भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT HEAVY ELECTRICALS LIMITED
(A Govt. of India Undertaking)

TCN - 02

Ref: PSER:SCT:KLN-M1862:TCN-02 Date: 22-11-2017

Sub	Tender change notice (TCN) 02	
Job	Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc of complete IDCT Pkg for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.	
Ref	1.0	Tender no PSER:SCT:KLN-M1862:17
	2.0	BHEL's NIT, vide reference no PSER:SCT:KLN-M1862:6223 Dated 27-10-2017
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:KLN-M1862:TCN-01, Dated 16-11-2017.
	4.0	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 Clarification to bidder's query as per attached Annexure-A.
2.0 Revised `No deviation certificate' as per enclosed Annexure-2. Bidder shall submit no deviation certificate as per enclosed format only.
3.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HYEAVY ELECTRICALS LTD

DY.MGR (SCT)

Encl : As above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)
POWER SECTOR EASTERN REGION, DJ-9/1, SECTOR-II, SALT LAKE CITY, KOLKATA - 700 091
फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : 23211691, 23211798, 23211796

ANNEXURE - 2

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 Deviation Certificate.	
Job	Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc of complete IDCT Pkg for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.	
Ref	1.0	Tender no PSER:SCT:KLN-M1862:17
	2.0	BHEL's NIT, vide reference no PSER:SCT:KLN-M1862:6223 Dated 27-10-2017
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:KLN-M1862:TCN-01, Dated 16-11-2017.
	4.0	BHEL's TCN-02, vide reference no PSER:SCT:KLN-M1862:TCN-02, Dated 22-11-2017.
	5.0	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/uploaded offer/documents in accordance with tender instructions with acceptance of the terms & conditions of the tender by us and as per aforesaid references.

Thanking you,

Yours faithfully,

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

ANNEXURE-A TO TCN-02					
Design, Engineering, Manufacturing, Supply, Erection & Commissioning, etc of complete IDCT Pkg for 2x660 MW Maitree Super Thermal Power Project, Rampal, Bangladesh.					
Tender no PSER:SCT:KLN-M1862:17					
S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
1	NIT	15.0	Reverse auction	We request BHEL not to adopt reverse auction process for this tender.	As per tender
2	VOL - IA, GCC	7.0	Statutory Variations	Any statutory variations or introduction of fresh levies / new tax both within or beyond contractual period will be to Purchaser's account. Kindly confirm.	As per tender
3	VOL - IA, GCC	31.0	Force majeure	The term “force majeure” as defined in this clause is not acceptable to us. The term “force majeure” must be used in its widest sense and must embody all unforeseen circumstances which are beyond our reasonable control.	As per tender
4	GCC	34.3	Arbitration	This should be by joint arbitration method only.	As per tender
5	VOL - IC, SCC (Supply)	29.1.1	Statutory variations	Statutory variations should be borne by BHEL	As per tender
6	VOL - IC, SCC (Supply)	29.1.14	Way Bill	This is not acceptable. Since all invoicing should be made in the name of BHEL - Kolkata, Road Permit / Way Bill (as required) should be provided by BHEL. This is as per legal requirement.	As per tender
7	VOL - IC, SCC (Supply)	32.0	Extension of time	This clause must also cover recovery of extra cost related to extension of time (for reasons not attributable to the cooling tower contractor).	As per tender
8	VOL - IC, SCC (Supply)	34.0 & 35.0	Mobuilisation advance	We expect interest-free mobilisation advance. In such case, payment break-up mentioned under Clause No 34.4 may be reduced to 60% (instead of 70%, as mentioned).	As per tender

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
9	VOL - IC, SCC (Supply)	38.0	L/D	L/D for delayed completion of entire scope of work should be equal to 0.5% of the contract price (supply part) for delay of each week portion per week or part thereof subject to a maximum of 5% of the total executed contract price (excluding taxes & duties), if the reason for delay is solely attributable to the cooling tower contractor. Since all taxes & duties including GST and Bangladesh VAT) are extra at actuals, LD should be applicable on the contract value (excluding taxes & duties) only. Moreover, since civil construction work is by BHEL, any delay due to reasons attributable to civil contractor must be borne by BHEL only. This points has to be clearly mentioned in this clause.	As per tender
10	VOL - IC, SCC (Supply)	39.0	Guarantee period & latent Defect	The cooling tower components will be guaranteed against defects in materials, workmanship and deficiency in performance for a period of 12 months from the date of commissioning of cooling tower or 18 months from the date of last major despatch, whichever is **earlier**.	As per tender
11	VOL - ID, SCC (Service)	11.0	Land	Please confirm that space for labour hutment will be provided by BHEL.	Please refer clasue no. 11.2. Space for labour colony shall be provided by BHEL.
12	VOL - ID, SCC (Service)	15.0	Site Organization	Site organization will be decided by Bidder based on their experience and project requirement. Bidder will share organization chart with site in-charge 15 days prior to site mobilization. Necessary qualification of the site personnel shall be as per requirement of the project. Bidder reserves the right to change the site organization structure to suit project requirement.	As per tender.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
13	VOL - ID, SCC (Service)	29.0	Completion Period	Overall completion period of 26 months for 4 cooling towers is dependent on timely completion of civil work (by BHEL) based on cooling tower contractor's civil design and drawings. Civil work handing over schedule should be furnished by BHEL during pre-bid stage for review and comments, if any.	As per tender.
14	VOL - ID, SCC (Service)	33.0 & 34.0	Mobuilisation advance	We expect interest-free mobilisation advance. In such case, payment break-up mentioned under Clause No 33.3.1 may be reduced to 60% (instead of 70%, as mentioned).	As per tender.
15	VOL - ID, SCC (Service)	39.2	L/D	This clause should not be applicable since bidder is responsible for supervision of erection work only.	Please refer clasue no. 2 for brief scope of work. Complete E&C is in the scope of the vendor. Further, clause shall be as per tender.
16	Annexure - G	--	Analysis of Quoted Rate	Since the prices quoted are on lumpsum basis, Annexure-G should not be applicable for this tender.	Noted.
17	Vol III	Price Schedule, Schedule 2	Allocation of total price	We request BHEL to remove the percentage allocation of total price (Column 3). Otherwise, the percentage allocation against main supply price should be increased to at least 90% with corresponding decrease in percentage allocation against main service price, against civil work checking / supervision and against mandatory spares to 8%, 1% and 1% respectively. Since only supervision of erection work at site, commissioning, trial run & PG test are to be included in the main service price component, allocating 18% of total price is not at all justified. This can be maximum 8% of the total contract price.	As per tender.
18	Vol III	Price Schedule, Schedule 2	Packing	Packing should be suitable for transportation by road for Indian bidders.	As per tender.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
19	Vol III	Price Schedule, Schedule 9	The evaluation rate for concrete & re-inforcement steel a. Concrete: Rs. 8405/- per cum b. Re-inforcement steel: Rs 68144/MT	We understand that the guaranteed quantities of concrete and reinforcement steel should include only cooling tower superstructure and CW basin and CW outlet (terminating at 10 M distance from the cooling tower). Please confirm that civil quantities for roads, drains, pavements, etc. and all miscellaneous PCC requirement & temporary works (applicable within 10 M distance from the cooling tower) are not to be included in the same. Please confirm. In case the quantity of concrete and reinforcement steel required for paving, drain slab, etc. are to be included in the guaranteed quantities, we request BHEL to furnish the specific scope and technical specification for the associated civil work activities.	Please follow the statement indicated in Price schedule.
20	Price Schedule; Rev - 00		Editable Copy	Please furnish editable soft copy of the price schedule for convenience of offer preparation.	Excel file has already been uploaded in M-junction portal
21	Price Schedule; Rev - 00	Preamble	Item Rate	Since this is a Lumpsum package contract we are ignoring all such stipulations referring to an Item rate contract. Please confirm.	Noted.

ANNEXURE-A TO TCN-02					
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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
22	Vol - II; Sub-section IA SPECIFIC TECHNICAL REQUIREMENTS	Clause 1.00.00	The bidder's scope under the specification shall include… Complete embedment inserts, Sleeves, Guides, foundation nuts/bolts, Steel items which are neither Structural Steel nor Reinforcement Steel, any specialized construction/ erection materials, etc. (Bidder may seek clarification on this account if considered necessary).	Please confirm whether steel plates required for hot water pipe fabrication will be free issued by Purchaser. Only checking of civil work based on our GA / construction drawings should be included in bidder's scope. Complete supervision of civil work is not possible. Please confirm.	1st part - Steel plates required, if any, for the job shall be in the scope of bidder. 2nd part - Please follow specification
23	Vol - II; Sub-section IA SPECIFIC TECHNICAL REQUIREMENTS	Clause 1.00.00	Any specialized erection and specialized shuttering materials (including four sets curved section surfaces for fan stack),	We understand that specialised shuttering includes only the curved section surfaces for fan stack. No other shuttering materials are applicable. Please confirm.	Please follow specification.
24	Technical Specifications of Cooling Towers	Sub-section - IA; Clause 1.01.01; Sr. no. C Scope (Mechanical)	…. Manual Operated Butterfly valves on each hot water risers and manual operated Butterfly valve for isolation of each cell.	In case of Counter Flow cooling tower riser Isolation valves and cell isolation valves are same. We understand that requirement of isolation valves is one no. per cell for counter flow cooling tower. In case of Cross Flow cooling tower since there will be 2 risers per cell and each cell will have 2 cell isolation valves, requirement of separate riser isolation valves (2 nos. per tower)should not be applicable. Please confirm.	Please follow specification.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
25	Technical Specifications of Cooling Towers	Sub-section - IA; Clause 1.01.01; Sr. no. d Scope (Mechanical)	Inlet Louvers	Our Conter flow cooling tower designs do not have louvers.	Noted.
26	Technical Specifications of Cooling Towers	Sub-section - IA; Clause 1.01.01; Sr. no. j Scope (Mechanical)	Counter flanges	Edge preparation at terminal points should be suitable for butt welding. This is in line with standard industrial practice. Please confirm	Please follow specification. Further details shall be finalized during detail engineering.
27	Technical Specifications of Cooling Towers	Sub-section - IA; Clause 4.03.00, Sr. no. e	Thermal design criteria for Counter Flow Cooling Tower	There is no guideline specified in Kelly's handbook to determine recovery in Fan stack. Same should be considered as per bidder's well-proven standard. Otherwise, the fan stack recovery efficiency may be limited to 75% for thermal design purpose. Please confirm.	Deviation not acceptable. Please follow specification.
28	Technical Specifications of Cooling Towers	Sub-section - IA; Clause 5.09.00	The entire rotor assembly including drive shaft shall be dynamically balanced.	We understand that "entire rotor assembly" means the driveshaft assembly, which will be dynamically balanced as per standard inductrial practice.	Please follow specification.
29	Technical Specifications of Cooling Towers	Sub-section - IA; Clause 5.11.00	Access doors shall be provided at the basin level (through casing side) in each cell	For counter flow cooling towers access doors can not be provided at basin level and the same will be provided at fan deck to acccess the drift eliminator area.	Please follow specification.
30	Technical Specifications of Cooling Towers	Sub-section - IA; Clause 5.11.00	Control & Instrumentation	Scope for control & instrumentation needs to be clearly defined.	Bidder to follow specification
31	Technical Specifications of Cooling Towers	Sub-section - IA; Clause 7.00.00	PERFORMANCE TESTING AT SITE	Please clarify whether PG test of the cooling towers has to be carried by bidder's own testing team based on specified ambient wet bulb temperature or based on specified inlet wet bulb temperature. Term "ambient inlet Wet bulb temperature" is incorrect.	Testing shall be as per CTI ATC 105 procedure.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
32	Technical Specifications of Cooling Towers	Sub-section - IA; Clause 9.00.00	Liquidated damages	The rates for L/D mentioned in this clause are highly disproportionate to the size and price of the cooling tower on offer. L/D @ 1% of the contract value (excluding spare parts, taxes, duties and freight) per 1% shortfall in capacity as established by the performance test, co-related to design temperature and guaranteed fan power consumption and subject to maximum 10% of the contract value (excluding spare parts, taxes, duties and freight) can be acceptable. In the event of shortfall in capacity (if any), before levying L/D cooling tower contractor should be given adequate opportunity to rectify the shortfall. 0.3°C tolerance in the CWT shall be allowed to take care of design and instrument uncertainties and inaccuracies. If the shortfall (if any), after all attempts at rectification have failed, exceeds 10%, the Purchaser has the right to reject the cooling tower. L/D for fan power is irrelevant as the performance will be co-related to guaranteed power.	Deviation not acceptable. Please follow specification.
33	Technical Specifications of Cooling Towers	Sub-section - IA; Clause 16.00.00	Drawing / document approval	Comments on a particular drawing / document should be furnished during 1st submission only and no new comments should be incorporated in the same drawing / document in next submission.	Deviation not acceptable. Please follow specification.

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	Section	**Cl.no**			
33	Technical Specifications of Cooling Towers	Annexure - A to Sub-section - IA; Clause B.5.3.6.1	Each cell section of cooling tower shall be isolated by means of transverse partition wall.	Based on the shown arrangement of CW otlet in the layout drawing, cell-wise partition in the CW basin is not possible. There will be no partition in the CW basin.	Please follow specification.
34	Technical Specifications of Cooling Towers	Annexure - A to Sub-section - IA; Clause B.5.3.6.1	Two speed fan operation may be obtained by a single two-speed motor or by use of two separate motors	Please clarify whether fan drive motors are to be considerd as single speed or two speed.	Please follow specification.
35	Technical Specifications of Cooling Towers	Sub-section - ID; Datasheet - A, Sr. no. 1.0	Fill Type : PVC Splash type	As per Pre-Qualification Criteria (Annexure-1 to NIT), we understand that offered splash type fill should be fully splash type. Hybrid / Trickle / Modular type of fill are not acceptable. Please confirm.	Please follow specification. Hybrid / Trickle / Modular type of fill are not acceptable.
36	Technical Specifications of Cooling Towers	Sub-section - ID; Datasheet - A, Sr. no. 3.4	Gear box service factor : 2 (Minimum)	As per clause 5.08.00 of Sub-section IA, minimum service factor for gear box to be considered is 3.0. Please furnish the exact requirement.	Service factor for gear box to be considered is 3.0.
37	Technical Specifications of Cooling Towers	Sub-section - ID; Datasheet - A, Sr. no. 4.0	Cold Water Basin levels	Effective depth of cold water basin has been calculated based on 6 minutes holding capacity and considering maximum permissible cooling tower plan dimensions of 200 M x 21 M. Please clarify whether the basin levels are tentative and bidder can decide the basin depth based on his selected cooling tower model considering 6 minutes holding capacity and limiting plan dimensions of 200 M x 21 M.	Water levels indicated in the specification are only to be followed. Deviation is not acceptable.
38	Technical Specifications of Cooling Towers	Sub-section - ID; Datasheet - A, Sr. no. 6.5	Isolation BFV valves at each division of HW : Yes	This should not be applicable in case of a counter flow cooling tower in in-line configuration and a cross flow cooling tower with 2 nos. cell isolation valves per cell.	Please follow specification.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
39	Datasheet - A	7.9	Handrail : coat of zinc chromatic primer and two coats of synthetic enamel paint.	Handrail, being a part of civil work, should be excluded from bidder's scope. Otherwise, handrail should be of GI construction, hence, painting should not be applicable.	Please follow specification.
40	Datasheet - A	7.15	Fill support	Fully splash type fill should be supported from FRP / SS grids which in turn will be suspended from RCC / FRP beams. Please confirm.	Please follow specification.
41	Datasheet - A	Clause 7.19	Fan hub :CI IS 210 FG260/ Carbon steel IS 2062 GrB/ Eq. ASTM std. with FRP/ GRP coating	We propose MS-ECT painted fan hubs whhich will be suitable for clarified sea water application.	Fan hub shall be Hot dip galvanised steel.
42	Datasheet - A	Clause 7.21	Gearbox and fan hub supporting structure: RCC & CI IS 210 FG260/ Carbon steel IS 2062 GrB/ Eq. ASTM std. with FRP/ GRP	Mechanical equipment support weldments should be of MS - ECT painted suitable for clarified sea water application.	Please follow specification.
43	Datasheet - A	Clause 7.22	Fan drive shaft : Duplex SS	Fan drive shaft should be of composite carbon fibre / SS-316L with SS-316 couplings.	Please follow specification.
44	Datasheet - A	Clause 7.26	Sludge valve	Sludge valve internals should be of SS-316 / SS-316L.	Please follow specification.
45	Datasheet - A	7.27, 7.29, 7.30, 7.31	Basin fittings	Sludge outlet pipe should be of MS - ECT painted. Guide for stop log gates should be of SS-316/SS-316L. Screens should be of SS-316 mesh with MS - ECT painted frame. Guide for screen should be of MS - ECT painted. All above MOC will be suitable for clarified sea water application.	Please follow specification.
46	Datasheet - A	7.32	Hardware	While bolts, nuts and washers will be of Duplex SS, all other miscellaneous steel fittings should be of MS - ECT painted.	Please follow specification.
47	Datasheet - A	8.00	Pipe	FRP / GRP piping should be allowed for clarified sea water application.	Please follow specification.

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	Section	**Cl.no**			
48	Datasheet - A	9.13	All testing instruments by supplier : Yes	Testing instruments required for performance testing of the cooling tower will be supplied on loan basis and will remain contractor's property. Same will taken back after completion of performance testing.	Noted.
49	Datasheet - A	11	Buried hot water piping	Since all civil work is outside bidder's scope, supports for buried hot water header pipes should be arranged by BHEL. Moreover, all excavation and backfilling work for laying of underground header will be in Purchaser's scope.	Noted.
50	Section - I; Sub-section - IA	Clause 6.01.00	Gear box Bearing temperature : "Not High"	Please confirm whether RTD for bearing temp measurement to be included in bidder's scope.	Bidder to provide RTD with temperature transmitter for Gear box bearing temperature measurement.
51	Section - I	Annexure - M01 to Sub-section - I		Please furnish the design water quality (TDS) of re-circulating water for cooling tower.	Already furnished in specification. Please follw
52	SPECIFIC TECHNICAL REQUIREMENTS (C&I) INDUCED DRAFT COOLING TOWER section C	Clause no 1.7	All instruments shall be terminated on JB/LCP in field and both instrument and JB/LCP are in bidder scope	As field mounted weatherproof FRP IP 65 Junction boxes shall be provided , no separate Local Control Panel will be required. Please confirm.	Noted.
53	SPECIFIC TECHNICAL REQUIREMENTS (C&I) INDUCED DRAFT COOLING TOWER	Section C Clause no 1.21	Redundancy of sensors shall be provided by bidder (i) Triple redundancy for all analog and binary inputs required for protection of system/drives. (ii) For all other control functions dual redundancy of the sensors shall be provided by the bidder	Our understanding is that for tripping purpose (Vibration switch & Low Oil Level Switches), 3 nos of field instruments shall be considered for each point of measurement. Out of these 3 instruments 2 nos of field instruments shall be considered for each point of measurement for indication purpose. Please confirm.	Bidder's query is not clear. Switch is not acceptable. It is clarified that for protection purpose, three sensors are required.

ANNEXURE-A TO TCN-02					
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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
54	SPECIFIC TECHNICAL REQUIREMENTS (C&I) INDUCED DRAFT COOLING TOWER	Section C page no Clause no 1.22	Use of process actuated switches shall be avoided unless unavoidable	This clause is contradicting with clause no 1.21, clause no 1.2 ix) . If in place of Level Switches/Vibration switches Level transmitter and Vibration transmitter are required to be supplied then shall the redundancy clause be applicable for the same also? Please clarify.	As per specification transmitters needs to be provided by bidder. Redundancy to be followed as per specification.
55	SPECIFIC TECHNICAL REQUIREMENTS (C&I) INDUCED DRAFT COOLING TOWER	Section C Clause no 1.14,Clause no 1.3 xi)	Type of instruments	The referred clauses are contradictory to each other. In case temperature transmitters are dual input remote mount type then the temperature transmitters cannot be rack mounted type. Please clarifty and confirm.	Bidder to provide dual input temperature transmitter with integral display & it should be rack mounted.
56		STD. SPECIFICATION NO. PES-165-09 REV. NO. 0 DATE : 05.08.2016 SHEET 4 of 12 clause no 4.8.11 , SUB-SECTION – ID DATASHEET-A page 2 of 4 clause no 6.4	Vibration Switch	The referred clauses are contradictory to each other. Please clarify the exact requirement. This will also clarify the ambiguity of SPECIFIC TECHNICAL REQUIREMENTS (C&I) INDUCED DRAFT COOLING TOWER section C Clause no 1.22.	Bidder to follow the clause no: 1.24 of C&I -Section-C.
57	SPECIFIC TECHNICAL REQUIREMENTS (C&I) INDUCED DRAFT COOLING TOWER	Section C Clause no 1.10	Electrical Actuators with integral starter (with plug in connector) shall be provided for all on/off and inching type valves along with necessary interface units for linking to corresponding Control System as applicable, typical Hook_up diagram of drives is included for reference	We understand that butterfly type isolation valves (applicable in our scope) will be manually operated. Hence electrical actuators are not applicable.	Noted.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
58	SPECIFIC TECHNICAL REQUIREMENTS (C&I) INDUCED DRAFT COOLING TOWER	clause no 1.24	Vibration Monitoring System is envisaged for Cooling Tower Fan/Motor which is in BHEL scope. However, for mounting of vibration sensors/probe, vendor to provide vibration pad (of dimension of 80 mm*80mm*10mm each) for mounting of sensors and a notch/slot for mounting of key phasor.	We understand that cables and Junction boxes for purchaser's Vibration Monitoring System will be arranged by Purchaser only. Since complete vibration monitoring system will be arranged by BHEL, vibration pad should also be arranged by BHEL as per standard practice. In addition mounting of Purchaser's vibration sensors / probe should be also excluded from bidder's scope.	C&I Reply: Bidder to follow the specification.
59	Standard Electrical scope between BHEL and VENDOR (For EPC Projects) Rev-0	Annx –I, Sl No 12,	Aviation lighting	Aviation lighting is not applicable for IDCT.	VENDOR TO FOLLOW SPECIFICATION (SCOPE SPLIT).
60	Standard Electrical scope between BHEL and VENDOR (For EPC Projects) Rev-0	Annx –I	Lighting	For Cooling tower area , only normal AC lighting system to be provided. Emergency AC lighting and DC lighting system are not required. Please confirm.	Emergency AC lighting and DC lighting system are system specific requirement. Vendor to provide lighting as per package requirement.
61	BOOK – 2 of 2 – Civil Specification	Cement & Steel Quantities		Please specify the wastage allowance to be considered in the cement and reinforcement steel quantities to be guaranteed by bidder.	Please refer price schedule "Tonnage of reinforcement shall be calculated as per drawing (Steel used in laps, chairs etc. shall not be considered for calculation of tonnage)".

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
62	BOOK – 2 of 2 – Civil Specification	Annexure - A : Pile Data	Pile cut off level shall be 4.00m below ground level.	We understand that "ground level" mentioned here corresponds to the FGL of cooling tower area. Please confirm. In case "ground level" is referring to existing ground level in the cooling tower area, please furnish EGL in case of each cooling tower to enable bidder estimate the pile quantities accurately. Also please confirm whether test piles are to be included in the guaranteed quantity of piles to be indicated in the price schedule.	Pile cut off level shall be 4.00m below **finished** ground level. No test pile is envisaged in scope of bidder.
63	Data sheet A page 4 0f 4 Tech spec PE-TS-421-165-N001		Terminal Point of HW header	1. Please confirm whether the hot water return pipe at terminal point is underground. 2. If it is under ground, please specify the depth of centre line of pipe below FGL 3. If it is above ground please , specify the center line of hot water return pipe wrt to FGL 4. Please confirm whether the pump head mentioned as 13.5 M (at terminal point of header) is with respect to FGL or at the pipe centreline.	1. Please refer Annexure-1 of Datasheet-A for the same. 2. Please refer Annexure-1 of Datasheet-A for the same. 3. NA. 4. Pl refer clause 2.10 of datasheet A for the same.
64	Data sheet PE-TS-421-165-N001 page 3 of 4		Pump	The type of pump indicated is vertical submersible type. Please confirm the type of pump required.. please confirm the Head, discharge and MOC of pump	Please refer clause no. 4.8 & 7.33 of datasheet A of specification.
65	Data sheet A page 3 of 4- clause 7.14		fills	Fills offered by us shall be PP splash grid type –please confirm	Please refer clause no. 1 of datasheet for Fill type.
66	Data sheet A page 3 of 4- clause 7.15		Fill support	Fills shall be supported by be SS wires.	Please follow specification only.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
67	Data sheet A page 3 0f 4 clause 7.16		Louver	Louvers are not applicable for counter flow towers. However, the basin curb will have water catcher to avoid spillage of water- please confirm	Noted.
68	Data sheet page 3 of4 and cooling tower layout.		Basin partition	Please confirm weather the Basin needs to have partition for each cell or no partition in between cells in basin. As per the cooling tower layout provided by you, the basin is not having partitions and shows one out let channel to pump house. Please confirm.	Each tower basin is to be partitioned into two halves.
69	Data sheet A page 2 of 4 clause 6.4, 6.5		Valve	Distribution basin is not applicable for counter flow tower. For counter flow towers, riser isolation and cell isolation are same. Hence we have considered one Manually operated Butterfly valve for each cell/ Riser isolation. Please confirm if any other valve is required in the main hot water feeder pipe (below ground)	Please refer clause 6.5 and 6.6 of datasheet A of technical specification for the same.
70	Data sheet A page 3 of 4 clause 7.22			For this application we can give Carbon fibre drive shaft with SS 316 drive shaft coupling, and SS 316 hardware. Please confirm	Please follow specification only.
71	General		Hardware	Please confirm the material of construction and grade of hardware for cooling tower.	Please follow specification.
72	Data sheet A page 3 of 4 clause 7.20		Gear	Please specify the treatment required for Gear.	Shall be as per vendor's design for sea water application and subject to customer's approval during detail engineering.
73	Data sheet A page 3 of 4 clause 7.26, 7.30, 7.31, 7.32		Duplex SS	Please confirm the grade of DuplexSS	Please follow specification. Detailing shall be done during detail engg.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
74	Sub section 1 A page 1 of 11		Civil works	We understand that complete civil works (supply of cement, steel,sand,aggregatesetc and construction)is excluded from our scope – please confirm	Confirmed.
75	General		Embedment items	Please confirm the MOC f embedment items	Query is not clear.
76	Data sheet A page 3 of 4 clause 7.21 And subsection 1A 5 of 11		MOC of supporting structure	Please confirm the MOC of structural supporting structure of Gear box and motor.	Please follow specification.
77	Sub section 1A page 6 of 11 clause 5.15.00		Incoming hot water header	The incoming hot water header diameter shall have reduction in diameters based on velocity requirements. Please confirm The Hot water header shall be buried and the excavation and filling works for the pipe trench is to be done by you. Please confirm	CW main header return pipe dia in BHEL scope is 2600 NB (i.e OD 2632 x 16 THK) instead of 2200 NB indicated earlier. Bidder to consider same size i.e 2600 NB for main header return pipe in their scope. Apart from the above, Please follow specification's velocity criteria everywhere for HW distribution piping and risers. Noted for excavation and filling part.
78	Data sheet A page 3 0f 4 clause 2.0		Site altitude	Please confirm the site altitude tobe considered for design	Refer clause 4.1 of datsheet A of technical specification.
79	Price schedule-9		Pavement	Please confirm the pavement type, thickness, and size (length and width of pavement) to be considered for RCC estimation.	Please refer clause no. 3.4.4 of Book 2 of 2 of technical specification.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
80	Section 1, Sub section 1 A page 1 of 11		Complete Erection/ Installation of Mechanical/ Electrical/C&I equipment's	Required labour for complete erection at site shall be provided by client. We shall undertake supervision of erection. Please confirm	Deviation not acceptable. Bidder to follow specification.
81	Section I sub section 1A page 4 of 11		Fulkerson	Fulkerson calculations are applicable for Counter tower with film type rills only. Since we using splash type fill, Fulkerson calculations are not applicable. Pls confirm	Deviation not acceptable. Bidder to follow specification.
82	SCC – supply –page 24 of 26		Payment terms	Since the project is involved with huge material supply, we request you to give interest free advance of minimum 10% of the contract price.	As per tender.
83	SCC – supply – page 25 of 26		PVC clause	Since the project is more than 20 months, we request you to incorporate PVC clause.	As per tender.
84	SCC- supply – page 25 of 26		warranty	Warranty is to be given for 12 months from the date of trial operation as per tender. Please indicate the maximum time limit for trial operation from the date of mechanical completion. Generally it should be 12 months from the date of commissioning or 18 months from the date of last major supply whichever is earlier. Please confirm.	As per tender.
85	7.4 of Volume II B section C page 5 of 23		Earthing rod length selection to be based on penetration of 3 mtr below the water table	Please provide the depth of water table.	Earthing rod is to be laid 2.1m below ground level.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
86	10 of volume II B section C page 10 of 23		Earthing cable shall be included in all main cables.	Are we to consider 3.5 core/ 4 core cable for all power cables. For 3 phase with neutral it would be 4.5 core/ 5 core cable. Please confirm	In line with Clause 3 of electrical scope of supply between BHEL & Vendor. Section C, all cables are in BHEL scope of supply. Moreover, runway conductor is provided along main run of cable tray for earthing
87	15 of volume II B section C page 12 of 23		All cable trays exposed to sunlight are to be provided with shades.	As the cable for CT would be mounted one above the other are we to provide sunshade for all the trays or only for the top tray of the tray rack system. Can we consider FRP cable trays for CT deck area up to the battery limit.	Sun-shade for all trays is not required. Only tray cover for the top tray is to be provided of material as described for cable tray equipment, in line with the specification. In line with the specification, FRP trays only are to be provided in external areas, in not complete closed buildings, areas exposed with corrosive gases & steam. Hence, vendor to provided FRP cable trays.
88	17.4 of volume II B section C page 16 & 17 of 23		Power sockets of 125A, 63A & 32A of 3 phase are to be considered for the project and to be mounted	Would like to use 3 C 2.5 sqmm cable. Please confirm.	Specification to be followed.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
89	Clause 9 of electrical scope of supply between BHEL & Vendor. Section C		MS rod would be provided by BHEL balance to be provided by vendor.	As per earthing specs copper earthing system is to be provided. Are we to supply the same for below ground also.	In line with scope split, the material for earthingviz copper clad steel rods shall be supplied by BHEL. The E & C for the same is in vendor scope. Hence, vendor to consider material for the same suitably.
90	Clause 11 & 12 of electrical scope of supply between BHEL & Vendor. Section C		Aviations lights	As the CT height is below the ACO limit requirement are we to consider the supply of the system.	Bidder to follow specification
91	Clause 1.5 of instrument requirement		Each temperature transmitter should have its dedicated temperature transmitter	It should read as each temperature transmitter should have its dedicated temperature element. Please confirm. Are we to consider din-rail mounted transmitter for the project.	Temperature transmitter to be provided for all temperature measuring devices. Dual input temperature transmitter is required for all temperature element. For further detail please refer cl no-B0.6.19.9 for specification of temperature measurement.
92	Clause 1.24 of instrument requirement		Vendor to provide vibration pad for mounting of sensors	Please confirm the installation of the sensors would be on Gear box body/ frame.	Shall be decided during detailed engineering.
93	Clause 1.26 of instrument requirement		Instrument shall have separate tapping lines.	Instrument mounted on lubrication line of gearbox will have separate tapping on the line but would be pulled from single outlet on the gearbox. Please confirm.	Separate tapping line for instruments required.
94	Clause 1.28 of instrument requirement		All instrument shall be protected by cases minimum IP67.	Please confirm the point relates to individual instruments protection and not their weather canopies.	As per specification protection for instruments required.
95	Clause 1.30 of instrument requirement		All transmitter shall be fitted with local analog indicator.	All transmitter would be provided with digital indicator as standard. This would not imply for din-rail mounted type transmitters.	Bidder to follow the specification.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
96	Clause 4.8.11 of PES-165-09 page 4 of 12		Each fan shall be provide with oil level switch and anti-vibration cut-off switch.	As per Instrument specification VMS has been considered for the project which is in BHEL scope. Please confirm if additional switch is to be considered for individual fan.	Bidder to follow the clause no: 1.24 of C&I -Section-C.
97	NIT_M1862 Annexure I Page 12 of 45 clause 2.00		Pre Qualification Criteria : Designed, Constructed And Commissioned Three (3) Numbers Induced Draft Cooling Towers In RCC Construction With Splash Type Fill, Of Capacity Not Less Than 13,000 Cum/Hr Which Should Have Been In Successful Operation For A Period Not Less Than two(2) Years Prior To The Date 22/09/2015. The Reference Cooling Towers Should Be Of The Same Type, I.E. Cross Flow Splash Type Cooling Tower Or Counter Flow Splash Type Cooling Tower As Is Being Offered By The Bidder. Splash	As described in tender, construction is not in the scope of the vendor. We propose to modify the PQ as under : Designed, Commissioned Three (3) Numbers Induced Draft Cooling Towers In RCC Construction With Splash Type Fill, Of Capacity Not Less Than 13,000 Cum/Hr Which Should Have Been In Successful Operation For A Period Not Less Than two(2) Years Prior To The Date 22/09/2015. Alternately if construction is compulsory, we have references for Cooling Tower in concrete construction with Film fill type. Our understanding is that the Film or Splash does not really matter as far as construction is concerned. Hence modified PQ shall be Designed, Constructed And Commissioned Three (3) Numbers Induced Draft Cooling Towers In RCC Construction With Film fill / Splash Type Fill, Of Capacity Not Less Than 13,000 Cum/Hr Which Should Have Been In Successful Operation For A Period Not Less Than two(2) Years Prior To The Date 22/09/2015.	Deviation not acceptable. Please follow technical PQR.

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S.No.	**Reference**		**Description**	**Query**	**Clarification**
	Section	**Cl.no**			
98	Data sheet A page 4 0f 4 Tech spec PE-TS-421-165-N001 Clause11		CW return piping	CW return pipind Diais indicated as 2200NB in Data sheet and in layout drawing. Since the pipe velocity is more than 3.0m/sec for the design flow of 41400 cmh , request you to confirm the CW return pipe dia in your scope. Please confirm the velocity to be taken for CW return pipe in our scope.	CW main header return pipe dia in BHEL scope is 2600 NB (i.e OD 2632 x 16 THK) instead of 2200 NB indicated earlier. Bidder to consider same size i.e 2600 NB for main header return pipe in their scope. Apart from the above, Please follow specification's velocity criteria everywhere for HW distribution piping and risers.