



BHARAT HEAVY ELECTRICALS LIMITED
PROJECT ENGINEERING MANAGEMENT, NOIDA

Date-7-Aug-20

CORRIGENDUM- 03

PROJECTs	:	4 X 210 MW NTPC Kahalgaon- R&M (ESP)
PACKAGE	:	HVAC SYSTEM FOR R&M PROJECTS
ENQUIRY NO	:	PE/PG/NTK/E-6475/2020 Dated 16.07.2020
SUBJECT	:	PRE- BID CLARIFICATION

Type of Corrigendum			
Technical Corrigendum -	☒	Commercial Corrigendum -	☐

Bidders are requested to go through the following changes

1. Replies to pre-bid clarifications attached.
2. Refer attached technical amendment -1.

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

Yours faithfully,

For and on behalf of BHEL

Sharad Chandra
Manager/BOP

PRE BID CLARIFICATION SCHEDULE

SI No	Section/ Clause/ Page No	Staement of the referred Clause	Clarification Required	BHEL Reply
1	Section-I, Subsection C1 /Clause 02.01.04 Page 8 of 277	Required power and control cables.....This also includes incoming power cable required from incoming source to required power distribution board for the AC and Ventilation Fans. Power distribution board is in the scope of supply of bidder	Please confirm the location of the source of incoming power for estimation of cabling	Please refer Amendment-1
2	Part-B Sub section-I-M3 of Technical Specification of NTPC- Clause No 2.00.00.10 Page 17 of 277	Underdeck Insulation	Please confirm if Underdeck insulation is in scope of Bidder as the same is not figuring in BOQ	Please refer Amendment-1
3	Page 157 of 277 to 161 of 277	General Technical requirements of LV Motors	Motors which are part of the OEM Products (Packaged/ Ducted Split airconditioners) will conform to the respective approved Manufacturers standards as these are standard products . Hence we request you to kindly accept the same.	Bidder to follow the Specification

TECHNICAL QUERRIES NO. - 01 DT.30.7.2020

PROJECT : 4X200 MW ESP Control Room - R & M - NTPC Kahalgaon - Stage - 1 for Unit 1,2,3,4

Package : Ventilation & Air Conditioning System

Date of query : 22.07.2020

Sl. No.	Document reference	Clause no. of the respective Document reference	Pe-Bid technical queries no - 01 from Suvidha to BHEL -	Confirmation / Clarification from BHEL on. Dt.
1	Technical Specification No. PE/TS/455-571-15000A-A001, REV-0	Section - 1, Subsection - E, Annex-I Specification No. CS-4130-104A(R&M)-2 Sl. No. 5, 6	List of makes: 1. For Axial Flow fan (for Ventilation and fresh air of A.C.): we would like to request you to approve "Suvidha Air Solutions Pvt. Ltd., Ahmedabad also. We have already authorised by NTPC to supply the Axial Flow fans upto 50,000 CMH and Centrifugal Fans upto 1,90,000 CMH. Copy of NTPC's letter attached. We have also supplied Axial Flow fans to various Power Plants which is attached herewith also. 2. For Filters: We would like to request you to approve "Suvidha Air Solutions Pvt. Ltd., Ahmedabad also. Credential attached. 3. Ducting: Ducting contractor shall be chosen by us. No BHEL approved Ducting contractor can be arranged as per the make list. 4. Air distribution product: All Air Distribution product like Supply & Return Air Grills(with / without Volume control dampers), Fire Dampers, Duct dampers etc. shall be of "Suvidha Air Solutions" make. Credential attached. 5. Electrical starter Panels for Package A.C and Axial fans, Power Distribution Board & all types of Push Button Station shall be of "Authorised makes of Suvidha Air Solutions" as they are of very low capacity & the big companies may not support. 6. Heater, Humidifier: Shall be of Suvidha Authorised make.	1. & 2. The List of makes given in technical specification for Axial flow fan and Filters are for reference only and subject to customer approval during detail engineering. Refer Amendment-1. 3. The list of makes given in technical specification for Axial flow fan and Filters shall be BHEL approved. Refer Amendment-1. 4. List of approved makes for these items is mentioned in the Amendment-1. Bidder to follow the same. 5. Bidder to follow the specification for these items is mentioned in the Amendment-1. Bidder to follow the same.
2	tender specification no. PE-999-145-0544, VOLUME - IIB,	SECTION - D, REV-03, SHEET - 4 OF 6, CLAUSE - 3.3.9	We shall follow the makes of the equipments , required for the Panels, as per the Clause.	Bidder to follow the technical specification.
3	Technical Specification No. PE/TS/455-571-15000A-A001, REV-0	Subsection - II - E-05, LT Switch Gear Page 153 of 277 Electrical Scope Sheet for HVAC (Sl. No - 7)	We have attached a Schematic Drawing for Electrical where Battery Limit and scope have been well defined. BHEL shall supply the 415V, 50Hz, 3 Phase A.C Power at adequate rating upto the Power Distribution Board (PDB) shown in our aforesaid attached schematic drawing. The Main cable from the above PDB from two numbers(one for Package A.C and balance for Ventilation) Local Starter cum Control Panels shall be layed by saddle. Balance power cable including the control cable shall be drawn through the wall by Saddles.	Electrical scope between BHEL and Bidder shall be inline with electrical scope matrix of technical specification.
4	Do	Drawing No. PG-OG-455-571-1500A-A001(Rev-0) Scheme for Air Conditioning System	"Make-up water pipe" for Package A.C & Drain water pipes for Humidifier has been considered as 5 meters from the respective equipments.	As already mentioned in the technical specification, These pipes for drain and make-up shall be in bidders scope till nearest drain point and portable water sources respectively as per layout requirement
5	Do	Miscellaneous	Please provide the Building drawing(Elevation / side view showing the Package A.C Room & location of Out door unit). It is required for measuring the length of the refrigerant pipes and measure the capacity of the compressor of the Package A.C.	PAC placed in A/U room. However outdoor unit shall be placed in above the A/U Room. Please refer tentative proposed layout of PAC Room attached as amendment-1. Bidder is suggested to visit site before quoting final specification clause no. 1.12 of item of specification.
6	Do	Miscellaneous	Electrical Scheme shall be considered as per the proposed Electrical scheme, Scope & Battery Limits marked within the Attached Electrical Schematic Drawing. The position of the Panels are also mentioned within the drawing. BHEL to confirm.	Electrical scope between BHEL and Bidder shall be inline with electrical scope matrix of technical specification.
7	Do	Miscellaneous	All single phase power of required(for High Wall Split A.C, Package / Ductable Split A.C, Fire dampers etc.) capacity for the project shall be provide by BHEL upto the equipment supplied by us. However termination shall be of Our's scope.	Electrical scope between BHEL and Bidder shall be inline with electrical scope matrix of technical specification.
8	Do	Miscellaneous	Location of Axial fans have not been shown in the drawing.	Location of fan shall be per AC matrix of ECR control Room in 1000 Sq.ft. and for fresh air during fresh air engineering.
9	Do	Miscellaneous	Specify the Refrigerant type . We shall quote as per the any one of approved manufacturer.	Please refer Amendment-1
10	Suggested Price format : Document No. PF-PE-455-571-15000A-A001, date of Issue:26.6.2020	Sl. No. C.1	Cables shall be quoted as Unit rate item. However Cable sizing shall be done as per the Proposed Schematic Drawing submitted by us herewith.	Since the package shall be awarded as a turnkey package, all the cables required for system completion technical specification shall be provided by bidder. However, the price for cables shall be quoted as price format provided along with NLE.
11	Do	Sl. No. C.2	Structural supports for duct & Fans- We shall consider the duct support for 1.5mtrs from ceiling in case of hanger. Ducts which shall pass through the adjacent walls of the rooms shall be supported by the brackets made of M.S Angles. Axial fans shall be supported by the Angle Bracket.	Details of supporting structure for duct, pipe, fan etc shall be finalized during detail engineering. Bidder to quote as per price format.
12	Do	Sl. No. B/ 1.2.1	Here 8 nos 5TR capacity " Package A.C" has been envisaged. But we could not find the area to be served by this machine either in drawing or in Specification.	It is 1 Nos. Bidder to follow the price format. Location shall be finalized during detail engineering
13	Do	Sl. No. : B/1.7	We have not found the Area where the Split Acs shall be served. Please let us know the same.	Location of Split AC shall be decided during detailed engineering

TECHNICAL QUERRIES NO. - 01 DT.30.7.2020				
PROJECT : 4X200 MW ESP Control Room - R & M - NTPC Kahaigaon - Stage - 1 for Unit 1,2,3,4				
Package : Ventilation & Air Conditioning System				
Date of query : 22.07.2020				
Sl. No.	Document reference	Clause no. of the respective Document reference	Pe-Bid technical queries no - 01 from Suvdha to BHEL -	Confirmation / Clarification from BHEL on. Dt.
16	Do	Sub Section C1 & Section I, Clause : 02.01.08	Civil Foundations for all mechanical & electrical equipments like Indoor & Out door unit of Package A.C, Split A.Cs, Electrical panels etc., wall openings for fans & Ductings, Lorakproof Package A.C Room and served premises shall be provided by BHEL. We shall provide opening size to you. Wall opening for passing the copper pipes from indoor to outdoor unit shal be BHEL's scope. We shall mark the wall accordingly. Any Floor cutting required, shall be of BHEL's scope and cost.	Bidder to follow the technical specification clause no. 2 and 15 of section C1
17	Do	Sub Section C1 & Section I, Clause : 2.01.10	We shall consider the "minor civil work" like making good(fill up with sand cement) the wall opening after installation of the Ducting & Fans, small opening of the wall for passing the drain pipes only within our scope. Our We have referred to the Clause no 4.09.00 but could not find anything regarding Microprocessor/PLC/GIU based control panel. In Clause no.4.09.00, there is some other topic has been discussed.	Bidder to refer clause no. 4.09.00 - page no. 31 of 277 of technical specification and 34, No.61,12 of price schedule
18	Do	Sub Section C1 & Section I, Clause : 2.2.2	Positive pressure shall be maintained if the served premises shall be made leakproof.	Bidder to follow the technical specification
19	Do	Sub Section C1 & Section I, Clause : 5	In a Package A.C compressor can not be in out door unit. We have highlighted this in another place of this sheet also.	Please refer Amendment no.-1
20	Do	Sub Section C1 & Section I, Clause : 5.2.1	Static and dynamic balancing standard for Axial fan and centrifugal fan impeller is ISO 1940 grade 6.3 or 2.5. Balancing standard as per AMCA can not be done.	Bidder to follow the technical specification
21	Do	Sub Section C1 & Section I, Clause : 14	Please confirm how many AHUs to be dismantled? Also please confirm shall it be inclusive of existing ductings, Electrical cables, Electrical panels etc. ie. Total system ? If existing ducting to be dismantled then BHEL shall dismantle the False ceiling and reinstall the false ceiling after erection of the new ducting with insulation.	Please refer Amendment no.-1
22	Do	Sub Section C1 & Section I, Clause : 14	Foundation of all equipments supplied by us including Floor mounted Electrical panels, Out door units shall be og BHEL's scope.	Please refer Amendment no.-1
23	Drawing No. PG-OG-455-571-1500A-A001(Rev-0) Scheme for Air Conditioning System	Sub Section C1 & Section I, Clause : 14	It is not clear from the Schematic drawing that whether there is Return air damper shall be their or return air shall be coming through the False ceiling.	Return air shall be collected in the space above false ceiling. Please refer amendment-1
24	Section - 1, Subsection - C2(Customer Specification)	Clause no : 12 & 3.06.00	Here in the Customer's specification from 15 TR to 25 TR Ductable Split A.C / Package A.C have been envisaged. As already discussed above that if Compressor shall be in outdoor unit the indoor unit shall be of ceiling suspended. In package A.C, Compressor shall be in indoor. So there comes a conflict Please clarify.	Please refer Amendment no.-1 to 2 Location of compressor
25	Do	Clause no : 2.00.00 Sub Clause: 8	As the cable route, Location of the input power etc have not been given in the tender all Control cables, Power cables, Signal cables, Cable trays, Conduites, other accessories etc shall be quoted as Unit rate items. Only Gland, sockets shall be included to our scope for the terminations which ever mesioned within the Electrical Scope (page 152 of 277 of the Tender). However Fire signal shall be provided by BHEL upto our Local Starter panels and Fire Dampers.	Since the package shall be awarded as a turnkey package, all the cables required for system completion technical specification requirement shall be supplied by the bidder in totality and prices shall be quoted as price format provided along with MTR. Please refer amendment-1
26	Do	Clause no : 2.00.00 Sub Clause: 10	Please confirm that the Under Deck insulation is not our within our cope as per the Section - I, Subsection C1 Clause 15.	BOQ is to be read in conjunction with technical specification. Please refer note 3 of Annexure no.-1
27	Do	Clause no : 2.00.00 Sub Clause: 11	As the offer shall be quoted based on BOQ and the capacity described therein, it can be said that all the designed conditions has been taken care by BHEL.	Please refer Amendment no.-1
28	Do	Clause no : 2.00.00 Sub Clause: 12	It is not clear from all the tender document that whether the Package A.C (Split type, having compressor in the out door unit) shall be Floor mounted or Ceilig mounted. Please confirm.	Please refer Amendment no.-1
29	Do	Clause no : 3.05.01 Sub Clause: X	We have not seen the type of refrigerant mensioned for Package A.Cs. Please confirm.	Please refer Amendment no.-1
30	Do	Clause no : 3.06.00	It is not understood "Packaged type".	PAC type mean package AC, please also refer amendment-1.
31	Do	Clause no : 4.03.01, 4.03.02	The Split A.C shall have one Indoor & one Out door unit. The Out door unit shall have condenser, Compressor, Propeller fan. The Pre & Fine Filters for the Package A.C units as well as Tube Axial Supply fans shall be Box type / Flange type as per the manufacturer's specification.	Bidder to follow the technical specification
32	Do	Clause no : 4.05.10	For Axial flow fans, the Box type filters shall be used which shall be mounted inside the M.S boxes.	
33	Do	Clause no : 4.07.00	It is not clear whether any Duct shall be installed through the corrosive fumes or not. However we are not considering any painting of the ducting of AC systems.	Please refer Amendment no.-1
34	Do	Clause no : 4.07.00(b)	Here for Acoustic insulation AHU have been mentioned. Here Package A.C is applicable. Should we consider for Package AC also? Please confirm whether we can use GI Frame for the acoustic insulation of the Duct.	Please refer Amendment no.-1 Bidder to follow the technical specification