends, Tee, elbows, cross, -- Stiffener coupler plates, bolting to racks, structure & reducers, etc. (with or without cover)	Nos	20	.0001448
SIGNATURE OF BIDDER WITH SEAL				

Part C : Bill of Quantities

Tender Specification for Electrical works, Control and Instrumentation (C&I) works for KOTHAGUDEM THERMAL POWER STATION STAGE-VII, UNIT#12, FGD at Telangana State Power Generation Corporation Limited (TSGENCO)

at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
F.6.3,	150 mm wide, ladder type tray	Mtrs	2,000	.0060371
F.6.5,	300 mm wide, ladder type tray	Mtrs	3,000	.0130291
F.6.6,	300 mm wide, perforated type tray	Mtrs	2,000	.0089325
F.6.7,	600 mm wide, ladder type tray	Mtrs	9,000	.0413052
F.6.8,	600 mm wide, perforated type tray	Mtrs	3,000	.0188507
IX	ERECTION AND COMMISSIONING OF DIESEL GENERATOR SET	--		
J.12.3,	750 KVA (e) 1500 RPM 415V 0.80 pf (lag) DG Set with Radiator on a common Base frame along with acoustic enclosure. Size of DG approx 7.5 mtr x 3.1 mtr x 3.7 mtr (height); Over all weight of DG Set is 14 tons. Initial filling of lube oil 100 ltrs approx and coolant oil 300 ltrs approx. DG Set shall be supplied complete with acoustic enclosure and all accessories (i.e. all items mentioned in BOQ Ref) app. Overall Wt. 36 Tonnes.	Set	1	.0090686
X	ERECTION OF JUNCTION BOXES / PUSH BUTTON STATIONS / FUSE DBs (AC / DC)	--		
H.4.1, H.3.1,	L O C A L M O T O R S T A R T E R S (0 . 3 7 K W , 0 . 5 5 K W , 0 . 7 5 K W , 1 . 1 K W , 1 . 5 K W , 2 . 2 K W , 5 . 5 K W)	Nos	243	.005913
XI	COMMISSIONING OF THE FOLLOWING ERECTED BY MECHANICAL CONTRACTOR	--		
L.4.1,	T Unidirectional & Bidirectional drives (0.2 kW to 110 kW)	--	42	.001326
XII	FABRICATION & ERECTION OF STRUCTURAL STEEL	--		

Part C : Bill of Quantities

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F.7.3, F.7.2, F.7.1,	FABRICATION & ERECTION OF STRUCTURAL STEEL (ISA /ISMC - Channels plates, angles etc.)	--	75	.0543805
XIII	FABRICATION & INSTALLATION OF GI FLATS	--		
F.8.4,	FLEXIBLE COPPER BRAID FOR GATE EARTHING	Nos	4	.0000139
XIV	MISCELLANEOUS ITEMS	--		
N.2,	Treated Earth pit (Electrical) of 40 NB Gal.MS pipe 3000 M with accessories including all civil works excavation, 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. 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.	Nos	8	.0026817
--	PART 3 -CONTROL AND INSTRUMENTATION WORKS	--		
I	ERECTION AND COMMISSIONING OF LOCAL / FIELD INSTRUMENTATION, DEVICES, SWITCHES	--		
L.1.7,	Density meter	Nos	4	.0002913
J.4.10,	Electro magnetic Flowmeter	Nos	15	.0004241
L.1.9, L.1.5, J.4.1, M.1.9, M.1.8, L.1.4, L.1.3,	Pressure Transmitters / DP Transmitters / DP Type flow transmitters/Conductivity Transmitters/DP type LT	Nos	198	.0050803

SIGNATURE OF BIDDER WITH SEAL

Part C : Bill of Quantities

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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
L.1.8,	Flow Switch	Nos	9	.0003169
L.1.11 J.4.7, M.1.4,	Level Gauge	Nos	8	.0005443
L.1.10 J.4.3, M.1.3,	Level Transmitter-Ultrasonic	Nos	60	.0067474
J.4.9,	Pitot Tube Flow meter / Transmitter	Nos	2	.0001896
N.3.35 L.1.6, J.4.8, J.4.6,	Pressure / DP Switch	Nos	35	.0008851
J.4.4, M.1.7, M.1.6, L.1.2, L.1.1,	Pressure/ DP Gauges	Nos	42	.0008215
J.4.2	Radar type level transmitter	Nos	9	.0010121
M.1.1 0, L.1.12 J.4.11,	RTD / Temperature Elements	Nos	202	.0049838

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L.1.14, ,	Temp Transmitter	Nos	51	.0013981
L.1.13, J.4.5,	Temperature Gauges	Nos	39	.0011016
L.1.19, ,	Weight Transmitter	Nos	2	.0000477
M.1.5,	Magnetic Flow meter	Nos	10	.0009271
M.1.1 2,	Sway Switches	Nos	4	.0000575
M.1.1 1,	Pull cord Switches	Nos	12	.0001726
L.1.15, ,	Speed switch	Nos	2	.0000452
L.1.16, ,	Temp Switch	Nos	4	.0000988
L.1.18, ,	Vibration Switch	Nos	16	.0002198
L.1.17, ,	Position Switch	Nos	8	.0001905
L.1.20, ,	Anubar	No	1	.0000692

Part C : Bill of Quantities

Tender Specification for Electrical works, Control and Instrumentation (C&I) works for KOTHAGUDEM THERMAL POWER STATION STAGE-VII, UNIT#12, FGD at Telangana State Power Generation Corporation Limited (TSGENCO)

at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
L.1.21	Key phasor	No	1	.0000242
II	ERECTION AND COMMISSIONING OF SPECIAL INSTRUMENTS	--		
J.5.1,	Installation of Vibration Monitoring System - 4 Nos. Panel (panel suite weight: 2000 Kg, Panel Suite dimension: 2067mm(H)X3200mm(W)X800mm(D), 2 Nos of server, 1 no of printer Installation of 110 nos. vibration sensors, driver, extension cable with mounting block- Qty- 55 nos, Phase marker sensor (probe), driver, extension cable, mounting bracket- Qty-13 set (Total Approx wt 3000 KG) Loop checking of VMS system through Portable shaker table for 166 points sensors as above. Portable shaker table will be provided by BHEL.	Set	1	.0037108
J.6.2,	Low Temperature O2 Analyser	Set	1	.0005766
J.6.3,	pH Analyzer	Nos	5	.0004787
J.6.1,	SO2 Analyser	Set	4	.0087855
III	INSTALLATION AND COMMISSIONING OF HMI SYSTEM WITH COMPLETE ACCESSORIES AND CONNECTIVITY	--		
N.3.24, J.7.3, J.7.2, J.7.1,	OWS/Server/Programmer cum documentation station, with Monitor, Keyboard & mouse alongwith UPS, software, Accessories ,etc.	Set	7	.0009683
N.3.13, J.7.4,	A4 / A3 Dot Matrix /Laser(colour / black and white) Printer	Nos	3	.0002452

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Tender Specification for Electrical works, Control and Instrumentation (C&I) works for KOTHAGUDEM THERMAL POWER STATION STAGE-VII, UNIT#12, FGD at Telangana State Power Generation Corporation Limited (TSGENCO) at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
N.3.15 , N.3.12 , J.8.1,	Operator Desk (5 Section) including fixing of power Sockets, MCBs, ethernet switches hardware etc (along with chairs)	Set	3	.0053454
J.8.2,	Printer Table	Nos	1	.0001048
J.9.1,	67	Set	1	.0022949
IV	Placement, Alignment, Erection, Electrical Interconnection, Testing and Commissioning of Valmet DNA DDCMIS AND CONTROL BOARDS	--		
J.1.2,	Suite of four Cubicles	Set	3	.0027014
J.1.1,	Suite of three Cubicles	Set	9	.0072999
V	ERECTION AND COMMISSIONING OF INTERMEDIATE SUPPORTING PANELS AND ACCESSORIES / CONTROL PANEL SYSTEM AND ACCESSORIES	--		
J.2.1,	NETWORK PANEL COMMON	Nos	1	.0002772
J.2.2,	RELAY PANELS	Nos	5	.0015336
VI	ERECTION AND COMMISSIONING OF UPS / BATTERY CHARGER WITH ACDB	--		
J.3.1,	2 X45 KVA UPS	Set	1	.0013999
J.3.2,	ACDB	Nos	2	.0023545
J.3.3,	BHMS (Battery Health Monitoring System) for UPS	Nos	2	.0006737
J.3.6,	Modbus Cable (Cat5/Cat6 Cable)	Mtrs	100	.0000246

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at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
J.3.7,	UPS BATTERY: Lead Acid Plante Battery 220V/425AmpHr with all accessories	Set	2	.007239
VII	ERECTION, TESTING & COMMISSIONING OF 220V DC BATTERY AND BATTERY CHARGER	--		
E.3,	220V-400 AH Battery (Lead Acid Plante Battery) comprising a bank of 108 cells, 0.362(L) X 0.203(W) X 0.426(H) in Mtrs., weight of each cell with acid - 58.4 KG	Set	2	.0040706
E.4,	Float cum Boost Charger along with a. Discharge Resistor Panel 0.60 (L) X 1.5(W) X 1.1(H) in Mtrs - Weight - 100 Kg b. Cell Booster Panel of 0.60(L) X 0.60(W) X 0.80(H) in Mtrs - Weight - 75 Kg	Set	3	.0042042
VIII	ERECTION OF LIE / LIRS	--		
J.10.1	LIE A : 2200 (H) X 1450 (W) X 1000 (D)	Nos	11	.0027522
J.10.3, J.10.2,	LJR : 2200 (H) X 1450 (W) X 1000 (D)	Nos	2	.0004674
IX	ERECTION & COMMISSIONING IDF PNEUMATIC POWER CYLINDER (ON/OFF & REGULATING TYPE)	--		
F.9.1,	Actuators for gates	Nos	12	.003731
F.9.2,	Actuators for motorised control valves	Nos	1	.0003007
F.10.2	Angular Position transmitter	Nos	2	.0000875
F.10.1	Blade Pitch Actuator	Nos	2	.0006268
X	LAYING AND TERMINATION OF INDIVIDUAL & OVERALL SHELEDED (TYPE G/F/K), TWISTED PAIR, ARMoured / UNARMoured CABLE, KX TYPE CABLES, OFC, OTHER SPECIAL CABLES	--		
SIGNATURE OF BIDDER WITH SEAL				

Part C : Bill of Quantities

Tender Specification for Electrical works, Control and Instrumentation (C&I) works for KOTHAGUDEM THERMAL POWER STATION STAGE-VII, UNIT#12, FGD at Telangana State Power Generation Corporation Limited (TSGENCO) at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
M.3.1, F.5.5, F.5.1,	2P x 0.5 sqmm (G-Type)	Mtrs	52,370	.0209701
M.3.5, M.3.2, F.5.6, F.5.2,	4P x 0.5 sqmm (G,F-Type)	Mtrs	104,530	.0482956
M.3.6, M.3.3, F.5.7, F.5.3,	8P x 0.5 sqmm (G,F-Type)	Mtrs	88,505	.0572483
M.3.7, M.3.4, F.5.8, F.5.4,	12P x 0.5 sqmm (G,F-Type)	Mtrs	41,490	.0319491
F.5.9,	2TX0.75 SQ.MM F TYPE	Mtrs	5,500	.0025411
N.3.17 , N.3.16 ,	OLHS Cables	Mtrs	8,019	.0066669
N.3.20 ,	2P x 1.5 sqmm	Mtrs	100	.00004
XI	LAYING AND TERMINATION OF INSTRUMENTATION CABLES	--		

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Tender Specification for Electrical works, Control and Instrumentation (C&I) works for KOTHAGUDEM THERMAL POWER STATION STAGE-VII, UNIT#12, FGD at Telangana State Power Generation Corporation Limited (TSGENCO) at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
J.8.3, H.5.2, A.5.3,	Laying of OFC Cable includes fixing of fibre optic components LIU, face plates, cabinets, SC coupler, grounding etc	Mtrs	10,500	.0087323
N.3.33 , A.5.2,	Cat 5e/6 cable	Mtrs	1,025	.0002526
N.3.29 , H.5.3, A.5.4,	Splicing for fibre optic cable termination along with pigtail, patch card, adaptor, JB etc	Nos	160	.0007787
XII	FABRICATION & ERECTION OF STRUCTURAL STEEL	--		
G.1.1,	FABRICATION & ERECTION OF STRUCTURAL STEEL (ISA /ISMC - Channels plates, angles etc.)	--	8	.0058006
XIII	ERECTION OF PRE FABRICATED CABLE TRAYS, with bends, Tee, elbows, cross, & reducers, etc. (with or without cover)	--		
F.6.2,	100 mm wide, perforated type tray	Mtrs	500	.0023409
F.6.4,	150 mm wide, perforated type tray	Mtrs	2,000	.007762
N.3.37 , F.6.1,	50 mm wide, perforated type tray	Mtrs	650	.0024426
XIV	ERECTION AND TESTING OF IMPULSE PIPES CS / AS / SS, INSTRUMENT VALVES AND FITTINGS	--		
M.4.2,	TUBE (SMLS)SS 316L 1/2	Mtrs	66	.0005367

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Tender Specification for Electrical works, Control and Instrumentation (C&I) works for KOTHAGUDEM THERMAL POWER STATION STAGE-VII, UNIT#12, FGD at Telangana State Power Generation Corporation Limited (TSGENCO)

at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
M.4.3,	TUBE (SMLS)SS 316L 8 mm OD X 1 mm	Mtrs	172	.0006252
M.4.4,	2 Way Valve manifold	Nos	16	.0001917
J.11.1,	Impulse Pipe ASTM A106 Gr.C Size:1/2	Mtrs	2,200	.0172798
J.11.2,	Impulse Pipe ASTM A106 Gr.C Size:3/4	Mtrs	1,000	.0081009
M.4.1,	PIPE (SMLS)A 312 TP 304 1/2	--	202	.0017297
XV	ERECTION AND TESTING OF HOSES, TUBES & GI PIPES	--		
J.12.2,	GI PIPE-1	Mtrs	65	.0002262
J.12.1,	GI PIPE-1/2	Mtrs	1,350	.0049067
N.3.30	HDPE/PVC Pipes	Mtrs	1,060	.0024814
XVI	ERECTION OF JUNCTION BOXES / PUSH BUTTON STATIONS / FUSE DBs (AC / DC)	--		
M.2, J.5.2, F.11.2	Junction boxes upto 64 way - FRP material, FRP control Junction Boxes	Nos	166	.0065396
F.11.1				
--	LOOP CHECKING OF INSTRUMENTS	--		
L.2.1,	RTD	Nos	134	.001523

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at Kothagudem Stage VII Unit 12, 1 X 800 MW

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
XVII	COMMISSIONING OF THE FOLLOWING ERECTED BY MECHANICAL CONTRACTOR	--		
N.3.36 L.4.2,	Solenoid Valve	Nos	41	.0008966
L.4.3,	Control valve	Nos	6	.0002281
XVIII	MISCELLANEOUS ITEMS	--		
N.1,	Treated Earth pit (Electronic) of 40 NB Gal.MS pipe 3000 M long with accessories including all civil works excavation, 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. 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.	Nos	2	.0006704
XIX	ERECTION AND COMMISSIONING OF FDA / FPS /IGES - SENSORS /SWITCHES / DEVICES	--		
N.3.4, N.3.3,	Multisensor Detectors	Nos	118	.0003198
N.3.5,	Response Indicators	Nos	10	.0001981
N.3.6,	Beam Detectors / IR (Flame) Detectors	Nos	1	.0000272
XX	ERECTION AND COMMISSIONING OF FDA / FPS /IGES - LOCAL CONTROL PANELS	--		
N.3.34 ,	Deluge Valve Control Panels	Nos	6	.0003267
N.3.1,	Fire Alarm / Repeater / Gas Release Panels	Nos	1	.0002721

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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
N.3.25	19 inch rack (wall mount) with required mounting accessories	Nos	1	.0000915
N.3.26	UPS with Batteries and stand	Nos	1	.0000298
XXI	ERECTION AND COMMISSIONING OF FDA/ FPS/IGES - SPECIAL EQUIPMENTS	--		
N.3.9,	Hooter Strobes	Nos	37	.0005015
N.3.19	Modules / Controllers	Nos	28	.0015239
N.3.18				
N.3.10				
XXII	ERECTION AND COMMISSIONING OF FDA/FPS/IGES - MISCELLANEOUS EQUIPMENTS	--		
N.3.8, N.3.7,	Manual Call points	Nos	58	.0031567
N.3.11	Exit / WARNING Sign with Lamp	Nos	31	.000169
TOTAL Weightage				1.0