

SUGGESTED PRICE FORMAT				Doc No:	PF-PE-445-553-A001
				Rev No:	0
				Date of issue	12.07.2021
NAME OF PROJECT: 1X660 MW WBPDCI SAGARDIGHI TPP EXTENSION UNIT NO. 5					
NAME OF PACKAGE: AC SYSTEM					
TECHNICAL SPECIFICATION No: PE-TS-445-553-A001					
S. No.	DESCRIPTION	UNIT	QTY		
1	Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for Supply part, Services part and Mandatory spares comprising of design (i.e. preparation and submission of drawing /documents including "As Built" drawings and O&M manuals), engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles (as applicable) fill of lubricants & consumables, mandatory spares alongwith spares for erection, start-up and commissioning as required, forwarding, proper packing, shipment and delivery at site, unloading, handling, in-site transportation, assembly, erection & commissioning, final painting at site, minor civil work, trial run at site and carrying out Performance guarantee / Functional / Demonstration tests at site (As applicable), training of customer/client O&M staff, Operation & Maintenance of AC System (24x7) before handing over after commissioning, and handover in flawless condition of the package to the end customer complete with all accessories, for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order.	Lot	1		
2	MAJOR BREAK-UP OF PRICES GIVEN IN 1.0 ABOVE.				
2.1	Total lumpsum firm price inclusive of all prevailing taxes, duties and other levies for Design (i.e. Preparation and submission of drawing /documents including "As Built" drawings and O&M manuals) and engineering as per tender technical specification above, amendment & agreements till placement of order. (Refer Note-4 below)	LOT	1		
2.2	Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for Supply part comprising of manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles (as applicable), fill of lubricants & consumables along with spares for erection as required, start-up and commissioning spares as required, forwarding, proper packing, shipment and delivery at site for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order. (Break-up as per Annexure-I)	Lot	1		
2.3	Total lumpsum firm prices inclusive of all prevailing taxes, duties and other levies for Services part comprising for unloading, handling, transportation to site, in-site transportation, assembly, erection & commissioning, final painting at site, minor civil work, trial run at site and carrying out Performance guarantee / Functional / Demonstration tests at site (As applicable), training of customer/client O&M staff and handover in flawless condition of the package to the end customer complete with all accessories, for the total scope defined as per BHEL NIT & tender technical specification as specified above, amendment & agreements till placement of order. (Break-up as per Annexure-II)	Lot	1		
2.4	Total lumpsum firm price inclusive of all prevailing taxes; duties and other levies for Mandatory Spares comprising of manufacture, fabrication, assembly, inspection / testing (as applicable) at vendor's & sub-vendor's works, painting, forwarding, proper packing, shipment, delivery at site & guarantee as per tender technical specification above, amendment & agreements till placement of order. (Price break up of mandatory spares is to be furnished as per Annexure- II)	Lot	1		
2.5*	Total lumpsum firm price inclusive of all prevailing taxes, duties and other levies for providing OPERATION AND MAINTENANCE SERVICE (24x7) including manpower, supervision, consumables etc. for operation & maintenance of HVAC System after commissioning of AC system before final handing over to end customer in flawless condition for the scope defined as per technical specification.	Months*	12		

Note:

- 1) BOP to consider and suitably incorporate taxes, duties and other commercial aspects.
- 2) Bidder to quote the Prices in 'figures' along with corresponding 'words'.
- 3) Lumpsum price quoted at Sl.no 1.0 shall be considered for evaluation.
- 4) The Engineering charges as mentioned above in S.No. 2.1* shall not be more than 2% of the contract value for AC System (including main supply, E&C, Mandatory Spares Etc. i.e Total of Sl.no.2.2, 2.3 & 2.4 only) as per Sl. No. 1.0 of GCC. Further, out of this total 2% amount for Design, 1% shall be payable after approval of basic engineering drawings / documents (as mentioned in relevant chapter of technical specification) whereas remaining 1% shall be payable after submission of all the engineering drawings / documents as per tender specification.
- 5) For detailed scope of Operation and Maintenance Services, Technical Specification to be referred. Any variation in no. of months shall be exercised based on unit rate arrived from price quoted against Sl.no 2.5 above.

Particulars of bidder / authorised representative				
Name	Designation	Signature	Date	Company Seal

SUGGESTED PRICE FORMAT ANNEXURE - I : PRICE BREAKUP FOR SUPPLY PART		Doc No:	PF-PE-445-553-A001	
		Rev No:	0	
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NAME OF PROJECT:		1X660 MW WBPDCL SAGARDIGHI TPP EXTENSION UNIT NO. 5		
NAME OF PACKAGE:		AC SYSTEM		
TECHNICAL SPECIFICATION No:		PE-TS-445-553-A001		
	ITEM DESCRIPTION	QTY.	UNIT	U
	BREAK-UP OF ITEMS MENTIONED AT S. NO. 2.2 OF MAIN SHEET			
A	AC Plant-1: CENTRAL CHILLED WATER SYSTEM FOR MAIN CR AREAS FOR UNIT-5.			
1	Water cooled Chilling machine each of minimum 110 TR (actual) capacity consisting of (a) Screw refrigerant compressor(s) complete with motors, micro-processor control panel, multi drive set, controls and interlocks other accessories as specified; (b) Water cooled condenser adequately sized with suitable anti corrosive paint coating for tube and shell part coming in contact with soft water & other accessories and (c) Shell & tube type water chiller & other accessories, as specified.	3	NO	
2	Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower(s), TEFC sq. cage induction motor, pre-filters, 3-way motorised mixing valve with thermostatic controls, NRD, and other accessories to meet the AC load of the main CR area of Unit # 5 at 17.0M . High Efficiency Filters shall be provided at discharge of AHUs as per specification.	3	NO	
3	Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower(s), TEFC sq. cage induction motor, pre-filters, 3-way motorised mixing valve with thermostatic controls, NRD and other accessories to meet the AC load of the main CR area of Unit # 5 at 8.5m . High Efficiency Filters shall be provided at discharge of AHUs as per specification.	3	NO	
4*	Ceiling suspended AHU consisting of chilled water cooling coil, blower, motor, driveset, filters (prefilter), 3-way motorised mixing valve with thermostatic controls, NRD and other accessories to meet the AC load of different areas. High Efficiency Filters (if required) shall be provided at discharge of AHUs as per specification.			
a*	10 TR	2	NO*	
b*	7 TR	2	NO*	
c*	5 TR	2	NO*	
5	Fibreglass reinforced plastic (FRP) construction cooling towers (common for AC Plant-1 & AC Plant-2) complete with fan, motor, FRP basin, nozzles, make-up water, quick fill, equalising and drain water connection. instruments, piping, valves, strainers, ladder & structural support and all accessories as specified as per specification.	2	NO	
6	Centrifugal pump sets for condenser water recirculation (common for AC Plant-1 & AC Plant-2) complete with TEFC motor & all accessories as specified.	3	NO	
7	Centrifugal pump sets for chilled water recirculation complete with TEFC motor drive set & all accessories, as specified.	3	NO	
8*	FRP Make up water Tank (common for AC Plant-1 & AC Plant-2) of Min. 4m3 capacity with make up water line with float valve, quick fill line with ball valve, drain line with ball valve, overflow & vent line, instruments, valves and all other accessories as per specification.	1	Nos*	
9*	FRP Make up (soft water) water cum storage tank (common for AC Plant-1 & AC Plant-2) of Min 8m3 capacity for cooling towers with make up water line with float valve, quick fill line with ball valve, drain line with ball valve, overflow & vent line,instruments, valves and all other accessories as per specification .	2	Nos*	
10	FRP Expansion Tank of min 2 m3 capacity for chilled water with insulation, Make up water line with float valve, quick fill line with ball valve, drain line with ball valve, overflow & vent line, instruments and valves as per specification.	1	NO	
11	Skid mounted softening plant (2 x 100 %) (common for AC Plant-1 & AC Plant-2) with associated piping, valves, instruments, pumps for make up, regeneration pumps & vessels, buffer tank as applicable with suitable rubber lining & as per tender requirement , Along with chemicals for dosing and with all accessories to meet system requirements and as specification.	1	Sets	
12*	HDPE Piping (as per requirement) complying to IS 4984, PN 10, PE80 carbon black, UV rating) along with valves for transferring softening plant reject and cooling tower blow down to nearest ETP sump.	100	mtrs*	
13*	Pumps with motor set of suitable material along with accessories for pumping of softening plant reject and cooling tower blow down as per specification to nearest ETP sump located at approx 100 mtrs distance.	2	Nos*	
14	Condenser water piping (Common for AC Plant 1 and AC Plant 2) with necessary fittings like tee, reducer, expander, elbow, flange, strainer with flange, air vent, all types of valves with flanges, valves including piping from soft water storage tank to pan humidifiers of AHU room & PAC room.	1	LOT	
15	Complete Insulated Chilled water piping with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents etc with supports as per specifications.	1	LOT	
16	Monsoon reheating / winter heating kit comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT	
17	HUMIDIFIER for each AHU room complete with humidistat, safety controls, make up water piping from make up tank / nearest source of water, valves fittings etc	1	LOT	
18	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers etc. along with support structure and other accessories for each AHU room	1	LOT	
19	Smoke exhaust fan complete with flame proof motor & mounting frame, motorized isolating dampers with cowl & bird screen alongwith support structure and other accessories for each AHU room	1	LOT	
B	AC Plant -2, (For ESP CUM FGD control room) for Unit-5			
1*	Water cooled precision package unit of min. 20 TR actual capacity consisting of compressor, water cooled condenser, evaporator with blower and motor, expansion valve, filter, etc & all other accessories as specified.	8	Nos*	
2	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers etc. along with support structure and other accessories for PAC room	1	LOT	
3	Smoke exhaust fan complete with flame proof motor & mounting frame, motorized isolating dampers with cowl & bird screen alongwith support structure and other accessories for PAC room	1	LOT	
C	ITEMS COMMON TO ALL AC PLANTS			
1*	GI ducting (finished), diffusers/ grills, volume control dampers etc. complete with all accessories as required to complete ducting system.			
1.1*	Galvanised steel sheets (finished) having zinc coating of atleast 180 gms/ sqm ducting complete with accessories like flanges, bracings, nuts, bolts, washers, gasket, locknut, hilti, threaded hanging rods, supports, vanes, splitter dampers, sealant, adhesive etc. required to make the installation complete in all respect.			
(a)*	18G.	450	SQM*	
(b)*	20G.	450	SQM*	
(c)*	22G.	1200	SQM*	
(d)*	24G.	2000	SQM*	
1.2*	SUPPLY AIR DIFFUSERS / GRILLS with VCD (Extruded Aluminium powder coated) complete with fixing frames, nuts, bolts, gaskets, washers etc	35	SQM*	
1.3*	RETURN AIR DIFFUSERS / GRILLS without VCD (Extruded Aluminium powder coated) complete with fixing frames, nuts, bolts, gaskets, washers etc	55	SQM*	
1.4*	VOLUME CONTROL DAMPERS in GI construction as per specifications for supply / return ducts complete with fixing arrangement.	8	SQM*	
1.5*	Fire damper.			
(a)*	Fire damper with auto resetting, limit switches, indication lamps etc.	12	SQM*	
(b)*	Motorized actuator with single phase power supply for the above fire damper / MD / VCD.	15	NO*	

	ITEM DESCRIPTION	QTY.	UNIT
2	Acoustic insulation of ducting from AHU, Precision AC, Package AC etc outlets with material and finish as per specifications.	1	LOT
3*	Thermal insulation of supply air duct & return air duct with finish as specified.	4300	SQM*
4*	Drain piping with and without insulation from various equipment upto nearest available drain point with necessary fittings like tees, reducers, expanders, elbows, flanges, valves with flanges, U trap etc as per specifications.		
a*	50mm	100	Rmt*
b*	40mm	100	Rmt*
D	AC System for Aux. building for unit # 5 and Phase-II as required		
1*	Air Cooled PAC-Unit complete with all accessories as specified The package unit shall be complete with all accessories like duct heaters, pan humidifier, filters, acoustic insulation of duct for 5m from PU, drain piping with insulation upto nearest drain, required instrumentation etc		
(a)*	10 TR net capacity	1	NO*
2*	MONSOON REHEATING / WINTER HEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. for below mentioned PAC.		
(a)*	10 TR net capacity	1	NO*
3*	HUMIDIFIER for below mentioned PAC complete with humidistat, safety controls, make up water piping from make up tank / nearest source of water, valves fittings etc		
(a)*	10 TR net capacity	1	NO*
4*	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers etc. along with support structure and other accessories for below mentioned package AC		
(a)*	10 TR net capacity	1	NO*
5*	Smoke exhaust fan complete with flame proof motor & mounting frame, motorized isolating dampers with cowl & bird screen alongwith support structure and other accessories for below mentioned PAC		
(a)*	10 TR net capacity	1	NO*
6*	AIR COOLED SPLIT UNITS consisting of outdoor unit (having compressor condenser coils with fan and motor), indoor unit (having evaporator coil, filter,fan with motor), interconnecting refrigerant piping as per site requirement & fittings with insulation, cordless remote, electrical power cord upto the nearest available point along with isolator / MCB, fixing frame for indoor and outdoor unit, Stabilizer,etc.		
(a)*	5.0 TR capacity (ductable type, 415 V, 3 phase with isolation switch).	2	NO*
(b)*	2.0 TR capacity (non-ductable type, 240 V, 1 phase) with isolation switch, i.e. MCB of suitable rating as specified, voltage stabilizer, cabling, all supporting structure and refrigerant piping to suite actual site condition, drain piping upto nearest drain etc. Split AC shall be of best rating as per latest BEE based on ISEER	80	NO*
(c)*	1.5 TR capacity (non-ductable type, 240 V, 1 phase) with isolation switch, i.e. MCB of suitable rating as specified, voltage stabilizer, cabling, all supporting structure and refrigerant piping to suite actual site condition, drain piping upto nearest drain etc. Split AC shall be of best rating as per latest BEE based on ISEER	20	NO*
E*	Handling arrangement		
1*	3 Ton capacity electric hoist with monorail	1	No*
2*	1 Ton capacity chain pulley block with travelling trolley and monorail arrangement	1	No*
3*	1 Ton Chain Pulley Block with tripod stand (without Travelling trolley.	2	Nos*
4*	Manually operated, platform trolley of 1 Ton capacity with base area 2m x 1.5m	2	Nos*
F	Electrical items like Cable tray, cable tray support system, conduits, cable glands, lugs, junction box along with fixing arrangement and any other item etc. required for completeness of System	1	LOT
G	FIELD INSTRUMENTS like gauges, switches, transmitters for measurement of pressure, temperature, pressure, differential pressure, level, flow etc., greyser stat, humidstat, air stat, RH and temperature sensors and other instruments as required for completeness of System	1	LOT
H*	Local Control Panels along with fixing arrangement as per requirement for completeness of AC system.	1	LOT*
I*	Fibre optic Cable with its accessories from I/O Panel / Racks to Main DCS Panel of AC System	200	Rmt*
J	Total lumpsum price for special tools & tackles for maintenance inclusive of packing forwarding, transportation up to site, etc. (Bidder shall submit item-wise price break-up-As per Appendix A).	1	LOT
K	Total lumpsum price for commissioning spares inclusive of packing forwarding, transportation up to site, etc. (Bidder shall submit item-wise price break-up-As per Appendix B).	1	LOT
L*	Industrial Salt	1	Tonne*
M*	Providing full support during FAT of DDCMIS, preparation of control scheme, and commissioning of DDCMIS as per relevant specification.	21	Mandays*
N	Any other item not indicated above, but required to make the system complete in all respects as per specification and system requirement.	1	LOT
NOTES			
1	The bidder shall furnish unit rates for variable item (marked *) for necessary adjustment (plus or minus) variation during detailed engg. stage. The unit rates quoted above shall be considered for adjustment and no separate unit rates shall be quoted. Unit rates shall be valid throughout the contract. Final qty. shall be paid as per actual measurement at site for erection for all the variable items.		
2	Price format shall not be changed by the bidder as the bidder may get disqualified by doing so.		
3	Any cell left blank in the unpriced schedule shall be treated as "Quoted" and is included in total price.		
4	The BOQ mentioned above shall be read in conjunction with technical specification requirement. Any item required as per technical specification but not specifically indicated in above BOQ, shall deemed to be included in total prices quoted by bidder. No additional price shall be payable against such items.		
Particulars of bidder / authorised representative			
	Name	Designation	

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SUGGESTED PRICE FORMAT APPENDIX-A Special tools & tackles for maintenance		Doc No:	PF-PE-445-553-A001		
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NAME OF PROJECT:		1X660 MW WBPDCL SAGARDIGHI TPP EXTENSION UNIT NO. 5			
NAME OF PACKAGE:		AC SYSTEM			
TECHNICAL SPECIFICATION No:		PE-TS-445-553-A001			
SL NO	DESCRIPTION	UNIT	Qty		
1	FLAT D WRENCH - 6 MM TO 32 MM (12 Pcs)	SET	1		
2	BOX WRENCHES - 6 MM TO 22 MM (14 Pcs)	SET	1		
3	RING SPANNER - 6 MM TO 32 MM (12 Pcs)	SET	1		
4	ALLEN KEYS - 2 MM TO 10 MM	SET	1		
5	CRESCENT SCREW SPANNER	NO.	1		
6	SCREW DRIVER	NO.	1		
7	OFFSET SCREW DRIVER	NO.	1		
8	INSULATED PLIER	NO.	1		
9	TORCH LIGHT FOR 2 CELL	NO.	1		
10	HAMMER 1 LB	NO.	1		
11	OIL CAN	NO.	1		
12	POCKET THERMOMETER - 0 TO 50 DEG. C)	NO.	1		
13	INSULATION TAPE ROLL	NO.	1		
14	STEEL FOOT RULE - 12"	NO.	1		
15	FEELER GAUGE 9 BLADES	NO.	1		
16	PIPE WRENCH	NO.	1		
17	FLARE NUT (1/4")	NOS.	6		
18	FLARING TOOL	NO.	1		
19	TUBE CUTTER	NO.	1		
20	GAS CHARGING PIPE	NO.	1		
21	NITROGEN CHARGING ADAPTER	NO.	1		
22	FREON PRESSURE GAUGE (2 1/2" DIA DIAL) 0 - 300 MM PSI	NO.	1		
23	FREON PRESSURE GAUGE (2 1/2" DIA DIAL) 30 - 150 MM PSI	NO.	1		
24	PSYCHRO METER	NO.	1		
25	LOCK WITH KEY FOR TOOL BOX	NO.	1		
26	RATCHET 1/4"	NO.	1		
27	MS TOOL BOX	NO.	1		
NOTES					
1	Above is the minimum list. Any other Tools and tackles required for AC system w.r.t. Mechanical, Electrical and C&I part shall also be provided by the Bidder as per system / customer requirement without any commercial & Delivery implication to BHEL.				
2	Supply of special tools and tackle including toolbox required for operation, maintenance and overhauling of the system is in the scope of the bidder.				
Particulars of bidder / authorised representative					
	Name	Designation	Signature	Date	Company Seal

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SUGGESTED PRICE FORMAT APPENDIX-B Commissioning spares				Doc No:	PF-PE-445-553-A001
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NAME OF PROJECT:		1X660 MW WBPDCS SAGARDIGHI TPP EXTENSION UNIT NO. 5			
NAME OF PACKAGE:		AC SYSTEM			
TECHNICAL SPECIFICATION No:		PE-TS-445-553-A001			
SL NO	DESCRIPTION	UNIT	Qty		
1	Fan Belts (each type & size)	Set	1		
2	Pressure Gauge (for each type and range)	No.	1		
3	Temperature Gauge (for each type and range)	No.	1		
4	Filter (each size)	Set	1		
5	Compressor Oil	Ltr.	1 Lot		
6	Refrigerant gas of each type in a non-returnable cylinders	Kg	1 Lot		
NOTES					
1	Above is the minimum list. Any other commissioning spare required for AC system w.r.t. Mechanical, Electrical and C&I part shall also be provided by the Bidder as per system / customer requirement without any commercial & Delivery implication to BHEL.				
Particulars of bidder / authorised representative					
	Name	Designation	Signature	Date	Company Seal

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SUGGESTED PRICE FORMAT ANNEXURE - II LIST OF MANDATORY SPARES		Doc No:	PF-PE-445-553-A001
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NAME OF PACKAGE:		AC SYSTEM	
TECHNICAL SPECIFICATION No:		PE-TS-445-553-A001	
S. No.	Description	QTY	
6.07.00	Air Conditioning System		
6.07.01 (A)	Reciprocating Compressors of all categories		
(i)	Piston Ring	1Set for each categories	
(ii)	Piston	1Set for each categories	
(iii)	Complete Set of Bearing	1Set for each categories	
(iv)	Complete Set of Seal and other wear out parts	1Set for each categories	
(v)	Complete set of Valve Head Assembly	2Sets for each categories	
(vi)	Crank Shaft complete set	1Set for each categories	
(vii)	Connecting Rod	1Set for each categories	
6.07.01 (B)	Screw Compressors of all categories		
(i)	O' rings & oil seals - screw compressors	2 sets for each	
(ii)	Suction filter elements - screw compressors	1 Set for each rating of compressors	
(iii)	Bearings - screw compressors	4 sets for each rating of compressors	
(iv)	Gaskets - screw compressors	1 Set for each rating of compressors	
(v)	Complete set of suction Valves and Discharge Valves - screw compressors.	2 set of bearings for each	
(vi)	crane case heater - screw compressors	1 Set for each rating of compressors	
(vii)	Oil pressure failure safety switch - screw compressors	2 Set for each rating of compressors	
6.07.02	Centrifugal pumps of all categories		
(i)	Impeller	1Set for each categories	
(ii)	Wearing Rings	1Set for each categories	
(iii)	Complete Set of Bearing	1Set for each categories	
(iv)	Complete Set of Seal and other wear out parts	1Set for each categories	
(v)	Strainer Basket	1Set for each categories	
6.07.03	Centrifugal Blowers of All AHU		
(i)	Rotating Assembly	1Set for each categories	
(ii)	Complete Set of Bearing	1Set for each categories	
6.07.04	Heat Exchangers		
(i)	Plug for condenser Tube	10Nos.	
(ii)	Sight Glass	2Nos. each type	
(iii)	Safety Relief valves	1No. each type	
6.07.05	Cooling Tower		
(i)	Spray nozzles	1Set (one set means complete replacement for one cooling tower)	
(ii)	Set of fills	10% (rounded off to the next higher integer) of total quantity used one Tower	
6.07.06	Valves	1No. for each type, Class and size	
6.07.07	Electrical Spares as applicable as per the Electrical List	Applicable Item & Quantity same as indicated in Electrical list Sl. No.7.12.00, 7.13.00 & 7.21.00	
6.07.08	Field Instruments & Others as applicable as per the C&I List	Applicable Item & Quantity same as indicated in C&I list Sl. No. 8.04.00 & 8.10.00	
B	Electrical spares		
7.12.00	Control Panel/Desk Mounted Items		
7.12.01	Push Button Complete assembly	10Nos for each colour	
7.12.02	Push Button Contact Element (1NO + 1NC) Block	20Nos.	
7.12.03	Selector Switch	10Nos. for each type and rating	
7.12.04	Meter (Analog and Digital)		

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S. No.	Description	QTY		
(i)	Ammeter	2Nos. for each type and range		
(ii)	Voltmeter	2Nos. for each type and range		
(iii)	Frequency	2Nos. for each type and range		
(iv)	MW	2Nos. for each type and range		
(v)	MVAR	2Nos. for each type and range		
(vi)	Power Factor	2Nos. for each type and range		
(vii)	Synchroscope	1No. for each type and range		
(viii)	Synchrocheck Relay complete set	1No. for each type and range		
(ix)	Transducer	1No. for each type and range		
7.12.05	Indicating Lamps complete assembly	20Nos. for each Colour and type		
7.12.06	Mimic Lamps	10Nos. for each Colour and type		
7.12.07	MCB	5Nos. for each type and rating		
7.12.08	Door Limit Switch	5Nos.		
7.12.09	Annunciation system			
(i)	Lamp Box with Facia & Lamps (LED type)	25Nos.		
(ii)	Hooter	1No.		
(iii)	Each type of PCB (for non-PLC driven system)	1(one) no.		
7.13.00	Actuator			
7.13.01	Complete set of Actuator	2Nos. for each type, make and rating, 1 no. for H2 cooler Temperature controller and 1 no. for stator water temperature controller		
7.13.02	Power Unit for Modulating Actuator	4Nos. of each type		
7.13.03	DC-DC Power Pack Unit	4Nos. of each type		
7.13.04	Electronic cards	4Nos. of each type		
7.13.05	Position Feed Back Transmitters	4Nos. of each type		
7.13.06	Control Unit	4Nos. of each type		
7.13.07	Limit Switch Assembly	2 Nos each type and rating		
7.13.08	Torque Switch Assembly	2 Nos each type and rating		
7.13.09	Power Contactor	5Nos. for each type and rating		
7.13.10	Auxiliary Contactor	5Nos. for each type and rating		
7.13.11	Thermal Over Load Relay	2Nos. for each type and rating		
7.13.12	Motor	1No. each type and rating		
7.13.13	Complete Seal kit	2Sets for each type and rating		
7.13.14	Complete O-Ring Set	2Sets for each type and rating		
7.21.00	Motor			
7.21.02	415 Volt Motor			
(i)	Motor of each type and rating (Note : motors covered in mechanical spare items need not to be included here again) 10% of the installed quantity or minimum 1 number whichever be higher	10% of the installed quantity or minimum 1 number whichever be higher		
(ii)	End Shield Cover Driving & Non-Driving End	1 set for each type and rating of Motor		
(iii)	Heaters	2 sets for each type and rating of motor		
(iv)	Bearings (DE and NDE) for each type and rating of motor	2 sets		
(v)	Cooling Fan for all type and rating of LT motors	One (1) set		
(vi)	Dust seals and gaskets for each type of motors	1 Set		
(vii)	Motor Terminal Block	1 no. for each type and rating of Motor		
(viii)	Complete Set of Coupling	1 set for each type and rating		
7.21.04	DC Motor			
(i)	Motor of each type and rating (Note : motors covered in mechanical spare items need not to be included here again)	10% of the installed quantity or minimum 1 number whichever be higher		
(ii)	Carbon brushes	2 sets for each type and rating of Motor		
(iii)	Brush assemblies	2 sets for each type and rating of Motor		
(iv)	Terminal blocks	1 set for each type and rating of Motor		

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S. No.	Description	QTY
(v)	Heaters	1 set for each type and rating of Motor
(vi)	Complete Set of Coupling	1 set for each type and rating of Motor
(vii)	Bearings (DE and NDE) for each type and rating of motor	1 set for each type and rating of Motor
(viii)	Cooling Fan	1 set for each type and rating of Motor
C	C&I Spares	
8.04.00	Field Instrument	
8.04.01	Electronic Transmitters	
(i)	Pressure	1(One) no. complete set for each type and model/range used in the system
(ii)	Differential Pressure	1(One) no. complete set for each type and model/range used in the system
(iii)	Level	1(One) no. complete set for each type and model/range used in the system
(iv)	Speed	1(One) no. complete set for each type and model/range used in the system
(v)	Flow Transmitter	1(One) no. complete set for each type and model/range used in the system
(vi)	3-D Ultrasonic level Transmitter	1(One) no. complete set for each type and model/range used in the system
8.04.02	Different type of Switches	
(i)	Pressure Switch	2(two)no. of each type & model/range used in the system
(ii)	Differential Pressure Switch	2(two)no. of each type & model/range used in the system
(iii)	Level Switch	2(two)no. of each type & model/range used in the system
(iv)	Flow Switch	2(two)no. of each type & model/range used in the system
(v)	Temperature Switch	2(two)no. of each type & model/range used in the system
(vi)	Dust Detector	1(one)no. of each type & model used in the system
8.04.03	Thermocouple	10% of each type and length used in one unit
8.04.04	RTD	10% of each type and length used in one unit
8.04.05	Thermo-well for both TC and RTD	2(Two) nos. for each type and rating/length used in the system
8.04.06	Solenoid Valve	
(i)	Complete Solenoid Valve Assembly	2Nos. for each type and rating used in the system
(ii)	Coil (single or double coil type)	10% of total nos. used in the system or minimum 5(five) Nos. whichever is more for each type and rating.
8.04.07	Different types of Gauge	
(i)	Pressure Gauge	10% of total nos. used in the system or minimum 1(one) no. whichever is more for each type and range.

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S. No.	Description	QTY
(ii)	Differential Pressure Gauge	10% of total nos. used in the system or minimum 1(one) no. whichever is more for each type and range.
(iii)	Temperature Gauge	10% of total nos. used in the system or minimum 1(one) no. whichever is more for each type and range.
(iv)	Magnetic Level Gauge	10% of total nos. used in the system or minimum 1(one) no. whichever is more for each type and range.
8.04.08	Air Filter Regulator including moisture separator complete set with pressure gauges	10Nos.
8.04.09	Rotameter	10% of total nos. used in the system or minimum 2(Two) nos. whichever is more for each type, rating,/model and size used in the system.
8.04.10	Gauge Glass	1No. for each type and size
8.04.11	Erection Hardware	
(i)	Transmitter's Manifold	10% of total nos. used in the system or minimum 2(Two) nos. whichever is more for each type, rating,/model and size used in the system.
(ii)	Impulse Line Root/Source valve	10% of total nos. used in the system or minimum 4(four) nos. whichever is more for each type, rating,/model and size used in the system.
(iii)	Impulse Line Isolation valve	10% of total nos. used in the system or minimum 4(four) nos. whichever is more for each type, rating,/model and size used in the system.
(iv)	Impulse Line Drain valve	10% of total nos. used in the system or minimum 4(four) nos. whichever is more for each type, rating,/model and size used in the system.
(v)	Impulse Line fittings	Each type/size 25Nos.
(vi)	Impulse Pipe	Each type/size 100Mtrs.
(vii)	Copper/SS Tube	Each type/size 100Mtrs.
(viii)	Fittings for Copper/SS Tube	Each type/size 100Nos.
8.04.13	Conductivity Type Level Switch	
(i)	Conductivity Ttype level Probes	10% of total nos. used in the system or minimum 4(four) nos. whichever is more.
(ii)	Complete Electronics unit	1Set
(iii)	Isolating/Root Valve	2Nos.
8.04.14	Cable This particulat items shall be common for BTG , CHP and AHP areas.	
(i)	Thermocouple Cable	3(three)Kms. of each type, size & rating of Cables
(ii)	Control & Instrumentation Cable	3(three)Kms. of each type, size & rating of Cables
8.04.15	Cold Junction Compensation Boxes	10% of total nos. used in the system or minimum 2(two) nos. for each type/size whichever is more.
8.04.16	Current/Voltage Transducers	1(one) no. each type/rating used in the system

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S. No.	Description	QTY
8.04.17	MWatt/MVAR Transducer	1(one) no. each type/rating used in the system
8.04.18	Chlorine Leak Detector System	
(i)	Sensor Unit (complete)	2No.
(ii)	Transmitter/Processing Unit (complete)	2No.
8.10.00	Control Panel And Local/Remote Control Desk	
8.10.01	Mosaic/Conventional Type Push button Station	10% of total quantity used in the system or minimum 2(two) nos. whichever is more for each type and model.
8.10.02	Mosaic Type Push button Station with LED Indication	10% of total quantity used in the system or minimum 2(two) nos. whichever is more for each type and model.
8.10.03	Mosaic Type LED Indication Station	10% of total quantity used in the system or minimum 2(two) nos. whichever is more for each type and model.
8.10.04	Simaphore Indicator	2(two)Nos. each type
8.10.05	Annunciation System	
(i)	Each type of PCB (for non-PLC driven system)	1(one) No. each
(ii)	Lamp Box with Facia & Lamps (LED type)	10(ten)Nos.
(iii)	Hooter	1(one) No.
D	MANDATORY SPARES FOR MATERIAL HANDLING EQUIPMENT (AS APPLICABLE)	
6.02.00	Electrical Hoist	
6.02.01	Bearings for Long Travel Wheels [Bearing of each type and size used in motors]	1 Set for each type & capacity of Hoist
6.02.02	Bearings for Cross Travel Wheels [Bearing of each type and size used in motors]	1 Set for each type & capacity of Hoist
6.02.03	Bearings for each type of Gear Boxes of the Hoist	1 Set for each type & capacity of Hoist
6.02.04	Brake Liner for all the Brakes of the Hoist	100% for each type & capacity of Hoist
6.02.05	Hydraulic Thruster for Brakes	1 No. for each type & capacity of Hoist
6.02.06	Oil Seals for all types of the Hoist	100% for each type & capacity of Hoist
6.02.07	Brake Springs for all Brakes	100% for each type & capacity of Hoist
6.02.08	Wire Rope for Aux. Hook	100% of one Hoist for each type & capacity of Hoist
6.02.09	Electrical	
(i)	Other Electrical Spares as applicable as per the Electrical List	Applicable Item & Quantity same as indicated in Electrical list Sl. No.7.08.00,7.12.00 & 7.21.00
(ii)	Limit Switches for:	
(a)	Hoist	1Set. for each type & capacity of Hoist
(b)	Cross Travel	1Set. for each type & capacity of Hoist
(c)	Long Travel	1Set. for each type & capacity of Hoist
(iii)	Control Trailing Cable for Electrical Hoist	100% of one Hoist for each type & capacity of Hoist

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S. No.	Description	QTY			
(iv)	Power Trailing Cable for Electrical Hoist	100% of one Hoist for each type & capacity of Hoist			
	TOTAL				
Notes:					
a)	Mandatory spares listed in Price Schedule are bare minimum requirement. In case any additional mandatory spares requirement is covered elsewhere in the tender specification apart from specified above, same shall be deemed to have been covered in bidder's scope of supply.				
b)	Wherever "set" is indicated, it shall mean complete replacement for one main equipment of similar size & capacity.				
c)	All Spares shall be supplied as per the requirement of the specifications. In case any spare indicated in the specification is "not applicable" for particular equipment, then suitable applicable alternate spare has been offered / shall be supplied by the bidder without any financial implication."				
d)	Bidder to write "Quoted / Not Applicable" against all items. Any item which is quoted as "not applicable" by the bidder in the above list and is found to be "applicable" at a later date shall be supplied by the bidder without any commercial and delivery implication.				
e)	For quantities indicated in percentage, fractions are to be rounded-off to next higher integer.				
f)	Any cell left blank in the unpriced schedule shall be treated as "Quoted" and is included in total price.				
g)	Bidder to note that even though there may be some spares which are repetitive at various sl.no mentioned above, bidder to ensure that prices are quoted against each sl.no. In case any cell is left blank in the unpriced schedule shall be treated as "quoted" and included in total price.				
Particulars of bidder / authorised representative					
	Name	Designation	Signature	Date	Company Seal