

**TENDER
SPECIFICATION
BHEL PSSR SCT 2195**

FOR

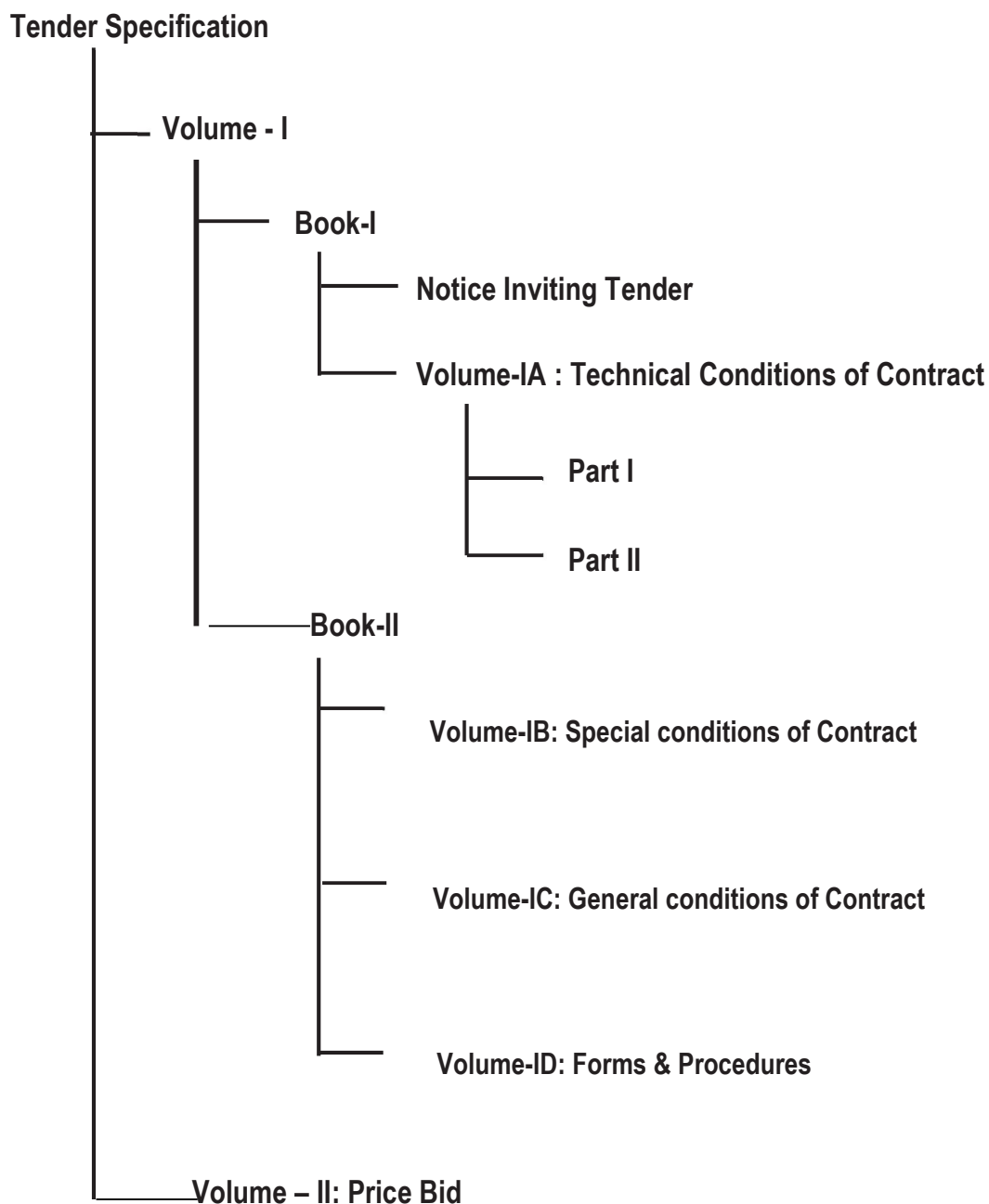
Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu.

**PRICEBID
VOLUME –II**



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



PRICE BID

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PRICE BID

PART A **Instruction to Bidders:**

1. Bidders shall only quote “Total Lumpsum amount” in the format given in the price bid. The “Total Lumpsum amount” is for the entire scope of work. 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 number 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 as per SI No.7 above. Refer TCC Vol 1A PART-1 Chapter-9 BOQ.

PART-C: BILL OF QUANTITY for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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			
,B.1.1	PD Type Mass flow meter in HFO,LDO/HSD and HFO return line with mounting flanges, electronics amplifier box, inter connecting cabling, etc.	SET	3	.0001091
,A.16.11,E.1.3,E.2.4,E.2.5,G.5.2,G.6.2,G.7.3	Pressure Transmitters / DP Transmitters / DP Type flow transmitters/Conductivity Transmitters/DP type LT	Nos	607	.0095063
,A.16.1,A.16.2,A.17.1,E.1.8,E.2.9,J.1.1	Level Transmitter (Guided Wave/Ultrasonic/Capacitance Type) along with accessories	Nos	50	.003437

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.16. 4,B.1. 2,B.6. 1,C.1. 1,D.3. 7,D.3. 8,E.1. 1,E.1. 2,E.2. 13,E.2 .3,E.2. 6,E.3. 1,G.11 .4,G.2. 1,G.5. 1,G.6. 1,G.7. 4,K.7. 1,K.7. 2	Pressure / DP Gauge/Reverse Rotation Indicators/Discharge indicators	Nos	668	.0079406

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.16. 5,B.1. 3,B.6. 3,C.1. 2,D.3. 3,E.1. 12,E.2 .11,E. 2.2,E. 3.5,G. 11.1,G .5.4,G. 6.4,G. 7.2	Temperature Gauge	Nos	505	.0086325
,B.1.9, C.1.3, E.1.7, E.2.7, E.3.2, G.11.3 ,G.7.8	Level Gauge/Level Alaram	Nos	32	.0013594
,B.1.4, B.6.2, D.3.1, D.3.10 ,E.1.4, G.7.6, K.4.1, K.6.25	Pressure / Differential Pressure Switch / Temperature Switch	Nos	320	.004863

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.16. 6,B.6. 16,E.3 .3,E.4. 2	Level Switches (RF/Float/Capacitance/Conductivity type) along with accessories	Nos	44	.0019101
.A.16. 12,A.1 6.13,A .16.14 .A.16. 3,B.6. 19,D.3 .2,D.3. 5,E.1. 5,E.1. 6,E.2. 8,E.4. 1,G.5. 3,G.6. 3,G.7. 1,G.7. 7	Temperature Elements(RTD/Thermocouple with Thermowell/RTD with Thermowell) / Flow Elements/Thermocouple with threaded connection	Nos	867	.0130007
.A.16. 9,E.1. 13	E/P Converters, I/P Converters	Nos	38	.0005146
.D.3.9, E.1.11 .E.2.1 0	Position Transmitters	Nos	12	.000218

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.6.1 7	ERV Controller with Pressure Switch	SET	2	.0001747
.B.1.5	FSSS Local Oil Gun Maintenance Switch Box	Nos	18	.0004799
.B.1.6	H.E.A Exciter Box with Accessories	SET	16	.0007466
.B.1.7	Flame Scanner Head Assembly with accessories	SET	32	.0014628
.B.5.2	Feeder Coal Flow Assembly flange mounted with Electronics	SET	7	.0010063
.B.6.4, B.6.5, B.6.6, B.6.7, B.6.8, B.6.9	MTM T/C (Route Length 8 to 18 MM) - 8MM OD	Nos	130	.0042083
.B.6.1 0,B.6. 11,B.6 .12,B. 6.13,B .6.14	MTM T/C (Route Length 20 to 28 MM) - 8MM OD	Nos	271	.0161398
.B.6.1 5	MTM T/C (Route Length 30 to 40 MM) - 8MM OD	Nos	13	.0007732
.B.6.1 8,D.3. 4,G.5. 5	Flow Switch/Flow meter/Flow Indicator/Vacuum Switch	Nos	20	.0005086

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.3.1 1	GO, No GO Switch	Nos	10	.0008666
,D.3.6	On/Off Switch Box including light assembly and interconnecting heat resistant cable	SET	2	.0000871
,E.3.4, G.11.2	Thermowells (Screwed & Welded)	Nos	22	.0001647
,E.1.9, E.2.12 ,E.2.1 4,G.7. 5	Speed Measuring Loop/Speed Probe/Speed Sensor/Vibration Transducer/Key Phasor	Nos	21	.0003098
,A.16. 10,B.1 1.1.1, B.11.1 .2,B.1 1.1.3, D.4.4	Air Filter Regulator-(1/4 inch -1 inch)/Purge meter cum DP regulator	Nos	68	.0006162
,E.1.1 0	Proximeter Units, Local Field Cable etc. for Governing Sytem	SET	12	.0001974
,C.1.1 0	Averaging Pitot Tube	SET	2	.0000999
,D.3.1 2	Emergency Push Buttons	Nos	2	.0000783
,K.6.3, K.6.4	Multisensor Detectors/ Heat Detectors	Nos	771	.0012915

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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
,K.6.5	Air Sampling/Probe/IR (Air Purge) Detectors/Q.B.Detectors	Nos	5	.0000166
,K.6.6, K.6.7	Beam Detectors/IR (Flame) Detectors	Nos	36	.0006103
,K.6.1 4	Hooter cum Strobes	Nos	99	.0008432
,K.6.1 5	Power Supply Modules for Fire Protection System	Nos	10	.0000951
,K.6.8, K.6.9	Manual Call points	Nos	147	.0049841
,K.6.1 7	EXIT/WARNING Signs	Nos	121	.0004127
,A.16. 8,B.1. 10,E.2 .1	Temperature Transmitter	Nos	470	.0081954
,K.6.1 2	Optical LHS Controllers	Nos	1	.0000332
,A.16. 15	EWLI with all associated cabling and accessories	Set	3	.0004474
,G.2.2	Conductivity Sensor	Nos	1	.0000157
,K.7.6	Special Switches-Abort Switch	Nos	3	.0000201
,K.6.1 3	IO Modules	Nos	175	.005884

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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
,K.6.1 6	IO Modules	Nos	137	.0007299
II	ERECTION AND COMMISSIONING OF SPECIAL INSTRUMENTS			
,A.18. 1,A.18 .2	High Temp/Low Temp O2 Analyzer including all accessories	SET	12	.0041994
,A.18. 5,D.1. 1	Opacity Monitor including all accessories	SET	5	.0024065
,A.18. 6	SOX/NOX/CO (Combined) Analyzer / Flue Gas Analyzer including all accessories	SET	1	.0014131
,A.18. 4,A.18 .7,A.1 8.8	CO/Velocity/HF/Mercury/NOX/SOX/NH3/Gas Flow Analyzer including all accessories	SET	5	.0059771
,A.19. 1	SWAS System Sample Handling System (including Racks , Panels, Chillers, Sensors, Transmitters, indicators, Cabling and all other accessories)	SET	1	.0119964
,A.32. 12,A.3 2.13,A .32.14 ,A.33. 7,A.33 .8	LAN Switches with accessories /Router with accessories	Nos	21	.0002704

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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.20. 1.B	Installation of vibration sensors, driver, extension cable with mounting block, Phase marker sensor, driver, extension cable with bracket , Shaft vibration sensors, driver, extension cable with probe holder, Loop checking using Portable Shaker Table for each vibration sensor and eddy-current sensors. This broadly covers equipments of CER Unit#2, CWPB of Unit#2	SET	1	.0025599
III	ERECTION AND COMMISSIONING OF UPS/BATTERY & BATTERY CHARGER			
,A.23. 1	2X200 kVA Main UPS	SET	1	.0035094
,A.23. 7	Ni-Cd Battery 1045 AH made up of around 2x295 cells complete with all accessories	SET	1	.0027307
,A.23. 2	ACDB for Main UPS	Nos	2	.0014757
,A.23. 6	Battery Health Monitoring System for Main UPS	Nos	2	.0004071
,A.23. 8	24 V DC Ni-Cd Battery for TG Charger :Rating 560AH 24 V DC, complete with all accessories	SET	2	.0003943
,A.23. 9	24 V DC Ni-Cd Battery for SG Charger :Rating 935AH 24 V DC, complete with all accessories	SET	2	.0006807
,A.23. 10	Charger (approx. 887A)complete with all accessories	SET	2	.0012842
,A.23. 11	TG Siemens Charger (approx.120A) complete with all accessories	SET	2	.0006421
,A.24. 2	2X10 kVA Offsite UPS complete with all accessories	SET	1	.0011757

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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.24.1	2X5 kVA Offsite UPS complete with all accessories	SET	3	.0017634
,A.24.6	Ni-Cd Battery made up of around 180 cells, 140AH complete with all accessories	SET	1	.0008331
,A.24.7	Ni-Cd Battery made up of around 90 cells, 94AH complete with all accessories	SET	3	.0012497
,A.24.8	ACDB for Offsite UPS	Nos	8	.0032793
,A.21.5	Power Distribution Panel for Simulator	SET	1	.000198
IV	ERECTION AND COMMISSIONING OF CONTROL PANELS AND RELATED ACCESSORIES			
,B.2.1	ASLD System along with all loose supplied items such as sensors, amplifiers, PSU, JB, Cables, accessories etc.	SET	1	.0008752
,D.2.1	Automatic Leakage Control System for Air Pre-Heater comprising of ALCS panels, Controllers, accessories and interconnecting cables, etc.	SET	1	.0003717
,B.3.1	Furnace CCTV System (Panels, CCTV Head Assembly, AFRs, SS Hose mounted at Boiler, Remote Control Box, other related electronics, accessories, etc.)	SET	4	.0014026
,G.1.1	Moisture Measurement System panel with controller and accessories	SET	1	.0002758
,G.1.2	Generator end Vibration Monitoring Cabinet with cables, monitors and accessories	SET	1	.0002796
,G.1.3	Grounding Brush Monitor	SET	1	.0001291
,G.1.4	H2 Gas Analyzer Cabinet	SET	2	.0004559
,A.44.1	HART Management System Panel and loose items	SET	4	.0052646

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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.5.1	Gravimetric Feeder Remote Power Cabinet and accessories	Nos	7	.0020196
,E.5.1	TSI System for BFP Drive Turbine Items	SET	2	.0016558
,B.1.8	Installation fo 19 inch racks for Flame Scanner, VMS,etc.	SET	8	.0004406
,A.15.1	TSI System for Main Turbine: TSI Rack and Panel along with interconnections / Main Turbine Complete Sensors and Assembly	SET	1	.0014284
,A.4.1, A.4.2, A.4.3	Network Panels	Nos	7	.0007695
,K.3.2, K.4.3, K.6.27	Deluge Valve Control Panels	Nos	70	.0023607
,K.6.1	Fire Alarm/Repeater Panel	SET	2	.0003353
,A.21.8, A.26.5.5	Network Enclosures with / without Ethernet Switches, bar graph enclosures	SET	7	.0005416
,G.1.5	Generator Instrumentation Cabinet	SET	1	.0001558
V	PLACEMENT, ALIGNMENT,ERECTION, ELECTRICAL INTERCONNECTION, TESTING AND COMMISSIONING OF DCS PANELS			

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.41. 5,A.6. 1,A.7. 1,G.13 .1,G.1 3.2,A. 2.1,A. 3.1,A. 5.1	Suite of One Cubicles	Nos	22	.0043268
,A.6.2, A.6.3, A.7.3, A.7.4, A.9.1, A.1.1, A.13.2 ,A.2.2, A.3.5	Suite of Two Cubicles	Nos	14	.0042187
,A.7.5, A.1.2, A.13.1 ,A.2.3, A.3.2	Suite of Three Cubicles	Nos	20	.010143
,A.11. 1,A.6. 4,A.1. 3,A.2. 4,A.3. 3	Suite of Four Cubicles	Nos	14	.0075047
,A.1.4	Suite of Five Cubicles	Nos	1	.000422

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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
VI	INSTALLATION AND COMMISSIONING OF HMI SYSTEM WITH COMPLETE ACCESSORIES AND CONNECTIVITY			
.A.17. 5,A.20 .4,A.2 1.4,A. 32.10, A.32.1 1,A.32 .7,A.3 2.8,A. 32.9,A .33.4, A.33.5 .A.33. 6,A.34 .3,A.3 4.4,A. 43.2,A .43.3, G.13.4	Printers (Laser Jet/Dotmatrix A4/A3/COLOUR/BW/Multifunction Printer)	Nos	70	.0035262
.A.31. 1	LED based rear projection Video wall: DLP cubes Video wall in 5x1 matrix with individual cube of size 80 in.-84in. with 1600 mm x 1200 mm along with controller- 1 set and DLP cube (1x1) with cube of size 80in.-84in. with 1600 mm x 1200 mm along with controller-1 set and other interconnectors like matrix switchers, port splitters and cables like DVI Cables, Video Cables, serial cable, power supply sockets, bezel/frame for the complete LVS video wall, and Mounting stand approx. 1200 mm height / arrangement etc. with overall dimensions of the complete video wall arrangement as approx. 9944.6 mm(chord)x2400mm(height)x964mm{ width)	SET	1	.0040804

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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.21.1	LED based rear projection Video wall: DLP cube (1x1) with cube of size 80in.-84in. with 1600 mm x 1200 mm along with controller-1 set and other interconnectors like matrix switchers, port splitters and cables like DVI Cables, Video Cables, serial cable, power supply sockets, bezel/frame for the complete LVS video wall, and Mounting stand approx. 1000 mm height / arrangement etc. with overall dimensions of the video wall arrangement as approx. 1600 mm (length) x 2200 mm (height) x 964 mm {width}	SET	1	.0006891
.A.17. 4,A.20 .3,A.2 1.2,A. 21.3,A .32.1, A.32.2 ,A.32. 3,A.32 .4,A.3 2.5,A. 32.6,A .33.1, A.33.2 ,A.33. 3,A.34 .1,A.3 4.2,A. 43.1,G .13.3	OVS with Monitor/Servers (incl. monitor) /Stations/User PC/OPC Client along with mini UPS	Nos	121	.0104029
.A.31. 2,A.41 .6	LED TV (32 inch-55 inch)	SET	17	.0010849

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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.21.9	LCD Projector	SET	1	.0000633
VII	INSTALLATION OF FURNITURES			
,A.37.1	Desk-9 Section with Accessories for unit control desk	SET	1	.0020191
,A.37.2	Desk-2 Section with Accessories Instructor and engineer/ Control desk/2 section desk	SET	7	.0037639
,A.19.7,A.37.3,A.37.4,A.37.5	Computer Table/Printer Table, along with chairs	SET	45	.005084
,A.19.8,A.37.6,A.37.7,A.37.8	Almirah/Safety Locker/Printer Rack	SET	42	.0023734
VIII	ERECTION AND COMMISSIONING OF JB/PUSH BUTTONS			

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.A.20. 2,A.28 .1,A.2 8.2,A. 28.3,A .28.4, B.9.1, B.9.2, B.9.4, B.9.5, B.9.7, E.4.3, E.6.7	Junction Boxes upto 48 way	Nos	340	.0032319
.A.17. 2,A.28 .5,B.1 0.3,B. 9.3,B. 9.6,G. 10.1	Junction Boxes above 48 way upto 128 way	Nos	63	.0015105
.G.10. 2,K.7. 3	Push Button Station/ Fire Protection switch	Nos	15	.0002086
.A.28. 6,A.28 .7,A.2 8.8	Junction Box for Temperature Transmitter	Nos	74	.0051883
IX	ERECTION AND COMMISSIONING OF LIE/LIR			

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.6.1, E.6.2, E.6.3, E.6.4	Local Gauge Boards	SET	10	.001509
,A.25. 1,A.25 .2,A.2 5.3,B. 10.1	Local Instrument Enclosure	SET	69	.0104566
,A.25. 4,A.25 .5,A.2 5.6,B. 10.2,E .6.5,E. 6.6,G. 12.15, G.8.1, G.8.2	Local Instrument Rack	SET	68	.0094967
X	ERECTION AND COMMISSIONING OF PNEUMATIC POWER CYLINDERS (ON/OFF & REGULATING TYPE)			
,B.4.1	SADC	SET	116	.0108416
,B.4.2	PA/ID/FD Blade Pitch and other Control Dampers	SET	16	.0030147
,B.4.3, B.4.4	Hot Air/Cold Air/FD Fan Regulating Dampers	SET	14	.0030131
,B.4.5	Dynavane Filter Pressure Control Damper with SMART positioner	SET	1	.0001897
,E.4.4	Solenoid Operated Valves with Manifolds and tubing	Nos.	14	.0001582

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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
,K.3.1, K.4.2	Solenoid Valves	Nos.	62	.0007896
XI	LAYING OF POWER CABLES			
,A.23. 3	UN 0000 - Uninyvin- Equivalent: 1Cx109 Sqmm Cu/1CX90 SQMM POWER CABLE	Mtrs	1,600	.0021312
,A.24. 3	UN 00 - Uninyvin- 68.3 sq.mm Cu Cable	Mtrs	320	.0002648
XII	TERMINATION OF POWER CABLES			
,A.23. 5	UN 0000 - 1CX109 SqmmCU/1CX90SQMM	Nos	12	.000047
,A.24. 5	UN 00 - Uninyvin- 68.3 sq.mm Cu Cable	Nos	16	.0000391
XIII	LAYING AND TERMINATION OF CONTROL CABLES, POWER CABLES, LOOP CABLES			
,A.22. 5,A.26 .3.4,K. 6.18,K .6.19, K.6.20 ,K.6.2 1,K.7. 4	2CX1.5 SQMM/2CX2.5 SQMM	Mtrs	77,725	.0203922

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.21. 7,A.26 .3.1,A. 26.3.3 ,A.41. 1,A.41 .2,G.4. 1	3CX1.5 SQMM/3CX2.5 SQMM/4CX2.5 SQMM/4CX6 SQMM	Mtrs	57,860	.0163481
,A.26. 3.2,A. 26.4.1	5CX2.5 SQMM/7CX2.5 SQMM/5CX1.5SQMM	Mtrs	2,800	.0008476
XIV	LAYING AND TERMINATION OF INDIVIDUAL & OVERALL SHIELDED (TYPE G/F), TWISTED PAIR, ARMoured/UNARMoured CABLES, KX TYPE CABLES, OFC, OTHER SPECIAL CABLES			

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.17. 3,A.26 .1.1,A. 26.1.5 ,A.26. 2.1,A. 26.2.4 ,A.26. 4.2,A. 26.4.4 ,B.7.1, B.7.10 ,B.7.1 4,B.7. 17,B.7 .5,B.7. 6,J.2.1 ,J.3.1	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	Mtrs	157,444	.03813

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.26.1.2,A.26.1.3,A.26.2.2,A.26.2.5,A.26.2.6,A.26.4.3,B.7.1.1,B.7.13,B.7.15,B.7.18,B.7.2,B.7.7,E.8.1,J.2.2,J.3.2	4PX0.5 SQMM/ 6PX0.5SQMM, F/G CABLE, 4PX1.31 SQ.MM KX, 6 PairX1.31 SQ.MM, 16 AWG, KX Type	Mtrs	182,205	.0514811
,A.26.1.4,A.26.2.3,A.26.2.7,B.7.12,B.7.19,B.7.3,B.7.8,J.2.3,J.3.3	8PX0.5 SQMM CABLE, 8PX1.31SQMM KX Type	Mtrs	257,760	.1040412

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.26. 2.8,B. 7.16,B .7.4,B. 7.9,J.2 .4,J.3. 4	12PX0.5 SQMM/ 12PX1.31 SQMM KX CABLE	Mtrs	90,640	.0439027
.A.21. 6,A.22 .4,A.2 6.5.1	CAT-6 UTP CABLES/Ethernet Cables	Mtrs	6,316	.0010197
.A.23. 4,A.24 .4	RS-485/RG-58 CABLE	Mtrs	640	.0002971
.A.26. 5.3,A. 41.10, K.6.22	HDPE Conduits for laying OFC Cables/other cables	Mtrs	28,450	.0465079
.A.22. 3,A.26 .5.2,K. 6.23	Laying of Optical Fibre Cable	Mtrs	34,081	.0144441
.A.26. 5.4,K. 6.24	Splicing of Optical Fibre Cable	Nos	162	.0009154
.A.22. 2	PVC telephone cable along with PVC Conduits and casing	Mtrs	24,000	.0232494

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.22.1	Jelly filled cable	Mtrs	43,000	.0234311
,A.41.3	PVC conduits and casing	Mtrs	4,000	.0025833
,J.2.5	24PX0.5 SQMM	Mtrs	2,800	.0024864
,K.6.1 0,K.6.11	Laying and Termination of Special Cable OLHS Cable	Mtrs	17,113	.0086343
XV	ERECTION OF CABLE TRAYS WITH/WITHOUT COVER			
,A.27.1,A.41.9,B.8.1,E.8.2	PERFORATED CABLE TRAYS 50 MM WIDE	Mtrs	7,680	.0170496
,A.27.2,B.8.2	PERFORATED CABLE TRAYS 100 MM WIDE	Mtrs	4,030	.0113866
,B.8.3,E.8.3	PERFORATED CABLE TRAYS 150 MM WIDE	Mtrs	1,745	.0276455
,K.7.5	PERFORATED CABLE TRAYS 300 MM WIDE	Mtrs	35	.0001406
,A.35.2	Duct Tray - 60x60x1000 mm	Mtrs	210	.0005382
,A.35.3	Duct Tray - 180x100x1000 mm	Mtrs	110	.0004973

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.35.4	Duct Tray - 250x100x1000 mm	Mtrs	110	.0008325
XVI	FABRICATION AND INSTALLATION OF GI FLATS			
.B.14.1	Earth Flat (50x6)	Mtrs	125	.0002043
.B.14.2	Earth Wire 1.219mm GI	Mtrs	350	.0000706
XVII	FABRICATION AND INSTALLATION OF STRUCTURAL STEEL			
.A.35.1,B.12.1,E.7.1,G.10.3,K.6.26	STRUCTURAL STEEL (ISMC/ISMB/ANGLE/FLATS etc)	MT	31	.0142526
XVIII	ASSEMBLY AND ERECTION OF MOUNTING FRAMES			
.A.35.5	Assembly and Installation of Mounting frames with loose supplied prefabricated materials like slotted angles, channels, etc.	Nos	21	.0029015
XIX	ERECTION AND TESTING OF IMPULSE PIPES CS/AS/SS PIPES, TUBES			

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.29. 11,A.2 9.4,A. 29.6,B .11.2. 1,B.11 .2.2,B. 11.2.5 ,B.11. 2.6,C. 1.8,C. 1.9,G. 9.10,G .9.5,G. 9.6,G. 9.7,G. 9.9	AS tubes upto 1 inch, 13.5X2.6, 21.3X2.77. 21.3x7.47	Mtrs	3,395	.0171978

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.29. 1,A.29 .2,A.2 9.3,A. 29.7,B .11.2. 3,B.11 .2.4,B. 11.2.7 ,B.11. 2.8,C. 1.5,C. 1.6,C. 1.7,E. 7.2,E. 7.7,G. 9.1,G. 9.3,G. 9.4,G. 9.8	CS tubes upto 1 inch, 16X2.6mm, 13.5 X 2.6	Mtrs	20,178	.0904047
,A.19. 3,E.7. 3	CS Pipe 2 inch	Mtrs	270	.0021905
,G.9.2	CS pipes above 2 inch	Mtrs	40	.000536
,A.19. 6,B.11 .1.7	SS Tube upto 1 inch, Tube OD 6.35X1.6 with accessories	Mtrs	520	.0005877
,A.19. 4,A.19 .5	SS pipes above 1 inch upto 2 inch (SWAS System)	Mtrs	60	.000155

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.7.5, E.7.6	SS Tube 12.7x2.1, 6x1.5	Mtrs	2,070	.0104859
,C.1.4	Pipe ASTM A312 TP316H/TP304H - 1/2 inch NB SCH 80	Mtrs	40	.0001695
A.29.8 ,	Pipe ASTM A213 TP316H, 1/2 inch Sch. 160	Mtrs	900	.0045046
,A.29. 9	Pipe ASTM A213 TP316H - 3/4 inch NB SCH 160	Mtrs	700	.0048033
,A.29. 10	Pipe ASTM A213 TP316H - 3/4 inch NB SCH 80	Mtrs	1,000	.0056509
,A.30. 0	CPVC Pipes ASTM D1784 CPVC Pipe(Industrial Grade)-1/2 inch NB SCH 80	Mtrs	1,200	.000775
,B.11. 1.4,B. 11.1.5 ,B.11. 1.6	Cu tubes upto 1 inch	Mtrs	2,755	.0036141
,C.3.1	PIPE SCREW&SOCKETED IS1239 GAL (1/2 inch)	Mtrs	13,655	.0234245
,E.7.4	Cr. Al. Pipe 21.3 x 3.73 (1/2 inch)	Mtrs	500	.0097781
XX	ERECTION AND TESTING OF HOSES, TUBES & GI PIPES			
,B.11. 1.10,B .11.1. 8,B.11 .1.9	1/4,1/2,1 INCH TEFLON HOSE 1MTR/2MTR/3MTR LONG	Nos	110	.0002731

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.12. 2	1/2 inch GI Pipe	Mtrs	1,115	.0025653
XXI	CHECKING & COMMISSIONING OF THE FOLLOWING ERECTED BY MECHANICAL AGENCY			
,B.13. 7	Burner Tilt Shear Pin Failure Indication JB with accessories	Nos	4	.0004303
,C.2.1, E.9.3, E.9.7, E.9.8, G.12.1 6,G.14 .0,J.4. 1	Control Valves with Smart positioner/AFR/Air Lock valves etc	SET	131	.0029267
,B.13. 1,B.13 .5,G.1 2.4	Limit Switches/Level Switches	Nos	46	.0003853
,B.13. 4,D.4. 2	Pneumatic Actuators for Dampers	Nos	51	.0091471
,D.4.7, H.1.1	RTDs/Thermowells of various drives	Nos	531	.003515
,B.13. 6,D.4. 3,E.9. 6,G.12 .5	Solenoid Valves for different applications like Corner Station valves, Regulating valves, etc.	Nos	347	.0056445

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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
XXII	REMOVAL, CALIBRATION & RE-FIXING OF INSTRUMENTS ERECTED BY OTHER AGENCIES			
,G.12.3	Field Instruments (Position Transmitters)	Nos	24	.0004713
,D.4.6, E.5.2, H.1.2	Field Instruments (Temperature Gauges/Indicators)	Nos	107	.001788
XXIII	REMOVAL, CALIBRATION AND REFIXING OF INSTRUMENTS, CHECKING SOLENOID VALVES, DRIVES, INCLUDING WIRING ON THE RACK ETC ERECTED BY OTHER AGENCIES			
,D.4.10,D.4.5,D.4.8,D.4.9,E.9.1,E.9.2,G.12.9	Lub Oil System/Oil Centrifuge Unit/Lub Oil skid/Main Oil Tank	SET	20	.0020372
,G.12.2	Oil Centrifuge Unit	SET	1	.0001617
,J.4.3, J.4.4,J.4.5,J.4.6	Dosing Skid (Oxygen, Ammonia, NaOH,Hydrazine)	SET	5	.0005361
,E.9.4	Hydraulic Coupling of MDBFP	SET	1	.0002996
,G.12.1	Condenser Vacuum Pump	SET	2	.0003398

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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.13.8	Gravimetric Feeder comprising of Feeder mounted C and I equipment	SET	7	.0010095
,G.12.8	HPSU Skid for Governing Control	SET	1	.0002888
,E.9.5	Governing Console Board	SET	2	.0004804
,B.10.4,B.10.5,G.12.10	HP/LP Bypass/HWL-1 and 2/MEFCV control valve skid instrumentation	SET	3	.0006704
,G.12.11,G.12.12	Seal Oil System / Stator water System	SET	2	.0004691
,G.12.13	H2 Dryer Unit	SET	2	.0003279
,A.38.1	Transducers-Voltage/Current/Frequency output 4-20 mA	Nos	25	.0006615
XXIV	REMOVAL, CALIBRATION & RE-FIXING OF INSTRUMENTS FOR ACID CLEANING			
,J.5.1	Temp. Gauges	Nos	3	.0000457
,J.5.2	Pressure Gauges	Nos	2	.0000309
,J.5.3	Thermocouple Stem type and MTM	Nos	8	.0000349
,J.5.4	Junction Boxes	Nos	3	.0000731
XXV	ELECTRONIC EARTH PITS			

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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	Treated Earth pit of CI Pipe 3000 mm long with funnel and accessories including all civil works in hardrock by drilling, filling of earth pit with alternate layer of charcoal & 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 100mm 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.	Nos	10	.0020194
XXVI	PLANT SECURITY SYSTEM			
.A.41.7	GI Poles of minimum 6 metre suitable for mounting camera, excluding civil foundation	Nos	40	.000553
.A.41.4	Cameras complete with power supply and mounting accessories	Nos	285	.0164099
.A.41.8	Junction Boxes in Plant Security System	Nos	200	.0019011
.A.41.11	Mounting of Electromagnetic Lock and Readers	Nos	36	.0001591
XXVI I	INSTALLATION OF C&I BENCH FOR CALIBRATION INSTRUMENTS			
.A.45.0	Shifting, providing assistance to OEM for commissioning and Demonstration of lab instruments and Installation of Electronic Test Bench	SET	1	.0088929
XXVI II	HMI PACKAGE TO BE INSTALLED AND COMMISSIONED AT TANGEDCO HQRS			
.A.42.0	HMI Package to be installed at TANGEDCO HQRS comprising of PCs, Printer, etc. and their interconnectivity	SET	1	.0004554
XXIX	LOOP CHECKING OF THE INSTRUMENTS OF THE FOLLOWING EQUIPMENTS/ACTUATORS/DAMPERS			

Tender Specification for Erection, Testing & Commissioning of Control and Instrumentation (C&I) works including Handling of materials at site BHEL stores / storage yard, transporting to site of erection and supply & application of final painting, for Unit-2 and identified BOP areas at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS, Tamil Nadu at 2 X 660 MW Ennore SEZ Supercritical Thermal Power Project at Ash Dyke of NCTPS

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
,G.3.1	Loop checking of instruments of Generator, Turbine	SET	1	.001023
,B.13. 2,B.13 .3,C.2. 2,D.4. 1,G.12 .14,G. 12.6,G .12.7, G.15.0 ,H.1.3, J.4.2	Electrical Actuators for Valves/ Dampers, including loop checking commissioning	Nos	202	.0034734