

MAIN PRICE FORMAT					
NAME OF PROJECT:		2X800 MW KODERMA TPS PHASE II & 2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG			
NAME OF PACKAGE:		AC AND VENTILATION SYSTEM			
TECHNICAL SPECIFICATION:		PE-TS-CB-553-002-A001			
Enquiry No					
Name of the Bidder :		M/s			
Please fill the Yellow cells only					
S.NO	DESCRIPTION	UNIT	QTY	Total FOR Price (including Freight & Excl. GST)	Total Evaluation Price (INR)
1.0	Total lump sum firm price for complete scope of AC & Ventilation Packages listed below as per technical specification for 2X800 MW KODERMA TPS PHASE II & 2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG List of Packages -AIR CONDITIONING SYSTEM -VENTILATION SYSTEM	Set	1		₹ 0.00
	Freight % for Koderma				
2.0	Freight % for Raghunathpur				
<b>Note:</b> 1. Bidder to quote the i) Total Prices and ii) freight for both Koderma and Raghunathpur in 'figures' in the cells highlighted yellow in colour. 2. Rest of the values in the subsequent sheets shall be derived from these values. 3. GST shall be extra as per actual.					

<div> <div>PERCENTAGE BREAK UP</div> <div>TECHNICAL SPECIFICATION: PE-CB-553-002-A001</div> </div>						
Name of the Bidder : M/s						
PACKAGE	TOTAL LUMP SUM PRICES	SUPPLY PERCENTAGE OF TOTAL AC AND VENTILATION SYSTEM PACKAGE PRICE	ERECTION & COMMISSIONING PERCENTAGE OF TOTAL AC AND VENTILATION SYSTEM PACKAGE PRICE	MANDATORY SPARES PERCENTAGE OF TOTAL AC AND VENTILATION SYSTEM PACKAGE PRICE	ENGINEERING CHARGES PERCENTAGE OF TOTAL AC AND VENTILATION SYSTEM PACKAGE PRICE	O&M CHARGES PERCENTAGE OF TOTAL AC AND VENTILATION SYSTEM PACKAGE PRICE
Total lump sum firm price for complete scope of AC & Ventilation Packages listed below as per technical specification for 2X800 MW KODERMA TPS PHASE II	85.43%					
AIR CONDITIONING SYSTEM		38.59%	10.83%	1.93%	1.16%	1.35%
VENTILATION SYSTEM		22.98%	6.36%	1.54%	0.69%	0.00%
Total lump sum firm price for complete scope of AC & Ventilation Packages listed below as per technical specification for 2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG	14.57%					
AIR CONDITIONING SYSTEM		8.06%	2.00%	0.81%	0.23%	0.31%
VENTILATION SYSTEM		2.08%	0.54%	0.46%	0.08%	0.00%
<b>Note:</b> 1. Above percentage breakdowns are exclusive of applicable taxes and duties. GST shall be extra as per actual. 2. The percentage shall be w.r.t the "Total Evaluation Price" in the Main Price Format. 3. The total lump sum price quoted by the bidder shall be considered as 100% and deemed to cover the entire scope of work including Supply, Erection & Commissioning (E&C), Mandatory Spares, Design & Engineering, and Operation & Maintenance (O&M) Services as per the specification. 4. This sheet not to be filled, only the name of the bidder to be entered.						

PRICE BREAK UP						
TECHNICAL SPECIFICATION: PE-TS-CB-553-002-A001						
Name of the Bidder : M/s						
PACKAGE		SUPPLY PERCENTAGE OF TOTAL AC AND VENTILATION SYSTEM PACKAGE PRICE	ERECTION & COMMISSIONING PERCENTAGE OF TOTAL AC AND VENTILATION SYSTEM PACKAGE PRICE	MANDATORY SPARES PERCENTAGE OF TOTAL AC AND VENTILATION SYSTEM PACKAGE PRICE	ENGINEERING CHARGES PERCENTAGE OF TOTAL AC AND VENTILATION SYSTEM PACKAGE PRICE	O&M CHARGES PERCENTAGE OF TOTAL AC AND VENTILATION SYSTEM PACKAGE PRICE
Total lump sum firm price for complete scope of AC & Ventilation Packages listed below as per technical specification for 2X800 MW KODERMA TPS PHASE II	₹ -					
AIR CONDITIONING SYSTEM		₹ -	₹ -	₹ -	₹ -	₹ -
VENTILATION SYSTEM		₹ -	₹ -	₹ -	₹ -	₹ -
Total lump sum firm price for complete scope of AC & Ventilation Packages listed below as per technical specification for 2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG	₹ -					
AIR CONDITIONING SYSTEM		₹ -	₹ -	₹ -	₹ -	₹ -
VENTILATION SYSTEM		₹ -	₹ -	₹ -	₹ -	₹ -

Note:

- The above prices are exclusive of applicable taxes and duties. GST shall be extra as per actual.
- This sheet not to be filled, only the name of the bidder to be entered.
- Prices have been derived based on the percentage break-up.

Main Price Schedule									
NAME OF THE BIDDER		M/s							
NAME OF PROJECT:		2X800 MW KODERMA TPS PHASE II & 2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG							
NAME OF PACKAGE:		AIR CONDITIONING & VENTILATION SYSTEM							
TECHNICAL SPECIFICATION No:		PE-TS-CB-553-002-A001							
S. No.	DESCRIPTION	UOM	QTY	Supply			Service		Total FOR Price Including Freight & excluding GST (INR)
				Total Ex-Works (excluding freight & GST) (INR)	Freight in %	Total Freight	Unit Price (INR)	Total FOR Price (INR)	
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 along with 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 Air Conditioning (24x7) before handing over after commissioning, and handover in flawless condition to the end customer complete "Air Conditioning and Ventilation System" 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	₹ -			NA		₹ -
2	MAJOR BREAK-UP OF PRICES GIVEN IN 1.0 ABOVE.								
	2X800 MW KODERMA TPS PHASE II								
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-3 below)	Lot	1	NA			₹ -	₹ -	₹ -
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-IA)	Lot	1	₹ -	0.00%	₹ -	NA		₹ -
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-IA)	Lot	1	NA			₹ -	₹ -	₹ -
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- IB & Annexure-IC)	Lot	1	₹ -	0.00%	₹ -	NA		₹ -
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 after commissioning of Air Conditioning system before final handing over to end customer in flawless condition for the scope defined as per technical specification for Air Conditioning system	Months*	12	NA			₹ -	₹ -	₹ -

	2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG								
2.6	Total lumpsum firm price inclusive of all prevailing taxes, duties and other levies for <b>Design</b> (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. <b>(Refer Note-3 below)</b>	Lot	1	NA			₹ -	₹ -	₹ -
2.7	Total lump sum firm price inclusive of all prevailing taxes, duties and other levies for <b>Supply part</b> 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. <b>(Break-up as per Annexure-IA)</b>	Lot	1	₹ -	0.00%	₹ -	NA		₹ -
2.8	Total lumpsum firm prices inclusive of all prevailing taxes, duties and other levies for <b>Services part</b> 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. <b>(Break-up as per Annexure-IA)</b>	Lot	1	NA			₹ -	₹ -	₹ -
2.9	Total lumpsum firm price inclusive of all prevailing taxes, duties and other levies for <b>Mandatory Spares</b> 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 <b>Annexure- IB &amp; Annexure-IC</b> )	Lot	1	₹ -	0.00%	₹ -	NA		₹ -
2.10*	Total lumpsum firm price inclusive of all prevailing taxes, duties and other levies for providing <b>Operation and Maintenance Service (24x7)</b> including manpower, supervision, consumables etc. for operation & maintenance after commissioning of Air Conditioning system before final handing over to end customer in flawless condition for the scope defined as per technical specification for Air Conditioning system	Months*	12	NA			₹ -	₹ -	₹ -

**Note:**

- 1) This sheet not to be filled, only the name of the bidder to be entered. Prices have been derived based on the percentage break-up.
- 2) GST shall be extra as per actual.
- 3) Please note that the complete engineering of the package is in the scope of bidder as per the tender requirement. However, for the payment purpose bidder to note that 50% of price as per sl. no. 2.1 & 2.6 shall be made against basic engineering (i.e. Preparation, submission & approval of basic drawing/ documents as indicated in tender specification) and the remaining payment shall be made for the balance engineering part on pro-rata basis.
- 4) For detailed scope of Operation and Maintenance Services of Air Conditioning system, 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 & 2.10 above.
- 5) Annexure-IA IB, IC, A\_AC\_VENT and B\_AC\_VENT not to be filled at this stage. The same shall be asked by the L-1 bidder before placement of LOA/PO.

NAME OF PROJECT:		2X 800 MW KODERMA TPS PHASE II & 2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG																	
NAME OF PACKAGE:		AIR CONDITIONING & VENTILATION SYSTEM																	
TECHNICAL SPECIFICATION No:		PE-TS-CB-553-002-A001																	
NAME OF THE BIDDER		M/s																	
			2X 800 MW KODERMA TPS PHASE II			2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG				SUPPLY				E&C					
Sr. No.	ITEM DESCRIPTION	UNIT	Quantity in AC System (A)	Quantity in Ventilation System (B)	Total Qty C=(A+B)	Quantity in AC System (D)	Quantity in Ventilation System (E)	Total Qty F=(D+E)		Unit Ex-Works Price (INR) (Y)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG		Unit E&C Price (INR) (Z)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG	
											Total Ex-Works Price for Air Conditioning System (INR) (AxY)	Total Ex-Works Price for Ventilation System (INR) (BxY)	Total Ex-Works Price for Air Conditioning System (INR) (DxY)	Total Ex-Works Price for Ventilation System (INR) (ExY)		Total Ex-Works Price for Air Conditioning System (INR) (AxZ)	Total Ex-Works Price for Ventilation System (INR) (BxZ)	Total Ex-Works Price for Air Conditioning System (INR) (DxZ)	Total Ex-Works Price for Ventilation System (INR) (ExZ)
	BREAK-UP OF ITEMS MENTIONED AT S. NO. 2.2 & 2.7 OF MAIN SHEET																		
A	AC-Plant-1: CENTRAL CHILLED WATER SYSTEM FOR MAIN CR AREAS COMMON FOR UNIT-3 & 4																		
1	Water cooled Chilling machine each of minimum <b>160 TR</b> capacity (actual) consisting of (a) Screw refrigerant compressor complete with motors, 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.	NOS.	3	0	3	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
2*	Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower, TEFC sq. cage induction motor, non-return damper, volume control damper, filters (pre-filter), 3 way motorised mixing valve with thermostatic controls and other accessories to meet the AC load of the main CR areas of Unit 3 & 4 at 18.0m. Fine Filters and HEPA Filters for AHUs shall be included in individual discharge of AHU as per specification.	NOS.*	4	0	4	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
3*	Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower, TEFC sq cage induction motor, non-return damper, volume control damper, filters (pre filter), 3 way motorised mixing valve with thermostatic controls and other accessories to meet the AC load of the UPS, SWAS Room, Water Analysis Lab of Unit 3 & 4 at 9.0m & 0.0m. Fine Filters and HEPA Filters in individual discharge of AHUs as per specification.	NOS.*	3	0	3	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
4	Fibreglass reinforced plastic (FRP) construction cooling towers complete with fan, motor, FRP basin, nozzles, make-up water & quick fill water connection, instruments, drains, piping, valves, strainers, ladder, structural support & all accessories as specified.	NO	3	0	3	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
5	Centrifugal pump sets for condenser water recirculation complete with TEFC motor & all accessories as specified.	NO	3	0	3	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
6	Centrifugal pump sets for chilled water recirculation complete with TEFC motor set & all accessories, as specified.	NO	3	0	3	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
7	Condenser water piping with necessary fittings, strainers, valves including piping from soft water storage tank to cooling tower, chiller, condenser water pumps, pan humidifiers of AHU room as specified.	LOT	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
8	Chilled water piping within AC plant room, AHU rooms and from AC plant room to various AHU rooms, chilled water pumps, expansion tank complete with valves supports, fittings, strainers, insulation with finish as per specification.	LOT	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
9	Monsoon reheating/ winter heating kit comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc for each AHU Room.	LOT	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
10	Pan type humidifier for each AHU room.	LOT	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
11	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), modulating dampers etc. as per specification for each AHU room.	LOT	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
12	Soft water/Make-up MS /FRP Storage tank to cooling towers with instruments, valves and other accessories as required. Capacity of each tank min. 8 m3.	NO	2	0	2	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
13	MS/FRP Expansion Tank (insulated) spray galvanised from inside for chilled water with all accessories like instruments and valves as required, capacity min. 1 m3.	NO	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
14	MS/FRP Make up Tank (Tanks shall be MS & inner surface spray galvanised. Make up water line with all accessories like instruments and valves as required. Capacity of each tank min. 2 m3.	NO	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
15	Skid mounted softening plant (2 x 100 %) with associated piping, valves, instruments, soft water pumps & regeneration pumps, chemical dosing pump, reject transfer pump & tanks as applicable & as per tender requirement.	SET	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
16*	Pumps with motor set along with accessories for pumping of softening plant reject and cooling tower blow down to CMB.	NOS.*	2	0	2	0	0	0			₹	-	₹	-	₹	-	₹	-	₹
B	AC Plant -2, (For ESP control room for Unit-3 & 4																		
1*	Water cooled Chilling machine each of minimum <b>100 TR</b> capacity (actual) consisting of (a) Screw refrigerant compressor complete with motors, control panel, multi drive set, controls and interlocks other accessories as specified; (b) Water cooled condenser adequately sized & other accessories and (c) Shell & tube type water chiller & other accessories, as specified.	NOS*	2	0	2	2	0	2			₹	-	₹	-	₹	-	₹	-	₹
2*	Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower, TEFC sq. cage induction motor, non-return damper, filters (pre filter), 3 way motorised mixing valve with thermostatic controls and other accessories to meet the AC load of the ESP control room area of Unit 3. Fine Filters in discharge for individual AHUs shall also be included.	NOS*	2	0	2	2	0	2			₹	-	₹	-	₹	-	₹	-	₹
3*	Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower, TEFC sq. cage induction motor, non-return damper, filters (pre filter), 3 way motorised mixing valve with thermostatic controls and other accessories to meet the AC load of the ESP control room area of Unit 4. Fine Filters in discharge for individual AHUs shall also be included.	NOS*	2	0	2	2	0	2			₹	-	₹	-	₹	-	₹	-	₹
4*	Fibreglass reinforced plastic (FRP) construction cooling towers complete with fan, motor, FRP basin, nozzles, make-up water & quick fill water connection, instruments, drains, piping, valves, strainers, ladder, structural support & all accessories as specified.	NOS*	2	0	2	2	0	2			₹	-	₹	-	₹	-	₹	-	₹
5*	Centrifugal pump sets for condenser water recirculation complete with TEFC motor & all accessories as specified.	NOS*	2	0	2	2	0	2			₹	-	₹	-	₹	-	₹	-	₹
6*	Centrifugal pump sets for chilled water recirculation complete with TEFC motor set & all accessories, as specified.	NOS*	2	0	2	2	0	2			₹	-	₹	-	₹	-	₹	-	₹

Sr. No.	ITEM DESCRIPTION	UNIT	Quantity in AC System (A)	Quantity in Ventilation System (B)	Total Qty C=(A+B)	Quantity in AC System (D)	Quantity in Ventilation System (E)	Total Qty F=(D+E)		Unit Ex-Works Price (INR) (Y)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG		Unit E&C Price (INR) (Z)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG	
											Total Ex-Works Price for Air Conditioning System (INR) (AxY)	Total Ex-Works Price for Ventilation System (INR) (BxY)	Total Ex-Works Price for Air Conditioning System (INR) (DxY)	Total Ex-Works Price for Ventilation System (INR) (ExY)		Total Ex-Works Price for Air Conditioning System (INR) (AxZ)	Total Ex-Works Price for Ventilation System (INR) (BxZ)	Total Ex-Works Price for Air Conditioning System (INR) (DxZ)	Total Ex-Works Price for Ventilation System (INR) (ExZ)
7	Condenser water piping with necessary fittings, strainers, valves including piping from soft water storage tank to cooling tower, chiller, condenser water pump, pan humidifiers of AHU room of ESP control building as specified.	LOT	1	0	1	1	0	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
8	Complete Insulated Chilled water piping within AC plant room, from AC Plant Room to AHU room ESP building Unit 3 and from AC plant room to ESP building Unit 4 AHU room, complete with valves supports, fittings, strainers, insulation with finish as per specification.	LOT	1	0	1	1	0	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
9	Monsoon reheating/ winter heating kit comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. for each AHU room of ESP control rooms Unit -3 & 4	LOT	1	0	1	1	0	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
10	Pan type humidifier for each AHU room of ESP cum FGD control rooms Unit -3 & 4	LOT	1	0	1	1	0	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
11	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), modulating dampers etc. as per specification for each AHU room of ESP control room Unit-3 & 4	LOT	1	0	1	1	0	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
12*	Soft water/Make-up MS /FRP Storage tank to cooling towers with instruments, valves and other accessories as required. Capacity of each tank min. 4 m3.	NOs.*	2	0	2	2	0	2			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
13	MS/FRP Expansion Tank (insulated) for chilled water with all accessories as required, capacity 1 m3.	No.	1	0	1	1	0	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
14*	MS/FRP Make up Tank 2m3 (Tanks shall be MS & inner surface spray galvanised. Make up water line with float valve & backup, quick fill line with ball valve, drain line with ball valve, overflow & vent line, level gauge shall be provided).	NO*	1	0	1	1	0	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
15	Skid mounted softening plant (2 x 100 %) with associated piping, valves, instruments, soft water pumps & regeneration pumps & tanks as applicable & as per tender requirement.	SET	1	0	1	1	0	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
16*	Pumps with motor set along with accessories for pumping of softening plant reject and cooling tower blow down to CMB.	NOs.*	2	0	2	2	0	2			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -

Sr. No.	ITEM DESCRIPTION	UNIT	Quantity in AC System (A)	Quantity in Ventilation System (B)	Total Qty C=(A+B)	Quantity in AC System (D)	Quantity in Ventilation System (E)	Total Qty F=(D+E)		Unit Ex-Works Price (INR) (Y)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG		Unit E&C Price (INR) (Z)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG	
											Total Ex-Works Price for Air Conditioning System (INR) (AxY)	Total Ex-Works Price for Ventilation System (INR) (BxY)	Total Ex-Works Price for Air Conditioning System (INR) (DxY)	Total Ex-Works Price for Ventilation System (INR) (ExY)		Total Ex-Works Price for Air Conditioning System (INR) (AxZ)	Total Ex-Works Price for Ventilation System (INR) (BxZ)	Total Ex-Works Price for Air Conditioning System (INR) (DxZ)	Total Ex-Works Price for Ventilation System (INR) (ExZ)
C	AC-Plant-3: CENTRAL CHILLED WATER SYSTEM FOR SERVICE BUILDING																		
1*	Water cooled Chilling, each of minimum <b>110 TR</b> capacity (actual) consisting of (a) Screw refrigerant compressor complete with motors, 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. Chiller shall be complete in all respect.	NOs*	2	0	2	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
2*	Sheet metal cabinet type air handling units (double skin as per specification) consisting of chilled water cooling coil, centrifugal blower, TEFC sq. cage induction motor, VVVF drive set, non-return damper, motorised volume control damper, filters (pre filter), 2 way/3 way motorised mixing valve with thermostatic controls and other accessories to meet the AC load of the all floors of service building. Filters for AHUs shall be included in discharge of AHU as per specification. VVVF shall be complete in all respect like provision of energy consumption measuring and data storing facility of energy consumption.	NOs*	10	0	10	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
3*	Fibreglass reinforced plastic (FRP) construction cooling towers complete with fan, motor, VVVF Drive set, FRP basin, nozzles, make-up water & quick fill water connection, instruments, drains, piping, valves, strainers, ladder & structural support and all accessories as specified as per specification. VVVF shall be complete in all respect like provision of energy consumption measuring and data storing facility of energy consumption.	NOs*	2	0	2	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
4*	Centrifugal pump sets for condenser water recirculation complete with TEFC motor & all accessories as specified.	NOs.*	2	0	2	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
5*	Primary Centrifugal pump sets for chilled water recirculation complete with TEFC motor & all accessories, as specified.	NOs.*	2	0	2	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
6*	Centrifugal pump sets for Secondary chilled water recirculation complete with TEFC motor with VVVF drive set & all accessories, as specified. VVVF shall be complete in all respect like provision of energy consumption measuring and data storing facility of energy consumption.	NOs.*	2	0	2	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
7	Condenser water piping with necessary fittings, strainers, valves including piping from soft water storage tank to cooling tower, chiller, pan humidifiers of AHU room as specified.	LOT	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
8	Chilled water piping with within AC plant room, AHU rooms and from AC plant room to various AHU rooms at different floors of Service building, complete with valves supports, fittings, strainers, insulation with finish as per specification.	LOT	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
9	Monsoon reheating/ winter heating kit comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc for each AHU Room of Service building.	LOT	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
10	Pan type humidifier for each AHU room of Service building.	LOT	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
11	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), modulating dampers etc. as per specification for each AHU room of Service building.	LOT	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
12*	Soft water/make-up MS /FRP Storage tank to cooling towers with instruments, valves and all other accessories as required. Capacity of each tank 4m3 (minimum).	NOs.*	2	0	2	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
13*	MS/HDPE Expansion Tank (spray galvanised from inside) for chilled water with insulation all accessories like instruments and valves as required, capacity 1 m3 (minimum).	NO*	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
14*	MS/FRP Make up Tank 2m3 (Tanks shall be MS & inner surface spray galvanised. Make up water line with float valve & backup, quick fill line with ball valve, drain line with ball valve, overflow & vent line, level gauge shall be provided).	NO*	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
15*	Skid mounted softening plant (2 x 100 %) with associated piping, valves, instruments, soft water pumps & regeneration pumps, chemical dosing pump, reject transfer pump & tanks as applicable & as per tender requirement.	Set*	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
16*	Pumps with motor set along with accessories for pumping of softening plant reject and cooling tower blow down to CMB	NOs.*	2	0	2	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
D	AC-Plant-4: DX TYPE AIR COOLED CONDENSING UNIT FOR CEP VFD BUILDING UNIT-3 & 4																		
1*	DX type, air cooled condensing unit of minimum <b>60 TR</b> capacity (actual). The refrigerant compressor shall be Scroll, hermetic / Semi-hermetic type suitable for Refrigerant R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package, Suction and discharge valves, capacity control system, expansion valve, crank case heater etc. A control panel shall be provided to house all gauges and controls. The panel shall contain all necessary terminal strips to facilitate external wiring. The unit shall be complete with expansion valve, all necessary fittings, accessories, insulated refrigerant piping to and from AHUs, foundation bolts, nuts, washers etc complete in all respect.	NOs.*	2	0	2	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
2*	Sheet metal cabinet type air handling units (double skin as per specification) The draw through horizontal AHUs shall comprise of , Dampers, pre filter, fine filters, DX- cooling coil, Electric heating coil, Electric steam humidifier and Fan section with fan & TEFC sq. cage induction motor, drive set, condensate drain pan, thermostatic controls and other accessories, like ladder along with supporting structure for filter and plenum, etc. to meet the AC load of control room area as per specification.	NOs.*	2	0	2	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
3	Monsoon reheating / winter heating kit comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat etc. for each AHU room.	LOT	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
4	PAN type HUMIDIFIER for each AHU room complete with humidistat, geyser stat safety controls, make up water piping from make-up tank / nearest source of water, valves fittings etc for each AHU room.	LOT	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
5	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), modulating dampers etc. as per specification for each AHU room.	LOT	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
E	AC SYSTEM FOR AUX. BLDG FOR UNIT 3 & 4																		
1*	DX type, air cooled condensing unit of minimum 40 TR capacity (actual). The refrigerant compressor shall be Scroll, hermetic / Semi-hermetic type suitable for Refrigerant R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package, Suction and discharge valves, capacity control system, expansion valve, crank case heater etc. A control panel shall be provided to house all gauges and controls. The panel shall contain all necessary terminal strips to facilitate external wiring. The unit shall be complete with expansion valve, all necessary fittings, accessories, insulated refrigerant piping to and from AHUs, foundation bolts, nuts, washers etc complete in all respect.	NO*	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-



Sr. No.	ITEM DESCRIPTION	UNIT	Quantity in AC System (A)	Quantity in Ventilation System (B)	Total Qty C=(A+B)	Quantity in AC System (D)	Quantity in Ventilation System (E)	Total Qty F=(D+E)		Unit Ex-Works Price (INR) (Y)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG		Unit E&C Price (INR) (Z)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG		
											Total Ex-Works Price for Air Conditioning System (INR) (AxY)	Total Ex-Works Price for Ventilation System (INR) (BxY)	Total Ex-Works Price for Air Conditioning System (INR) (DxY)	Total Ex-Works Price for Ventilation System (INR) (ExY)		Total Ex-Works Price for Air Conditioning System (INR) (AxZ)	Total Ex-Works Price for Ventilation System (INR) (BxZ)	Total Ex-Works Price for Air Conditioning System (INR) (DxZ)	Total Ex-Works Price for Ventilation System (INR) (ExZ)	
1.1*	Sheet metal cabinet type air handling units (double skin as per specification) The draw through horizontal AHUs (min. 60 mmWC SP) shall comprise of Dampers, pre-filter, fine filters, DX- cooling coil, Fan section with fan & TEFC sq. cage induction motor, condensate drain pan, thermostatic controls and other accessories, like ladder along with supporting structure for filter and plenum, etc. as per specification.	NOs*	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹	-
1.2*	Monsoon reheating / winter heating kit comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat etc. for above condensing unit	SET*	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹	-
1.3*	PAN type 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 for above condensing unit	SET*	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹	-
1.4*	Fresh air fan (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers etc. above condensing unit	SET*	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹	-
2*	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 up to nearest drain, required instrumentation etc.																			
2.1*	20 TR net capacity	NO*	1	0	1	0	0	0												
2.2*	MONSOON REHEATING / WINTER HEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. for above mentioned PAC.	SET*	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹	-
2.3*	HUMIDIFIER for above mentioned PAC complete with humidistat, safety controls, make up water piping from make-up tank /nearest source of water, valves fittings etc. for above mentioned PAC.	SET*	1	0	1	0	0	0			₹	-	₹	-	₹	-	₹	-	₹	-
2.4*	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 above mentioned package AC	SET*	1	0	1			0			₹	-	₹	-	₹	-	₹	-	₹	-
3*	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, drain piping as per site requirement & fittings with insulation, cordless remote, electrical power cord up to the nearest available point along with isolator / MCB, fixing frame for indoor and outdoor unit, Stabilizer, etc. with best BEE Rating as per specification.																			
3.1*	2.0 TR capacity non-ductable type Split Air Conditioner (240 V, 1-phase), complete with indoor and outdoor units, ISI-marked isolation switch (MCB of suitable rating with MCB box), voltage stabilizer, ISI-marked power accessories for each single-phase Split AC (1 No. 5-pin power socket of min. 20A rating, 1 No. 3-pin power plug of min. 20A rating, and 1 No. MCB with MCB box), refrigerant piping with insulation as per site requirement, drain piping up to nearest drain point, electrical cabling from power source to AC units including interconnecting cable, supporting structures/brackets, clamps, fasteners, and all materials and works required to complete the installation in all respects as per specification."	NO*	55	0	55	6	0	6			₹	-	₹	-	₹	-	₹	-	₹	-
3.2*	1.5 TR capacity non-ductable type Split Air Conditioner (240 V, 1-phase), complete with indoor and outdoor units, ISI-marked isolation switch (MCB of suitable rating with MCB box), voltage stabilizer, ISI-marked power accessories for each single-phase Split AC (1 No. 5-pin power socket of min. 20A rating, 1 No. 3-pin power plug of min. 20A rating, and 1 No. MCB with MCB box), refrigerant piping with insulation as per site requirement, drain piping up to nearest drain point, electrical cabling from power source to AC units including interconnecting cable, supporting structures/brackets, clamps, fasteners, and all materials and works required to complete the installation in all respects as per specification."	NO*	18	0	18	4	0	4			₹	-	₹	-	₹	-	₹	-	₹	-
4*	AIR COOLED DUCTABLE SPLIT AC consisting of outdoor unit (having compressor condenser coils with fan and motor), indoor unit (having evaporator coil, filter, fan with motor), interconnecting refrigerant piping, drain piping as per site requirement & fittings with insulation, cordless remote, electrical power cord up to the nearest available point along with isolator / MCB, fixing frame for indoor and outdoor unit, fresh air arrangement etc.																			
4.1*	5.5 TR capacity (ductable type, 415 V, 3 phase with isolation switch).	NO*	4	0	4	1	0	1			₹	-	₹	-	₹	-	₹	-	₹	-
4.2*	8.5TR capacity (ductable type, 415 V, 3 phase with isolation switch).	NO*	2	0	2	1	0	1			₹	-	₹	-	₹	-	₹	-	₹	-
F	VENTILATION SYSTEM FOR MAIN POWER HOUSE & ESP CUM FGD BUILDING UNIT-3 & UNIT-4																			
1	Double skin Sheet metal containerized type modular air washer unit (closed from all around and bottom) with centrifugal fan (DIDW) with motor, pumps with motors, air washer internals, inlet air louvers, non-return damper, Volume Control Damper, filters, piping as per IS:1239, Part-I (heavy class galvanised), valves, instruments, nozzles, back wash arrangement, galvanised drain piping etc. along with support for suction and discharge plenum etc as per specification of capacity 1,00,000 CMH. Each air washer has 1 number centrifugal fan (1 x 100% duty) of capacity 1,00,000 CMH at min. 60 mm SP. All parts of Fans & Motors shall be fixed on channel.	NO*	0	20	20	0	0	0			₹	-	₹	-	₹	-	₹	-	₹	-
2	Double skin Sheet metal containerized type modular air washer unit (closed from all around and bottom) with centrifugal fan (DIDW) with motor, pumps with motors, air washer internals, inlet air louvers, non-return damper, Volume Control Damper, filters, piping as per IS:1239, Part-I (heavy class galvanised), valves, instruments, nozzles, back wash arrangement, galvanised drain piping etc. along with support for suction and discharge plenum etc as per specification of capacity 50,000 CMH. Each air washer has 1 number centrifugal fan (1 x 100% duty) of capacity 50,000 CMH at min. 60 mm SP. All parts of Fans & Motors shall be fixed on channel.	NOs*	0	2	2	0	0	0			₹	-	₹	-	₹	-	₹	-	₹	-
3	Double skin Sheet metal containerized type modular Unitary air filtration unit (closed from all around and bottom) with centrifugal fan (DIDW) with motor, pumps with motors, filters, UAF internals, inlet air louvers, non-return damper, Volume Control Damper, piping as per IS: 1239 part I (heavy class galvanised), valves, instruments, nozzles, back wash arrangement, galvanised drain piping, etc. along with support for suction and discharge plenum as per specification of capacity 90,000 CMH. Each Unitary air filtration unit has 1 number centrifugal fan (1 x 100% duty) of capacity 90,000 CMH at min. 50 mmwc static pressure.	NOs*	0	2	2	0	2	2			₹	-	₹	-	₹	-	₹	-	₹	-

Sr. No.	ITEM DESCRIPTION	UNIT	Quantity in AC System (A)	Quantity in Ventilation System (B)	Total Qty C=(A+B)	Quantity in AC System (D)	Quantity in Ventilation System (E)	Total Qty F=(D+E)		Unit Ex-Works Price (INR) (Y)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG		Unit E&C Price (INR) (Z)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG	
											Total Ex-Works Price for Air Conditioning System (INR) (AxY)	Total Ex-Works Price for Ventilation System (INR) (BxY)	Total Ex-Works Price for Air Conditioning System (INR) (DxY)	Total Ex-Works Price for Ventilation System (INR) (ExY)		Total Ex-Works Price for Air Conditioning System (INR) (AxZ)	Total Ex-Works Price for Ventilation System (INR) (BxZ)	Total Ex-Works Price for Air Conditioning System (INR) (DxZ)	Total Ex-Works Price for Ventilation System (INR) (ExZ)
4	Double Skinned (0.6 mm thick pre coated outer skin, 0.6 mm thick plain GI inner skin with CFC free PUF insulation in between) Fan Filter Unit (FFU) shall comprise of centrifugal fans (DIDW) with TEFC Squirrel Cage induction motors, drive pkg, prefilter with filter mounting frame, inlet air louvers, bird screen, VI pads, Support Channel, SS foundation bolts, nuts, & washers, Fire retardant canvass connection, outlet damper, VCD and all other accessories as required for complete installation. All parts of Fans & Motors shall be fixed on channel. Entire skid shall be placed on flat foundation without any pocket. The capacity of FFU shall be 30,000 CMH at min. 40 mmwc SP having 1x 100% fan.	NOs*	0	4	4	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
G*	Roof extractor units (axial flow type) with hood, disconnect switch and all accessories as specified (suitable for 415V/3-phase supply). Following fan shall have 15 mmwc static pressure.																		
1*	Capacity 50,000 CMH with Motor rating 5.5 KW	NOs.*	0	26	26	0	1	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
2*	Capacity 40,000 CMH with Motor rating 5.5 KW	NOs.*	0	2	2	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
3*	Capacity 20,000 CMH with Motor rating 2.2 KW	NOs.*	0	2	2	0	1	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
H*	Axial flow supply fans with pre and fine filter (wall mounted) complete with casing, TEFC sq cage induction motors & mounting frame, MS rain protection cowl, bird screen and all other accessories (suitable for 415V/3-phase supply). Following fan shall have 30 mmwc static pressure.																		
1*	Capacity 10,000 CMH with Motor rating 2.2 KW	NOs.*	0	37	37	0	1	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
2*	Capacity 7,500 CMH with Motor rating 1.5 KW	NOs.*	0	5	5	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
3*	Capacity 6,000 CMH with Motor rating 1.1 KW	NOs.*	0	7	7	0	2	2			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
4*	Capacity 4,000 CMH with Motor rating 0.75 KW	NOs.*	0	2	2	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
I*	Axial flow supply fans with pre-filter (wall mounted) complete with casing, TEFC sq cage induction motors & mounting frame, MS rain protection cowl, bird screen and all other accessories (suitable for 415V/3-phase supply) as specified. Following fan shall have 20 mmwc static pressure.																		
1*	Capacity 15,000 CMH with Motor rating 2.2 KW	NOs.*	0	55	55	0	5	5			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
2*	Capacity 10,000 CMH with Motor rating 1.5 KW	NOs.*	0	3	3	0	2	2			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
3*	Capacity 7,500 CMH with Motor rating 1.1 KW	NOs.*	0	2	2	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
5*	Capacity 4,000 CMH with Motor rating 0.75 KW	NOs.*	0	2	2	0	4	4			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
6*	Capacity 2,000 CMH with Motor rating 0.55 KW	NOs.*	0	2	2	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
J*	Axial flow exhaust fans (Bifurcated type, spark proof construction, wall mounted) complete with casing, flame proof motor & mounting frame, MS rain protection cowl, bird screen and all other accessories epoxy painted (suitable for 415V/3-phase supply) as specified. Following fan shall have 15 mmwc static pressure.																		
1*	Capacity 15,000 CMH with Motor rating 2.2 KW	NOs.*	0	24	24	0	2	2			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
2*	Capacity 10,000 CMH with Motor rating 1.5 KW	NOs.*	0	4	4	0	4	4			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
3*	Capacity 7,500 CMH with Motor rating 1.1 KW	NOs.*	0	14	14	0	2	2			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
5*	Capacity 4,000 CMH with Motor rating 0.55 KW	NOs.*	0	16	16	0	2	2			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
6*	Capacity 2,000 CMH with Motor rating 0.55 KW	NOs.*	0	2	2	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
K*	Axial flow exhaust fans (Wall mounted) complete with casing, TEFC sq cage induction motor & mounting frame, MS rain protection cowl, bird screen and all other accessories epoxy painted (suitable for 415V/3-phase supply) as specified. Following fan shall have 10 mmwc static pressure.																		
1*	Capacity 15,000 CMH with Motor rating 1.1 KW	NOs.*	0	11	18	0	3	3			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
2*	Capacity 10,000 CMH with Motor rating 0.75 KW	NOs.*	0	8	18	0	3	3			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
3*	Capacity 7,500 CMH with Motor rating 0.55 KW	NOs.*	0	6	6	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
4*	Capacity 6,000 CMH with Motor rating 0.55 KW	NOs.*	0	4	14	0	4	4			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
5*	Capacity 4,000 CMH with Motor rating 0.55 KW	NOs.*	0	12	2	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
6*	Capacity 2,000 CMH with Motor rating 0.37 KW	NOs.*	0	2	6	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
L*	Exhaust fan (propeller type) completes with induction motor & mounting frame MS rain protection cowl, bird screen and all other accessories as specified (suitable for 240V/ 1 phase). Following fan shall have 5 mmwc static pressure.																		
1*	Capacity 1200/1000 CMH with Motor rating 100 watts	NOs.*	0	120	120	0	20	20			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
2*	Single phase Circular Duct inline Fan of capacity 1000 CMH	NOs.*	0	8	8	0	1	1			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
M*	Air Curtain of suitable CFM for Doors/ Rolling Shutters for preventing dust ingress, suitable to operate 24X 7 in coal dust environment Air Curtain should be as per latest OEM standard.																		
1*	Air Curtain Height up to 10 feet & width up to 12 feet	NOs.*	0	5	5	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
2*	Air Curtain Height up to 10 feet & width from 13 feet to 24 feet	NOs.*	0	5	5	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
3*	Air Curtain Height up to 11-15 feet & width up to 12 feet	NOs.*	0	2	2	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
4*	Air Curtain Height up to 11-15 feet & width 13 feet to 24 feet.	NOs.*	0	2	2	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
5*	Air Curtain Height up to 16-24 feet & width up to 12 feet	NOs.*	0	2	2	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
6*	Air Curtain Height up to 16-24 feet & width 13 feet to 24 feet.	NOs.*	0	2	2	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
N	ITEMS COMMON TO ALL HVAC SYSTEM										₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
1*	Finished GSS (zinc coating 275 GSM) AC & Ventilation ducting complete with hangers/ supports, Duct supporting structure, threaded rods, anchor fasteners, nuts for threaded rods, support angle, cleats, Consumable items like gaskets, sealant, adhesives, rivets, screws, nuts, bolts, washers etc. Grills/Diffusers, Dampers & Thermal Insulation with Cladding as applicable for complete work as per technical specification.																		
(a)*	18G.	SQM*	1100	100	1200	200	25	225			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
(b)*	20G.	SQM*	200	200	400	100	25	125			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
(c)*	22G.	SQM*	200	100	300	200	50	250			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
(d)*	24G.	SQM*	100	100	200	100	50	150			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
2*	MS Duct with Epoxy paint for battery room.	SQM*	0	350	350	0	20	20			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
3*	Fire damper.																		
(a)*	Fire damper with auto resetting, limit switches, indication lamps etc.	SQM*	10	5	15	2	1	3			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
(b)*	Motorized actuator with single phase power supply for the above fire damper.	NOs.*	12	10	22	4	1	5			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
(c)*	Fusible Link type Fire Damper	NOs.*	0	5	5	0	2	2			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
4*	Wall mounted dampers (gravity operated) for different areas as per specifications	SQM*	0	20	20	0	10	10			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
5*	Inlet Louvres as per specifications	SQM*	0	45	45	0	10	10			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -
6*	Variable air volume (VAV) box complete with damper, differential pressure sensor, motorised damper, actuator, cooling / heating thermostat with ON / OFF control, differential pressure sensor, 24 V power supply unit, controller capable of accepting analogue signal from CO2 sensor/ occupancy sensor/ thermostat and output to damper actuator, distribution board floor wise for green building like Service building, Admin. building, Auditorium, canteen and IT building suitable for following air flow capacity.																		
a*	50-990 cfm	NOs.*	3	0	3	0	0	0			₹ -	₹ -	₹ -	₹ -		₹ -	₹ -	₹ -	₹ -

Sr. No.	ITEM DESCRIPTION	UNIT	Quantity in AC System (A)	Quantity in Ventilation System (B)	Total Qty C=(A+B)	Quantity in AC System (D)	Quantity in Ventilation System (E)	Total Qty F=(D+E)		Unit Ex-Works Price (INR) (Y)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG		Unit E&C Price (INR) (Z)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG	
											Total Ex-Works Price for Air Conditioning System (INR) (AxY)	Total Ex-Works Price for Ventilation System (INR) (BxY)	Total Ex-Works Price for Air Conditioning System (INR) (DxY)	Total Ex-Works Price for Ventilation System (INR) (ExY)		Total Ex-Works Price for Air Conditioning System (INR) (AxZ)	Total Ex-Works Price for Ventilation System (INR) (BxZ)	Total Ex-Works Price for Air Conditioning System (INR) (DxZ)	Total Ex-Works Price for Ventilation System (INR) (ExZ)
b*	1000- 1990 cfm	NOs.*	3	0	3	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
c*	2000 - 2990 cfm	NOs.*	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
d*	3000 - 4990 cfm	NOs.*	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
7*	GI Volume control dampers for Duct.	SQM*	10	0	10	5	0	5		₹	-	₹	-	₹	-	₹	-	₹	-
8*	Acoustic insulation as per specification	SQM*	880	0	880	200	0	200		₹	-	₹	-	₹	-	₹	-	₹	-
9*	Thermal insulation of supply air duct & return air duct with finish as specified.	SQM*	880	350	1230	220	100	320		₹	-	₹	-	₹	-	₹	-	₹	-
10*	Make-up/Drain piping with and without insulation from various equipment up to nearest available source/drain point with all necessary fittings like tees, reducers, expanders, elbows, flanges, valves with flanges, U trap etc as per specifications.																		
10.1*	50mm	Rmt*	400	400	800	50	50	100		₹	-	₹	-	₹	-	₹	-	₹	-
10.2*	40mm	Rmt*	200	200	400	50	50	100		₹	-	₹	-	₹	-	₹	-	₹	-
11*	HDPE Piping (3 " ) 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 CMB (ETP)	mtrs.*	900	0	900	100	0	100		₹	-	₹	-	₹	-	₹	-	₹	-
12*	Junction Box, Cable tray, conduit, cable gland and lugs, conduit and conduit accessories, Field instruments like pressure gauge, temperature gauge, pressure switch, pressure sensor, pressure transmitters, differential pressure switch, differential pressure transmitters flow switch, flow transmitter, flow meter, CO2 sensors, occupancy sensors, temperature sensors, BTU meter (at each chiller of Service building ), etc, including necessary control panel for hook up with main DDCMIS as per specifications for complete AC System of 2X 800 MW KODERMA TPS PHASE II	LOT	1	0	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
13*	Junction Box, Cable tray, conduit, cable gland and lugs, conduit and conduit accessories, FIELD INSTRUMENTS like pressure gauge, temperature gauge, pressure switch, transmitters, differential pressure switch, flow switches, any other instruments required for Ventilation System including necessary control panel for hook up with main DDCMIS as per specifications for complete Ventilation System of 2X 800 MW KODERMA TPS PHASE II	LOT	0	1	1	0	0	0		₹	-	₹	-	₹	-	₹	-	₹	-
14*	Junction Box, Cable tray, conduit, cable gland and lugs, conduit and conduit accessories, Field instruments like pressure gauge, temperature gauge, pressure switch, pressure sensor, pressure transmitters, differential pressure switch, differential pressure transmitters flow switch, flow transmitter, flow meter, CO2 sensors, occupancy sensors, temperature sensors, BTU meter (at each chiller of Service building ), etc, including necessary control panel for hook up with main DDCMIS as per specifications for complete AC System of 2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND	LOT	0	0	0	1	0	1		₹	-	₹	-	₹	-	₹	-	₹	-
15*	Junction Box, Cable tray, conduit, cable gland and lugs, conduit and conduit accessories, FIELD INSTRUMENTS like pressure gauge, temperature gauge, pressure switch, pressure sensor, pressure transmitters, differential pressure switch, pressure gauge, temperature gauge, pressure switch, transmitters, differential pressure switch, flow switches, any other instruments required for Ventilation System including necessary control panel for hook up with main DDCMIS as per specifications for complete Ventilation System of 2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND	LOT	0	0	0	0	1	1		₹	-	₹	-	₹	-	₹	-	₹	-
16*	Local Start/Stop Push Button Station with Local/remote Selector Switch for local/ remote operation of AHU/AWU/UAF from DDCMIS	NOs.*	11	15	26	3	4	7		₹	-	₹	-	₹	-	₹	-	₹	-
17*	Fibre optic cable.	Rmt*	50	50	100	20	20	40		₹	-	₹	-	₹	-	₹	-	₹	-
18*	Industrial Salt for Water Softening plants of air conditioning systems (to be supplied on as and where basis as per site requirement)	Tonne*	8	0	8	2	0	2		₹	-	₹	-	₹	-	₹	-	₹	-
O	Total lumpsum price for <b>Special Tools &amp; Tackles</b> for maintenance inclusive of packing forwarding, transportation up to site, etc. common for AC & Ventilation System (Bidder shall submit item-wise price break-up as per <b>Appendix-A</b> ).	LOT	1	0	1	1	0	1		₹	-	₹	-	₹	-	NA	NA	NA	NA
P	Total lumpsum price for <b>Commissioning spares for Air Conditioning System</b> inclusive of packing forwarding, transportation up to site, etc. for <b>2X 800 MW KODERMA TPS PHASE II</b> (Bidder shall submit item-wise price break-up as per Appendix-B).	LOT	1	0	1	0	0	0		₹	-	₹	-	₹	-	NA	NA	NA	NA
Q	Total lumpsum price for <b>Commissioning spares for Ventilation System</b> inclusive of packing forwarding, transportation up to site, etc. for <b>2X 800 MW KODERMA TPS PHASE II</b> (Bidder shall submit item-wise price break-up as per Appendix-B).	LOT	0	1	1	0	0	0		₹	-	₹	-	₹	-	NA	NA	NA	NA
R	Total lumpsum price for <b>Commissioning spares for Air Conditioning System</b> inclusive of packing forwarding, transportation up to site, etc. for <b>2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND</b> (Bidder shall submit item-wise price break-up as per Appendix-B).	LOT	0	0	0	1	0	1		₹	-	₹	-	₹	-	NA	NA	NA	NA
S	Total lumpsum price for <b>Commissioning spares for Ventilation System</b> inclusive of packing forwarding, transportation up to site, etc. for <b>2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND</b> (Bidder shall submit item-wise price break-up as per Appendix-B).	LOT	0	0	0	0	1	1		₹	-	₹	-	₹	-	NA	NA	NA	NA
T*	Providing full support during FAT of DDCMIS, preparation of control scheme, and commissioning of DDCMIS as per relevant specification.	Mandays*	13	8	21	13	8	21		NA	NA	NA	NA	NA		₹	-	₹	-
U*	Total lump sum prices for Maintenance Services (in days) for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order, inclusive of spare, manpower, consumables etc., for Annual Maintenance Spares & Service for <b>profibus Instruments</b> as per C&I portion of Technical specification for Air Conditioning system and Ventilation system	days*	24	24	48	0	0	0		NA	NA	NA	NA	NA		₹	-	₹	-
V*	Total lump sum prices for visits (should include travel expenses to/ fro site/intermediary stay) for Maintenance Services for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order for Annual Maintenance Spares & Service for <b>profibus Instruments</b> as per C&I portion of Technical specification for Air Conditioning system and Ventilation system	number of visit*	6	6	12	0	0	0		NA	NA	NA	NA	NA		₹	-	₹	-
W	Any other item not indicated above, but required to make the Air Conditioning system complete in all respects as per specification and system requirement for <b>2X 800 MW KODERMA TPS PHASE II</b>	LOT	1	0	1	0	0	0		₹	-	NA	NA	NA		₹	-	NA	NA
X	Any other item not indicated above, but required to make the Ventilation System complete in all respects as per specification and system requirement for <b>2X 800 MW KODERMA TPS PHASE II</b>	LOT	0	1	1	0	0	0		NA	₹	-	NA	NA		NA	₹	-	NA
Y	Any other item not indicated above, but required to make the Air Conditioning System complete in all respects as per specification and system requirement for <b>2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND</b>	LOT	0	0	0	1	0	1		NA	NA	NA	₹	-	NA	NA	NA	₹	-
Z	Any other item not indicated above, but required to make the Ventilation system complete in all respects as per specification and system requirement for <b>2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND</b>	LOT	0	0	0	0	1	1		NA	NA	NA	NA	-		NA	NA	NA	₹

Sr. No.	ITEM DESCRIPTION	UNIT	Quantity in AC System (A)	Quantity in Ventilation System (B)	Total Qty C=(A+B)	Quantity in AC System (D)	Quantity in Ventilation System (E)	Total Qty F=(D+E)	Unit Ex-Works Price (INR) (Y)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG		Unit E&C Price (INR) (Z)	2X 800 MW KODERMA TPS PHASE II		2X660 MW DVC RAGHUNATHPUR PHASE 2 SG ISLAND PKG		
										Total Ex-Works Price for Air Conditioning System (INR) (AxY)	Total Ex-Works Price for Ventilation System (INR) (BxY)	Total Ex-Works Price for Air Conditioning System (INR) (DxY)	Total Ex-Works Price for Ventilation System (INR) (ExY)		Total Ex-Works Price for Air Conditioning System (INR) (AxZ)	Total Ex-Works Price for Ventilation System (INR) (BxZ)	Total Ex-Works Price for Air Conditioning System (INR) (DxZ)	Total Ex-Works Price for Ventilation System (INR) (ExZ)	
AA																			
AB	Total (Ex-Works Price for Air Conditioning System + Ventilation System)									₹	-	₹	-	₹	-	₹	-	₹	-
AC	Total as per Main Price Schedule Sr. No. 2.2, 2.7, 2.3 & 2.8(Ex-Works Price for Air Conditioning System + Ventilation System)									₹	-	₹	-	₹	-	₹	-	₹	-
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	No. of days at site defined at S.N. U* above shall be calculated on the basis of presence at site (travel time is excluded).																		
3	No. of Visits and days for Maintenance Services of profibus type instruments may vary depending on site requirement. Bidder to replace the items damage which are already covered under warranty as defined under Supply Part and detail as mentioned in BHEL NIT & tender technical specification, amendment & agreements till placement of order. Any variation in no. of days & no. of visits shall be exercised based on unit rate arrived from S.N. U* & V* above respectively																		
4	Price format shall not be changed by the bidder as the bidder may get disqualified by doing so.																		
5	Any cell left blank in the unpriced schedule shall be treated as "Quoted" and is included in total price.																		
6	The BOQ mentioned above shall be read in conjunction with technical specification requirement. Any other 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.																		
7	The total Ex-works price at SL No.AB should match with the Total Ex-works price derived from main price schedule at SLNo. AC																		
8	Annexure-IA IB, ICA, AC, VENT and B, AC, VENT not to be filled at this stage. The same shall be asked by the L-1 bidder before placement of LOA/PO.																		

**ANNEXURE - IB\_AC**  
**LIST OF MANDATORY SPARES**

<b>NAME OF PROJECT:</b>		<b>2X 800 MW KODERMA TPS PHASE II &amp; 2X660 MW DVC RA</b>	
<b>NAME OF PACKAGE:</b>		<b>AIR CONDITIONING SYSTEM</b>	
<b>TECHNICAL SPECIFICATION No:</b>		<b>PE-TS-CB-553-002-A001</b>	
<b>NAME OF THE BIDDER</b>		<b>M/s</b>	
S. No.	Description	2X 800 MW KODERMA TPS PHASE II	
		QTY	Total Ex-Works Price (INR)
1.0	<b>Screw Compressor Chilling Machine for each type/rating/model</b>		
1.1	Oil filter – O ring	1 Set	
1.2	Refrigerant filter	1 Set	
1.3	Master solenoid valve	1 No.	
1.4	Master solenoid valve coil	1 Set	
2.0	<b>Pumps (for each model)</b>		
2.1	Pump Bearing	1 Set	
2.2	Pump Motor Bearing	1 Set	
2.3	Shaft Sleeve	2 set	
3.0	<b>Air handling unit (for each model)</b>		
3.1	V-belts for AHU Blower	2 Sets	
3.2	AHU Blower bearing	1 Set	
3.3	Blower motor bearing	1 Set	
3.4	Filters at suction and discharge of all AHUs	25% of installed population each type/rating	
4.0	<b>Cooling Tower (for each model)</b>		
4.1	Nozzles for cooling towers	20 Nos.	
4.2	Float valve assembly	1 No.	
4.3	Fan Bearings	1 Set	
4.4	Motor bearings	1 Set	
4.5	Fills	na	
5	<b>Electrical Actuators</b>		
5.1	Actuators	1 No. of each type, model and rating.	
5.2	Motor for Acuator	1 No. of each type, model and rating.	
6	<b>Motor</b>	1 no. of each type & rating	
7	<b>Control &amp; Instrumentation</b>		
7.1	Electronic Transmitters		
7.1.1	Transmitters of all types and model no. (for the measurement of Pressure, differential pressure flow, level, temperature etc.)	5 Nos. of each type and model	
7.2	Temperature elements		
7.2.1	RTD's*	5 Nos.	
7.2.2	Thermo well (if applicable) * (With head assembly, terminal block and nipple)	2 Nos.	

S. No.	Description	QTY	Total Ex-Works Price (INR)
7.3	Process Actuated Switch Devices Includes all types of Pressure, differential pressure, flow, temperature, and differential temperature, level switch Devices.	2 Nos. of each type and model	
7.4	Relative Humidity Sensors	1 No.	
7.5	Geyserstat	1 No.	
7.6	Local Humidity/Temperature indicators	2 Nos. each	
7.7	Fully programmed controller, electronic modules (if applicable)	1 No. of each type	
7.8	Power supply module (if applicable)	1 No. of each type	
8	<b>Variable Frequency Drive (VFD)</b>		
8.1	Complete VFD drive	1 No of each type & rating	
8.2	Complete Converter & Inverter unit	1 No of each type & rating	
8.3	Set of Cards	1 No of each type & rating	
8.4	Set of fuses	2 Nos of each type & rating	
8.5	Input & Output Chokes (If applicable)	1 Set	
		<b>TOTAL</b>	₹ -
<b>Notes:</b>			
a)	Mandatory spares listed in Price Schedule are bare minimum requirement. In case any additional mandatory spares requirement is 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" 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 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 any cell left blank in the unpriced schedule shall be treated as "quoted" and included in total price.		

ANNEXURE - IC_Vent LIST OF MANDATORY SPARES			
NAME OF PROJECT:		2X 800 MW KODERMA TPS PHASE II & 2X660 MW DVC RAGH	
NAME OF PACKAGE:		VENTILATION SYSTEM	
TECHNICAL SPECIFICATION No:		PE-TS-CB-553-002-A001	
NAME OF THE BIDDER		M/s	
S. No.	Description	2X 800 MW KODERMA TPS PHASE II	
		QTY	Total Ex-Works Price (INR)
1	<b>Air Washer Units (for each type)</b>		
1.1	Supply Air fans		
1.1.1	V-belts for Supply air fans	2 Sets	
1.1.2	Supply air fan bearings	1 Set	
1.2	Air Washer pump		
1.2.1	Impeller for Pump	1 no of each type	
1.2.2	Pump Shaft	1 no of each type	
1.2.3	Pump Bearing	1 Set	
1.2.4	Shaft Sleeves	1 Set	
1.2.5	Gland Packings for pumps	2 Sets	
1.3	Spray nozzles	5% of total population or 100 numbers whichever is higher.	
1.4	Air Washer Pump inlet water strainer	1 No.	
1.5	Brass suction screen/strainer for air washer tank	1 Set	
1.6	Fabric filters	1 Set (Quantity to suit one no. of air washer)	
1.7	Metallic filters	1 Set (Quantity to suit one no. of air washer)	
1.8	Motor for Centrifugal fan for air washer unit	1 No of each rating	
2	<b>Electrical Actuators</b>		
2.1	Actuators	1 No. of each type, model and rating.	
2.2	Motor for Actuator	1 No. of each type, model and rating.	
3	<b>Unitary air filtration unit (for each type)</b>		
3.1	Supply Air fans		
3.1.1	V-belts for supply air fans	2 Sets	
3.1.2	Supply air fan bearings	1 Set	
3.2	UAF Pump		
3.2.1	Pump bearings	1 Set	
3.2.2	Impeller for pump	1 no.	
3.2.3	Pump Shaft	1 no.	
3.2.4	Shaft sleeves	1 Set	
3.2.5	Gland Packings for pumps	1 Set	
3.3	Nylon Filter	1 Set (Quantity to suit one no. of UAF unit)	
3.4	Spray nozzles	5% of total population or 50 Numbers whichever is higher.	
3.5	UAF Pump inlet water strainer	1 No.	
3.6	Brass suction screen/strainer for unitary air filtration tank.	1 Set	

S. No.	Description	QTY	Total Ex-Works Price (INR)
3.7	Motor for Centrifugal fan for UAF	1 No of each type & rating	
4	Motor (Other than Centrifugal Fan)	1 No of each type & rating	
	<b>Control &amp; Instrumentation</b>		
5	Measuring Instruments		
5.1	Level transmitter	1 No. of each type and model	
5.2	Pressure transmitter	1 No. of each type and model	
<b>A</b>	<b>TOTAL</b>		₹ -
<b>B</b>	<b>TOTAL Ex-Works FOR ANNEXURE-IB_AC</b>		₹ -
<b>C</b>	<b>TOTAL EX-WORKS FOR MANDATORY SPARES (AC+VENT)</b>		₹ -
<b>D</b>	<b>TOTAL AS PER MAIN PRICE SCHEDULE (EX-WORKS FOR MANDATORY SPARES Sr. No. 2.4 &amp; 2.9)</b>		₹ -
<b>Notes:</b>			
a)	Mandatory spares listed in Price Schedule are bare minimum requirement. In case any additional mandatory spares requirement is cover 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 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 a 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 blank in the unpriced schedule shall be treated as "quoted" and included in total price.		



**APPENDIX-A\_AC\_VENT**  
**Special tools & tackles for maintenance**

<b>NAME OF PROJECT:</b>	<b>2X 800 MW KODERMA TPS PHASE II &amp; 2X660 MW DVC RAGHUNATHPUR</b>
<b>NAME OF PACKAGE:</b>	<b>AIR CONDITIONING &amp; VENTILATION SYSTEM</b>
<b>TECHNICAL SPECIFICATION No:</b>	<b>PE-TS-CB-553-002-A001</b>
<b>NAME OF THE BIDDER</b>	<b>M/s</b>

SL NO	DESCRIPTION	UNIT	2X 800 MW KODERMA TPS PHASE II		
			Qty	Unit Ex-Works Price (INR)	Total Ex-Works Price (INR)
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 SET	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		₹ -
28	Measuring tape	NO	1		₹ -
29	Tachometer	NO	1		₹ -
30	Double ended spanner	SET	1		₹ -

31	Gasket punch	NO.	1		₹	-
32	Center punch	NO.	1		₹	-
33	Scissors for sheet metal cutting	NO.	1		₹	-
34	Multimeter	NO.	1		₹	-
35	Anemometer	NO.	1		₹	-
36	Compound pressure gauge	NO.	1		₹	-
37	Slide wrench 8"	NO.	1		₹	-
38	Slide wrench 10"	NO.	1		₹	-
39	Slide wrench 6"	NO.	1		₹	-
40	Box spanner set	SET	1		₹	-
A			Total		₹	-
B	Total as per Annexure-IA_HVAC Sr. No.'O'				₹	-

<b>NOTES</b>						
1	Above is the minimum list. Any other Tools and tackles required for AC & Ventilation system w.r.t. Mechanical, Electrical and C&I part shall also be requirement without any commercial & Delivery implication to BHEL.					
2	Supply of special tools and tackle including tool box required for operation, maintenance and overhauling of the system is in the scope of the bidde					

**APPENDIX-B\_AC\_VENT**

**Commissioning spares**

NAME OF PROJECT:		2X 800 MW KODERMA TPS PHASE II & 2X660 MW DVC F		
NAME OF PACKAGE:		AIR CONDITIONING & VENTILATION SYSTEM		
TECHNICAL SPECIFICATION No:		PE-TS-CB-553-002-A001		
NAME OF THE BIDDER		M/s		
SL NO	DESCRIPTION	UNIT	2X 800 MW KODERMA TPS PHASE II	
			Qty	Total Ex-Works Price (INR)
AIR CONDITIONING SYSTEM				
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	10% of the full charge or one (1) year topping requirement (Whichever is higher)	
6	Refrigerant gas of each type in a non-returnable cylinders	ltr	10% of the full charge or one (1) year topping requirement (Whichever is higher)	
A	Total for AC System			₹ -
B	Total for AC System as pe Annexure-IA_HVAC Sr. No. 'P' & 'R'			₹ -
VENTILATION SYSTEM				
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	Wall chipping machine- 10kg	NO.	1	
C	Total for Ventilation System			₹ -
D	Total for Ventilation System as pe Annexure-IA_HVAC Sr. No. 'Q' & 'S'			₹ -
NOTES				
1	Above is the minimum list. Any other commissioning spare required for AC system & Ventilation System w.r.t. Mecha provided by the Bidder as per system / customer requirement without any commercial & Delivery implication to BHEI			