BHEL Tenders

Government eProcurement System

Published Corrigendum Details

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Organisation Chain :	Bharat Heavy Electricals Limited||PEM - Noida||Core Material Management||Common||CMM
Tender ID :	2026_BHEL_60548_1
Tender Ref No :	77/26/6022/AAN
Tender Title :	HVAC system of 4x111 MW Vishnugad Pipalkoti HEP
Corrigendum Type :	Technical Bid

Corrigendum Document Details

Corr.No.	Corrigendum Title	Corrigendum Description	Published Date	Document Name	Doc Size(in KB)
1	Corrigendum02	Pre-bid clarification	05-May-2026 04:40 PM	CORRIGENDA02.pdf	1536.40

BHARAT HEAVY ELECTRICALS LIMITED

PROJECT ENGINEERING MANAGEMENT, NOIDA

Date-5-May-26

CORRIGENDUM- 02

PROJECTs	**:**	**4X111 MW VISHNUGAD PIPALKOTI HEP**
PACKAGE	**:**	**HVAC System for Hydro**
ENQUIRY NO	**:**	**77/26/6022/AAN Dated 24-04-2026**
SUBJECT	**:**	**Technical Clarification**

Type of Corrigendum			
Technical Corrigendum -	☑	Commercial Corrigendum -	☐

Please find enclosed pre-bid clarification.

All the other terms and conditions of the tender enquiry remain unchanged. All the bidders are requested to quote accordingly.

Yours faithfully,

For and on behalf of BHEL

Aanchal Choudhary
Manager/BOP

Project: 4x111MW Vishnugad Pipalkoti HEP		
Package: HVAC System		
S. No.	Bidder Query	BHEL Response
1	BOQ Sr. no. 1: Air Handling Units a) The capacity of Air Handling Units has been indicating as 3 x 50% of minimum 75000 CMH. We understand that there will be 3 nos. AHUs each of 75,000 CMH with 2 nos. working & 1 no. as standby unit. Kindly confirm.	Bidder's understanding is correct.
2	BOQ Sr. no. 4: Air Handling Units a) Similarly, for AHU of capacity of 1,30,000 CMH, indica ted as 3 x 50% shall mean 2 nos. working & 1 no. standby of minimum 130000 CMH capacity. Kindly confirm.	Bidder's understanding is correct.
3	BOQ Sr. no. 2 & 5: Monsoon Reheating Winter Heating Kit a) Since installed equipment load is not available. We are not in a position to work out the capacity of strip hea ters required. Kindly provide the tentative equipment load	For thendering purpose, the equipment Heat Load for ventilated area shall be considered as below: Power House & Control Block: 300kW Transformer & GIS Cavern: 400kW Bus Duct Tunnel 1&2: 300kW The exact details shall be provided during detail engineering.
4	a) We request you to kindly confirm the capacity and makes for the Cyclone Separator.	Cyclone separator shall have capacity equal to the working capacity for the pump. Preferred makes shall be as follows: 1. Superflo filters pvt. Ltd. 2. Otoklin 3. Filteration Engineers
5	BOQ Sr. no. 23: Electrical Switchboards a. The Specification/Scope of the LTAC system, as ind icated on pages 322 to 325, is not clearly understood in relation to the Electrical scheme for HVAC provided in the tender drawing no. PE-DG-413-571-11000A-A001. We request that a suitable Single Line Diagram (SLD) may be provided for all switchgear boards, incorporating all incomer and outgoing switchgear details.	SECTION: I SUB-SECTION: C3 TECHNCIAL SPECIFICATION (ELECTRICAL PORTION) The specification of LT Electrical Switchboard has been specified under Section-I, Sub-Section-C3 Page 322 to 440. Bidder to follow the technical specification. Further the SAB's & UAB's mentioned in pages 322 to 325 is not in bidder's scope. The details of the all the drives along with their location have been provided in the technical specification and re-produced in Annexure-1 to this pre-bid clarification for ease of understanding. Further, the Suitable SLD shall be prepared by successful bidder during detail engineering based on the inputs made available in the tender and submitted for approval.
6	Cabinet Type Fans: Kindly confirm whether the cabinet-type fans are required in double-skin or single-skin cabinets.	Cabinets shall be double skin as mentioned in Section:I, Sub section C1 Clause 7.2.5, Pg 15 of 26.
7	As per clause no. 25.6.1.2 you have indicated the maximum speed of fans as 500 RPM & Noise Level as 60 dB. However, the noise level of the fan shall not exceed 88 dB, and the maximum fan speed (RPM) shall be as per the OEM specifications.	Successful Bidder shall provide OEM recommendations for enabling BHEL to take up with Customer during detail engineering. Final noise level shall be based on mutual understanding with customer during detail engineering.
8	River water temperature has been indicated as 2TC on Pg no. 10 and as 14°C on Pg no. 26. Please clarify.	River water to be considered as 14°C
9	We understand that the storage space is being provided by you at a distance of approximately 25 kms from the Power house area. We request you to provide us the storage space at a distance nearer to the Power house for ease of handling and transportation. Also kindly confirm the area for storage being provided by you.	Bidder to follow tender specification.
10	You are requested to keep the watch and ward for the storage under your scope.	Bidder to follow tender specification.
11	Power and water for erection purposes to be provided to us on a free issue basis.	Refer Clause no. 35 of the NIT
12	Kindly confirm the total time period considered for Erection work from the date of LOA.	Refer Clause no. 35 of the NIT
13	You are requested to confirm whether the Price Variation Clause shall be applicable from the date of bid submission or from the date of receipt of LOA.	Please refer Price Adjustment formula of tender specification.

14	Section: I, Sub section C1, Clause 7.2.5 Centrifugal fans shall be as per clause 25.6.1 of Chapter 25- Ventilation System of THDC technical specification. Cabinet for Centrifugal Fans wherever required shall be Double skin panels (inside and outside) fabricated using minimum (24 G) galvanized steel, with 25 mm thick polyurethane insulation of minimum 38 kg/m3 density in between, GSS channels shall be used as reinforcing to give structural strength. 16G MS Structure of Sectionalized construction, insulated SS drain pan, and all accessories as specified are to be provided.	Section: I, Sub section C1, Clause 7.2.5 to be read as "Centrifugal fans shall be as per clause 25.6.1 of Chapter 25- Ventilation System of THDC technical specification. Cabinet for Centrifugal Fans wherever required shall be Double skin panels (inside and outside) fabricated using minimum (24 G) galvanized steel, with 25 mm thick polyurethane insulation of minimum 38 kg/m3 density in between, **GSS/AL channels** shall be used as reinforcing to give structural strength. All accessories as specified are to be provided".
15	-	SECTION: I SUB-SECTION: C3 TECHNCIAL SPECIFICATION (ELECTRICAL PORTION) Section-10 THDC Specification - POWER & CONTROL CABLES 10.24.3.2 Cable Sizes & Quantity - **QUANTITIES MENTIONED ARE NOT APPLICABLE AND DELETED** 10.24.4.2 Cable Sizes & Quantity - **QUANTITIES MENTIONED ARE NOT APPLICABLE AND DELETED** 10.24.5 Termination Kits for 11kV Cables - **QUANTITIES MENTIONED ARE NOT APPLICABLE AND DELETED** 10.24.6 Lugs for 1100V Grade Power Cables: Quantities mentioned in a) & b) are **NOT APPLICABLE AND DELETED** 10.24.7 Cable Trays, Racks, Supports etc. of Required Sizes - **QUANTITIES MENTIONED ARE NOT APPLICABLE AND DELETED.** 10.24.8 **QUANTITIES MENTIONED ARE NOT APPLICABLE AND DELETED.** 10.24.9 **QUANTITIES MENTIONED ARE NOT APPLICABLE AND DELETED** 10.24.11.2 **QUANTITIES MENTIONED ARE NOT APPLICABLE AND DELETED.** **Bidder to note that the cable quantities and cable sizes shall be proposed by the bidder during detail engineering based on various drives, Cable BOQ of price schedule, "Electrical Scheme for HVAC System" Tender Drawing No. PE-DG-413-571-11000A-A001 etc. and submitted to BHEL/End customer for their approval/ acceptance.**

Details for HVAC Equipment & Bidder scope MCC				
	ITEM DESCRIPTION	**UNIT**	**Quantity**	**Switchboard/ACDB considered for repective Feeders**
A	**Ventilation System**			
1	Sheet metal cabinet type double skin AIR HANDLING UNITS (3x50%) of min. 75000 CMH & 125 mmWG SP (min.) capacity consisting of water cooling coil, centrifugal fan, TEFC sq cage induction motor, drive set, pre filters , VCD, Non Return Dampers, flexible connection and other accessories required for system completeness as per specifications to meet the ventilation requirement of power house building for all floors.	NOS	3	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
2	MONSOON REHEATING / WINTER HEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. for above AHUs as per specification.	LOT	1	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
3	HUMIDIFIER for above AHUs complete with humidistat, safety controls, make up water piping from make up tank / nearest source of water, valves fittings etc	LOT	1	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
4	Sheet metal cabinet type double skin AIR HANDLING UNITS (3x50%) of min. 1,30,000 CMH & 125 mmWG SP (min.) capacity consisting of water cooling coil, centrifugal fan, TEFC sq cage induction motor, drive set, pre filters , VCD, Non Return Dampers, flexible connection and other accessories required for system completeness as per specifications to meet the ventilation requirement of Transformer/GIS Caver and Bus Duct Galleries.	NOS	3	Transformer & GIS Hall Switchboard-B (630A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted) placed at AT EL 1046.0M GRID 24-25-E-F GIS FLOOR
5	MONSOON REHEATING / WINTER HEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. for above AHUs as per specification.	LOT	1	Transformer & GIS Hall Switchboard-B (630A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted) placed at AT EL 1046.0M GRID 24-25-E-F GIS FLOOR
6	HUMIDIFIER for above AHUs complete with humidistat, safety controls, make up water piping from make up tank / nearest source of water, valves fittings etc	LOT	1	Transformer & GIS Hall Switchboard-B (630A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted) placed at AT EL 1046.0M GRID 24-25-E-F GIS FLOOR
7	CENTRIFUGAL PUMPS (2x100%) for circulation water complete with TEFC motor & all accessories as specified, common for Power House and Transformer/GIS AHUs	NOS	2	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
8.2.9*	Motorised Butterfly Valve 300 MM	NO*	2	Power House Switchboard-A / Transformer & GIS Hall Switchboard-B as per Tender PID PE-DG-413-571-11000A-A002 "PID FOR POWER HOUSE & TRANSFORMER GIS VENTILATION SYSTEM"
8.2.10*	Motorised Butterfly Valve 250 MM	NO*	2	
8.2.11*	Motorised Butterfly Valve 150 MM	NO*	3	
8.2.12*	Motorised Butterfly Valve 100 MM	NO*	3	
10	Fresh Air Centrifugal Blowers (2 X 50 %) each having minimum capcity of 55,000 CMH and 150 mmWG SP (min.) with TEFC squirrel cage induction motor, drive pkg, pre filter with filter mounting frame, inlet air louvers, bird screen, Vibration isolation pads, foundation bolts, nuts & washers, canvass connection,VCD, non return damper and all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet fresh air requirement of all floors of Power House including control block, Bus duct gallieries, etc. as per specification	NOS	2	Adit of MAT/CVT (Pothead /yard) Switchboard-C (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-240 SQMM, floor mounted) placed at Ventilation blower room at CVT Portal.
11	Cabinet type centrifugal fans (2x100%) each having minimum capacity of 110,000 CMH and 150 mmWG SP (min.) along with TEFC squirrel cage induction motor, drive pkg, bird screen, Vibration isolation pads, foundation/anchoring bolts (as required), bolts, nuts & washers, canvass connection, alongwith all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet exhaust requirement of Power House building, GIS/Transformer Cavern, Bus duct galleries, MAT,CVT etc. as per specification.	NOS	2	Adit of MAT/CVT (Pothead /yard) Switchboard-C (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-240 SQMM, floor mounted) placed at Ventilation blower room at CVT Portal.

12	Cabinet type centrifugal fans (1x100%) each having minimum capacity of 26,000 CMH and 100 mmWG SP (min.) along with TEFC squirrel cage induction motor, drive pkg, bird screen, Vibration isolation pads, foundation/anchoring bolts (as required), bolts, nuts & washers, canvass connection, alongwith all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet exhaust requirement of Surge Chamber.	NO.	1	Transformer & GIS Hall Switchboard-B (630A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted) placed at AT EL 1046.0M GRID 24-25-E-F GIS FLOOR
13	Fresh Air Centrifugal Blowers (2 X 100 %) each having minimum capcity of 65,000 CMH and 130 mmWG SP (min.) with TEFC squirrel cage induction motor, drive pkg, pre filter with filter mounting frame, inlet air louvers, bird screen, Vibration isolation pads, foundation bolts, nuts & washers, canvass connection,VCD, non return damper and all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet fresh air requirement of Butterfly Valve House, Penstock Assembly chanber etc. as per specification.	NOS.	2	Butterfly Valve House Switchboard-D (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-240 SQMM, floor mounted) placed at portal of Butterfly Valve chamber adit .
14	Cabinet type centrifugal fans (2x100%) each having minimum capacity of 40,000 CMH and 130 mmWG SP (min.) along with TEFC squirrel cage induction motor, drive pkg, bird screen, Vibration isolation pads, foundation/anchoring bolts (as required), bolts, nuts & washers, canvass connection, alongwith all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet exhaust requirement of Butterfly Valve House, Penstock Assembly chanber etc. as per specification.	NOS.	2	Butterfly Valve House Switchboard-D (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-240 SQMM, floor mounted) placed at portal of Butterfly Valve chamber adit .
15	Fresh Air Centrifugal Blowers (1 X 100 %) each having minimum capcity of 26,000 CMH and 100 mmWG SP (min.) with TEFC squirrel cage induction motor, drive pkg, pre filter with filter mounting frame, inlet air louvers, bird screen, Vibration isolation pads, foundation bolts, nuts & washers, canvass connection,VCD, non return damper and all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet fresh air requirement of Desilting Gate Operation Chamber & its ADIT.	NO.	1	Desilting Area Switchboard-E (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-95 SQMM, floor mounted) placed at portal of Adit to Delilting chamber
16	Cabinet type centrifugal fans (1x100%) each having minimum capacity of 16,000 CMH and 100 mmWG SP (min.) along with TEFC squirrel cage induction motor, drive pkg, bird screen, Vibration isolation pads, foundation/anchoring bolts (as required), bolts, nuts & washers, canvass connection, alongwith all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet exhaust requirement of Desilting Gate Operation Chamber & its ADIT.	NO.	1	Desilting Area Switchboard-E (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-95 SQMM, floor mounted) placed at portal of Adit to Delilting chamber
17	Fresh Air Centrifugal Blowers (1 X 100 %) each having minimum capcity of 20,000 CMH and 100 mmWG SP (min.) with TEFC squirrel cage induction motor, drive pkg, pre filter with filter mounting frame, inlet air louvers, bird screen, Vibration isolation pads, foundation bolts, nuts & washers, canvass connection,VCD, non return damper and all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet fresh air requirement of Silt Flushing Gate Operation Chamber & its Adit.	NO.	1	Desilting Area Switchboard-E (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-95 SQMM, floor mounted) placed at portal of Adit to Delilting chamber
18	Cabinet type centrifugal fans (1x100%) each having minimum capacity of 12,000 CMH and 100 mmWG SP (min.) along with TEFC squirrel cage induction motor, drive pkg, bird screen, Vibration isolation pads, foundation/anchoring bolts (as required), bolts, nuts & washers, canvass connection, alongwith all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet exhaust requirement of Silt Flushing Gate Operation Chamber & its Adit.	NO.	1	Desilting Area Switchboard-E (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-95 SQMM, floor mounted) placed at portal of Adit to Delilting chamber
19	Fresh Air Centrifugal Blowers (1 X 100 %) each having minimum capcity of 10,000 CMH and 100 mmWG SP (min.) with TEFC squirrel cage induction motor, drive pkg, pre filter with filter mounting frame, inlet air louvers, bird screen, Vibration isolation pads, foundation bolts, nuts & washers, canvass connection,VCD, non return damper and all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet fresh air requirement of Adit to DC Top.	NO.	1	Desilting Area Switchboard-E (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-95 SQMM, floor mounted) placed at portal of Adit to Delilting chamber
20	Cabinet type centrifugal fans (1x100%) each having minimum capacity of 6,000 CMH and 100 mmWG SP (min.) along with TEFC squirrel cage induction motor, drive pkg, bird screen, Vibration isolation pads, foundation/anchoring bolts (as required), bolts, nuts & washers, canvass connection, alongwith all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet exhaust requirement of Adit to DC Top.	NO.	1	Desilting Area Switchboard-E (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-95 SQMM, floor mounted) placed at portal of Adit to Delilting chamber
21*	Cabinet type centrifugal fans (2x100%) each having minimum capacity of 15,000 CMH and 130 mmWG SP (min.) along with flame proof TEFC squirrel cage induction motor, drive pkg, bird screen, Vibration isolation pads, foundation/anchoring bolts (as required), bolts, nuts & washers, canvass connection, alongwith all other accesories, epoxy painted required for system completeness and installation at site as per specifications and site requirement, to meet exhaust requirement of Power House Battery Room.	NOS.*	2	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block

22*	Cabinet type centrifugal fans (2x100%) each having minimum capacity of 2,000 CMH and 130 mmWG SP (min.) along with flame proof TEFC squirrel cage induction motor, drive pkg, bird screen, Vibration isolation pads, foundation/anchoring bolts (as required), bolts, nuts & washers, canvass connection, alongwith all other accesories, epoxy painted required for system completeness and installation at site as per specifications and site requirement, to meet exhaust requirement of Transformer/GIS Cavern Battery Room.	NOS.*	2	Transformer & GIS Hall Switchboard-B (630A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted) placed at AT EL 1046.0M GRID 24-25-E-F GIS FLOOR
23*	Cabinet type centrifugal fans (2x100%) each having minimum capacity of 2,000 CMH and 130 mmWG SP (min.) along with flame proof TEFC squirrel cage induction motor, drive pkg, bird screen, Vibration isolation pads, foundation/anchoring bolts (as required), bolts, nuts & washers, canvass connection, alongwith all other accesories, epoxy painted required for system completeness and installation at site as per specifications and site requirement, to meet exhaust requirement of Butterfly Valve Chamber Battery Room.	NOS.*	2	Butterfly Valve House Switchboard-D (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-240 SQMM, floor mounted) placed at portal of Butterfly Valve chamber adit .
24*	Cabinet type Fresh Air Centrifugal Blowers (1 X 100 %) each having minimum capcity of 5,000 CMH and 240 mmWG SP (min.) with TEFC squirrel cage induction motor, drive pkg, pre filter with filter mounting frame, inlet air louvers, bird screen, Vibration isolation pads, foundation bolts, nuts & washers, canvass connection,VCD, non return damper and all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet fresh air requirement of Dam Galleries	NO.*	1	Dam Area ACDB (63A, 415V, 3PH-4 wire, incomer power cable size - 3.5C-50 sqmm)
25*	Cabinet type Centrifugal Blowers (1 X 100 %) each having minimum capcity of 5,000 CMH and 240 mmWG SP (min.) with TEFC squirrel cage induction motor, drive pkg, , bird screen, Vibration isolation pads, foundation bolts, nuts & washers, canvass connection,VCD, non return damper and all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet exhaust air requirement of Dam Galleries	NO.*	1	Dam Area ACDB (63A, 415V, 3PH-4 wire, incomer power cable size - 3.5C-50 sqmm)
26*	Cabinet type centrifugal fans (2x50%) each having minimum capacity of 2,000 CMH and 130 mmWG SP (min.) along with TEFC squirrel cage induction motor, drive pkg, bird screen, Vibration isolation pads, foundation/anchoring bolts (as required), bolts, nuts & washers, canvass connection, alongwith all other accesories required for system completeness and installation at site as per specifications and site requirement, to meet exhaust requirement of Toilet/Pantry.	NOS.*	2	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
27*	Cabinet type Fresh Air Centrifugal Blowers each having minimum capcity of 21,000 CMH and 80 mmWG SP (min.) with TEFC squirrel cage induction motor, drive pkg, pre filter with filter mounting frame, inlet air louvers, bird screen, Vibration isolation pads, foundation bolts, nuts & washers, canvass connection,VCD, non return damper and all other accesories required for system completeness and installation at site as per specifications and site requirement.	NO.*	1	Adit of MAT/CVT (Pothead /yard) Switchboard-C (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-240 SQMM, floor mounted) placed at Ventilation blower room at CVT Portal.
28*	Cabinet type centrifugal Exhaust fans each having minimum capacity of 21,000 CMH and 80 mmWG SP (min.) along with TEFC squirrel cage induction motor, drive pkg, bird screen, Vibration isolation pads, foundation/anchoring bolts (as required), bolts, nuts & washers, canvass connection, alongwith all other accesories required for system completeness and installation at site as per specifications and site requirement.	NO.*	1	Adit of MAT/CVT (Pothead /yard) Switchboard-C (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-240 SQMM, floor mounted) placed at Ventilation blower room at CVT Portal.
35*	Air curtain for smoke control for preventing smoke ingress in case of fire. Air curtain shall be as per latest OEM standard.			
35.1*	Air curtain Height up to 11-15 feet & with width up to 13 feet	No*	6	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
35.2*	Air curtain Height up to 16-27 feet & with width up to 13-27 feet	No*	6	
B	**Air Conditioning System**			
1	AIR COOLED DUCTABLE TYPE SPLIT UNITS consisting of outdoor unit (having compressor condenser coils with fan and motor), indoor unit (having evaporator coil, filter,fan with motor), complete 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, drain piping up to nearest drain point, piping support, Stablizer,etc. and all other accessories for system completeness and installation at site as per specifications and site requirement.			
1.1*	11 TR (Actual), capacity (415 V, 3 phase with isolation switch)	NO.*	3	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
1.2*	7.5TR (Actual), capacity (415 V, 3 phase with isolation switch)	NO.*	3	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block

2	MONSOON REHEATING / WINTER HEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. for Air conditioning areas served with ductable Split AC of below mentioned capacities			
2.1*	2 KW	NO.*	3	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
2.2*	3 KW	NO.*	3	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
2.3*	5 KW	NO.*	3	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
3	Humidifier complete with humidistat, safety controls, make up water piping from make up tank / nearest source of water, valves fittings and all other accessories Air Conditioning areas served with ductable Split AC of below mentioned capacities			
3.1*	2 KW	NO.*	2	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
3.2*	3 KW	NO.*	2	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
3.3*	5 KW	NO.*	2	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
23.1.7*	Pot Head Yard ACDB (63A, 415V, 3PH-4 wire, incomer power cable size - 3.5C-50 sqmm) incoming & outgoing feeder with MCCB.	No*	1	
24	PLC BASED CONTROL SYSTEM for HVAC system with Hot redundant PLC consisting of PLC Panels,RIO Panel etc,I/Omodules,I/O adopter modules,power supply,Connectivity to SCADA for monitoring purpose , etc as specified as per tender specification including FAT of PLC, preparation of control scheme, and commissioning of PLC as per relevant specification.	Lot	1	Power House Switchboard-A (800A, 415V, 3PH-4 wire, Incomer power cable size - 2 RUN-1C-400 SQMM/Phase, 1RUN-1C-400 SQMM Neutral, floor mounted placed at EL 1052.0M GRID 1-2-B-C Control Block
25	RELAY BASED CONTROL SYSTEM for HVAC system - as specified as per tender specification	Lot	1	Adit of MAT/CVT (Pothead /yard) Switchboard-C (250A, 415V, 3PH-4 wire, Incomer power cable size - 3.5C-240 SQMM, floor mounted) placed at Ventilation blower room at CVT Portal.

Notes	
1	Above details to be read in conjunction with tender drawing "Electrical scheme for for HVAC system" Document No. PE-DG-413-571-11000A-A001
2	Axial fans, Split Acs, Cassette ACs, Oil Filled Heater, Fire Dampers, Motorised Damper, Electric Hoist to be distributed suitably in all Switchgears.
3	Pot Head Yard ACDB (63A, 415V, 3PH-4 wire, incomer power cable size - 3.5C-50 sqmm) shall cater to axial fans/split Acs of Pothead yard

PRICE ADJUSTMENT FOR SUPPLY AND MANDATORY SPARES

(i) The Contract price shall be subject to price adjustment during performance of the Contract to reflect changes in the cost of material in accordance with the provisions described below

(ii) The price adjustment provisions shall be applicable separately for price components relating to Supply of Equipment as per price break-up furnished by the Contractor.

(iii) Only following components of the Contract Price will be subject to Price adjustment:

(a) Ex-Works supply price of Plant and Equipment including commissioning spares, Mandatory spares.

(iv) Price adjustment amounts towards aforesaid components of Contract Price shall be paid in the respective currencies of Contract (INR).

(v) The indices for price adjustment shall be as elaborated hereunder.

(vi) The price adjustment formula for the components of the Contract Price, as mentioned at Sl. No. (iii) above, shall be as stipulated hereinafter.

(vii) **Ex-Works Price Component of Plant and Equipment including Mandatory Spares**

The amount of price adjustment towards variable portion payable/recoverable on each item shall be computed as under:
Indices to be used for each item shall be as per Economic advisor WPI data for finished goods published at www.eaindustry.nic.in for respective month.
Major list of Indices to be used for HVAC are specified in table A below

Wherever indices of items are not directly specified in WPI data, Indices for the same shall be suitably decided during execution of contract.

EC against each item shall be calculated as per following formula

$$EC = \frac{(P1 - P0) \times EC0}{P0}$$

Where

EC = Adjustment to Ex-Works supply Price Component expressed in the currency of The Contract (INR) payable/recoverable to the contractor for each shipment/dispatch.

EC0 = Ex-Works supply Price for the plant and equipment in the currency of the Contract (INR), shipment/dispatch wise.

P1 = Refers to indices of the month of reckoning the variated price which shall be the month before the month in which dispatch is made

P0 = Refers to indices of Base Month for PVC which shall be taken as the month before the month of the price bid opening.

The latest available indices are to be extrapolated to the above defined month wrt the base month.

Note:

1) The price adjustment i.e. either increase or decrease shall be applicable upto the contractual date of completion of supplies. Contractual delivery/dispatch date would mean the delivery/dispatch date mentioned in the order including amendments in delivery/dispatch date (if any). PVC will not be applicable for the period beyond the contractual delivery/dispatch date where delay is attributable for supplier.

2) Though the calculation shall be done for each Billing Break up (BBU) item at the time of dispatch as per formula mentioned above, Total/Net price variation of package shall be calculated and settled at the end of all required supplies of the package and shall be limited to (+) 10% of Total Ex-Works Supply Price including Mandatory spares. There shall be no limit on negative value of PVC.

TABLE A

Chillers
Cooling Towers
Steel pipes, tubes & poles
Cold Rolled (CR) Coils & Sheets, including Narrow Strip
Steel Container
Air Conditioner
Manufacture of plastics products
Centrifugal Pumps
Manufacture of Fabricated Metal Products, Except Machinery and Equipment
Manufacture of other fabricated metal products
Manufacture of lifting and handling equipment
Manufacture of electronic components
Manufacture of measuring, testing, navigating and control equipment
Salt
Manufacture of Water purifier
Manufacture of Electric heaters
Manufacture of steam generators, except central heating hot water boilers
Manufacture of Fan
Hand tools
Processed rubber
Air Coolers
Manufacture of AC motor
GC/GP sheets
Manufacture Of Electrical Equipment
Industrial Valves

PRICE ADJUSTMENT FOR SERVICE PART (E&C)

(i) The Contract price shall be subject to price adjustment during performance of the Contract to reflect changes in the cost of labour in accordance with the provisions described below:

(ii) The price adjustment provisions shall be applicable for price components relating to service part (E&C) as per price break-up furnished by the Contractor.

(iii) Only following components of the Contract Price will be subject to Price adjustment:

(a) Service part (E&C) component of Contract Price.

(vi) The indices for price adjustment shall be as elaborated hereunder.

(v) The price adjustment formula for the components of the Contract Price, as mentioned at Sl.No. (iii) above shall be as stipulated hereinafter.

a) Indian Rupee Portion of the Installation Services

ER = ER1 – ER0
ER1 will be computed as follows:
ER1 = ER0 (0.15 + L_b x (L1/ Lo))

Where:
1. ER = Adjustment to Erection & Commissioning price component of contract price expressed in Indian Rupees payable to the contractor for each billing.

2. ER1 = Adjusted amount of Erection & Commissioning price component of contract price expressed in Indian Rupees payable to the Contractor.

3. ER0 = Value of the Erection & Commissioning work done in the billing period, which shall be calculated as under:

For the purpose of computing ER0, each Erection & commissioning bill (service part) during the E &C period up to the 'Completion of the Facilities' shall be calculated as described in this document.

4. L_b – Coefficient of labour (for all categories) content in the Indian Rupee portion of the erection & commissioning =0.85

5. L=Indian field labour index namely, all India consumer price index for industrial workers (All India Monthly Average) as published labour bureau, Shimla, Government of India.

For the indices,

5a. Subscript '0' refers to indices of the Base Month which shall be taken as the month before the month of the price bid opening.

5b. Subscript '1' refers to indices of the month in which service / E&C is carried as per the Purchase Order or its amendments issued.

The latest available indices are to be extrapolated to the above defined month wrt the base month.

Note:

1) The price adjustment i.e. either increase or decrease shall be applicable upto the contractual date of completion of supplies. Contractual delivery/dispatch date would mean the delivery/dispatch date mentioned in the order including amendments in delivery/dispatch date (if any). PVC will not be applicable for the period beyond the contractual delivery/dispatch date where delay is attributable for supplier.

2) The price variation shall be limited to +10% of total E&C price (excluding taxes). There shall be no limit on negative PVC.