

भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 07

Ref: PSER:SCT:KLN-M1876:TCN-07

Sub	Tend	der Change Notice -TCN-07				
Job	PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air					
	Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.					
	PACKAGE-B: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of					
	Vent	lation System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh				
Ref	1.0	1.0 Tender no PSER:SCT:KLN-M1876:18				
	2.0	BHEL's NIT, vide reference no PSER:SCT:KLN-M1876: 6472 Date: 06-02-2018				
	3.0	BHEL's TCN-01 vide ref PSER:SCT:KLN-M1876:TCN-01 dated 27-02-2018				
	4.0	0 BHEL's TCN-02 vide ref PSER:SCT:KLN-M1876:TCN-02 dated 09-03-2018				
	5.0	5.0 BHEL's TCN-03 vide ref PSER:SCT:KLN-M1876:TCN-03 dated 13-03-2018				
	6.0	.0 BHEL's TCN-04 vide ref PSER:SCT:KLN-M1876:TCN-04 dated 14-03-2018				
	7.0	BHEL's TCN-05 vide ref PSER:SCT:KLN-M1876:TCN-05 dated 19-03-2018				
	8.0	BHEL's TCN-06 vide ref PSER:SCT:KLN-M1876:TCN-05 dated 26-03-2018				
	9.0	All other pertinent issues till date.				

With reference to above, following points/ documents, relevant to tender, may please be noted and complied with while submitting offer.

- 1.0 Revised BOQ cum price schedule, VOLUME-IIIA ,PRICE SCH-REV-01(PACKAGE-A) is attached superseding VOLUME-IIIA- PRICE SCH-REV-00(PACKAGE-A) issued earlier along with NIT. Bidder shall quote as per this revised Volume-IIIA, Rev-01 only (Applicable for Package-A). Bidder is also requested to submit a declaration in techno-commercial offer that they have submitted their price bid for Package-A as per REVISED price schedule format (VOLUME-IIIA- TOTAL PRICE, REV-01) issued alogwith this TCN-07
- 2.0 Clarification to Bidder's Queries vide Annexure-A to TCN-07.
- 3.0 Amendment-01 to BHEL Doc No PE-TS-421-553-A001 issued alongwith this TCN-07
- 4.0 Revised `No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.
- 5.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully, for BHARAT HYEAVY ELECTRICALS LTD

Date: 29-03-2018

DY MGR (SCT)

TENDER NO – PSER	:SCT:KLN-M1866:17
TCN-01	PAGE 2 OF 2

Encl: As above.

FORMAT FOR NO DEVIATION CERTIFICATE (To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED, Power Sector - Eastern Region, Plot no 9/1, DJ Block, Sector - II, Salt Lake City, Kolkata - 700 091

Sub	No De	eviation Certificate.			
Job		AGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air			
	Condit	ioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.			
	PACK	AGE-B: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Ventilation			
	Systen	n for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh			
Ref	1.0	Tender no PSER:SCT:KLN-M1876:18			
	2.0	BHEL's NIT, vide reference no vide reference no PSER:SCT:KLN-M1876: 6472Date: 06-02-2018			
	3.0	BHEL's TCN-01, vide reference PSER:SCT:KLN-M1876:TCN-01, dated 27-02-2018			
	4.0	BHEL's TCN-02, vide reference PSER:SCT:KLN-M1876:TCN-02, dated 09-03-2018			
	5.0	BHEL's TCN-03, vide reference PSER:SCT:KLN-M1876:TCN-03, dated 13-03-2018			
	6.0	BHEL's TCN-04, vide reference PSER:SCT:KLN-M1876:TCN-04, dated 14-03-2018			
	7.0	BHEL's TCN-05, vide reference PSER:SCT:KLN-M1876:TCN-05, dated 19-03-2018			
	8.0				
	9.0	BHEL's TCN-07, vide reference PSER:SCT:KLN-M1876:TCN-06, dated 29-03-2018			
	10.0	All other pertinent issues till date.			

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact (if applicable) and acceptance to reverse auctioning process.

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized representative of the bidder)

	AMEXUR-A TO TOLOT							
	ANNEXURE-A 10 IDR-07 PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of I in Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh PACKAGE-B: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Ventilation System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.							
	TENDER NO : PSER: SCT: KLN-M1876:18							
SI No.	REFERENCE CLAUSE OF TENDER	EXISTING PROVISON		BHEL'CLARIFICATION				
1	VOL-IIIA-R00,PRICE SCHEDULE SCH-11 -GUARANTEED POWER CONSUMPTION	AREAS AND SERVICE BUILDING	Service Bulding equipment details are not	PI refer revised GPC and follow specification				

TENDER NO :PSER:SCT:KLN-M1876:18 1 SIGNATURE AND SEAL OF BIODER



MAITREE BANGLADESH TPS 2 X 660 MW TPS AIR-CONDITIONING SYSTEM

BHEL Doc No: PE-TS-421-553-A001				
Amendment	01			
DATE	23.03.2018			
SHEET Page 1 of 1				

A. AMENDMENT TO EXISTING CLAUSES IN SCHEDULE 11 GPC

S.No.	Description /	Clause	Existing Description	To Be Read As / Remarks
	Page No.	No.		
1	VOLUMNE – IIIA, SCH-11 - GUARANTEED POWER CONSUMPTION, OF PRICE SCHEDULE	1.0	AC PLANT FOR MAIN CONTROL ROOM AREAS AND SERVICE BUILDING	AC PLANT FOR MAIN CONTROL ROOM AREAS BUILDING

ANNEXURE -1 Revision 1 of Schedule-11 GPC.

PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.

a	TENDER NO PSER:SCT:KLN-M1876:18
SL NO	PREAMBLE This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully before filling in rates for various items. Clauses
	under this preamble shall be read in conjunction with various volumes of tender and other tender sections as applicable and shall have precedence over any contrary statement mentioned any where in this document.
2	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions. Drawings enclosed with the tender are only preliminary and for tender purposes and giving some idea of the work involved. The work is to be executed as per drawings & documents, which shall be furnished during execution.
3	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc. equipment, strengthening of roads/culverts/bridges etc. including arranging all clearances etc. required for carrying out different activities & tests, materials, levies, transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the complete tender document and this schedule
5	The quantities of the various items mentioned in this schedule of items are approximate, based on very preliminary information and may vary to any extent or be delete altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of work executed under any part of this contract including extra items, if any but excluding any price variation remains, within fifteen percent (± 15%) of the awarded price as per LOI.
6	Prior written approval of BHEL shall be sought by the contractor in case quantity variation of any item crosses +50% (plus fify percent) limit during execution and approval to be obtained before execution of further quantity for this item.
7	In case Sealed /Paper Price Bids are opened for finalisation of the tender, for any Item Rate/BOQ based contract, possibility of variation of quantity/ addition/deletion of items can not be ruled out. Under such circumstances, after execution of work, if it is observed that standing as L-1 is changed based on actual quantity executed, the bidder shall give suitable rebate to maintain your standing as L-1. Since this aspect can be assessed at the end of execution, necessary adjustment will be effected at the end of execution in final bill. This condition shall not be applicable where the tender is finalised through Reverse Auction.
8	BHEL reserve the right to rationalize the rates, quoted by L-1 bidder against unit rate items and/ or other optional items with respect to item-wise lowest rates (amongst the participating bidders), before placement of order.
9	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing, clearing of old structures and leveling etc. including fixing of grid pillars, benchmarks etc. required for commencement of site activities. No separate payment will be made towards the same. However, if separate rate for such item is available in the rate
10	Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English language.
11	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted as per BHEL approved payment schedule/billing break-up.
12	The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to the done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
13	No splitting of the job is envisaged. Decision of BHEL in this regard shall be final and binding to the bidders.
14	Bidders are not allowed to alter the Price Schedule format including item description, quantity etc. and the offer is liable for rejection if the bidders submit their prices in Price Schedules modified by them. BHEL reserves the right to reject the offers of bidders who submit offers in Price Formats which are modiified/altered by them. Also putting any comments instead of rates/price in the designated column of the rate schedule shall make the offer liable for rejection.
15	Bidders to note that for Civil &/Structural packages, against a particular item against a ST No. appearing in more than one schedule of the BOQ, same rate must be quoted in all schedules for that particular items with same descriptions. If by error, different rates are quoted in different schedules for same ST No.(i.e. item with same description), then the higher of the rates shall be considered for evaluation but awarding shall be done with the lower rate ,if the bidder becomes L-1."
16	For Lumpsum Service Contract: The items/components indicated in the tender is indicative and may vary to any extent. No compensation shall be payable in case of any variation in the items/components listed in the bill of quantities if the executed weight remains within the variation limit. However, in case of deletion of any item or
17	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contractions.
18	In case of tender for Civil and/or Structural works, if the Non-schedule items are not quoted by the bidder, it will be treated at par with rate of corresponding item of
19	No interest, whatsoever, shall be payable by BHEL on the security deposit, any bank guarantee submitted or any amount due to successful bidder/contractor.
20	Size and weights of various items are mentioned in the attached BOQ cum rate/price schedule for reference purpose only & these shall not be taken into consideration for quoting/calculating amount in the rate schedule. These shall be utilised as per relevant sections of tender. Bidders shall quote for each item in the rate column, taking unit as mentioned in the quantity column. Rates shall be filled in both figures and words. Amount shall be calculated based upon these rates multiplied by the mentioned quantity for the respective items.
21	Bidder's Total price will be shall be considered for evaluation unless stated otherwise.
22	In case of BOP packages, if Bidder does not quote/indicate the price for freight chagses against indicated rate schedule, the same shall be considered as 2% of basic price and adjusted with the total quoated price against each item keeping the total quoted price unaltered.

	VOLUME-IIIA	
	PRICE SCHEDULE, REV-01	
PACKA	GE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 l Project, Rampal, Bangladesh.	MW Maitree Super Thermal Power
	TENDER NO - PSER:SCT:KLN-M1876:18	
	SCH-1 - TOTAL PRICE - AIR CONDITIONING SYSTEM (PKG -A)	
SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	TOTAL QUOTED PRICE (Rs)
1.0	Total price for SUPPLY PART, SERVICES PART & MANDATORY SPARES comprising of design (i.e. Preperation and submission of drawing/ documents including " As Built " drawings and O&M Manuals), engineering, manufacture, fabrication, assembly, inspection / testing at vendor's & sub-vendor's works, painting, maintenance tools & tackles (as applicable), fill of lubricants & consumables, mandatory spares alongwith spares for erection, startup and commissioning as required, forwarding, proper packing (sea-worthy packing and in containerized packing for electronic & Instrumentation and any fragial items), shipment and delivery at site, unloading, handling, transportation & storage at site, in site transportation, assembly, minor civil works, erection & commissioning, trial run at site, Operation and maintenance, preperation of drawings in 3D (if applicable) and carrying out performance guarantee /Functional / Demonstration tests at site (As applicable), training of customer/ client O&M staff (if applicable), carrying out Performance and Guarantee tests at site & final painting of complete system & final handing over to end customer in flawless condition for project and package specified above complete with all accessories for the total scope defined as per BHEL NIT & tender technical specification, amendment & agreements till placement of order for Air Conditioning System.	
NOTE		
1.0	Bidder to note that total price at sl no 1.0 above shall be considered for evaluation & awarding for this package. As such total priall respect for the full scope defined and considering all terms and conditions.	ice at sl no 1.0 should be complete in
2.0	Bidder to note that percentage break-up of above total price into supply part, service part are frozen and indicated in SCH-2. system-wise percentage break-up of supply part & service part are frozen & indicated in subsequent schedules. Based on t subsequent schedules, separate orders will be placed for (i) Main Supply, (ii) Main Service, (iii) Operation & Maintenance, & (his break-up and further break-up ir
3.0	For supply part, bidder shall furnish break-up of broad allocated item/ system-wise prices in the respective schedule in the following	ing manner:
3.1	SCH-3 - Main supply price break-up for various items/ systems as per prescribed format.	
3.2	SCH-4 - Start-up & commissioning spares price break-up, indicating items-wise break-up corresponding to allocated percentage	of SCH-3
3.3	SCH-5 - Special tools & tackles for maintenance price break-up, indicating items-wise break-up corresponding to allocated perce	ntage of SCH-3
3.4	SCH-6 - Mandatory Spares price break-up, indicating items-wise break-up corresponding to allocated percentage of SCH-2.	
4.0	SCH-7 - Main service price break-up for various items/ systems as per prescribed format.	
5.0	SCH-8 - Operation & Maintenance price break-up for various items/ systems as per prescribed format.	

	VOLUME-IIIA				
	PRICE SCHEDULE, REV-01				
PACK	PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.				
	TENDER NO - PSER:SCT:KLN-M1876:18				
	SCH-1 - TOTAL PRICE - AIR CONDITIONING SYSTEM (PKG -A)				
6.0	SCH-9-Indian Content as per prescribed format.				
7.0	SCH-10 - Bidder shall provide list of Recommended spares. However, price of the same shall not be included at sl. No. 1.0 above and it shall not be considered for evaluation purpose.				
8.0	If the bidder fail to furnish break-up as per above or furnish break-up in variance to above, BHEL reserve the right to fill-in or amend break-up, as applicable, as per BHEL's discretion in line with broad frozen break-up. Decision of BHEL in this regard shall be final & binding on bidder.				
9.0	Based on mode of finalisation of contract (Either through Reverse Auction or price bid opening, followed by negotiation, if any, while absolute price may change, percentage allocation as per the price schedule shall remain unchanged.				
10.0	Bidder shall furnish item-wise rate/ price for special tools & tackles for maintenance as per specified list of technical specification or separately furnish item-wise rate/ price break-up gainst allocated percentage in the price scehdule. In case, bidder do not furnish any rate/ price or indicate `NA' against any item due to non-applicability as per bidder's design, etc, they have to supply such items, if found required on detail engineering or due to any other reason at a later date as per direction of BHEL/ customer.				
11.0	Bidder shall furnish item-wise rate/ price for erection & commissioning spares as per specified list of technical specification or separately furnish item-wise rate/ price break-up against allocated percentage in the price scehdule. In case, bidder do not furnish any rate/ price or indicate `NA' against any item, they have to supply such items, if required on detail engineering or due to any other reason at a later date as per direction of BHEL/ customer.				
12.0	In case bidder do not indicate price component or indicate `NA', etc in the relevant schedule for any other items component required for completion of package, if applicable, they have to supply & execute such items, if required on detail engineering for completion of the package, at no extra cost to BHEL.				
13.0	Quantity of variable items (marked *), if included, is likely to vary during detailed design & engineering stage, mainly due to change in layout/ dimension, etc. The unit rates quoted & accepted by BHEL for these items shall be considered and no separate unit rates shall be quoted. Unit rates shall be valid throughout the contract period, including extension.				
14.0	Unit rate items, if included, shall not be considered for evaluation. The rates for the Unit rate items shall be applied for addition/ deletion of scope and rates shall be valid throughout the contract period, including extension.				
15.0	Other optional items, if included, shall not be considered for evaluation.				
16.0	BHEL reserve the right to rationalize the rates, quoted by L-1 bidder against variable items, Unit Rate items other optional items with respect to item-wise lowest rates (amongst the participating bidders), before placement of order.				
17.0	BHEL shall issue requisite document, if required, for imported items, if included, limited to the CIF values furnished by bidder in the relevant schedule.				
18.0	Estimated power consumption (EPC), if included, for the system (For working drives only) has been specified in relevant schedule.				
19.0	Bidder's quoted GPC at the relevant schedule shall be demonstrated by successful bidder during performance testing at works/ site.				
20.0	Any item as per scope of work, if not included in the price quoted above and shown separately will not be taken cognizance of and the offer shall be liable for rejection.				
21.0	Bidder must submit prices in the Pro Forma duly filled in signed and stamped on every page without any ambiguity. The price shall be written against each item. Term such as "refer covering letter" etc. are not acceptable. Extra sheet may be attached if the space provided is not sufficient				
22.0	Price format shall not be changed by bidder in any case, since it may lead to cancellation of bidder's offer.				
23.0	CHINESE CODES AND STANDARD ARE NOT ALLOWED. INDIAN CODES ALLOWED SUBJECT TO COMPLIANCE OF CLAUSE NO. 9 (CODES AND STANDARD) OF SECTION-IA OF TECHNICAL SPECIFICATION.				

VOLUME-IIIA PRICE SCHEDULE, REV-01 PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh. TENDER NO - PSER:SCT:KLN-M1876:18 SCH-2 - TOTAL PRICE BREAK-UP - AIR CONDITIONING SYSTEM (PKG -A) DESCRIPTION OF EQUIPMENT/ ITEM ALLOCATION OF | ALLOCATION OF NO **TOTAL PRICE TOTAL PRICE** (IN PERCENT) (IN INR) (2)(3)(4) BREAK-UP OF TOTAL PRICE, SL NO 1.0 OF SCH-1 MAIN SUPPLY Total lumpsum price on FOR site basis for supply part for complete design, engineering, manufacturing, 77.50% inspection & testing at manufacturers works, painting at manufacturers' works, supply in duly packed condition (sea-worthy packing and in containerized packing for electronic & Instrumentation and any fragial items), delivery at site, etc complete with all accessories including supply of special tools & tackles, commissioning spares for the total scope defined in technical specification and terms & conditions of tender taking into account of all clarifications/ modifications. MAIN SERVICE 18.50% Total lumpsum price for service part receipt at site, handling, storage, structural work, erection, painting, testing, commissioning, trial run, PG test, handing over etc complete for the total scope defined in technical specification and terms & conditions of tender taking into account of all clarifications/ modifications. OPERATION AND MAINTENANCE Total lumpsum price for operation and maintenance at site, as per specification and terms & conditions of tender 1.50% taking into account of all clarifications/ modifications. 4.0 MANDATORY SPARES 2.50% Total lumpsum price on FOR site basis for mandatory spares for complete design, engineering, manufacturing, inspection & testing at manufacturers works, painting at manufacturers' works, supply in duly packed condition. delivery at site, etc as per scope defined in technical specification and terms & conditions of tender taking into account of all clarifications/ modifications. TOTAL PRICE (MAIN SUPPLY+ MAIN SERVICE + O&M + MANDATORY SPARES) 100.00% NOTE 1.0 Bidder to note broad percentage break-up prices at sl no 1.0 in SCH-1 as per above. Bidder to note based on above break-up and together with break-up in subsequent schedules, separate orders will be placed for (i) Main supply (ii)

Main service, (iii) Operation & Maintenance, & (iv) Mandatory Spares.

	VOLUME-IIIA PRICE SCHEDULE, REV-01						
	PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.						
	TENDER NO - PSER:SCT:KLN-M1876:18						
SL NO	SCH-3 - MAIN SUPPLY PRI DESCRIPTION OF EQUIPMENT/ ITEM		EAK-UP DUANTITY	1		QUOTED PRICE (IN INR)	1
SE NO	DESCRIPTION OF EQUIPMENT THEM		20/11/11	UNIT BASIC PRICE	OTHER INCIDENTAL UNIT	TOTAL UNIT PRICE	AMOUNT
(1)	(2)		(3)	(4)	(5)	(6) = (4)+(5)	(7) = (6)*(3)
BREAK-U	P OF MAIN SUPPLY PRICE, SL NO 1.0 OF SCH-2		•		, ,		
1.1	AC PLANT -1 (Main control room areas in power house building)						
1.1.1	(want control router areas in pure rouse containing). AIR COOLED SCREW CHILLERS package, each of actual 175 TR capacity consisting of Screw refrigerant compressor complete with motors, control panel, Redundant	3	NO				
	micro processer panel as per specification, multi drive set, controls and interlocks other accessories as specified, air cooled condenser of matching capacity, shell & tube type water chiller & other accessories, as specified. (Refrigerant shall be R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package as specified.)						
1.1.2	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ heating coil (coil shall be same for cooling and heating), centrifugal blower, TEFC sq cage induction motor, VVVFD drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls, control panel and other accessories to meet the AC load of control room areas at +17.00 M of power house building. S.P minimum 125mm.	3	NO				
1.1.3	FINE FILTERS in Common discharge plenum for AHUs at 24.0 M level, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of fine filters.	1	LOT				
1.1.4	HEPA FILTERS in discharge for AHUs at 24.0 M level, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of HEPA filters.	1	LOT				
1.1.5	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ heating (coil shall be same for cooling and heating), centrifugal blower, TEFC sq cage induction motor, VVVFD drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls, control panel and other accessories to meet the AC load of control room areas at +8.5.00 M of power house building. S.P minimum 125mm.	2	NO				
1.1.6	FINE FILTERS in Common discharge plenum for AHUs at 8.5 M level, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of fine filters	1	LOT				
1.1.7	HEPA FILTERS in discharge for AHUs at 8.5 M level, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of HEPA filters	1	LOT				
1.1.8	CENTRIFUGAL PUMPS for chilled water recirculation complete with TEFC motor & all accessories as specified. Pump shall be 2x100% or 3x50% configuration, to be decided during detailed engineering by BHEL.	1	LOT				
1.1.9	MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. Make up water line with float valve & backup, quick fill line with ball valve, drain line with ball valve,	1	NO				
1.1.10	overflow & vent line, level gauge shall be provided. CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. 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.	. 1	NO				
1.1.11	INSULATED CHILLED WATER PIPING with necessary littings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents etc as per specifications. This item shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancillaries for insulation finishing as per specifications.).	1	LOT				
1.1.12	MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT				
1.1.13	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. as per	1	LOT				
	specification ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.		LOT				
1.1.14	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT				
1.1.16	Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature Transmitter act, including necessary control panel form hook up with main DDCMIS as per specifications	1	LOT				
1.1.17	Electrical Hot Water Generator of suitable Capacity to meet the requirement-Electrical Hot Water generator of vertical/ horizontal construction equipped with sufficient number of flanges and electrical immersion heaters. The pressure vessel shall be constructed as per ASME standards and insulated on all sides with 100 mm thick	2	Nos*				
	fibreglass. The hot water generator shall be equipped with all automatic and safety controls such as manual reset high temperature water outlet, step controller and	l					
	recycling relay, ON-OFF switch, thermostats, pilot light, 'ON' status of individual banks, low water cut off all as per manufacturers recommendations. All basic controls and						
	terminal shall be located in an internal control cabinet, factory wired and tested. The hot water generator shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power supply (10x15h)	1					
1.2	Supply: (1W+1sh) AC plant-2 & 3 (ESP Control Room Building) for Unit-1&2	t		1			
1.2.1	DX type, air cooled condensing unit of 30TR (ACTUAL) capacity. The refrigerant compressor shall be Srew / Scroll, Open / Semi-hermetic type suitable for Refrigerant R-	4	NO				
	134a / R-407c / R-410a environment friendly HFC refrigerants with drive package (for open type compressor only), 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, Redundancy micro processer panel as per specification, accessories,						
L	insulated refrigerent piping to and from AHUs, foundation bolts, nuts, washers etc complete in all respect.						
1.2.2	Sheet metal cabinet type air handling units (double skin as per specification) The draw through horizontal AHUs shall comprise of , Dampers, Filters (pre filter and fine filters with DP gauge across filters), DX- cooling coil Fan section with fan & TEFC sq cage induction motor, VVVFD, drive set, face and bypass damper with modulating motor, condensate drain pan, thermostatic controls, control panel and other accessories to meet the AC load of ESP control room area. S.P minimum 60mm.	4	NO				
1.2.3	MONSOON REHEATING / WINTER HEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT				
1.2.4	HUMIDIFIER for each AHU room complete with humidistat, safety controls, make up water piping from make up tank / nearest source of water, valves fittings etc	1	LOT				
1.2.5	ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	1	LOT				
1.2.6	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT				
1.2.7	Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature Transimiliter and flow Transmitter etc, including necessary control panel form hook up with main DDCMIS as per specifications		LOT				

PROCESS A: Cooper Experience Standards and Supple Liver Science Commissioning and an information of the Standard Standards and Supple Liver Science Standards and Standard		VOLUME-IIIA					
The content of the		PRICE SCHEDULE, REV-01 PRICE SCHEDULE, REV-01 PRICE SCHEDULE, REV-01 PRICE SCHEDULE, REV-01					
Sept. 1 Mills (Part Mills) For Country of Children (Mills) groups, used of soals 20 FF country creating of Some infligent compressor complete and mills represent the country of the country creating of Some infligent compressor complete and mills represent the country of the country creating of Some infligent compressor complete and mills represent the country of the country of Some infligent compressor complete and mills represent the country of Some infligent compressor complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent complete and mills represent the country of Some infligent the country of Some inot infligent the country of Some infligent the country of Some in							
13							
Security SCORE CHIEFE SCORE CALLETS CANADA AND THE CAPACITY CONTROL OF SCORE CHIEFE CHIEFE CAPACITY	1.3		CE BRI	EAK-UP			
point is to ingo serie cells of an execution, as specified plithigeness that is in 2012 Actific to 10 and 1	1.3.1	AIR COOLED SCREW CHILLERS package, each of actual 250 TR capacity consisting of Screw refrigerant compressor complete with motors, control panel,	2	NO			
South and act cultural type duties on ARF HANDLINGS BINES consisting or other about culture control, and the culture control type duties on ARF HANDLINGS BINES control or other beautiful control, and the culture control of the cu							
Section of the control of the contro							
Section Committee Committe		as specified.)					
Section Committee Committe							
13. Set 1. The Conference of Service Relatings of the relation complete with Entry Trains, ind.; 50%, sections and other laters regalated for complete 13. Set 1. This RELATION SERVICE AND SERVICE A	1.3.2	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ heating coil (coil shall be same for cooling and heating), centrifugal	10	NO			
The Fitting of Common discharge pleasant for Allifus of Service building complete with long teams, max, both, southers and their knows companied to complete in the Complete and Exercision of Service							
1.1. Contraction of the files 1.1. Contraction of the files 1.2. Contraction of the files 1.3. Contraction of the files 1.4. Contraction of the files 1.5. Contraction of the files	122		1	LOT			
1.50 Comparison of Comparison Purple of Comparison of Comparison Purple of Comparison Pur	1.3.3		'	LOT			
1.36 MARKSET WATER TANK or (capacity 2 Cade. Tarks size all to FTPS Video up water for with the law of the		CENTRIFUGAL PRIMARY PUMPS for chilled water recirculation complete with TEFC motor & all accessories as specified.	2				
Collection Metal Port Revision (Collection Metal Collection Metal or personal formation of the collection of the colle		CENTRIFUGAL SECONDARY PUMPS for chilled water recirculation complete with TEFC motor & all accessories as specified	2				
The can that have do not be sometimed to expect a process of the company of the	1.3.6		1	NO			
18 MENUATED CHILD WARTER PROPIED AND TO PROPING A WARTER TO A CONTROLLED AND TO PROPING A WARTER AND TO A CONTROLLED AND TO A	1.3.7	Determine a vern mer, rever update strain be provided. CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. Make up water line with float valve & backup, quick	1	NO			
service de se per specifications. The letter shall care for the reference filter design per specifications. 13		fill line with ball valve, drain line with ball valve, overflow & vent line, level gauge shall be provided.					
ACQUISE MONEY AT TO conceive at the harders, select controls, set also controls on the new Arthur control of the harders and an acquired with an acquired with an acquired with an acquired with a control of the harders and acquired with a control of the harders and acquired, making a control of the harders and acquired, and the harders and acquired, and the harders and acquired acquired and acquired acquired acquired and acquired acquired and acquired acquired acquired acquired and acquired acq	1.3.8		1	LOT			
1.3.10 MONSON BEHCATIVE (NT compressed with hosters, solider control, at 4-bit controllers, from work, flummouth it handfolds' sensors etc							
MINIOPITER for each Ant Jump comprises with humanistical solety complex, while up water paying from make up tank / reserved source of water, where fillings etc. as per 1		no prant and natios, it cost or the bullutings (pipe, varies), sualities, it is unation material will diffall affaillaties for it is unation fillishing as per specifications.).					
MINIOPITER for each Ant Jump comprises with humanistical solety complex, while up water paying from make up tank / reserved source of water, where fillings etc. as per 1							
3.317 ACQUISTC BSSLA ATION or the first con of ducting from AH1 united and friend as per specifications. 3.12 PRESHARI FANS (soal) through complete with most, relief cone, or filters (pre- and friend) as per specifications. 3.13 FANS (soal) through complete and most, relief cone, and filters (pre- and friend) as per specifications. 3.14 ACQUISTC BSSLA ATION or the filters (pre- and friend) as per specifications. 3.15 FANS (soal) through the pre-state specification (pre- and friend) as per specifications. 3.16 ESCHARI HAVE Water Generator of suitable: Capacity for most the requirements Exectful HaV Water generator of suitable: Capacity for most the requirements Exectful HaV Water generator shall be capacity with most and and activation and soals with 100 mm this favoring in specification of the soal basis for the soal basis for suitable capacity with most of and add as the soal form the favoring relieves and exercising instances that the capacity of the soal and activated and add as the soal and activated and activated and activated and activated and activated and activated and add as the soal and activated a			1				
ACOUSTIC ENSILATIONS for the first and ducting from AHU outless with material and fired in page specifications. 1	1.3.10		1	LOI			
13.12 Fisch intermediate long length or media from the processing processes with office of the processes of the processes with the switch flow switch, flow meter, Pressure Transmitter, Temperature 1 To To To Transmitter and flow Transmitter of the registeries of the processes o	1.3.11		1	LOT			
13.14 Clericinal Part Darkson Common State C	1.3.12	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT			
Becknical Not Water Conversator of suitable Capacity for more the requirement—Excitical Not Water generator of vertical hortocental construction equipped with sufficient and recycling response to minimises in healths: The pressure vesses shall be constructed as part ACMS standards and inclusted on all solid and included and included and solid and included and	1.3.13		1	LOT			
number of flanges and electrical immersion healers. The pressure vessel shall be comprised as the peripher with all automatical and sixty controls and a regular properties was condected and recycling relay, ON OFF switch, themmostus, juici light, ON status of Individual banks, low water out of all as per manufacturent services, controller and recycling relay, ON OFF switch, themmostatis juici light, ON status of Individual banks, low water out of all as per manufacturent services. The control control all reminds shall be be located in an internal control calmer, factory witered an less than the control of a shall be stated in an internal control calmer, factory witered an less than the control of a shall be stated in an internal control calmer, factory witered an less than the control of a shall be stated in an internal control calmer, factory witered an less than the control of a shall be stated in an internal control of the control of a shall be stated in an internal control of the control of t	1 2 1/	Transimilier and flow Transmitter etc, including necessary control panel form hook up with main DDCMB as per specifications.	2	NO*			
Bibesplass. The hot water generator shall be equipped with all automatic and safely controles such as manual reset high temperature water cutlet, step controler and recycling resign. ON CFF swift, 10% status of individual banks, tow water cut off all as per manufactures recommendations and terminal shall be broaded in an internal control cabinet, factory wired and tested. The hot water generator shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power survey. The processer panel as per specification, multi other set, controls and intellocks other accessions as specifical. A Coptent S. (Administrative Building) 1.4. All Coptent S. (Administrative Building) 1.4. Page of the processer panel as per specification, multi other set, controls and intellocks other accessions as specifical. 2. NO 2. NO 3. Set of the processer panel as per specification, multi other set, controls and intellocks other accessions as specifical. 3. Set of the processer panel as per specification, multi other set, controls and intellocks other accessions as specifical. 4. Set of the control processer panel as per specification, multi other set, controls and intellocks other accessions as periodical processer. The processer panel as per specification, multi other set, control panel and other accessions as specifical. 5. Set of the Control processer panel as per specification of the disease and the control panel and other accessions as specification. 5. Set of the Control administrative Buildings. SP minimum of the multi-set panel and other accessions as specification. 5. Set of the Control administrative Buildings. SP minimum of the multi-set panel and other accessions as specification. 5. Set of the Control administrative Buildings. SP minimum of the multi-set panel and other accessions as specification. 5. Set of the Control administrative Buildings. SP minimum of the multi-set panel and other accessions as specification. 5. Set of the Control administrative Buildings. SP minimum of the multi-set panel and other accessio	1.5.14		-	NO			
terminal shall be located in an internal control cabinet, factory wired and tested. The hot water generator shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power surple. View 15th AR COLDED SCREW CHILLERS package, each of actual 225 TR capacity consisting of Screw refrigerant compressor complete with motors, control panel. A Ceptant's Conditionary micro processer panel as per specification, multi drive set, controls and interfocks other accessories as specified, and interfocks of the factor accessories as specified. 14.2 Sent read cabinet lype double of Aministrative Building. Sc Priminism of Morr. 15.4 On the Clear fraudrented of Aministrative Building. Sc Priminism of Building. Sc Priminis		fibreglass. The hot water generator shall be equipped with all automatic and safety controls such as manual reset high temperature water outlet, step controller and					
1.4.1 A Deptinist foldministrative Building) 1.4.1 AR COOLED SCREW CHILLERS package, each of actual 225 TR capacity consisting of Screw refrigerant compressor complete with motors, control panet, 2 Rodundancy micro processes panel as per specification, multi drive set, controls and interfocks other accessories as specified, 3 source of matching capacity, shell & tube type water chiller & other accessories, as specified, 1 respectively. 1.4.2 Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ healing coil (coil shall be same for cooling and healing), centrifugal blower. FEFC sq cage induction motor, VVVFD drive set, Illiers (per littler), 3 way indicrised mixing valve with themostatic controls, control panet and other accessories to meet the AC load requirement of Administrative Buildings. Spr minime form. 1.4.3 FINE FILETERS in Common discharge pierum for AHUS of sevice building, compile with fixing frame, nuts, both, washers and other items required for compiler in India.							
AC plants (Administrative Building) AC plants (Administrative Buil							
Redundancy micro processer panel as per specification, multi drive set, controls and interlocks other accessories as specified, shell & ub they per water chiller & other accessories, as specified. (Refrigerant shall be R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package as specified.) Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ healing coil (coil shall be same for cooling and healing), centrifugal blower. FFC Sq cage induction motor, VVPTO drive set, filters (gre filter). 3 way motioned micing valve with thermostalic controls, control panel and other accessories to meet the AC load requirement of Administrative Building. SP minimum 6/mm. 14.3 FINE FILTERS in Common dischage plenum for AHIst of severce building, complete with fixing frame, nuts, boits, washers and other items required for complete in mustaliation of fine filters. 14.4 CENTREVICAL PUMPS SECONDARY for chilled water recirculation complete with TEFC motor & all accessories as specified. 14.5 CENTREVICAL PUMPS SECONDARY for chilled water recirculation complete with TEFC motor & all accessories as specified. 14.6 MAKE-UP WATER TANK of capacity? Lotum Transis shall be FR. Make up water fine with float valve & buckup, quick fill line with bail valve. drain line with bail valve. In No. 14.6 WASH-UP WATER TANK of capacity? Lotum Transis shall be five with the Make drain line with bail valve. Graphing Lotum Transis shall be five the standard of the standa	1.4	AC plant-5 (Administrative Building)					
shell & tube type valer chiller & other accessories, as specified. (Refrigerant shall be R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package as specified.) 1.4.2 Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling healing coil (coil shall be same for cooling and healing), centrifugal and other accessories to mose the AC load requirement of Administrative Building. S. Principular of the AC load requirement of Administrative Building. S. Principular of the Building S. Principular of t	1.4.1		2	NO			
as specified.) Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water coding/ heating coil (coil shall be same for cooling and heating), centrifugal blower, FEFC sq cage induction motor, VWVFD drive set, filters (pre filter), 3 way motorised mixing valve with thermostalic controls, control panel and other accessories to meet the AC load requirement of Administrative Building, S.P minimum 60mm. HRE FILTERS in Common discharge pierum for AHUs of service building, complete with fixing frame, nuts, bolts, washers and other items required for complete the statistic of the filters of the f							
1.4.2 Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ healing coil (coil shall be same for cooling and healing), centrifugal 8 blower, TEFC sq cage induction motor, VVVFD drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls, control panel and other accessories to meet the AC load requirement of Administrative Building, SP minimum 6/mm. 1.4.3 FINE FILTERS in Common discharge piteman for APILs of service building, complete with fixing frame, nuts, bolts, washers and other items required for complete 1 LOT installation of fine filters. 1.4.4 CENTREPIGAL PUMPS PRIMARY for chilled water recirculation complete with TEFC motor & all accessories as specified. 2 NO 2 NO 3.4.5 CENTREPIGAL PUMPS SECONDARY for chilled water recirculation complete with TEFC motor & all accessories as specified. 2 NO 4.4.6 MAKE, UP WATER TANK of capacity 2 Cultm. Tanks shall be FPP. Make up water inne with boal valve, drain line with ball valve. All possible provided. 4.4.7 CHILLED WATER EXPANSION TANK of capacity 1 Cutm. Tanks shall be MSFRP & insulated as per specification. Make up water line with float valve & backup, quick fill line with ball valve. drain line with ball valve. Order flow a vent line, level qauge shall be provided. 1.4.8 INSULATED CHILLED WATER PIPING with necessary filtings like tees, reducers, expanders, ebows, flanges, all types of valves with flanges, all vents eas per specifications. This leme shall cover the entire childled water piping for AC plant room, all the AHU comes and FCUS and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancillaries for insulation finishing as per specifications.) 1.4.10 HUMIDIFIER for each AHU room complete with humidistal, safety controls, air-stat. contactors, frame work, thermostal & humidistal/ sensors etc. 1.4.11 ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per spe							
Nower, TEFC sq. gage induction motor, YWFD drive set, filters (per filter), 3 way motorised mixing valve with thermostatic controls, control panel and other accessories to meet the AC load requirement of Administrative Building. Sp. Pininimum 60mm. 14.3 FINE FILTERS in Common discharge plenum for AHUs of service building, complete with fixing frame, nuts, botts, washers and other items required for complete installation of fine filters No.							
In one of the AC load requirement of Administrative Bullding, S.P minimum 60mm. 1.4.3 FINE FILTERS in Common discharge plenum for AHUs of service building, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of fine filters 1.4.4 CENTRIFUGAL PUMPS PRIMARY for chilled water recirculation complete with TEFC motor & all accessories as specified. 2. NO 1.5. CENTRIFUGAL PUMPS SECONDARY for chilled water recirculation complete with TEFC motor & all accessories as specified. 2. NO 1.6. MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. Make up water line with float valve & backup, quick fill line with ball valve, drain line with float valve & backup, quick fill line with ball valve, drain line with float valve & backup, quick fill line with ball valve, drain line with float valve & backup, quick fill line with ball valve, drain line with float valve & backup, quick fill line with ball valve, drain line with float valve & backup, quick fill line with ball valve, drain line with line with line with ball valve, drain line with line with ball valve, d	1.4.2		8	NO			
FINE FILTERS in Common discharge plenum for AHUs of service building, complete with fixing frame, nuts, boths, washers and other items required for complete 1.4.4 CENTRIFUGAL PUMPS PRIMARY for chilled water recirculation complete with TEFC motor & all accessories as specified. 2. NO 1.4.5 CENTRIFUGAL PUMPS SECONDARY for chilled water recirculation complete with TEFC motor & all accessories as specified. 2. NO 3.4.6 MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. Make up water line with float valve & backup, quick fill line with ball valve, water line, level gauge shall be provided. 4.7.7 CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be RNF/RP & insulated as per specification, Make up water line with float valve & backup, quick 1 In Illium with ball valve, drain line with all valve, overflow & vent line, level gauge shall be provided. 1.4.8 INSULATED CHILLED WATER PIPING with necessary fittings like lees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents etc as per specifications. This item shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancillaries for insulation finishing as per specifications). 4.4.9 MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. 4.4.10 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. as per 1 LOT 4.4.11 Houristing for expecting the pressure gauge, pressure switch, differential pressure switch, flow switch, flow water, Pressure Transmitter, Temperature 1 LOT 4.4.12 FRESHARIFANS (axial flow type), complete with molor, inlet cone, air filliers (pre and fine), dampers, with 1 LOT 4.4.13 Field instruments like greater generature gauge,							
Installation of fine filters 1.4.4 CENTRIFUGAL PUMPS PRIMARY for chilled water recirculation complete with TEFC motor & all accessories as specified. 1.4.5 CENTRIFUGAL PUMPS SECONDARY for chilled water recirculation complete with TEFC motor & all accessories as specified. 1.4.6 MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. Make up water line with float valve & backup, quick fill line with ball valve, overflow & vent fline, level gauge shall be provided. 1.4.7 CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. Make up water line with float valve & backup, quick fill line with ball valve, drain line with ball valve, drain line with ball valve, origin line with ball valve, drain line with ball valve, origin line with ball valve, drain line with ball valve, origin line with ball valve, drain line with ball valve, origin line with ball valve, overflow & vent line, level gauge shall be provided. 1.4.8 INSULATED CHILLED WATER FINING with necessary fittings it leves, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vent set as a per specifications. This item shall cover the enlire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications). 1.4.9 MONSOON REHEATING KIT comprising strip heaters, safety controls, make up water piping from make up tank / nearest source of water, valves fittings etc. as per specifications. 1.4.10 HUMIDIFIER for each AHU room complete with humidistal, safety controls, make up water piping from make up tank / nearest source of water, valves fit	1.4.3		1	LOT			
1.4.5 CENTRIFUGAL PUMPS SECONDARY for chilled water recirculation complete with TEFC motor & all accessories as specified. 1.4.6 MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. Make up water line with float valve & backup, quick fill line with ball valve, drain line with capacity 1 Cubm. Tanks shall be PRP. Make up water line with float valve & backup, quick 1 NO 1.4.7 CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. Make up water line with float valve & backup, quick 1 NO INSULATED CHILLED WATER PIPING with necessary filtings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, all types of valves with flanges, all vents et as per specifications. This tiem shall cover the entire chilled water piping for AC plant room, all the AH-U rooms and FCUs and the interconnecting pipes between AC plant and AHus, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.) 1.4.9 MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. 1 LOT 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. as per 1 LOT sensors etc. 1 LOT FRESH AIR FANS (axial flow type), complete with material and finish as per specifications. 1 LOT FRESH AIR FANS (axial flow type), complete with motor, iniet cone, air fillers (per and fine), dampers, etc. 1 LOT LOT INITIAL FRESH AIR FANS (axial flow type), complete with motor, iniet cone, air fillers (per and fine), dampers, etc. 1 LOT LOT INITIAL FRESH AIR FANS (axial flow type), complete with motor, iniet cone, air fillers (per and fine), dampers, etc. 1 LOT LOT INITIAL FRESH AIR FANS (axial flow type), complete with motor, iniet cone, air fillers (per and fine), dampers, etc. 1 LOT LOT INITIAL FRESH AIR FANS (axial flow type), complete with		installation of fine filters					
1.4.6 MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. Make up water line with float valve & backup, quick fill line with ball valve, drain line with ball valve water line, level gauge shall be provided. 1.4.7 CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. 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. 1.4.8 INSULATED CHILLED WATER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents et as per specifications. This litem shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.). 1.4.9 MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. 1.4.10 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. as per 1 LOT 1.4.11 ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications. 1.4.11 ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications. 1.4.12 FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, and the cone air filters (pre and fine), dampers, and the cone air filters (pre and fine), dampers, and and an air filters (pre and fine), dampers, and an air file and an air filters (pre and fine), dampers, and an air filters (pre and fine), dampers, and an air filters (pre and fine), dampers, a			-				
overflow & vent line, level gauge shall be provided. 1.4.7 CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. Make up water line with float valve & backup, quick 1 NO Illi line with ball valve, drain line with ball valve, overflow & vent line, level gauge shall be provided. 1.4.8 INSULATED CHILLED WATER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers w			1				
1.4.7 CHILED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. Make up water line with float valve & backup, quick 1 INSULATED CHILED WATER PIPING with necessary fittings like fees, reducers, expanders, eibows, flanges, all types of valves with flanges, strainers with flanges, air vents etc as per specifications. This item shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.). 14.9 MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. 1 LOT 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. as per specification 1.4.11 ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications. 1 LOT FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air fillers (per and fine), dampers, etc. 1 LOT 1.4.13 Filled instruments like pressure gauge, pressure switch, fillow switch, flow weter, Pressure Transmitter, Temperature 1 LOT	1.4.0	overflow & vent line, level gauge shall be provided.		140			
1.4.8 INSULATED CHILLED WATER PIPING with necessary fittings like lees, reducers, expanders, elbows, flanges, all types of valves with flanges, sir and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.). 1.4.9 MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. 1.4.10 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. as per specification in the first for of ducting from AHU outlets with material and finish as per specifications. 1.4.11 ACOUSTIC (INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications. 1.1.11 FRESH AINS (axial flow type), complete with motor, inief cone, air filters (grean of fine), dampers, etc. 1.1.07 Indicating the first form of filter form. AHU outlets with material and fine), dampers, etc. 1.1.12 FRESH AINS (axial flow type), complete with motor, inief cone, air filters (grean of fine), dampers, etc. 1.1.13 Filed instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow witch,	1.4.7	CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. Make up water line with float valve & backup, quick	1	NO			
vents etc as per specifications. This item shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.). 14.9 MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. 1 LOT 1.4.10 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. as per 1 LOT 1.4.11 ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications. 1 LOT 1.4.12 FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc. 1.1.11 LOT 1.4.13 Field instruments like pressure gauge, temperature gauge, pressure switch, fillow switch, flow switch, flow meter, Pressure Transmitter, Temperature 1 LOT	1 4 0		1	LOT			
AC plant and AHÜs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.). 1.4.9 MONSOON REHEATING KIT comprising strip heaters, safely controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. 1.4.10 HUMIDIFIER for each AHU room complete with humidistat, safely controls, make up water piping from make up tank / nearest source of water, valves fittings etc. as per 1 LOT specification 1.4.11 ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications. 1.0.1 FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc. 1.4.12 FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc. 1.4.11 Filed instruments like pressure gauge, temperature gauge, pressure switch, filow switch, flow switch, flow meter, Pressure Transmitter, Temperature 1 LOT	1.4.0		'	LUI			
1.4.9 MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc. 1.4.10 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. as per 1 LOT 1.4.11 ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications. 1.4.11 FRESH AIR FAINS (axial flow type), complete with motor, inlet cone, air fillers (pre and fine), dampers, etc. 1.4.13 Fill instruments like pressure gauge, temperature switch, fillow switch, flow switch, flow weter, Pressure Transmitter, Temperature 1 LOT 1.4.13 Fill instruments like pressure gauge, temperature 2 to Time the cone, air fillers (pressure switch, differential pressure switch, fillow switch, flow weter, Pressure Transmitter, Temperature 1 LOT							
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. as per 1 LOT specification. ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications. 1 LOT 1.4.11 FEESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc 1 LOT Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature 1 LOT 1.4.13 Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature 1 LOT							
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. as per 1 LOT specification. ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications. 1 LOT 1.4.11 FEESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc 1 LOT Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature 1 LOT 1.4.13 Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature 1 LOT	1.4.0	NAMEGON DELICATING KIT comprising citie bodger, enfoly controls, air clat, contactors, frame work, thermostal 9 hymidistal segrees etc.	1	LOT			
specification 1.4.11 ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications. 1 LOT 1.4.12 FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc 1.4.13 Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature 1 LOT 1.4.13 Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature 1 LOT	1.4.10		1				
1.4.12 FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc 1 LOT 1.4.13 Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature 1 LOT		specification					
1.4.13 Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow switch, flow meter, Pressure Transmitter, Temperature 1 LOT			1				
Transmitter and flow Transmitter etg., including necessary control panel form book up with main DDCMIS as per specifications	1.1.12		1				
	1.7.13	Transmitter and flow Transmitter etc, including necessary control panel form hook up with main DDCMIS as per specifications	'	LUI			

	VOLUME-IIIA PRICE SCHEDULE. REV-01					
	PRICE SCHEDULE, REV-01 PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.					
	TENDER NO - PSER:SCT:KLN-M1876:18					
-	TENDER NO - PSER:SCL: SCH-3 - MAIN SUPPLY PRI					
1.4.14	Electrical Hot Water Generator of suitable Capacity to meet the requirement. Electrical Hot Water generator of vertical/ horizontal construction equipped with sufficient		NO*			
	number of flanges and electrical immersion heaters. The pressure vessel shall be constructed as per ASME standards and insulated on all sides with 100 mm thick					
	fibreglass. The hot water generator shall be equipped with all automatic and safety controls such as manual reset high temperature water outlet, step controller and					
	recycling relay, ON-OFF switch, thermostats, pilot light, 'ON' status of individual banks, low water cut off all as per manufacturers recommendations. All basic controls and					
	terminal shall be located in an internal control cabinet, factory wired and tested. The hot water generator shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power supply. (1w±1sh)					
1.5	Alfan (
1.5.1	DX type, air cooled condensing unit of 40TR (ACTUAL) capacity. The refrigerant compressor shall be Srew / Scroll, Open / Semi-hermetic type suitable for Refrigerant R	2	NO			
	134a / R-407c / R-410a environment friendly HFC refrigerants with drive package (for open type compressor only), 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, Redundancy micro processer panel as per specification, accessories,					
	radinate extental wining. The unit stand to complete with expansion rade, an necessary nitings, recontingney micro processer parier as per specification, accessories, insulated refrigerent ioning to and from AHUs, foundation bolts, nuts, washers etc complete in all respect.					
1.5.2	Sheet metal cabinet type air handling units (double skin as per specification) The draw through horizontal AHUs shall comprise of , Dampers, Filters (pre filter and fine	2	NO			
	filters with DP gauge across filters), DX- cooling coil Fan section with fan & TEFC sq cage induction motor, VVVFD, drive set, face and bypass damper with modulating					
	motor, condensate drain pan, thermostatic controls and other accessories to meet the AC load of Water system control room area. S.P minimum 60mm.					
1.5.3	MONSOON REHEATING / WINTER HEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT	+ + + + + + + + + + + + + + + + + + + +		
1.0.0	Supposing Suppos	'	201			
1.5.4	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. as per	1	LOT			
1.5.5	specification		107	 		
1.5.5	ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications. FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (ore and fine), damoers, etc	1	LOT			
1.5.7	FRESH PARK PAIRS (askial now type), complete with minor, inter Cone, an inters type and inter), dampers, etc. Field instruments like pressure gauge, tensperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature	1	LOT	+ + + + + + + + + + + + + + + + + + + +		
	Transimiliter and flow Transmitter etc, including necessary control panel form hook up with main DDCMIS as per specifications					
1.6	Common items for all AC Plants of AC system					
1.6.1	FAN COIL UNIT consisting of chilled water cooling coil, blower, motor, drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls and other					
1611	accessories 3.0TR	2	NO*			
1.6.1.2	3.01K 2.0TR	2	NO*	+ + + + + + + + + + + + + + + + + + + +		
1.6.1.3	1.5TR	2	NO*			
1.6.2	Fire damper.					
1.6.2.1	Fire damper with auto resetting, limit switches, indication lamps etc. Motorized actuator with single phase power supply for the above fire damper.	50 60	SQM* NO*			
1.0.2.2	wordinged actuary with shipting prose power supply for the above me damper. Fusible link type fire damper.	10	NO*	-		
1.6.3	Grills / Dilysers / Volume control dampers etc for all the AC Plants	10	110	1		
1.6.3.1	SUPPLY AIR DIFFUSERS / GRILLS with VCD (Extruded Aluminium powder coated) complete with fixing frames, nuts, bolts, gaskets, washers etc	150	SQM*			
1.6.3.2	RETURN AIR DIFFUSERS / GRILLS without VCD (Extruded Aluminium powder coated) complete with fixing frames, nuts, bolts, gaskets, washers etc	200	SQM*			
1.6.3.3	VOLUME CONTROL DAMPERS (Manual) in GI construction as per specifications for supply / return ducts complete with fixing arrangement. VOLUME CONTROL DAMPERS (Motorized) in GI construction as per specifications for supply / return ducts complete with fixing arrangement.	15 15	SQM*			
1.7	TO CONTROL DAWFERS (MOIOTIZED) in Grootstudion as per specifications for supply / return ducts complete with hairing an angement. BITI Meler	10	NO*	+ + + + + + + + + + + + + + + + + + + +		
1.8	VARIABLE AIR VOLUME (VAV) BOXES complete with damper, differential pressure sensor, motorized damper, actuator, motorized aluminium construction damper with					
	actuator, cooling / heating thermostat with ON/OFF control, differential pressure sensor, 24 Volt power supply unit for each VAV box, controller capable of accepting					
	analogue signal from Co2 Sensore/Thermostate and output to damper actuator. Distribution board floor wise of service, admistrative canteen and auditorium building,					
181	VAV boxes shall be suitable for following air flow capacitties.	4	NO*	+ + + + + + + + + + + + + + + + + + + +		
1.8.2	30 - 4977-CFM	4	NO*			
1.8.3	600-790 CFM	4	NO*			
1.8.4	800 -990CFM	4	NO*			
1.8.5	1000 -1100CFM	4	NO*	+ + + + + + + + + + + + + + + + + + + +		
1.8.7	1101-1500-FM 1501-2000-FM	4	NO*			
1.8.8	1501 2500CFM 2001 3000CFM	4	NO*			
1.8.9	3001 -4000CFM	4	NO*			
1.9	DX type, air cooled condensing unit of 30TR (ACTUAL) capacity. The refrigerant compressor shall be Srew / Scroll, Open / Semi-hermetic type suitable for Refrigerant R-	1	NO*			
	134a / R-407c / R-410a environment friendly HFC refrigerants with drive package (for open type compressor only), 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					
	expansion vaive, crank case neater etc. A control panel shall be provided to nouse 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 refrigerent piping to and from AHUs, foundation					
	bolts, nuts, washers etc complete in all respect.					
1.10	Sheet metal cabinet type air handling units (double skin as per specification) Suitable capacity of 30TR DX condensing unit. The draw through horizontal AHUs shall	1	NO*			
	comprise of , Dampers, Filters (pre filter and fine filters with DP gauge across filters), DX- cooling coil Fan section with fan & TEFC sq cage induction motor, VVVFD, drive					
	set, face and bypass damper with modulating motor, condensate drain pan, Heater and Humidification, Instruments, thermostatic controls and other accessories. S.P. minimum 60mm.					
1.11	ininimum burn. DX type, air cooled condensing unit of 60TR (ACTUAL) capacity. The refrigerant compressor shall be Srew / Scroll, Open / Semi-hermetic type suitable for Refrigerant R-	2	NO*			
	134a / R-407c / R-410a environment friendly HFC refrigerants with drive package (for open type compressor only), 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 refrigerent piping to and from AHUs, foundation					
	bolts, nuts, washers etc complete in all respect.		L			

	VOLUME-IIIA PRICE SCHEDULE, REV-01								
	PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Con			2x660 MW Maitree Super Thermal Power Project, Rampal,	Bangladesh.				
	TENDER NO - PSER:SCT:KLN-M1876:18								
	SCH-3 - MAIN SUPPLY PRI								
1.12	Sheet metal cabinet type air handling units (double skin as per specification) Sultable capacity of 60TR DX condensing unit. The draw through horizontal AHUs shall	2	NO*						
	comprise of , Dampers, Filters (pre filter and fine filters with DP gauge across filters), DX- cooling coil Fan section with fan & TEFC sq cage induction motor, WVFD, drive set, face and bypass damper with modulating motor, condensate drain pan, Heater and Humidification, Instruments, thermostatic controls and other accessories. S.P.								
	set, lace and bypass damper with modulating motor, condensate drain pan, Heater and Humidilication, instruments, thermostatic controls and other accessories. S.P. minimum 60mm.								
1.13	infiliation could. MS medium class Insulated drain Water Piping from various equipment like AHUs (including equalising line), FCUs, chilled water pumps etc upto nearest								
	available drain point with necessary fittings like tees, reducers, expanders, elbows, flanges, valves with flanges, P trap etc as per specifications.								
1.13.1	50mm	300	Rmt*						
1.13.2	40mm	300	Rmt*						
1.14	AC System for Aux. building for unit#1 & 2)								
1.14.1	Air Cooled PAC-Unit complete with all accessories as specified The package unit shall be complete with all accessories like duct hetaers, humidifier, filters, acoustic								
1.14.1.1	insulation of duct for 5m from PU, drain piping with insulation upto nearest drain, required instrumentation etc 10 TR net capacity	1	NO*						
1.14.1.1	TO Fix tiest capacity T5 TR net capacity	1	NO*						
1.14.1.2	Is in the capeacity AC Unit complete with all accessories as specified The package unit shall be complete with all accessories like duct hetaers, humidifier, filters,		110						
	acoustic insulation of duct for 5m from PU, drain piping with insulation upto nearest drain, required instrumentation etc.								
1.14.2.1	10 TR net capacity	1	NO*						
1.14.2.2	15 TR net capacity	1	NO*						
1.15	Air Cooled Scroll Chiller								
1.5.1	Air Cooled Scroll Chiller actual 10TR capacity								
1.15.1.1	Air Cooled Scroll Chiller actual 10TR capacity consisting scroll refrigerant compressor complete with motors, control panel, multi driveset, control and interlocks and air	1	NO*						
1.15.1.2	cooled condenser of matching capacity, shell & tube type water chiller & other accessories Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ heating coil, centrifugal blower, TEFC sq cage induction motor, VVVFD			 					
1.13.1.2	drive set, filters (pre filter and fine), 3 way motorised mixing valve with thermostatic control, control panel and other accessories to meet the AC load. S.P minimum								
	60mm.	1	NO*						
1.15.1.3	Chilled water Pump of suitable capacity	2	NO*						
1.15.1.4	MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. Make up water line with float valve & backup, quick fill line with ball valve, drain line with ball valve,	1	NO*						
44545	overflow & vent line, level gauge shall be provided.		Not						
1.15.1.5	CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. Make up water line with float valve & backup, quick fill line with ball valve, drain line with ball valve, overflow & vent line, level qauge shall be provided.	1	NO*						
1.15.1.6	in the win ball valve, train the wint ball valve, overhow a vertice time, ever gauge stant be provided. INSULATED CHILLED WHER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air	1	LOT*						
1.13.1.0	vents etc as per specifications. This them shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between		201						
	AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.).								
1.15.1.7	MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT*						
1.15.1.8	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. as per specification	1	LOT*						
1.15.1.9	Specifications. ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	1	LOT*						
1.15.1.10	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT*						
1.15.1.11	Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature	1	LOT*						
	Transimiliter and flow Transmitter etc, including necessary control panel form hook up with main DDCMIS as per specifications								
1.15.1.12	Electrical Hot Water Generator of suitable Capacity to meet the requirement- Electrical Hot Water generator of vertical/ horizontal construction equipped with sufficient	2	Nos*						
	number of flanges and electrical immersion heaters. The pressure vessel shall be constructed as per ASME standards and insulated on all sides with 100 mm thick		1						
	fibregiass. The hot water generator shall be equipped with all automatic and safety controls such as manual reset high temperature water outlet, step controller and recycling relay, ON-OFF switch, thermostats, pilot light, "ON' status of individual banks, low water out off all as per manufacturers recommendations. All basic controls and								
1	recycling relay, ON-OFF switch, thermostats, pilot light, "ON" status of individual banks, low water cut oil all as per manufacturers recommendations. All basic controls and terminal shall be located in an internal control cabinet, factory wired and tested. The hot water generator shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power		1						
	termina stante e occare in an interna como cabinet, factory when and tested. The not water generator stant be suitable to 415 ± 10.8 votes, 30 cycles, 3 phase power sundiv. (194-1sh)								
1.15.2	Air Cooled Scroll Chiller actual 20TR capacity								
1.15.2.1	Air Cooled Scroll Chiller actual 20TR capacity consisting scroll refrigerant compressor complete with motors, control panel, multi driveset, control and interlocks and air	1	NO*						
4 4 5 5 5	cooled condenser of matching capacity, shell & tube type water chiller & other accessories	<u> </u>							
1.15.2.2	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ heating coil, centrifugal blower, TEFC sq cage induction motor, WVFD								
	drive set, filters (pre filter and fine), 3 way motorised mixing valve with thermostatic controls, control panel and other accessories to meet the AC load. S.P minimum 60mm.	1	NO*						
	OOTHIL.								
1.15.2.3	Chilled water Pump of suitable capacity	2	NO*						
1.15.2.4	MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. Make up water line with float valve & backup, quick fill line with ball valve, drain line with ball valve,	1	NO*						
	overflow & vent line, level gauge shall be provided.								
1.15.2.5	CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. Make up water line with float valve & backup, quick	1	NO*						
1.15.2.6	fill line with ball valve, drain line with ball valve, overflow & vent line, level gauge shall be provided. INSULATED CHILLED WATER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air	1	LOT*	 					
1.10.2.0	INSULATED CHILLED WATER PIPING with necessary intings like tees, reducers, expanders, eidows, rianges, air types of varies with rianges, strainers with rianges, are very some of the interconnecting pipes between verified and the interconnecting pipes between		LUI						
1	AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.).		1						
	MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT*						
1.15.2.8	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. as per specification	1	LOT*						
	Specification				1				

VOLUME-III <i>A</i>				
PRICE SCHEDULE,	REV-0	1		
PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Com	ditionin	ng System for	2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.	
T1072 No. 2073 AV				
TENDER NO - PSER:SCT: SCH-3 - Main Supply PRI				
1.152.9 ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	LE BRI	LOT*		1
1.13.2.10 FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air fillers (pre-and fine), dampers, etc	1	I OT*	+ + + + + + + + + + + + + + + + + + + +	
1.15.2.11 Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature	1	LOT*		
Transimiliter and flow Transmitter etc, including necessary control panel form hook up with main DDCMIS as per specifications				
1.15.2.12 Electrical Hot Water Generator of suitable Capacity to meet the requirement- Electrical Hot Water generator of vertical/ horizontal construction equipped with sufficient	2	Nos*		
number of flanges and electrical immersion heaters. The pressure vessel shall be constructed as per ASME standards and insulated on all sides with 100 mm thick	.			
fibreglass. The hot water generator shall be equipped with all automatic and safety controls such as manual reset high temperature water outlet, step controller and	1 1			
recycling relay, ON-OFF switch, thermostats, pilot light, 'ON' status of individual banks, low water cut off all as per manufacturers recommendations. All basic controls and	1 1			
terminal shall be located in an internal control cabinet, factory wired and tested. The hot water generator shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power				
SUDDIV WEIST)	$\vdash \vdash$		<u> </u>	
interconnecting refrigerant piping as per site requirement & filtings with insulation, cordless remote, electrical power cord upto the nearest available point along with				
isolator / MCB, fixing frame for indoor and outdoor unit, Stablizer,etc.				
.16.1 5.0 TR capacity (ductable type, 415 V, 3 phase with isolation switch).	2	NO*		
1.16.2 2.0 TR capacity (non-ductable type, 240 V, 1 phase isolation switch) with isolation switch, i.e MCB of suitable rating as specified.	80	NO*	 	
 1.16.3 1.5 TR capacity (non-ductable type, 240 V, 1 phase isolation switch) with isolation switch, i.e MCB of suitable rating as specified. 1.16.4 1.5 TR capacity (Casette type, 240 V, 1 phase isolation switch) with isolation switch, i.e MCB of suitable rating as specified. 	80 10	NO*	+ + + + + + + + + + + + + + + + + + + +	
1.16.4 1.5 H Capacity (Lasette type, 240 v, 1 prase solation switch) with solation switch, Le MCB of suitable rating as specified. 1.6.5 2.0 T Capacity (Casette type, 240 v, 1 phase solation switch) with solation switch, Le MCB of suitable rating as specified.	10	NO*	+ + + + + + + + + + + + + + + + + + + +	
2.0 The capacity (Casette type, 240 V, 1 phase isolation switch) with isolation switch; he MCB of suitable rating as specified. 3.0 TR capacity (Casette type, 240 V, 1 phase isolation switch) with isolation switch; he MCB of suitable rating as specified.	10	NO*	 	
Minually operated, platform trolley of 1 Ton capacity with base area 2m x 1.5m	6	NO*		
.18 Air Curtain				
1.18.1 For Minimum door height 3M and wiidth 900MM	4	NO*		
1.18.2 For Minimum door height 3M and wiidth 1200MM	4	NO*		
1.18.3 For Minimum door height 3M and wiidth 1800MM	4	NO*		
1.18.4 For Minimum door height 3M and wiidih 2100MM 1.19 Handling Arrangement for AC Equipments	4	NO*	 	
randomy artangement of AC Equipments 1.19 TELECTRIC HOLD ACT AC Plant as per specification	1	NO*	+ + + + + + + + + + + + + + + + + + + +	
119.2 I Chain Pulley Block arrangment for AC plant/ equipments as per specification	1	NO*	+ + + + + + + + + + + + + + + + + + + +	
1.19.3 1T Chain Pulley Block arrangment for AC Plant/ equipments as per specification	16	NO*		
1.20 Accoutic Insulation of walls of AHU/PU room as per Specification, Sound baffles, attenuators and Vibration eliminators	2000	SQM*		
Total price for Start-up and commissioning spares.	1	LOT		
(Bidder shall submit item-wise break-up in techno-commercial offer as well as in price offer)	السل			
Total price for maintenance tools & tackles.	1	LOT		
(Bidder shall submit item-wise break-up in techno-commercial offer as well as in price offer)				
1.23 Electrical Items like Junction box for control & instrumentation cable, Any special type of cable like compensating, co-axial, prefab, MICC, optical fibre, 100/50 mm cable		İ		
trays/ Conduits/ Galvanised steel cable troughs for local cabling , Cable glands ,lugs and bimetallic strip for equipment supplied by Vendor, Conduit and conduit				
accessories for cabling between equipment supplied by vendor, LT Motors with base plate and foundation hardware, etc., Details as per electrical specification and scope.	1	LOT		
		İ		
		İ		
1.24 Any other item required for Service Building, Administrative Building, Auditorium and Canteen Building to make these buildings. Green Building compliant to minimum		LOT		
LEEDs GOLD rating.	1	LOT		
1.25 Any other item not indicated above, but required to make the system complete in all respects.	1	LOT		
FOTAL AMOUNT-SUPPLY		·		
NOTE			00110	
While break-up of main supply price (77.5%) w.r.t. total price is frozen in SCH-2. Further break-up of main supply price into various supply components is to be provided by	y biadei	as per above S	SUH-3.	
2.0 Other incidental charges shall include custom clearance, port handling, freights, etc. charges				
to the includental charges shall include custom clearance, port nandling, freights, etc. charges Bidder has to furnish detail break-up of price of individual item as per above prescribed format.				
Total amount shall correspond to sl no 1.0 of SCH-2.	A- DUS			
Any item/quantity not specifically indicated in this break up but required as per system requirement, shall be supplied by vendor without any additional financial implication	to BHF	.L.		
5.0 The hidder shall furnish unit rates for variable item marked with (*) (e.g. sunnly grilles (with and without VCD), fire damner for all the AC Digits Darkson AC Shill AC Link	s FCII	s etc) for neces	ssary adjustment (plus or minus) variation during detailed engal stage. The unit rate	s quoted above shall be considered and no separate unit rat
		s only for fields:	say adjasmon (plus or minus) variation during detailed engy, stage. The drift fale:	s queres above shall be considered and no separate drift rat
Any item/quantity not specifically indicated in this break up but required as per system requirement, shall be supplied by vendor without any additional financial implication The bidder shall furnish unit rates for variable item marked with(*) (e.g. supply grilles (with and without VCD), fire damper for all the AC Plants, Package AC, Split AC Unit shall be quoted. Unit rates shall be valid throughout the contract. Final qty, shall be paid as per actual measurment at site for supply as well as erection for all the variable in the variab	ts, FCUs		ssary adjustment (plus or minus) variation during detailed engg. stage. The unit rate:	s quoted above shall be considered and no sepa

PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.

TENDER NO - PSER:SCT:KLN-M1876:18

	SCH-4 - START-UP & COMN	<u> </u>	SPARES F	RICE BREAK-L	JP			
SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY	QUOTED COMPONENT OF ALLOCATION (IN INR)					
			UNIT BASIC PRICE	OTHER INCIDENTAL UNIT CHARGES	TOTAL UNIT PRICE	AMOUNT		
(1)	(2)	(3)	(4)	(5)	(6) = (4)+(5)	$(7) = (6)^*(3)$		
BREAK-L	IP OF S&C SPARES PRICE, SL NO 1.21 OF SCH-3	•						
1.0								
2.0								
3.0								
TOTAL (S	S&C SPARES)							
NOTE								
1.0	Bidder may attach separate sheet to furnish detaile 3, Sl. No. 1.21.	d item-wise b	reak-up of ab	ove items correspo	onding to quote	d price in SCH-		

Other incidental charges shall include custom clearance, port handling, freights, etc. charges

2.0

VOLUME-IIIA PRICE SCHEDULE, REV-01									
PACK	AGE-A: Design, Engineering, Manufacturing	, Supply, I	rection & Co	ommissioning	, etc. of Air	Conditioning			
	System for 2x660 MW Maitree Supe			•	angladesh.				
	TENDER NO -								
	SCH-5 - MAINTENANCE TOOLS	T							
SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY	QUOTE	D COMPONENT	OF ALLOCATIC	ON (IN INR)			
			UNIT BASIC PRICE	OTHER INCIDENTAL UNIT CHARGES	TOTAL UNIT PRICE	AMOUNT			
(1)	(2)	(3)	(4)	(5)	(6) = (4)+(5)	$(7) = (6)^*(3)$			
BREAK-L	JP OF TOOLS & TACKLES FOR MAINTENANCE SUPPL	Y PRICE, SL	NO 1.22 OF SC	:H-3					
1.0									
2.0									
3.0									
ΓΟΤΑL (I	MAINTENANCE TOOLS & TACKLES)								
NOTE									
.0	Bidder may attach separate sheet to furnish detailed 3, Sl. No. 1.22.	d item-wise	oreak-up of abo	ove items corresp	oonding to quot	ed price in SCF			
2.0	Other incidental charges shall include custom clear	ance, port h	andling, freight	s, etc. charges					

PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh. TENDER NO - PSER:SCT:KLN-M1876:18 SCH-6 - MANDATORY SPARES SL NO DESCRIPTION OF EQUIPMENT/ ITEM QUANTITY QUOTED COMPONENT OF ALLOCATION (IN INR) UNIT BASIC OTHER INCIDENTAL TOTAL UNIT UNIT CHARGES PRICE (3) (4) (5) (6) = (4)+(5) (7) = (6)*(3)BREAK-UP OF MANDATORY SPARES SUPPLY PRICE, SL NO 4.0 OF SCH-2 Screw Compressor Chilling Machine for each type / rating / model(if supplied for the project) Oil filter - O ring 1 Set 1.2 Refrigerant filter 1 Set 1.3 Master solenoid valve 1 Set Master solenoid valve coil 1 Set Air handling unit (for each model) V-belts for AHU Blower 2 Sets AHU Blower bearing 1 Set Blower motor bearing 1 Set Filters at suction and discharge of all AHUs 25% of installed population **Electrical Actuators** Actuators 10% or 1 No. of each type, model and rating, whichever is more. Control & Instrumentation Air-Conditioning System Electronic Transmitters 4.1.1.1 Transmitters of all types and model no. (for the measurement of pressure, differential pressure flow, level, 15% or 1 Nos. of each make, model and type whichever is more temperature etc.) (to be divided to various ranges in proportion to main population) 4.1.2 Temperature elements 4.1.2.1 RTD's 5% or 1 No. which ever is more** 4.1.2.2 Thermo well *(With head assembly, terminal block and nipple) 5% or 1 No. which ever is more**** (to be divided into various insertion lengths in proportion to main population)

5% or 1 Nos. of each make, model and type whichever is more (to be divided to various ranges in proportion to main population of all make, model and type)

4.1.2.3 All types of Local indicators

	5% or 1 Nos. of each type, class, size and model whichever is more.						
Relative Humidity Sensors	2 Nos.						
Geyserstat	2 Nos.						
Local Humidity / Temperature indicators	2 Nos. each						
Process Connection Piping (for Impulse Piping / Tubing, Sampling Piping / Tubing and Air Supply Piping as Applicable)							
Valves	10% or 1 Nos. of each type, class, size and model whichever is						
	more.						
2 way, 3way, 5way valve manifolds	10% or 1 Nos. of each type, class, size and model whichever is						
	more.						
Fittings	10% or 1 Nos. of each type, class, size and model whichever is						
	more.						
PRICE (MANDATORY SPARES)							
The above list is to be read in conjunction with description given under Annexure III clause no. B0.3.8.1.							
Apart from items mentioend above, other additional spares as per clause no. B0.3.8.1 -1 (b) Annexure	III of List of Mandatory Spares of Specification -necessary to repair , operate , repair / maintain the plant to achieve gurantee						
avaialbity during warranty period and maintain plant efficiency is included in bidder's scope of supply. No separate cost for the same will be payable by BHEL.							
Bidder may attach separate sheet to furnish detailed ite-wise break-up of mandatory spares corresponding	to allocation in SCH-2, Sl. No. 4.0.						
Other incidental charges shall include custom clearance, port handling, freights, etc. charges							
	temperature, and differential temperature, level switch Devises. Relative Humidity Sensors Geyserstat Local Humidity / Temperature indicators Process Connection Piping (for Impulse Piping / Tubing, Sampling Piping / Tubing and Air Supply Piping as Applicable) Valves 2 way, 3way, 5way valve manifolds Fittings PRICE (MANDATORY SPARES) The above list is to be read in conjunction with description given under Annexure III clause no. B0.3.8.1. Apart from items mentioend above, other additional spares as per clause no. B0.3.8.1 - I (b) Annexure availabity during warranty period and maintain plant efficiency is included in bidder's scope of supply. No si						

PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.

TENDER NO - PSER:SCT:KLN-M1876:18

SCH-7 - MAIN SERVICE PRICE BREAK-UP

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM		ΓΥ	QUOTED PRICE (IN INR)		
				UNIT PRICE	AMOUNT	
(1)	(2)	(3)		(4)	$(5) = (4)^*(3)$	
BREAK-U	REAK-UP OF MAIN SERVICE PRICE, SL NO 2.0 OF SCH-2					
1.1	AC PLANT -1					
	(Main control room areas in power house building)					
1.1.1	AIR COOLED SCREW CHILLERS package, each of actual 175 TR capacity consisting of Screw refrigerant compressor complete with motors, control panel, Redundant micro processer panel as per specification, multi drive set, controls and interlocks other accessories as specified, air cooled condenser of matching capacity, shell & tube type water chiller & other accessories, as specified. The refrigerant shall be R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package as specified.	3	NO			
1.1.2	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ heating coil (coil shall be same for cooling and heating), centrifugal blower, TEFC sq cage induction motor, VVVFD drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls, control panel and other accessories to meet the AC load of control room areas at +17.00 M of power house building. S.P minimum 125mm.	3	NO			
1.1.3	FINE FILTERS in Common discharge plenum for AHUs at 24.0 M level, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of fine filters.	1	LOT			
1.1.4	HEPA FILTERS in discharge for AHUs at 24.0 M level, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of HEPA filters.	1	LOT			
1.1.5	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ heating (coil shall be same for cooling and heating), centrifugal blower, TEFC sq cage induction motor, VVVFD drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls, control panel and other accessories to meet the AC load of control room areas at +8.5.00 M of power house building. S.P minimum 125mm.	2	NO			

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUAN	TITY	QUOTED PRICE (IN IN		
				UNIT PRICE	AMOUNT	
(1)	(2)	(3)		(4)	$(5) = (4)^*(3)$	
1.1.6	FINE FILTERS in Common discharge plenum for AHUs at 8.5 M level, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of fine filters	1	LOT			
1.1.7	HEPA FILTERS in discharge for AHUs at 8.5 M level, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of HEPA filters	1	LOT			
1.1.8	CENTRIFUGAL PUMPS for chilled water recirculation complete with TEFC motor & all accessories as specified Pump shall be 2x100% or 3x50% configuration, to be decided during detailed engineering by BHEL.	1	LOT			
1.1.9	MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. 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	1	NO			
1.1.10	CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. 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	1	NO			
1.1.11	INSULATED CHILLED WATER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents etc as per specifications. This item shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.).	1	LOT			
1.1.12	MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT			
1.1.13	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. as per specification	1	LOT			
1.1.14	ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	1	LOT			
.1.15	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT			
1.1.16	Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature Transmitter and flow Transmitter etc., including necessary control panel form hook up with main DDCMIS as per specification	1	LOT			
1.1.17	Electrical Hot Water Generator of suitable Capacity to meet the requirement- Electrical Hot Water generator of vertical/ horizontal construction equipped with sufficient number of flanges and electrical immersion heaters. The pressure vessel shall be constructed as per ASME standards and insulated on all sides with 100 mm thick fibreglass. The hot water generator shall be equipped with all automatic and safety controls such as manual reset high temperature water outlet, step controller and recycling relay, ON-OFF switch, thermostats, pilot light, 'ON' status of individual banks, low water cut off all as per manufacturers recommendations. All basic controls and terminal shall be located in an internal control cabinet, factory wired and tested. The hot water generator shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power supply. (2	Nos*			

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM		TY	QUOTED PF	RICE (IN INR)
			(3)		AMOUNT
(1)	(2)				$(5) = (4)^*(3)$
1.2	AC plant-2 & 3 (ESP Control Room Building) for Unit-1&2				
1.2.1	134a / R-407c / R-410a environment friendly HFC refrigerants with drive package (for open type compressor only), 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, Redundancy micro processer panel as per specification, accessories, insulated refrigerent piping to and from AHUs, foundation bolts, nuts, washers etc complete in all respect.	4	NO		
1.2.2	Sheet metal cabinet type air handling units (double skin as per specification) The draw through horizontal AHUs shall comprise of , Dampers, Filters (pre filter and fine filters with DP gauge across filters), DX- cooling coil Fan section with fan & TEFC sq cage induction motor, VVVFD, drive set, face and bypass damper with modulating motor, condensate drain pan, thermostatic controls, control panel and other accessories to meet the AC load of ESP control room area. S.P minimum 60mm.	4	NO		
1.2.3	MONSOON REHEATING / WINTER HEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT		
1.2.4	HUMIDIFIER for each AHU room complete with humidistat, safety controls, make up water piping from make up tank / nearest source of water, valves fittings etc	1	LOT		
1.2.5	ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	1	LOT		
1.2.6	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT		
1.2.7	Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature Transmitter and flow Transmitter etc, including necessary control panel form hook up with main DDCMIS as per specification	1	LOT		
1.3	AC plant-4 (Service Building)				
1.3.1	AIR COOLED SCREW CHILLERS package, each of actual 250 TR capacity consisting of Screw refrigerant compressor complete with motors, control panel, Redundancy micro processer panel as per specification, multi drive set, controls and interlocks other accessories as specified, air cooled condenser of matching capacity, shell & tube type water chiller & other accessories, as specified. The refrigerant shall be R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package as specified.	2	NO		
1.3.2	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ heating coil (coil shall be same for cooling and heating), centrifugal blower, TEFC sq cage induction motor, VVVFD drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls, control panel and other accessories to meet the AC load requirement of Service Building . S.P minimum 60mm.	10	NO		
1.3.3	FINE FILTERS in Common discharge plenum for AHUs of service building, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of fine filters	1	LOT		
1.3.4	CENTRIFUGAL PRIMARY PUMPS for chilled water recirculation complete with TEFC motor & all accessories as specified	2	NO		

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM		QUANTITY		RICE (IN INR)
				UNIT PRICE	AMOUNT
(1)	(2)	(3)		(4)	$(5) = (4)^*(3)$
1.3.5	CENTRIFUGAL SECONDARY PUMPS for chilled water recirculation complete with TEFC motor & all accessories as specified	2	NO		
1.3.6	MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. 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	1	NO		
1.3.7	CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. 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	1	NO		
1.3.8	INSULATED CHILLED WATER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents etc as per specifications. This item shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.).	1	LOT		
1.3.9	MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT		
1.3.10	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. as per specification.	1	LOT		
1.3.11	ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	1	LOT		
1.3.12	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT		
1.3.13	Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature Transmitter and flow Transmitter etc, including necessary control panel form hook up with main DDCMIS as per specification	1	LOT		
1.3.14	Electrical Hot Water Generator of suitable Capacity to meet the requirement- Electrical Hot Water generator of vertical/ horizontal construction equipped with sufficient number of flanges and electrical immersion heaters. The pressure vessel shall be constructed as per ASME standards and insulated on all sides with 100 mm thick fibreglass. The hot water generator shall be equipped with all automatic and safety controls such as manual reset high temperature water outlet, step controller and recycling relay, ON-OFF switch, thermostats, pilot light, 'ON' status of individual banks, low water cut off all as per manufacturers recommendations. All basic controls and terminal shall be located in an internal control cabinet, factory wired and tested. The hot water generator shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power supply. (1w+1sh)	2	NO*		
1.4	AC plant-5 (Administrative Building)				
1.4.1	AIR COOLED SCREW CHILLERS package, each of actual 225 TR capacity consisting of Screw refrigerant compressor complete with motors, control panel, Redundancy micro processer panel as per specification, multi drive set, controls and interlocks other accessories as specified, air cooled condenser of matching capacity, shell & tube type water chiller & other accessories, as specified. The refrigerant shall be R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package as specified.	2	NO		
1.4.2	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ heating coil (coil shall be same for cooling and heating), centrifugal blower, TEFC sq cage induction motor, VVVFD drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls, control panel and other accessories to meet the AC load requirement of Administrative Building . S.P minimum 60mm.	8	NO		
1.4.3	FINE FILTERS in Common discharge plenum for AHUs of service building, complete with fixing frame, nuts, bolts, washers and other items required for complete installation of fine filters	1	LOT		
1.4.4	CENTRIFUGAL PUMPS PRIMARY for chilled water recirculation complete with TEFC motor & all accessories as specified	2	NO		
1.4.5	CENTRIFUGAL PUMPS SECONDARY for chilled water recirculation complete with TEFC motor & all accessories as specified	2	NO		
1.4.6	MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. 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	1	NO		

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY		QUOTED PR	RICE (IN INR)
				UNIT PRICE	AMOUNT
(1)	(2)	(3)		(4)	$(5) = (4)^*(3)$
1.4.7	CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. 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	1	NO		
1.4.8	INSULATED CHILLED WATER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents etc as per specifications. This item shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.).	1	LOT		
1.4.9	MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT		
1.4.10	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. as per specification	1	LOT		
1.4.11	ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	1	LOT		
1.4.12	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT		
1.4.13	Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature Transmitter and flow Transmitter etc, including necessary control panel form hook up with main DDCMIS as per specification	1	LOT		
1.4.14	Electrical Hot Water Generator of suitable Capacity to meet the requirement- Electrical Hot Water generator of vertical/ horizontal construction equipped with sufficient number of flanges and electrical immersion heaters. The pressure vessel shall be constructed as per ASME standards and insulated on all sides with 100 mm thick fibreglass. The hot water generator shall be equipped with all automatic and safety controls such as manual reset high temperature water outlet, step controller and recycling relay, ON-OFF switch, thermostats, pilot light, 'ON' status of individual banks, low water cut off all as per manufacturers recommendations. All basic controls and terminal shall be located in an internal control cabinet, factory wired and tested. The hot water generator shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power supply. (2	NO*		
1.5	AC plant-6 (Auditorium Building)				
1.5.1	DX type, air cooled condensing unit of 40TR (ACTUAL) capacity. The refrigerant compressor shall be Srew / Scroll, Open / Semi-hermetic type suitable for Refrigerant R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package (for open type compressor only), 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, Redundancy micro processer panel as per specification, accessories, insulated refrigerent piping to and from AHUs, foundation bolls, puts, washers etc. complete in all respect.	2	NO		
1.5.2	Sheet metal cabinet type air handling units (double skin as per specification) The draw through horizontal AHUs shall comprise of , Dampers, Filters (pre filter and fine filters with DP gauge across filters), DX- cooling coil Fan section with fan & TEFC sq cage induction motor, VVVFD, drive set, face and bypass damper with modulating motor, condensate drain pan, thermostatic controls and other accessories to meet the AC load of Water system control room area. S.P minimum 60mm	2	NO		

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM		ITY	QUOTED PRICE (IN INF		
				UNIT PRICE	AMOUNT	
(1)	(2)	(3)		(4)	$(5) = (4)^*(3)$	
1.5.3	MONSOON REHEATING / WINTER HEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT			
1.5.4	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. as per specification	1	LOT			
1.5.5	ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	1	LOT			
1.5.6	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT			
1.5.7	Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature Transmitter and flow Transmitter etc, including necessary control panel form hook up with main DDCMIS as per specification	1	LOT			
1.6	Common items for all AC Plants of AC system		1			
1.6.1	FAN COIL UNIT consisting of chilled water cooling coil, blower, motor, drive set, filters (pre filter), 3 way motorised mixing valve with thermostatic controls and other accessories					
1.6.1.1	3.0TR	2	NO*			
1.6.1.2	2.0TR	2	NO*			
1.6.1.3	1.5TR	2	NO*			
1.6.2	Fire damper.					
1.6.2.1	Fire damper with auto resetting, limit switches, indication lamps etc.	50	SQM*			
1.6.2.2	Motorized actuator with single phase power supply for the above fire damper.	60	NO*			
1.6.2.3	Fusible link type fire damper.	10	NO*			
1.6.3	Grills / Diffusers / Volume control dampers etc for all the AC Plants					
1.6.3.1	SUPPLY AIR DIFFUSERS / GRILLS with VCD (Extruded Aluminium powder coated) complete with fixing frames, nuts, bolts, gaskets, washers etc	150	SQM*			
1.6.3.2	RETURN AIR DIFFUSERS / GRILLS without VCD (Extruded Aluminium powder coated) complete with fixing frames, nuts, bolts, gaskets, washers etc	200	SQM*			
1.6.3.3	VOLUME CONTROL DAMPERS (Manual) in GI construction as per specifications for supply / return ducts complete with fixing arrangement.	15	SQM*			
1.6.3.4	VOLUME CONTROL DAMPERS (Motorized) in GI construction as per specifications for supply / return ducts complete with fixing arrangement.	15	SQM*			
1.7	BTU Meter	10	NO*			
1.8	VARIABLE AIR VOLUME (VAV) BOXES complete with damper, differential pressure sensor, motorized damper, actuator, motorized aluminium construction damper with actuator, cooling / heating thermostat with ON/OFF control, differential pressure sensor, 24 Volt power supply unit for each VAV box, controller capable of accepting analogue signal from Co2 Sensore/Thermostate and output to damper actuator, Distribution board floor wise of service, admistrative canteen and auditorium building, VAV boxes shall be suitable for following air flow capacitties					
1.8.1	50 -499CFM	4	NO*			
1.8.2	500 -590CFM	4	NO*			
1.8.3	600-790 CFM	4	NO*			
1.8.4	800 -990CFM	4	NO*			
1.8.5	1000 -1100CFM	4	NO*			
1.8.6	1101 -1500CFM	4	NO*			
1.8.7	1501 -2000CFM	4	NO*			
1.8.8	2001 -3000CFM	4	NO*			
1.8.9	3001 -4000CFM	4	NO*			

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTIT	γ	QUOTED PRICE (IN INR)		
				UNIT PRICE	AMOUNT	
(1)	(2)	(3)		(4)	$(5) = (4)^*(3)$	
1.9	DX type, air cooled condensing unit of 30TR (ACTUAL) capacity. The refrigerant compressor shall be Srew / Scroll, Open / Semi-hermetic type suitable for Refrigerant R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package (for open type compressor only), 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 refrigerent piping to and from AHUs, foundation bolts, nuts, washers etc complete in all respect	1	NO*			
1.10	Sheet metal cabinet type air handling units (double skin as per specification) Suitable capacity of 30TR DX condensing unit. The draw through horizontal AHUs shall comprise of , Dampers, Filters (pre filter and fine filters with DP gauge across filters), DX- cooling coil Fan section with fan & TEFC sq cage induction motor, VVVFD, drive set, face and bypass damper with modulating motor, condensate drain pan, Heater and Humidification, Instruments, thermostatic controls and other accessories. S.P minimum 60mm.	1	NO*			
1.11	DX type, air cooled condensing unit of 60TR (ACTUAL) capacity. The refrigerant compressor shall be Srew / Scroll, Open / Semi-hermetic type suitable for Refrigerant R-134a / R-407c / R-410a environment friendly HFC refrigerants with drive package (for open type compressor only), 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 refrigerent piping to and from AHUs, foundation bolts, nuts, washers etc complete in all respect	2	NO*			
1.12	Sheet metal cabinet type air handling units (double skin as per specification) Suitable capacity of 60TR DX condensing unit. The draw through horizontal AHUs shall comprise of , Dampers, Filters (pre filter and fine filters with DP gauge across filters), DX- cooling coil Fan section with fan & TEFC sq cage induction motor, VVVFD, drive set, face and bypass damper with modulating motor, condensate drain pan, Heater and Humidification, Instruments, thermostatic controls and other accessories. S.P minimum 60mm.	2	NO*			
1.13	MS medium class INSULATED DRAIN WATER PIPING from various equipment like AHUs (including equalising line), FCUs, chilled water pumps etc upto nearest available drain point with necessary fittings like tees, reducers, expanders, elbows, flanges, valves with flanges, P trap etc as per specifications.					
1.13.1	50mm	300	Rmt*			
1.13.2	40mm	300	Rmt*			
1.14	AC System for Aux. building for unit#1 & 2)					
1.14.1	Air Cooled PAC-Unit complete with all accessories as specified The package unit shall be complete with all accessories like duct hetaers, humidifier, filters, acoustic insulation of duct for 5m from PU, drain piping with insulation upto nearest drain, required instrumentation etc					
1.14.1.1	10 TR net capacity	1	NO*			
1.14.1.2	15 TR net capacity	1	NO*			
1.14.2	Air Cooled Precision AC-Unit complete with all accessories as specified The package unit shall be complete with all accessories like duct hetaers, humidifier, filters, acoustic insulation of duct for 5m from PU, drain piping with insulation upto nearest drain, required instrumentation etc					
1.14.2.1	10 TR net capacity	1	NO*			
1.14.2.2	15 TR net capacity	1	NO*			
1.15	Air Cooled Scroll Chiller					
1.5.1 1.15.1.1	Air Cooled Scroll Chiller actual 10TR capacity Air Cooled Scroll Chiller actual 10TR capacity consisting scroll refrigerant compressor complete with motors, control panel, multi driveset, control and interlocks and air cooled condenser of matching capacity, shell & tube type water chiller & other accessorie:	1	NO*			
1.15.1.2	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ heating coil, centrifugal blower, TEFC sq cage induction motor, VVVFD drive set, filters (pre filter and fine), 3 way motorised mixing valve with thermostatic controls, control panel and other accessories to meet the AC load. S.P minimum 60mm.	1	NO*			
1.15.1.3	Chilled water Pump of suitable capacity	2	NO*			
1.15.1.4	MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. 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	1	NO*			
1.15.1.5	CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. 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	1	NO*			
1.15.1.6	INSULATED CHILLED WATER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents etc as per specifications. This item shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.).	1	LOT*			

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY		QUOTED PRICE (IN INR)	
				UNIT PRICE	AMOUNT
(1)	(2)	(3)		(4)	$(5) = (4)^*(3)$
1.15.1.7	MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT*		
1.15.1.8	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. as per	1	LOT*		
	specification				
1.15.1.9	ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	1	LOT*		
1.15.1.10	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT*		
1.15.1.11	Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature	1	LOT*		
	Transimiliter and flow Transmitter etc, including necessary control panel form hook up with main DDCMIS as per specification				
1.15.1.12	Electrical Hot Water Generator of suitable Capacity to meet the requirement- Electrical Hot Water generator of vertical/ horizontal construction equipped with sufficient	2	Nos*		
	number of flanges and electrical immersion heaters. The pressure vessel shall be constructed as per ASME standards and insulated on all sides with 100 mm thick				
	fibreglass. The hot water generator shall be equipped with all automatic and safety controls such as manual reset high temperature water outlet, step controller and recycling				
	relay, ON-OFF switch, thermostats, pilot light, 'ON' status of individual banks, low water cut off all as per manufacturers recommendations. All basic controls and terminal				
	shall be located in an internal control cabinet, factory wired and tested. The hot water generator shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power supply. (
	1w+1sh)				

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM		TY	QUOTED PRICE (IN INR)	
				UNIT PRICE	AMOUNT
(1)	(2)	(3)		(4)	$(5) = (4)^*(3)$
1.15.2	Air Cooled Scroll Chiller actual 20TR capacity				
1.15.2.1	Air Cooled Scroll Chiller actual 20TR capacity consisting scroll refrigerant compressor complete with motors, control panel, multi driveset, control and interlocks and air cooled condenser of matching capacity, shell & tube type water chiller & other accessorie:	1	NO*		
1.15.2.2	Sheet metal cabinet type double skin AIR HANDLING UNITS consisting of chilled water cooling/ heating coil, centrifugal blower, TEFC sq cage induction motor, VVVFD drive set, filters (pre filter and fine), 3 way motorised mixing valve with thermostatic controls, control panel and other accessories to meet the AC load. S.P minimum 60mm.	1	NO*		
1.15.2.3	Chilled water Pump of suitable capacity	2	NO*		
1.15.2.4	MAKE-UP WATER TANK of capacity 2 Cubm. Tanks shall be FRP. 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	1	NO*		
1.15.2.5	CHILLED WATER EXPANSION TANK of capacity 1 Cubm. Tanks shall be MS/FRP & insulated as per specification. 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	1	NO*		
1.15.2.6	INSULATED CHILLED WATER PIPING with necessary fittings like tees, reducers, expanders, elbows, flanges, all types of valves with flanges, strainers with flanges, air vents etc as per specifications. This item shall cover the entire chilled water piping for AC plant room, all the AHU rooms and FCUs and the interconnecting pipes between AC plant and AHUs, FCUs of the buildings (pipe, valves, strainers, insulation material with all ancilliaries for insulation finishing as per specifications.).	1	LOT*		
1.15.2.7	MONSOON REHEATING KIT comprising strip heaters, safety controls, air-stat, contactors, frame work, thermostat & humidistat/ sensors etc.	1	LOT*		
1.15.2.8	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. as per specification	1	LOT*		
1.15.2.9	ACOUSTIC INSULATION of the first 6m of ducting from AHU outlets with material and finish as per specifications.	1	LOT*		
1.15.2.10	FRESH AIR FANS (axial flow type), complete with motor, inlet cone, air filters (pre and fine), dampers, etc	1	LOT*		
1.15.2.11	Field instruments like pressure gauge, temperature gauge, pressure switch, differential pressure switch, flow switch, flow meter, Pressure Transmitter, Temperature Transmitter and flow Transmitter etc, including necessary control panel form hook up with main DDCMIS as per specification	1	LOT*		
1.15.2.12	Electrical Hot Water Generator of suitable Capacity to meet the requirement- Electrical Hot Water generator of vertical/ horizontal construction equipped with sufficient number of flanges and electrical immersion heaters. The pressure vessel shall be constructed as per ASME standards and insulated on all sides with 100 mm thick fibreglass. The hot water generator shall be equipped with all automatic and safety controls such as manual reset high temperature water outlet, step controller and recycling relay, ON-OFF switch, thermostats, pilot light, 'ON' status of individual banks, low water cut off all as per manufacturers recommendations. All basic controls and terminal shall be located in an internal control cabinet, factory wired and tested. The hot water generator shall be suitable for 415 ± 10% volts, 50 cycles, 3 phase power supply. (1w+1sh)	2	Nos*		

SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTI	TY	QUOTED PR	RICE (IN INR)
				UNIT PRICE	AMOUNT
(1)	(2)	(3)		(4)	$(5) = (4)^*(3)$
1.16	AIR COOLED SPLIT UNITS consisting of outdoor unit (having compressor condenser coils with fan and motor), indoor unit (having evaporator coil, filter,fan with motor)				
	interconnecting refrigerant piping as per site requirement & fittings with insulation, cordless remote, electrical power cord upto the nearest available point along with isolator / MCB, fixing frame for indoor and outdoor unit, Stablizer,etc.				
1.16.1	5.0 TR capacity (ductable type, 415 V, 3 phase with isolation switch).	2	NO*		
	2.0 TR capacity (non-ductable type, 415 V, 3 phase with isolation switch). 2.0 TR capacity (non-ductable type, 240 V, 1 phase isolation switch) with isolation switch , i.e MCB of suitable rating as specified.	2	NO*		
1.16.2 1.16.3	2.0 FR capacity (non-ductable type, 240 V, 1 phase isolation switch) with isolation switch, i.e MCB of suitable rating as specified. 1.5 TR capacity (non-ductable type, 240 V, 1 phase isolation switch) with isolation switch, i.e MCB of suitable rating as specified.	80	NO*		
	1.5 TR capacity (non-ductable type, 240 V, 1 phase isolation switch) with isolation switch , i.e MCB of suitable rating as specified. 1.5 TR capacity (Casette type, 240 V, 1 phase isolation switch) with isolation switch , i.e MCB of suitable rating as specified.	80 10	NO*		
1.16.4					
1.16.5	2.0 TR capacity (Casette type, 240 V, 1 phase isolation switch) with isolation switch , i.e MCB of suitable rating as specified.	10	NO*		
1.16.6	3.0 TR capacity (Casette type, 240 V, 1 phase isolation switch) with isolation switch , i.e MCB of suitable rating as specified.	10	NO*		
1.17	Manually operated, platform trolley of 1 Ton capacity with base area 2m x 1.5m	6	NO*		
1.18	Air Curtain				
1.18.1	For Minimum door height 3M and wiidth 900MM	4	NO*		
1.18.2	For Minimum door height 3M and wiidth 1200MM	4	NO*		
1.18.3	For Minimum door height 3M and wiidth 1800MM	4	NO*		
1.18.4	For Minimum door height 3M and wiidth 2100MM	4	NO*		
1.19	Handling Arrangement for AC Equipments				
1.19.1	3T Electric Hoist arrangment for AC Plant as per specification	1	NO*		
1.19.2	2T Chain Pulley Block arrangment for AC Plant/ equipments as per specification	1	NO*		
1.19.3	1T Chain Pulley Block arrangment for AC Plant/ equipments as per specification	16	NO*		
1.20	Bidders price for providing full support during FAT of DDCMIS, preparation of control scheme, and commissining of DDCMIS as per relevent specification.	21	Mandays*		
1.21	Accoutic Insulation of walls of AHU/PU room as per Specification, Sound baffles, attenuators and Vibration eliminators	2000	SQM*		
1.22	Electrical items like Junction box for control & instrumentation cable, Any special type of cable like compensating, co-axial, prefab, MICC, optical fibre, 100/50 mm cable				
	trays/ Conduits/ Galvanised steel cable troughs for local cabling, Cable glands, lugs and bimetallic strip for equipment supplied by Vendor, Conduit and conduit accessories	1	LOT		
	for cabling between equipment supplied by vendor, LT Motors with base plate and foundation hardware, etc., Details as per electrical specification and scope.	·	201		
1.23	Any other item required for Service Building, Administrative Building, Auditorium and Canteen Building to make these buildings Green Building compliant to minimum	1	LOT		
1.24	LEEDs GOLD rating. Any other item not indicated above, but required to make the system complete in all respects.	1	LOT		
	CE -SERVICE	<u> </u>	LUI		
TOTAL PRIC	YE -SEKAICE				<u> </u>
NOTE					
1.0	While break-up of main service price (18.5%) w.r.t. total price is frozen in SCH-2. Further break-up of main service price into various components is to be provided by bidder	as per above SCH-	7.		
2.0	Bidder has to furnish detail break-up of price of individual item as per above prescribed format.				
3.0	Total amount shall correspond to sl no 2.0 of SCH-2.				
4.0	Any item/quantity not specifically indicated in this break up but required as per system requirement, shall be provided by vendor without any additional financial implication to	BHEL.			
5.0	The bidder shall furnish unit rates for variable item marked with(*) (e.g. supply grilles (with and without VCD), fire damper for all the AC Plants, Package AC, Split AC Units, FC detailed engg. stage. The unit rates quoted above shall be considered and no separate unit rates shall be quoted. Unit rates shall be valid throughout the contract. Final qty. si erection for all the variable items.				

	TENDER NO - PSER:SCT:KL				
	SCH-8 - OPERATION & MAINTENANCE (,		
SL NO	DESCRIPTION OF ITEM	Q	UANTITY	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
(1)	(2)		(3)	(4)	(5) = (4) * (3)
. ,	PRICE BREAK-UP OF 3.0 OF SCH-2.		(5)	(.)	(5) (1) (5)
1.0	Price for providing OPERATION AND MAINTENANCE SERVICE including manpower, supervision, consumables etc. for operation & maintenance of Air Conditioning System after commissioning for the total scope defined as per technical specification.	12	MONTHS*		
NOTE					
1.0	Bidder shall quote rate per month and amount in this schedule. Total amount	shall	I correspond to	o sl no 3.0 of SCH-II.	

PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.

	TENDER NO - PSER:SCT:KLN-M1876:18						
	SCH-9 INDIAN CONTENT						
SL NO	DESCRIPTION OF EQUIPMENT/ ITEM	ALL INCLUSIVE PRICE					
		(As per tender)					
1.0	Total price of items sourced from India, as required, for total scope defined as per technical specification and terms & conditions of tender taking into account all clarifications, confirmations and agreements till date.						
NOT	· =	•					
1.0	Bidder's quoted price/ allocations in various schedules shall be inclusive of above total	price.					
2.0	Bidder shall furnish item-wise break-up of above items.						

PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.

TENDER NO - PSER:SCT:KLN-M1876:18
SCH-10 - RECOMMENDED SPARES

SL	DESCRIPTION OF EQUIPMENT/ ITEM	QUANTITY	QUOTED COMPONENT OF ALLOCATION (IN INR)				
NO			UNIT	OTHER	TOTAL	AMOUNT	
			BASIC	INCIDENTAL	UNIT PRICE		
			PRICE	UNIT CHARGES			
(1)	(2)	(3)	(4)	(5)	(6) = (4)+(5)	(7) = (6)*(3)	
	•						
	_						
TOTAL	PRICE (RECOMMENDED SPARES)						

N	O	T	E

- Bidder shall furnish, along with the bid, list of recommended spares for three years of normal operation with their unit rates as per above schedule. These items will be considered as optional items and unit rates will be valid throughout the period of execution of the contract including extention, if any.
- 2.0 Bidder shall refer Annexure II (Spares) of Technical specification for details. The recommended spares have to be quoted over and above the mandatory spares.
- 3.0 The Recommended spares quoted as per above schedule shall not be considered for evaluation of the tender.
- 4.0 Other incidental charges shall include custom clearance, port handling, freights, etc. charges

VOLUME-IIIA

PRICE SCHEDULE, REV-01

PACKAGE-A: Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc. of Air Conditioning System for 2x660 MW

Maitree Super Thermal Power Project Rampal Bandadesh

	Maitree Super Therm	nal Power Pro	oject, Rampa	ıl, Bangladesh.				
	TENDER N	O - PSER:SO	T:KLN-M187	76:18				
	SCH-11 - GUAF							
SL NO	DESCRIPTION OF EQUIPMENTS	NO OF EC	STANDBY	TOTAL GUARANTEED POWER CONSUMPTION FOR EACH EQUIPMENT AT MOTOR INPUT TERMINAL AND CONTROL PANEL	DUTY FACTOR	TOTAL (KW)		
(1)	(2)	(3A)	(3B)	(4)	(5)	(6)=(3Ax4x5)		
1.0	AC PLANT FOR MAIN CONTROL ROOM AREAS.							
1.1	Screw Chiller-175TR	2	1		1			
1.2	AHU for MCR	2	1		1			
1.3	AHU for at 8.5 M level	1	1		1			
1.4	Chilled water pumps (2x100% or 3x50%)	1 or 2	1		1			
1.5	Fresh air fans for above AHU room.	2	0		1			
2.0	ESP Control Room AC PLANT-2 & 3							
2.1	Air Cooled Condensing unit AC 30TR for ESP Control Room for unit-1 & 2	2	2		1			
2.2	AHU for above	2	2		1			
2.3	Fresh air fans for above PAC room.	2	0		1			
	тот	AL (KW)				605		
NOTE								
1.0	Estimated power consumption (EPC) figure for the	system (for v	working drive	es only) has been considere	d as 605 KV	V		
2.0	If bidder's quoted guaranteed power consumption (GPC) above remains within this EPC, there will be no technical loading of bid on power consumption for evaluation. However, if bidder's quoted GPC exceeds EPC, there shall be technical loading of bid for evaluation @ USD 4060 per KW of additional power over EPC.							
3.0	Bidder's guaranteed power consumption at motor input terminals (not shaft power) as furnished in relevant schedule shall be demonstrated by the successful bidder during performance testing at works. In addition GPC will also be demonstrated at site a rated duty condition.							
4.0	In case power consumption is noted higher than I penalty@ USD 4060 per additional KW shall be lev			SPC whichever is higher, du	uring inspec	tion/ PG test,		
5.0	If the contract currency is other than US \$, then to based on billing selling exchange rate of State 31.01.2016.							