EXPRESSION OF INTEREST

FOR

SELECTION of BACKEND TECHNOLOGY PARTNER FOR PARTICIPATION IN TENDER FOR

" Limited RFP - Setting -up /Establishment of Data Center at MHA "

EOI Ref No. BECIL/PROJ/S&D/EOI-4/MHA/2023-24

Dated: 20 January 2023

Issued By

Strategic Department

Broadcast Engineering Consultants India Limited
(A Government of India Enterprise)

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DISCLAIMER

The information contained in this Request for Proposal document (the "EOI") or subsequently provided to Bidder(s), whether verbally or in documentary or any other form by or on behalf of BECIL or any of its employees or advisors, is provided to Bidder(s) on the terms and conditions set out in this EOI and such other terms and conditions subject to which such information is provided. This EOI is not an agreement and is neither an offer nor invitation by BECIL to the prospective Bidders or any other person. The purpose of this EOI is to provide interested parties with information that may be useful to them in making their offers (Bids) pursuant to this EOI. This EOI includes statements, which reflect various assumptions and assessments arrived at by BECIL in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This EOI may not be appropriate forall persons, and it is not possible for BECIL, its employees or advisors to consider the investment objectives, financial situation and particular needs of each party who reads or uses this EOI. EachBidder should, therefore, conduct its own investigations, actual site/ facilities/location inspections and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements and information contained in this EOI and obtain independent advice from appropriate sources. Information provided in this EOI to theBidder(s) is on a wide range of matters, some of which may depend upon interpretation of law. The information given is not intended to be an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. BECIL accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein. BECIL, its employees and advisors make no representation or warranty and shall have no liability to any person, including any Applicant or Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be incurred or suffered on account of anything contained in this EOI or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the EOI and any assessment, assumption, statement or information contained therein or deemed to form part of this EOI or arising in any way for participation in this Bid Stage. BECIL also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this EOI. BECIL may in its absolute discretion, but without being under any obligation to do so, update, amend or supplement the information, assessment or assumptions contained in this EOI. The issue of this EOI does not imply that BECIL is bound to select a Bidder or to appoint the Selected Bidder for the Project and BECIL reserves the right to reject all or any of the Bidders or Bids without assigning any reason whatsoever. The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by BECIL or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and BECIL shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process. In case of any rejection/cancellation, no bidder has any right to claim any compensation or reimbursement to cost. Participation in EOI does not guarantee selection of bidder.

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SECTION –I

INTRODUCTION AND BRIEF DESCRIPTION

1. ABOUT BECIL

Broadcast Engineering Consultants India Limited (BECIL) an ISO 9001:2008 certified, a Mini Ratna public sector enterprise of Government of India under Ministry of Information & Broadcasting, was established on 24th March, 1995 for providing consultancy services of international standards for broadcasting in transmission and production technologies including turnkey solutions in the specialized fields of Terrestrial & Satellite Broadcasting, Cable, Media and various Information Technology(IT) related fields, including security, surveillance, acoustics & audio-video systems and smart cities.

BECIL is the professional platform which carry out business, both in India and abroad, in the fields of broadcasting, communication, IT, electronic surveillance (namely CCTV, Access Control, Intrusion, Fire Safety, Hydrants, etc.), and electronic media contents including films etc. The activities include but not limited to Supply, Installation, Testing & Commissioning, Consultancy Services, Technical Audit, Media Analysis, R&D, projects pertaining to Digital India, City Surveillance, Safe City, Smart City, Make in India, Manufacturing, Audio Video & Data Analysis, Cyber Security, Engineering, Procurement & Construction, Project Management Services, Operation and Maintenance, Manpower Placement, AMC etc.

2. INTRODUCTION OF PROJECT/TENDER

3. INTENT AND IMPORTANT ASPECTS OF THE EXPRESSION OF INTEREST (EOI)

The Intent and important aspects of this Expression of Interest is (EOI) are as follows:-

(a) BECIL is interested to submit a competitive bid in response to the **Limited Tender Number: 06/2020 dated 14 Feb 2020**

(b) The intent of this EOI is to select an Implementation Agency/ System Integrator / Back end Technology partner of BECIL, for collaborating with BECIL for preparing a bid and participating in the above mentioned tender. A Pre-Bid Agreement will be signed by BECIL with the Implementation Agency/ System Integrator / Back end Technology partner selected through this EOI, for preparation of the bid and participation in the above mentioned tender. The format of Pre Bid Agreement is at **Annexure-J**.

(c) In case the bid submitted by BECIL against the **Limited RFP: 06/2020 dated 14 Feb 2020**, prepared in

collaboration with the Implementation Agency/ System Integrator / Back end Technology partner selected through this EOI, is accepted and BECIL receives Work Order/Agreement from/with the Client, BECIL will issue a Work Order/Agreement to the selected agency. In such a scenario, the following conditions will be applicable, which are to be fully taken into consideration by the bidders, prior submitting a response to this EOI:-

(i) The Implementation Agency/ System Integrator / Back end Technology partner selected through this EOI, will have to sign a POST AWARD CONTRACT with BECIL, for undertaking the work as per the abovementioned Client'stender.

(ii) All terms and conditions of the Client's Llimited**Tender Number: 06/2020 dated 14 February 2020** , and any subsequent amendments/ corrigenda thereof, will be applicable fully on back to back basis on the Implementation Agency/ System Integrator / Back end Technology partner selected through this EOI, including all important terms and conditions likeEMD, PBG, Payment Terms, SLA conditions, Liquidity Damages, and any other penalties etc.

(iii) EMD and Performance Bank Guarantee as applicable shall be payable by the selected bidder on back to back basis as per the terms and conditions of Client Tender, and any subsequent amendments/ corrigendum thereof.

(iv) In case the bidding against Client's Tender requires online payment for EMD, the proportionate amount will have to be paid in similar mode by the selected bidder to BECIL. In case the bidding is on GeM portal or requires submission of EMD in the form of Bank Guarantee. The successful bidder has to submit back to back EMD to BECIL. The cost incurred towards GeM transaction charges and/or EMD (BG) making charges shall also be recovered from the selected bidder in case the Project is awarded to BECIL by the client

(v) All payments in the Project to the selected agency, shall be on back-to-back basis only subject to receipt of corresponding payment from the client. No advance will be paid to the bidder, even though BECIL is eligible to get advance from the customer being a front end bidder, unless a BG of equivalent amount is submitted by the selected agency to BECIL.

(vi) The selected bidder, who has partnered with BECIL for a particular tender/ project shall not partner with any other lead bidder for the same tender/project.

Bidders are advised to inspect the site and ascertain the conditions including leads/lifts involved /approach to vehicles, power, water geo political scenario etc prior to submitting theirbids. Their bid price shall be for completeness of system without any extra cost

SECTION –II

4. IMPORTANT DATES (SCHEDULE AND CRITICAL DATES)

S.N.	ACTIVITY	SCHEDULED DATE & TIME
1.	**EOI Number & Date**	EOI Ref No. BECIL/PROJ/S&D/EOI-4/MHA/2023-24 dated 20 January 2024
2.	**Date & Time of Issue of EOI**	Date: 20 January 2023 Time: 11:00 AM
3.	**Last date and Time for Submission of bids**	Date: 24 January 2023 Time: 3:00 PM
4.	**Place of Submission ofEOI / Opening of EOI**	BECIL Bhawan, C-56 / A -17, Sector - 62, Noida – 201 307, **OR** BECIL, 14-B, Ring Rd, IP Estate, New Delhi, Delhi, 110002
5.	**EOI Processing Fee** (Non-refundable)	INR 15000/- + GST (Proof of submission to be submitted in BID). Relaxation to be given to MSME & Startup as per Government norms.
7.	**EMD**	As per Client Tender Number L**Tender Number: 06/2020 dated 14 February 2020**. Bidder needs to submit undertaking for back to back payment of EMD if selected for EOI under reference. .
8.	**Address for Communication of bids**	BECIL Bhawan, C-56 / A -17, Sector - 62, Noida – 201 307.
9	**Contact details for this EOI**	STRATEGIC DEPARTMENT , BECIL Telephone/ Mobile No. 9971693393 Email : stratdept@becil.com

- NOTE: Broadcast Engineering Consultants India Ltd. reserves the right to amend the EOI tentative schedule and critical dates without giving any explanation whatsoever. Corrigendum may be published in this regard on www.becil.com . Bidders are advised to check the website for updates in this regard.

SECTION –III
EOI NOTICE & GENERAL TERMS AND CONDITION

5. EOI NOTICE

5.1 Broadcast Engineering Consultants India Limited (BECIL) invites Expression of Interest (EOI), through offline mode, for selection of an Implementation Agency/ System Integrator / Back end Technology partner of BECIL, for collaborating with BECIL for preparing a bid and participating in the Tender Number :06/2020 dated 14 Feb 2020

5.2 **The duly signed Hard Copy of the Bid/ Techno Commercial Proposal is to be submitted in a packed and sealed envelop, in Tender Box, BECIL BHAWAN C56/A17 Sector 62 Noida (UP) 201307** .

5.3 The EOI must be addressed to the given name and address:To,

Strategic Department
Broadcast Engineering Consultants India Limited
C-56/A-17, Sector-62,Noida, Uttar Pradesh-201307

5.4 The EOI must be submitted in English Only. All the documents including the supporting documents/enclosures etc. must be Calibri/Aerial/Times New Roman, font size-12 and fully legible. Supporting documents if in a language other than English must be accompanied by a English translated document. The English version shallprevail in matters of interpretation. Each and every page of the EOI should be numbered and mention the relevant page no. of the documents in the checklist. **EOI Documents which are not legible shall be rejected.**

5.5 The representative of agency will require a specific authorization/ board resolution to submit the EOI.

5.6 In case the bidder has any doubt about the meaning of anything contained in the EOI document, she/he shall seek clarification within 1 days of issue of EOI. Except for any written clarification by Shri Binay Kumar Tiwari, Deputy General Manager BECIL, no written or oral communication, presentation or explanation by any other employee of BECIL shall be taken to bind or fetter BECIL under the contract.

5.7 Bidders shall have to submit an amount of **Rs. 15,000/- + GST** through RTGS/ NEFT to BECIL (**Bank Mandate Form Enclosed at Annexure B**) towards the cost of EOI Document and no other mode of payment is acceptable. EOI Document is also available at BECIL Office: C-56/A-17, Sector-62, Noida, Uttar Pradesh-201307. The cost of EOI document is non-refundable.

5.8 The Management of BECIL reserves the right to amend or withdraw any of the terms and conditions mentioned in the EOI Document or reject any or all the bids without giving any notice or assigning any reason. The decision of the Director, Broadcast Engineering Consultants India Limitedin this regard shall be final and binding on all.

5.9 BECIL reserve the right to amend any term of the EOI at any point of time before the submission and bidder should regularly check the website. Further, BECIL also reserves to increase/decrease/delete/add any BOQ item. Further any amendment done by client after the selection of bidder, all the amendment will be applicable. In case of non-acceptance of such amendment, the EMD submitted will be forfeited by BECIL.

5.10 The bidder should submit the signed Integrity Pact on a plain paper along with the bid.

5.11 The Bidders will have no right to withdraw from the EOI process post submission of their bid without the formal consent of BECIL.

6. SUBMISSION OF EOI

6.1 EOI, complete in all respects, must be submitted offline.

6.2 BECIL may, at its own discretion, extend the date for submission of EOI. In such a case all rights and obligations of BECIL and the Bidders shall be applicable to the extended time frame.

6.3 As the EOI can be submitted only up to the defined date and time, there can't be any latebids. BECIL will not be responsible for any delay in obtaining the terms and conditions of the tender. BECIL will not be responsible for postal delays. Bids received after the due date will not be opened and rejected.

6.4 At any time prior to the last date for receipt of EOI, BECIL may for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the EOI Document by an amendment. The amendment will be notified on BECIL's website **http://www.becil.com** and should be taken into consideration by the prospective bidders while preparing their EOI.

6.5 The bidders will bear all costs associated with the preparation and submission of their bids.BECIL will, in no case, be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

6.6 The EOI must contain:

6.6.1 Company/bidder profile relevant to EOI.

6.6.2 It should also include details of past experience relevant to the "Scope of Work".

6.6.3 Declaration regarding acceptance of Terms and conditions of EOI.

6.6.4 Declaration of not been blacklisted by any of the Government agency.

6.6.5 Essential information such as Name & address of the agency, Business Name, E-mail id, Fax No. /Telephone No. , Authorized Signatory name, E-mail ID and contact no.

6.7 The agency/ bidder/OEM/Implementation Agency shall ensure that it fulfills the eligibility criteria as desired in the EOI and other essential conditions. Compliance statement of Eligibility criteria with the documents submitted as a proof is to be prepared and submitted. The supporting documents may be with list of existing and past clients with details of services offered, details of similar projects executed.

6.8 The EOI should be duly signed on each page by authorized person. Each page should be properly numbered. Documents authorizing the signatory must accompany the EOI.

6.9 The EOI complete in all respects must be submitted with requisite information and annexure(s). The EOI should be free from ambiguity, change or interlineations. Incomplete EOI will not be considered and is liable to be rejected without making any further reference to agency/ bidder/OEM/Implementation Agency(s).

6.10 Bidders have to take into account any changes/amendments made in the end client's tender/RFP through corrigendum till date of submission of bid in response of EOI.

6.11 The bidder shall be ignored, if complete information is not given there-in, or if the particulars and data (if any) asked for are not filled in properly.

6.14	**Checklist of documents/information to be submitted**	
	(a)	Profile of the company/bidder/firm
	(b)	Certificate of Incorporation (for Company/LLP)
	(c)	Memorandum & Articles of Association/Partnership deed
	(d)	Audited financial statements for the last 3 years
	(e)	Income Tax Return Acknowledgment for last 3 years
	(f)	Bid Security Declaration to be submitted by the MSME
	(g)	GST Registration Certificate or valid exemption certificate
	(h)	Copy of PAN Card
	(i)	Any other relevant registration documents on registration with other appropriate authorities (ESIC, EPFO, Labour Deptt etc.)
	(j)	Authorization letter in the bidder's letterhead authorizing the person signing the bid for this EOI as Power of Attorney (POA)
	(k)	Undertaking in letter head to indemnify BECIL from any claims / penalties / statutory charges, liquidated damages, with legal expenses etc.

	(l)	Bidders Details as per format
	(m)	All the requisite documents in the prescribed formats placed at Annexures to this EoI
	(n)	Pre-Contract Integrity Pact as per Annexure-A (a) "Bidders participating in the EOI have to agree to sign Integrity Pact on placement of order / contract" (b) "Those bidders who are not willing to sign Integrity Pact will not be considered for bid opening"
	(o)	All the documents in support of Technical criteria like Experience Certificates, PO, proposed Makes for the solution, Solution architecture (if asked) and other documents as required.
	(p)	Price Offer to BECIL as per Format of the EoI
	(q)	Technical Compliance as per the SCOPE of Work defined

7. OPENING OF EOI

7.1 The bids submitted against this EOI shall be opened on 11th December 2023 at 03:30 PM. BECIL reserves the right to change the date of opening of bid.

7.2 Bidders who wish to attend opening of EOI may visit BECIL for the same at the designated time, with authorization in proper format on bidder's letter head.

8. GENERAL TERMS & CONDITIONS OF EOI

8.1 The EOI Processing Fee, technical bid and financial bids are to be placed in separate sealed envelopes, super scribed with words "**EOI Processing Fee**", "**Technical Bid**" and "**Financial Bid**". All the three sealed envelopes as mentioned above are to be placed inside a single sealed envelope named as
"**Response For EOI No.**
Submitted by: [Firm/Company name]"

8.2 All bids are to remain valid for minimum of 180 days from the date of submission. BECIL reserve the right to seek the extension of bid validity.

8.3 BECIL reserves the right to solicit additional information from bidder/OEM/ImplementationAgency to evaluate which bid best meets the need of the Project. Additional information may include, but is not limited to, past performance records, lists of available items of works which will be done simultaneously with the project, on-site visit and evaluations by BECIL personnel, or any other pertinent information. It will be vendor's responsibility to check for updated information on website https://www.becil.com. BECIL reserves the right to cross verify the information directly with client
8.48.4

8.5 BECIL reserves the right to waive off any deviations, accept the whole or part thereof or reject any or all bids and to select the bidder/OEM/Implementation Agency(s) which, in the sole opinion of BECIL, best meets the project's interest. BECIL also reserves the right to negotiate with potential bidder/OEM/Implementation Agency(s) so that its best interest to fulfill the need of project is served.

8.6 BECIL reserves the right to reject any and all proposals, to negotiate all terms of any agreement resulting from this EOI, and to request additional information from bidder.

8.7 All information contained in this EOI, or provided in subsequent discussions or disclosures,is proprietary and confidential. No information may be shared with any other organization,including potential sub-contractors, without prior written consent of BECIL.

8.8 In case the agency selected through EOI goes into liquidation or undergoes achange in business/management, it will be intimated to BECIL & the selected agency will fulfill its

commitment in case order is awarded to them. In case the selected agency is not able to perform, the work under reference will be done at risk & cost of the selected agency (successful bidder). EMD or PBG as the case may be will be forfeited by BECIL

8.9 Any dispute or difference or claim arising out of or in relation to this EOI, including the construction, validity, performance or breach thereof, shall be settled or decided by CMD/Director, BECIL or by any other person to be nominated by CMD/Director.

8.10 Intellectual Property Rights:

8.10.1 All deliverable, outputs, plans, drawings, specifications, designs, reports and other documents and software submitted by the bidders under this EOI and subsequent to this EOI in relation with this tender shall become and remain the property of BECIL/procuring entity and subject to laws of copyright and must not be shared with third parties or reproduced, whether in whole or part, without BECIL's/ the procuring entity's prior written consent.

8.10.2 The bidder shall, not later than upon termination or expiration of this EOI and/or subsequent Agreement/Contract signed with the bidder, deliver all such documents and software to BECIL/the procuring entity, together with a detailed inventory thereof.

8.10.3 The bidder may retain a copy of such documents and software but shall not use it for any commercial purpose.

8.11 The bidder shall submit an undertaking on their letter-head stating that:

"In reference to the Government of India, Ministry of Finance, Department of Expenditure, Office Memorandum No. F.No. 6/18/2019-PPD, Dated 23-07-2020. I hereby submit that:
"We have read the Clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; We certify that we are not from such a country *or our beneficial owner is not from such a country or we will not sub-contract any work to a contractor from such countries,* if from such a country, have been registered with the Competent Authority.
We hereby certify that we fulfill all requirements in this regard and are eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]".

8.12 The bidder needs to submit un-priced BOQ along with their technical bid.

8.13 The bidder needs to submit an Undertaking stating that: Vendors, whose Purchase Order(s) for any Project of BECIL was/were cancelled on risk & cost basis for non-performance or non- submission of performance guarantee in last 2 years, are not eligible to participate in this tender.

9. SIGNING OF NON-DISCLOSURE AGREEMENT

Bidders interested to participate in a EOI, where client requires signing of NDA, then bidder also have to sign a NON-DISCLOSURE AGREEMENT with BECIL on a non-judicial stamp-paper of Rs. 100, and the required EOI document fee has to be deposited to BECIL.

Participation without compliance to above shall be invalid and such bids will not be considered by BECIL.

SECTION –IV
SCOPE OF WORKS

10. SCOPE OF WORK/SCHEDULE OF REQUIREMENTS

10.1 For detailed scope of work of the project & the Bill of Material, the bidders may refer the Client's Tender document, and it's amendments & corrigenda issued subsequently (if any); Limited **Tender-Complete Tender Copy is available with the Strategic Department made available to read and refer at the Strategic Department in working hour till the date of Submission of EOI after signing an NDA as the tender enquiry is Limited and Confidential in nature .**

(*Bidders are instructed t o check for any new corrigendum/amendments etc. before bidding*)

Client's Tender Reference No: 06/2020 Dated 14 February 2020.
Website: Limited Tender (Submission by Hard Copy Only)

SECTION –V
ELILIGIBILITY CRITERIA AND EVALUATION

11. ELIGIBILITY CRITERIA OF BIDDERS		
	1.	**Company/Bidder's Profile**: (a) The Bidder shall be Company/bidder incorporated /registered in India under Companies Act 1956/2013/ proprietorship/ partnership firm/ Limited Liability Partnership (LLP). (b) The bidder should have a valid PAN and GST Registration. Copy of PAN card and GST Registration certificate should be submitted in the bid. (c) The bidder should not be insolvent, in receivership, bankrupt or being wound up, not have had their business activities suspended and not be the subject of legal proceedings for any of the foregoing. An undertaking by the bidder should be submitted. (d) The Bidder should not be blacklisted/debarred/banned/restricted by any Union Govt./State Govt. / PSU as on date of submission of the Bid. "No-Conviction Certificate" duly signed by authorized signatory signing the bid, should be submitted. (e) The bidder should have valid ISO 27001:2013 , ISO 20000:2018,ISO 9001:2015 .
	2.	**Financial Eligibility:** (a) The Vendor should have a minimum Average Annual Turnover of ₹10 crores.. (b) A positive average net worth of minimum ₹10 Crores and should be Profit making in each of the last three financial years (FY 2020-21, 2021-22, 2022-23) from the date of online submission of bid .
	3.	Technical Eligibility Criteria:

		(a) The vendor should have experience in implementation/ upgradation works related to on-premises Data Centre/ Disaster Recovery Centre in the last five years from the date of online submission of bid that meets the below mentioned requirement:- 1. Project/ Work Order value shall be minimum: a. Single Work order of Value ₹50 Crores or above b. Two Work Orders each of Value ₹30 Crores or above c. Three Work Orders each of Value ₹25 Crores or above 2. Each Work order must include any 4 of the following components: a. Server b. Storage c. Router/ Switch d. WAF/ Internet Firewall/ Core Firewall e. EDR/ IPS/ HIPS/ SIEM or any other Threat Intelligence tool/ DDOS f. Virtualisation/ EMS/ NMS g. DC to DR solution 3. Bidders in house data centres shall not be considered. 4. Work Orders from State/UT/Central Govt. departments, PSUs, Enterprises shall be considered.	Following documents shall be furnished by the Bidder: a) Copy of Relevant Work Order with BoQ and cost details highlighting the components. b) Completion Certificate from client on client's letter head duly signed by client in the name of the bidder. Note: - The PO/ Workorder/ contracts / letter should be in the name of the bidder and clearly mention the scope of work. Project should have been successfully completed in the last five years in India from the date of online submission of bid i.e., completion certificate date must be within the last 5 years counted backwards from date of online submission of bid. Completion means: Project should have been implemented and should be in the O&M Stage. OR In case project is Ongoing a certificate from the CA/ Statutory Auditor has to be provided mentioning that 20% of CAPEX value of the project has been received.

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		(b) Bidder should submit the Manufacturer Authorisation Form (MAF) for the quoted product Racks & UPS as per the compliance	Certificate required

12. PRELIMINARY EVALUATION

12.1 BECIL shall evaluate the proposals to determine that they are complete, technically complying, no computational errors have been made, required documents as mentioned in the EOI have been furnished, the documents have been properly signed and the response is generally in order. In case of any calculation error, the total (final) price shall be considered for evaluation.

12.2 BECIL may waive off any minor infirmity or non-conformity or irregularity in the proposal which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any bidder/OEM/Implementation Agency.

12.3 In case only one bid is received or during the Technical Evaluation only one bidder/OEM/Implementation Agency qualifies for the next stage of the bidding process, BECIL reserves the right to accept/reject the bid.

12.4 In case two bids are received from the bidder, both the bids will be rejected

13. EVALUATION PROCESS

14.1 No enquiry shall be made by the bidder/OEM/Implementation Agency (s) during the course of evaluation of the EOI, after opening of bid, till final decision is conveyed to the successful bidder/OEM/Implementation Agency(s). However, the Evaluation Committee/its authorized representative and office of BECIL can make any enquiry/seek clarification from the bidder/ OEM/ Implementation Agency(s), which the bidder/OEM/ Implementation Agency s must furnish within the stipulated time else the bids of such defaulting bidder/OEM/Implementation Agency(s) will be rejected. The proposal will be evaluated on the basis of its content, not its length.

14.2 The bidder/OEM/Implementation Agency s' proposals will be evaluated as per the requirements specified in the EOI and adopting the evaluation criteria spelt out in subsequent paras of this EOI document. The bidder/OEM/Implementation Agency are required to submit all required documentation as per evaluation criteria specified in EOI.

14.3 Upon verification, evaluation/ assessment, if in case any information furnished by the bidder/OEM/Implementation Agency is found to be Incomplete/incorrect, their bid will be summarily rejected and no correspondence on the same shall be entertained. Submission of false/forged documents will lead to forfeiture of security deposit/EMD and blacklisting of agency for a minimum period of 3 years from participating in BECIL tenders.

14.4 BECIL will review the proposal to determine whether the proposals are as per the requirements laid down. Proposals that are not in accordance with these requirements are liable to be disqualified at BECIL's discretion.

14.5 Evaluation of proposals shall be based on:

14.5.1 Information contained in the proposal, the documents submitted there to and clarifications provided, if any.

14.5.2 Experience and Assessment of the capability of the bidder/ OEM/ Implementation Agency based on past record.

14.6 BECIL reserves the right to seek any clarifications on the already submitted bid documents; however, no fresh documents shall be accepted in support of proposals. BECIL also reserves the right to cross verify the information with any agency.

14.7 Conditional proposals shall NOT be accepted on any ground and shall be rejected straightway. If any clarification is required by the bidders, the same should be obtained before submission of the proposals.

14.8 Even though bidder/OEM/Implementation Agency satisfy the necessary requirements they are subject to disqualification if they have:

14.8.1 Made untrue or false representation in the form, statements required in the EOI document.

14.8.2 Records of poor performance such as abandoning work, not properly completing contract, financial failures or delayed completion.

14.9 The Financial Evaluation of the Bidders will be done only for those who qualify the Eligibility Criteria and other mentioned criteria of the EoI.

15 FINANCIAL EVALUATION OF THE BIDS.

The Bids will be financially evaluated as under:

Financial Bid Evaluation		
		Price and Margin Bid Format: **A** - Submit Lump sum Prices for supply and service items as per Schedule of Requirements (SoR) and Scope of Work (SoW) in INR (without Taxes) **B** - Quote margin to BECIL as a percentage of A [***Minimum - 5%***] **C** - Absolute value of Margin = **A*B** **D** - Overall Quoted price by bidder = **A-C**

a) During evaluation, bidders with least "**D**" will be considered as **L1** and shall be declared the successful Bidder.

b) The bid having higher value of "**B**" will be selected in case of two or more bidders have similar value of **D**.

c) In case of a tie, the bidder who will be ready to offer higher value of "**B**" will selected. In case the stalemate/ tie persists, Evaluation Committee of BECIL shall ask the bidders to conduct

presentation on their proposed solution/understanding of the Project. Evaluation Committee will then select the bidder whose presentation will be the best, without giving any reasons/ justifications. The decision of Competent Committee of BECIL shall be final in this regard, and shall be abided by all bidders.

d) If the bidder is selected, during the final tender submission, the price to be quoted to the Client shall not be more than price "**A**" and the margin offered to BECIL shall not be less than "**B**".

e) The decision of BECIL shall be final in this regardand cannot be challenged in any manner and also be abided by all the bidders.

f) **L1** bidder may be called for further negotiations, if required.

g) A Pre-Bid agreement shall be signed by BECIL with the successful declared **L1** bidder as per Pre-Bid Agreement placed at **Annexure-J**.

SECTION –VI

ENCLOUSERS AND ANNEXURES

Annexure-A

PRE CONTRACT INTEGRITY PACT

Between

Broadcast Engineering Consultants India Limited (BECIL) hereinafter referred to as **"Principal")**

And

…… hereinafter referred to as **"The Bidder/Contractors"**

Preamble:

The Principal intends to award, under laid down organizational procedures, contracts **for .....**The Principal values full compliance with all relevant laws of the land, rule, regulations, economic use of resources and of fairness / transparency in its relations with its Bidder(S) and / Contractor(s).

In order to achieve these goals, the Principal will appoint an Independent External Monitor (IEM), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

1.1. The Principal commits itself to take all measures necessary to prevent Corruption and to observe the following principles: -

a) No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or Immaterial benefit which he/she is not legally be entitled to.

b) The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

c) The Principal will exclude all known prejudiced persons from the process.

1.2. If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Office and in addition can initiate disciplinary actions.

Section 2 – Commitments of the Bidder(s)/ Contractor(s)

2.1. The bidder(s) Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

a) The Bidder(s) Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract/ or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

b) The Bidder(s) Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

c) The Bidder(s) Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s) Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

d) The Bidder(s) Contractor(s) of foreign origin shall disclose the name and address of the Agents/ representatives in India, if any. Similarly, the Bidder(s) Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" Shall be disclosed by the Bidder(s) / Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/ representative have to be in Indian Rupees only.

e) The Bidder(s) Contractor(s) will, when presenting himself, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract/Agreement.

2.2. The Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process and exclusion from future contracts

If the Bidder(s) Contractor(s), before award or during execution has committed a transgression through a violation of Section 2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s) Contractor(s) from the tender process or take action as per the defined procedure.

Section 4 – Compensation for Damages

4.1. If the Principal has disqualified the contractor from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages Equivalent to Earnest Money Deposit / Bid Security.

4.2. If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the contract value or the amount equivalent to Performance Bank Guarantee.

Section 5 – Previous transgression

5.1. The Bidder(s) contractor declares that no previous transgression occurred in the last 3 years with any other Company in any country conforming to the Anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

5.2. If the contractor makes incorrect statement on this subject, he can be disqualified from the tender process or action can be taken as per the procedure mentioned in "Guidelines on Banking of business dealings".

Section 6 – Equal treatment of all Bidders/Contractors/Subcontractors

6.1. The Bidder(s) Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact and to submit it to the Principal before contract signing.

6.2. The Principal will enter into agreement with identical conditions as this one with all Bidders, Contractors and Subcontractors.

6.3. The Principal will disqualify from the tender process all bidder who do not sign this Pact or violate its provisions.

Section 7 – Criminal charges against violating Bidder(s)/ Contractor(s)/Subcontractor(s)

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same Chief Vigilance Office.

Section 8 – External Independent Monitor/Monitors

8.1. Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

8.2. The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD of M/s Broadcast Engineering Consultants India Limited (BECIL).

8.3. The Bidder(s)/Contractor(s) accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/Contractor(s)/Subcontractor(s) with confidentiality.

8.4. The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

8.5. As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit nonbinding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

8.6. The Monitor will submit a written report to the Chairperson of the Board of the Principal within 8 to 10 weeks from the date of reference or intimation to him by the 'Principal' and, should the occasion arise, submit proposals for correcting problematic situations.

8.7. If the Monitor has reported to the CMD of the BECIL, a substantiated suspicion of an offence under relevant APC/PC Act, and the Chairman BECIL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Chief Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.8. The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

This Pact begins when both parties have legally signed it. It expires for the Contractor 20 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded. If any claim is made/lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by CMD, M/s. Broadcast Engineering Consultants India Limited.

Section 10 – Other provisions

10.1. This agreement is subject to Indian Law. Place of performance and jurisdiction is the head office of the Principal, i.e., New Delhi.

10.2. Changes and supplements as well as termination notices need to be made in writing. Side agreement have not been made.

10.3. If the Contractor is a partnership or a consortium, this agreement must be, signed by all partners or consortium members.

10.4. Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intensions.

FOR AND ON BEHALF OF CONTRACTOR **FOR AND ON BEHALF OF PRINCIPAL**

ANNEXURE B (BANK MANDATE FORM)

- DETAILS FOR PAYMENT OF TENDER PROCESSING FEES

यूनियन बैंक Union Bank of India

आन्ध्रा Andhra | Corporation

(A Govt. of India Undertaking)
MID CORPORATE BRANCH, DELHI SOUTH
D -26-28, Connaught Place, NEW DELHI -110001
Tel:+91-9137849790; Fax: 01-11 23414330 ; Swift: UBININBBNDL
Email: ubin0549797@unionbankofindia.bank

Ref.: MCB:ADV:ATL:2022-23: Date: 18.01.2023

TO WHOMSOEVER IT MAY CONCERN

A	Name of the Beneficiary	BROADCAST ENGINEERING CONSULTANTS INDIA LIMITED
i	Address with Pin Code	BECIL Bhawan, C-56/A17, Sector -62, Noida - 201307 (U.P)
ii	Permanent Account Number (PAN)	AAACB2575L
iii	(a) Telephone No.	0120-4177861
	(b) Fax Number	0120-4177879
	(c) Contact Person	Sh. Awadhesh Pandit General Manager - (Finance and Accounts)
	(d) E-mail Address	panditmd@becil.com
	(e) Mobile No.	+91-8130918866
B	Bank Particulars	
i	Bank Name	UNION BANK OF INDIA
ii	Bank Contact No	+91-9137849790
iii	Branch Address with Pin Code	26/28, 1st Floor, D Block, Connaught Place, New Delhi, 110001.
iv	BSR Code	549797
v	MICR	110026046
vi	SWIFT CODE	UBININBBNDL
Vii	11 Character IFSC Code of the Bank (Either enclosed a cancelled Cheque or obtain Bank Certificate as appended)	UBIN0549797
VIII	Bank Account Number as appearing on the Cheque Book	565101000065461
Ix	Bank Account Type	Overdraft
X	If other, Specify	--

**This certificate is issued on the specific request of our customer without any risk and responsibility on the part of the bank or any of its employees.*

Bank Stamp with Authorized Signatory

Date 20-01-2023

Page 1 of 1

Annexure - C

Particulars of The Bidder

1.	Name of company/bidder	
2.	Office Address /Telephone No / Fax No / email id / website	
3.	Year of establishment	
4.	Status of the Company/bidder	
5.	Name of Directors	i) ii) iii)
6.	Names of principle person concerned with this work with title and Telephone No / Fax/ Email Id, Etc.	
7.	Whether registered with the registrar of companies /registrar of firms. If so, mention number and date.	i) ii) iii)
8.	In case of change of Name of the Firm, former Name / Names and year/ years of establishment:	
9.	GST Registration Certificate	
10.	Whether an assessed of income tax. If so, mention permanent account number. Furnish copies of income tax clearance certificate.	
11	State Annual turnover of the company/bidder Furnish copies of audited balance sheet and profit & loss account (audited) for the last three years.	
12	Particulars and place of similar type of works done in a single order. (Furnish details in a separate sheet and enclose copy of the employers certificate)	
13	Specify the maximum value of single work executed in the past three years.	
14	Status and details of disputes/ litigation/ arbitration, if any.	

Signature of Authorized Signatory

Place:_____
Date: _____
Address:_____
Mobile:_____
Email ID: _____

Annexure – D

Annual Turnover & Net worth

(To be printed on implementing agency's letterhead and signed by Authorized signatory.)

To
The General Manager
Broadcast Engineering Consultants India Limited
BECIL Bhawan, C-56, A/17, Sector-62, Noida-201307

Full Name of Bidder (Supplier) entity:

Full Address of Bidder (Supplier) entity:

S. No.	Financial Year	Turnover of Bidder	Net worth	Remarks
1	2020-21			
2	2021-22			
3	2022-23			
	Average			

*Enclose Audited Balance sheets only.

Note: The required certificate from CA with UDIN No. is enclosed along with this form. Certificate without UDIN No. will be rejected.

Signature of Authorized Signatory
Place:_____
Date: _____
Address:_____
Mobile:_____
Email ID: _____

Annexure – E

Performa of letter of Undertaking for Bid Validity

To
General Manager
Broadcast Engineering Consultants India Limited
BECIL Bhawan, C-56, A/17, Sector-62, Noida-201307

Reference: EOI No. <<>> dated << 202X>>

I/We hereby submit our Bid and undertake to keep our Bid valid for the period of 180 days from the date of submission of the Bid.

I/We also agree to abide by and fulfill all the terms, conditions of provision of the bid document.

Signature of Authorized Signatory

Place:_____
Date: _____
Address:_____
Mobile:_____
Email ID: _____

Annexure - F

Bid Covering Letter

To
General Manager
Broadcast Engineering Consultants India Limited
BECIL Bhawan, C-56, A/17, Sector-62, Noida-201307

Reference: EOI No.<<>> dated << 202X>>

Dear Sir/Madam,

We, the undersigned, offer to provide Systems Implementation solutions to the Purchaser on <Name of the Systems Implementation engagement> with your Expression of Interest dated <insert date>and our Proposal. We are hereby submitting our Proposal, which includes our Technical bid.

We hereby declare that all the information and statements made in this Technical bid are true and accept that any misinterpretation contained in it may lead to our disqualification.

We undertake, if our Proposal is accepted, to initiate the Implementation services related to the assignment not later than the date indicated in Fact Sheet.

We agree to abide by all the terms and conditions of the EOI document. We would hold the terms of our bid valid for <180> days as stipulated in the EOI document.
We understand you are not bound to accept any Proposal you receive.

Signature of Authorized Signatory

Place:_____
Date: _____
Address:_____
Mobile:_____
Email ID: _____

Annexure - G

Credentials Summary

S. No.	Project Name	Client Name	Client Type	Project Value (in INR)	Documentary evidence provided (Yes or No)	Project Status (Completed or Ongoing or Withheld)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Signature of Authorized Signatory

Place:_____
Date: _____
Address:_____
Mobile:_____
Email ID: _____

Annexure - H

Self-Declaration For Non Black Listing

[ON BIDDER'S LETTER HEAD]

Bidder Ref. No. ……
Dated : ……..

To
General Manager
Broadcast Engineering Consultants India Limited
BECIL Bhawan, C-56, A/17, Sector-62, Noida-201307

We, M/s. ---------- hereby declare that the firm/company namely M/s. ----------, as on the date of bid submission, has not been blacklisted or debarred by any of the Central Government or State Government or any organization under Central/ State Government or any Statutory Authority, or any Public- Sector Undertaking.

M/s.....has not been found guilty of any criminal offence by any court of law in India or abroad.

M/s..... , its directors and officers have not been convicted of any criminal offence related to their professional conduct or the making of false statement or misrepresentations as to their qualifications to enter into procurement contract within a period of three years preceding the commencement of the procurement process or have not been otherwise disqualified pursuant to debarment proceedings.

Yours faithfully

For,

Signature of Authorized Signatory
Place:_____
Date: _____
Address:_____
Mobile:_____
Email ID: _____

Annexure - I

Undertaking Regarding Payment Of GST/ Filing Of GST Return

Ref…….. Date

To,
The Chairman and Managing Director,
Broadcast Engineering Consultants India Limited,
56-A/17, Block-C, Sector-62, Noida-201307 (U.P.)

Subject: Undertaking regarding Payment of GST/ Filing of GST Return

Dear Sir,

This is in connection to the works awarded by M/s Broadcast Engineering Consultants India Limited (BECIL), we hereby undertake that we will comply with Goods and Services Tax 2017 and subsequent amendment and Various Rules Relating to GST Act, 2017(herein after referred to as GST Act and Rules) wherever we are obliged to comply with the GST Act and GST Rules.

We further hereby undertake that we will issue proper **"Tax Invoice"** and/or any other Relevant Document as required under GST Act and Rules. We will furnish appropriate GST return and pay GST as required under GST Act and Rules on timely basis and will provide GST credit on timely basis through GST Portal (and/or by any other means as provided by GST Act and Rules).

We hereby certify & undertake that we will not alter, delete or modify the tax invoices and other details uploaded at GST Portal unless approved by BECIL in writing. We hereby certify all the relevant document along with tax invoice as the case may be

We also hereby certify & undertake that we indemnify BECIL on account of any loss of GST input credit as well as any interest, penalty, demands or other costs, expenses suffered by BECIL because of any failure on our part to file appropriate Return on time and/or pay Tax to Government/Appropriate Authority.

In case we do not make payment the tax/interest/penalty/other expenses etc. on demand raised by Government/Tax Authorities due to default/delay on our part/action, we also authorize BECIL to forfeit/deduct from security held by BECIL, equivalent amount of interest/penalty/tax etc. for the amount so withheld.

Signature of Authorized Signatoy on behalf of Agency

Address: _____
Mobile:_____
Email ID: _____

Annexure - J

PRE-BID AGREEMENT

This Agreement is made at NOIDA on___NOVEMBER 2023 between:

M/s. Broadcast Engineering Consultants India Limited, Mini Ratna Public Sector Enterprise of the Government of India having its Registered Office at 56-A/17, Block-C, Sector-62, Noida -201301 (U.P.) and Head Office at 14-B IP Estate Ring Road, New Delhi -110002 acting through _____, Deputy General Manager (hereinafter referred to as **"BECIL" or "First Party")** which expression shall unless repugnant to the context or meaning thereof, include its successors, authorized representatives and permitted assigns as the First Party. **BECIL** represents that it is an ISO 9001:2015, 27001:2013, ISO/IEC 20000:2012 certified, Mini Ratna Public Sector Enterprise of the Government of India and provides project consultancy services and turnkey solutions encompassing the entire gamut of radio and television broadcast engineering viz content production facilities, terrestrial, like satellite and cable broadcasting in India and abroad. It also undertakes supply of specialized communication, monitoring, security and surveillance system to Defense, Police department and various Para-military forces. BECIL has specialization in executing TV/Radio broadcasting, IT networking, Security Surveillance, Audio Video and Access control system projects in various Govt. departments throughout the country by its team of intelligent and dedicated technical officers and staff

AND

M/s XXX Company/firm incorporated under Companies Act, 1956 having its Registered Office at **YYY** by Mr. **XYZ**, Managing Director (hereinafter referred to as **" XX "or "Second Party")** which expression shall, unless repugnant to the context or meaning thereof, include its successors, authorized representatives and permitted assigns as the Second Party. **XX** represents that it is a company/firm which has _____

BECIL and XX individually referred to as "**Party**" and jointly as "**Parties**".

PREAMBLE

A) WHEREAS …….. (Hereinafter referred as "CUSTOMER" or "END CUSTOMER") floated Tender **Number:** _____ **Dated:** _____ for

_____(name of the work). (Hereinafter referred as "**RFP**")

B) That BECIL intends to submit its bid as in response to this RFP and it may by means of contracts and agreements enter into AGREEMENT with bidder of the related technology for the purpose of this RFP.

C) AND WHEREAS BECIL has floated an EOI no._____(hereinafter referred to "**EOI**") for selection of Backend partner for **RFP**.

D) AND WHEREAS XX **has been selected as backend partner of BECIL through terms of EOI. Also** XX **agrees to execute entire scope of work for above mentioned Customer's RFP, if the bid submitted by BECIL against the RFP is accepted, and if BECIL receives a Work Order for the same. This agreement has been put into effect from date of signing of this agreement on an exclusive basis.**

E) AND WHEREAS the purpose of this pre bid agreement is to formalize an understanding between **BECIL** and **XX** for **RFP**. Tender, if awarded to BECIL will be called as "Project".

F) AND WHEREAS both the parties agreed to work together for preparation and submission of the Bid against the Customer's RFP and in case of award of work to BECIL, execute the work

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

ARTICLE 1. GENERAL

1.1 PURPOSE

A) WHEREAS, End Customer has **floated** RFP/ Tender **Number:_____Dated: _____** for_____(Name of the work).

B) XX has agreed to associate itself and render its services to BECIL in the capacity of System Integrator for the purpose of the aforesaid RFP enabling BECIL to bid for the RFP.

C) Both the parties have read and understood the terms of the aforesaid RFP. Second Party has agreed not to disclose the terms of the aforesaid RFP to anyone unless so authorized to do so by the First Party. The PARTIES will execute the PROJECT, if awarded, in terms of responsibility as ascribed to each party. XX will do the entire systemintegration for the project, if awarded which covers the entire scope of work mentioned in the tender RFP documents or any subsequent modifications/amendments thereof. BECIL undertakes to be responsible for all overall Project Management and correspondence/ interface/ interaction with the Customer.

1.2 REPRESENTATION OF PARTIES

Second Party represents to the First Partythat as on date of

(a) That Second Party is duly organized, validly existing and in good standing under the laws of its incorporation and has all requisite power and authority to enter into this Contract.

(b) That the execution, delivery and performance by Second Party of this Contract have been authorized by al necessaryand appropriatecorporate or governmentalaction and will not to the best of its knowledge:

(i) Requireanyconsent or approvalnot alreadyobtained;

(ii) Violate any Applicable Lawpresently in effect and havingapplicability to it;

(iii) Violate the Agreement and articles of association, bye-laws or other applicable organizationa documents thereof;

(iv) Violate any clearance, permit, concession, grant, license or other governmental authorization, approval, judgment, order or decree or any mortgage Contract, indenture or any other instrument to which Second Party is a party or by which Second Party or any of its properties or assets are bound or that is otherwise applicable to Second Party;

(v) Create or impose anylicense, mortgages, pledges, claims, securityinterests, charges or Encumbrances or obligations to create a lien, charge, pledge, security interest, encumbrances or mortgage in or on the property of such Party, except for encumbrances that would not, individually or in the aggregate, have a material adverse effect on the financial condition or prospects or business of Second Party so as to preventsuch Partyfromfulfilling itsobligationsunderthis Contract;

(c) That Second Partyhasnot been black-listed by Central/ State Government or anyother Government PSUand are not facing/likely to face anydisciplinaryproceedingsunder Indian or under laws of anyother country.

(d) Thatthis Contract, RFPNo._____Dated_____andthe NOAissued by BECILdated_____is the legal and bindingobligation of such Party, enforceable in accordancewith its termsagainst it;

(e) That there is no litigation pending or, to the best of Second Party's knowledge, threatened to which it or any of its Affiliates is a party that presently affects or which would have a material adverse effect on the financial condition or prospects or business of such Party in the fulfilment of its obligationsunderthis Contract.

(f) Thatthere is no legalaction/disputeinitiated or pending on Second Party at the timeofsigning of this contract which is likely to concern or affect BECIL in any manner. If any such case is found pending, the contract will automatically become invalid and the agency will be penalized by withholding the EMD, PBG and legal action will be initiated as deemed fit by the competent authority. All ongoing and future business association with BECIL will also be terminated.

1.3 RESPONSIBILITY MATRIX

P-Primary Responsibility

S-Secondary Responsibility

J- Joint Responsibility

S. NO.	PRE-BID RESPONSIBILITY	BECIL	XX
1.	Pre bidding site survey, if any	S	P

2.	Technical bid preparation as per RFP along with MAF and datasheets of fully complied products as per the RFP specifications.	**J**	**J**
3.	Competitive commercial bid preparation as per RFP	**S**	**P**
4.	Coordination with OEMs/distributors for preparation of bid.	**S**	**P**
5.	Technical Bid Facilitation.	**S**	**P**
6.	Commercial Bid Facilitation	**s**	**P**
7.	Prepare the bid as per eligibility criteria. Interaction with customer and going through the RFP process.	**P**	**S**
8.	Documentation and correspondence with the customer.	**P**	**-**
9.	Provisioning of certificates from OEMs for product support, warranty, spare availability and delivery as per the customer/ RFP requirement.	**-**	**P**
10.	Provisioning of EMD to end customer as per RFP requirement.	**P**	
11.	Provisioning of EMD to BECIL on proportionate basis.		**P**
12.	Provisioning of any other required document for bidding.	**J**	**J**
13.	Submission of complete techno-commercial offer to the customer in requisite mode.	**P**	
14.	Execution of field trials and any product demonstrations and tests, as required by the customer.	**S**	**P**
15.	Any other relevant follow up, correspondence and meetings with customer.	**P**	**S**
16.	Support during Reverse Auction (if any)	**S**	**P**

- **NOTE : A detailed Agreement of POST-BID responsibility shall be signed subsequently, if the project is awarded and Work Order issued by the Customer to BECIL.**

1.4 The detailed Agreement for selected bidder between the parties will contain:

(a) Tasks to be performed by each Party towards execution of the Project
(b) Expenditure to be incurred by the parties towards execution of the Project.
(c) The paying or making of all necessary provisions for taxation.
(d) The making of all necessary provisions for the repayment of any borrowings by the Consortium Members.
(e) Responsibilitymatrix of the PARTIES to execute the PROJECT, if awarded, jointly. This will covers the entire scope of workmentioned in the tender RFPdocuments or anymodificationsthereof.
(f) Other Modalities/conditions that might arise or might require to be incorporated towards complete & satisfactory execution of the Project.
The above list is illustrative and not exhaustive and will include apart from the above other clauses also.
(g) Financial Arrangements.
The above list is illustrative and not exhaustive and will include apart from above other clauses also

ARTICLE 2:- **TERM AND TERMINATION**

2.1. **Terms:** This AGREEEMENT shall be valid from the date of signing and shall terminate on the earliest occurrence of one of the following:

a) A Contract for the PROJECT has been awarded by the End Customer to BECIL and the parties and the parties hereto have subsequently entered into and signed a comprehensive formal AGREEMENT referred to under item 1.4 above;

or

b) In case the Contractfor the PROJECT is awarded to otherentity/bidder or the PROJECT is cancelled and all rights and obligations between the PARTIEShereto according to this AGREEMENThavebeen fulfilled;

or

c) By Mutual consent between the Parties

2.2. **Effect of Termination or Expiration**: Upon any expiration or termination of this AGREEMENT and subject to applicable laws; Each party will (i) return (or destroy if requested by the disclosing party) the original and all copies of any confidential & proprietary information of the disclosing party; and (ii) at the disclosing party's request, have one of the officers of the receiving party certify in writing that it has fully complied with the provisions of this Clause. For the purpose of this Clause, the expression "Confidential & Proprietary Information" shall be limited to matters of commercial confidence, Proprietary rights, trade and business secrets and intellectual property but shall not include correspondence exchanged between the parties and contents thereof.

2.3 In the event order is placed on BECIL by the end customer wherein BECIL is to use services of _____XX_____, _____XX_____will have no right to terminate this agreement till such time that the project is complete in all respects including the expiration of AMC period, if any

ARTICLE 3:- PAYMENT & COMMERCIAL TERMS AND CONDITIONS

3.1 While preparation and submission of Bid against the Client's RFP, BECIL will Provision the EMD to end customer as per the customer RFP requirement._____XX_____will provision an EMD of Proportionate amount to BECIL on back to back basis.

3.2 In case the bid submitted by BECIL against the Customer's RFP, prepared in collaboration with _____XX_____, is accepted and BECIL receives Work Order from the Customer, the following conditions will be applicable:-

(i) BECIL will provision Transaction charges, Annual Milestone charge and any other charges for signing the agreement with the customer, payable to GEM. All such charges shall be recovered in total quantum from_____XX_____**.**

(ii) BECIL will issue Work/Supply Order/s to_____XX_____**,** on becoming L1, ensuring net **% margin** to BECIL on the total basic value of the project

(iii) All terms and conditions of the Customer's RFP, and any subsequent amendments/ corrigendums thereof, will be applicable fully on back to back basis on _____XX_____, including all important terms and conditions like EMD, PBG, Payment Terms, SLA conditions, Liquidity Damages, and any other penalties etc.

(iv) EMD and Performance Bank Guarantee as applicable shall be payable by _____XX_____on back to back basis as per the terms and conditions of Customer's RFP, and any subsequent amendments/ corrigendums thereof.

(v) In case the bidding against Customer's RFP requires online cash payment for EMD, the proportionate amount will have to be paid in similar mode by _____XX_____to BECIL. In case the bidding is on GeM portal or requires submission of EMD in the form of Bank Guarantee. The successful *System Integrator/Consortium Partner/Back-end Technology Partner/ImplementationAgency* has to submit back to back EMD to BECIL the cost incurred towards GeM transaction charges and/or EMD (BG) making charges shall also be recovered from _____XX_____in case the Project is awarded to BECIL by the Customer.

(vi) All payments in the Project to_____XX_____, shall be on back-to-back basis only subject to receipt of corresponding payment from the Customer. No advance will be paid to_____XX_____, even though BECIL may be eligible to get advance from the customer being a front end bidder, unless a BG of equivalent amount is submitted by_____XX_____to BECIL.

(vii) All pricing by_____XX_____would be inclusive of all statutory taxes payable by_____XX_____. However any statutory change in Tax Structure prevailing at the time of invoicing shall be binding to both - _____XX_____and BECIL. Their bid price shall be for completeness of system without any extra cost.

ARTICLE 4: CONFIDENTIAL INFORMATION

4.1. Subject to applicable laws and as required by End-Customer, Law-Enforcement agencies & Government agencies, the terms of this AGREEMENT are agreed by all the Parties to be confidential and all information disclosed by one party to each other hereunder shall be kept strictly confidential.

4.2. Each party shall keep any information obtained by it from the other party strictly private and confidential for the purpose of:

(a) preparation of bid for the tenderand/or,
(b) In case of award of a Contract for the PROJECT to BECILand/or,
(c) Execution of the PROJECT

ARTICLE 5: LIMITATION OF LIABILITY

5.1. With the exception of any breach of confidentiality obligations, neither party will be liable to the

other party for any costs, damages, expenditure, loss of profits, prospective profits of any kind or nature etc. arising from the termination or alleged breach of this AGREEMENT or in any manner arising from this AGREEMENT.

ARTICLE 6:- GENERAL TERMS & CONDITIONS

6.1 AGENCY

This agreement between the parties is on a principal to principal basis and it is agreed that _____XX_____is not and shall not represent itself as an agent of BECIL.

6.2 CONFIDENTIALITY

The parties along with their employees working on the specified projects agree to maintain strict confidentiality of all information of technical or business nature provided to each other pursuant to this agreement and/ or any subsequent agreement or any correspondence in writing between them. This clause shall survive the expiry/termination of this agreement.

6.3 ASSIGNMENT

This AGREEMENT may not be assigned by either party, by operation of law or otherwise, without the prior written consent of the other party. This AGREEMENT will be binding upon, and ensure to the benefit of, the permitted successors and assigns of each party. Any purported assignment in violation of this clause will be null and void.

7. INTELLECTUAL PROPERTY RIGHTS

BECIL would make no claim on the technology / algorithms used in servicing the clients either during the contract or ever later. Both the parties agree that consideration mentioned under commercial term of this agreement is after taking into consideration the cost of intellectual property rights, if any, to be used under this agreement and no further claim in this regard shall be entertained by BECIL. BECIL shall be kept indemnified by **XX** for any kind of breach of IPR of any third party for all the products/services supplied by it under this agreement.

Any amendment to this AGREEMENT, if required, shall be done in writing with the mutual consent of the parties.

8. WARRANTIES AND UNDERTAKINGS

i. Each Party acknowledges that it is and shall remain liable to the other party for the consequences of any failure on its part or on the part of its Personnel to fulfill the tasks assigned to it under this Agreement.

ii. Each Party shall be responsible for providing all appropriate facilities and services as shall be necessary in the proper performance of its obligations, which will be entirely at that Party's own expense.

9. INDEMNITY

Each party shall indemnify, keep indemnified and hold harmless the other Party from and against all costs, expenses, liabilities, injuries, direct, indirect or consequential loss (all three of which terms include, without limitation, pure economic loss, loss of profits, loss of business, depletion of goodwill and like loss), damages, claims, demands, proceedings or legal costs (on a full indemnity basis) and judgments which it may incur or suffer as a result of a breach of this Agreement or negligent acts or omissions or willful misconduct of the Party and/or its Personnel including without limitation any resulting liability the Consortium has to any third party.

10. ASSIGNMENT AND SUB-CONTRACTING

Neither this Agreement nor any of the rights and obligations under it can be assigned by any party. Parties may engage sub-contractors by mutual consent, subject to the compliance with the Tender terms.

11. FORCE MAJEURE

No Party will be deemed to be in breach of this Agreement, nor otherwise liable to the other for any failure or delay in performance of this Agreement if it is due to any event beyond its reasonable control other than strike, lock-out or industrial disputes but including, without limitation, acts of God, war, fire, flood, tempest and national emergencies.

12. DISPUTE RESOLUTION

i. All disputesarising out of or in connection withthis Agreement andany amendmentsthereof, shall, as far as they cannot be amicably settled between the parties, shall be submitted to arbitration by a Sole Arbitrator to be appointed by CMD ,BECIL. The venue of arbitration shall be Delhi. Arbitration proceedings shall be governed by Arbitration & Conciliation Act, 1996 or any subsequent modification thereof.

Note : During a dispute, each Party must continue to perform its obligations under this Agreement.

13. GOVERNING LAW AND JURISDICTION

This Agreement is governed by the laws of India and each Party irrevocably and unconditionally submits to the exclusive jurisdiction of the Courts at New Delhi, India.

14. NOTICES

i. Any intimation, notice, request, grievances, complaint or consent required or permitted to be given or made pursuant to this Agreement shall be in writing. Any such notice, request or consent shall be deemed to have been given or made when delivered in person to an authorized representative of the Party to whom the communication is addressed or when sent by registered post to such Party at the specified address.

ii. Any notice issued pursuant to this Agreement must be in English and in writing. All notices, correspondence or other communication relating to this Agreement shall be given:

(a) by being personally served on the designated Party; or
(b) by being sent to the Party's designated address for service by prepaid ordinary mail; or
(c) to the designated facsimile ; or
(d) to the designated e-mail address.

The particulars for service to each party are:
Address: XXXX
Fax:
E-mail:

Address: Broadcast Engineering Consultants India Limited
BECIL BHAWAN , C56/A17 Sector 62 Noida 201307

Fax: +91 11 23379885
E-mail: stratdept@becil.com

15. WAIVER

The failure by Parties to enforce at any time or for any period any one or more of the terms or conditions of this Agreement will not be a waiver by them or of the right at any time subsequently to enforce all terms and conditions of this Agreement.

16. SURVIVAL

i. The representations and warranties contained in this Agreement survive the termination of this Agreement.

ii. Each indemnity and guarantee arising in respect of this Agreement survives the performance of obligations arising out of or under this Agreement and the termination of this Agreement and will continue in force as long as necessary to affect their purpose.

17. VARIATION

This Agreement may be amended at any time by written agreement of the Parties. No variation to this Agreement shall be effective unless in writing signed by a duly authorized officer of each of the Parties.

18. COUNTERPARTS

This Agreement is executed in two counterparts, with each party retaining one original.

19. DAMAGES

Once the Bid has been submitted, neither of the parties may withdraw from its obligations & terms of the present AGREEMENT. Any damage/loss caused to BECIL due to failure on the part of _____XX_____to enter into a detailed agreement as mentioned above, shall be borne by _____XX_____and will be made good by it in case BECIL has to make payment of any damages/penalty to End Customer of any nature whatsoever. EMD will be forfeited by BECIL and can claim damages for the loss of reputation

20. ENTIRE AGREEMENT

This Agreement hereto constitutes the entire agreement between the Parties with regard to the subject matter contained in this Agreement and supersedes all prior negotiations, representations, agreements and understandings, written or oral preceding the execution of this Agreement.
By signing this AGREEMENT, BECIL and_____XX_____acknowledge that it correctly records the understanding they have reached with regard to the Project.

IN WITNESS WHEREOF, the parties have caused this AGREEMENT to be executed by their respective authorized representatives with effect as of the Effective Date.

NOTE : ALL the RFP Terms and condition and corrigendum thereof , shall be binding on the XX on back to back basis.

FOR AND ON BEHALF OF BECIL	**FOR AND ON BEHALF OF XX**
	Date:
Date:	
	Place:
Place:	
	Witness
Witness:	
	1.
1.	

Annexure – K

Power of Attorney for signing the Bid on Rs. 100 Stamp Paper

KNOW ALL MEN BY THESE PRESENTS,

We "Name of Bidder" do hereby irrevocably constitute, nominate, appoint and authorize_____, who is presently employed with us and holding the position of **"_____"**, as our true and lawful attorney *(hereinafter referred to as the "Attorney")* to do in our name and on our behalf, all such acts, deeds and things as are necessary or required in connection with or incidental to submission of our application for qualification and submission of our bid for the Project "**Name of Project"** of "_____**"** (the "client") including but not limited to signing and submission of all applications, bids and other documents and writings, participate in pre-applications and other conferences and providing information/ responses to the client, representing us in all matters before the client, signing and execution of all contracts including the Agreement and undertakings consequent to acceptance of our bid, and generally dealing with the client in all matters in connection with or relating to or arising out of our bid for the said Project and/ or upon award thereof to us and/or till the entering into of the Agreement with the client. The act done by _____(Name of authorized person) will be binding on the selected bidder.

IN WITNESS WHEREOF WE, (Name of Bidder)____, THE ABOVE-NAMED PRINCIPAL HAVE EXECUTED THIS POWER OF ATTORNEY ON THIS DAY OF Date _____ **.**

For **Name of Bidder**,

_____

_____

Accepted

Witnesses:

1. (Notarized)

2.

	TECHNICAL			
	CIVIL			
1	**Walls and Partitions**			
A	Gypsum Wall in DC			
2	**False Floor**			
A	False Floor in DC Room with Foot step			
B	False Floor in NOCC Room			
3	False Roof in DC			
4	Emergency and Exit doors for DC			
5	Ramp / Foot step in DC			
6	**Electrical Equipment**			
A	300/350 KVA Transformer			
B	200 KVA Modular UPS with redundant bricks			
C	UPS Batteries (Li-Ion)			
D	Racks for housing UPS & batteries			
E	50 KVA STS switch			
F	BUSBARS in DC			
G	Earthpits			
7	**Electrical Panels & fixtures**			
A	UPS Input Panel			
B	UPS Output Panel in DC (for BUSBARs, STS, misc. equipment & lighting)			
C	DEB Panel for Cooling infra. & lighting in DC			
8	**Electrical cables, fixtures**			
A	Transformer to AMF Panel			
B	DG Set to AMF Panel			
C	AMF Panel to UPS INPUT Panel			
D	DC UPS to OUTPUT Panel in DC area			

E	Building UPS to OUTPUT Panel in DC area			
F	BUSBARs to IPDUs			
G	Earthing for various equipment & racks			
9	**Cooling equipment**			
A	Chillers x 2			
B	In-Row Cooling units			
10	**Rodent & Repellent**			
A	Maser units or equivalent with satellites			
11	**Cold Aisle**			
A	Doors for Cold Aisle			
B	Covering of Cold Aisle (top)			
12	**Env. Monitoring equipment**			
A	Temp. Sensors			
B	Humidity			
C	Water leakage detection			
D	Hooter			
13	**Surveillance**			
A	IP cameras			
B	NVR			
14	**Racks**			
A	Server & Network Racks with iPDUs			
D	Trays above the racks			
E	Tray connecting both the rows			
15	**Biometric Access**			
A	Controller & Reader units			
B	Biometric Software			
16	**VESDA & Fire Suppression**			
A	Smoke Detectors			
B	Fire Suppression Cylinders with Novec 1230			
C	Control units			
D	Auto & Manual Gas release stations			
17	**Additional IT Equipment**			

A	55" LED Panel			
B	75" LED Panels x 2			
C	Quad Port KVM x 2			
D	16 Port KVM x 2			
E	ALL-IN-ONE PCs x 8			
F	Thin Clients x 2			
G	Laptops x 2			

Annexure-III

Commercial Bid format

S.No	Item Description	Onetime (O) Recurring (R) / AMC	One time cost for 3 yrs, without taxes	Total cost for 3 yrs. with Taxes	Cost for Addl. 2 yrs. waranty without taxes	Total cost for 2 yrs. with Taxes
1.	Civil works Cold Aisle, Ramp, entry Step to DC, False Floor, False Roof, Earth pits, Labouré works, Piping, Fire Retardant doors for DC, Chiller piping, Mesh for the chiller units, Stand/base for chiller etc.	O			NA	NA
2	Server Racks & N/W Racks	O			NA	NA
3	IPDUs	R				
4	Chillers with In Row units	R				
5	BUSBARS	R				
6	Rodent & Repellent	R				

7	200 KVA UPS & Battery	R				
8	Battery bank	R				
9	Electrical DB Panels	R				
10	AMF Panel	R				
11	VESDA & Fire Suppression	R				
12	Biometric Access controller & Readers	R				
13	Surveillance Cameras	R				
14	NVR with S/W	R				
15	Transformer	R				
16	DCIM	R				
17	Intelligent Display panels	R				
18	Env. Monitoring (Sensors)	R				
19	50 KVA STATIC switch	R				
20	ALL-IN-ONE-PC-08nos.	R				
21	Thin Clients-02nos.	R				
22	Laptops-02 nos.	R				
23	75" Smart LED Panels-2 nos.	R				
23	55" LED Panels-01 no.	R				
23	16 port KVM switch-2nos.	R				
23	Quad Port KVM Switch-1no.	R				
24	Electrical cabling	0			NA	NA

- L1 of the Bidder will be computed based on the Total cost for 3 yrs.warranty with taxes.
- Additional 2 yrs. extended Warranty /AMC will be awarded at the end of 3 yrs. to the L1 bidder based on the satisfactory service report of last 3 years services and as per procedure given in Part-V of this document.

14 Annexure-C: Abbreviations & Acronyms

NVR	Network Video Recorder
ATS	Auto Transfer Switch
NPS	Network Power Switch
VESDA	Very Early Smoke Detection and Alarm
IPDU	Intelligent Power Distribution Unit
UPS	Un-Introspected Power System
DG	Diesel Generator
AMF	Automatic Mains Failure
DC	Data Centre
AMC	Annual Maintenance Contract
DEB	Delhi Electricity Board
BG	Bank Guarantee
PO	Purchase Order
DB	Electrical Distribution Panel
NIA	National Investigation Agency
NOCC	Network Operations and Control Centre
BS	Battery System
BMS	Building Management System
EMD	Earnest Money Deposit

Existing wooden partitions if any in the DC need to be removed. No wooden / card board partitions are allowed.

To meet the current requirement, DC room will be housed with 16 racks in two rows. It is required to construct Cold Aisle with appropriate doors on both sides of the rows. The construction of Cold Aisle is of two rows with 8 racks on each row side with appropriate in-row cooling units with redundancy. On each side 7 compute racks (600mm x 1200mm) and one Network (800mm x 1200 mm) in the middle of each row are proposed.

Cut-outs in the walls / partitions / false floor and false roof at required places shall be provided for Electrical and Data cabling entry to the DC room and such entry / exit points need to be sealed.

6.1.1. *Specifications Of Fire Rated Bricks*

Make: Gypsum Blocks
Width: Maximum 3 - 4 inch
Standards: Fire rated bricks adhering to European and British EN 12859 Standard.
Dimensions: Each block size can be of length 666 mm, height: 500 mm.
Fire Standards: The wall should offer 2 hrs. F-30-A & BS-476 Fire Protection.

6.2 Cold Aisle Containment System

- Openable double Door to be provided for entering the containment area using metal sheets with **1 mm thickness** with Frame to be provided from both sides of the Cold Aisle (ie two entrances).
- Fire Retardant / Rated Toughened Glass need to be used for the doors so that the Cold Aisle area is clearly visible from both sides of the Aisle.
- Fire Detection & suppression units are to be housed to cover the Cold and Hot Aisle.
- The Entire containment should be sealed properly with 10mm thickness twin-wall Polycarbonate Sheets to avoid mixing of Cold Air and Hot Air directly.
- All Hardware required would be standard as per manufacturer's standard specifications.
- The material used for construction of Cold Aisle should comply to UL standards.
- Doors should open to the outside of Cold aisle

6.2.1 Technical Specifications

Cold Aisle containment system as per design (Ref: - Diagram-1)

Distance between the two rows from back of the rack on both sides has to be of min. 1200mm

Double door Height and Width: Should cover the entire Cold Aisle top portion to avoid direct mixing / escape of Hot air in to the Cold air zone.

Complete Horizontal Shielding of the entire Cold Aisle bay.

Should have the provision to house lighting & fixtures in the Cold and Remaining area of DC.

6.3 False Roof / False Ceiling

The tiles should be covering the beams in DC. The distance between the constructed false ceiling and slab should be of max. two feet ensuring 8 to 9 feet height between access floor and False roof. Ceiling grid shall be supported on 2.5 mm suitable powder coated hot dipped galvanized steel wires hooked to the RCC slab.

Appropriate cut-outs for fixing Surveillance cameras, VESDA piping and sensors, Rodent and Repellent sensors and lighting fixers need to be provisioned.

6.3.1 Specifications of the False Roof / False Ceiling

Material: GI Metal ceiling lay in plain Tegular edge Global white color tiles of sizes 595mm x 595 mm and 0.5 mm thick with 8 mm drop, made of GI sheet having galvanizing of 100 gms/sqm (both sides inclusive) and electric statically polyester powder coated of thickness 60 microns (minimum) including factory painted after bending.

6.4 False Floor / Access Floor / Raised Floor

The false floor should be laid at max. 1.5 feet height from the real floor. Required cut-out to be provisioned for routing of cooling pipes. Should have acoustic barrier and air leakage resistance. Proper earthing of the False floor need to be taken care.
False Floor Tiles should not come with any border material and the tile placement should be of tile to tile in all corners.

6.5 Specifications of False Floor / Access Floor / Raised Floor:

Material: Made from Cementius Steel, solid fire resistant material. Epoxy access flooring with antistatic lamination.
Standards: EN 12825, Tile with top finish of 1mm High Pressure Antistatic Laminate (HPL) with Edge Support Rigid Grid (ESRG) System.
Load / Tolerance: To withstand UDL of 1000/m. sq., The pedestal shall withstand axial load of 22KN. Appropriate ratio of UDL and Concentrated Load should be maintained.

Height: Max. 1.5 feet (450 mm) clearance between bottom of floor and false floor with assembly support for 30mm adjustment.

Suction equipment (manual) for lifting tiles (Access Floor Systems) need to be provisioned.

Tolerance / Deflection: < 2.5 mm

However required modifications towards ramp from the 1st door and step inside the DC from the 2nd door need to be provided.

Note: Suction equipment (manual) for lifting tiles (Access Floor Systems) need to be provisioned.

6.6 DC Entrance and Emergency Exit Doors

Appropriate door sizes need to be provisioned. Proper access has to be provided to brought-in / service or replacement of large items.

The server room shall be provided with a main access door manufactured from high quality galvanized steel and having fire rating up to 2 hours (conforming to BS 476 part 22 and IS 3614 part 2 standards). The doors shall be **1100 x 2100 mm size** with SS ball bearing butt hinges, mortise lock, heavy duty door closer and all other accessories. The door shall be painted with etch primer and finish painting of approved color to match the color scheme of the area.

The doors shall be as per the standards set by CBRI [Central Building Research Institute – Roorkee [UP], IS 3614 Part 2 and BS 476 Part 20 and 22] or equivalent.

All doors should be opened outside w.r.to DC area.

6.6.1 Required Features of Door

Galvanized Painted, Fire rating 60 to 120 minutes

(Stability and integrity)

Both the DC doors should have provision for manual locking and as well as Biometric access control.

Peeping window of size 6" W x 4" H need to be provisioned for the main door.

6.7 Ramp / Foot Step inside the DC at Entrance & Exit Door

Ramp / Foot Step should be provided as shown in the layout drawing (Ref: **Diagram-1**). DC entrance Door will be provided with staircase (Foot step) and RAMP will be provided for emergency door.

The RAMP and Floor Step should withhold the UDL weight mentioned under the False Floor section.

Load Tolerance: RAMP should have load bearing capacity of 2000-3000 Kg/Sq. m.

Material: Suitable plywood with min. 18" thickness with vertical support below to take the load of the equipment like racks and Tape library.

Standards: Should be of Anti-Termite, Water Proof and compressed.

Height: Max. Two feet to match the existing False Floor

6.8 Earth Pit and Earthing

Scope of work shall cover supply, laying, installation, connecting, testing and commissioning.

Traditional Copper plate-based earth pit or chemical earthing of suitable size along with Copper strips from earthing station to equipotential bar and Copper strips / wires from equipotential bar to power panels, DBs, Rack etc.

The earth resistance shall be maintained with suitable soil treatment. The resistance of each earth station should not exceed 1 ohm. Measured voltage between Neutral and Earth at DB level should not exceed 1 Volt.

The earthing conductors shall be of copper strip. The chamber shall be provided with pipe for watering the earthing electrodes / stations in case of Traditional earthing.

All the non-current carrying metal parts of the electrical installation and mechanical equipments shall be earthed properly. This includes

all the cable armor and sheath, electric panel boards, lighting fixtures and all other parts made of metal shall be bonded together and connected by means of specified earthing system.

Bidder shall ensure separate earth pits for UPS, Transformer and Cooling system. All the racks need to be provisioned with proper earthing.

6.8.1 **The following standards and rules shall be applicable;**

IS: 3043 - 1987 Code of Practice for Earthing or better.

All codes and standards mean the latest. Where ever it is not specified, the installation shall generally follow the Indian Standard Code of Practice or the British Standard Codes of Practice in absence of Indian standard.

7 NOCC Room Requirements

NOCC Room Area: 80 Sq. ft.

Should provide Foot step for entrance and access to the False Floor.

NOCC room floor need to be covered with false floor. The false floor should be laid at max. 1.5 feet height from the real floor. Required cut-out to be provisioned for routing of cooling pipes. Should have acoustic barrier and air leakage resistance. Proper earthing of the False floor need to be taken care.

False Floor Tiles should not come with any border material and the tile placement should be of tile to tile in all corners.

7.1 Specifications:

Material: Made from Cementius Steel, solid fire resistant material. Epoxy access flooring with antistatic lamination.

Standards: EN 12825, Tile with top finish of 1mm High Pressure Antistatic Laminate (HPL) with Edge Support Rigid Grid (ESRG) System.

Load / Tolerance: To withstand UDL of 1000/m. sq., The pedestal shall withstand axial load of 22KN. Appropriate ratio of UDL and Concentrated Load should be maintained.

Height: Max. 1.5 feet (450 mm) clearance between bottom of floor and false floor with assembly support for 30mm adjustment.

Suction equipment (manual) for lifting tiles (Access Floor Systems) need to be provisioned.

Tolerance / Deflection: < 2.5 mm

At least two no. of Surveillance cameras need to be housed in NOCC (Refer Section-12.5.1) for specifications. NVR can be the same as used for DC

8 PART-II: Deployment of Electrical Equipment, Cabling, Conduits, Fittings and Fixtures.

- *Deployment Compact Transformer, HT Panel and its cabling work*
- *UPS and Batteries*
- *Static Transfer Switching unit (STS)*
- *Power Distribution Panels*
- *Overhead Bus Bar System with Tap-off for Rack Power.*
- *Electrical cabling, fixtures*
- *General conditions (cabling/ panels / Trays/Conduits/Termination)*

Bidder should conduct the site survey, identify the suitable place and space for placing various equipments, running the power and data cables to DC.

Bidder need to provide the Trays / GI / HDPE pipes to route the cables in a neat and cleaned manner.

Bidder should supply the requisite base / stands to mount the equipment for easy of cabling and protection from water leakages etc.

All the cables used should comply to FRLS.

8.1 Deployment Compact Transformer, HT Panel and its cabling work

Supply & Installation of Outdoor type 11KV Compact Sub-station (CSS) suitable for 11kV, 50Hz, with HT Switchgear, **300/350 KVA** Transformer (Dry) and LT Switchgear, Cable termination facility for HT & LT side, internal illumination, earthing, interconnection of Transformer with HT & LT equipments, suitable for ready Plinth and comprising of the following:

Construction

Outdoor type enclosure having modular construction of 1.6/2.0 mm CR sheet steel. The enclosure should have IP54 degree of protection for HT & LT compartment & IP23 degree of protection for Transformer

compartment. The enclosure exterior should be painted with epoxy based powder coated paint (colour RAL 7032). The bottom base frame should be welded and black painted Channel structure with lifting arrangement for the completely assembled CSS. Each compartment is provided with door and pad locking arrangement. The Compartment illumination lamp with door operated switch should be provided for each compartment. The Transformer compartment is provided with Limit switch to trip the HT Switchgear, in case the Transformer compartment door is inadvertently opened in LIVE condition.

HT SECTION- SF6 Insulated Ring Main Unit
RMU (SF6 gas insulated): Sheet steel enclosed, free standing, indoor mounted, 11 kV, 630A, 21kA/3s, 1 WAY Non - extensible RMU, consisting of One no. direct connection of Incoming supply cable upto 300sq mm and one no. VCB(Manually charging & closing), Self Powered Relay 3 O/C +1 E/F Relay type CSPR-V5 C&S Make , mechanical ON/OFF indicator, trip coil , Emergency Trip PB, live cable indicator, mechanical interlocks, pad locking facility, SF6 gas manometer, cable boots, 3 nos. CTs with Ratio -40/1A, Cl: 5P10, 2.5 VA for protection.

Transformer Section
Cable connection arrangement from outgoing of HT section to primary of Transformer by 11kV (E) XLPE unarmoured 1C x 95sq.mm. aluminium cable per phase along with heat shrink cable kit 350 KVA , 11/0.433KV DYn11 Cast resin dry type transformer with Off circuit tap link having tapping range of +5% to -5% in steps of 2.5%, Z% : 4% (IST) with NLL at rated voltage & frequency: 0.95 KW (IST) and LL at 75 Deg. C & at Principal tap : 3.3 KW (IST), Class F insulation , temp rise : 90 DegC, 3nos. Surge arrestors, i no. Digital WTI with Alarm & Trip contacts.

LT section

- 400A Aluminum PVC sleeved Bus bar from transformer Secondary to LT Section (100% for phase & 50% for N, Current density - 1A/ sq mm)
- MCCB 400A, FP, 36 KA, microprocessor-based release
- Bottom Cable termination arrangement of adequate size and qty for outgoing LT cable termination.

8.2 **UPS and Batteries: 01 nos.**

For Data Centre IT Load, the Bidder should provide **one no. of 200 KVA Modular UPS with N+1 bricks (Capacity of N bricks should be of 200 KVA with additional brick for redundancy)**. Each brick should of minimum 25 KVA to a maximum of 50 KVA. IGBT based UPS should provide 3 phase/ Neutral AC to the desired load. The UPS should be Online Double Conversion. The back-up time should be at least 20

minutes for full load (200 KVA) operation.

8.2.1 TECHNICAL SPECIFICATIONS of UPS and Batteries

8.2.2 Distribution

415V, 3 Ph., 50 Hz.

8.2.3 Standards

All electrical equipment shall conform to the latest electricity rules as regards safety and other essential provisions. Shall comply with the requirements of the following Act /rules /codes as amended up to date:

a) Indian Electricity Act.
b) Seismic Certification as per IBC level 2: 2006 or equivalent
c) UL Certification
d) Environmental Compliance Certificate i.e. RoHS
e) Markings: CE / C-Tick
f) All relevant IS codes of practice.
g) The UPS should be designed & manufactured in accordance to and as per the following international Standards:

i)	Conduction	:	As per IEC 62040-2 Tables 2
ii)	Radiation	:	As per IEC 62040-2 Class A
iii)	Harmonic	:	As per IEC 61000-3-4
iv)	Immunity	:	As per EN 61000-4.2.x
v)	N61000-x standards		
vi)	ANSI C62.41 (IEEE standards)		

The UPS should be CE Marked in accordance with IEEE directives 73/23 "low voltage" and 89/336 electromagnetic compatibility"

8.2.4 Description & System Architecture/Operation

i. It is intended to have independently operated modular based 200 KVA UPS system (along with bypass system) to provide uninterrupted power to the Data centre in N +1 redundancy. Redundant modular brick should be in-addition to the 200 KVA capacity.

Ex. Total capacity will be of minimum 200 KVA + additional redundant module)

ii. UPS system shall consists of parallel operated UPS modules of

individual module rating ranging from 20 KVA to 50 KVA.

iii. UPS should be capable of scaling to 240 KVA by adding additional modules without requirement of external chassis. In-turn all the required modules to achieve 240 KVA should fit in to the supplied chassis

iv. UPS module shall be of modular design and construction consisting multiple number of hot pluggable type sub modules within the cabinet.

v. Each sub module shall allow easy frontal draw-out accessibility for easy maintenance and low mean time to repair (MTTR).

vi. In case there is no resumption of input power for a certain configurable time period & the UPS is running on battery, the UPS system must provide a remote alarm mechanism.

vii. UPS should operate in double conversion mode. Efficiency of the product at full load in Double conversion mode should not be less than 95% and in E-conversion mode should not be less than 99%.

viii. UPS system should support 99.9999% uptime

ix. UPS should have redundant control module in case of one of the control module is down or UPS

x. Should have enough redundant modules to cater to the control module failures.

xi. UPS should be of online UPS with Pure sign wave.

xii. No power module should get non-functional in case of failure of controller

8.2.5 ***General Specifications***

Replacement or repair of a UPS module shall be achieved on line, without risk to personnel, and without disturbance or risk to the connected load.

UPS system shall be able to differentiate between overload and short circuit conditions and in case of any short circuit at output side, relevant ACB/MCCB shall trip and not the UPS.

To prolong battery life, the UPS shall have the facility for automatically adjusting the battery charging voltage according to the environmental temperature of the batteries. The battery charger shall be ripple-free

avoiding premature battery ageing.

The UPS shall have built-in protection against under voltage, over current, and over voltage conditions, including low- energy surges introduced on the primary a.c source and the bypass source.

Fan redundancy: Redundant cooling fans need to be provided in UPS

Protection: Built-in / External back-feed contractor for both, Mains and Bypass input.

8.2.6 ***Rectifier/Charger***

Input voltage	415V, 3 Phase, 3/4 wires
Input Voltage tolerance	380 Volts to 470 Volts @100% loading condition.
Input Frequency	50Hz
Input Frequency tolerance	40-60 Hertz
Input Circuit	IGBT based power factor corrected

It should be DIGITAL SIGNAL PROCESSOR (DSP) CONTROLLED, IGBT Based Power Factor Corrected, three Phase such that the Input Power Factor should be > 0.99 across load level and no Leading PF at even at lower load and the Input Current Harmonic Distortion (THDi) should be < 5% for all conditions of Input Supply and Output Loading.

The UPS battery charging circuit shall comprise of a separate battery charger and not depend on a charge voltage being derived from the UPS input rectifier. Consequently, the battery charging voltage shall have zero a.c. (ripple) content.

The UPS battery charging circuit shall be capable to charge the battery to 90% of the capacity from fully discharged state within a maximum period of 8-10 hours.

8.2.7 **Type**

IGBT based transistorized switching circuit (pulse width modulation, PWM) capable of converting direct current voltage from rectifier or battery into alternating current voltage.

Output filter sized to create an output voltage sinusoidal envelope.

Neutral shall be sized equal to phase current.

Testing and control circuit which, in addition to normal functions, shall

stop the inverter when the voltage is too low.

8.2.8 **Overload**

The inverter shall be capable of supplying current and voltage for overloads exceeding 100% and up to 150% of full load current. A visual indicator and audible alarm shall indicate overload Operation. The load shall be immediately transferred to bypass when the load current exceeds this level of overload.

In the event the bypass supply is unavailable (e.g. mains failure), the inverter shall have electronic current-limiting protection to prevent damage to internal components. The inverter shall be self-protecting against any magnitude of connected output overload and the inverter control logic shall sense and disconnect the inverter from the critical a.c load within 200 ms.

8.2.9 **Inverter DC Protection**

The inverter shall be protected by the following features that shall be independently adjustable for maximum system flexibility.
DC Over-voltage Trip.
DC Under-voltage Shutdown.
DC Under-voltage Disconnect annunciate by an internal visual alarm and relay contact closure

8.2.10 **Output Frequency**

The output frequency of the inverter shall be controlled by an oscillator. The oscillator shall hold the inverter output frequency to ±0.1% for steady state and transient conditions. The inverter shall synchronize with the bypass supply assuming the bypass supply stays within the selected range. If the bypass source fails to remain within the selected range, the inverter shall revert to the internal oscillator.

8.2.11 **Battery over Deep Discharge Protection and Self-discharge**

To prevent battery damage from deep discharging, the UPS control logic shall monitor the discharge voltage and shut the UPS down at a pre-set minimum dc voltage with isolation of the battery.

8.2.12 **Other Parameters**

Description	Parameter
Modules full load rating KVA	Min. 25 to 50 KVA modules to provide 200 KVA **and** one additional module (above 200 KVA) for

	N+1 configuration
Rated Output Voltage	415V, 3 Ph, 4 wire
Output voltage adjustment	± 5 V
Voltage regulation	+/- 1% for Balanced load and +/-5% for 100% block load
Nominal frequency	50 Hz
Frequency regulation	± 0.1% (free running) for all conditions of inputs, loads and temperatures
Load Un- Balance	100% (all three inverter Phases shall be regulated independently)
Output power factor support	0.8 to 0.9 leading without de-rating
Output voltage harmonics	
linear load	<2%
- Non-linear load	<4%
Crest Factor	2:6:1 or more
Overload Rating	125% for 10 min@ 40 Deg c, 150% for 1 min @ 40 Deg C
Short Circuit Capability	Inverter 2xIn
Overall Efficiency	Min 96% from 30% to 100% load at 0.9
Transient Recovery time	1% of steady state O/p voltage within 50ms (For 0-100% Load)

8.2.13 **Battery and Inbuilt DC Battery breaker**

The UPS shall use LI-ion battery with appropriate battery circuit.

Battery system shall be furnished for each UPS with sufficient capacity to maintain UPS output at the specified load of 200 KVA Power Module for a duration of minimum 20 minutes.

The type of battery shall be of Maintenance-free. A minimum of 5 years warranty for performance of declared parameters within permissible limits shall be provided.

8.2.14 **Control and Indicators**

External control and communications devices: The UPS shall contain two smart slots for the following optional control and communications devices.

8.2.14.1 **Dry Contacts/ I/O accessory & Temperature Sensor**

Customizable input and output contacts for the battery temperature monitoring (separate card or built-in). The temperature Sensor enables the UPS to monitor battery environment to be monitored by taking regular measurements of temperature. Its connection to the Network Management Card enables monitoring or notification of alarms via your computer network.

8.2.14.2 **Management Interface**

TCP/IP Ethernet Interface, to remotely manage UPS like Power-on, Power-Off, SNMP alerts, SMTP support for sending mail,

8.2.14.3 **Audible Alarms**

The audible alarms shall warn loss of mains or generator supply, low battery (whilst on battery), and all other alarm conditions. For all audible alarm conditions, the display shall identify the cause of error/alarm. All alarm tones shall be a continual tone until the condition rectifies itself or the alarm is silenced. Once silenced, the audible alarm shall not sound until a new alarm condition is present, but the LED indication shall continue to identify the alarm condition.

8.2.14.4 **Alarm Silence Button**

The display panel shall include an audible alarm 'Reset' switch. If the alarm mute (Reset) which is pressed for one second, all current audible alarms shall be disabled. If a new alarm occurs, or a cancelled alarm condition disappears and then re-appears, the audible alarm is re-enabled.

8.2.14.5 **UPS Display Parameters**

i) Input: Voltage Line-Line & Line-Neutral, Currents, Frequency, Power Factor.

ii) Bypass: Phase Voltage, Line-Line voltage, frequency.

iii) UPS Output: Phase voltage, phase currents, line-line voltages, power factors, Frequency.

iv) Local Load: Load of Each Phase (% Age of Total Load), Active Power (KW), Apparent Power (KVA) And Reactive Power (KVAR) Of Each Phase, Load Crest Factor.

v) Battery: Battery Bus Voltage, battery charge & discharge current, Forecasted Battery backup time,

battery Capacity (AH).

vi) Parallel Load (for Parallel Operation System): Apparent Power (KVA) of Each phase, Active Power (KW) of Each phase, reactive Power (KVAR) of Each Phase.

vii) Waveform Capturing: UPS shall able to store a waveform capture when any given event on a fixed list occurs, like an event triggered oscilloscope.

8.2.14.6 **Supporting Measurements**

Input abnormal, Input under/over voltage, DC under voltage, Input current per phase.

Bypass voltage, Bypass input frequency, UPS output voltage (Ph-Ph and Ph-N).

UPS output current per phase, UPS output frequency, UPS output percent load.

UPS output kVA, UPS output power factor, Battery voltage, Battery current. Battery backup time or Charge percentage.

8.2.14.7 **Status Indications and Events**

Load on battery, Load on UPS, Load on bypass, Low battery warning. General alarm, Inoperable battery, Additional indications indicating fault / maintenance etc. Time-stamped historical events: Shall time stamp and store important status changes and anomalies.

ii) Battery Group	:	Battery low Battery OV Battery status Battery on float charge
iii) Output Group	:	Output under voltage Output over voltage Overload Over temperature
iv) Bypass Group	:	Bypass voltage abnormal Bypass Frequency abnormal

8.2.14.8 **Remote Display**

UPS shall have facility to hook up with BMS system to display the

MIMIC & annunciation. All the alarm which is provided through potential free contacts shall also be available through communication.

8.2.14.9 **Remote Emergency Power off (EPO)**

The remote 'emergency power off' function (EPO) shall allow the user to immediately shutdown the UPS output supply in an emergency situation.

The UPS EPO shutdown function shall not operate if the UPS internal manual bypass switch is in the bypass position. When the external EPO function has been re-set, manual intervention is required to restart the UPS. It shall include the facility for interfacing the EPO circuit with the supply feed of the UPS and provide a means of disconnecting all sources of power to the UPS.

8.2.14.10 **Network Management Card:**

The UPS NMC display should support SNMP, Web, Data Center Expert, Modbus, RMS over ethernet.

In addition to a visual fault signal (alarm), the UPS shall also record fault occurrences in a rolling event log. The event log shall record previous occurrences, with the oldest events discarded first etc. The user shall have access to the event log through the LCD display and over Network access (http/ssh/snmp etc). Every alarm and/or event recorded in the event log will contain a time and date stamp.

8.2.14.10.1 **Communication Features**

a) RS-232 & RS-485 interface ports as standard feature.

b) MODBUS / JBus / BACK NET (Both) suitable to be connected with owner's SCADA system.

c) SNMP/HTTP Network interface (RJ45, ethernet port) for Remote management, Alerts and eMail.

d) USB port/ Serial Port: For field diagnostics

e) Components for connecting to LAN and monitoring of the UPS status through a browser based software.

8.2.14.11 **Construction Features**

The UPS unit shall be housed in a free-standing steel enclosure (comply with IP20). UPS shall be constructed of pluggable / replaceable type subassemblies modules. Low velocity fans shall be used to minimize audible noise output. Temperature shall be monitored by thermal sensors and the UPS shall be able to provide real time temperature data for inlet cool air and outlet hot exhaust air in local display as well as in remote monitoring solutions.

Rodent Mesh: UPS and I/O Panel shall be provided with rodent mesh along with gland plate for cable termination.

Cable access: The standard UPS available shall accommodate top or bottom cable entry in standard cabinet. Back to wall installation: It is mandatory to place the UPS & Hot Swappable type battery back to wall without any rear service space requirement.

Supply should include suitable metal rack to house all the supplied batteries.

8.2.14.12 **Environmental Requirements**

The UPS shall withstand any combination of the following external environmental conditions without operational degradation.
Operating Temperature: 0 degrees C to 40 degrees C and above
Relative Humidity (operating): 95% maximum non-condensing.
Elevation: Operational: 1000 meters above sea level at 40 C maximum. Above this level altitude de-rating as per EN62040-3.

8.2.14.13 **Inspection and Testing**

- The Battery shall be subject to inspection by Client's representative. Manufacturer shall furnish to inspectors all requested information concerning the supply.
- Battery shall be tested as per relevant IS and test certificates shall be furnished before dispatch.
- The UPS System will be tested in the presence of Client's representative. The following tests shall apply:
- Full load run for 24 hours (unit rate to be furnished separately).
- Recording of time for mains to inverter changeover and vice-versa.
- Functional Tests: By-pass, charge-discharge
- Removal and Hot-plugging of modules including controller modules.

- Detailed inspection will be performed to ascertain that the data sheet and other contractual aspect are complied with the earthing system must be inspected for robustness and continuity.
- SAFETY: The UPS shall be compliant with IEC 62040-1.
- DRAWINGS: The Manufacturer shall Supply Drawings & documents to the satisfaction of the client. All drawing to be submitted in Auto CAD format only.

8.2.15 **Operational Training**

Before leaving the site, the field service engineer shall familiarize responsible personnel with the operation of the UPS. The UPS equipment shall be available for demonstration of the modes of operation.

8.2.16 **Qualifications**

The UPS manufacturer shall have a minimum of 15 years' experience in the design, manufacture and testing of UPS systems.

The UPS manufacturer shall have ISO 9001 certification for engineering/R&D, manufacturing facilities and service organization.

The UPS manufacturer shall maintain a staffed 7x24x365 call center for technical and emergency support.

8.2.17 **Field Engineering Support**

The bidder shall deploy NCR Delhi / Delhi based factory-trained field service engineers dedicated to maintenance, and repair of UPS equipment.

8.2.18 **Resolution of UPS problem**

Shall provide on-site emergency response within 4 hours and resolution with-in 24 hrs. Should be done with-in 24 hrs. Or supplier should provide a stand-by UPS till the UPS problem is rectified which should not exceed more than two weeks. All the expenses towards arranging the stand by UPS, connectivity etc. Need to be borne by the supplier.

8.2.19 **Other Terms & Conditions**

Bidder should make the necessary arrangement to install UPS and Batteries. Separate Battery bank with 20 min. backup time need to be supplied along with UPS.

Bidder should ensure UPS is installed on a base / stand for smooth cabling and also to protect from water leakage / logging.

Supply should include the battery racks for housing the batteries,

Bidder should submit the cooling requirements towards the UPS and Batteries.

UPS and Batteries equipment will be placed in the same DC Floor. Required BUSBARS from UPS output panel to both the rows (IT racks) need to be provided.

8.2.20 Li-Ion (Lithium Ion) Battery – Requirements & Specifications

8.2.20.1 General Specifications

This specification describes a lithium-ion, cabinetized battery backup system including the batteries, switchgear, and management system referred as Battery System (BS).

The BS shall operate in conjunction with UPS system to provide battery backup time of 20 Min. The battery cabinet shall house complete battery rack.

Supply should include Battery Management System and integration option to Building Mgmt. system.

Switchgear module, for main DC power terminations, protection circuit breaker (MCCB) and fusing, internal to the cabinet.

The rack frame (cabinet), is used to mount modules, switchgear and SMPS assembly.

8.2.20.2 Battery System Modes of Operation

The Battery Module shall operate as a constantly connected, fully automatic system in the following modes:

Normal: The battery system shall be connected to the DC UPS. The BMS shall monitor voltage, current and temperature at all times.

Discharge: Upon failure of the commercial AC power, the critical load shall continue to be supplied by the UPS Inverter, which shall obtain power from the batteries without any operator intervention. The battery system shall monitor DC discharge current and terminate the discharge [disconnect] if current or temperature limits are exceeded. There shall be no interruption to the critical load upon failure or restoration of the commercial AC source.

The BS shall be applied with UPS that use 480VDC battery systems.

Recharge: Upon restoration of the AC source, the UPS Charger shall recharge the batteries and simultaneously the UPS

Rectifier shall provide power to the Inverter. This shall be an automatic function and shall cause no interruption to the critical load.

Battery recharge current shall be limited by the UPS, and monitored by the battery system to disconnect the string if protection limits are exceeded.

8.2.20.3 **Standards**

- UL 1642 (Underwriters Laboratories) – Standard for safety for lithium batteries.
- UL 1973 --Standard for batteries for use in stationary applications
- EN 61000- 6-2:2005 --Electromagnetic compatibility (EMC).
- EN 61000-6-4:2007 -- Generic standards—Emissions standard for industrial environments

8.2.20.4 **Software & Manuals**

The battery system shall be supplied with sufficient documentation, including the following manuals:

- Installation Manual,
- UPS Interface Manual
- Operation and Maintenance Manual

The manuals shall include the following major items:

- Battery system description
- Site planning and unpacking
- Battery cabinet(s) installation
- Operating procedures
- System events
- Battery maintenance
- Performance and technical specifications
- Wiring requirements from battery cabinet to and from UPS
- Physical features and requirements
- Cabinet dimensions

The battery manufacturer shall have ISO TS 16949, ISO 26262 and ISO 14001 Certifications for engineering/R&D, quality and functional safety.

8.2.20.5 **Environmental Requirements**

The battery system shall withstand any combination of the following external environmental conditions without operational degradation.

- Operating Temperature: 23 +/- 5 degrees C (64 to 82 degrees F) recommended.
- Storage Temperature: 23 +/- 5 degrees C (64 to 82 degrees F) recommended.
- Storage temperature of less than 10 degrees C (50 degrees F), is optimal.
- Prolonged storage above + 40 degrees C (104 degrees F) will cause rapid self-discharge and permanent damage to the battery, and will impact warranty coverage.
- Relative Humidity (operating and storage): 5-85%non-condensing.
- Elevation: Operational: 5000 ft. (1500 m) maximum without de-rating.

8.2.20.6 **Monitoring and Control Components**

The following components shall provide monitor and control capability:

- Status panel: located on the front of the switchgear assembly, using color LED status indicators:
- Alarms for major and minor events
- Status of MCCB circuit breaker
- Battery charging or discharging condition

8.2.20.7 **Communication Ports**

- RS-485 (RJ-45 connector), located on front of SMPS module, and shall accommodate Modbus protocol.

8.2.20.8 **Battery Management System, (BMS)**

Battery management system with the following features:

- BMS shall monitor voltage current and temperature for all battery modules in that rack.
- Shall provide data to the external systems (i.e. building management system, UPS, etc.) while controlling and monitoring all connected Rack BMS's via CAN bus.

8.2.20.9 **Li-Ion (Lithium Ion)** Battery Ratings and Operating Characteristics

Acceptable battery cabinet input sources and capabilities:

- Nominal DC voltage: 486 VDC, 3.8V/cell
- Float voltage: 538VDC
- Nominal input current: 0– 22A when charging depending upon state of charge of the battery
- Battery cabinet output
- Nominal voltage: 486VDC
- Discharging method: constant power.
- End of discharge voltage: 408VDC

8.2.20.10 **Mechanical Design**

8.2.20.10.1 **Enclosures**

- The battery rack frame shall be steel construction, and house battery modules, SMPS, switchgear module, and all associated interconnect wiring. The enclosures shall be designed for computer room applications. Front doors shall have locks to prevent unauthorized entry.
- Ventilation: The battery cabinet shall be designed for convection cooling. Air inlets shall be on all sides of the unit.
- No rear or side clearance or access shall be required for the system. The back and side enclosure covers shall be capable of being located directly adjacent to a wall.
- Cable entry: Standard cable entry for the battery cabinet shall be through the enclosure top.
- Front access: All serviceable subassemblies shall be modular and capable of being replaced from t
- The front of the cabinet (front access only required). Side or rear access for installation, service, repair or maintenance of the system shall not be required.
- Service area requirements: The system shall require no more than thirty-six (36) inches of front service access room and shall not require side or rear access for service or installation.

8.2.20.11 **Controls and Indicators**

- Battery status display: the switchgear module in the battery cabinet shall feature status display. This display shall describe the following alarms and status conditions using color coded indicator lights.
    - System normal; breaker closed
    - System normal; breaker open
    - Monitoring system power off
    - System discharging
    - System charging

8.2.20.12 **Alarms**

- Major protection; system automatically disconnected due to over/under voltage, overcurrent or over temperature
- Minor protection; voltage imbalance, voltage sensing error, under-temperature, temperature imbalance, fuse blown, communication failure.

8.2.20.13 **Communications**

- Communications panel: The battery cabinet shall be equipped a communication panel housed on the front of the SMPS module.
- Remote Monitoring:
    - RS-485 Modbus protocol communication capabilities will be available for all systems.
    - The battery system communication capability should be able to integrate into industry standard Building Management System (BMS) and/or Network Management Systems (NMS).

8.2.20.14 **Battery Module, Rack/String/Cabinet & System Level Protection**

- Module management is provided by the BMS that is included in each battery module. Voltage, current and temperature are monitored, and cell balancing is performed.
- Rack management is provided by the rack BMS. It monitors all battery module BMSs. If a major alarm is detected, the BMS will trip the cabinet circuit breaker. This breaker must be manually reset in order to restore the battery cabinet to service.
- System management is provided by the system BMS. It monitors all rack/cabinet BMS activity, and communicates status or alarms to the UPS, and can receive a disconnect command from the UPS, if available.

- To comply with agency safety requirements, the battery cabinet(s) shall not rely upon any disconnect devices outside of the cabinet or system, to isolate the battery cabinet from the UPS module.

8.3 Static Transfer Switch

Supply shall include 50 KVA, 4 Pole Static Transfer switch connecting between DC UPS and existing Building UPS to provide power for SOC and NOCC infrastructure.

STS will be housed in the DC area . STS will be connected to the UPS OUTPUT Panel which is having both the Power sources of DC UPS and existing Building UPS.

8.3.1 Specifications of STS unit:

Nominal Voltage	380/ 400 / 415 V AC (3 Ph + N)
Voltage Tolerances	+/- 15%
Frequency Tolerances	50-60 Hz (Auto Selectable)
Power Capacity	100 Amps to 150 Amps
Overload Capacity	110 % for 1 hour
Duty	Continuous
Load Power Factor range	Near to unity
Source Voltage Distortion	< 10% THD
Transfer	< 5 ms
Retransfer	< 5 ms
Manual Bypass	To be provided
Efficiency (Ref. IEC 60146-1-1)*	≥98% (at full load & nominal input voltage)
Acoustic Noise @1 m (Ref. ISO 3746)	≤ 60 dBA
Operating Temperature	0 to 40°C
Enclosure Protection	IP – 20
Cable Entry	Top / Bottom
Indications	Source 1 Healthy, Source 1 Priority, Source 1 Feeding, Source 1 Manual bypass ON, Output ON
Indications	Source 2 Healthy, Source 2 Priority, Source 2 Feeding, Source 2 Manual bypass ON, No sync

Fault Indication	Overload
Metering	Source 1 & Source 2 - Voltage, Current, Frequency, Output Voltage, Output Current
Standards	IEC 62310-1, IEEE 446
Interface & Protocol	MODBUS (RS232 / R422 / RS 485 along with converter to IP Copper Ethernet RJ45

9.4 Power Distribution Panels

8.4.1 DC UPS INPUT panel

Separate INPUT panel for DC UPS need to provision by the bidder. Panel should house the MCCB's with sufficient rating to take 300KVA load. Required Power cabling from existing AMF Panel to DC UPS INPUT panel need to be taken care by the Bidder. UPS INPUT Panel can be housed near to AMF panel on the Basement of the building.

8.4.2 DC UPS OUTPUT Panel

Separate UPS OUTPUT Panel need to be provisioned in DC area. The OUTPUT panel will be having Power Source connections from DC UPS and existing Building UPS. Panel should house the MCCB's with sufficient rating to take 300KVA load. Panel OUTPUT shall be connected to two separate BUSBARS (DC UPS OUTPUT as Source 1 and existing Building UPS OUTPUT as Source 2). Panel should provide additional Single Phase MCBs of at least 10 nos. of 16 Amp. and 10 nos. of 6 Amp (from DC UPS) to connect to various equipment like lighting, Biometric controller, Fire Suppression controller, WIFI devices, Surveillance cameras etc. At least 10 % of spare MCBs need to be housed in the DB panel (for both 16 Amps and 6 Amps).

Note1: Separate BUSBAR shall be connected to each UPS OUTPUT Panels. DC UPS BUSBAR output will be connected to left side IPDUs of each rack and existing Building UPS BUSBAR will be connected to the right side of Rack IPDUs with suitable drop-outs.

Note2: Suitable Armoured Copper cable need to be provisioned and laid connecting existing Building UPS (Basement) and UPS OUTPUT Panel housed DC at 4th Floor. The cable shall support 300KVA load).

Note3: Existing Building UPS maintenance is not part of DC operations.

8.4.3 **Power Distribution panel (DEB)**

Separate DB with supply from DEB need to be provisioned in DC area. DB should have sufficient Single Phase 5 Amp MCBs for lighting, Rodent and Repellent, 15 AMP MCBs for connecting vacuum cleaner etc. At least 10 % of spare MCBs must be housed in the DB panel. Should able to take total load of 60 Amp.

8.4.4. **Cooling/Chiller DB Panel**

An additional and separate DEB DB Panel with sufficient MCBs with appropriate rating for cooling system need to be provisioned.

All the panels and equipment should be provisioned proper earthing.

All the Panels shall be metal clad, totally enclosed, rigid, floor / wall mounting, air insulated, cubicle type suitable for operation on three phase / single phase, 415 V / 230 V, 50 Hz., neutral effectively grounded.

Note: The Panels shall be designed to withstand a heaviest condition at site such as ambient temperature of 50° c., 95% humidity etc. Chiller DB panel will housed near the chiller plant (basement or terrace).

8.5 **Overhead BUSBAR Trunking System with Tap-off for Rack Power (separate for DC UPS and existing Building UPS)**

Bus bars:
The Bus bar shall be air insulated and made of high quality, high conductivity, high strength Aluminum. The bus bar shall be of 3 phases and neutral system with separate earth bar. The bus bar shall be of rectangular cross-section designed to withstand full load current for phase bus bars and half rated current for neutral bus bars in case of MCC panels only and shall be extensible on either side.

The bus bar shall be arranged such that minimum clearances between the bus bar are maintained as below:
Between phases: 25 mm,
Between phases and neutral: 25 mm.

Between phases and earth: 25 mm.
Between neutral and earth: 20 mm.

Labels: Engraved PVC labels shall be provided on all incoming and outgoing feeders.

Name and Danger Notice Plates: Notice plate shall be affixed on all Panels. The danger notice plate shall indicate danger notice.

Internal Components: The Panels shall be equipped complete with all types of required number of Air circuit breakers, switch fuse units, contactors, relays, fuses, meters, instruments, indicating lamps, push buttons, equipment, fittings, bus bars, cable boxes, cable glands etc. and all the necessary internal connections / wiring as required and necessary for proper complete functioning of the Panels shall be supplied and installed on the Panels. All part of the Panels carrying current including the components, connections, joints and instruments shall be capable of carrying their specified rated current continuously, without temperature rise exceeding the acceptable values of the relevant specifications at the part of the Panels. All units of the same rating and specifications shall be fully interchangeable.

8.6 Electrical Cabling, Fixtures

8.6.1 Rack Power Cabling

All Power connection to Racks will be done from overhead BUSBAR system. Separate BUSBARs will be running from the OUTPUT Panel housed in DC. Each tap-off should have one outgoing of 32A ie two nos. of 32 Amp MCB from both the BUSBARs to each rack. One tap-off will be connected to the respective rack IPDUs from each BUSBAR. OUTPUT Panel is connected with Power Sources of DC UPS and existing Building UPS.

Note: To cover 16 racks, 16 Tap-off from each BUSBAR ie total 32 tap-off points are required. Some additional tap-off points shall be provisioned (6 nos) for connecting various other equipments housed in DC.

8.6.2 Cabling for Lighting and Fixtures

All lights will be LED based 2 x 2 ft. Lighting assembly need to be fitted to cover the entire DC area. Alternate lighting assembly will be power by UPS.

All the lighting assembly units need to be installed in accordance with False roof for uniformity and aesthetics.

Fixtures shall be mounted above/below false ceiling grid with suitable metal rod and clamps. No cutting or drilling of false ceiling structures is permitted.

All the lighting cabling from DEB DB and UPS DB will be routed above the false roof.

8.7 **General Conditions (cabling/panels/Piping/Trays/Conduits/Termination)**

Except for inside, wherever the cable enters the DC or leaves the DC, the conduit end shall be sealed by suitable sealing compound having fire withstand capability.

The cable end termination shall be carried out compression type cable glands, of adequate size.

All the cables and conduit shall be tagged with numbers / labels / markers.

Gaskets between all adjacent units and beneath all covers shall be provided to render the joints dust proof.

Protection Class: All the indoor Panels shall have protection class of IP: 54

Painting: The painting shall be seven-tank process with epoxy paint.

Power cables requirements:
All the cables used should comply to FRLS standards.
300/350 KVA Transformers to AMF Panel
DG Set to AMF Panel
AMF Panel to UPS INPUT Panel
UPS INPUT Panel to DC UPS
DC UPS to UPS OUTPUT Panel
Building UPS OUTPUT Panel to OUTPUT Panel housed in DC
DC OUTPUT Panel (DC UPS Source output) to STS
DC OUTPUT Panel (Building UPS Source output) to STS
Two BUSBARS (from DC OUTPUT Panel, Source-1 and Source-2) to each Rack PDU (32 Amps Industrial Male-Fe-Male Socket)
UPS Panel for lighting, Rodent, Biometric, Surveillance etc.
DEB Panel for lighting and other miscellaneous equipment
All the cables should be made of copper and FR.

All the cables laid outside should be armored.
Separate earthing cables need to be laid for providing earthing to the equipment and panels.

8.7.1 Data, Cable Trays above racks (inside DC)

Appropriate size width trays to be laid above the racks. Network racks from both the rows should be connected with the tray for data cabling.

8.7.2 Plumbing and Piping to augment Cooling Architecture

Water piping to Chiller, Chiller to the respective cooling element (In-Row cooling units) housed in the DC has to be taken care. Required valves at Chiller and Cooling elements to control the flow of the water need to be provisioned.

PPR pipes with required size need to be used. Water piping should be done below the false floor.

Chiller placement: Bidder should do the site survey to identify the place for housing the chiller, Bidder should ensure requite platform / stand to mount chiller unit. Power cabling need to be carried out by the bidder.

Note: It is recommended to have Iron mesh covering the chiller units to avoid damage from external sources (animals).

8.7.3 Cleaning of Work Site

The bidder shall, from time to time, remove all rubbish resulting from execution of his work. No materials shall be stored or placed on passage or drive ways. Upon completion of work, the bidder shall remove all materials to leave the premises clean and fit for use.

9 Part-III: Technical Specifications of various components in DC

- *Racks with IPDUs*
- *Biometric Access Control*
- *Environment Monitoring Systems*
- *DC Surveillance System*
- *VESDA & Fire suppression*
- *Rodent and Repellent*
- *Lighting Arrestor*
- *Inline/ Inrow Cooling assembly*
- *Chillers*

9.1 Racks with IPUDS

9.1.1 Server and Network Racks

All the racks should be of 42U size Height with 19-inch width.

The dimensions of each Server rack should be of 600mm W x 1200 D x 2000H. The dimensions of each Network rack should be of 750/800mm W x 1200 D x 2000H

Supply should include 14 Server racks and 2 network racks.

All the racks should have provision for cable trays to route the cables and Network racks should be housed with vertical cable trays in the front side of the rack.

All the racks should have both front and back doors. Rack doors should have physical locks to provide physical security.

Racks should support efficient cooling mechanism with backend support for Water based Chiller. Average rack power density is of around 10 KW per rack.

As shown in the Diagram-1 Network racks need to be placed in the middle of each row with overlay tray connecting both the rows to run the network / data cables between the two rows.

Both the rows need to be placed such way that both rows should be facing each other. Racks should be housed with veridical built in IPDUs on the rear side.

Each rack will be housed with two IPDUs.

Technical Compliance for Server and Network racks

S. No.	Description	Compliance (Yes/No)	Deviation if Any
1.	Make		
2.	Model		

w.r.to each socket

- Supply should include the software to view all 32 IPDUs and all the sockets in a single dash board view.
- Should support event logs, SNMP and syslog service for logging the event.
- Should support SMS / eMail to send alerts.

Technical Specification of IPDUs

S. No.	Description	Compliance (Yes/No)	Deviation if any
	MAKE		
	Model		
A	**Rack IPDU for Server & Storage Racks**		
1.	Input voltage range 90V– 260V (415) V AC, 50 – 60 Hz		
2.	Input Current 32A		
3.	No. of Phases 3		
4.	Slots type EN 60 320 / C13 24 Nos		
5.	Slots type EN 60 320 / C19 6 Nos		
6.	Connector, PDU input EN 60 309/ CEE		
7.	Length of connection cable 3 meter		
8.	Connection cable type H 05-VV		
9.	Measurement function (input / Phase or output slot): Values recorded Voltage (V), Current (A), Frequency (Hz), Active power (kW), Active Energy (kWh), Apparent power (KVA), Power factor, Neutral conductor – measurement / load imbalance detection, fuse monitoring		
10.	Display OLED, RGB 128x128 pixels		
11.	Network interface RJ 45, Integral web server		
12.	Supported protocols HTTP, HTTPS, SSL, SSH, NTP, Telnet, TCP / IP v4 and v6, DHCP, DNS, NTP, Syslog, SNMP 1, v2c and v3, XML, FTP/SFTP (update / file transfer), email sending (SMTP)		
13.	CAN bus interface RJ 45, for connecting sensors		
14.	CAN sensor types Temperature, Temperature/ humidity (combined), infrared access sensors, vandalism sensors		
15.	Max. number of sensors per PDU 4, Sensor configuration freely selectable, including 4 of the same type		

3.	Server Rack: 600W X 2000H (42U) X 1200D Network Racks - 800W X 2000H (42U) X 1200D		
4.	19" Rack Frame of sturdy frame section construction, consisting of 16 folded rolled hollow frame section punched in 25mm DIN pitch pattern, PU Gasket		
5.	All profile edges are radiuses. The corners are welded, with Removable top & Bottom cover with Cable entry provision. Frames should be buyable, scalable and modular.		
6.	Both Front and Rear door with 4 Point Locking System with swivel handles for easy operation and sealing of the cold and hot air.		
7.	Plinth of at least 100 mm height to be supplied with each rack; plinth must be capable of securely supporting rack placed on it, and should allow access of cables and tubes through it.		
8.	Front Perforated sheet steel front door (130°), at least 3 mm with square door stiffener.		
9.	Rear sheet steel perforated door (130°)		
10.	Load capacity of the interior installation: 10,000 Newton per rack		
11.	Design of doors and side walls to confirm to requirements of cooling units.		
12.	Misc. rack of 2 No. per each row.		
13.	Vertical & Horizontal cable managers with cable loops		
14.	Horizontal Earthing Busbar per cabinet.		
15.	Supply should include blank panel (blocks) to avoid cool air leakage.		
16.	All Racks should be certified according to ISO 9001, 14001, 18001. Complying to EIA 310, DIN 41494 and IEC 297 standards and UL 60950-1 in addition to UL 2416 Certified		
17.	Surface Finish: Nano Ceramic Coated, electro-dipcoat primed to 20 microns and powder coated with textured polyester RAL 7035/9005 to 80 to 120 microns.		

9.2 **IPDUs**

- IPDUs stands for Intelligent Power Distribution Units.
- IPDUs should support assigning of IP address to each IPDU strip and provide web based remote access.
- IPDUs shall support setting-up threshold values of current drawn

16.	Conformity CE		
17.	Standards Security : EN 60 950-1, EMC : EN 55 022/ B, EN 61 000 -4-2, EN 61 000-4-3, EN 61 000-6-2, EN 61 000-6-3		
18.	Ambient temperature 0 to 45 deg C		
19.	Ambient humidity 10 – 95 % relative humidity (Non condensing)		

9.3 Biometric Access Control

Biometric Access control systems are to be placed to control the opening and closing of DC entrance and exit doors. Biometric Readers shall support both Finger Print and as well as card based authentication.

Note: Biometric Authentication Controller and Software should support Single, Dual Authentication with at least 10 combinations.

Cold Aisle doors at both ends should also have Biometric Access control units to open these doors.

Both these doors are Industrial design, Fire retardant doors. Accordingly the controller (power) and Magnetic locks need to be taken care to handle the weight of the door.

Supply should include Biometric access control systems with finger print scanners of two no. for each door as Authentication is required while entry and as well as exit.

Biometric Controller and Software should be same for DC rack doors and as well as DC Entrance and Exit doors. Else Bidder shall provide separate Biometric H/W, S/W for operating of rack doors.

Software should have perpetual licenses. Software should work either on Windows or Linux platform.

Biometric Authentication Controller and Software should support Single, Dual Authentication with at least 10 combinations. All the Authentication logs are to be stored for at least one year with a provision to back up the data.

Biometric Authentication Controller should be integrated with Fire Controller to disable Authentication of all doors during Fire / Emergency.

Data cabling need to be carried out between the controller and Biometric Authentication units (not required if the solution is not

having central controller).

Should have the capacity to register minimum 100 finger prints and should able to store 1000 records in build-in-memory.

Biometric controller should have Ethernet (RJ45) port to communicate with supplied Software for storing of records, logs and events and should support remote logging / syslog.

Supply should include sufficient and required readers, controller, Software and suitable electro-magnetic locks, required brackets, power adapters and cables.

The supplied Access control units should provide interlocking facility

Access control systems should be of tamper proof / mechanism to log the evidence of any tamper trials.

9.4 DCIM, Environment and Physical Space Monitoring System

A centralized physical infrastructure monitoring system which is capable to record historical data, events and send event details through email shall be provided to monitor & maintain the maximum up time for all the Infrastructure components inside the Data Center.

DCIM shall be browser accessible which can monitor multiple parameters for Data Center infrastructure devices like uninterrupted power supply units, PACs, power distribution units, rack level PDUs, Environment monitoring units polled through standard Industrial protocols like SNMP. The same Application is also to be integrated with Fire alarm, VESDA, Water Leak Detection system for alerts generation with required additional controllers and Surveillance system.

The technical specifications are given below:

S. No.	Description	Compliance (Yes/No)	Cross reference to product catalogue
	Make		
	Model		
1	**ARCHITECTURE:** Web-based **Deployment:** On-Premises **Modular:** Physical Infrastructure Management and IT Infrastructure Management **Licensing**: Rack & Device-based		

A	**Communication Interfaces for integration with Physical Infrastructure devices**		
	SNMP: device mapping from seed database		
	MODBUS/TCP: device mapping from seed database		
	BACnet/IP: device mapping of BACnet Objects possible through UI		
	Dry Contact (NO/NC): through PLC		
	3rd Party Application Integration (API | Web Service | OBBC/JDBC | SNMP Traps)		
B	**Required functionalities for Physical Infrastructure Management**		
I	**Power Monitoring & Management (Live monitoring | Reports | Dashboards | Elevation Modeling | Visualization | Analytics)**		
	Transformers (HT, LT)		
	DG Systems, Fuel Tanks		
	Electrical Feeder Panels (HT, LT, DG, Breakers, UPS, Cooling System)		
	UPS Systems		
	Rack Power Distribution Units, iPDU's up to socket level (depending on OID availability)		
	Rack Power Profile (Actual Load vs. Defined Load)		
	DC Load - Live, Average (Total, IT, non-IT)		
	PUE (Live from kVA, Average for hour, day, week, month from kWh)		
	Multi-level PUE (L1 - UPS output, L2 - PDU output, L3 - iPDU/IT Device output)		
	DC Power Chain Visualization		
	Rack-wise Power Cost		
	DC Power Cost (Utility + Fuel)		
II	**Environment Monitoring & Management (Live monitoring | Reports | Dashboards | Elevation Modeling | Visualization | Analytics)**		
	Rack temperature & humidity		
	Aisle, Room temperature & humidity		
	Return & Supply air temperature & humidity for cooling system		
	Hot/Cold spot in room, aisle & racks		
	Rack airflow		

	Water Leak, Smoke, Fire Detection		
	H_2, CO_2, air quality		
	Cooling system parameters		
	Chiller parameters		
	Temperature & Humidity profile for data room and racks		
	Cooling System Efficiency		
	CO_2 emission for data center		
III	**Asset Management (Live monitoring | Reports | Dashboards | Elevation Modeling | Visualization | Analytics)**		
	Device discovery (SNMP & BACnet/IP)		
	Device Inventory Management		
	Device Dependency/Relationship Management		
	OEM library for Facility devices		
	Device Life Cycle Management		
	Device Physical Location Tracking		
	Device Ownership Management		
	Device Group Management		
	Device Availability Management		
	SLA Tracking		
	Preventive Maintenance Schedules		
IV	**Capacity Management (Live monitoring | Reports | Dashboards | Elevation Modeling | Visualization | Analytics)**		
	2D & 3D Graphical Management of Data Center Capacities - physical infrastructure & whitespace		
	DC Capacity Base-lining & Profiling - Power, Space, Cooling & Rack Weight		
	Identification of 'best-fit' rack &Workflow-based provisioning of IT devices based on available capacity		
	Capacity Forecasting through 'What-if' Analysis using OEM Library		
V	**Alarm Management (Live monitoring | Reports | Dashboards | Visualization | Analytics)**		
	Tracking Alarms on all facility devices		
	Tracking Alarm Recovery		
	Alarm Analysis - Severity, Source, Recovery time, Status		
	Alarm Suppression		
	Alarm Dashboard		

	Alarm Delivery (Email | SMS | SNMP Traps)		
C	**Communication Interfaces for integration with IT Infrastructure devices**		
	Communication Interfaces:		
	SNMP		
	WMI		
	SSH/Telnet Interface		
	Software Modules:		
	IT Power Monitoring (Live monitoring | Reports | Dashboards | Visualization | Analytics)		
	Monitor power consumption of Servers through Advanced HP iLO or equivalent		
	Monitor power consumption of floor standing customer IT devices using Smart Power Cables		
	Report on Top power consumers		
	Historical & Comparative trends of power/energy for devices		
	OEM library for IT infra devices		
	Aging Analysis & Identification of under-utilized/ghost servers that can be retired		
	Identification of replacement candidates		
	IT Resource Utilization (CPU | Memory) Vs. Device Power Consumption		
	IT Environment Monitoring (Live monitoring | Reports | Dashboards | Visualization | Historical Analytics)		
	Inlet/Outlet temperature of servers through Advanced HP iLO or equivalent		
	IT Alarm Management (Live monitoring | Reports | Dashboards | Visualization | Analytics)		
	Tracking Alarms on all IT devices		
	Tracking Alarm Recovery		
	Alarm Analysis - Severity, Source, Recovery time, Status		
	Alarm Suppression		
	Alarm Dashboard		
	Alarm Delivery (Email | SMS | SNMP Traps)		
2	**Built-in DCIM Workflow for approval & tracking of:**		

I	Move-Add-Change processes in Rack-based IT devices		
II	Resource provisioning		
3	**Mobile Enablement**		
I	App based Android support		
II	DCIM Dashboard with KPIs for the Datacenter, made available on Android Device		
III	Alarm monitoring and reporting, with alerts delivered to the user via Mobile phone.		
IV	2D & 3D Rack layout graphics support for Data Center Visualization		
4	**Reports**		
I	Option to export reports/charts to Excel, pdf & csv files		
II	Auto timed and dispatch of Reports to select email-ids		

9.5 **Surveillance System**

9.5.1 **IP Cameras: 10 nos.**

Camera must provide at least 160 degree angle view with minimum 1.3 Megapixel resolution.

Minimum Sensitivity of Day: 0.5 Lux; Day/Night: 0.5 lux color / 0.05 lux White Balance

Mode: Auto; Fluorescent; Indoor; Outdoor MPEG-4 / H.264 compression

Streams must guarantee minimum full frame (25fps/30fps) rate under high motion and all conditions.

Should support Intelligent Motion Detection and Night Vision

The camera should configurable remotely

IP Cameras output should be compatible with the quoted Network Video Recorder (NVR) solution.

IP Camera should support Power on Ethernet (POE)

Cameras must be ceiling mountable and tamper resistant/evident/proof

9.5.2 Network Video Recorder (NVR) Solution

Video Operation Codec Management, Recording and Processing Software / Appliance NVR should be scalable, should offer a complete Video Surveillance solution that will be scalable to minimum 16 cameras that can be added as and when required.

All upgrades and releases should be made available free of cost during warranty/AMC period.

The system should allow for live view, playback and system configuration of the IP video system.

Should support to create custom layout by grouping of cameras for more efficient monitoring.

Several simultaneous live picture connections of camera in network. It should be capable of showing video pane layouts including 2x2, 3x3, 4x4, 5x5, 8X8, 1+5, 1+7, 1+9, 1+12, 1+16 and custom layouts

The live view must be capable of highlighting motion as colored (e.g.: Green) rectangle overlays on the live video feed.

The proposed system should be capable of exporting recorded files into video file formats (like .wmv /img etc) playable in windows media player and VLC media player for defined period of time.

Surveillance storage of 20 TB after implementing RAID 5

Should support recording of data of 16 cameras (of the above quoted camera type) over IP

Should have provision for remote access management

Rack mountable, maximum 4 U size appliances along with rack mounting equipment / brackets etc.

Supply should include the Software to view the output of Selected cameras / views etc.

Note: Supply should include one no. 55" LED Panel for viewing of all cameras which are part of DC Surveillance system (Ref. section 15.2.1 for specifications)

9.6 Very Early Smoke and Fire Detection (VESDA) & Fire Suppression

Existing water based sprinkler system need to be removed.

Integration of both Access control system and VESDA system to un-lock all the doors in case of Fire and emergency is must.

All sensor cables used should be of FRLS wires. VESDA Smoke and Fire detection Sensors need to be deployed in three zones.

Zone 1: Area below the false floor where rack level electrical cables exits.
Zone 2: Area above false rood where electrical cables for lighting exits.
Zone 3: Area between false roof and false floor

Should provide emergency button for manual Fire suppression gas release. Fire suppression agent should be Novec 1230 based.
Supply of VESDA and Fire suppression should include the below.

9.6.1 Fire Alarm Control Panel / Addressable Module

Normal operating voltage range: 15 to 32 VDC.

Maximum current draw: 6.4 mA (LED on).

Average operating current: 750 µA (LED flashing).

Maximum IDC wiring resistance: 1,500 ohms.

Maximum IDC Voltage: 11 Volts.

Maximum IDC Current: 240 µA EOL

resistance: 47K ohms.

Maximum SLC Wiring resistance: 40 Ohms.

Temperature range: 32° to 120°F (0° to 49°C).

Humidity range: 10% to 93% (non-condensing).

Dimensions: 4.5" (11.43 cm) high x 4" (10.16 cm) wide x 2.125" (5.398 cm) deep.

9.6.2 Manual Fire Alarm Pull Stations

UL/ FM Approved.

Switch contact ratings: gold-plated; rating 0.25 A @ 30 VAC or VDC.

Manual Fire Alarm Stations shall be non-code, with a key or hex-operated reset lock in order that they may be tested, and so designed that after actual Emergency Operation, they cannot be restored to normal except by use of a key or hex. An operated station shall automatically condition itself so as to be visually detected as activated. Manual stations shall be constructed of red colored LEXAN (or polycarbonate equivalent) with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in white letters, 1.00 inches (2.54 cm) or larger. Stations shall be suitable for surface mounting on matching back box SB-10 or SB-I/O; or semi-flush mounting on a standard single-gang, double-gang, or 4" (10.16 cm) square electrical box, and shall be installed within the limits defined by the Americans with Disabilities Act (ADA) or per national/local requirements. Manual Stations shall be Under- writers Laboratories listed.

9.6.3 **Multi-Sensor Intelligent Detector**

Sensitivity: Auto-adjusting levels: 1 to 2%/ft. and 2 to 4%/ft. with classic CLIP systems; 1 to 2, 2 to 3, and 3 to 4%/ft. with Lite Speed TM systems; fixed-sensitivity levels: 1, 2, and 4%/ft.

Classic CLIP systems; 0.5, 1, 2, 3, and 4%/ft. with Flash S- can systems.

Size: 2.0" (5.3 cm) high x 4.1" (10.4 cm) diameter installed in B501 base, 6.1" (15.5 cm) diameter installed in B350LP base.

Operating temperature: 0°C to 38°C (32°F to 100°F).

UL-Listed velocity range: 0 – 4000 ft./min. (1219.2 m/min.),

Relative humidity: 10% – 93% no condensing. Thermal sensing rating: fixed-temperature set-point 135°F (57°C).

ELECTRICAL SPECIFICATIONS:

Voltage range: 15 – 32

volts DC peak. Standby

current (max. avg.): 300

µA. Loop resistance: 50

ohms maximum;

LED current (max.): 6.5 mA @ 24 VDC ("ON").

9.6.4 **HOOTER / Mini-Horns**

UL and ULC Listed CSFM, MEA and FM Approved

PHYSICAL SPECIALIZATIONS;

Operating Temperature Range: 0°C to 49°C (32°F to 120°F).

Mounting Surface**:** Deep single-gang back box (2-3/4" deep);

Flush: Standard 4" x 4" black box.

ELECTRICAL SPECIFICATIONS;

Input Terminals: 12 to 18 AWG

Nominal Voltage: Regulated 12DC/FWR or 24DC/FWR

Operating Voltage: 8-33

Operating Voltage with MDL3R/W: 9-33

9.6.5 **Addressable Photoelectric Smoke Detectors**

UL and ULC Listed CSFM, MEA and FM Approved

Voltage range: 15 – 32 VDC (peak).

Standby current: 300 µA @ 24 VDC.
LED current: 6.5 mA @ 24 VDC (latched "ON").

Air velocity: 4,000 ft./min. (20 m/sec.) maximum.

Diameter: 6.1" (15.5 cm) installed in B350LP base.

Height: 2.1" 5.33 cm) installed in B350LP base.

Weight: 3.6 oz. (102 g).

Operating temperature range: 0°C to 49°C (32°F to 120°F) or 0°C to 38°C (32°F to 100°F).

Temperature: 0°C – 49°C (32°F – 120°F).

Relative humidity: 10% – 93%, non-condensing

9.6.6 **Standards**

All the cables should comply to UL Listed, AC Power: 230 VAC, 50 Hz, 3.0 A. or 240 VAC, 50 Hz, 1.5 A. Wire size: minimum 14 AWG (2.00 mm2) with 600 V insulation. Non- power-limited, supervised.

Battery: Two 12 V 18 AH TU SMF batteries. Battery Charger Capacity:

7-18 AH (cabinet holds maximum of two 18 AH batteries.)

Communication Loop: Supervised and power-limited.

9.6.7 **Notification Appliance Circuits**

Terminal Block provides connections for two NACs, Style Y (Class B) or. Style Z (Class A). Special Application power. Power- limited, supervised circuitry. Maximum signaling current per circuit: 2.5 A. End-of-Line Resistor: 4.7 kilo-ohm, 1/2 watt for Style Y (Class B) NAC. Two Programmable Relays and One Fixed Trouble Relay:

Contact rating: 2.0 A @ 30 VDC (resistive), 0.5 A @ 30 VAC (resistive). Form-C relays, non-power-limited, non-supervised.

Should comply with the NFPA 72 Fire Alarm Systems requirements:

LOCAL (Automatic, Manual, Water-flow and Sprinkler Supervisory).

AUXILIARY (Automatic, Manual and Water-flow) (requires 4XTMF).

REMOTE STATION (Automatic, Manual and Water-flow) (Where a DACT is not accepted, the alarm, trouble and supervisory relays may be connected to UL 864 listed transmitters. For reverse polarity signaling of alarm and trouble, 4XTMF is required.)

PROPRIETARY (Automatic, Manual and Water-flow).

CENTRAL STATION (Automatic, Manual and Water flow and Sprinkler Supervised).

OT, PSDN (Other Technologies, Packet-switched Data Net- work)

9.6.8 **Control Module**
UL Listed FM Approved

Normal operating voltage: 15 to 32 VDC. Maximum SLC current draw:

6.5 mA (LED on).

Average operating current: 350 µA direct poll (CLIP mode), 375 µA group poll (Lite Speed mode) with LED flashing.

External supply voltage: maximum 80 volts (RMS or DC).

Drain on external supply: 2 mA maximum (using internal EOL relay).

EOL resistance: 47K ohms.

Temperature range: 32°F to 120°F (0°C to 49°C).

Humidity range: 10% to 93% non-condensing.

9.6.9 **Gas Release Panel**

Powder coated finish. Operates on 220V, A.C supply Battery backup with built in charging. 16 X 2 LCD Dot Matrix Display.

Evacuate and Key pad Enable, Disable Facility. Low battery visual warning with audible tone. Relay output for actuators. Remote fire indication with Audible Tone. Compatible to all types of conventional detectors. Zone Disable (Isolation) facility with loop voltage cut off. Resettable 24v DC output for 4 wire detectors. Three 24V Hooter Output (Fire, after Cross zone, after gas release). Two mode operation facility (Auto / Manual).

Programmable FAP input selection Facility. Programmable Solenoid Output with On and OFF Timer. Main / Standby Cylinder output Facility (Optional). Gas Inhibition and Instant release facility. Manual Gas Release with or without timer. Actuator pressure low sensing facility. Pressure switch facility.

AC Power: 220-240 VAC, 50 Hz. Wire size: 1.5 Sq. mm with 600V insulation Battery: Lead Acid only

Charging Capacity: 7 Amp Hour Battery

Max. System Quiescent Current: 50mA Solenoid Loop Circuits

Operating Nominal Voltage: 24 VDC Solenoid output: 0.75A @ 24 VDC (Max). End-Of-Line Resistor: 4.7K, 1/4watt

Gas Release Outputs

Programmable NAC Output (2No's)

(Fire, Timer On, Solenoid On, Gas Released) Remote Outputs

Programmable Relay Contact (C, NO, NC) (Fire, Timer On, Solenoid On, Gas Released) 0.3A @ 24VDC, 220v AC/30v DC@ 1A

9.6.10 Fire Suppression System

This specification is for NOVEC Clean Agent Based Fire suppression system. It shall be used as a standard for the System Equipment, System Installation and acceptance testing.

Technical Requirements:

The Storage Container offered shall be of seamless type. Welded cylinders are not permitted.

The Seamless storage cylinder & valve shall be approved by Chief Controller of Explosive.

The NOVEC valve, operating actuators shall be an Electric (Solenoid) type, and should be capable of resetting manually. Provision should be provided on the Electric Control Head for a Manual Lever for over-ride in case of failure of the Electrical components. The Electric Control Head (Actuator) shall operate at 24 VDC. Bidders are required to submit confirmation for the same and provide the technical data sheet for the same. The Electric Control Head should be capable of being functionally tested for periodic servicing requirements, and without any need to replace consumable parts.

The system flow calculations shall be carried out on certified software, suitable for the particular container being offered for this project. Such System flow calculations carried out for this project, shall be further vetted by the OEM for its accuracy, and the only such vetted calculations shall be admissible for approval.

The designer shall consider and address possible Fire hazards within the protected volume at the design stage. The delivery of the NOVEC system shall provide for the highest degree of protection and minimum extinguishing time. The design shall be as per NFPA standard 2001.

Sub floor and the ceiling void to be included in the protected

volume.

The NOVEC Fire Suppression System shall include a detection and control switch provision for both pre-alarm and automatic agent release.

The NOVEC System to be supplied by the bidder must be strictly in accordance with OEM's product design criteria.

The detection and control system that shall be used to trigger the NOVEC suppression shall employ photoelectric and ionization smoke detectors, and heat detectors. A single detector in one zone activated, shall cause an alarm signal to be generated.

Another detector in the second zone activated, shall generate a pre-discharge signal and start the pre-discharge condition.

The discharge nozzles shall be located in the protected volume in compliance to the limitation with regard to the spacing, floor and ceiling coverage etc. The nozzle locations shall be such that the design concentration will be established in all parts of the protected volumes. The final number of the discharge nozzles shall be according to the OEM approved software, OEM Product manual and the OEM vetted programmable pressure loss & flow calculation for this particular project, and the same shall be approved by the

The Cylinders shall be equipped with differential pressure valves & No replacement parts shall be necessary to recharge the NOVEC containers.
NOVEC shall be discharge through the operation of an Electric (Solenoid) operated device which releases the agent through a differential pressure valve. Systems that employ explosive or pyrotechnic device shall not be permitted.

All system components shall be New and of Current manufacture and shall be installed in accordance with local codes. The Buyer, or the End user of this system reserves the exclusive Rights to unconditionally reject any and all such components which may not be, or are suspected not to be of current manufacture; and / or on the grounds of authenticity of the system components and designs.

The bidder shall provide IN ORIGINAL all documentation such as Cylinder Manufacturing Certificates, Test and Inspection Certificates & Fill Density Certificates.

The extinguishing system shall include the following components:
Agent storage container with cylinder valve.
NOVEC agent.
Discharge nozzle (s).

Electronic control head for master cylinder (s) and pressure operated control head for slave cylinder(s) as releasing devices.
Fitting brackets.
Discharge hoses.
EL Check valves on manifold. Actuation hoses for slave cylinder(s)
Master cylinder adapter kit for slave cylinder system Any other required for the completeness of the system

The NOVEC discharge shall be activated by an output directly from the NOVEC Gas Release control panel, which will activate the Electric control head-based releasing device. NOVEC agent is stored in the container as a liquid, having a natural vapour pressure of 66.4 Pisa at 77 degree F. To aid release and distribution, the container shall be super pressurized to 360 psi (g) at 70 degree F with dry nitrogen.

Cylinder valve bodies shall be brass. Any other material of construction shall not be acceptable.

The releasing device shall be easily removable from the cylinder without emptying the cylinder. While removed from cylinder, the releasing device shall be capable of being operated, with no replacement of parts required after this operation. The use of explosive devices to actuate agent discharge shall not be permitted. Upon discharge of the system, no parts shall require replacement other than gaskets, lubricants, and the NOVEC agent. Systems requiring replacement of disks, squibs, or any other parts that add to the recharge cost will not be acceptable.

Systems containing component that have a dated life span and must be periodically replaced shall not be acceptable.

The releasing device shall also be capable of direct mechanical actuation, providing a means of discharge in the event of total electrical malfunction.

Provided with a manual lever and a faceplate with clear instruction of how to mechanically activate the system. In all cases, NOVEC cylinders shall be fitted with a manual mechanical operating facility that requires two-action actuation to prevent

accidental actuation.

NOVEC storage cylinders shall be provided with a safety rupture disc. An increase in internal pressure due to high temperature shall rupture the safety disc and allow the contents to vent before the rupture pressure of the container is reached. The contents shall not be vented through the discharge piping and nozzles. NOVEC containers shall be equipped with a pressure gauge to display internal pressure. The gauge shall be an integral part of the container and shall be color-coded for fast referencing of pressure reading.

Release of NOVEC agent shall be accomplished by an electrical output from the NOVEC Gas Release Panel to the Electric control head release device and shall be in accordance with the requirements set forth in the current edition of the National Fire Protection Association Standard 2001.

Gas Cylinders need to be housed inside the DC. The gas quantity should suffice the requirement of 16 racks and the entire DC area of around 1160 sq.ft.

9.7 **Rodent and Repellent**

System shall consist of Master Console with corresponding twelve Satellites/ Transducers. The Master Console shall be installed in the main control room/ server room, and the satellites in the problematic areas i.e. above and below false ceiling and below false flooring.

The system shall be designed for DC room and Transducers which emit UHF sound waves are placed in the desired location to cover the entire room including the false ceiling and false flooring area. These transducers are connected to the main controller which controls the entire operation of the system

9.7.1 **Master Console**

The Master console shall be powered through a 230 VAC, 5 A quality supply.

Twelve Satellites will be connected to the master to cover all three zones mentioned below.

Below False Floor, Above False roof, Area Between False Roof and False Floor

9.7.2 **Satellites / Transducers**

Each Satellite shall cover an area of 150 to 300 sq. ft.

Total 12 No. of Satellites deployed with each zone shall be deployed with 4 no. of satellites to cover the area of approximately 1,200 sq. ft.

Crystal: Shall be similar to DM 44T 24V of MAS Germany. Visible Hexagonal,

Triangle exciter – Centre damp horizontal line exciters.

Frequency: Peak frequency responses of the satellites are,

- 21.6 KHz +/- 3 KHz
- 31.6 KHz +/- 3 KHz
- 50.4 KHz +/- 3 KHz
- 60 KHz +/- 3 KHz

Nature of Sound Waves: The sound waves propagated by the satellites shall be linear sine waves with constantly varying frequencies.

Operating Environment: The satellites shall be capable of operation in a temperature range of - 40C to C 60C, and should propagate sound waves in 100% humid conditions, and even when they are submerged under water.

Configuration: One master console with 12 satellites/ transducers Operating frequency: Above 20 KHz (variable)

Power consumption: 15 W approximately

Operating Frequency: Above 20 KHz (variable)

Sound output: 80 dB to 110 dB (at 1 meter) Power output: 800 mW

per Satellite

9.8 **Liquid Cooling Solution**

9.8.1 **High Performance Liquid Cooling – Inline/In-Row Cooling**

The design of the In-Row cooling unit should be optimized for use

in DC with a size of 300/400Wx2000Hx1200D. The quoted system should fit to place in-between racks in the DC. The integrated air/water heat exchanger should guarantee a cooling output of minimum 30KW. There should be provision for monitoring. The air/water heat exchanger is should be mounted on the side of the rack.

The total no. of In-Row cooling elements should be of **6 no. in N+1** of >= 30 KW each to handle heat load of the DC (~160KW).

Liquid Cooling Package Inline should draw the hot server air in via a perforated rear door. The front of the unit should protrude approx. 200 mm in front of the server racks; the cooled air should be expelled left and right, over the whole enclosure height, in front of the perforated doors of the server racks and is thus made available to the 482.6 mm (19") equipment.

The unit should be house with EC fan modules. A full fan configuration can thus also be realized to achieve redundancy or to minimize power consumption.

The high-performance heat exchanger should guarantee 30KW cooling output even at high water inlet temperatures of 15 deg. C, enabling the proportion of operation in combination with indirect free cooling to be maximized and operating costs reduced accordingly.

Condensate and leakage management has to be integrated. The water connection is optional.

There should be standard integrated software/controller concept which provides of automatic control of the specified server air intake temperature. The fan speed and cooling water flow rate should be both infinitely variable, to precise matching the power losses of the components installed in the IT rack.

There should be an intelligent sensor network to monitors the air and water temperatures, as well as the water flow rate and leakage management.

There should be monitoring and alarm management for all physical parameters via SNMP and Ethernet.

To enable the displaying of all physical parameters, an optical color touch screen should be integrated into the front of the unit.

The unit should be with optimized layout to provide for fast and simple maintenance and service for all relevant components. The

fans are to be exchanged at any time in a matter of seconds, also during operation (hot swapping).

9.8.2 **Technical Specifications**

Air throughput: max.4.800 m^3/h

Cooling output: 25 to 30kW

Air intake temperature: max. 24°C Water inlet temperature: 15°C

Medium: Water

Coolant throughput: approx..60l/min

Pressure loss: approx.0, 6bar

Voltage: 208/230 V, 1~, 50/60 Hz, 400 V, 3~, N, 50/ 60 Hz

Server air intake temperature maintained by way of flow rate control and EC fans with infinitely variable speed

Colour: RAL 7035/9005

Certifications: The Air/Water heat exchanger manufacturer should certify that the cooling units are manufactured and tested in accordance with the following directives:

EC EMC directive 2004/108/EC

EC Low Voltage Directive 2006/95/EC

EN 55022nInformation technology equipment – Radio disturbance characteristics EN 60335-1 Safety for household and similar electrical appliances

EN 61000-3-2 Electromagnetic compatibility (EMC)

EN 61000-6-2 Electromagnetic compatibility (EMC)

Generic standards– EN 61000-6-3

Electromagnetic compatibility (EMC) Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments

9.8.3 **45 TR Air Cooled Chillers, Pump, Piping**

Compact Air-cooled scroll chiller unit working on energy efficient refrigerant **R-410A**. Unit shall be **EUROVENT/ AHRI** certified. Software Selection must be submitted with offer with Eurovent / AHRI norm at specified parameter). The minimum EER at EUROVENT/AHRI

conditions should be 3.35

UNIT FRAME
Modular, galvanized sheet structure with self-supporting frame, with baked-on polyester-powder coating providing excellent weather resistance fitted with stainless-steel threaded fasteners.

COMPRESSORS
Multiple hermetic scroll compressors shall be connected in tandem and suitable for R-410A refrigerant equipped with oil sight glass, internal thermal circuit-breaker, contactors and oil-equalizing line.

AIR COOLED CONDENSERS
The Condenser should compose of high efficiency coils with "V" shape configuration made of Copper pipe/ Aluminum Fins. Units shall be coupled to the innovative direct driven axial fans. The fan comes supplied with a safety grid. The Fans should be equipped with possibility of Condensation control with fan speed variation.

EVAPORATOR
The units shall be supplied with shell and tubes heat exchanger optimized for use with R410A. Insulated with a closed cell expanded material coating and equipped with a temperature probe for the anti-freeze protection of every exchanger. The hydraulic manifold is provided with a flow switch and a probe for measuring the temperature of the return water flow.

REFRIGERANT CIRCUIT
The circuit includes: Liquid line shut-off valve, charge connection, liquid line sight glass, filter dryer, Electronic expansion valve, safety valve, pressure transducers to relay information on high and low pressure values and relative condensing and evaporating temperatures for display on the controller, high and low pressure switches.

ELECTRONIC EXPANSION VALVE
The use of this accessory is particularly indicated for units that operate in very unstable heat load conditions or in unstable functional mode, as in the case of joint management of air conditioning and production of high temperature water. Use of the electronic thermostatic valve in fact allows to:
a) Maximize the heat exchange to the evaporator
b) Minimize response times on load variation and on operative conditions
c) Optimize the regulation of the over-heating
d) Guarantee maximum energy efficiency

POWER PANEL

The power panel includes:

- Main switch;
- Protection fuses on the auxiliary circuits and power circuits;
- Fan contactors;
- A microprocessor controlling the following functions:
- Regulation of inlet water temperature;
- Antifreeze protection;
- Compressor timing;
- Automatic rotation of compressor starting sequence;
- Alarms;
- Alarm reset;
- Setting the unit's capacity steps;
- Common alarm contact for remote warning;
- Forced steps at pressure limits;
- Alarm log recording ("black box" function)
- Information shown on display:
- Inlet water temperature;
- Temperature and differential settings;
- Explanation of alarms;
- Compressor working hours counter
- Power supply [V/f/Hz]: 400/3~/50 ±5%.

CONTROLS AND SAFETY DEVICES

- Manually resettable high-pressure gauge;
- High pressure safety valve;
- Antifreeze probe on each evaporator outlet;
- Chilled water temperature probe (located at evaporator discharge);
- Mechanical vane-operated flow switch;
- Compressor and fan over temperature protection.

FACTORY FITTED MAIN ACCESSORIES

- Modbus card
- Rubber/ spring type anti-vibration mounts
- Water filter

Optional (For Corrosive Environments)

Copper/aluminum condensing coil treatment with passivized aluminum and polyurethane-based coating. The treatment consists of two layers, the first an aluminum passivation agent acting as a primer, and the second a polyurethane-based surface coating. The product is highly corrosion-resistant and can support almost any environmental conditions, including marine installations, rural environments, industrial areas and urban environments.

TESTING

All units are factory tested and supplied complete with oil and refrigerant charge. Computer Software generated technical data sheet should be attached with the offer. If required the same needs to be demonstrated during the time of final approval.

NOISE LEVEL

The chiller should be designed for Low noise Operation. The noise level of the chiller should not be more than 57 dBA (sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744).

Monkey Mesh:

The outside chiller unit including water pipes and other equipment which will be kept outside of the building should be fenced in order to protect it from monkey or other animal. The fencing wire used in mesh should be corrosion resistant and as per industry standards.

10 Work Guidelines

1. Civil work/MS frame work for indoor and outdoor units related to AC, all cuttings should be properly finished as existing surrounding. The installation of outdoor unit in the building should be checked up structurally & their mounting should be structurally safe. Due care shall be taken by the bidder towards the following works.

a) Cutting of walls and floors/ceiling, Making holes, Sleeves. Foundation.

2. Piping & Pump

a) All piping and fitting should be triple layer PPR and all instrumentation Brass/MS

b) The pump shall be fully protected, regulated, and activated by the microprocessor control system and the electrical panel.

11 Monitoring

The chiller units, UPS, DG Set, LCP units and all active components should provide SNMP and necessary H/W and S/W to integrate with DCIM.

12 Facility Management services

Bidder shall be providing the onsite operations support for the day to day operations such as:

I. User Management and Biometric Activation in consultation with the Data Centre In-charge appointed by NIA, New Delhi.
II. Administration and maintenance of the equipment supplied and installed by Bidder
III. Problem Resolution / Troubleshooting
IV. Coordination with offsite Technical support and the Help Desk.
V. Any other related services not included above

12.1 Details of On Site Support to be taken up by the Successful Bidder

12.1.1 Manpower Distribution

There shall be three shifts as detailed below:

In the General Shift the following manpower will be present at site, whereas in the remaining two shifts infrastructure manager may not be required.

One nos. Infrastructure Manager: Engineer with minimum 10 years of experience and out of which minimum 7 years in Data Centre operations including handling of all critical components of Data Centre as mentioned in the RFP.

One no. Technician (Mechanical/utility): Engineer / Diploma with minimum 5 years of experience out of which minimum 3 years in Data Centre operations especially handling of Cooling Systems.

One no. Technician (Electrical): Diploma with minimum 5 years of experience out of which minimum 3 years in Data Centre operations especially handling of Electrical Systems.

One no BMS Operator: Diploma with minimum 5 years of experience out of which minimum 3 years in Data Centre operations especially handling of BMS Systems.

12.2 Additional IT equipment to be supplied as part of the Tender

12.2.1 LED Panel of 55" (inch) for Surveillance

Type: Non-interactive display
□Resolution: 3840×2160(Ultra HD)
□Minimum Contrast ratio: 3000:1

□Minimum Brightness - 300 Nits (cd/m2)

□Viewing Angle - 170 Degrees

□Input ports - 2xHDMI, 1XDVI-D, 1XAUDIO, 1XDP IN, 1XAV, 1X COMPOSITE

□Output ports -1xAudio

□Built in Speakers - 2 x 10W (Minimum)

□Power & Temperature - AC 100-240 volt, 50Hz. 0-40 C.

□Mounting: Wall mounting brackets with swivel

12.2.2 **Smart LED panel of 75" (inch) for NOCC and SOC areas: 02 nos.**

Specifications:

	Description		**Details**
Display	Type/Technology		Backlit D-LED (IPS Panel)
	Panel Size		75"
	Brightness (Typ)		400cd/m2
	Contrast Ratio (Typ)		1,300:1
	Native Resolution		4K Ultra-HD (3840 x 2160)
	Viewing Angle (H/V)		178°/178°
	Aspect Ratio		16:09
	Response Time (MS)		5ms (Typ)
	Refresh Rate (Hz)		120Hz
	Estimated Life Time (Typ)		30,000 hours (Min)
	Display Color (Bit)		1.07 billion (10-bit)
Interactivity	Technology		Infrared Touch
	Touch Points	Writing	10 Point (Standard)
		Touch	10 Point (Standard)
	Accuracy		±2mm
	Response Time		<15ms
	Touch Resolution		32,767 x 32,767
	Surface Protection		4mm Thick Toughened Glass (Level 7H on Mohs Scale of Mineral Hardness)
	Touch Tools		Finger, Stylus, Glove, Opaque Objects
Operating System	System Version		Android™ v5.0
	CPU		Quad Core ARM® Cortex® A53 CPU - Up to 1.4GHz or equivalent / better
	GPU		Mali™- 450 or equivalent / better

	RAM		2GB DDR3
	Internal Storage		16GB (eMMC Flash) (Standard)
Connectivity	Input	Display	HDMI v2 (x4), HDMI v1.4 (x1), VGA-In (x1), YPbPr-In (x1), AV-In (x1)
		Audio	Audio-In (3.5mm) (x1), MIC-In (3.5mm) (x1)
	Output	Display	HDMI-Out v2 (4K@60Hz) (x1), AV-Out (x1)
		Audio	Audio-Out (3.5mm) (x1), SPDIF-Out (x1)
	Internet		LAN (RJ45) (x1)
	Control		RS232 (x1)
	USB	Front	USB 2.0 (x2), USB Type B (x1) (For Touch Port)
		Side	USB 2.0 (x2), USB 3.0 (x2), USB Type B (x1) (For Touch Port)
Expansion Slot	OPS Interface		Standard Compliant (80pin)
Audio	Speakers		15W (x2) (Stereo)
Power	Power Supply (Internal)		AC 100-240V, 50/60Hz
	Consumption		480W (Without OPS Module)
	Standby Mode		<0.5W (Standby)
Physical Characteristics	Dimension (L x H x D)		2,241.7 x 1,337.8 x 116.4mm
			(88.3" x 52.7" x 4.6")
	Weight		129.43kg (285.3lbs)
	VESA Mounting (FPMPMI)		4 - M8, 800 x 600mm (31.5" x 23.6")
	Color		Black
Accessories	Standard		AC Power Cord, HDMI Cable, USB Cable, Stylus (x2), Remote Control, Wall Mount Kit, Documentation.

12.2.3 **Quad port KVM switches with HDMI cables: 02 nos.**

Supply should include quad port KVM switches along with 5mts length HDMI cables to get quad screens display on the above supplied 75" LED panels housed in NOCC and SOC.

12.2.4 **Rack mountable 16 port KVM Switches along with Foldable**

Monitor, Rack Kit and Cables: 02 nos.

16 Port IP KVM Switch with built in foldable / collapsible monitor	
Ports	16 (Support to cascade at least 4 such switches)
Console Connections	
Local	1
Remote	2
Connectors	
Console Ports	1 x SPHD-18 Female (Yellow) / VGA/ DVI/ HDMI
KVM Ports	16 x RJ-45 Female (Black)
Power	Standard
LAN Ports	2 x RJ-45 Female (Black)
USB Port	3 x USB Type A Female (White)
Audio	2 x Audio Jack Female
Port Selection	Pushbutton, GUI, Hotkey
Switches	
Reset	1 x Semi-recessed Pushbutton
Power	2 x Rocker
Port Selection	2 x Pushbutton
LEDs	
Online	16 (Green)
Selected	16 (Red)
Power	1 (Blue)
Link 10 / 100 / 1000 Mbps	2 (Red / Red + Green / Green)
Emulation	
Keyboard / Mouse	PS/2 / USB (PC, Mac, Sun) / Serial
Video	1600x1200 @ 60Hz
Scan Interval	1-255 Seconds
Maximum Input Power Rating	100-240VAC; 50-60Hz; 1.0A
Physical Properties	
Housing	Metal
Dimensions	Max. 2U rack mountable
Display	Built in Foldable LED/LCD monitor of min.15" along with KVM switch.
Cables	16 No. of 10 mts. Length moulded copper ethernet patch cards with converter at both ends to connect KBD, Mouse and HDMI display 1 No. power cable

12.2.5 **ALL-IN-ONE PCs: 08 nos.**

Processor	8th Generation Intel® Core™ i5 Processor (3M Cache, Min 2.00 GHz)
Memory	Min 8GB, DDR4, DIMM s support up to 32GB
Hard Disk	Min. 1 TB SATA 7.2K RPM or equivalent
Video Card	Intel HD Graphics or equivalent
Audio	Integrated Audio controller with necessary drivers
Display	Size is min. 22-inch, Min Resolution is 1920 x 1080 Full HD & Anti-Glare
Keyboard & Mouse	1 no. of 104 keys USB keyboard 1 no. of USB Optical scroll Mouse.
Ports	HDMI, USB 3.0 (No of ports 2), Microphone/Headset jack, RJ-45 LAN 10/100/1000.
Operating System	Windows 10 Pro x86_64 bit
Cables	Supply should include one no. of 5 mts. Length factory crimped (moulded) copper ethernet patch card. 1 No. of power cable
Warranty	3 years onsite

12.2.6 **Thin Clients: 02 nos.**

Item	**Description of Requirement**
Processor	Quad core CPU Clock speed 2.0 GHz or more
Memory	Min. 2 GB RAM
Storage	Min. 8GB of SDRAM
Graphics	HDMI with 16MB RAM
Display	Minimum 17" LED display, Resolution 1920 x 1200 32 bit color
Features	Embedded Linux OS, Switching between multiple connections, Env. Cooling and Fan less device
Ports	Min. 1 x HDMI, 1 x USB 3.0, Audio and MIC Ports
Network	1 Gigabit ethernet N/W port
Operating System	Embedded
OS and Protocol	Updated Kernel 2.6xx or latest , X11R6 local windows manager, LPR, Thin Print, CUPS, SAMBA Print support, GIO 6 Linux based Operating System, RDP Client for Remote Desktop For Linux/Windows, VNC Client, Browser support, XDMCP Protocol support for Remote X, connection based on X server, Rexec command, RSH, SSH, telnet, freeRDP, TCP/IP, NTP,