REQUEST FOR PROPOSAL

OSDC 2.0 - Odisha State Data Centre

Selection of System Integrator for Design, Build, Installation,Commissioning, Integration, and Operations & Maintenance of Non-IT Infrastructure for Extension of Odisha State Data Centre.

Tender Enquiry No: OCAC-NeGP-INFRA-0016-2022-22073

Odisha Computer Application Centre (OCAC)

(Technical Directorate of E&IT Department, Govt. of Odisha)

OCAC Building, Plot No.-N-1/7D, Acharya Vihar, RRL Post Office

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1 Invitation for Bids

1.1 Important Dates

Sl. No.	Activity	Timeline
1.	Release of RFP	18.11.2022
2.	Site survey by bidders	23.11.2022 & 24.11.22
3.	Pre-bid Meeting date	25.11.2022 at 11 AM
3.	Last date of receipt of pre-bid queries submission (online)	28.11.2022 at 5:00 PM
4.	Posting of response to queries and release of corrigendum, if any	02.12.2022
5	Release of corrigendum, if any	09.12.2022
6.	Last date for submission of Bids	23.12.2022 at 2:00 PM
7.	Date of opening of pre-qualification bids	23.12.2022 at 2:30 PM
8.	Date of opening of Technical Bids	To be notified later
9.	Date of opening of Commercial Bids	To be notified later

Disclaimer

The information contained in this RFP or subsequently provided to bidders, whether verbally or in documentary or any other form by or on behalf of OCAC or any of its employees or advisers, is provided to bidders on the terms and conditions set out in this RFP and such other terms and conditions subject to which such information is provided.

This RFP is issued by OCAC. This RFP is not an agreement and is neither an offer nor invitation by OCAC to the prospective bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their bid pursuant to this RFP. This RFP includes statements, which reflect various assumptions and assessments arrived at by OCAC in relation to extension of OSDC. Such assumptions, assessments and statements do not purport to contain all the information that each applicant may require.

This RFP may not be appropriate for all persons, and it is not possible for OCAC, its employees or advisers to consider the objectives, technical expertise and particular needs of each party who reads or uses this RFP.

The assumptions, assessments, statements and information contained in this RFP, may not be complete or adequate. Each bidder should, therefore, conduct its own investigations and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments and information contained in this RFP and obtains independent advice from appropriate sources. Information provided in this RFP to the bidders is on a wide range of matters, some of which depends upon interpretation of law.

OCAC, makes no representation or warranty and shall have no liability to any person, including any 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 Tender or otherwise, including the accuracy, adequacy, correctness, completeness or reliability

of the Tender and any assessment, assumption, statement or information contained therein or deemed to form part of this Tender or arising in any way in this Bid Stage.

OCAC 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 Tender. OCAC 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 Tender. The issue of this Tender does not imply that OCAC is bound to select a Bidder or to appoint the Preferred Bidder, as the case may be, for the Project and OCAC reserves the right to reject all or any of the Bidders or Bids without assigning any reason whatsoever.

OCAC reserves all the rights to cancel, terminate, change or modify this selection process and/or requirements of bidding stated in the RFP, at any time without assigning any reason or providing any notice and without accepting any liability for the same.

The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. OCAC accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on the law expressed herein. OCAC its employees and advisers make no representation or warranty and shall have no liability to any person including any applicant under any law, statute, and 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 RFP or otherwise, including the accuracy, adequacy, correctness, reliability or completeness of the RFP and any assessment, assumption, statement or information contained therein or deemed to form part of this RFP or arising in any way in this selection process.

OCAC also accepts no liability of any nature whether resulting from negligence or otherwise however, caused arising from reliance of any bidder upon the statements contained in this RFP.

The bidder shall bear all its costs associated with or relating to the preparation and submission of its Proposal including but not limited to preparation, copying, postage,

delivery fees, expenses associated with any demonstrations or presentations which may be required by OCAC or any other costs incurred in connection with or relating to its proposal. All such costs and expenses will remain with the bidder and OCAC 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 proposal, regardless of the conduct or outcome of the selection process.

1.2 General Instructions to Bidders

1. While every effort has been made to provide comprehensive and accurate background information, requirements, and specifications, Bidders must form their own conclusions about the requirements. Bidders and recipients of this RFP may wish to consult their own legal advisers in relation to this RFP.
2. All information to be supplied by Bidders will be treated as contractually binding on the Bidders, on successful award of the assignment by OCAC on the basis of this RFP.
3. No commitment of any kind, contractual or otherwise shall exist unless and until a formal written contract has been executed by or on behalf of OCAC with the bidder. OCAC may cancel this public procurement at any time prior to a formal written contract being executed by or on behalf of OCAC.
4. This RFP supersedes and replaces any previous public documentation & communications in this regard and bidders should place no reliance on such communications.

1.3 Bid Invitation

Odisha Computer Application Centre invites offer/proposal from interested bidders for "Design, Build, Installation, Commissioning, Integration and Operation & Maintenance of Non-IT infrastructure for Extension of Odisha State Data Centre at OCAC Tower, Bhubaneswar" for a period of five (5) years from date of acceptance of work order. This RFP document is being published on web Portal "https://www.ocac.in", this section provides general information about the issuer, important dates, and addresses for bid submission & correspondence for the bidders.

The bidders are advised to study the RFP document carefully. Submission of bids shall be deemed to have been done after careful study and examination of the RFP document with full understanding of its implications.

Odisha Computer Application Centre is the nodal agency of Odisha State working towards promotion & implementation of IT and e-Governance. It is the single point of access to any IT business opportunity in Odisha and encourages various players in the field of IT to come forward and invest in the State of Odisha. OCAC is committed to generate IT business for the public/private sector with a mandate from the Government to develop IT in the state. This includes opportunities for software development, supply of hardware & peripherals, networking and connectivity, web applications, e-commerce, IT training and an entire gamut of direct and indirect IT businesses.

1.4 Fact Sheet

Proposal inviting agency	**Odisha Computer Application Centre**
Downloading RFP Document	RFP can be download from http://www.ocac.in, http://www.odisha.gov.in and https://enivida.odisha.gov.in
Tender Processing fee	Tender Processing fee: To participate in the bid bidders are requested to pay the Tender Document fee of **₹5,600/-** through online mode on https://enivida.odisha.gov.in portal.
Scope of work	Design, Build, Installation, Commissioning, Integration, and Operations & Maintenance of Non-IT Infrastructure for Extension of Odisha State Data Centre.
Language	The Proposal should be filled up by the Bidder in English language only.
Taxes	Taxes: The bidder must quote price in Indian Rupees only. The bid price to be offered by the bidders must be inclusive of all taxes.
Submission of Responses	Bidders must submit all required documents online on the website https://enivida.odisha.gov.in
The contact information	General Manager (Admin) Odisha Computer Application Centre, N1/ 7D, Acharya Vihar Square, Near Planetarium, P.O. – RRL, Bhubaneswar 751013 Ph. - 0674-2582850/ 2588064 Website: www.ocac.in

Last date and time for submission of proposal	Proposals must be submitted not later than the following date and time: **23/12/2022 up to 02 :00 PM**, or else the bid will be auto rejected by the portal/system.
Earnest Money Deposit - (EMD)	Rs.1,25,00,000/- (One crore Twenty Five lacs only) in form of Bank Guarantee in the prescribed format in favour of "OCAC" payable at Bhubaneswar from a nationalized / scheduled commercial bank in India.
Pre bid Conference	On 25/11/2022 at 11:00 AM (Bidders queries should reach as on before 24/11/2022 05:00 PM - Last date for receiving queries through E-mail: osdc@ocac.in & sk.bhol@nic.in)
Posting of response to queries	02/12/2022
Release of corrigendum if any	09/12/2022
Opening of Pre-Qualification Bid	23/12/2022 by 02:30 PM
Opening of General cum Technical Presentation by the qualified bidder.	Will be intimated later
Opening of Commercial Bids	Will be intimated later
Bid validity	Bid must remain valid up to 180 (One Hundred & Eighty) days from the actual date of submission of bid.
Address for Correspondence and Clarifications	General Manager, OCAC, Odisha Computer Application Centre, N1/ 7D, Acharya Vihar Square, Near Planetarium, P.O. – RRL, Bhubaneswar 751013

	Ph. - 0674-2582850/ 2588064 Website: www.ocac.in Mr. S.K. Bhol Senior Technical Director NIC, & Project Manager, OSDC osdc@ocac.in & sk.bhol@nic.in
Proposal currency	Bidder shall be quote prices in Indian Rupees (INR) and will receive payment is Indian Rupees only

Please visit web site "http://www.ocac.in" for complete detail.

The Bidders are advised to submit the bids well in advance of the deadline as OCAC/GoO will not be liable or responsible for non-submission of the bids because of any problems whatsoever.

1.5 Acronyms

List of acronyms that has been used in this document has mentioned here along with its full form/meaning.

Abbreviations	Description/ Definitions
OCAC	Odisha Computer Application Centre
OSDC	Odisha State Data Centre
OSDC 2.0	Odisha State Data Centre 2.0
BOM	Bill of Material
BOQ	Bill of Quantity
BTA	Business Transaction Activity
CAPEX	Capital Expenditure
Cr.	Crores
CCTV	Closed Circuit Television

Abbreviations	Description/ Definitions
DC	Data Centre
DG	Diesel Generator
DOT	Department of Telecom
DPR	Detailed Project Report
EMS	Enterprise Management System
FAT	Final Acceptance Test
FTP	File Transfer Protocol
G2B	Government to Business
G2C	Government to Citizens
G2G	Government to Government
HLD	High Level Design
HVAC	Heating, Ventilation, and Air Conditioning
HT	High Tension
IP	Internet Protocol
IPS	Intrusion Prevention System
IBMS	Integrated Building Management Systems
ISO	International Organization for Standardization
ISP	Internet Service Provider
IT	Information Technology
IOT	Internet over Things
ITSM	IT Service Management
LAN	Local Area Network
LT	Low Tension
MeitY	Ministry of Electronics and Information Technology
NFPA	National Fire Protection Agency

Abbreviations	Description/ Definitions
NMS	Network Management Server
NOC	Network Operations Centre
O&M	Operations and Maintenance
OEM	Original Equipment Manufacturer
OPEX	Operational Expenditure
PAC	Precision Air Conditioning
PAHU	Precision Air Handling Unit
POE	Power over Ethernet
POI	Point of Interconnect
PDU	Power Distribution Unit
PUE	Power Usage Effectiveness
QOS	Quality of Services
SDC	State Data Centre
SWAN	State Wide Area Network
STP	Spanning Tree Protocol
TCP	Transmission Control Protocol
TCV	Total Contract Value
GoO	Government Of Odisha
UPS	Uninterrupted Power Supply
VRF	Virtual Routing & Forwarding
VESDA	Very Early Smoke Detection Apparatus
WAN	Wide Area Network
WLD	Water Leak Detection System

2 Project Objective & Brief Scope of Work

2.1 About OCAC

Odisha Computer Application Centre (OCAC) alias OCAC is the Designated Technical Directorate of Electronics & Information Technology Department, Government of Odisha, has evolved through years as a Centre of excellence working towards promotion & implementation of IT solutions and e-Governance. It is the single point of access to any IT business opportunity in Odisha and encourages various players in the field of IT to come forward and invest in the State of Odisha.

Odisha Computer Application Centre (OCAC) is engaged in businesses related to Electronics, Computer goods and IT services. The directorate caters to the technological needs of the government and carries out IT project conceptualization and implementation for the State Government Departments and agencies.

OCAC is committed to generate IT business for the public/private sector with a mandate from the Government to develop IT in the state. This includes opportunities for software development, supply of hardware & peripherals, networking and connectivity, web applications, e-commerce, IT training and an entire gamut of direct and indirect IT businesses.

Odisha Computer Application Centre, the Designated Technical Directorate of Information Technology Department, has contributed significantly to the steady growth of IT in the State and deliver value to the beneficiaries by delivering superior value through its services and solutions. So it helps IT to reach the common citizen so as to narrow down the Digital Divide and widespread applications of IT is establishing a system where the citizens are receiving good governance ensuring speed of decisions from a transparent Government through an effective e-Governance System.

1. To Provide excellent electronic, IT Goods, IT Services to the Government of Odisha.

2. To create a robust IT eco-system for enhancing competitiveness and productivity of the key economic sectors affecting the lives of the majority of the population of the State.
3. To disseminate IT and ITeS activities across the state so that rural population is equally benefited.
4. To provide seamless and reliable citizen-centric services and information for the public, thereby enhancing efficiency, transparency and accountability of Government.
5. To help its customers adapt themselves to the modern management techniques.

2.2 Project Objective

The State Data Centre (SDC) is a key-supporting pillar of e-Government initiatives for delivering services to the citizens with greater reliability, availability, and serviceability. SDC provides better operations & management control and minimizes overall cost of Data Management, IT Management, Deployment, and other costs.

State Data Centres are one of the three infrastructure pillars structured by the National e-Governance Plan (NeGP) to facilitate web enabled Anytime, anywhere access. State Data Centres are conceptualized with the objective of providing a common enabling infrastructure to the States to cater to their e-governance applications hosting requirements of the entire state government and its departments. It was live in October 2011 to host services, applications, and infrastructure and to provide efficient electronic delivery of G2G, G2B and G2C services.

Ministry of Information Technology and Electronics (MeitY), Government of Odisha (GoO) were the key and core stakeholder of implementation of various Mission Mode Projects under NeGP. A Composite Team has been formed with the officers from OCAC and National Informatics Centre (NIC) for shouldering the responsibility of techno-administrative support of overall SDC operations, management and hosting various departmental applications at SDC.

To extend the success of computerization, Government of Odisha (GoO) in support with its nodal agency had set up SDC for hosting the departmental applications. Presently, the date Centre is catering the IT infrastructural needs of all departmental owned applications and e-Gov. applications envisaged to provide a wider range of services to the Citizens of Odisha by computerizing the operations of various department of GoO.

The existing State Data Centre (SDC) is a core infrastructure project at OCAC building, over an area of 4000 Sq. ft. (approx.) in the year 2011, which included the server farm area or 1500 Sq. ft. (approx.) to facilitate on-premises hosting of Government applications. More than 80 applications have already been hosted under virtualized/cloud environment (Hyper-V/ VCloud suite) in the SDC. Separate remote Data Recovery services have been provisioned at National Data Centre, Shastri Park, New Delhi through storage-based replication of data. Envisaged future BCP/ Disaster Recovery (DR) for Applications hosted with SDC shall be provisioned at an alternate site.

OCAC offers expansion /extension of SDC in the form of the Tier III standard State Data Centre in first floor of OCAC Towers which will be built exclusively and dedicatedly for extension of Odisha State Data Centre (OSDC 2.0) within the same campus. Since, the State Data Centre has already completed more than eight (10) years of operation, most of the compute, storage and network is utilized and would require upgradation.

The technology used in the current Data Centre is Ten years old and would require refresh to keep up to date for security reasons and as per industry standards. For the purpose of design, supply, installation, configuration, integration, operation & maintenance of Civil, IT and Non IT infrastructure of the proposed Tier-III OSDC 2.0, proposals are invited from the perspective bidders through this RFP. Currently, most of the items of the existing SDC are in a state of extended support by the respective Original Equipment Manufacturers (OEM). In view of the above, immediate replacement of the devices which are in extended support is extremely important for smooth operation of OSDC. The Data Centre is currently facing a huge demand from the State user departments for hosting their applications.

Odisha State Data Centre 2.0 will facilitate to host applications of various user departments of State as well as PSUs on a common infrastructure leading to ease of

integration and efficient management, ensuring that computing resources and the support connectivity infrastructure (SWAN) is adequately and optimally used. The OSDC 2.0 will be equipped to host / co-locate systems (e.g., Cloud, Web Servers, Application Servers, Database Servers, SAN and NAS etc.) applications using the centralized computing power. The IT infrastructure will ensure host multiple applications with high availability, scalability, reliability, portability, and centralized authenticating system to authenticate the users to access their respective systems.

2.3 Brief Scope of Work

The extension of Odisha State Data Centre will provide a hosting space to meet the demand of the user departments for hosting their applications in the State Data Centre. Also, to create a highly secure flexible, automated, managed cloud service environment deploying the latest industry computing infrastructure for keeping the user department applications secure, highly scalable and available.

There is a need to set up strategic infrastructure that facilitates high availability, quick scalability, efficient management & optimized utilization of resources. To fulfil this requirement, OCAC intends to set up a Tier-III data Centre OSDC 2.0 with high availability to facilitate the government offices to access to servers, storage, databases, and a broad set of application services over the Internet. It will provide better operations and management control and minimize overall cost of Data Management, IT Management, Deployment and other costs.

Target intention is that the OSDC 2.0 should be more conducive to infrastructure fluctuations and more programmable while enabling the underlying infrastructure to support containers, bare metal, and virtualized workloads. Moreover, the planned OSDC 2.0 transformation needs to be ready for both compos able as well as hyper-converged workloads from present day so that hyper-converged solutions can be added incrementally as needs arise in future and as the hyper-converged technology goes on to support more types of workloads beyond today's support of only virtualized workloads.

The minimum specified scope of work to be undertaken by the bidder for Design, Supply, Installation, Testing, Commissioning, Integration & Operations and Maintenance of the proposed OSDC 2.0 at Bhubaneswar as per the scope mentioned below. The selected bidder shall ensure an uptime more than 99.982% (Tier III) guideline on a quarterly basis for period of five years after Go-Live of the Project.

This section describes the scope of work (SOW) of the System Integrator (SI) for creation of Odisha State Data Centre – OSDC 2.0. This SOW is not limited to the following as described but includes all the possible scopes that may be required for execution of the

project based on standards and best practices. In case, any bidder feels that any requirement that is not explicitly mentioned here but is essential to complete this project may, bring to the notice of the authority during pre-bid meeting

The minimum specified work to be undertaken by the bidder for setting up and operating the proposed OSDC 2.0 has been categorized as under:

- Schedule I: Supply, Installation, Testing and Commissioning of the Non-IT Infrastructure of the proposed OSDC 2.0 at OCAC Towers, Bhubaneswar.

- Schedule II: Acceptance Tests (PAT and FAT), Uptime Certifications and periodic Health check.

- Schedule III: Operations and Maintenance services for the complete Infrastructure at OSDC 2.0 at OCAC Towers, Bhubaneswar for the period of 5 years from the date of successful acceptance by OCAC.

Note: The bidders are requested to submit their proposals for these Schedules in the same bid which would be combined for evaluation purposes.

2.4 Scope of Work

Data Centre Non-IT physical Infrastructure

i) Civil & Interior Works

- Raise flooring inside server hall, Vitrified/Marble tile flooring tile carpet flooring in support area, PCC flooring on all area.
- Modular false ceiling in support area
- Fire rated glass partition in server hall, Toughened glass partition, Gypsum partition in support area.
- Fire rated doors, Glass doors and flush doors, Shutters, Grills
- POP and paint
- Furniture and accessories, Ramps, rolling shutters, grill partition and doors.

- Toilet interiors with faucets, fitting, wall and floor tiles plumping and all scope to make the work complete.
- Any other work not explicitly mentioned above but required to complete the project.
- Creation of Transformer yard with panel room.

ii) HT and MV Power and distribution

- Replacement of HT and metering panel, cables.
- Transformer, APFC panel, Sync panels (Transformer output Panel)
- SITC of Main and sub-LT panels. '
- Distribution panels and DBs
- Lighting and wiring
- Earthing and Grounding
- Diesel generators, exhaust stack, HSD tank, Fuel pump etc.
- Track Busway (BBT) inside server hall
- Intelligent PDUs
- Monolithic UPS systems with lithium-ion batteries for IT load, Noncritical UPS with VRLA batteries.
- All cabling, raceways, cable trays, tagging, connectors, terminations
- Any other work not explicitly mentioned above but required to complete the project.

iii) Precision and Comfort Air conditioning

- Removal of AHU and closing the pipes
- In-row cooling for high density racks
- Perimeter cooling for low density racks/UPS room
- ODU platform
- Floor and ceiling insulation
- VRV / VRF cooling for support area
- Precision cooling for UPS and Power room
- All cabling, Piping, Containment, Floor grills, indoor units for support area etc.

iv) Safety, Security, Surveillance and Monitoring

- Addressable fire alarm system for server hall, support area utility building.

- Removal for fire hydrant piping from server hall area.
- Aspiration smoke detection system in server hall
- Gas based suppression system in server hall, UPS and Power room
- Close circuit television system
- Access control system, visitor management system, flap barriers, baggage scanners, metal detectors, Full height turnstiles etc
- Water leak detection system
- Rodent repellent system
- Datacenter infrastructure monitoring system

v) Network passive infrastructure

- Server, Network and Patch racks
- Copper and fiber structure cabling
- Fiber and copper pathways.

vi) Integrated System Acceptance Test

- Hundred percent load simulation with load bank for each rack
- Power analysis for each source equipment with full simulated load
- Thermography of each equipment including breaker
- CFD analysis of white space area

vii) Tier certification

- Design certification
- Construction certification
- Operation certification

viii) Operation and Maintenance

- Periodic Maintenance of Datacenter
- DC office Maintenance
- Service Level Adherence
- Resource Deployment
- Standard Operating Procedures (SOP)
- Periodic Health Audit

3 Pre –Qualification Criteria

The bidder should have mandatory pre-qualification as per the following table. The proposal of the bidder who is fulfilling the mandatory pre-qualification criteria shall be consider for technical evaluation. The proposal would be liable to be rejected if any bidder does not fulfil any pre-qualification criteria.

A bidder participating in the procurement process shall possess the following minimum prequalification/ eligibility criteria

3.1 Pre-Qualification for Bidder

	Parameter	Specific Requirements	Documents
1.	Legal Entity	The Bidder should be an established Company registered under the – Indian Companies Act, 1956/2013, or partnership firm register under LLP Act, 2008, Partnership Firm as per Indian partnership Act 1932, since last 10 years as on 31st March 2022. Consortium/joint venture of any kind is not allowed	Valid documentary proof of: Certificate of incorporation Certificate of Commencement Certificate consequent to change of name if applicable Registered Partnership deed

	Parameter	Specific Requirements	Documents
		NB: - In case any bidder has undergone restructuring (merger, demerger, hive off, slump sale etc.), bid submitted by such bidder who has acquired a Company/Division of a company shall also be considered for evaluation if the eligibility and technical evaluation criteria is met jointly between the bidder and the Company/Division acquired.	NB: Board regulation of both company or valid order of merger & acquisition from ROC and/or Court. Credentials of its erstwhile / current entity provided sufficient documentary proof should be submitted with the bid to evince that such credentials have accrued to / transferred to / are in the name of the bidding entity and the bidding entity is authorized to use such credentials.
2.	Financial Turnover	Average Annual Turnover of the Bidder during the last Five financial years, as per the last published audited balance sheets), should be at least (INR) 200 Crores as on 31st March 2022. NB: - In case Lead Bidder is a wholly owned subsidiary, the financial experience of	CA Certificate for Net Worth with CA's Registration No or Seal and Copy of audited profit and loss account and balance sheet of the last Five financial years.

	Parameter	Specific Requirements	Documents
		Parent company would be considered for eligibility, provided the parent company operates in similar field of business.	
3.	Net Worth	The net worth of the Bidder should be Positive for last Five years, as on 31st March 2022 and should be profitable for each of the last Five financial years. NB: - In case Bidder is a wholly owned subsidiary, the financial experience of Parent company would be considered for eligibility, provided the parent company operates in similar field of business.	Copy of audited profit and loss account/ balance sheet of the last Five financial years, highlighting the requisite figure related to positive net worth and profitability.
4.	Certifications	The Bidder must have valid Certificate at the time of bidding, ISO 9001:2015 ISO/IEC 20000 : 2019 ISO 14000	Copy of Valid Certificate.

	Parameter	Specific Requirements	Documents
5.	Project Experience	During the last Seven years, (Start date of PO must be within last 7 years counted backwords from date of submission of bid) the Bidder should have implemented/completed Data Centre projects for Central / State Governments, PSUs, Banking & Financial Institutions, in India that meets the below mentioned requirement: a. Single order of value 50 Crore or more; OR b. Two orders each having value of 40 Crores or more; OR c. Three orders each having value of 25 Crores or more The orders should include Turnkey Data Center consisting of installation, commissioning of Electrical Distribution & Lighting, DG sets with Fuel tank, Precision AC/ Chiller Plant, UPS System, Fire Detection	Copy of work order(s) / Purchase Order/ Completion Certificate/ contract agreement. Supported with relevant documentary evidence for the design parameters and the completion or Go Live or FAT certificates by the customer.

<table>
<tr><th></th><th>Parameter</th><th>Specific Requirements</th><th>Documents</th></tr>
<tr><td></td><td></td><td>& suppression system, Access Control and CCTV, BMS/DCIM System, Civil and Interiors etc.</td><td></td></tr>
<tr><td>6.</td><td>DC Design certificate Experience</td><td>The Bidder should have design experience of certification of at least One Tier-III/Rated 3 Data Centers certified by Uptime Institute/EPI (TIA 942) with minimum 50 rack space of server farm area OR 1000 KW of total Load handling capacity of Datacenter including IT and Non-IT load.</td><td>Copy of Certificate along with PO / Contract. Supported with relevant documentary evidence for the design parameters and the completion or Go Live or FAT certificates by the customer.</td></tr>
<tr><td>7.</td><td>Technical Manpower</td><td>Bidder Must have at least following technical manpower on its role.
20 resources should be B.E/B. Tech (Electrical Mechanical/Electronics/instrumentation)
i) At least One Project management professional with PMP or Prince-2 certified resource.
ii) At least one CDCP/CDCS certified resource.</td><td>Certificate from bidder's Head of HR Department for the 20 number of Technically Qualified professionals employed by the company in the following format.
<table><tr><th>Emp Name</th><th>Qualification</th><th>Certification</th><th>Exp Year</th></tr><tr><td></td><td></td><td></td><td></td></tr></table></td></tr>
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	Parameter	Specific Requirements	Documents
		iii) At least One Data Centre Design Consultants having ATD (Accredited Tier Designer)/CDCE certification from Uptime Institute/EPI (TIA942).	HR certificate on company's letterhead stating the points with employee Name, Qualification, Certification to be submitted along with copy of the relevant certificate
8.	Mandatory Undertaking	The Bidder shall: - i) Not be insolvent, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, not have its business activities suspended and must not be the subject of legal proceedings for any of the foregoing reasons. ii) Not have, and their directors and officers do not have, been convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter into a	Self-Certification/ Declaration duly signed by authorized signatory on company letter head.

	Parameter	Specific Requirements	Documents
		procurement contract within a period of five years preceding the commencement of the procurement process, or not have been otherwise disqualified pursuant to debarment proceedings. iii) Not blacklisted with any of the State/Central Government or any government agency as on the date of submission of the bid.	

4 Submission of the Proposal

1. The proposal shall be submitted online in two parts in, Part-I "Technical cum General Bid" and Part-II "Commercial Bid". Technical cum General Bid will consist of two parts: "Pre-Qualification Bid" & "Technical Proposal". Technical Bid proposal will be provided as per format in Proforma-4 and Commercial Bid will only consist of the commercial proposal as per format in Proforma-22: Format for Financial Quotations
2. The bidders must submit their responses as per the format given in this RFP, in the following manner, which must be properly flagged to distinguish the required enclosures.
3. The proposal should be signed by an authorized signatory (having power of attorney/authorized by board resolution) on each page of the proposal document including enclosures.
4. Copy of board resolution and / or power of attorney shall be submitted along with technical proposal. Failing of which the Bid will be rejected.
5. The proposal shall contain no interlineations, erasures or overwriting, in order to correct error made by the Bidder. All corrections shall be done & signed by the authorized signatory after striking out the original words / figures completely.
6. Only detailed complete bids in the form indicated above shall be received prior to the closing time and date of the bids shall be taken as valid.
7. Please note that Prices must not be indicated in the Technical Proposal but must only be indicated in the Commercial Proposal. Any proposal with Commercial Proposal submitted along with Technical Proposal will be summarily rejected.
8. All the pages of the proposal must be sequentially numbered and must contain the list of contents with page numbers. Any deficiency in the documentation may result in the rejection of the proposal.
9. The original proposal /proposal shall be prepared in indelible ink. It shall contain no interlineations or overwriting, except as necessary to correct errors made by the Bidder itself. Any such corrections must be initialled by the person (or persons) who sign(s) the bids.

10. All pages of the proposal including the duplicate copies, shall be initialled and stamped by the authorized person or persons who sign the proposal.

4.1 Deadline for Submission of Proposals

1. The proposal shall be submitted online within the date and time.
2. OCAC may, at its discretion, extend this deadline for any other administrative reason.

4.2 Late proposals

Any proposal received by OCAC after the deadline for submission of proposals prescribed by OCAC, shall be rejected.

4.3 Proposal Prices

The prices indicated in the price schedule shall be entered in the following manner:

1. The total price quoted must be inclusive of cost of Non-IT supply, installation, commissioning and supplying / providing hardware, licenses, software, services for installation, testing and commissioning of the Solution and support, all applicable taxes, duties, levies, charges etc., it should also include the cost of incidental services such as transportation, insurance, training, factory acceptance test, acceptance test at site, Certification, Periodic health check, operation and maintenance etc.
2. The cost of operation and maintenance of non-IT infrastructure for a period of FIVE (5) years after the date of Go Live.
3. The Bidder cannot quote for the project in part.
4. The Bidder may visit all proposed site/location, which will be part of OSDC 2.0 at Bhubaneswar before bidding to assess the actual physical & Technical requirement. Site visit may be facilitated on mail request to the Contact Officer as mentioned in invitation of bid section.
5. The bidder must submit a detailed Bill of material including Make & Model and Bill of quantity with prices of each component.
6. OCAC will have in its discretion to increase and decrease in quantity and items in case of need arises.

4.4 Earnest money deposit

1. Bidders shall submit, an EMD of Rs. 1,25,00,000.00 (One Crore Twenty Five lacs only), in the form of bank guarantee issued by any nationalized/scheduled commercial bank in favour of OCAC, payable at Bhubaneswar, and should be valid for minimum 180 days from the last date of the submission of Bid.
2. EMD of all unsuccessful bidders would be refunded by OCAC within 60 days after selection of successful Bidder. The EMD of successful Bidder would be returned upon submission of Performance Bid Security as per the format provided in Proforma-21.
3. EMD amount is interest free and will be refundable to the unsuccessful bidders without any accrued interest on it.
4. The proposal submitted without tender fee and EMD in the prescribed format mentioned above, shall be summarily rejected.
5. The EMD may be forfeited:
   a. If a Bidder withdraws its proposal within the validity period.
   b. In case of a successful Bidder, if the Bidder fails to sign the contract in accordance with this RFP.
   c. Fails to deliver as per the Terms & conditions of RFP & deliverables.
   d. Any material breach of contract

4.5 Bid Validity Period

1. The EMD submitted along with the bid will remain valid for validity period of the bid as mentioned in the fact sheet.
2. In exceptional circumstances, prior to expiry of the bid validity period, the Client may request the Bidders to extend the period of validity for a specified additional period at Bidder's cost. The request and the responses to the request shall be made in writing. A Bidder may refuse the request without risking forfeiting the EMD, but in this case, the bidder will be out of the competition for the award. Bidder agreeing to the request will not be required or permitted to modify its bid but will be required to ensure that the bid remains secured for a correspondingly longer period.
3. On completion of the validity period, unless the Bidder withdraws his bid in writing, it will be deemed valid until such time that the Bidder formally (in writing) withdraws bid.

4.6 Compliant /Completeness of response

Bidders are advised to study, examine all instructions, forms, appendices, terms, conditions and deliverables in the RFP document. Failure to furnish all information required by the RFP documents or submission of RFP offer not substantially responsive in every respect to the RFP documents will be at the Bidder's risk and may result in rejection of its RFP offer.

The RFP offer is liable to be rejected outright without any intimation to the bidder if complete information as called for in the RFP document is not given therein, or if particulars asked for in the forms / Proforma in the RFP are not fully furnished.

Bidder must:

1. Include all documentation specified in this RFP, in the bid.
2. Follow the format of this RFP while developing the bid and respond to each element in the order as set out in this RFP.
3. Comply with all requirements as set out within this RFP.

4.7 Pre-bid Meetings Clarification

OCAC shall organize a pre bid meeting on the scheduled date, time and venue as mentioned in Invitation of Bid section, at OCAC Building, Bhubaneswar. OCAC may or may not incorporate any changes in the RFP based on acceptable suggestions received during the Pre-Bid Conference. The decision of OCAC regarding acceptability of any suggestion/request shall be final in this regard and shall not be called upon to question under any circumstances. The prospective bidders shall submit their queries in writing only in prescribed format below not later than date and time indicated in sheet.

SL.No	Page No	Clause No	Clause header	Clause details as in RFP	Query/ Clarification Required	Justification/Reason for changes required (If any)

At any time prior to the last date of submission of proposal, OCAC may for any reason be able to modify the RFP.

Any modifications in RFP or reply to queries shall be hosted – http://www.ocac.in & www.odisha.gov.in

OCAC at its discretion may extend the last date for the receipt of proposals.

Once the similar queries shall be answered, same queries will not be entertained further.

It is expected that the bidder shall do their own due diligence on the question they may ask. Any changes sought must be with proper justification. Any statements such as 'specification/requirement' is not vendor neutral OR it implies to single OEM or any such statement like this, must be asked with adequate and credible proof and justification.

4.8 Responses to pre-bid queries and issue of corrigendum

1. Bidder may seek clarification on this RFP document not later than the date specified in the Invitation of Bid section. OCAC reserves the right to not to entertain any queries post that date and time. The bidders are requested to submit their queries in MS -Word as well as MS-Excel editable format. Queries those are not submitted, not adhering format as given in this RFP will be liable for rejection.
2. At any time prior to the last date for receipt of bids, OCAC may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the RFP document by a corrigendum.
3. Any modifications of the RFP Documents, which may become necessary because of the Pre-Bid queries, shall be made by Client exclusively through a corrigendum. Any such corrigendum shall be deemed to be incorporated into this RFP. However, in case of any such amendment, the bid submission date may be extended at the discretion of Client.
4. The corrigendum or clarifications (if any) to the queries from any bidder will be published on the website, http://www.ocac.in & www.odisha.gov.in in form of modified RFP/corrigendum etc.
5. Any such corrigendum shall be deemed to be part of this RFP and it will be incorporated into this RFP.
6. To provide prospective bidders reasonable time for taking the corrigendum/modifications into account, OCAC may, at its discretion, extend the last date for the receipt of Bids.
7. It is the responsibility of the Bidder to check the above websites time to time for updates.

4.9 Amendment of Proposals

1. RFP Proposals once submitted cannot be amended. However, in case of some administrative exigencies, OCAC may decide to take fresh proposals from all the bidders before opening of the Technical Proposal.
2. OCAC in its discretion may ask for clarification in terms of letter, declaration, datasheets, brochures etc during technical evaluation. It will be binding on the bidders to submit the same.

4.10 Opening of proposals by OCAC

The date and time for opening of proposals and technical presentation will be decided and notified by OCAC through the website of www.ocac.in. The evaluation committee authorized by OCAC will be entitled for proposal opening in the presence of bidders or their representatives who may be present at the time of opening. The bidder's representatives (maximum two) should carry the identity card or a letter of authorization from the bidding firms to identify their employer for attending the opening of the proposal. In order to assist in the examination, evaluation and comparison of proposals, OCAC may at its discretion ask the bidder for a clarification regarding its proposal. The clarification shall be given in writing, but no change in the price or substance of the proposal shall be sought, offered or permitted.

4.11 Change/Amendment of Make/Model of products

Only one make of products will be allowed. Multiple makes will not be allowed on bid response. Once the contract is signed with the bidder, there may arise a situation where the bidder may want to change the make. The change of make will be allowed in following conditions only

1. The product is no more available for procurement. A letter from OEM is required.
2. The product is available, but the OEM is not willing to sell. A letter of justification is required from OEM
3. The product fails during the testing at site or at factory.

4.12 Evaluation Procedure

1. OCAC may constitute an Evaluation Committee to evaluate the responses of the bidders.

2. The Evaluation Committee constituted by OCAC shall evaluate the responses to the RFP and all supporting documents / documentary evidence. Inability to submit requisite supporting documents / documentary evidence, may lead to rejection.
3. The interpretation of the bids and the decision made by the Evaluation Committee in the evaluation of responses to the RFP shall be final. No correspondence will be entertained outside the process of evaluation with the committee.
4. The Evaluation Committee may ask for meetings with the bidders to seek clarifications on their bids.
5. The Evaluation Committee reserves the right to reject any or all bids on the basis of any deviations.
6. Each of the responses shall be evaluated as per the criterions and requirements specified in this RFP.
7. Evaluation Committee will prepare a list of responsive bidders, who comply with all the Terms and Conditions of the RFP. All eligible bids will be considered for further evaluation by a committee according to the Evaluation process define in this RFP document. The decision of the Committee will be final in this regard. All responsive Bids will be considered for further processing as below:
    a. Evaluation committee will examine the bids to determine whether they are complete, whether any computational errors have been made, and whether the bids are generally in order. The interpretations made by the evaluation committee will be final and binding on the bidders.
    b. Reasonableness of Prices: Prices quoted by bidders must be reasonable with prevalent market rates. AHR (Abnormally High Rates) and ALR (Abnormally Low rates) shall not be accepted and OCAC shall have to the right to reject the bid.
    c. In a case where the item is mentioned in the BOQ/BOM/Price bid but the prices are not mentioned against the item, then OCAC shall have the discretion to consider the highest cost among all the qualified bidder for that item for calculation to reach the total prices of the bidder.
    d. In case an item has been left out in the BOQ/BOM/Price bid by a particular bidder but required for the successful implementation of project and/or it is mentioned in the solution document of the bidder, OCAC will have the right to reject the bid OR ask the bidder to supply the item free of cost.

e. It is mandatory for bidder to submit detailed BOQ and BOM (Bill of material with quantity) as unpriced bid in technical bid. Any discrepancy in price and unpriced bid will lead to disqualification of the bid OR OCAC will have the right to consider the highest amongst the BOQ/BOM and the price bid.

f. In case of no price quoted or Zero price quoted against an item by a bidder, price for the item will be loaded with highest prices quoted amongst all the other bidders for that item for evaluation purpose. However the bidder has to complete the SITC for the item at zero cost.

g. In case of a situation where the bidder has quoted abnormally low quantity or abnormally high quantity for an item, OCAC will have the rights to ask for an explanation during technical evaluation stage. The bidder will be given chance to increase or decrease the quantity as per the solution the bidder would propose and accepted OCAC. This will not be applicable for the quantity mentioned against items that is already asked in the tender.

h. Arithmetical errors will be rectified on the following basis:

- If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected.
- If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail, and the total shall be corrected.
- If the Bidder does not accept the correction of the errors, his proposal will be rejected.
- If there is a discrepancy between words and figures, the amount in words will prevail.
- If there is discrepancy on prices of item in Price bid and in price bid break up sheet (if any) the lowest prices of the item mentioned in all the sheets will be considered.

i. OCAC may conduct clarification meetings with each or any Bidder to discuss any matters, technical or otherwise. Result of such meeting/ clarification may be published on specified website; however, no material changes in the bid shall be permitted.

j. Further, the scope of the evaluation committee also covers taking any decision with regards to the RFP Document, execution/ implementation of the project including management period.

k. Proposal shall be opened in the presence of bidder's representatives who intend to attend at their cost. The bidders' representatives who are present shall sign a register giving evidence of their attendance.

l. Proposal document shall be evaluated as per the following steps.

- Preliminary Examination of Eligibility Criteria documents: The Eligibility document will be examined to determine whether the Bidder meets the eligibility criteria, whether the proposal is complete in all respects, whether the documents have been properly signed and whether the bids are generally in order. Any bids found to be non-responsive for any reason or not meeting the minimum levels of the performance or eligibility criteria specified in various sections of this RFP Document will be rejected and will not be considered further.
- Technical Evaluation: A detailed evaluation of the bids shall be carried out to determine whether the bidders are competent enough and whether the technical aspects are substantially responsive to the requirements set forth in the RFP document. Bids received would be assigned scores based on the parameters defined in the table.
- The technically qualified bidders shall be invited during opening of the commercial bids and subsequently commercial evaluation shall be carried out.
- The technical compliance to be submitted by the bidder to be strictly as per format. The bidder must specify whether the technical parameter mentioned in the format is Fully complied, partially complied or Not complied. In case it is partially complied, the bidder may describe the partial non-compliance in the remark's column. In case the bidder writes Full complied in the column of "Fully complied, partially complied or Not complied" but writes a comment in the remarks column that indicates non-compliance, then it will be considered as NOT COMPLIED only. The compliance statement must be signed and stamped by bidder and OEM.

4.13 Technical Bid Evaluation Scoring Matrix

Tender Evaluation Methodologies

The evaluation has been divided in three basic categories i.e.

1. Organizational strength and Project Experience Evaluation
2. Technical Evaluation
3. Technical Presentation

The bid evaluation will be carried out as per the below details.

Sl.	Criteria	Scores
1	Organizational strength and Project Experience	25
2	Technical (IT and Non-IT) Offerings	50
3	Technical Presentation	25
Total		**100**

A. Organizational Strength and Project Experience

Sl.	Description	Max. Score	Scoring Mechanism	Credential Required
1	Turn over: Average Turn Over per for last 5 years as mentioned in eligibility criteria, minimum 200 Crores)	10	>= 200 Crores = 5 Marks >201 and <=500 Crores = 7 Marks >501 Crores = 10 Marks	Copy of audited Balance Sheets and Profit and Loss (P/L) statement for last 5 years up to March 31st 2022.
2	Project Experience: During the last Seven years, (Start date of PO must be within last 7 years counted backwords from date of submission of bid) the Bidder should have implemented/completed Data Centre projects for Central / State Governments, PSUs, Banking & Financial Institutions, in India that meets the below mentioned requirement: a. Single order of value 50 Crore or more; OR b. Two orders each having minimum value of 40 Crores or more. OR c. Three orders each having minimum value of 25 Crores or more	10	>=50 crore 1 order OR >=40 crore 2 orders OR >=25 crores 3 orders = 5 Marks >=50 crore 2 order OR >=40 crore 3 orders OR >=25 crores 4 orders = 7 Marks >=50 crore 3 order OR >=40 crore 4 orders	Copy of Purchase Order and completion certificate, Bill of material.

	The orders should include Turnkey Data Centre consisting of installation, commissioning of Electrical Distribution & Lighting, Electrical Substation, DG sets with Fuel tank, Precision AC/ Chiller Plant, UPS System, Fire Detection & suppression system, Access Control and CCTV, BMS System, Civil and Interiors etc.		OR >=25 crores 5 orders = 10 Marks	
5	**Technical Manpower:** Bidder Must have at least following technical manpower on its role. 20 resources should be B.E/B. Tech (Electrical Mechanical/Electronics/instrumentation) 1. At least One Project management professional with PMP or Prince-2 certified resources 2. At least one CDCP/CDCS certified besides resources 3. At least One Data Centre Design Consultants having ATD (Accredited Tier Designer)/CDCE certification from Uptime Institute/EPI (TIA942) besides resources	5	1 ATD/CDCE + 1 PMP + 1 CDCP/CDCS= 2 Mark >=2 ATD/CDCE + 2 PMP + >=3 CDCP/CDCS= 5 Mark >=3 ATD/CDCE + 2 PMP + >=5 CDCP/CDCS= 5 Mark	HR Certificate along with copy of the relevant certificate.
	Total	**25**		

B. Technical Evaluation for Non-IT Devices:

Evaluation Criteria – Critical UPS			
S.No	**Parameter**	**Value**	**Marks**
1	AC-AC Efficiency at 75% load	>=96%	2
		95% to 96%	1
2	Input Power Factor	>0.99 from 25% to 100% load	2
		>0.99 from 40% to 100% load	1
3	Input Current Harmonics distortion	<=3% at full load	1
		>3% to 5% on full load	0.5
2	Footprint	Minimum among all bidders	1
		More than minimum	0.5
4	UPS System	UL/CE Listed	1
		Non-UL/CE Listed	0.5
5	LIB System (Cell and Module and System)	UL Listed	1
		Non-UL Listed	0.5
		Total	**8**

Evaluation Criteria – Non-Critical UPS			
S.No	**Parameter**	**Value**	**Marks**
1	AC-AC Efficiency	>=94%	1
		<94%	0.5
2	Input Power Factor	>0.98 from 25% to 100% load	1
		>0.98 from 40% to 100% load	0.5
3	Input Current Harmonics distortion	<=5% at full load	1
		>5% to 7% on full load	0.5
2	Footprint	Minimum among all bidders	1
		More than minimum	0.5
		Total	**4**

Evaluation Criteria - In Row PAC			
Sr. No.	**Parameter**	**Value**	**Marks**
1	Multiple fans	6 fans	1
		>6 fans	1.5
2	Hot Swappable EC Fans	Hot swappable	1
		Non-Hot swappable	0.5

3	Net Sensible capacity of each unit at Ambient, Supply and return temp	36KW	1
		>36KW	1.5
4	CFM capacity of each unit at Ambient, Supply and return temp	4200	1
		>4200 CFM	1.5
5	Electrical power consumption at Max cooling load (Net sensible capacity)	Minimum value among all Bidders (Excluding heater and Humidifier)	1.5
		More than minimum value among all bidders (Excluding heater and Humidifier)	0.5
6	Power Requirement	Dual Input with inbuilt ATS	1
		Single input	0.5
		Total	**8**

Evaluation Criteria - Perimeter PAC			
Sl.No	**Parameter**	**Value**	**Marks**
1	SHR	>=0.92	1
		<0.92	0
3	Manufacturing experience in India	>=10 years < 10years	1 0
		Total	**2**

Evaluation Criteria - Diesel Generator			
Sl.No	**Parameter**	**Value**	**Marks**
	Engine Cylinder displacement	Less than 57 ltrs	0.5
		57.1 Ltrs to 60 Ltrs	1
		>60 Ltrs	2
	Fuel Efficiency @ 75% load and at fuel specific gravity of 850gms/Ltr and 5% tolerance	<260 Liters	2
		261 to 290 Ltrs	1
		>290 Ltrs	0.5
	Foot print	Minimum of all offered by bidders	2

		More than Minimum of all offered by bidders	0.5
	Service centre in Bhubaneswar	yes	1
		No	0.5
		Total	**7**

Evaluation Criteria - Track Busway system			
Sl.No	**Parameter**	**Value**	**Marks**
1	Years of experience in manufacturing Copper continuous track Busway system	>=15 years	0.5
		>5,<15 years	0.25
		<5 years	0
2	Number of Installations in India	3	1
		>=1, <3	0.5
		1	0
3	Icw	>10	1
		<=10	0.5
4	Ipk	>15	1
		<=15	0.5
		Total	**3.5**

Evaluation Criteria - MV Panels			
Sl.No	**Parameter**	**Value**	**Marks**
1	Installation of similar Form 4b panels in eastern region. Documentary evidence required	>5 installations	1
		<=5 installations	0.5
2	Service center at Bhubaneswar	Available	0.5
		Not available	0.25
		Total	1.5

Evaluation Criteria - IPDU			
Sl.No	**Parameter**	**Value**	**Marks**
1	Socket outlets	Universal Socket outlets that can accept C 13 and C19	1
		C13 and C19 sockets sperate outlets	0.5
2	Network Connectivity	Daisy chain connection upto 4 units	0.5
		Daisy chain connection more than 4 units	1

3	Installation of similar IPDU in eastern region. Documentary evidence required	>10 installations	1
		<=10 installations	0.5
4	Service center at Bhubaneswar	Available	1
		Not available	0.5
		Total	**4**

Evaluation Criteria - DCIM			
Sl.No	**Parameter**	**Value**	**Marks**
1	DCIM system is inclusive of all BMS feature and hence BMS is not required	Yes	1
		No	0
2	DCIM should facilitate the 2D model to depict equipment placed on Rack Mounted Trays and at the same time CFD/Thermal Heat map like Model should be able to detect airflow around that equipment when mounted inside the Rack	Yes	1
		No	0
3	Must have installation in at least 5 Datacentres in India. Documentary proof to be submitted.	Yes	1
		No	0
		Total	**3**

Evaluation Criteria - Passive Network cabling			
Sl.No	**Parameter**	**Value**	**Marks**
1	Maximum insertion loss for the MPO modules	0.21 dB to <0.35 dB	0.5
		<0.20 dB	1
2	Fibre patch cord connector insertion loss	<=0.15 dB	1
		0.16 dB to <=0.2 dB	0.5
3	Horizontal Copper cable max Dc resistance	8 to 10 Ohms per 100 Mtr	0.5
		<8 ohms	1
4	Manufacturing experience of min 5 years in India	Yes	1
		No	0

		Total	**4**

Evaluation Criteria - Technical Solution			
Sl.No	**Parameter**	**Value**	**Marks**
1	Detail Electrical single line diagram, cable schedule, Equipment layout submitted as part of solution writeup	Yes	1
		No	0
2	Calculated PUE	1.7 more more,	0.5
		Less than 1.7	1
3	Solution write up, Compliance with cross reference.	yes	1
		Partially Yes	0.5
		No	0
4	Campus Beautification solution with bill of quantity and commercial offer. (Engaging a qualified Architect)	YES	1
		NO (In house solution)	0.25
5	Usage of fire safe and environment friendly material in interior works	Yes	1
		Partially Yes	0.5
		No	0
		Total	**5**

C. Technical Presentation

The technical presentation should look professional and should contain below details and not limited to;

Approach & Methodology, Project Plan, Proposed Time sheet, Building Construction Plan, Interior Design, Operation and Maintenance Plan, Project Credentials, Certified resource list etc.

Sl.	Description	Max. Score	Scoring Mechanism	Credential Required
1	Approach and Methodology	10	Qualitative assessment based on Demonstration of Understanding of	Virtual power point (or any other tool) presentation

			OSDC 2.0 Requirement through providing 1) Solution proposed and its component 2) Technology used 3) Scale of implementation 4) Challenges likely to be encountered 5) Mitigation proposed 6) Client references	to the committee
2	Approach and Methodology to perform the work in this assignment	10	Qualitative assessment based on 1) Understanding objective of the assignment: the extent to which the system integrator's approach and work plan respond to the objectives indicated in the statement/scope of work	Virtual power point (or any other tool) presentation to the committee

			2) Completeness and responsiveness: the extent to which the proposal responds exhaustively to all the requirements of all the terms and references.	
3	Project work breakdown structure	5	Qualitative assessment based on timelines, resource assignment, dependencies and milestone	Virtual power point (or any other tool) presentation to the committee

Note:

1. This is for vendor's internal reference. Need not be submitted with Bid.
2. Vendors need to provide relevant credentials for all of the above points, for scoring.
3. OCAC reserves the right to verify the correctness of documentary evidence furnished by the bidder for successful operation and performance of qualifying projects and Bidder shall arrange permission for the same
4. The solution, as demonstrated, will be scored on a pre-set questionnaire.
5. The product technical architecture, supporting documentation etc. describing the various technical parameters need to be provided.
6. The proposed FM plan, as part of vendor proposal, will be evaluated.
7. The overall proposal, implementation methodology, adherence to project plan etc. will be evaluated.
8. Bidder's DC Build experience of own in-house Data Centre or own Internet Data Centre for commercial use shall not be accepted.

4.14 Evaluation of Bids and Award of Contract.

Technical Evaluation: A detailed evaluation of the bids shall be carried out in order to determine whether the bidders are competent, enough and whether the technical aspects are substantially responsive to the requirements set forth in the RFP document. Bids received would be assigned scores based on the parameters defined in the table.

Every bidder will be given a time slot of 30 minutes to present the Approach and Methodology, components and resources proposed for the project. The bidder who scores minimum cut-off marks 70 or more will be qualified for the evaluation of their commercial bids.

The technically qualified bidders shall be invited during opening of the commercial bids and subsequently commercial evaluation shall be carried out.

The Evaluation Methodology proposed to be adopted by OCAC will be Quality cum Cost Based System (QCBS) method of evaluation where Technical Bid Score will get a weightage of 70% (denoted by ST) and Commercial Bid Score a weightage of 30% (denoted by SF).

The process of selection of successful bidder for the purpose of award of contract shall be as follow,

Calculation of Technical Score (ST)

T = Technical Marks Obtain by the Individual Bidder.

TH = Highest Technical Marks Obtain by bidder.

ST = Technical Score obtain by the Individual Bidder

Calculation of Technical Score (ST)

ST = 100 x (T/TH) (rounded off to 2 decimal places)

Calculation of Financial Score (SF)

F= Total Financial Bid amount quoted by individual Bidder

FL= Lowest Total Financial Bid amount quoted by individual Bidder.

SF = Financial Score obtain by the Individual Bidder

Calculation of Financial Score (SF)

SF = 100 x (FL/F) (rounded off to 2 decimal places).

Calculation of Final Composite Score (S)

The Final Composite Score (S) shall be computed for each firm by assigning 70% weightage to the Technical Score (ST) and 30% weightage to Financial Score (SF) using the formula given below:

S = (ST x 0.7) + (SF x 0.3) (rounded off to 2 decimal places)

Bidder with the highest final composite score will be awarded the contract. In case of a tie in the final composite score, the bidder with the higher Technical Score will be invited for negotiations and selection first.

All the bidders who will achieve 60 or more marks in the technical evaluation would be eligible for evaluation of their financial proposal. However, in the case of three bidders is not scoring 60 or more marks then cut-off marks may go down up to 50 marks until top three bidders are shortlisted for evaluation of their financial proposal.

4.15 Deviations and Exclusions

Bids shall be submitted strictly in accordance with the requirements and terms & conditions of the RFP. The bidder shall submit a No Deviation Certificate as per the format specified in Proforma 16. The bids with commercial deviation(s) are liable for rejection

4.16 Rejection of Bids

The bids shall be rejected on the following grounds:

1. In the event of any assumptions, presumptions, key points of discussion, recommendation or any points of similar nature submitted along with the Bid, OCAC reserves the right to reject the Bid and forfeit the EMD.
2. If any of the eligibility criteria as per the Pre-qualification criteria is not met
3. EMD/ RFP fee not submitted
4. If RFP terms and conditions are not met
5. Commercial bid is enclosed with the same document as technical bid.
6. If Bidder gives incorrect/misleading/ fraudulent information in the bid.
7. Failure to furnish all information required in the RFP document.
8. Canvassing in any form in connection with the bids
9. If the bid is incomplete /partial bid/ conditional/unclear in any form, has deviations from the terms and conditions of RFP.
10. Information submitted in technical bid is found to be misrepresented, incorrect or false, accidentally, unwittingly or otherwise, at any time during the processing of

the contract (no matter at what stage) or during the tenure of the contract including the extension period if any.

11. Bids submitted after due date and time.
12. If any of bidders/members of one consortium becomes members of the other consortium, both the consortiums will be disqualified.
13. Bids are submitted through Telex/Fax/ e-mail
14. Erasure and/or overwriting
15. Bids not signed by authorized signatory or without power of attorney
16. Multiple makes of items
17. Not submitted with MAF or MAF not as per format
18. Not submitted with technical compliance or Technical compliance not endorsed by the OEM with stamp/Letter head and signature

4.17 Notification of Acceptance of Proposal

Prior to the expiry of the period of Proposal validity, OCAC will notify the selected Bidder in writing by speed post or Fax or email that its proposal has been accepted and has been selected to do the project.

5 General Conditions of Contract

5.1 Definition of Terms

1. **"Acceptance of System"** The system shall be deemed to have been accepted by Client, after its installation, rollout and deployment of the trained manpower, when all the activities as defined in Scope of Work have been successfully executed and completed to the satisfaction of the Client as evidenced by an Operational Acceptance Certificate.
2. **"Applicable Law(s)"** Any statute, law, ordinance, notification, rule, regulation, judgment, order, decree, bye-laws, approval, directive, guideline, policy, requirement or other governmental restriction or any similar form of decision applicable to the relevant party and as may be in effect on the date of the execution of this Contract and during the subsistence thereof, applicable to the project.
3. "**Approvals**" OCAC shall extend necessary support to SI to obtain, maintain and observe all relevant and customary regulatory and governmental licenses, clearances and applicable approvals (hereinafter the "Approvals") necessary for SI to provide the Services. The costs of such Approvals shall be borne by SI. Both Parties shall give each other all co-operation and information reasonably.
4. **"Bidder"** shall mean organization/consortium submitting the proposal in response to this RFP.
5. **"Client"** means the Odisha Computer Applications Centre (OCAC). The project shall be executed in Bhubaneswar and shall be owned by Odisha Computer Applications Centre (OCAC and E&IT Dept., Govt. of Odisha.
6. **"Clause"** means a clause of the GCC, as may be supplemented
7. **"Contract"** means the Contract Agreement entered into by the Client and SI, together with the entire contract documentation specified therein. The Contract Agreement and the Contract Documents shall constitute the Contract and the term "Contract" shall in all such documents be construed accordingly.
8. **"Contract Agreement"** means the agreement entered between the Client and the SI using the form of Contract Agreement contained in the Contract Documents. The date of the Contract Agreement shall be recorded in a signed form.

9. **Contract Value"** means the price payable to SI under this Contract for the full and proper performance of its contractual obligations.
10. **Commercial Off-The-Shelf (COTS)"** refers to software products that are ready-made and available for sale, lease, or license to the general public.
11. **"Consortium"** shall mean the group of companies/entities which has emerged as the successful bidder and to whom the Letter of Award (LoA) is issued by the Client and shall include the successors and permitted assigns.
12. **"Day"** means a working day as per the calendar of Government of Odisha/ Odisha Computer Applications Centre (OCAC)
13. **"Data Centre Site"** means the Data Centre sites including their respective Data Centre space wherein the delivery, installation, integration, management and maintenance services as specified under the Scope of Work are to be carried out for the purpose of this Contract.
14. "**Deliverable**" means a work product (including materials, equipment, installations, reports, software, know-how, design, drawings, diagrams, maps, models, specifications, analysis, solutions, data base, programmes technical information, data and other documents) to be prepared and submitted by the SI as a part of the Service, in accordance with the terms of this Contract and the term "Deliverables" shall be construed accordingly. The list of Deliverables to be provided by the SI is set out in scope of work.
15. **"Document"** means any embodiment of any text or image howsoever recorded and includes any data, text, images, sound, voice, codes, databases or any other electronic documents as per Information Technology Act, 2000 read along with the rules and regulations made thereunder.
16. "**Effective Date**" This Contract shall come into force and effect on the date on which the Contract Agreement has been duly executed for and on behalf of the Client and the SI.
17. **"Force Majeure"** shall have the meaning ascribed to it in GCC Clause 4.18.
18. **"GCC"** means General Conditions of Contract.
19. **"GoI"** means Government of India.
20. "**GoO**" means Government of Odisha.
21. **"Go-Live"** means commissioning of the project after commencement of all smart city components, including training as per Scope of Work mentioned in RFP. SI should have the approval from the Client for user acceptance testing.

22. **"Goods"** means all of the equipment, sub-systems, hardware, software, products accessories, software and/or other material/items which SI is required to supply, install and maintain under the contract.
23. **"LoA"** means the letter of award issued to the selected Bidder pursuant to the RFP for its appointment as the SI.
24. **"OEM"** means the Original Equipment Manufacturer of any equipment/system/software/product or other Goods to be supplied by the MSI to the Client as a part of its Scope of Work.
25. **"Services"** means the work to be performed by the SI pursuant to the RFP and the contract to be signed by the Parties in pursuance of any specific assignment awarded by the Client.
26. **"Service Level(s)"** means the service level parameters and targets and other performance criteria which will apply to the Services and Deliverables as described in the RFP and the Service Level Agreement.
27. **"Service Level Agreement or SLA"** means the service level agreement specified in the RFP.

5.2 Total Responsibility

Bidder should issue a statement undertaking total responsibility for the defect free operation with effective SLAs of the proposed solutions as per the format mentioned in Proforma 3.

5.3 Right to terminate the process

1. OCAC may terminate the RFP process at any time and without assigning any reason. OCAC make no commitments, express or implied, that this process will result in a business transaction with anyone.
2. This RFP does not constitute an offer by OCAC. The bidders' participation in this process may result OCAC selecting a Bidder to engage towards execution of the contract.

5.4 Language of Proposal & Correspondence

The proposal will be prepared by the Bidder in English language only. All the documents relating to the Proposal (including brochures) supplied by the Bidder should also be in

English, and the correspondence between the Bidder & OCAC shall be in English language only. The correspondence by Fax / E-mail must be subsequently confirmed by a duly signed copy (unless already signed digitally).

5.5 OCAC's Right to accept and to reject any or all proposals

1. Notwithstanding anything else contained to contrary in this RFP Document, OCAC reserves the right to accept or reject any Bid or to annul the bidding process fully or partially or modifying the same and to reject all Proposals at any time prior to the award of work, without incurring any liabilities in this regard.
2. OCAC may terminate the RFP process at any time and without assigning any reason. OCAC makes no commitments, express or implied, that this process will result in a business transaction with anyone.
3. This RFP does not constitute an offer by OCAC. The bidder's participation in this process may result OCAC selecting the bidder to engage towards execution of the contract.

5.6 Modification and withdrawal of bids

1. The Bidder may be allowed to modify or withdraw its submitted proposal any time prior to the last date prescribed for receipt of bids, by giving a written notice to OCAC.
2. The Bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in a manner similar to the original Proposal.
3. Subsequent to the last date for receipt of bids, no modification of bids shall be allowed. No bid may be withdrawn in the interval between the deadline for submission of bids and expiration of the of bid validity period specified. Withdrawal of a bid during this period will result in Bidder's forfeiture of bid security/EMD.
4. No written, oral, telegraphic or telephonic proposals modifications will be acceptable.

5.7 Contacting OCAC

Any effort by a Bidder to influence the proposal evaluation, proposal comparison or contract award decisions at OCAC level may result in the rejection of the proposal.

5.8 Knowledge of Site Conditions

The SI's undertaking of this Contract shall be deemed to mean that the SI possesses the knowledge of all data centre related requirements as stipulated in the Tender Document including but not limited to environmental, demographic and physical conditions and all criteria required to meet the design of the data centre.

5.9 Failure to agree with terms & conditions of the contract

Failure of the SI to agree with the Terms & Conditions of the RFP shall constitute sufficient grounds for the annulment of the award, in which event OCAC may award the contract to the next best value SI or call for new bids from the interested bidders or invoke the PBG of the most responsive SI. However, SI shall be allowed to submit minor deviations without any cost implications and allowed for opportunity to mutually discuss its terms and conditions. The final decision in such an occurrence lies with OCAC.

5.10 Governing Law & Jurisdiction

The Contract shall be governed by and interpreted in accordance with the laws of India. The High Court of Judicature at Cuttack and Courts subordinate to such High Courts shall have exclusive jurisdiction in respect of any disputes relating to the tendering process, award of Contract and execution of the Contract.

5.11 Termination and Effects of Termination

This Agreement shall be terminated by either party upon the happening of all or any of the following events: -

1. Upon either Party being declared insolvent or bankrupt.
2. Upon either Party committing a material breach or being in default of all or any of the major and significant terms, conditions, covenants, undertakings, and stipulations of this Agreement. In case the material breach is remediable the aggrieved Party shall give notice in writing of such default in observance or performance of any of the terms or conditions of this Agreement, to the Party in default. If the Party in default effectively remedies such breach or default within the period, not being less that 60(sixty) days, designated by such notice then the Agreement shall remain in force. Where the default by the System Integrator is as

a result of or consequent to technical non- feasibility, which requires to modify/alter the scope of work so as to replace the technical non-feasible deliverable , with a feasible deliverable, then such default shall not be considered a default by the System Integrator under the provisions of this clause

3. By mutual agreement in writing between the parties.
4. Termination for Breach- In the event of the breach of any of the major and significant terms and conditions of this Agreement by the system integrator, OCAC shall be entitled to terminate this agreement by giving 60 days' notice. The decision of OCAC as to such breach shall be final and binding on the system integrator
5. In the event of the breach of any of the major and significant terms and conditions of this agreement by the system integrator, OCAC will give 60 days' notice to system integrator to cure the breach of the terms and conditions of the agreement then in that case System Integrator must cure within 60 days. In case the breach will continue till/after expiry of such cure period, OCAC will terminate the agreement
6. Effects of Termination
7. Upon expiration or termination of this Agreement:
8. The System integrator shall:
    a. Notify forthwith the particulars of all project assets.
    b. Deliver forthwith actual or constructive possession of the pops free and clear of all encumbrances and execute such deeds, writings and documents as may be required for fully and effectively divesting the Bidder all of its rights, title and interest in the State Data Centre
    c. Deliver relevant records and reports pertaining to the State Data Centre and its design, engineering, operation, and maintenance including all operations & maintenance records and manuals pertaining thereto and complete as on the date of termination or expiration. And
    d. Shall expeditiously settle the accounts.
9. In the event OCAC terminates this Agreement pursuant to any material breach by the System Integrator to complete its obligations under this Agreement, Performance Guarantee furnished by it may be forfeited for reasons, to be recorded in writing

10. Upon termination (or prior to expiry/ upon expiry, as the case may be) of this Agreement, the Parties will comply with the Exit Management Clause set out in this Agreement
11. OCAC agrees to pay the System Integrator for all charges for Services / Equipment provided by it and accepted by OCAC till effective date of termination.
12. Any payments under this clause shall be payable only after the System Integrator has complied with and completed the transition and exit management as per the Exit Management Clause approved by OCAC. In case of expiry of the Agreement, the last due payment shall be payable to the System Integrator after it has complied with and completed the transition and exit management as per the exit management clause. Approved by OCAC
13. Service Provider immediately upon termination, discontinue providing any or all of the services contemplated hereunder
14. OCAC shall upon termination, by under no obligation to make any payments to service provider forthwith, except for any payments that may be due and payable to Service Provider in respect of satisfactory Services already completed as per scope of this agreement; and
15. Service Provider shall return all the property which belongs to OCAC including any data, information, files of completed or unfinished work. Service Provider shall have no lien over the property of OCAC.
16. Upon the termination or expiration this agreement, in case before complete delivery of materials, then the title and ownership of all materials, plans, ideas, slogans, or information (developed by Service Provider for OCAC) shall be transferred by Service Provider to OCAC. Thereafter, OCAC, shall have no liability to Service Provider Service arising from OCAC's use of any material was approved, used, published or presented by or on behalf of OCAC, Service Provider shall transfer such property, and documentation related thereto, to OCAC immediately after termination in case termination happens before complete delivery of materials.
17. **Termination due to bankruptcy of the System Integrator** – OCAC shall serve a written notice on the System Integrator at any time to terminate this Agreement with immediate effect in the event that the System Integrator reporting an apprehension of bankruptcy to OCAC or its nominated agencies. No Charges to the system integrator shall be payable in case of termination under this clause except for the equipment satisfactorily delivered and approved by OCAC as per

the terms of this Agreement and services performed by the System Integrator up to the date of termination.

5.12 Consequences of Breach and penalties

In the event of breach, OCAC shall have the right to recover any loss, damage or cost of hardship caused due to the breach of the terms of this Agreement, from the payment due to the Service Provider Notwithstanding the above, in the event the amount due to the Service Provider fall short of the costs incurred or suffered by OCAC on account of loss, damage or cost of hardship, the Service Provider shall also be liable to make good all such losses, damages or cost of hardship caused to OCAC.

5.13 Statutory Compliances

1. System Integrator shall comply with all applicable statutes. OCAC shall not be liable in any manner whatsoever for any non-compliance on part of the System Integrator of the applicable laws and in the event of any adverse claim of whatsoever nature arising thereof, the entire burden shall be strictly borne by the System Integrator.
2. System Integrator shall maintain all requisite records, registers, account books etc. related to this project which are obligatory under any applicable law in connection with the Services being rendered or work being performed to OCAC and shall provide such information as may be required under any law to any authority.
3. All required approvals from Utility, Pollution control boards, Municipal corporation, CEIG, CCOE, Fire department, Forest department has to be taken up by the system integrator. However the documents required from OCAC side for the approvals, will be provided.

5.14 Consequences of Termination

1. In the event of termination of the Contract due to any cause whatsoever, whether consequent to the stipulated term of the Contract or otherwise, OCAC shall be entitled to impose any such obligations and conditions and issue any clarifications as may be necessary to ensure an efficient transition and effective business

continuity of the Service(s) which the Vendor shall be obliged to comply with and take all available steps to minimize loss resulting from that termination/material breach, and further allow the next successor Vendor to take over the obligations of the erstwhile

2. Vendor in relation to the execution/continued execution of the scope of the Contract.
3. Nothing herein shall restrict the right of OCAC to invoke the Guarantee and other guarantees, securities furnished, enforce the Deed of Indemnity and pursue such other rights and/or remedies that may be available OCAC under law or otherwise.
4. The termination hereof shall not affect any accrued right or liability of either Party nor affect the operation of the provisions of the Contract that are expressly or by implication intended to come into or continue in force on or after such termination.
5. Upon Termination of the Contract, the System Integrator shall:
   a. Prepare and present a detailed exit plan within five calendar days of termination notice receipt to the customer.
   b. The customer and along with designated team will review the Exit plan. If approved, SI shall start working on the same immediately. If the plan is rejected, SI shall prepare alternate plan within two calendar days. If the second plan is also rejected, the customer or the authorized person will provide a plan for SI and it should be adhered by in totality

5.15 Indemnification

Successful System Integrator hereby indemnifies, hold harmless & undertakes to defend OCAC, its affiliates and their respective employees, officers and directors against any claim by a third party including but not limited to damages, costs, expenses as a result of such claim with regard to:

1. the extent that the System Integrator provided to OCAC by System Integrator under this Agreement infringes any third party's intellectual property rights;
2. taxes/charges/cess/levies (and interest or penalties assessed thereon) against OCAC that are obligations of System Integrator pursuant to this Agreement.
3. any damages for bodily injury (including death) and damage to real property and tangible personal property caused by the System Integrator.

4. any claim or action by or on behalf of the System Integrator personnel based on his or her employment with the System Integrator, including claims arising under occupational health and safety, worker's compensation, provident fund or other applicable laws or regulations.
5. claims by government regulators or agencies for fines, penalties, sanctions or other remedies arising from or in connection with the System Integrator failure to comply with its regulatory/legal requirements and compliances.
6. any claim on account of an alleged breach of confidentiality and security of data occurring as a result of acts of omissions or commission of the System Integrator employees or sub-contractors.
7. any claim occurring on account of misconduct, negligence or wrongful acts of omission and commission of employees of the System Integrator, and/or its sub-contractors.
8. any claim occurring on account of misuse or negligent application, misuse of systems, failure to follow established procedure by the System Integrator and/or sub-contractor's employees.
9. System Integrator shall ensure compliance with all applicable laws, local and Central, including all labour laws like ESI, EPF, Minimum Wages Act, Odisha Shops & Establishments Act, Contract Labour (Regulation and abolition) Act 1970, Payment of Bonus Act etc. and shall keep First Part indemnified and harmless in case of any action for violation by Second Part of any of the applicable laws so long as this arrangement is in force. For all purposes the persons deployed will be employees of second part and they will have no relation whatsoever with First Part. Second Part shall be responsible to furnish all such information/documents to First Part in this regard as may be required by it from time to time. Furthermore, second part shall be responsible to furnish self- attested copies of all returns/challans filed by second part in the office of ESI, EPF, Minimum Wages Act, Contract Labour etc. on monthly basis to the first party, in case, the second part fails to submit or not willing to submit the copies of returns, first part shall be entitled to stop the payments till the submissions of the returns.
10. In event of any theft, loss, damage, destruction, or any other act of vandalism or sabotage of the property of the Customer in the possession of the System Integrator by virtue of this agreement, the System Integrator shall be liable to indemnify the first part to the extent of damage or loss so caused.

11. System Integrator has all the requisite consents, licenses and permissions to (I) enter into this Agreement (ii) carry out the obligations set out in this Agreement and it shall keep all such consents, licenses and permissions renewed and valid at all times during the continuance of the Agreement.

5.16 Limitation of Liability

1. Neither Party; nor its subsidiaries or its affiliates will be liable to the other Party, whether in contract, or (including negligence), strict liability or otherwise, for loss of business, revenue, profits, loss of goodwill or reputation; or indirect, consequential, or special loss, arising in connection with any order, product, service, related documentation, information and/or the intended use thereof, even if a Party has been advised, knew or should have known of the possibility of such damages.
2. Subject to the above and not withstanding anything to the contrary elsewhere contained herein, the maximum aggregate liability of the bidder for all claims under or in relation to this agreement shall be regardless of the form of claims shall be limited to 100% of the amount to be paid to SI by OCAC under the applicable statement of work that gives rise to such liability (as of the date the liability arose).

5.17 Dispute Resolution and Arbitration

Dispute Resolution

1. OCAC and the System Integrator shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with this Agreement. All negotiations, statements and/or documentation pursuant to this disputed matter shall be without prejudice and confidential (unless mutually agreed otherwise).The time and resources costs of complying with its obligations under this provision shall be borne by respective Parties. All Arbitration proceedings shall be held at Bhubaneswar, Odisha, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be in English.
2. On non-settlement of the dispute, same shall be referred to the commissioner-cum-secretary to Government, E&IT department, and Government of Odisha for his decision and the same shall be binding on all parties, unless either party makes a reference to arbitration proceedings, within sixty days of such decision.

Arbitration

1. Any and all disputes, controversies and conflicts ("Disputes") arising out of this Agreement between the Parties or arising out of or relating to or in connection with this Agreement or the performance or non-performance of the rights and obligations set forth herein or the breach, termination, invalidity or interpretation thereof shall be referred for arbitration in terms of the Arbitration and Conciliation Act, 1996 or any amendments thereof. Prior to submitting the Disputes to arbitration, the Parties shall resolve to settle the Dispute/s through mutual negotiation and discussions. In the event that the said Dispute/s are not settled within thirty (30) days of the arising thereof, the same shall finally be settled and determined by arbitration in accordance with the Arbitration & Conciliation Act ,1996 or any amendment thereof. The place of arbitration shall be Bhubaneswar and the language used in the arbitral proceedings shall be English .
2. The arbitral award shall be in writing and shall be final and binding on each Party and shall be enforceable in any court of competent jurisdiction. None of the Parties shall be entitled to commence or maintain any action in a court of law upon any Dispute arising out of or relating to or in connection with this Agreement (infringement of IPR Excepted) ,except for the enforcement of an arbitral award or as permitted under the Arbitration & Conciliation Act ,1996 .

5.18 Force Majeure

Force Majeure is herein defined as any cause, which is beyond the control of the SI or OCAC which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affect the performance of the contract, such as:

1. Neither Party shall be responsible to the other for any delay or failure in performance of its obligations due to any occurrence commonly known as Force Majeure which is beyond the control of any parties, including, but is not limited to, flood, explosion, thundering, pandemic, acts of God or any Governmental body, public disorder, riots, embargoes, or strikes, acts of military authority, epidemics, lockouts or other labour disputes, insurrections, civil commotion, war, enemy actions.
2. If a Force Majeure arises, the System Integrator shall notify promptly within a reasonable time frame to OCAC in writing of such condition and the cause thereof. Unless otherwise directed by OCAC, System Integrator shall continue to perform his obligations under the Agreement as far as is reasonably practical, and

shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

3. The System Integrator shall be excused from performance of his obligations in whole or part as long as such cases, circumstances or events shall continue to prevent or delay such performance. Neither Party shall have any liability to the other Party in respect of the termination of this Agreement as a result of an event of Force Majeure.
4. In case of a Force Majeure, all Parties will endeavour to agree on an alternate mode of Performance to ensure the continuity of service and implementation of the obligations of a party under the Contract and to minimize any adverse consequences of Force Majeure.
5. System Integrator shall be paid for supply and services till last date of termination in case of force majeure
6. If force majeure conditions continue for more than 30 days and the services are suspended, then either party has the right to terminate this agreement.

5.19 Confidentiality

1. OCAC may allow the System Integrator to utilize Confidential Information and the System Integrator shall maintain the highest level of secrecy, confidentiality and privacy with regard to such Confidential Information. The System Integrator shall use its best efforts to protect the confidentiality and proprietary of Confidential Information.
2. Additionally, the System Integrator shall keep confidential all the details and information with regard to the Project, including systems, facilities, operations, management and maintenance of the systems/facilities. The System Integrator shall use the information only to execute the Project.
3. OCAC shall retain all rights to prevent, stop and if required take the necessary punitive action against the System Integrator regarding any forbidden disclosure.
4. The System Integrator may share the confidential information with its employees, affiliates, agents and subcontractors but only strictly on a need-to-know basis in order to accomplish the scope of services under this Agreement. Upon request of OCAC, the System Integrator shall execute a corporate non-disclosure agreement (NDA) with OCAC in the mutually agreed format provided by OCAC shall ensure that all its employees, agents and sub-contractors are governed by

confidential obligations similar to the one contained herein. The SI and its antecedents shall be bound by the NDA. The SI will be held responsible for any breach of the NDA by its antecedents/ delegates/ employee/ subcontractors etc.

5. To the extent the System Integrator shares its confidential or proprietary information with OCAC for effective performance of the Services, the provisions of the confidentiality Clause 1) to 3) shall apply mutatis mutandis on OCAC.
6. The Bidder shall not use Confidential Information, the name or the logo of the OCAC except for the purposes of providing the Service as specified under this contract;

5.20 Fraud and Corrupt practices

1. The SI and their respective officers, employees, agents and advisers shall observe the highest standard of ethics during the Selection Process. For this purpose the definition of corrupt and fraudulent practices will follow the provisions of the relevant laws in force. Notwithstanding anything to the contrary contained in this RFP, OCAC shall reject a Proposal without being liable in any manner whatsoever to the SI, if it determines that the SI has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice (collectively the "Prohibited Practices") in the Selection Process. In such an event, OCAC shall, without prejudice to its any other rights or remedies, declare the SI ineligible, either indefinitely or for a stated period of time, forfeit and appropriate the Proposal Security or Performance Security, as the case may be, as mutually agreed genuine pre-estimated compensation and damages payable to the Authority for, inter alia, time, cost and effort of the Authority, in regard to the RFP, including consideration and evaluation of such SI Proposal.
2. Without prejudice to the rights of OCAC under Clause above and the rights and remedies which OCAC may have under the LoI or the Contract Agreement, if an SI or Systems Integrator, as the case may be, is found by OCAC to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Selection Process, or after the issue of the LoI or the execution of the Agreement, such SI shall not be eligible to participate in any RFP or RFP issued by OCAC during a period of < period, suggested 2 (two) > years from the

date such SI, as the case may be, is found by OCAC to have directly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice, as the case may be.

3. For the purposes of this Section, the following terms shall have the meaning hereinafter respectively assigned to them:
   a. "Corrupt practice" means Engaging in any manner whatsoever, whether during the Selection Process or after the issue of the LoI or after the execution of the Agreement, as the case may be, any person in respect of any matter relating to the Project or the LoI or the Agreement, who at any time has been or is a legal, financial or technical consultant/ adviser of OCAC in relation to any matter concerning the Project;
   b. "fraudulent practice" means a misrepresentation or omission of facts or disclosure of incomplete facts, in order to influence the Selection Process; the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of any person connected with the Selection Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of OCAC who is or has been associated in any manner, directly or indirectly with the Selection Process or the LoA or has dealt with matters concerning the Agreement or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of OCAC, shall be deemed to constitute influencing the actions of a person connected with the Selection Process); or
   c. "Coercive practice" means impairing or harming or threatening to impair or harm, directly or indirectly, any persons or property to influence any person s participation or action in the Selection Process.
4. "Undesirable practice" means establishing contact with any person connected with or employed or engaged by OCAC with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Selection Process; or having a Conflict of Interest; and
5. "Restrictive practice" means forming a cartel or arriving at any understanding or arrangement among SIs with the objective of restricting or manipulating a full and fair competition in the Selection Process.

5.21 Exit Management Plan

The SI shall not exit from the contract within stipulated time period of five (5) years after Go-Live. However, in the event that the SI decides to opt out of the contract prematurely it has to notify the authority six months in advance through a written letter, SI will not seek ownership rights over the equipment and its PBG will also be forfeited.

If the SI exits from the contract during the execution within the stipulated time period, then OCAC reserves the right to terminate the contract and may ask the Losing bidder to match the price of winning bidder and execute the remaining work as per RFP scope of work.

The SI shall document and submit a detailed Exit Management Plan (EMP) at OCAC for approval within 90 days post signing of the contract. The Exit Management Plan shall be re-drafted/ reviewed by SI in annual basis and need to be submitted to OCAC.

Purpose of Exit Management Plan

1. This clause sets out the provisions which will apply upon completion of the contract period or upon termination of the agreement for default of the System Integrator. The Parties shall ensure that their respective associated entities, in case of OCAC, GoO, any third party appointed by OCAC and in case of the System Integrator, the sub-contractors, carry out their respective obligations set out in this Exit Management Clause. Exit Management criteria will be a part of Master Service Agreement with detailed information about exit criteria and exit management plan.
2. The exit management period starts, exactly period of 30 days before, in case of expiry of contract, or on the date when the contract comes to an end and up to period of 30 days in case of termination of contract, or on the date when the notice of termination is sent to the System Integrator. The exit management period ends on the date agreed upon by OCAC or one year after the beginning of the exit management period, whichever is earlier.
3. The System Integrator shall divest all the project assets at the beginning of the Exit management period to OCAC at zero value in case of expiry of contract and at the depreciated rate as per Indian Income Tax Act if there is a termination of contract.
4. The System Integrator shall pay all transfer costs and stamp duty applicable on transfer of project assets except in case the Project is being terminated due to

default of OCAC, GoO, where OCAC, GoO shall be responsible for transfer costs and stamp duty, if any. For clarification of doubt, transfer costs in this Clause relate to taxes and duties applicable due to transfer of the OSDC 2.0 project, if any.

At the beginning of the exit management period, the System Integrator shall ensure that

1. All Project Assets including the hardware, software, documentation, and any other infrastructure shall have been cured of all defects and deficiencies as necessary so that the OSDC 2.0 Project is compliant with the Specifications and Standards set forth in the RFP, Agreement and any other amendments made during the contract period;
2. the System Integrator delivers relevant records and reports pertaining to the OSDC 2.0 Project and its design, engineering, operation, and maintenance including all operation and maintenance records and manuals pertaining thereto and complete as on the Divestment Date.
3. On request by OCAC , GoO or any third party appointed by OCAC, GoO, the System Integrator shall effect such assignments, transfers, licenses and sub-licenses related to any equipment lease, maintenance or service provision agreement between System Integrator and any third party, in favour of OCAC, GoO or any third party appointed by OCAC, GoO if it is required by OCAC, GoO or any third party appointed by OCAC, GoO and is reasonably necessary for the continuation of services by OCAC, GoO or any third party appointed by OCAC, GoO;
4. The System Integrator complies with all other requirements as may be prescribed under Applicable Laws to complete the divestment and assignment of all the rights, title and interest of the System Integrator in the OSDC 2.0 Project free from all encumbrances absolutely and free of any charge or tax to OCAC, GoO or its nominee.

During the Exit Management period

1. The System Integrator will allow OCAC, GoO or any third party appointed by OCAC, GoO, access to information reasonably required to define the then current mode of operation associated with the provision of the services to enable OCAC, GoO or any third party appointed by OCAC, GoO to assess the existing services being delivered.
2. Promptly on reasonable request by OCAC, GoO or any third party appointed by OCAC, GoO, the System Integrator shall provide access to and copies of all information held or controlled by them which they have prepared or maintained

in accordance with the "Contract", the Project Plan, SLA and scope of work, relating to any material aspect of the services (whether provided by the State Data Centre 2.0 System Integrator or sub-contractors appointed by the System Integrator). OCAC, GoO or any third party appointed shall be entitled to copy all such information. Such information shall include details pertaining to the services rendered and other performance data. The System Integrator shall permit OCAC, GoO or any third party appointed to have reasonable access to its employees and facilities as reasonably required by OCAC, GoO or any third party appointed to understand the methods of delivery of the services employed by the System Integrator and to assist appropriate knowledge transfer.

3. Before the end of exit management period, the System Integrator will assist in a successful trial run of Network administration, Facility management including helpdesk management by OCAC, GoO or by any third party appointed.

Hand Over of Assets/ Documents

1. SI shall handover the peaceful possession of Project Assets in good and working condition with detail list showing the name of the equipment and with configuration to the Purchaser/replacement SI as authorized by Purchaser customer within 30 days of the date of serving of notice or within the Transition Period.
2. The SI shall provide all such information available with it during the contract execution or during the operation & management phase as may reasonably be necessary within a reasonable period not exceeding 30 days of the date of serving of notice or within the Transition Period.
3. Existing SI will hand over the documents to OCAC or new SI, pertaining to the operation of OSDC i.e. all configuration records, purchase orders, installation reports, FAT/PAT records, SLA records, SLA methodology, SLA calculation template, MIS reports, ISO documents (procedures, records, templates, standards), Audit records, security assessment and risk records, all SOPs, warranty documents, AMC documents, Knowledge documents (KEDB), Training records etc.

5.22 Severability and Waiver

If any provision of this Agreement, or any part thereof, shall be found by any court or administrative body of competent jurisdiction to be illegal, invalid or unenforceable the illegality, invalidity or unenforceability of such provision or part provision shall not affect the other provisions of this Agreement or the remainder of the provisions in question which shall remain in full force and effect. The relevant Parties shall negotiate in good faith in order to agree to substitute for any illegal, invalid or unenforceable provision by a valid and enforceable provision which achieves to the greatest extent possible the economic, legal and commercial objectives of the illegal, invalid or unenforceable provision or part provision. No failure to exercise or enforce and no delay in exercising or enforcing on the part of either Party to this Agreement of any right, remedy or provision of this Agreement shall operate as a waiver of such right, remedy or provision in any future application nor shall any single or partial exercise or enforcement of any right, remedy or provision preclude any other or further exercise or enforcement of such right, remedy or provision or the exercise or enforcement of any other right, remedy or provision.

5.23 Applicability of Liquidated Damages

The System Integrator shall accomplish the scope of work under this Agreement as per the Project Timelines and as per the Service Level Agreements. If the System Integrator fails to achieve the Project Timelines or if it fails to achieve the Service Levels (in the SLAs) for any reason whatsoever, the System Integrator shall be liable to pay liquidated damages. OCAC shall have the right to determine such extent of fault and liquidated damages in consultation with System Integrator and any other Party as it deems fit. Payment of liquidated damages shall be the sole and exclusive remedies available to OCAC Liquidated damages will be 1 % of the Capex cost for delay of every week and capped at 7.5% of the cost of Capex as mentioned in the Agreement.

If the liquidated damages exceed the cap as mentioned in the Agreement, the Purchaser or OCAC shall have the right to terminate the agreement for default and consequences for such termination as provided in the agreement shall be applicable. In case it leads to termination, OCAC shall give Sixty days' notice to the SI of its intention to terminate the contract and shall so terminate the contract unless during the Sixty days' notice period, the SI initiates remedial action acceptable to OCAC.

Each of the Parties shall ensure that the range of the Services/Deliverables under the SLA shall not be varied, reduced or increased except with the prior written agreement

/consent between the Purchaser and the SI in accordance with the provisions of change request procedure as set out in this Agreement.

If the Goods and Related Services supplied do not meet the minimum specifications as per the Contract, and the same is not replaced/modified by the SI to meet the requirements within 14 days of being informed by the OCAC, the OCAC shall be free to impose any penalty as deemed fit. In addition, the OCAC shall reserve the right to terminate the contract and recover liquidated damages by forfeiting the performance guarantee submitted by the Purchaser.

5.24 Intellectual Property Rights

1. All Intellectual Property of OCAC under the Letter of Invitation and/ or the Contract will belong exclusively to GoO, except the pre-existing intellectual property rights of the Bidder, its consortium and subcontractors (if any). On payment of all of consultant's fees in connection with this Agreement and subject to the other provisions of this Agreement, GoO shall at all times retain to use within its internal business all right title and interest in and to any Intellectual Property Rights in the deliverables to be provided by the Bidder under this Agreement and any modifications thereto or works derived from there except the pre-existing intellectual property rights of Consultant or its subcontractors (if any, and Consultant Technology. It is hereby expressly clarified that Bidder shall have no right, title or interest in or to such Intellectual Property Rights of OCAC for any purpose, except the right to use, modify, enhance and operate such designs, programs, modifications as per requirement of OCAC. Bidder shall not use such Intellectual Property of OCAC for any other purpose during and after the term of the Contract.
2. No services covered under the Contract shall be sold or disposed by the Bidder to OCAC in violation of any right whatsoever of third party, and in particular, but without prejudice to the generality of the foregoing, of any patent right, trademark or similar right, or any charge mortgage or lien.
3. Subject to clause (c) below, the Intellectual Property Rights of all the database, programs, reports, formats etc. developed/created for this project would be of OCAC / GoO.
4. The Bidder shall continue to retain sole ownership of the pre-existing proprietary knowledge, tools, source code, records, SOPs, application configurations,

drawings, methodology, templates, works of authorship, materials, information plus any modifications or enhancements thereto and intellectual property content brought in by Bidder to this engagement and/or incorporated in the deliverables submitted by Bidder to OCAC or created independently of the performance of the Services ("Consultant Technology"). For avoidance of doubt, it is clarified that Consultant or its subcontractor shall have the right to use any works of authorship or other intellectual property that may be included in the Deliverables, to develop for themselves, or for others, materials or processes that may be similar to those produced as a result of the Services. Further, any third party licenses other than the hardware and software to be used by the Bidder resources for delivering the deliverables under this Agreement, necessary for the performance of the Services under this Agreement, would need to be procured by OCAC. Bidder hereby undertakes;

5. Not to provide access to the Intellectual Property of OCAC to persons other than authorized users to ensure that all authorized users are appropriately notified of the importance of respecting the Intellectual Property Rights of OCAC and that they are made aware of and undertake to abide by the similar terms and conditions of this Agreement. Not to permit any person, other than the authorized users, to copy, duplicate, translate into any language, or in any way reproduce the Intellectual Property of OCAC. To effect and maintain reasonable security measures to safeguard the Intellectual Property of OCAC from unauthorized access or use by any third party other than the authorized users. To notify OCAC promptly of any unauthorized disclosure, use or copying of the Intellectual Property of OCAC of which Bidder becomes aware. To change the manpower deployed if OCAC notifies issue (along with the justifiable ground) in the satisfactory performance of the respective resource.
6. The SI shall retain exclusive ownership of all methods, concepts, algorithms, trade secrets, software documentation, other intellectual property or other information belonging to the SI that existed before the effective date of the contract.

Notices

Any queries or other document, which may be given by either Party under this Agreement or under the SLA, shall be given in writing in person or by pre-paid recorded delivery post or by facsimile transmission or through email to the notified address.

In relation to a notice given under this Agreement, any such notice or other document shall be addressed to the other Party's principal or registered office address as set out below:

To OCAC:

Attention: General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

To

[Name and Address of Successful Bidder]

Any notice or other document shall be deemed to have been given to the other Party (or, if relevant, its relevant associated company) when delivered (if delivered in person) if delivered between the hours of 10.00 am and 5.00 pm on a working day at the address of the other Party set forth above or if sent by fax, provided the copy of the fax is accompanied by a confirmation of transmission, or on the next working day thereafter if delivered outside such hours, and 7 days from the date of posting (if by letter).

Notice can also be given through email address furnished by the System Integrator. The time of the sent message in outbox of the sender will be considered to be time of delivery of the message.

Either Party to this Agreement or to the SLA may change its address, telephone number, facsimile number and nominated email for notification purposes by giving the other reasonable prior written notice of the new information and its effective date.

5.25 Taxes and Duties

All payments will be subjected to tax deduction at source as applicable/ required at the prevailing tax rates. Any changes, revision or enactment in duties like GST, taxes or any CESS during the period of validity of the Bids and also during the contract period by Central/State/Other Government bodies will be considered and applied after due

consideration. The decision of OCAC in this regard will be final and binding and no dispute will be entertained. Any taxes at the time of supply goods and services shall be applicable as per the LAW.

For goods supplied from outside the Purchaser's country, the SI shall be entirely responsible for all applicable taxes, license fees, and other such levies imposed outside the Purchaser's country. The basic price quoted item wise by the bidder in respect of the transaction between OCAC & the SI shall include all taxes & duties and charges payable by the bidder except for the GST. CGST plus OGST, or IGST, as the case may be, at applicable rate shall be quoted alongside the basic price for all the items. However, while quoting the basic price against the package/works, benefit of Input Tax Credit (ITC) should be adjusted in the quoted price by the SI.

5.26 Insurance

Appropriate insurance to cover all solution components for the transit period and until the time of its acceptance at the respective site is to be taken by the contractor. As the contractor will carry the risk for the material in his books during transit, the contractor should arrange insurance for the total system as period from the dispatch till Acceptance Test is successfully achieved. Further the contractor is to take all required insurance coverage in respect of all its personnel who shall be working on this engagement.

5.27 Audit, Access and Reporting

The System Integrator shall allow access to or its nominated agencies to restricted to all data related to OSDC 2.0 which is in the possession or control of the System Integrator or its subcontractors, agents, suppliers etc. and which relates to the provision of the Services as set out in the Audit, Access and Reporting Schedule and which is reasonably required by OCAC to comply with the terms of the Audit, Access and Reporting of this Agreement.

OCAC would also conduct audit of the process, plan and results of the Acceptance Test carried out by the System Integrator. OCAC shall verify availability of all the defined services as per the contract signed between the SI and OCAC. The SI shall be required to demonstrate all the services / features / functionalities as mentioned in the agreement.

5.28 Ownership

1. Products and fixes: all COTS (Commercial off-the-shelf) products and related solutions and fixes provided pursuant to this Agreement shall be licensed according to the terms of the license agreement packaged with or otherwise applicable to such product. The System Integrator would be responsible for arranging any licenses associated with products. "Product" means any computer code, web-based services, or materials comprising commercially released, pre-release or beta products (whether licensed for a fee or no charge) and any derivatives of the foregoing which are made available to OCAC for license which is published by product owner or its affiliates, or a third party. "Fixes" means product fixes that are either released generally (such as commercial product service packs) or that are provided to OCAC when performing services (such as workarounds, patches, bug fixes, beta fixes and beta builds) and any derivatives of the foregoing. All intellectual property rights in any exclusive development to meet the functional requirement of this Agreement shall be owned by OCAC.

2. Training and other material: The ownership of all IPR rights in all documents, artefacts, etc. (including all training material) made pursuant to this Agreement during the Term for implementation of the Project under this Agreement will lie with OCAC.

5.29 Safety Regulations

1. Successful Bidder shall be responsible to take all precautions to ensure the safety of the person or property of the OCAC and Data Centre while performing its obligations hereunder
2. It is the responsibility of the bidder to carry the material/equipment to the location of the installation; SI will be penalized for any damage caused to property/ OCAC Tower building.
3. It is the responsibility of the Successful Bidder to comply with all sorts of safety measures under applicable law in regards to men and material deployed for the project.

5.30 Warranty of Equipment

1. The Bidder is required to provide warranty valid for Five (5) Years, for all supplied equipment as per financial bid format provided in the RFP. All Products supplied

under the RFP should not reach end of support before 7 years from the date of FAT or start of O & M services or handover, whichever is later. All the products quoted should be supported by the SI for next 5 years from the start date of O & M services. The SI should also commit support for another 2 years if necessary.

2. The Bidder shall warrant that all the equipment supplied under the contract is newly manufactured and shall have no defect arising out of design, materials or workmanship or from any act or omission of the Bidder that may develop under normal use of the supplied equipment's in the conditions prevailing across the country.
3. The Bidder shall warrant that the services provided under the contract shall be as per the Service Level Agreement (SLA) defined in the tender.
4. This warranty, for all equipment's, shall remain valid for Five (5) Years after the complete installation and final commissioning of the Data Centre. The installation will be deemed incomplete if any component of the equipment or any documentation/media is not delivered or is delivered and not installed and/or not operational or not acceptable to OCAC after final acceptance testing.
5. OCAC shall promptly notify the Bidder about any claims arising under this warranty. Upon receipt of such notice, the bidder shall repair/ replace/ reconfigure/ re-provision the defective equipment or service.
6. The supplier shall ensure during the comprehensive warranty period that all the supplied stores continue to function as per the parameters mentioned in technical specification. During warranty period, maintenance of all stores including pick-up of the faulty equipment for repair, replacement and repair/fault rectification, delivery of the rectified equipment shall be undertaken by the supplier at no additional cost to the buyer. The supplier will be responsible for the maintenance/preventive maintenance of the complete system. Any Malfunctioning or defective items shall be replaced by the supplier free of cost at project site as early as possible, under the following condition: -
7. If the bidder, having been notified, fails to remedy the defect(s) within the period specified in the SLA, OCAC may proceed to take such remedial action as may be necessary at the Bidder's risk and expense and without prejudice to any other rights, which OCAC may have against the Bidder under the contract.
8. All the software's used for providing data centre services shall be licensed to OCAC and will be the property of OCAC.

9. The SI shall be responsible for end-to-end implementation and shall quote and provide/supply any items not included in the bill of material but required for commissioning of the cloud, network, Non-IT equipment like PAC, UPS, BMS, EMS, Infrastructure Monitoring, including any Compute equipment. OCAC shall not pay for any such items, which have not been quoted by the SI in the bid but are required for successful completion of the project.

5.31 OEM Certificate of Equipment

1. The OEM Certificate as per the Proforma- 12, 13 & 14 as applicable stating that the bidding company is the Original Equipment Manufacturer of the equipment they are offering, shall produce signed declaration certificates, giving reference of this Tender Enquiry, who is authorized to offer their equipment and a commitment to provide maintenance support during the comprehensive warranty period.
2. In case the stores are supplied by the authorized supplier of the OEM, then the OEM certificate (Annexure-11) shall state that, in case the authorized supplier fails to repair/ maintenance the equipment during the comprehensive warranty, the responsibility for maintenance of the equipment provided would then be taken over by the OEM.
3. The complete contact details of the OEM (Name and designation of contact person, postal address, e mail ID and telephone & FAX numbers) will be furnished and the buyer may at his discretion verify the authorization from the OEM, failure of which may result in the bidder being blacklisted and / or barred from participating for any future tender of this organization.
4. OEM certificate (Manufacturer Authorisation) are Mandatory for following items
   a. HT panel (Panel manufacturer)
   b. LT panel (Panel manufacturer)
   c. Transformer
   d. Diesel Generator with HSD tank
   e. UPS systems with Batteries
   f. Floor mount PDU with Isolation transformer
   g. Track Busway system
   h. Precision Air conditioning system
   i. Racks with sensors and Rack access control

j. Integrates Building Management system with sub systems such as
   - Addressable fire alarm system
   - Gas based suppression system
   - CCTV
   - Access control system

k. Datacentre infrastructure management system (DCIM)

l. Passive data cabling system

m. Video Wall

n. Intelligent PDU

Note: OCAC reserves to right to ask for manufacturer authorisation during the bid evaluation and during execution of the project for any item other than mentioned above. OCAC may also reserves the right to ask for hard copy original signed and stamped letter of MAF in OEM letter head.

5.32 Spares and Performance of Equipment

1. The Bidder shall specify in the Technical Proposal the complete list of spares that will be maintained for meeting the various SLA parameters specified in the tender. It is advised that the mandatory spares are kept at site for adhering the SLA requirements.
2. The Successful Bidder shall stand guarantee for the supply of spares of all the equipment under the scope of supply for a minimum period of 5 years from the date of awarding the contract and guarantee that discontinuity of production of any item offered as a part of the system shall not affect the maintainability of the system for a period of 5 years from the start date of operation and maintenance support of data centre.

6 Design Consideration for OSDC 2.0 (Non-IT)

Odisha State Data Centre 2.0 design and solution is completely Bidder/MSI's responsibility in this project. However, while doing so, the bidder must take into account the considerations/assumptions/suggestions as mentioned in this document. In case there is any discrepancy or contradiction, the same may be brought to the notice of the purchaser during pre-bid meeting only.

Design considerations are divided into following sections.

1. Space Allocation
2. General Design Requirements
3. Technical, Functional And Operational Requirements

SPACE ALLOCATION

Described below is the minimum requirement of Rooms/ Enclosures in the Facility. Bidder must take these considerations while designing and planning.

6.1 Data Centre Build Design Consideration

1. The following are general design requirements. The requirements are not limited to the best practices and standards prevalent for Data Centre has to be adhered while designing. The project is 'Turn-key' type in true sense. The successful bidder must execute the project with accordance to the detailed scope as mentioned in the Section # 08 in the RFP.
2. The scope includes the supply, installation & commissioning of any material or equipment including civil works that are not specifically mentioned in the specifications and design details but are required for successful commissioning of the project.
3. The solution shall comprise of supply, installation, testing, commissioning training and handing over of all materials, equipment, hardware, software, appliances and necessary labour to commission said system complete with all the required components strictly as per the latest IS, IEC, IEEE, ASHRAE, NBC etc. codes.
4. The lead bidder shall provide detailed design, documentation, make, and model, efficiency including user, system, and operation manuals along with the necessary diagrams, design drawings and details bifurcation of Bill of Quantity (BOQ) along with details description. The shop drawing (to be submitted before execution or as on when required) may include but not limited to the following
    a. Site layout
    b. Equipment placement layout
    c. All drawing for Electrical scheme including single line diagram
    d. All GA drawing of equipment
    e. Piping schematic
    f. Grounding and Earth pits
    g. Lighting
    h. Furniture placement
    i. DG fuel pump
    j. Complete HVAC system
    k. Networking cabling
    l. Trenches, cable trays and raceways
    m. Shafts
    n. Panel GA drawing
    o. Fire detection and suppression system

p. Aspirating smoke detection, water leak detection, rodent repellent, CCTV, access control system
q. DCIM schematic
r. Reflected ceiling plan
s. Sectional views
t. 3D drawing as required.
u. As built drawing for all services.

As on when required, the successful bidder has to submit the coordinated drawing for the solution.

5. The lead bidder shall be responsible for performing verification tests at their factory and at site to ensure all proposed software and hardware are functioning as per design at their own cost.
6. The lead bidder shall take the necessary clearance / approval of the drawings, design, quality of material, make and model of the quoted material etc. prior to the execution of the project
7. The server farm area load density will be as follows
   a. **Server Racks = 9.5 KW for 73 Racks**
   b. **Network = 2 KW for 12 racks**

7 Non-IT Infrastructure - Scope of Work

The scope shall comprise the design, supply, construction and testing of the proposed Data Centre building including all enabling works. All Works shall be carried out as per the proposed design and specifications and in accordance with the requirements of all relevant Indian standard codes.

The Utility room is between OCAC building and OCAC tower. This is a G+1 building. Following items are currently housed inside Ground floor of the building.

1. HT Panel
2. Transformers
3. Transformer output panel
4. ASLS panel (Main LT panel)
5. Capacitor Panels
6. AMF panels for OCAC tower DG
7. Other small panels

The bidder is advised to do a detail site survey of the Utility room, take measurements and list out all the work required to revamp the room to make it better in terms of facility, manageability and operability.

The scope for the area is mentioned here but not limited to following.

1. The metering panel room is defunct and need to be taken up to make it functional. The door of the metering panel room needs to be replaced with new one. The door must water and fireproof.
2. There are no walls on two side of the HT panel and Transformer area. The level of the floor is in the same level outside. To prevent water entering into the area, a foot height brick wall with plater needs to be constructed on both the side of the room.
3. Transformer and HT panel housing room need to be closed from both the sides with grill rolling shutters. The shutter must have a 750mm width and 2000 mm lockable door for entry and exit to the area.
4. The floor of the area needs to be repaired with PCC after installation of HT panel and transformer. A layer of epoxy quoting must be done on the floor as a finishing layer.
5. The wall of the area needs to be painted with distemper.
6. Proper lighting arrangement to be done in the area. Lux level should be 250 measured at 1.5 meter from floor level at any point of the room. Only LED lights will be allowed.
7. The flooring has to be levelled and top layer to be epoxy quoted.
8. Fire Extinguisher of minimum 4.5 Kgs suitable for such area to be provided in the rooms. One for Transformer area and 3 for panel room.
9. A new Panel room along with transformer yard to be created along the boundary wall (currently badminton court). The panel room will house new MLTP two numbers, Capacitor panel 2 numbers. An almirah for keeping tools, a table and two chairs for maintenance resources. However this room may not be required if the existing first floor can be used as proposed panel room. In case it is so, a 5 ft wide stair case has to be created with landing near the small store room next to HT panel. Also a Ramp has to be created from roof of transformer area to the first floor room.
10. The Existing HT panel area has to be extended towards the small storeroom side to make the space bigger to house new HT panel. In case any RCC roof, column and beam, wall are required, then the same has to be provisioned by the SI

11. New Trench extension to be created from new Panel room to the existing trenches.
12. Existing trenches may be used for laying of cables to the Datacentre. In the process, there may be chances of breakage of trench covers. The same has to be replaced by the Bidder with equal specification.
13. The Existing DG set for the SDC area need to be replaced with new one. There are three DG sets of 400 KVA each installed near the back of the building. These have to be de-installed and taken back by the SI. The area has must be cleaned, cemented flooring done and handed over to OCAC.
14. Cable Trenches: There are existing cable trenches available & may be used, however the bidder should evaluate & propose if there will be need to create new cable trenches. In case it is required the same may be proposed.
15. HSD Tank: Two no's of 5 KL underground HSD tanks need to be installed for 2 Nos of DG set for which suitable space to be identified & piping for the same should be done up to the DG sets. The DG fuel pipeline must have intrinsically safe Fuel meters with connectivity feature to DCIM. The meters must be integrated with DCIM tool. Each DG fuel consumption to be measured.
16. Placement of Outdoor Area for PACs & CACs: It is proposed that AC ODUs on a platform of steel structure (using ISMB of adequate size to cater the load) of 5 Meter height on the back side of the building adjacent to the 1st floor of the building (DC floor) level. The bidder should plan for the structure design accordingly.
17. New DGs has to be place on double tier ISMB, ISMC structure alongside the 4 no's of DG already installed. The periphery area of the DG yard has to be covered with heavy duty MS louvers with beautification as designed by architect.
18. A new road (cemented carpeted road as per CPWD norms) to be laid from OCAC tower approach road till the existing transformer yard by acquiring the required portion of the green patch. (This is optional and indicative requirement)
19. The SI must engage an qualified architect to design the campus beautification work such as, transformer area, DG area, existing garden, trench area, PAC outdoor structure etc. The architect's and beautification cost has to be factored in the price bid as separate item.

Data Centre Area (1st Floor of OCAC tower):

1. **Stair Case & Ramp:** There are stair case & lift on both the sides for entry into Data centre area. The existing one of the staircases (there are two nos.) staircase from

the outside of the building has be dismantled & converted to Ramp for material entry.

2. There are three toilet blocks on each side of the datacenter floor. One on the south side and two are on the north side. One of the blocks on the northeast side has to be converted to UPS and power room. All the partitions have to be dismantled. There has to be fire rated doors installed with minimum 1200 width for smooth entry of the equipment. The floor must layered with antistatic material. The walls have to be painted with fire rated paint.
3. The other side toilet block has to be furnished with high quality flooring, wall tiling and fixtures. Separate sections for MALE and FEMALE must be created. Bidder has to submit details of the toilet furnishing in a tabular form.
4. **Ceiling:** Server farm area will have no ceiling. However, a 23 mm nitrile rubber has to be pasted under the roof for thermal insulation. The workmanship should be such that it looks neat and clean without any tear, overlap, exposed roof, or non-aligned joints. The bidder may propose ceiling in the support area. However high quality modular mineral fiber celling with min 0.5 NRC with may be accepted. Ceiling structure already existing near the lift area on each side has to be redone.
5. **Flooring:** Datacenter server farm area has to have raise floor of calcium sulphate material. The height must be 600mm from the floor. The floor tile UDL must be 1500 kg/mtr square and point load 450 KG. Flooring for support area has to be with verities of material such as, vitrified tiles, carpet tiles etc. The entry area from the north side (passenger lift side) must be highest quality vitrified tile of 1200x600 size.
6. **Partitions** Bidder to decide the partition walls for the support area whether to use 100mmm double skinned Gypsum, Frameless glass with patch fittings as per the aesthetics. Partitions required in power rooms must be with Fire rated Kingspan-Jindal panel or equivalent
7. The other side of the server farm wall has to be fire rated glass of min 10 mm thickness. The height of the glass has to be taken from +600 mm level till the false ceiling level of the corridor. Every glass will have a stainless-steel frame structure.
8. **DOORs and Windows:** The indicative doors requirement is given in the table below:

Sl.No	Door details	Type
01	Main entry door to facility from passenger lift side	Double leaf glass door of total 2000mm width

02	Entry to server room from corridor side	Fire rated glass door in SS 306 frame
03	Entry to server farm from south side	Fire rated steel door (min 45mm thick and 1200 mm width) with vision glass
04	Entry to staging room	Fire rated steel door (min 45mm thick and 1200 mm width) with vision glass
05	Emergency exit from server farm to south side	Fire rated door of 45 mm thick and 900mm width
06	POE room entry	Fire rated door of 45 mm thick and 900mm width
07	Power room	Fire rated steel door (min 45mm thick and 1200 mm width) with vision glass
08	Toilets	900mm flush door
09	Support area	900mm toughened glass door and flush door wherever required

The above requirement is indicative only. Bidder must submit a table according to their own design

9. Bidder may decide to erect/not erect wall on the support area side east side as per requirement of their design. However, all the openings on the top and bottom of the gap between the glass façade and the building has to be closed with MDF board for ply board with smooth finish.
10. Side wall is mandatory for Datacenter area (curved wall). Fire rated Kingspan-Jindal panel or equivalent has to be used for ease of installation, low weight and aesthetics.
11. The partition wall on the middle of the floor separating the Dc area and support area to be of the combination of Fire rated Kingspan-Jindal panel or equivalent and fire rated glass.

12. **Paint and polish:** Server farm area walls, power room wall have to be mandatorily of fire rated paint. All other area must have premium emulsion paint of min 3 coats over and above putty and primer wherever required.
13. **Furniture:** Furniture inside the support area is one of the most important aspects that has to be looked at by the bidder. While selecting furniture, ergonomics, ease of maintenance and saving the environment aspect must be taken care of.
    a. **NOC Room Table/Desk/console:** These are technical furniture for a Network operation center. It must be made of recycled material. The table top should be such that the height can be increased and decreased by motorized mechanism. There has to be a keyboard tray and 3 drawer units. The width of the table must be such that 2 nos. 25" monitors can be accommodated in each. The console frame shall consist of Extruded AL Profiles binded by Top & Bottom (min 2mm) MS Frames formed in such a way as to provide maximum buckling and torsion resistance. The console finish shall be resistant to rubbing and liquids, impact-proof and easy to clean, All Board Cladding (Laminates) must be 1MM & the Laminate supplier must be Green Guard Certified, Certificates of which must be provided. Standard top height of modular control desk shall be 750 mm. The Console Table Top / Working Surface should be made in 26mm Laminated MDF Board with PU Nosing. The Side Panels should be fixed type, made in 26mm MDF Board Cladded on 18mm MDF Board. All panels must be attached to the frame with concealed fasteners. Console access panels (Front & Rear Panels) must be removable without the use of tools. The Front panel should be positioned in such a way that there should be sufficient leg space (min of 450 – 500 mm from the front edge

b. **Cabin Desk/Table**: Each cabin will a table for the officer who will use this for day to have a day to day work purpose. The selection of the table will be as per the following design, similar or better. The top surface must be made of MDF / Commercial board with laminate for a smooth finish. A side table with 3 drawers, a computer stand, bookshelf etc.

c. **Office area Furniture:** Office area furniture should be modular type. An equivalent image is shown below. This bidder must select the furniture which has to be factory made as below, equivalent or better. All modular desks must have cable management system and raceways concealed inside the desk. Each seat must have 3 level drawer units.

d. **Conference room table:** Conference room table mus tbe for 14 seater with provisions for power and data outlets. An reference image of the table is given below. The top surface of the table must be water spill proof and smooth finish with matching laminate. The colour will

be decided by OCAC prior to the delivery by the bidder

e. **Reception Table:** Reception table must be selected by allowing OCAC to make choices from from the available options by the bidder. The table must be for seating of 2 people with minimum size of 10ft x 3 ft. it must have provisions for power and data point with concealed cable management system. An reference image is givne as below.

f. **Breakout Canteen Furniture:** The break out and canteen furniture must be for minimum 15 people. Each table must be of size of seating of 3-4 people. Color and design must suite the overall ambience. A reference image is as given below.

g. **Bunk bed**: A bunk bed is required for people who have to take rest on shift hours if required. A bed with mattress of soft leather finish must be installed in the bunk bed/ rest room. The bed has to be double layered made up of wood with smooth finish.

h. **NOC room Chair**: NOC room chair must ergonomically designed in such a manner that long hour seating does not become tiring. The minimum requirement of chair is as follows.

- Mid Back Chair
- Mesh Back & Silver Epoxy Backbone
- Synchronized Mechanism
- 4-Way Adjustable Armrest
- Gas lift for Seat height adjustment
- Standard 5-prong P/Nylon Base
- BIFMA & GREEN GUARD certified

i. **Conference Room Chair**: The conference room chairs are to be same as NOC room chair Except the BIFMA & GREEN GUARD certification.

j. **Officer's chairs**: Same as the conference room chairs

k. **Visitor's chair**: A reference image is given above. Bidder must select the chair as per this, equivalent or better.

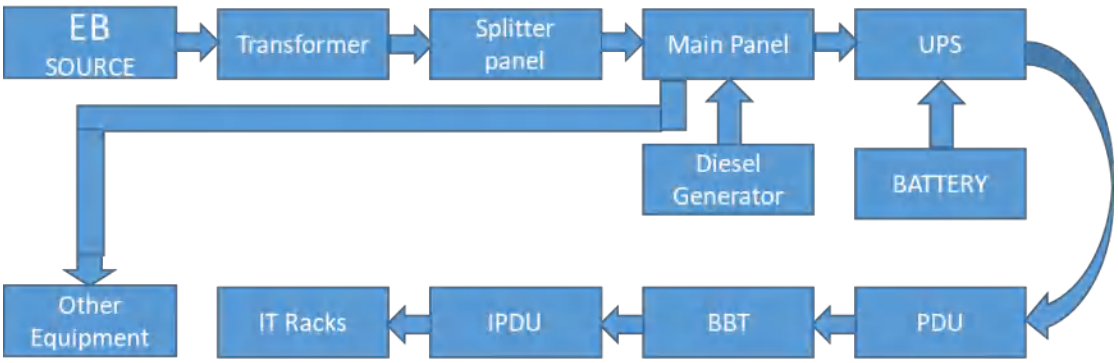
l. **Storage:** There has to be storage cabinets on all cabins, conference rooms, Bunk bed room, BMS room, Reception, Store room etc. All storage cabinets must be 2 ft depth and width as required. A reference image is given.

m. **Shoe Rack**: A shoe rack must be supplied with 20 pair of slippers to be placed near the entrance of the server room. A reference image of the shoe rack is given below:

7.1 Electrical System

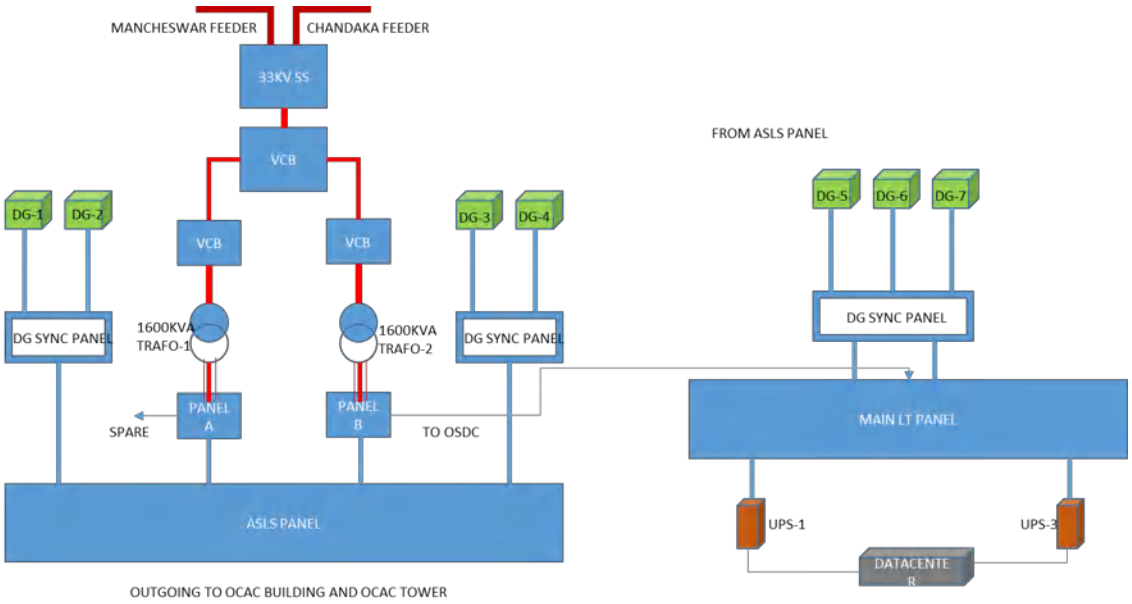
Electrical Design Concepts:

The electrical design will be based on the Tier III concept of Uptime Institute/ Rated 3 concept of TIA. The power flow from the source to load will pass through several stages of equipment.

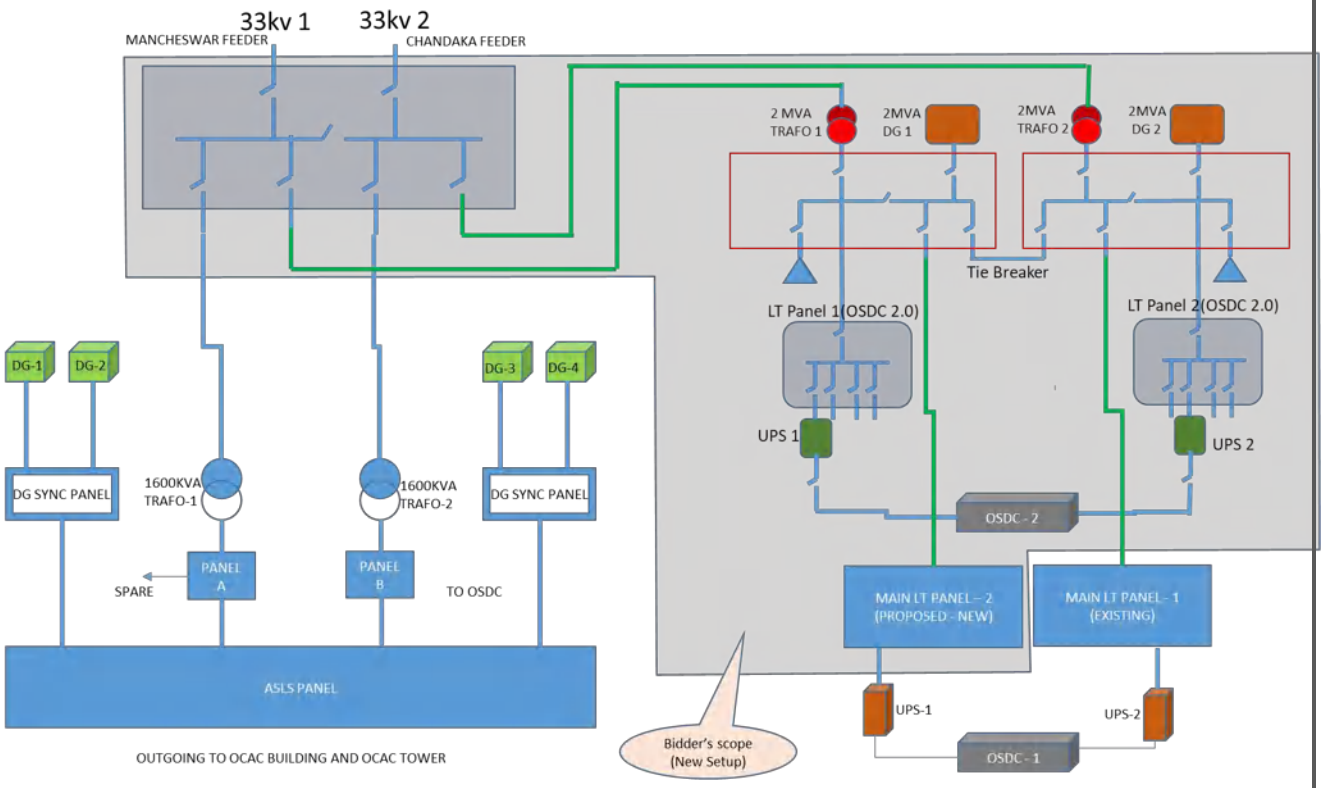


Redundancy and concurrent maintainability are important factors of the design. To achieve this dual path architecture must be adopted. The load details of the IT racks are as follows. Based on the load of IT equipment the entire system has to be designed. The proposed design of the electrical scheme may be as follows.

Existing scheme:



Proposed Scheme:



Existing cable trenches:

There are underground cable tranches running all around campus. The following length of trenches are available.

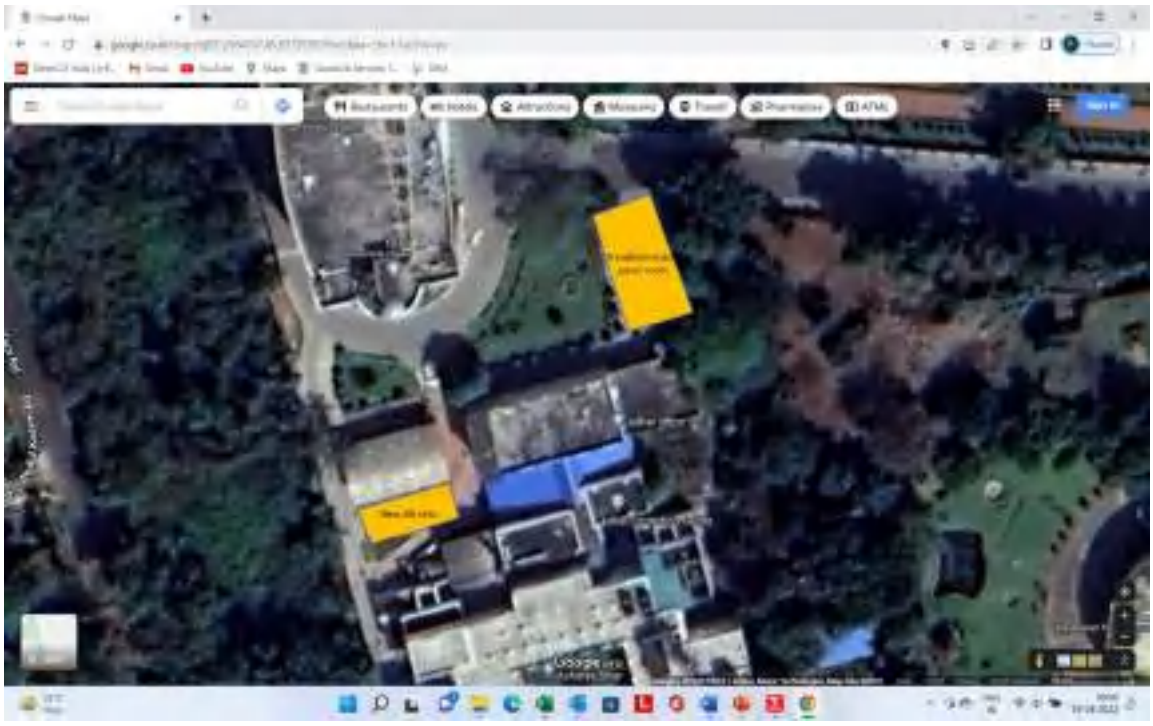
Sl.No	From	To	Length	Width	Depth	Fill %
01	Utility Room	OCAC Tower	60 Meters	2.2 Meter	1.5 Meter	50 %
02	Utility Room	SDC-1 panel room	75 Meter	0.7 Meter	0.7 Meter	50 %
03	SDC DG area	DG sync panel room	12 Meter	0.8 Meter	0.8 Meter	50 %
04	HT cable entry point to campus wall	Utility room	50 Meter	0.8 Meter	0.8 Meter	50 %

Detail SOW (Illustrated):

7.1.1 HT Power Distribution:

1. There is a 33 KVA station inside the compound from where the two buildings OCAC and OCAC tower is powered. The second 33KV feeder is available but not used as now. The existing HT panels need to be replaced with a new one as per the scheme mentioned above. The HT panel will have two incomer VCB with a VCB bus coupler and 4 out goings VCBs . This will feed to existing 2 no's 1600 KVA transformers and the new proposed 2000 KVA transformers. Removing cable from existing ones and installation and termination of HT cable for all the 4 transformer is in the scope of the bidder.
2. A new Utility room to be created near the existing transformer room (badminton court/two-wheeler parking area) OR the transformer out panels can be placed on the first floor of existing panel room (currently a store room) . This room will house two MLP panels, two capacitor panels HT panels and other DBs. If the panel room is created then this room will be at least 4 ft above the ground. All cables will run in trench below the floor of the room.
3. If the first floor of the Existing panel room will be used for panels then, a 5 ft wide stair case will have to be created with landing closed to the small store room (near HT panel area). A door will also have to be created for entry to this first floor with a ramp (from roof of transformer area to the new door).
4. New Transformer 2 nos 2 MVA to be installed in the transformer yard with fence and RCC wall.
5. A metering panel is available but has been defunct since long and not been in operation. The Bidder needs to offer new metering panels with all accessories.

6. The HT cable from the Pole to the metering panel, from metering panel to the HT panel and from HT panel to the new Transformer need to be installed.
7. The entire job is turnkey type. However, the bidder has to submit a detail bill of material with prices for each item and quantity.
8. All the work must be done as per central and state electrical guidelines and under strict supervision of OCAC and electricity board authorities.
9. The bidder may engage an Electrical contractor to get the job done. The Bidder/ contractor must have a Class A electrical license and must have qualification and experience of working on 33KV HT setup.
10. Adequate safety procedures must be adopted while doing the execution work for HT and HT side as per the prevalent and suitable norms and law of the land.
11. Bidder must offer a buyback price for the replaceable items such as Metering panel, HT panel etc. This will be taken in consideration during commercial evaluation.
12. During the replacement and installation activity, bidder must ensure that backup power is provided to the facilities of OCAC and OCAC tower. No interruption will be permitted during working hours. However, in unavoidable circumstances, in case any shutdown of services is required, the same may be intimated to OCAC, discussed, and agreed upon before execution of the plan



7.1.2 Diesel Generators

1. For captive power back-up system, Diesel power generators must be proposed with all its ancillary supplies such as Buffer storage and Bulk storage tanks, Exhaust system, Fuel piping system etc. The diesel generator must be Datacentre continuous type. The DG must be capable of taking the loads of existing Datacentre in OCAC building and proposed Datacentre in OCAC tower.
2. It is proposed that 2.0 MVA or higher datacentre continuous rated diesel Generator set is proposed. However, the bidder must consider the exiting load and proposed load to arrive at the rating and the same may be verified and approved by Uptime.
3. The generators will be in N+N configuration where N is the total load.
4. The generators are to be placed in double tier structure with one above another. The place will be alongside of the existing 4 nos of 750KVA DG already installed in the campus.
5. Exhaust systems needs to be erected as per CPCB norms. In case self-supporting structure is required for the exhaust, the same must be proposed.
6. Adequate fuel pump mechanism is required for pumping fuel from the tank to the generators. The pumps and piping must be redundant.
7. Intrinsically safe fuel meter must be installed on the fuel pipeline with provision of sending real time consumption data to monitoring tool such as DCIM.
8. The underground HSD tank must have adequate safety provision as per CCOE.
9. Cables from the Generators may be laid inside the existing trench. In case trench is not available, a new trench may be created as per the existing norms.

7.1.3 MV Panels

1. The entire building must have a comprehensive power distribution design where LT panel will be an integral part. The same will be used to feed power to the critical and non-critical areas. These panels may include Main LT panels, Distribution panels, Power factor panels etc. For the server farm area, there will be two LT panels placed at different rooms to provide physical redundancy. The panels will be fully compartmentalized and modular like Blockset/TTA or equivelent
2. The existing Datacentre has only one main panel from where two outgoing paths are created to feed two UPS systems and cooling system. This panel becomes a

single point of failure. A new Panel with identical breakers and bus bars has to be proposed and the same will be housed in the DG sync panel room. The DG sync panel will be removed from the room as the same is not required.

3. Cable that is feeding the SDC-1 from the transformer output panel must be replaced once a new MLTP panel is installed. The cable should be connected to the new panel and existing panel.
4. The existing cable from the DG yard to the DG sync panel will be removed by the bidder.
5. The DG sync panel already in working, will have to be removed by the bidder and a buyback offer must be submitted. This panel will not more required in new scheme.
6. There will be 2 new DC MLTP to be proposed by the bidder as the block diagram shown.
7. All interconnecting cables must be proposed. All panels must be type 4b form factor panels complying to latest IEC standards and likes of Blockset/TTA/Equivalent.
8. There will be HVAC panels inside the Datacentre power room from where the PACs will be powered.
9. The data centre racks to be powered though track busway system. These will be fed from two separate paths of UPS. The UPS output will feed to Floor mounted PDU that will have a K-13 isolation transformer. This PDU will be 10 outgoing feeders to feed 10 track busway sections.
10. The floor mounted PDU with Isolation transformer placed inside the Server Hall. This will be redundant in nature.
11. The bidder should propose auxiliary panels/DBs as per standard such as Emergency Panel, Lighting Panel, Comfort AC panel, Raw power Panels etc for better distribution of power in a mission critical facility.

7.1.4 UPS Systems

1. For uninterrupted power supply UPS with battery bank must be proposed for the Critical and Non-Critical load. The UPS must be monolithic/modular (Non hot swappable). The battery backup system should be for 15 minutes. Battery has to be lithium-Ion type. A separate UPS system has to be provisioned for support area and some of the PACs to work during the interval period of source switchover from EB to DG.

2. The UPS system will be placed in two different power rooms with its individual battery banks.
3. The UPS system must have connection to the DCIM for real time performance monitoring.
4. Bidder must submit battery calculation sheet.

7.1.5 Cable, Bus Bar Trunks, and Terminations

1. Cables and Bus bars of different types and sizes as per the required design for connecting all required components from source to load or vice-e-versa with termination at both ends. Indoor bus bars to be installed inside the server farm for Rack power.
2. All outdoor cables will be Aluminium core and all indoor cable will be copper core.
3. As per Tier guidelines, there has to be to two separate paths of cabling from load to source for concurrent maintainability. The same must be adopted by the bidder wherever possible. The cable for one path from the new panel room near the transformer yard may be taken through the existing trench and enter the Datacentre power room by creating a self-standing MS structure till the fist floor on the back side of the building. The second path may be taken from the panel room through the green patch and road by creating a trench and entering the datacentre floor through existing power shaft at the middle of the building on the back side.
4. The cable from the panels to the existing OSDC-1 datacentre panel room on the ground floor may be taken through existing trench.
5. The bidder must submit cable schedule as per the following format.

7.1.6 Cable Schedule:

The bidder must submit a detailed schedule of cables and bus bars in the following format.

Sl.No	From	To	Max Amp	Cable Ampacity	Cable Size in sq mm	No of cores	Type of core	No of runs	Insulation	Length	Qty
01	A	B	500	700	185	3.5	AL	2	XLPE	50	100

Description of headers:

From – The point from where cable/BBT is starting

To – The point from where the cable/BBT is ending

Max Amp – The maximum load current per phase that the cable/BBT has to carry

Cable Ampacity – The maximum current per phase the cable/BBT can handle

Cable Size: Size of the cable in sq mm

No of Cores: Number of cores of cable per segment (e.g. 1, 2, 3, 3.5, 4 etc)

Type of Core: The metal type used (e.g., Aluminium, Copper)

No of Runs: Number of cable segment that has to run between two segments

Insulation: Insulation of the cable (e.g. PVC, XLPE etc)

Length: The distance between starting and end point of the segment.

Qty: Total cable quantity (Length x no of Runs)

Note: In the Bill of material, cable length has been given which may be taken as minimum for preparing a quote. Bidder should assess the site in detail and offer accordingly

Co-relation between SLD, Cable Schedule, Bill of material and Bill of Quantity:

1. The bidders are strongly advised to maintain data consistency between Electrical Single line diagram, Cable schedule and Bill of quantity always in the solution document. The Electrical Single line diagram must be prepared in detail showing all the components. All the components must be uniquely labelled.
2. All cabling inside the server hall will be over the top of the racks.
3. Track busway BBT must be used for IT racks.
4. All exposed conduits inside the server hall will be MS type. FRLS PVC conduit will be accepted only if it is used as concealed in walls.
5. There must be raw power provisions inside the server hall for facility maintenance.
6. All cables must be tagged with unique name. The tag must be long lasting and durable. Tagging has to be on both ends.
7. All cable entry to the panels must be with double compression glands. The glands must be chosen as per the cable core metal.
8. Cable installation must be as per IE rules considering pull strength, bending radius and insulation class.
9. All outdoor cables must be factory tested for insulation strength.
10. All cables must be XLPE and all indoor cables must be FRLS XLPE Type.

11. All wiring in the support area must be concealed. Sub-mains must be laid in PVC raceways buried under the PCC floor. The distribution to the desks must be through the furniture raceways from bottom.
12. There must be junction boxes on the floor under the carpets or on vitrified tile floors. It must be concealed but openable.
13. UPS output cabling must have double neutral. Single core cable may be used.

7.1.7 Illumination

1. Lights of various types as suitable for different floors including critical and non-Critical areas are required to be done. Lux level inside server farm to be 500 lux measured at 1 mtr from ground at all areas. Other area should have 300 lux.
2. The server hall will have no false ceiling. Hence the lighting in the server area to be continuous type suspended from roof.
3. All light to be LED.
4. All the lights will have occupancy sensors.
5. Bidder may propose different size of light as per the suitability and ambience required.
6. The light fixtures in the support area will be recess mounted on the ceiling. The lights on the server hall and power room may be hanged from ceiling.
7. The size for fixtures can be chosen by the bidder so that the looks and ambience is not compromised
8. The size for fixtures can be chosen by the bidder so that the looks and ambience is not compromised.

7.1.8 Wall Outlets, Outlets for Racks, Receptacles:

1. End point power outlets are required for all load points depending upon type and redundancy.
2. The wall distribution panels must be double door type and recessed on the wall.
3. The looping of raw power and UPS power points for the user is allowed. However not more than 3 raw power points and more than 2 UPS power points be looped for a single circuit.
4. The receptacles on the wall and on the desk must be high durable and multi-pin type. Each desk must have 3 sockets, one for raw power and two for UPS power.
5. The breakout and canteen area must have 15A power sockets 5 nos.

7.1.9 Grounding

1. Earth pits of different types, grounding bus bars/strips, Equi-potential grid for the critical area.
2. There are many earth pits already existing in the campus. For new DG area, the earth pit may not be required, and the existing earth pits may be used after proper recharging. However, in case required the same may be provided.
3. Earth pits may be required for UPS systems and other items inside the datacentre. The same may be proposed by the bidder.
4. The server hall must have grounding mesh in terms of copper strip laid on the ground on a matrix fashion to provide equipotential grid for all the equipment.
5. Each and every metal items inside the datacentre must be grounded.
6. The earth strips have to be copper for copper pits and GI for GI pits. All the earth strips must be insulated.
7. Interconnection of earth strips has to be by welding is alloy material or by nuts and bolts.
8. Earth pits must be connected at ground for redundancy and equi-potential.
9. Lightning arrester is required for New Panel room.

7.1.10Cable Pathways

1. Various pathways such as underground trench, cable trays, Raceways, junction boxes, ladder trays, and Cable baskets required to be there for the entire facility.
2. The existing trenches must be used for outdoor cable pathways. In case required new trenches must be created.
3. Cables must be taken to datacentre from ground area by designated shaft. All cables must be tagged.
4. Hume pipes must be used for buried cables out side.
5. Inside the datacenter all cables must run over the rack on cable tray.
6. All cable pathways must comply for concurrent maintainability.
7. Inside the power room call cables must run cable trays over the top.
8. Cable tray must be factory made with pre-galvanised finish.
9. Cable fills in any tray must not be more than 70%.
10. All cabling and wiring must be neatly dressed and tagged.
11. Cable basket to be proposed (equivalent to Cablofil) to be proposed in datacentre.

a. Wiring

1. Wiring of all load points, wall outlets, Lights and all other points where connection is required.
2. All along the datacenter area, wiring color codes must be used for single phase, three phase and Ground.
3. No jointing of cable or wires are allowed without proper factory-made jointing kit.
4. All wires to be FRLS and with colours coding
5. All cables and wires to be tagger with unique identification

b. Cable Entry

1. Fire resistant cable entry points at walls with factory made entrance enclosures.

c. **Documentation Submittals**

2. The bidder must submit the following in various stages of the project
3. Single line diagram – To be submitted along with bid. The single line diagram has to be in detail showing unique notations for each and every component such as breakers, indicators, CTs, bus bars, cable rating etc.
4. Cable schedule as per the format. – To be submitted along with bid.
5. Lux level calculation – To be submitted along with bid.
6. Cable and panel datasheets – To be submitted long with bid
7. Shop drawings for cable pathways, wiring, and RCP – Before execution
8. Lighting and wall receptacles layout
9. Outdoor cable trench layout
10. Coordinated drawing – Before start of execution
11. Any other drawing and documents required by OCAC/Consultant.

7.2 HVAC system

PRECISION AND COMFORT AIR CONDITIONING

1. Technical area such as Server farm, staging room, telecom room will have precision cooling system.
2. The server farm is proposed to have 10 row of racks with each row of 8/9 racks where each rack size is considered to be 800mm x 1200 mm.
3. There will be cold aisle containment for racks and hence there will be 5 containment PODs. Each POD will consist of 2 row of racks
4. One of the POD of 18 racks will be high density racks. There will be direct expansion in-row cooling for this POD. It is suggested to have 5 in-row cooling units, with three

and two in each row of a POD. The Five units are in N+1 redundant fashion where N=4

5. All the perimeter PAC units if required for maintaining temperature Delta at server farm (bidder may propose if required), are suggested to be placed on one side (façade side).
6. The cold aisle containment should be proposed in such a manner that a maintenance corridor is created in between the PACs and the rack row. This can be possible by proposing sliding doors on the one side (PAC side) hot aisle of the row.
7. All the refrigerant piping must run on the side of the wall below the raise floor and go out of the facility at the middle point through the balcony to the ODU platform.
8. Pipes have to be properly insulated. The exit of the pipes on the wall has to be through factory made sealing material.
9. The outdoor stand to be made behind the building on ISMBs/ISMCs with access from ground through a staircase. The height of the platform to be 5 mtr. from the ground level so that fire tender can pass through it.
10. The outdoor stand to be made behind the building on ISMBs/ISMCs with access from ground through a staircase. The height of the platform to be 5 mtr. from the ground level so that fire tender can pass through it.
11. Adequate safety barriers must be taken care of on the platform on all sides.
12. Humidifier line can be taken from building water pipe line with a valve.
13. For the DC support area the entire area to be provisioned with VRV/VRF system where the outdoor units will be placed on the ODU platform.
14. The indoor units on the DC support area will be cassette type.
15. Bidder must submit a detail table of selection of various rating of indoor units with its cooling capacity in terms of CFM, power consumption and size.
16. Power room will have PAC units (floor standing) without heater and humidifier. Bidder must consider the equipment heat load, room area load and latent heat for selection of rating of the units.
17. Power room PAC will be redundant as per Uptime guidelines.
18. Bidder has to submit a detail bill of material with prices for each and every item.
19. All the AC units must have provisions to connect to DCIM. It must also be connected to the fire alarm system.
20. One of the AHUs has to be taken out to of the floor and the cull water pipes be closed with valve. The same room will be converted into a power room

21. Bidder must propose thermal insulation (under deck insulation) on the server hall floor and ceiling and on the support area ceiling. The thickness of the insulation must be min 19mm and material to be nitrile rubber.
22. It may be possibility that the pipes from the indoor units of the DC support area have to run through the server hall under the raise floor. This may be avoided. In case it is a must then, the same may be done with proper workmanship.
23. Power to each PAC indoor units will be from two different HVAC panel. The bidder may propose an ATS with two inputs and one output for each PAC in case the PAC do not have provisions for 2 inputs.

7.3 Safety, Security, Surveillance and Monitoring System

7.3.1 Addressable Fire Alarm System (AFAS)

1. Entire facility will have fire detection, annunciation & Alarm system. Different types of detectors such as fire, smoke and heat detectors or combination of all installed and wired to a control panel in a zonal fashion.
2. This system must be integrated with the central monitoring system. The fire panel must have redundant components inbuilt.
3. The first floor of the proposed site already has fire hydrant system and pipes are running all across the floor. The bidder has to disconnect and dismantle the pipes in server farm area only. This area will be replaced by Novec agent in place of water as a fire suppressant.
4. The fire hydrant on the support area side will remain as it is and it will remain connected to the main system.
5. The nozzles of hydrant system in the support area will be extended till the false ceiling level.
6. The AFAS system will have manual call points, hooters and all other accessories for complete fire detection system.
7. There must be a provision to connect the system to the building main fire alarm system
8. Illuminated exit signs must be installed on all possible points.
9. Emergency evacuation laminated chart of A3 size must be displayed at all important locations.
10. A fireman's boot, safety jacket, goggles, gloves, hammer, Axe etc must be kept in a steel fabricated case with front face visible.
11. Detectors must be placed on all voids.

12. A detail table of items must be submitted with quantity and type of items.
13. The design will be as per NFPA and local fire codes whichever is applicable.
14. Hooter with strobes is to be installed at least 4 points in the datacenter area.
15. A detail design sheet must be submitted along with the bid

7.3.2 Aspiration Smoke Detection System or Very Early Smoke Detection System

1. VESDA system may be required in the server farm area for early detection of smoke with a facility of alarm.
2. The system must be digital and the panel has to be installed inside the BMS room
3. The sampling pipe has to run over the PACs and below the floor if required.
4. The detectors have to be placed inside the containment as well
5. A detail design sheet must be submitted along with the bid

7.3.3 Gas Based Fire Suppression System

1. The technical area such as Server farm area, staging area, UPS room, Panel and battery room must have fire suppression system with an alarm such that in case of fire the gas agent gets released through the nozzles and suppress the fire fully without damaging the electronic devices.
2. There will be three separate suppression systems. One for server hall and one each for 2 power rooms.
3. The suppression nozzles must be placed on all voids and including the inside of containment.
4. The cylinder has to be seamless type.
5. In case there is a flooding of gas during execution and before the site handover bidder need to replace the gas at it's own cost.
6. Placement of cylinder bank is shown on the layout.
7. The gas-based suppression system must be integrated to fire alarm system
8. Pressure on the cylinder must be maintained throughout the contract period.
9. A detail design sheet must be submitted along with the bid.

7.3.4 Close Circuit Television System (CCTV)

1. Surveillance of inside and outside of the facility must be done with different type of IP cameras such as fixed/Dome/PTZ high-definition cameras with facility of motion based recording for one month and video analytics.
2. The cameras inside the server hall to be for all the aisles including the containments.

3. No area must be left out of surveillance except the washrooms, manager cabins, bunk bedroom.
4. The staircase, ODU platform, DG area, HSD tank area, Utility area have to be covered under CCTV system
5. All cameras have to powered by CAT6A from POE switch.
6. All cameras to be minimum 2 megapixels wide angle lens and infrared type
7. At least three PTZ cameras must be proposed for outdoor in addition to fixed cameras.
8. Recoding must be archived for 6 months in an external drive supplied by the bidder.
9. At least a month recording must available in NVR.
10. All recording have to motion based inside the server hall. However, inside the Power rooms it has to be continuous.
11. The boundary wall behind the building on the datacentre portion also need to be covered under CCTV.
12. A detail design sheet must be submitted along with the bid

7.3.5 Access Control System

1. Access to the facility has to be controlled. Dual Electronic authentication on each entry to the critical area must be there. Physical access controlled (manned) also have to be configured wherever required. The scope will include all the access control system mechanisms including authentication, prioritization, and monitoring. Turnstiles are part of access control system scope.
2. All the doors have to be controlled by access control hardware and software.
3. All doors must have entry and exit card reader.
4. Server hall entry must be with biometric access from people entry side and card reader entry from material entry side.
5. There has to be a full height turnstile on the entry of server hall with an adjacent fire rated glass door. This will have biometric access.
6. There has to access flab barriers (2 no's) at the entry of the facility near the Lift area
7. A full height metal detector must be installed near the entry.
8. A baggage scanner must be installed at the entry of the facility.
9. A comprehensive visitor management system must be installed with computers, cameras, and card printer near the security area at the entry of the facility. Every

visitor will be given a photo ID card generated by the software and printed on the printer.

10. Access control software and computer must be a part of the scope of the bidder. The consumables to be supplied for the entire contract period.
11. A detail design sheet must be submitted along with the bid

7.3.6 Water Leak Detection System

1. Detection of water and other liquids at the pipes those are used for flow of the same or at the floors wherever there is possibility of water or liquid leakage with detection and alarm system
2. Water leak detection cable must be run near all water pipelines inside the server hall and power room.
3. Water leak detection system must be digital type with a hooter connected to the system.
4. A detail design sheet must be submitted along with the bid

7.3.7 Rodent Repellent System (RRS)

1. Ultrasonic frequency based electronic system to repel rodents from the floors with help electronic wave emitters.
2. The satellites of the RRS to be installed in all voids in server hall, support area and power room.
3. A detail design sheet must be submitted along with the bid

7.3.8 Building Management System

Bidder must propose a comprehensive BMS tool that will integrate all existing and proposed system. The existing SDC is now has Honeywell EBI system running. It is proposed that the bidder should replace this will a new tool. Both the data centre will be integrated with the new tool. There are many DCIM system in the market that replaces the BMS system. If the bidder has to propose one, then BMS system may not be required. The DCIM system must have all the facilities of BMS system

7.3.9 Datacentre Infrastructure Management Tool

A comprehensive tool to monitor all the services and products installed in the facility. All the field devices have to be monitored though DCIM. Both the datacentres, that is ethe

existing one and the proposed one must come to unified DCIM platform. The existing Datacentre has a BMS system. If required, the bidder may replace the hardware for making it enable to compatible with DCIM system.

7.3.10Visitor Management System

A comprehensive visitor management system need to be in place for the proposed datacenter. This has to be image based access. The software must be integrated with the Door access control system for unified authentication.

General Note: *The bidder is not required to submit the drawings for any of the above systems. However, following documents are mandatory*

1. *Design Sheet*
2. *Bill of material with quantity and price*
3. *Datasheets*
4. *Compliance to SOW and Requirement*

7.4 Network Passive Infrastructure, Racks, IPDU, etc.

1. Fiber and copper cabling as per TIA/EIA guidelines
2. Tier III compliant and Tier 4 ready design
3. 25 years certification.
4. Fiber cabling will be through fiber runner and copper cabling in the cable basket, all over the racks.
5. All racks to be supplied are 800mm x 1200mm with access control system in-built. All are perforated racks and of 42U size.
6. Each rack will have two numbers iPDUs those will be connected to DCIM for port level monitoring.
7. There has to be dual authentication rack access control system for each rack
8. The iPDUs will be connected to the tap of box of track busway system
9. Each row has to be provisioned with a network cum passive rack at end of the row

10. Copper cable has to run on cable basket and fiber on fiber pathways/fiber runner

11. Each desk in the support area will have two data ports and one voice port.
12. Entire voice cabling will be on Cat6A.
13. At least 15 nos IP phones must be supplied for the entire facility.
14. An IP EPABX has to be supplied and installed in the facility with all cabling and phones
15. Cat6A cabling on the support area has to run under the floor on PVC raceway.
16. Bunching and bending radius of the cable will be as per manufacturer standard.
17. The racks those are not used or U space that is not used, will have blanking panels on them.
18. All the IPDUs for the OSDC 2.0 will be of 3 phase and all IDPUs for OSDC-1 will of single phase

7.5 Upgradation of Utility equipment, integration, and commissioning:

The facility has 33KV substation with VCB panels, transformer and may other panels. Many of the equipment are proposed to be upgraded/ replaced and are under scope of the bidder. In the execution phase the installation planning and execution has to be done in such a manner that no disturbance happens on existing load. The bidder may use the existing DG sets of OCAC tower (4 nos) and SDC (3 nos) to feed the load during execution. There may be a scenario where a mobile DG has to be stationed at the facility during integration process. The same may be arranged by the bidder at their own cost. Also it may happen that temporary cables, accessories and breakers/panels are required for the integration. The same may be arranged by the bidder at their own cost.

The bidders are advised to do a thorough study of the facility before bidding. The integration methodology will be part of scope of the technical presentation and will be an evaluation criterion. The bidder is advised to create presentation slides with step by step approach of the integration with timelines.

7.6 List of Equipment for Buy Back:

	Equipment	Rating	Quantity	Make /Model If any	Additional Info	Remarks
	HT Metering Panel with CT PT	33 KV	1			
	Main HT Panel	1 X 36 KV, 800 A VCB 2 X 36 KV, 800 A VCB	1	Jyoti		
	400 KVA Diesel Generator	400 KVA	3	Kirloskar KG400WS	Sl Nos: KV85001/1000170 KV85001/1000195 KV85001/1000165	
	External Fuel storage Tank.	1000 Litres Capacity	3			
	DG AMF sync cum auto Management panel	I/C: 3X630 Amps MCCB O/g: 2X1000 Amps ACB Bus coupler: 2X 1000 A ACB	1		PLC Make: Woodword	

N.B: The above list is only illustrative, the bidder should visit site to evaluate the actual condition & detail specification of the equipment's before quoting for buyback.

7.7 Technical, Functional and Operational requirement

7.7.1 Uninterrupted Power supply (UPS) system with Battery back-up (For Critical Load)

Rating/Sizing: 2x500 KVA – 2 sets

Product/Solution Description

There will be 2 set of UPS systems, each to be connected in one path of power to the datacentre. The UPS are to be modular (Non-hot swappable)/monolithic in nature with horizontal expandability. The 3 Phase UPS comprising of rectifier, Inverter, charger etc.

Battery bank to be Lithium-Ion standby application type. Each UPS must have battery backup for 15 minutes considering load power factor of 0.9 till end of 5th year. The lithium ion batteries to have cell level monitoring wired to a common monitoring panel.

Scope of Work

1. Supply of UPS systems Unloading, shifting, Storing, Installation, Testing and Commissioning
2. Supply of Battery banks Unloading, shifting, Storing, Installation, Testing and Commissioning
3. Providing training to Client and maintenance team
4. Periodic maintenance
5. SLA adherence
6. Repair and Replacement if required
7. System Acceptance test at Factory and at Site (on full load condition)

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
Technical Requirements			
1	Efficiency on Online mode to be ≥ 96 % at 75% load along with PF Correction to Unity at Input & Harmonic Correction (THDI) to < 3% at Input and		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
	simultaneously Battery Charging also. From load range of 50 to 100%.		
2	Input Power Factor must be 0.99 at load >40%		
3	Total current harmonic distortion to be 3% or less at 100% rated load		
4	Battery to be Lithium Ion and back up must be 15 minutes on full load per UPS at 0.9 load power factor till end of 5th year. Battery sizing calculation must be submitted duly endorsed by battery manufacturer. Lithium-Ion battery with LMO-NCM chemistry shall be provided		
5	Battery System to be equipped with cell, module, bank level battery management system and to be monitored by Datacentre Infrastructure Management system with following certifications: Safety Cell UL1642 , Module UL 1973 , Seismic GR63 EMC IEC61000-6-2 , 61000-6-4		
6	UPS must handle 100% unbalanced load		
7	Each UPS should be comprising of Inbuilt Input, Output, Static and Maintenance Bypass switches rated for 100% capacity.		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
8	Input Voltage Range: +/- 15% (On Full Load)		
9	No derating in UPS capacity from 0.9 leading to 0.7 lagging of load power factor.		
10	Rectifier to be IGBT based and Inverter to be IGBT based (3 level or better)		
11	The UPS should have Redundant variable speed fans and capable of maintaining the system in event of single fan failure.		
12	Noise level should be less than 75 db on normal condition at 1 mtr distance		
13	Smaller footprint (Individual UPS Frame depth & width shall MINIMUM		
14	The UPS should have built in facility through which it can be switched off immediately through local switch or remote Emergency Power Off switch wherein the load is disconnected from the UPS under emergency condition. Restarts are possible after manual inspection and removing the conditions of emergency and resetting the Emergency Power Off switch.		
15	UPS should have a wide choice of communication interface through SNMP /		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
	Modbus protocol using the RS232 / RS485 / Ethernet port.		
16	No deration in UPS capacity (KVA and KW) from 0 to 30 deg. C operating temperature		
17	The UPS should be UL/CE Listed.		
18	Free standing front enclosure IP 20 shall be provided		
19	Copper Cable Termination points		
20	Phase Correction/Corrector required (Inbuilt or External)		
21	Back feed protection required (Inbuilt or External) at Mains as well as Bypass		
22	100% Conformal coating of critical components PCBs, Rodent Mesh & User Replaceable Dust Filters without shutting down the UPS		
	OEM Qualification		
1	Manufacturer Authorization letter (As per format) to be submitted along with technical bid. (Note: Only one OEM allowed)		
2	Must have operational service centre (Since last 5 years) in Bhubaneswar. Bidder to provide proof of address of facility in form of GST registration/MOA/Company or farm registration		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
3	At least 20 installations in India for the offered rating. Proof in form of purchase order/installation certificate either in name of Bidder or OEM to be furnished.		
4	The OEM must have been in production, supply, and maintenance of UPS systems at least for 10 years till the submission date of the tender. Proof of facility in form of GST registration/MOA/Company or firm registration or self-declaration signed by head of Production unit.		
5	The OEM must have manufacturing facility in India for the UPS rating provided. Proof of facility in form of GST registration/MOA/Company or firm registration or self-declaration signed by head of Production unit. Note: Declaration for Sl.3 and 4 can be a single letter.		

7.7.2 Uninterrupted Power supply (UPS) system with Battery back-up (For Non-Critical Load)

Rating / Sizing: 2 x 60 KVA – 1set

Product/Solution Description

There will be 2 set of UPS systems, Each will be connected in one path of power to the datacenter non critical load. The UPS are to be unitary/monolithic in nature with double conversion IGBT based technology.

Battery bank to be VRLA/SMF standby application type. Each UPS must have battery backup for 30 minutes.

Scope of Work

1. Supply of UPS systems Unloading, shifting, Storing, Installation, Testing and Commissioning
2. Supply of Battery banks Unloading, shifting, Storing, Installation, Testing and Commissioning
3. Providing training to Client and maintenance team
4. Periodic maintenance
5. SLA adherence
6. Repair and Replacement if required
7. System Acceptance test at Factory and at Site (on full load condition)

Sl.No	**Requirement**	**Compliance (Fully or better complied/ Partially complied/Not complied)**	**Remark (If any)**
Technical Requirements			
1	AC-AC Efficiency on normal mode to be 94% or better from load range of 30 to 100%.		
2	Input Power Factor must be 0.98		
3	Total Current harmonic distortion to be 5% or less		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
4	Battery to be 12 V VRLA/SMF and back up must be 30 minutes on full load per UPS. Battery sizing calculation to be submitted duly endorsed by battery manufacturer.		
5	Battery System to be equipped with battery management system and to be monitored by DCIM		
6	UPS must handle 100% unbalanced load		
7	Nominal Voltage Input: 380/ 400/ 415 VAC - Three Phase four wires + ground Output: 220/380, 230/ 400, 240/415 VAC (Selectable) - Three Phase four wires + ground		
9	Each UPS should be comprising of Inbuilt Input, Output, Static and Maintenance Bypass switches rated for 100% capacity.		
10	Rectifier to be IGBT based and Inverter to be IGBT based.		
11	Noise level should be less than 72 db on normal condition.		
12	Smaller foot print		
13	Conformal coating of PCBA's		
14	Operating Temperature 0 to 40 deg		
15	UPS should have a wide choice of communication interface through SNMP /		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
	Modbus protocol using the RS232 / RS485 / Ethernet port.		
16	Dust Filter		
OEM Qualification Criteria			
1	Manufacturer Authorization letter (As per format) to be submitted along with technical bid. (Note: Only one OEM allowed)		
2	Must have operational service center (Since last 5 years) in Bhubaneswar. Bidder to provide proof of address of facility in form of GST registration/MOA/Company or firm registration		
3	At least 50 installations in India for the offered rating. Proof in form of purchase order/installation certificate either in name of Bidder or OEM to be furnished.		
4	The OEM must have been in production, supply, and maintenance of UPS systems at least for 10 years till the submission date of the tender. Proof of facility in form of GST registration/MOA/Company or firm registration or self-declaration signed by head of Production unit.		
5	The OEM must have manufacturing facility in India. Proof of facility in form of GST registration/MOA/Company or firm		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
	registration or self-declaration signed by head of Production unit. Note: Declaration for Sl.3 and 4 can be a single letter.		

7.7.3 Precision Air Conditioning System (Direct Expansion In-ROW)

Sr. No.	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
1	The Unit Shall Be is designed to maintain temperature and relative humidity conditions within the row(s) of racks.		
2	Design Requirements Unit shall be factory assembled environment control unit that can be floor mounted to provide maximum cooling capacity in minimum footprint. It is specifically designed for rack cooling from the front and rearof the unit. The cooling system of the unit is designed to ensure even air distribution to the entire face areaof the coil. The unit can be installed between the racks or at the end of the row		

	followed with optional adjustable air supply diffusers. The unit also modulates the cooling capacity and the airflow based on requirements of the environment		
3	Performance Requirement of Unit		
	Capacity Required (Net Sensible): 36KW or better		
	Air Qty : Min. 4200 CFM or better		
	Aisle temperature : 22 Deg C +/-1 deg		
	Return Air Temperature : 34 Deg C		
	Ambient Temperature: (N= 20 Years) for Bhubaneswar As per ASHRAE		
4	Power Requirement 318 V to 415 V, 3 Phase, 50 Hz/60 Hz power dual input with ATS		
5	Compressor DC brushless compressor with variable capacity operation 30% to 100%. Compressor to be crank case Heater		
6	Refrigerant : R 410 A		
7	Expansion Valve Electronic Expansion Valve to control Mass flow rate of Refrigerant within the refrigerant circuits at high speed with greater precision.		
8	Fan (s) Multiple Fans to ensure we have redundancy to ramp up air quantity required in case if any fan fails. Fans necessarily to have EC Fans, which varies the fan speed regulated by intelligent controller through various modes of operation. EC Fans should be hot		

	swappable in case if the same to be replaced in running condition.		
9	Air Filtration G4 rated Along with Clog Filter Alarm		
10	Display colour screen or LCD screen with simple user interface operation		
11	Controller Should have necessary features like - Multi-level password protection Power failure auto-restoration and high & low voltage protection Expert-level fault diagnosis system Which can automatically display the current fault information, facilitating easy maintenance Storage up to 1000 historical event records. Monitoring and setting of the room parameters Controller Should receive multiple temperature sensors responses placed at the rack inlet, to ensure management and control of temperatureas per the set point Capability to connect minimum of 3 remote temperature sensors		
12	Common Alarm Contact		

	Unit Should be fitted with NO/NC contacts for remote indication of unit alarms.		
13	Condenser Condensers should be weatherproof type incorporating high efficiency, direct drive, external rotor motors with axial blade fans along with the fan speed controller. Condensers shall be suitable for 24-hour operation and be capable of providing vertical or horizontal discharge. The condenser shall be fully factory wired to an input isolator and require 230-volt 1 phase 50Hz electrical service.		
14	Condensate Pump Unit Should be equipped with factory installed condensate pump with a head capacity up to 10 m-head		
15	Electrical Re-heating Unit Should be Equipped with Heater		
16	Electrode Humidifier Unit Should be Equipped with Electrode/ Infrared Humidifier		
17	Monitoring Unit Shall be able to monitor through serial port communication/ RJ45/USB port and should support SNMP and TCP/ IP interface		
18	Remote Temperature Sensor Kit Required to monitor the temperature of other devices in the equipment room and the read		

	temperature can be used as the control temperature of the unit.		
19	Water Leakage Detection Kit Water leakage detection kit to be used to detect the presence of water under the floor of the unit and trigger the Alarm		
20	Dual Power Module Unit Should be equipped with highly efficient dual power module, to ensure the seamless operation		
21	Remote Shutdown Terminal Unit Should Provide access to the customer to remotely shut down the unit		
22	Control Logic Unit Should have Capability Run on below Logic – Supply Air, Return Air and thru Remote Sensor		
23	Sequencing Unit Should have Capability to Sequence minimum of 16 Units		
24	Rack Temperature Sensors Up to 6 temperature probes that can be connected to unit for Real-time direct feedback of the cooling unit that helps in optimizing the amount of cooling and airflow required. The sensor data can also be reported to remote BMS or other monitoring systems. All Sensors Should be connected in a daisy-chain configuration		
OEM Qualification Criteria			

1	Manufacturer Authorization letter (As per format) to be submitted along with technical bid. (Note: Only one OEM allowed)		
2	Must have operational service centre (Since last 5 years) in Bhubaneswar. Bidder to provide proof of address of facility in form of GST registration/MOA/Company or firm registration		
3	The OEM must have been in production, supply, and maintenance of UPS systems at least for 10 years till the submission date of the tender. Proof of facility in form of GST registration/MOA/Company or firm registration or self-declaration signed by head of Production unit.		
4	The OEM must have manufacturing facility in India. Proof of facility in form of GST registration/MOA/Company or firm registration or self-declaration signed by head of Production unit. Note: Declaration for Sl.3 and 4 can be a single letter.		

7.7.4 Precision Air Conditioner (CRAC) for perimeter cooling and power rooms

Rating / Sizing: As per Bidder's solution

Sr. No.	**Requirement**	**Compliance (Fully or better complied/ Partially**	**Remark**

		complied/Not complied)	
Requirements			
1	THE DX TYPE PRECISION UNIT SHALL BE DESIGNED AS PER FOLLOWING CONDITIONS		
2	Unit return air temperature : 27 Deg C /45%RH (Scalable to 37 Deg C)		
3	SHR : Above 0 .92		
4	Compresser: Steeples Capacity Modulation on time based engagement and dis engagement of the compresser Scroll /Digital Scroll Compressor		
5	Net Sensible Cooling Capacity : As Per Requirement		
6	Air Flow Direction : Bottom discharge-top return (in-floor fans)		
7	False Floor : False floor Height should be more than 600 mm		
8	Air inlet Temp & RH : Set point ± 1°C (DB) & Set point ± 5% (Return Air)		
9	Air Quantity : As Per Requirement		
10	Quantity : (N+1) Configuration.		
11	Humidifier : Infrared Type		
12	Units should be able to work either on fixed supply air logic or return air control logic. In case of supply air logic, units should be also connected to cold aisle remote sensors for taking the temperature feedback from the top of the racks at multiple places. This would help to regulate the fan for required airflow in the cold aisles.		

13	Refrigerant – R410A		
14	Controller: The controls shall be of microprocessor based programmable PID logic controller. Status Report of the latest 400 event-messages of the unit. Unit memory shall hold the 200 most recent alarms with time and date stamp for each alarm Input for remote on-off and volt-free contacts for simple remote monitoring of low and high priority alarms: high/low temperature, fan/control failure, compressor/control failure and others are available LAN management: functions provided as standard include stand-by (in case of failure of the unit in operation, the second one starts automatically), and automatic rotation. Automatic restart after a power failure.		
OEM Qualification Criteria			
1	Manufacturer Authorization letter (As per format) to be submitted along with technical bid. (Note: Only one OEM allowed)		
2	Must have operational service centre (Since last 5 years) in Bhubaneswar. Bidder to provide proof of address of facility in form of GST registration/MOA/Company or firm registration		
3	The OEM must have been in production, supply, and maintenance of UPS systems at least for 10 years till the submission date of the tender. Proof of facility in form of		

	GST registration/MOA/Company or firm registration or self-declaration signed by head of Production unit.		
4	The OEM must have manufacturing facility in India. Proof of facility in form of GST registration/MOA/Company or firm registration or self-declaration signed by head of Production unit. Note: Declaration for Sl.3 and 4 can be a single letter.		

7.7.5 Diesel Generator

Rating / Sizing: 2000KVA (Datacentre Continuous rated) Product/Solution Description

The existing State datacentre in OCAC building already had 3 numbers of 380KVA generators in N+1 configuration with an output DG synchronization panel sets installed in the premises. These are feeding the Datacentre dedicatedly.

The new Proposed Diesel generators shall replace the existing Diesel generators. These 2 numbers of 2000KVA Datacentre continuous rated Diesel Generators will feed the existing Datacentre and the new proposed datacentres. Please refer the layout and SLD for further details.

The DG will be installed one above another on structure of ISMBs and ISMCs. The double tier structure design to be certified from a structural consultant by the SI.

Scope of Work

1. Supply of Diesel Generator systems Unloading, shifting, Storing, Installation, Testing and Commissioning
2. Supply of 2 nos. HSD tank of 10KL each with Unloading, shifting, Storing, Installation, Testing and Commissioning
3. Removal of existing DGs and accessories
4. Supply and installation of Exhaust stack
5. Periodic maintenance

6. SLA adherence
7. Repair and Replacement if required
8. System Acceptance test at Factory and at Site (on full load condition)
9. Foundation
10. Double stacking structure

Sl.No	Requirement	Fully complied/ Partially complied/Not complied	Remark (If any)
1	General The design, manufacturing, testing, installation, testing, commissioning, and Performance of equipment and all its components that has been covered in this Specification shall comply / confirm to all currently applicable Standards. The Power Generation commercial generator set shall be a fully integrated power generation system, providing optimum performance, reliability, and versatility for stationary standby, "continuous power" duty applications. The generator set shall have CE / uptime certification. All products shall be designed to meet latest standards		
2	SCOPE OF WORK Supply and installation of 2000KVA/1600KW, 415V minimum, 3 Phase, 4 wire, 50 Hz Continuous Power (Data Centre Continuous – DCC) rated Diesel Generator.		

3	ENGINE The diesel engine shall be of robust type with suitable BHP, cylinders, totally enclosed, continuous duty, direct fuel injection, turbo charged compression ignition, complete with its self-contained lubricating system. Engine and alternator shall be mounted on MS base frame structure. The base frame shall be treated for rust formation and shall be painted with one coat of primer and two coats of heat resistant paint. The base frame shall be fixed over anti-vibration mounts with proper spacing such that the static and dynamic load of DG is uniformly distributed to the foundation. The Genset rating proposed should be Data Center Continuous Rating meeting uptime requirement of a Tier III and Tier IV data center. The Proposed DG set should be capable to run for unlimited hours of operation at its full capacity for data centre application or Alternately if the Data Center Continuous ratings are not available with the manufacturer then the bidder can propose a Continuous Power rated (COP) DG Set as per ISO8528-1, whilst supplying a constant electrical load when operated for an unlimited number of hours per year under the agreed operating conditions.		

4	Engine cooling The engine shall be water-cooled through radiator as specified in data sheet. The Blower fan and cooling water circulation pump shall be engine driven (as per OEM recommendation). Supply and Installation of all items associated with engine cooling system shall be in the scope of Bidder.		

	Major Engine Components 1. Fly wheel with starter ring 2. Electronic Governor 3. V belt driven water circulation pump 4. Lube oil cooler 5. Oil bath/Dry type air cleaner 6. Residential Exhaust silencer 7. Fuel lift pump 8. Belt tensioning unit 9. Fuel filter & lube oil filter 10. 12/24V electric starting system with starter and battery 11. Electrical start arrangement 12. Hour Meter 13. Engine control panel consisting of ON/OFF/ START Key, lube oil pressure gauge, 14. ammeter, Water temp indicators. 15. Belt guard & coupling 16. Radiator with expansion tank. 17. Battery 18. Engine driven battery charges 19. Base frame for Mounting Engine and alternator 20. Other accessories as per OEM recommendation.		

6	Fuel System The engine shall be capable of running and delivering rated load on high-speed diesel normally available in India. The injection of fuel should be through injection mechanism as per OEM design for getting output of 1440kWe @ 0.8PF electrical output The Vendor should declare the fuel consumption of the Diesel Generator at 100%, 75% loads		

7	Day Tank A fuel day tank shall be provided on a suitably fabricated steel platform. The tank shall be fabricated out of 2mm thick MS Sheet, complete with level indicator. marked in litters, filling inlet with removable screen, an outlet, a drain plug, an air vent and necessary piping. The fuel tank shall paint with oil resistant paint. The Day tank shall be provided with the following features. 1. Diesel filling lid with pad lock and key arrangement 2. Drainpipe with ball valve 3. Silica gel breather (or as recommended by OEM) 4. Level gauge for level indication 5. Fuel level sensor with wiring and terminal arrangement		

8	Alternator 415V, 0.8 pf alternator shall be Self-ventilated, Screen protected & drip proof, Salient pole, Brushless & Revolving field type, Self-excited & Self-regulating type. The main and exciter winding shall be Class H insulated. The exciter shall be capable of forcing the field for 3 seconds in the event of short circuit fault at generator terminal. The rectifier shall have in built protection for over voltage. All other parameters shall be as specified in the data sheet and conforming to codes and standards specified in the data sheet or relevant standards. Alternator shall be capable of handling Data Centre loads safely without any change in performance, due to the heavy harmonics induced along with excess neutral currents. Cable adopter box of suitable size shall be provided for offered DG		
9	AUTOMATIC Voltage Regulator The automatic voltage regulator (AVR) shall be digital type AVR to provide fast response with respect to change in load, it should provide digital governing with digital isochronous synchronisation		

10	INTEGRATED DG SET CONTROLLER (The Genset controller should be an integrated microprocessor-based generator set controller providing monitoring, metering, and control system. The control provides an operator interface to the Genset, digital voltage regulation, digital governing, and generator set protective functions. The integration of all the functions into a single control system provides enhanced reliability and performance compared to conventional control systems.		

11	ENGINE EXHAUST SYSTEM Exhaust system should create minimum backpressure. The exhaust backpressure should be within acceptable limit. However, it should be within the limits suggested by engine manufacturers to suit performance of the engine. Use of thimble is must while passing the pipe through concrete wall. The clearance around the pipe and wall is must for free movement and expansion/contraction of piping. Exhaust piping should be lagged LRB rock wool of proper density along with aluminium sheet cladding to avoid heat dissipation. The thickness of lagging should not be less than 50mm. Exhaust piping shall be suitably supported and padded to avoid damage to thermal insulation. Aluminium cladding should be with Aluminium sheet or with minimum 24SWG thickness. Exhaust flexible shall have its free length when it is installed. The exhaust outlet should be in the direction of prevailing winds & should not allow exhaust gases to enter air inlet/windows etc. There should be a rain trap to avoid rainwater entry. If rain cap is used the aperture between exhaust pipe & rain cap should be higher than diameter of pipe. It is also recommended that horizontal run of exhaust piping should have		

	slope downwards away from engine towards the condensate trap. Silencer should be installed with drain plug at bottom. Silencer should be provided in the engine exhaust pipe. The design and location of the silencer shall meet the requirement of backpressure. The flue gases from silencer shall be taken out to atmosphere through metallic, thermally insulated, and cladded chimneys. These chimneys shall be made from M S class 'B' piping system conforming to IS 3589. Required flexible bellows, bends, expansion joints, load support etc. shall be provided as required. The exhaust chimney shall be insulated with minimum 50 mm thick thermal insulated glass wool/mineral wool up to silencer. The insulation should be held in position using wire chicken mesh. 24-gauge aluminium cladding sheet should be wrapped over exhaust pipe starting from engine up to the chimney top		

12	STARTING SYSTEM Starting battery sets of 24 V, heavy- duty high performance approved make/quality shall be provided to enable crank & start the engine even in cold/winter morning conditions. Type/ voltage/AH capacity of the same shall be indicated in the offer. The battery shall be capable of performing at least (3) three normal starts without recharging. Batteries shall be Maintenance Free Type. The battery shall be provided with 2 nos. cables, min 1.5 m long heavy-duty rubber/PVC insulated cabling with brazed tinned lug at one end and with brazed tinned brass terminal lug at battery end - for connecting batteries to cranking system - with 0.25 m long inter battery connecting cable. The lugs shall be clearly stamped + or - and positive cable should be red sleeved for easy identification.		
13	SERVICES Local Service Support should be available through authorized service dealer appointed by the manufacturer. Vendor to submit the complete details of nearest authorized dealer along with the bid		

14	PERFORMANCE REQUIREMENT The D.G. set shall operate up to 100% of load, without undue vibration and noise. The unit shall be capable of delivering rated output at 0.8 PF. at the generator terminals (after derating of the engine due to site conditions). Warranty against manufacturing failure of 5 Major components comprising of Crank Shaft, Cam Shaft, Cylinder Head, Cylinder Block and Connecting Rod for 5 Years or 5000 Hrs whichever is early. All major performance components of DG sets like engine, alternator, engine components, Controller, Radiator, Battery etc shall preferably be from the same principal manufacturer in order to have single window warranty & service support		

15	TESTING The following tests shall be carried out at the Bidders works for the assembled DG Set in 1. Presence of Consultants / Clients. 2. Test on Assembled unit at Manufacturer's work: 3. The Bidder shall carryout successfully on load test run in all completely assembled DG Sets for one hour at 100% load at DG manufacturers works prior to dispatch in presence of client's / owner's representative/s. 4. The Test Certificates to be submitted to the Consultant for pre dispatch acceptance. 5. The bidder shall submit the routine test certificates along with delivery of DG set. Bidder shall submit two sets of as built drawings, operation and maintenance Manual, Spare parts manuals of all components duly certified by the consultants after 6. Installation. Tests on Control Panel 1. Insulation resistance test, Functional and operation test to be done before dispatch from panel works. The Test Certificates to be submitted to the		

	Consultant for pre dispatch acceptance. Testing at site Erection, testing, commissioning and performance & guarantee tests/procedure at site. Installation of DG Set: Contractor shall carry out the entire work of erection, testing and commissioning of equipment supplied under this package and performance and guarantee tests to be conducted at the site and included under the scope of this specification. For this purpose the contractor shall depute suitable qualified technical supervisor to site on advance intimation to the Owner along with all special testing equipment required for testing and performance and guarantee tests. The supervisor(s) shall be responsible for the installation, testing, commissioning checks and performance & guarantee tests mentioned in relevant clauses of this volume and the checks recommended by the contractor. The contractor shall provide all tools, equipment has, and instruments required for installation, testing and commissioning. (load & diesel shall be provided by purchaser) The contractor shall ensure that the equipment's supplied by him are installed in a neat workman like manner such that they are levelled, properly aligned and well oriented.		

	The tolerances shall be established in Contractor's drawings and/or as stipulated by the Owner. The contractor should supply all special tools, tackles, and spares required for erection, testing and commissioning of equipment. Erection, testing and commissioning manuals and procedures should supply with the equipment. The contractor shall ensure that the drawings, instruction and recommendations are correctly followed while handling, setting, testing and commissioning the equipment.		
16	SPECIAL NOTES RCC foundation, double stacking structure etc. is included in the scope. All other works and materials, tools, tackles, hardware, first fill of lube oil & coolant (excluding diesel) as required and necessary hardware to complete and commission the installation is deemed as included in the scope. The Bidder shall be responsible for providing foundation and stacking drawings to the Consultant /Client duly certified by a structural consultant The Fuel meters at the HSD tanks must be intrinsically safe and must be integrated with the BMS and DCIM system		

7.7.6 Track Busway system

Rating/Sizing: 160A

Product/Solution Description: Track Busway System shall be designed primarily for overhead power distribution of electrical power with Continuous Access where the plugin unit/Tap off can be connected anywhere along the busway and which would allow insertion and removal of the plugin units without De-Energizing the busway-Hot swappable. The System should be maintenance free and sections of the bus bar should be joined without the use of Joint packs which need bolting and without the need of torquing, In other words it should be a press fit design to join to sections.

Three-phase Track Busway system with the following features:

1. Extruded aluminium busway housing with copper conductors meant for data centre application
2. Power Feed
3. Plug-in units for power distribution
4. Monitoring
5. Installation tool and joint kits
6. Optional accessories

Scope of Work: The scope of work includes (but not limited to) supply, installation, testing and commissioning of the continuous open channel, low voltage bus bar system in the data centre. Any other consumable items, materials required for civil and electrical works (if any), essentially required to complete the bus bar installation without any extra cost. Spares to be maintained onsite to achieve SLA defined in the RFP.

The Installation shall be carried out in accordance with the drawings and applicable Engineering standards. Any variation or changes to be carried out at site shall be done with prior approval of the End customer

S. No.	**Technical Requirement**	**Fully Complied/Partially Complied/ Not Complied**	**Remark**
1	General:		
a.	This specification details the electrical characteristics and general requirements for a continuous open channel, low voltage bus bar system.		

b.	The system shall be designed primarily for overhead distribution of electrical power.		
C.	The bus bar must be an open channel system with continuous access to the power.		
d.	Tap off boxes must be able to be inserted and removed anywhere along the length of the busbar.		
a.	The bus bar system must be hot swappable i.e. tap off boxes can be added or removed without shutting down the busbar.		
2	Standards:		
	The busbar system, components and accessories shall be designed and manufactured to the following standards and guidelines:		
a.	Low Voltage Directive 73/23/EEC including amendment 93/68/EEC		
b.	Low Voltage Switchgear and Control Gear Assemblies, Part 1: Type Tested and Partially Type Tested Assemblies, IEC 61439-1:2011		
c.	Low Voltage switchgear and Control Gear Assemblies, Part 6: Busbar Trunking Systems, IEC 61439-2:2012		
d.	Seismic qualification: UBC-1997, IBC-2015, CBC 2013, ASCE7-10 and IEEE693		
e.	Impact Resistance: BS EN 62262:2002, Rating of IK10		
f.	Arc flash protection: IEC/TR 61641:2014		
g.	ASTA / VDE Certification		
h.	UL/VDE/3rd party Certificates for short circuit rating testing for exact proposed ratings		
3	System Description:		
	The busbar should be capable of operating in the following environmental conditions		

	without mechanical or electrical damage, degradation, or derating of operating capability:			
a.	Ambient Temperature for Electronic Components: 0°C to 50°C			
b.	Relative Humidity: 0 – 95%, non-condensing			
c.	Altitude: Sea Level to 1220m			
4	Electrical Specification:			
A	The busbar system shall perform as stated in this specification while supplying rated full-load currents as shown on the project drawings.			
B	The busbar system must comply with the following electrical specification:			
C	Current Ratings	160A		
D	Earthing	100% via Aluminium housing		
E	System Voltage	600V		
F	Insulation Voltage	1000V		
G	Frequency	50Hz or 60 Hz		
H	Overrated neutral	Min. 150% overrated		
I	Short Circuit Rating	Icw = 10 ka per second RMS		
		Ipk = 15 ka or better		
5	Busbar Assembly:			
a.	The manufacturer should recommend appropriate busbar lengths to meet the project requirements as indicated on the electrical drawings			
b.	The busbar should be available in lengths up to 4m with options of colours identification			

	strip to help differentiate/identification of power source from different power sources.		
c.	The busbar housing shall be constructed of an extruded aluminium shell and provide a 100% rated earth path. Steel housings shall not be permitted.		
d.	The extruded aluminium housing shall be directly connected to the busbar hangers. The hangers shall not in any way interfere with the tap off installation.		
e.	The manufacturer must supply appropriate hangers as per the project drawings.		
f.	The busbar housing shall have an integral channel to accommodate monitoring/communication cables.		
g.	The busbar conductors shall be continuous copper. Bus bars shall be fabricated from high strength electrical grade Copper (C101 BS 1432/1433) 99.99% Purity to ETP 99.9		
h.	The busbar conductors shall be sized to handle 100% of the busbar rating under continuous operation up to 50°C.		
i.	The conductors shall be electrically isolated from the housing using IEC certified, halogen free, non-flammable thermoplastic material. The insulation must have excellent dielectric strength and impact resistance.		
j.	The bottom of the busbar shall be a continuous open channel system with an Ingress Protection rating of IP2X.		
k.	An end cap shall be installed at the end of a busbar run.		
6	Tap off Units:		

a.	A system of tap off units will be provided. The tap offs shall be made by the same manufacturer as the busbar with same country of origin in case of imported into India.		
b.	Tap offs units shall be capable of being inserted safely while the busbar is energized. The manufacturer shall provide a statement to confirm tap offs can be engaged whilst the busbar is live.		
c.	Tap off units shall be polarized to avoid incorrect installation.		
d.	All tap off units shall use a mechanical/electrical interlock. Tap offs shall make earth contact prior to any contact with live conductors. Earth contact will break last during removal		
e.	The tap off unit will not become live during insertion into the busbar. An independent mechanism shall be operated to engage the tap off conductors into the busbar conductors. This mechanism shall only be operable when the tap off has been correctly inserted to the busbar.		
f.	Tap off units shall have integral shutters.		
g.	Tap off units that make a simultaneous mechanical and electrical connection when attached to the busbar shall not be permitted.		
h.	Tap off units shall be compatible for vertical and horizontal mounting on the busbar.		
i.	The tap off units shall be compatible with all ratings of the busbar system.		

j.	The required protection device shall be as indicated on the drawings.		
k.	The required outlet device shall be as indicated on the drawings.		
l.	Tap off units shall be configured by the manufacturer to balance the load based on the quantity of tap off units provided.		
m.	Tap off units shall use either a circuit breaker or a fuse for branch circuit protection as indicated on the project drawings.		
n.	An MCB interlock shall be added to ensure that the tap off unit cannot be fitted/ removed while the circuit breaker is in the on position.		
7	End Feed:		
a.	The end feed shall provide the connections from the incoming power through power cable to the Data Centre busbar system.		
b.	The end feed shall be an IP2X enclosure with various access panels for incoming cabling.		
C.	The end feed shall have an internal connection to a section of busbar conductors.		
8	Installation:		
a.	The bidder shall install the busbar in accordance with manufacturer's instructions.		
b.	The busbar runs shall consist of lengths as shown on the drawings.		
c.	The tap off units' orientation shall be as indicated on the drawings.		
d.	Hanging of the busbar shall be done using the busbar hangers from a secure structure above the busbar.		

e.	The hangers shall connect to the busbar, and to an all-thread rod provided by the installing bidder.		
f.	The spacing of the hangers along the busbar is 1.5m or less as recommended by the manufacturer.		
g.	The end feed shall have connection provisions for the bidder supplied feeder cabling.		
OEM Qualification			
a.	At least there should be 3 installation sites in the Country for the rated capacity asked for Track busway system. Bidder to provide proof by submitting copy of work order and completion certificate by letter/email from user.		
d.	OEM should have the following certifications: ISO 9001, ISO 14001		

7.7.7 Floor Mounted Power Distribution Unit

S. No.	**Technical Specifications**	**Fully Complied/Partially Complied/Not Complied**	**Remark**
1	Standards As per applicable clause of IS12026-Part I & II -2010 & 2011, IS-11171		
2	GENERAL		

	K – 13 Rated Delta – Star Input Isolation Transformer along with Manual Soft start should be provided within the PDU. Supplying, Installation, testing and Commissioning of K -13 Isolation Transformer with IP - 20 Cubicle and Copper Winding with H Class Insulation Limited to 115 degree C suitable for Input 415+/-10% 3phase 3W Delta winding and Output 415, 3ph, 4W, Zigzag winding. Input frequency 50Hz +/- 3% Dry type, Non encapsulated, Resin varnished / baked , LT , Indoor type transformer in Ventilated metal enclosure M6 or better grade core lamination and CRGO material. Winding conductor should be ASTM B49 - 99.95% purity electrolytic tough pitch grade copper as per IS 13730 Part-29-1996. Polyester amide enamel dual coated rectangular copper wire - class 200. Impedance should be less than 3%.		
3	Environmental Requirements Operating temperature range shall be 0 to 40 degrees C . Operation shall be reliable in an environment with 0% to 95% non-condensing relative humidity. Documentation		
4	Frame Construction and Enclosure		

	Enclosure with load bearing members 2/2.5mm thick, all doors and covers 1.2mm thick OR better provided. Gland plate should be 2.5mm CRCA. Body earthing bus bar should be at rear side. Cooling should be natural assisted by Axial Fans. Suitable numbers of thermostat to be provided for fan control		
5	Manual Restart The specified unit shall be equipped with a manual restart feature to allow for an orderly supervised start up after power failure. Manual soft start with contactor logic should be there. Emergency Power Off (EPO) The local EPO shall include a fully guarded and illuminated "Emergency Power Off" pushbutton. Pressing the EPO switch shall immediately shut down the unit by activating the shunt trip of the main input circuit breaker. As part of the EPO circuit, an interface shall also be provided for connecting one or more normally open or normally closed remote EPO switches to the EPO circuit.		
6	Multi-Function meter Digital MFM Class I with RS485 to be provided to monitor Voltage, Current, Frequency, Active power, Reactive power, Apparent power, Total Harmonic distortion. and Power factor.		

7	Efficiency Efficiency should be greater than 98% at 100% Load		
8	ACB s and MCCBs The specified unit shall be equipped with a main input circuit breaker to provide over current protection and a means for disconnecting all power to the unit. MCCBs to be provided with overload and short-circuit protection. Up to 250A , Thermal magnetic MCCB, Above 250A Microprocessor MCCB to be considered.		

7.7.8 MV Panels

Rating/Sizing: 63A to 6300A

Product/Solution Description

Unless specified otherwise Main Distribution board / L.V. Panel shall conform in design, material, construction and performance to the latest editions of the international recommendations (IEC standards) and its corresponding British / European standards (BSEN standards) and in particular to the following publication

Low Voltage Switchboard IEC 61439-1/BS EN 60139

Degree of protection IEC 60529.

Over Voltage Category to II

Degree of protection against mechanical impact shall be IK09/10 in

Accordance IEC 62262

Internal arc containment test in accordance to IEC61641

Scope of Work

The scope of work for panels may be as follows.

Supply, erection, installation, factory testing, testing at site, commissioning and integration. Removal/shifting of existing panels after disconnection. HT panel, Transformer output panel, Main LT panels, DC LT panels and all such panels

Sl. No.	Technical Specifications	Fully Complied/Partially Complied/ Not Complied	Remark
	GENERAL PARAMETERS a. Supply voltage : 415V± 10%, 3Ph b. Frequency : 50 Hz ± 5% c. Combined voltage/frequency variation : ±10% d. System earthing: Solidly Earthed e. Seismic Zone : Seismic Zone-3/4 f. Application : Indoor		
	SWITCHBOARDS		

	This specification covers the design, manufacture and testing of industrial type metal enclosed factory assembled All LV Panels Used in electrical systems of up to 690V. In general, the LV panels are referred to as LV switchboard panels in this specification. Throughout this specification reference is made to "specified elsewhere or as specified". Details for requirements of this type are to be found in the one-line diagram.		
	CODES AND STANDARDS The LV Switchgear shall be designed manufactured and tested in accordance with the latest applicable sections of the IEC codes. The latest edition shall always be used. LV Switchgear manufactured in India shall be designed, manufactured and tested in accordance with either I EC or IS codes and standards. Conflicts between referenced documents shall be identified to the CLIENT in writing for resolution. In general, the order of precedence is: 1. Single-Line Diagram (When reference to the Single-line diagram is made in		

	the following part of this specification, it shall be deemed to include reference to the associated schedules) 2. Approved Drawings & Datasheets 3. Specification 4. BOQ 5. IS/ International Standards		
	IEC /IS STANDARDS		

IEC 60269(2009)	Low-Voltage Fuses
IEC 61439	Low-voltage Switchgear and Control gear assemblies
IEC 60044(2003)	Instrument Transformers.
IEC 60051(1997)	Direct acting indicating analogue electrical measuring instruments and their accessories.
IEC 60073(2002)	Basic and Safety Principles for Man-Machine Interface, Marking and Ide Actuators.
IEC 60255(2009)	Electrical relays.
IEC60417DB(2005)0	Graphical symbols for use on equipment.
IEC 62052-11(2003)	Electricity metering equipment (AC) General requirements, tests and test conditions Part 11: Metering equipment -First Edition.
IEC 62052-21(2004)	Electricity metering equipment (A.C.) General requirements, tests and test cor Edition
IEC 60715(1995)	Dimensions of low-voltage switchgear and Control gear. Standardized mountir switchgear and Control gear installations
IEC 61439-1&2	Low-Voltage Switchgear and Control gear Assemblies.
IEC 61641	Empty enclosures for low-voltage requirements and Control gear assen to Internal Faults

	IEC 60228(2004)	Conductors of Insulated Cables.		
	IEC 60947-4-1 & IS 13947-1)	Contactors and motor starters.		
	GENERAL SPECIFICATIONS 1. The LV switchboards shall be type tested assemblies (TTA) all type tests as defined in latest IEC 61439-1 &2 built up from compartments housing circuit breakers, Control gear, relays, bus bars, controls and other items of equipment as per BOQ. The design of the switchboard shall be tested design & manufactured by OEM (main switchgear ma5nufacturer) 2. The LV main switchboards and the associated equipment, including switchgear, control gear and bus bar assemblies shall be certified for the category of duty specified. The LV Main Switchboard shall be identical in mechanical construction to the LV Switchboard which had been type-tested by an acceptable, multi fold design (9-fold design) with impact test IK07-IK10 as per IEC62262. accredited and independent testing laboratory for the fault conditions, temperature rise limits. Any manufacturer not having the above will not be considered for supply.. The LV Switchboards shall be tested for			

	Internal Arc 65kA for 0.4 Sec as per IEC61641 3. The design temperature for the equipment provided in the main low voltage switchboards shall be + 45 ℃. The relative humidity shall be 75% at a temperature of + 45 ℃. 4. Where armoured multicore cables terminate inside the switchboard enclosure, glanding plates or glanding brackets shall be provided for securing the cables to the switchboard. Glanding plates, glanding brackets and extension boxes shall be removable and shall be of adequate size for the particular cables to be terminated. Separate current transformers shall be provided for each protection device and for instrumentation. The switchgear assembly/sub-assemblies or panels shall be termite and rodent proof. The sub-assemblies of similar equipment shall be interchangeable. 5. Switchboards shall have a short circuit level withstand as per Schedule of Quantities and drawings. 6. The enclosures shall be designed to take care of normal stress as well as abnormal electro- mechanical stress due to short circuit conditions. All covers and doors provided shall offer adequate safety to operating persons and provide ingress protection of IP:43/IP:55 as per BOQ and IP unless		

	otherwise stated. Ventilating openings and vent outlets, if provided, shall be arranged such that same ingress protection of IP 43 is retained 7. Switchboards shall also have test certificate for Seismic withstand and internal arc tested 65kA for 400mSec as per IEC61641 8. The switchboard along with ACBs and connections should have been be type tested design at CPRI/ERDA/Independent international test house for short circuit, temperature rise, protective earth short circuit test and dielectric tests of the ratings required . 9. For operator safety IP2 X (touch proof) protection to be available even after opening the feeder compartment door. The compartmentalization to be achieved by using metal separators, use of PVC sheet / Hylem sheets shall not be allowed. **10.** As specified in the BOQ the switchboard shall be form 4b for Main LT Panel and rest panels shall be Form 3b . For form of separation only metallic covers shall be used. Hylem / PVC sheets shall not be allowed.		
	Switchboard Configuration		

	1. The Switchboard shall be configured with Air Circuit Breakers, MCCB's, MCB's and other equipment as called for in the schedule of quantities. 2. The MCCBs shall be arranged in multi-tier formation whereas the Air Circuit Breakers shall be arranged in multi tier formation as per manufacturing standard only to facilitate operation and maintenance. 3. The Switchboards shall be of adequate size with a provision of spare space to accommodate possible future additional switch gear.		
	Constructional Features 1. The equipment shall be arranged within each compartment such that all normal maintenance can be carried out through hinged access doors or removable covers, and where possible from the front. The switchboard shall have a rated short time withstand current as per SLD and a fault withstand for a supply voltage of 440V AC between phases at 50Hz as per boq. 2. Protection against shock in normal service shall be achieved by the provision of barriers or enclosures both vertical and horizontal and between adjacent units to ensure segregation and prevent accidental contact with		

	live parts, or by complete insulation of all live parts. Control cables shall be segregated from primary conductors. 3. The Switchboards shall be metal clad totally enclosed, floor mounted free standing type of modular extensible design suitable for indoor mounting. 4. Switchboards construction shall employ the principle of compartmentalized and segregation for each circuit. 5. The LVSBs shall be provided with front and back access and the maximum height shall not exceed 2.60 m. All relays and indicating instruments shall be at least 500 mm and not higher than 1.8 m above floor level. The clearance in front, back and side of all assemblies of switchgear and control gear shall be generally not less than 1.2 metres. The switchgear shall be considered in the fully drawn out condition for this purpose. 6. Incomer and bus section panels or sections shall be separate and independent and shall not be wired with sections required for feeder. The incomer panel shall be suitable for receiving bus trunking or MV cable of size specified. 7. Switchboards shall be made up of requisite vertical sections, which when coupled together, shall form continuous dead front switchboards.		

	8. Switchboard shall be readily extensible on both sides by addition of vertical sections after removal of the end covers. 9. The switchboards shall be designed for use in high ambient temperature and humid tropical conditions as specified. Ease of inspections, cleaning and repairs while maintaining continuity of operation shall be provided in the design. 10. 2PU gaskets between all adjacent units and beneath all covers shall be provided to render the joints dust and vermin proof to provide a degree of protection of IP 43/IP:55 as stipulated in schedule of quantities. The unused openings within the switchboards shall be closed using suitable grommets. 11. Special care to be taken to ensure effective earthing of the frame and doors of the switchboards. 12. Each vertical section shall be provided with a rear chamber housing the cable end connections and power/control cable terminations. There should be generous availability of space for ease of installation and maintenance with adequate safety for working in one vertical section without coming into contract with any live parts. The design of the switchboard shall allow standard extension chambers if required to accommodate cables.		

	13. Some switchboards may be required to be installed against the wall, for such application- documented designs shall be available. 14. Switchboard shall have all structural members made of galvanized steel of thickness 1.6 mm and all other members like door, covers etc of CRCA Sheet of 2.0 mm. While gland plate shall be 3mm CRCA Sheet and load bearing plates shall be of 2 mm thickness. 15. All panels and covers shall be properly fitted and square with the frame. The holes in the panel shall be correctly positioned. 16. Switchboard shall be provided with "Danger Notice Plate" conforming to relevant Indian 17. Standards. 18. The LVSBs shall be mounted on a robust base frame made up of steel channels with a minimum height of 75mm. The base frame shall be able to withstand the static and dynamic loads of the LVSBs. The steel channels shall be painted with epoxy polyster paint. 19. Gland plates of not less than 3.0 mm thick shall be provided at the top and bottom of the LV main switchboards for the termination of incoming and outgoing power cables or bus-ways.		

	Switchboard Compartmentalization 1. For compartmentalized switchboards, separate totally enclosed compartments shall be provided for horizontal busbars, vertical busbars, ACBs, MCCBs, and cable alloys. 2. The Main LT Panel shall be with Form 4b Construction and Others panels shall be Form-3b Except MCBs Feeders 3. Earthed metal or insulated shutters shall be provided between drawout and fixed portion of the switchgear such that no lives parts are accessible with equipment drawn out. Degree of protection within **compartments shall be at least IP: 2X.** 4. Sheet steel hinged lockable doors for each separate compartment shall be provided and duly interlocked with the breaker in "ON" and "OFF" position. 5. For all Circuit Breakers separate and adequate compartments shall be provided for accommodating instruments, indicating lamps, control contactors and control MCB etc. These shall be accessible for testing and maintenance without any danger of accidental contact with live parts of the circuit breaker, busbars and connections. 6. Each switchgear cubicles shall be fitted with label in front and back identifying the circuit, switchgear		

	type, rating and duty. All operating device shall be located in front of switchgear only. 7. A horizontal wire way with screwed cover shall be provided at the top to take interconnecting control wiring between vertical sections. 8. Separate cable compartments running the height of the switchboard in the case of front access boards shall be provided for incoming and outgoing cables. 9. Cable compartments shall be of adequate size for easy termination of all incoming and outgoing cables entering from bottom or top. The construction shall include necessary and adequate and proper support shall be provided in cable compartments to support and clamping the cable in the cable alley / cable chamber.		
	Switchboard Bus Bars 1. Busbars and busbar connections shall be constructed in accordance with the requirements of 2. IEC 61439-1&2 3. The short-time withstand current rating shall be at least 50kA for 1 second at 415 V or mentioned in BOQ/ SLD of respective switchboards.		

	4. Busbars shall be of rectangular section hard drawn high conductivity Aluminum /Copper adequately rated and supported by non-tracking molded insulators spaced at suitable intervals. The complete assembly shall be capable of withstanding the maximum mechanical stresses to which it may be subjected to under fault conditions. 5. Busbar, busbar connection and conductors forming part of the equipment of the switchboards shall comply with IEC 61439-1&2 on current carrying capacity and limits of temperature rise. 6. Busbars shall be provided with colour coded ruberised sleeves bands for phases and 7. Neutral identification 8. All conductors between the busbars and the switchgear shall be of high conductivity aluminum bar, having a current rating of not less than that of the frame size of the switchgear to which they are connected. The conductors shall be insulated and colour coded for phase identification. 9. The busbars shall be extendible from both ends. 10. The bus bar system may comprise of a system of main horizontal bus bars and auxiliary vertical bus bars run in bus bar alloy on either side in which		

	the circuit could be arranged with front access for cable entrances 11. Auxiliary buses for control power supply, space heater power supply or any other specified service shall be provided. These buses shall be insulated, adequately supported and sized to suit specific requirement. 12. Clearances between phases-phases, phase –Earth/ neutral should be in line with IEC.		
	Switchboard Interconnection 1. All connection and tap offs shall be through adequately sized connectors appropriate for fault level at location. This shall include tap off to feeders and instrument/control transformers. 2. For unit ratings upto 100 amps, PVC insulated 105 deg.C withstand, copper conductor wires of adequate size to carry full load current shall be used. The terminations of such interconnections shall be crimped. Solid connections shall be used for all rating of above 100 amps. 3. All connections, tapings, clamping, shall be made in an approved manner to ensure minimum contact resistance. All connections shall be firmly bolted and clamp with .even tension. Before assembly joint surfaces shall be filed or finished to		

	remove burrs, dents and oxides and silvered to maintain good continuity at all joints. All screws, bolts, washers shall be zinc plated. High Tensile grade nuts and bolts shall be used for busbar connections.		
	Instrument Accommodation 1. Al voltmeter and ammeter and other instruments shall be flushed mounted type of size 96 sq. mm conforming to class 1.0 to IS 1248 for accuracy. All voltmeter shall be protected with MCB's. 2. Instruments and indicating lamps shall not be mounted on the Circuit Breaker Compartment door for which a separate and adequate compartment shall be provided and the instrumentation shall be accessible for testing and maintenance without danger of accidental contact with live parts of the Switchboard. 3. For MCCBs, instruments and indicating lamps can be provided on the compartment doors. 4. The current transformers for metering and for protection shall be mounted on the solid copper busbars with proper supports. 5. On all the incomers of switch boards ON/OFF indicators lamps shall be provided suitable for operation on AC		

	230 volts supply. All lamps shall be protected by MCBs.		
	Wiring All wiring for relays and meters shall be with FRLS copper conductor wires. The wiring shall be coded and labeled with approved ferrules for identification. The minimum size of copper conductor control wires shall be 1.5 sq. mm. Runs of wires shall be neatly bunched and suitably supported and clamped. Current circuit shall be 2.5Sqmm. Means shall be provided for easy identification of wires. Identification ferrules shall used at both end of wires. All control wires meant for external connections are to be brought out on a terminal board**.** The cables and control wires shall be suitable for withstanding 105 deg C		
	Space Heaters Anti- condensation heaters shall be fitted in each cubicle together with an ON/OFF isolating switch suitable for electrical operation at 230 volts A.C 50 Hz single phase of sufficient capacity to raise the internal ambient temperature by 5^{O} C. The electrical apparatus so protected shall be designed so that the maximum permitted rise in temperature is not exceeded if the heaters are energized while the switchboard is in operation. As a general rule, the		

	heaters shall be placed at the bottom of the cubicle.		
	Earthing Continuous earth bus sized for prospective fault current to be provided with arrangement for connecting to station earth at two points. Hinged doors / frames to be connected to earth through adequately sized flexible braids		
	Sheet Steel Treatment and Painting Sheet steel used in the fabrication of switchboards shall undergo a rigorous cleaning and surface PT Spray nine tank process comprising of alkaline degreasing, descaling in dilute sulphuric acid and a recognised phosphating process after which a coat of primer paint compactively with the final paint shall be applied over the treated surface. Final paint coat of oven baked powder coating, of minimum 50-90 micron thickness with powder coated with RAL7035 coat with matt finish, of sheet approved by Engineer-in-Charge shall then be provided.		
	Name Plates And Labels Suitable engraved white on black name plates and identification labels of metal for all Switchboards		

	and Circuits shall be provided. These shall indicate the feeder number and feeder designation. Nameplate shall carry the name of the original switchgear manufacturer and also the manufacturing franchise partner.		
	ACB Specification AIR CIRCUIT BREAKERS (ACB) Air Circuit Breakers shall be confirmed to IEC 60947 / IS 13947 (part 1 & 2) and suitable for Rated system voltage – 690 V Rated insulation voltage – 1000 V Rated impulse withstand voltage – 12 kV ACB shall have Ics = Icu = Icw Icw rating shall be for 1 sec Air Circuit Breakers shall be sheet metal enclosed flush front, draw out type and shall be provided with a trip free manual operating mechanism or as indicated in drawings and bill of quantities with mechanical "ON" "OFF" "TRIP" indications. The ACB shall be 3/4 pole with modular construction, drawout, manually operated		

	as per BOQ . In case of 4 pole version neutral rating shall be 100% of phase And shall be capable of providing short circuit, overload and earth fault protection through micro processor based control unit sensing the true RMS valve to ensure accurate measurement meeting the EMI/EMC requirement as per standard. Air Circuit Breakers shall have same height & depth for the entire range irrespective of frame size ACB shall have facility to change from manual version to electrical version at site (MF – EF, MDO – EDO) The circuit breakers shall be for continuous rating and service short Circuit Breaking capacity shall be as specified on the single line diagram and shall be equal to the short circuit withstand values. The ACB shall be suitable for ingress protection IP 40 Circuit breakers shall be designed to `close' and `trip' without opening the circuit breaker compartment door. The operating handle and the mechanical trip push button shall be at the		

	front of the breakers panel and integral with the breaker. The ACB shall be provided with a door interlock. The contacts shall be of silver plated copper with a feature of contact wear inspection, indicating the life of the contacts. The ACB shall have double insulation (Class-II) with moving and fixed contacts totally enclosed for enhanced safety and inaccessibility to live parts		
	PROTECTIONS ACB shall be provided with microprocessor based protection unit with the following Protection L, S, I, G with `L' settable from 0.4 – 1.0 times of `In' Settable characteristics from 5 – 30 sec Thermal memory selectable (ON/OFF) `S' settable from 1.5 – 10 times of `Ir' Selectable characteristics with t=constant & i2t=constant `I' settable from 2 – 15 times of `In' with `Icw' as maximum setting		

	`G' settable from 0.2 – 1.0 times `In' Selectable characteristics with t=constant & i2t=constant Neutral protection settable 0 – 50 – 100 % of `Ir'  Input to protection release shall be thru `rogowski' coil Release shall be provided with LCD display with the following Current measurement & display with bar graph Date & Time stamping for events Last trip data and last 20 trip data Release shall be provided with individual LED indication for faults (L, S, I, G) Release shall have over temperature protection to protect the release with first alarm (75o C) and then tripping (95o C) Release shall have in-built logic selectivity / zone selectivity to assist selectivity between ACB – ACB as well as ACB – MCCB Release shall be provided with battery back-up to assist user to diagnose in the events of fault		

	Release shall have `TEST' facility to check proper functioning of release b. Thermal Memory When the breaker shall reclose after tripping on overload, then the thermal stresses caused by the overload if not dissipated completely, shall get stored in the memory of the release and this thermal memory shall ensure reduced tripping time in case of subsequent overloads. Realistic Hot/Cold curves shall take into account the integrated heating effects to offer closer protection to the system. c. Defined time-current characteristics A variety of pick-up and time delay settings shall be available to define the current thresholds and the delays to be set independently for different protection zones thereby achieving a close-to-ideal protection curve. Available pick-up and time delay settings shall have flexibility		

	for over two million different I-t characteristics to suit different applications. d. Trip Indication Electromechanical fault status indicators shall be provided to display the type of fault that caused a trip, without any auxiliary supply or battery, resulting in faster fault diagnosis and reduced system down time. e. Test Facility Test facility to test the operation of the release in different protection zones by simulating CT inputs externally through a testing kit. f. Self powered The release shall draw its power from the main breaker CTs and shall require no external power supply for its operation. g. Tripping of the breaker The release shall trip the breaker through a flux shift device which shall directly act on the breaker trip rod.		

	Zone Selective Interlocking The release shall be suitable for communication between breakers to enable zone selective interlocking. This feature shall be provided for both short circuit and ground fault protection zones to offer intelligent discrimination between breakers. This feature enables faster clearance of fault conditions, thereby reducing the thermal and dynamic stresses produced during fault conditions and thus minimizes the damage to the system. i. Auxiliary Contacts: ACB shall be supplied with 4 auxiliary contacts (combinations of NO / NC shall be selected at site) and 1 trip contact. If need arise there shall be facility to add additional auxiliary contacts (6 nos.) ACB shall have provision to use `Ready to Close' contact The contact shall be rated 5 amps. The auxiliary contacts blocks shall be so located as to be accessible from the front. The		

	auxiliary contacts in the trip circuits shall close before the main contacts have closed. All other contacts shall close simultaneously with the main contacts. The auxiliary contacts in the trip circuits shall open after the main contacts open. All current carrying parts shall be silver plated and suitable arcing contacts with proper arc chutes shall be provided to protect the main contacts. The heat generated in the contacts due to tripping under fault conditions shall be very nominal. All air circuit breakers shall be labelled.		
	SAFETY FEATURES The safety shutter shall prevent inadvertent contact with isolating contacts when breaker is withdrawn from the Cradle. It shall not be possible to interchange two circuit breakers of two different thermal ratings.		

	There shall be provision of positive earth connection between fixed and moving portion of the ACB either thru connector plug or sliding solid earth mechanism. Earthing bolts shall be provided on the cradle or body of fixed ACB. Arc Chute covers wherever necessary shall be provided. It shall be possible to bolt the drawout frame not only in connected position but also in TEST and DISCONNECTED position to prevent dislocation due to vibration and shocks.		
	MOULDED CASE CIRCUIT BREAKER (MCCB) All MCCB's shall confirm to IEC- 60947 and IS-13947 – Part 1 & 2. and comprise of Quick Make -break switching mechanism, arc extinguishing device and the tripping unit shall be contained in a compact, high strength, heat resistant, flame retardant, insulating moulded case with high withstand capability against thermal and mechanical stresses. All MCCB shall have three / four poles and manual fixed type as per SLD in case of 4pole the Neutral protection shall have a settings: 0 – 50% – 100%Ir. MCCBs of current rating below 100A shall be thermal magnetic (O/C & S/C protection) and above shall be provided with		

	microprocessor based releases with built-in device to display electrical parameters (consumption, Current, Voltage, Active/Reactive power , Harmonics, Frequency) The breaking capacity of MCCB's shall be asked for in the schedule of quantities. The breaking capacities specified will be ICU=ICS i.e type-2. Co-ordination as per relevant BIS and IEC Codes. The MCCB's shall be provided with rotary handle operating mechanism. The handle position shall give positive indication of 'ON', 'OFF' or 'Tripped' thus qualifying to Disconnection as per the IS/IEC indicating the true position of all the contacts. MCCB shall be selected as per the Ics values mentioned in the SLDs and rated at ambient 40° C. MCCB shall comply with the isolation function requirement of IEC-60947-2 section 7.1.2 to be marked as suitable for isolation / disconnection to facilitate safety of person in use. MCCB shall have line load reversibility. Three phase breakers shall be designed to break		

	all the poles simultaneously and they shall have a single mechanism. MCCB shall be provided with an inverse time delay electronic over current trip devices. The trip device shall be direct acting (for Microprocessor based MCCB) Protection Unit For Thermal Magnetic Release: The overload setting should be from 0.8 to 1 times of Ir. For Microprocessor Release: The microprocessor based release should have the following settings: Overload Settings: 0.4 to 1 times of Ir Short Circuit Settings: 1.5 to 10 times of Ir. Earth fault Settings: 0.2 to 1 times of In. (to be provided if asked in BOM) Neutral protection settings: 0 – 50% – 100%Ir. (to be provided if asked in BOM) Separate LED indication for each fault. LED pre overload alarm at 90%of Ir and 105%of Ir. The MCCB should have inbuilt feature of logical selectivity by which it can give a time		

	delay of 50msec between upstream and downstream MCCB and ACB Facility for segregating Priority and Non-Priority loads must be available in the MCCB. Safety Arrangement and Interlock Manually closing mechanism should be accommodated in a Moulded housing of robust and vermin-proof construction. MCCB shall be provided with double insulation (insulation between front cover and internal power circuits to avoid any accidental contact with live current carrying path with the front cover open) The tripping devices shall be ambient temperature compensated type. The insulating case shall be made of high strength heat resistant and flame retardant thermosetting insulating material		
	CURRENT TRANSFORMERS Accommodation shall be provided in the circuit breaker panel to mount one set of three number dual core ratio CT's for metering and protection purposes. Access to the CTs for cleaning, testing or changing shall be from front, back or top of the panel. Current transformers ratings shall be dual core and dual ratio CTs of suitable burden (but not less than 15 VA) shall be preferred with 5 Amp secondary.		

	Secondary terminals of CT shall be brought out suitably to a terminal block which will be easily accessible for testing and terminal connections. The protection CTs shall be of accuracy class 5 P 10 of IS 2705 – Part – III -1992. The Metering CTs shall conform to the metering ratio and accuracy class 0.5 of IS 2705 – 1992. Current transformers shall conform to latest edition to relevant standards. The Current transformers shall be epoxy resin cast with bar Primary or ring type. The design and construction shall be sufficiently robust to withstand thermal and dynamic stresses due to the maximum short circuit current of the circuit. CT core laminations shall be of high grade silicon steel. Rating plate details and terminal markings shall be according to the latest edition of relevant Indian Standard specification. Current transformers (core) shall be used for metering and protection.		
	CONTACTORS The contactors shall be air break type, equipped with three main contacts and minimum 2NO + 2NC auxiliary contacts. The main contacts of a particular contactor shall		

	have AC 3 ratings for unidirectional motors & AC 4 for reversible motors. The auxiliary contacts shall be rated for minimum 5 Amps at 240V AC and 1.3 Amps at 110V DC (Inductive load). Unless specified otherwise, the coil of the contactor shall be suitable for operation on 240V, (+) 10% & (-) 15% 1-Ø, AC supply. The drop off voltage of contractor shall be 15% to 65% of the rated coil voltage.		
	DRAWING AND INFORMATION The Vendor shall furnish following drawings/documents in accordance with enclosed requirements: General Arrangement drawing of the Switchboard, showing front view, plan, foundation plan, floor cut-outs/trenches for external cables and elevations, transport sections and weights. Sectional drawings of the circuit breaker panels, showing general constructional features, mounting details of various devices, bus bars, current transformers, cable boxes, terminal boxes for control cables etc. Schematic and control wiring diagram for circuit breaker and protection including indicating devices, metering instruments, alarms, space heaters etc.		

	Terminal plans showing terminal numbers, ferrules markings, device terminal numbers and function details etc. Relay wiring diagrams. Equipment List. Vendor shall furnish required number of copies of above drawings for purchaser's review. Fabrication of switch boards shall start only after purchaser's clearance for the same. After final review, required number of copies and reproducible shall be furnished as final certified drawings. The information furnished shall include the following: Technical literature giving complete information of the equipment. Erection, Operation and Maintenance Manual complete with all relevant information, drawings and literature for auxiliary equipment and accessories, characteristics curves for relays etc. A comprehensive spare parts catalogue.		

7.7.9 HT panel (VCB panel)

HT PANEL (VCB PANEL AS PER ALD)

Sl.No	Technical Specification	Fully Complied/Partially Complied/ Not Complied	Remark
1	**GENERAL** This specification describes the general requirements governing the design of 36kV fully Metal-Clad Indoor Switchgear and control gear fully type tested according to IEC 62271-200. The design of the switchgear shall be exclusive and specific responsibility of supplier and shall comply with current good engineering practice, the relevant codes and recommendation, the project specific requirements		
2	**Codes and Standards** The electrical switchgears and the relevant equipment shall be designed, manufactured and tested according to the latest version of : 1. IEC 62271-200 A.C. metal-enclosed switchgear and control gear for rated voltages 2. above 1kV and up to and including 72kV and the IEC Code herein 3. referred		

	4. IEC 60129 Alternating current disconnectors (isolators) and earthing switches 5. IEC 60044.1 Current transformers 6. IEC 60044.2 Voltage transformers 7. IEC 60255 Electrical relays 8. IEC 60529 Classification of degrees of protection provided by enclosures 9. IEC 60056 Circuit breakers Any other codes recognized in the country of origin of equipment might be considered provided that they fully comply with IEC standards. The design of the switchgear shall be based on safety to personnel and equipment during operation and maintenance, reliability of service, ease of maintenance, mechanical protection of equipment, interchangeability of equipment and ready addition of future loads		
3	**SERVICE CONDITIONS** The switchgear and control gear shall be suitable for continuous operation under the basic service conditions indicated below. Ambient temperature -5 to +40 oC Relative humidity up to 95%		

	Altitude of installation up to 1000m, IEC 60120		
	STRUCTURAL AND MECHANICAL CONSTRUCTION The switchgear and control gear panels shall be of the fully arc proof metal-clad, free standing, floor mounting, flush fronted, withdrawable type, consisting of separate panels assembled into one or more sections to form a single structure with a common busbar assembly. The panels shall be constructed from prime quality folded and bolted steel sheet of 2 mm thick regalvanised sheet steel or Aluzinc. The design of the panels shall be such that no permanent for harmful distortion occurs either when being lifted by eyebolts or when moved into position by rollers or transpallets. The switchgear and control gear should have the minimum degree of protection (in accordance with IEC 60529) - IP 4X for the enclosure - IP 2X for the partition between compartments The switchgear must be readily extendable in either direction		
4	**INTERLOCKING**		

	Isolation and connection of the circuit breaker shall be carried out inside the compartment with the door closed. The following mechanical interlocks shall be provided for service safety : - interlocking which prevents racking-in and racking-out of the circuit breaker when closed - interlocking which prevents manual or electrical closing of the circuit breaker in the intermediate positions between connected or isolated - interlocking which prevents either the circuit breaker from being racked in when the relative earthing switch is closed and the earthing switch from being closed with the circuit breaker racked in		
5	**COMPARTMENTS OF EACH CUBICLE** Metal cubicles shall be divided in the following compartments. - Busbar compartment - Circuit breaker compartment		

	- Cable compartment - LV compartment The switchboard shall have passed internal arc faulted containment testing for each HV compartment for 1 second at the rated fault current or above. Each compartment should have an exhaust channel to let out over-pressurized hot gases at the top of the switchboard in case of an internal fault. Front access doors will be provided to the HV circuit breaker and HV cable termination compartments.		
6	**BUSBAR COMPARTMENT** Comprising the 3 single phase copper busbars and the connections to the circuit breaker compartment. The busbar system shall be air insulated. The bus system is also required to withstand the specified impulse voltage level without the use of filled compounds, hand wound tapes etc.. Busbars shall be rated to withstand all dynamic and thermal stresses for the full		

	length of the switchgear. Busbars shall be constructed from hard drawn, high conductivity, electrolytic copper. Solid or tubular bars shall make connections to the main busbars. The frame and all other metallic non-current carrying parts of the switchgear shall be bonded together and earthed through the external connection to a through going earth bar along the switchgear. There are terminals for connection to the external station earth bar at the bottom of each cubicle		
7	**CIRCUIT BREAKER COMPARTMENT** Comprising the withdrawable Vacuum Circuit Breaker for 36kV voltage level and all accessories required for its operation. To ensure the integrity of the arc fault containment requirement, the operations must be carried out with the switchgear doors closed i.e. circuit breaker for opening and closing, racking of circuit breaker (or withdrawable voltage transformer) between service and test position as well as earth switch operations.		

	Circuit breaker compartment door must be padlock able & shall be with single latch, & not bolted type. Access between the circuit breaker (or withdrawable voltage transformer) and busbar / cable compartments shall be made through epoxy encapsulated spout bushings of uniform shape and dimension. Spouts are covered by automatic metal shutters, covering all three phases unless the circuit breaker is in service position. Circuit breaker operations shall be carried out with the door closed. Racking in, out, Manual Closing / Tripping of the CB with compartment door closed – ensuring operator safety.		
8	**CIRCUIT BREAKERS** Circuit breakers shall be withdrawable and Vacuum type. The complete assembly of interrupters, contact pressure springs and HV terminals (top and bottom) shall be type tested for compatibility of design. Circuit breakers of identical rating shall be interchangeable.		

	The circuit breaker shall be isolated by horizontal racking and positively fixing the unit into any one of the following positions:, - Service position; main and auxiliary circuits connected - Test position; main circuits disconnected auxiliary circuits connected. Circuit breaker in its isolated position shall be completely contained in the apparatus compartment with shutters on main circuit closed and compartment front door closed. - Withdrawn position; main circuits and auxiliary circuits disconnected. Circuit breaker is removed out of the cubicle. Circuit breakers shall be removable without dismantling any compartment and entering any compartment. A position indicator switch or viewing window must be provided for visual indication of the circuit breaker position. The circuit breaker control auxiliaries shall be of the plug and socket type.		

	When the circuit breaker is in the service position removal of the control auxiliaries will not be possible. The switchgear shall be provided with facilities for full operation from a remote point. Circuit beakers shall be equipped with a motor wound spring stored energy operating mechanism with opening and closing operations independent of the operator, electric close and trip releases, manual on/off buttons and manual spring charging facilities. It shall be possible to manually charge the circuit breaker operating spring in case of auxiliary supply failure. Mechanical indication of the spring-charged condition shall be provided. Circuit breakers shall be provided with a mechanically operated visual indicating device to display the circuit breaker switching state and a mechanical operation counter. The circuit breaker operations of closing and opening shall be possible with the circuit breaker compartment door closed.		

	It shall be possible to trip the circuit breaker locally by mechanical means. Circuit breakers will be provided with at least one spare normally-open and one spare normally-closed contact, each wired out to terminals for the connection of external wiring. Each circuit breaker shall be interlocked to prevent: - the breaker being inserted into service position unless it is open - the breaker being withdrawn from the service position unless it is open - the breaker being closed unless it is fully in the service or test position - remote operation whilst in the withdrawn/test position Circuit breakers shall be mechanical latching and electrical and mechanical tripping. The operating mechanism shall be trip-free and shall include an anti-pumping device.		
9	**SHUTTERS**		

	Circuit breaker compartment should have automatic shutters, which shall be opened and closed by the mechanical drive of the circuit breaker. The busbar and circuit spout covers shall be operated independently of each other. Individual padlocking facilities can be provided on the busbar and circuit side of shutters.		
10	**CABLE COMPARTMENT** This compartment shall have the following components - earthing switch (where indicated in single line diagram/BoQ) - current transformers - voltage transformers - cable terminals The access to the compartment will be possible by removing the front and/or the back plates, bolted to the main frame. The entry of the cables shall be from the bottom of the cubicles. To prevent access of small animals to the live parts gland plates needs to be supplied		
	Current Transformers		

	All current transformers shall comply with IEC 60044.1. Current transformers shall be of dry type, with ratings and ratios as required. The rated primary current , turns ratio, knee-point voltage and resistance of the secondary windings (corrected to the maximum service temperature) will be according to submitted schedule for approval		
11	**Voltage Transformers** All voltage transformers shall comply with IEC 60044.2. Voltage transformers shall be of dry type, with ratings and ratios as required. Voltage transformers used in Measuring cubicles, connected to the main busbars, shall be withdrawable type and with built-in primary current limiting fuses. Also shutters shall be provided to automatically seal off the high voltage spouts when voltage transformers are withdrawn		
12	**LOW VOLTAGE COMPARTMENT** All low voltage equipment shall be normally in contained in the low voltage compartment. In particular :		

	- Terminal blocks and wiring for interconnections between cubicles and for - connecting the auxiliary cables - Instruments, protection relay, metering devices, fuses etc. On the top of the low voltage compartment, there shall be a cable duct for auxiliary connections between cubicles and towards the external installation. Similar channel shall be available at the bottom along the switchgear. Plug-in type terminal blocks shall do all inter-cabling between cubicles. Wiring will be done according to relevant IEC standards. Panel front on inside labelling will be done by using Engraved black labels in English Language		
13	**TYPE TESTS** Cubicles shall be type tested in accordance with IEC standards . The following type tests have been performed and available if required		

	- Short time and peak withstand current test - Temperature rise tests - Dielectric tests - Test of apparatus i.e. circuit breaker and earthing switch - Internal arc test at rated fault level for 1 sec AFLR. -Cubicle and circuit breakers are to be of supplier's own products.		
14	**ROUTINE TESTS** Routine tests shall be carried out in accordance with IEC 62271-200 standards. These tests shall ensure the reliability of cubicle. Below listed test shall be performed as final acceptance tests before the delivery of cubicles ; - Withstand voltage at power frequency - Withstand voltage on the auxiliary circuits - Operation of functional locks, interlocks, signalling devices and auxiliary devices - Suitability and correct operation of protections, control instruments and		

	electrical connections of the circuit breaker operating mechanism - Measurement of the resistance of the main circuit - Verification of wiring - Visual inspection		

7.7.10 Passive networking

Rating/Sizing: Fibre and Copper 10G/40G

Product/Solution Description The datacenter network cabling will be over the racks through cable basket for Copper and Fibre pathways for Fibre cabling. Each Row will have End of the Row patch rack. Every Rack will have 12+12 fibre ports in redundant more and similarly 6+6 copper ports as well. The cabling standard will be as per TIA-568B or its latest amendments. Tier-3 architecture must be followed for the cabling.
Scope of Work Supply, installation, testing and commissioning of network cabling system Including cables, Cable basket, Fibre Runner/Pathways, jack panel/patch panel/ MPO cassettes/Patch cords etc Maintenance of the same for the contract period The structured cabling for data center shall cover Copper & fibre optic cabling for all racks within the DC hall, backbone up to Network rooms/racks, and backbone up to ISP racks. Adequate redundancy need to be planned in the cabling design as per requirement to minimize failures.

The proposed cabling system should support at least 10G on Copper and up to 40G / 100G on fibre.

The fibre cabling should be modular (plug-n-play) in nature using MPO trunks and connectors and be scalable to 40G or 100G applications.

For all backbone cabling, splicing based terminations for fibre could be used as per design requirement.

Minimum of 2 Mux rooms/POE rooms need to be provisioned with a separation of at least 20 mtr. Each Mux room shall connect to the DC Core network over fibre and copper cabling.

Adequate Copper LAN cabling to be considered for DC support areas and other functional areas as required.

All terminations and testing shall be performed in compliance with the TIA 568-C and ISO/IEC 11801 requirements.

Dedicated copper trays and enclosed fibre pathway system to be considered for respective cable routing for the entire Data center.

The cable pathway design must consider the cable fill ratio, separation and bend limits as per TIA 569-C, ISO/IEC 14763-2:2012 and BICSI TDMM 13 design guidelines.

Sl. No	**Requirement**	**Compliance (Complied/Not complied)**	**Remark**
A	**Architecture and General Construction**		
1	The cabling system shall comprise of Multimode OM4 MPO solution, CAT6A UTP/STP cabling, along with dedicated fibre and copper pathways. All offered cabling components including copper + Fibre + pre-terminated solutions + fibre Pathways inside data center shall be from a Single OEM		
2	All cables to be installed in DC must comply to LSZH IEC 60332-1/3, IEC		

	61034-2, IEC 60754-2 and EN 50575 test requirements for fire safety.		
3	The MPO system proposed must ensure simple design and connection compatibility using Method B polarity for maintaining uniformity. Same or matching variant Cassettes / trunks shall compatible to be used anywhere in the channel.		
4	The Cat6A UTP/STP SCS must be tested by Intertek test facility under 4 connector channel to the following standards: ANSI/TIA 568.2-D: Category 6A Channel – 4 connector IEEE 802.3bt PoE upto 60 deg C EN50173 standard Intertek / ETL verification for both 100m Long channel must be provided as part of the bid response. Copies of test reports should be appended to this RFP.		
5	The OM4 MPO system must meet the required application loss limits under 4 connector channel configuration.		
6	OEM shall have ISO 9001 and 14001 certified Manufacturing Facility in India. Bidder to submit proof from OEM.		
7	OEM shall have qualified technical manpower in India with valid DCDC		

	certifications for design and audit support during project implementation.		
B	**Pre-Terminated MPO Modules**		
1	MPO - LC Modules OM4 – 24-fiber module shall have 12 pre-installed duplex LC adapters at the front routed to 2 pre-installed 12-fiber Low loss MPO adapters at the back.		
2	All MPO modules must support 'Method B Enhanced' wiring pattern for ease of scalability. Same or matching variant cassette should be used in both end of the link, without need of specific flipped or straight wiring management.		
3	Dust caps on each front port must be translucent to support VFL tests, without removing caps. Test light should be visible at the remote end, even with dust caps ON.		
5	Max Insertion Loss per MPO module shall be < 0.35dB		
6	The offered MPO system must support upto 4 connections in channel within or exceed IEEE802.3ba <1.60dB Channel Insertion Loss.		
7	The offered MPO system with upto 4 connections, shall support the following applications and distance as per IEEE802.3 or below: 10GBASE-S : upto 490m 25GBASE-S : upto 110m		

	40GBASE-SR4 : upto 170m 40GBiDi : upto 150m 100GBASE-SR4 : upto 110m (Documentary evidence from OEM during testing and commissioning to be provided)		
8	The offered MPO system with upto 4 connections, shall support the following SAN applications and distance: 8G FC : upto 250m 16G FC : upto 160m 32G FC : upto 120m 128G FC : upto 100m (Documentary evidence from OEM to be provided)		
C	**Modular Panels and Shelves**		
1	The 1U / 2U /4U Panel / shelf shall have front sliding access and be equipped with a front trough and door for patch cord management and port labelling. Trough door should have clear view of the ports and labels inside.		
2	The 1U panel shelf shall house any combination of up to 4 pre-terminated modules to achieve up to 96 fibre terminations per rack unit at a minimum. To be used in low density server rack end.		
3	The 2U/4U high density shelf shall support up to 144 duplex (in 2U) and		

	288 duplex (in 4U) LC ports to be used in Network racks / SAN racks.		
4	2U /4U shelves shall have split-tray pull out design feature to facilitate easy access during installation and service.		
5	High density Shelves shall support both side and/or rear entry of cables / trunk cords.		
6	Min depth of shelves shall be 375mm or better.		
D	**Pre-terminated Fibre Trunk Cable assemblies**		
1	Low Loss MPO-12/UPC (male) to MPO-12/UPC (male), Pre-terminated, LSZH, Bend Insensitive OM4 Trunk Cable		
2	All cables shall be constructed with 1 or 2 subunits, each with 12 fibres surrounded by a jacket containing aramid yarn strength members.		
4	Cable shall comply to the standard requirements for ANSI/ICEA S-83-596, Telcordia GR-409, IEC 60794-1		
5	Flame rating shall be NEC OFNR (ETL) and c(ETL) The cable must have the flame test compliance to IEC 60332-3, IEC 60754-2, IEC 61034-2, IEEE 383, UL 1666 and UL 1685		
6	The Trunk cable shall have Method B enhanced construction.		

7	Cable MPO connector shall have Max Insertion Loss of 0.35dB Min Return loss of MPO shall be > 27dB.		
8	Cable shall have OD of 5.0 – 8.5 mm. Tensile strength shall be 400N-650N		
9	All OM4 trunk cables must have Aqua coloured jacket as per TIA and ISO standards recommendation.		
E	**Fibre Patch Cords, LC-LC OM4**		
1	LC/UPC to LC/UPC, Multimode OM4 duplex Uniboot Patch Cord, bend insensitive Fibre 2.0mm		
2	Low Smoke Zero Halogen (LSZH) compliant to IEC 60332-1/3, IEC 60754-2, IEC 61034-2, IEEE 383		
3	Flame Test Listing: NEC OFNR (ETL) and c(ETL)		
4	Patch Cord shall be Uniboot construction with field polarity reversible feature.		
5	Connector Optical Performance Insertion Loss, maximum: 0.2 dB Return Loss, minimum: 20.0 dB		
6	Tensile rating: >80N		
F	**Horizontal Cable – CAT6A UTP Cable**		
1	CAT6A UTP/STP 23 AWG Cable shall be ETL verified to ANSI/TIA 568.2-D Category 6A and ISO/IEC 11801 Class EA Specifications, constructed with pair		

	as well as individual conductor separator for uncompromised ANEXT performance.		
2	Max DC Resistance: <10 Ohms/100m; Max. Operating voltage: 80 V		
3	The cable shall have Low-Smoke, Zero Halogen (LSZH) jacketing and must be certified to the following Fire Safety standards: 1) ISO/IEC 60332-1/3-22: Flame Spread 2) ISO/IEC 60754-2: Acidity 3) ISO/IEC 61034-2: Smoke Density Certificate to be submitted during installation and commissioning		
5	Category 6A cable along with offered channel components should be certified by Intertek lab under 4 connector channel configuration to the requirement of ANSI/TIA 568.2-D for long channel (100m). Test Certificates to be provided with bid.		
6	CAT6A Cable must be certified for IEEE 802.3bt requirements for remote powering (PoE) at upto 60Deg C.		
G	**CAT 6A Jack Panel 24 Port**		
1	24 Port CAT6A UTP/STP Jack Panel loaded, 1U, supplied with detachable rear cable manager		
2	Plug performance must be certified by Intertek labs as per IEC 60603-7 standard.		

3	Electrical parameter: Current Rating of 1.5 A at 20°C		
4	Must be UL listed product		
5	Min Plug retention strength shall be 133N or higher.		
H	**CAT 6A LSZH U/UTP/STP RJ45 Patch Cords-**		
1	CAT6A U/UTP/STP Patch Cord, shall be of 4 pair 22/24/26 AWG solid construction, with pair separator.		
2	The cordage shall be UTP component		
3	Patch Cord shall have LSZH jacket complying with the following Fire Safety standards: ISO/IEC 60332-1/3: Vertical Flame Spread ISO/IEC 60754-2: Acidity ISO/IEC 61034-2: Smoke Density		
4	Min Plug retention force: 133N		
5	Patch Cords shall have maximum dc Resistance:0.30 Ohm and Safety voltage rating: 300 V		
6	Must be certified to the channel specifications of ANSI/TIA 568.2-D and ISO/IEC 11801 for 15m short channel under 4 connector configuration. Shall be EN 50575 compliant.		
I	**CAT6A UTP/STP Information Outlet**		
1	The CAT6A UTP/STP 8-pin modular (RJ-45) jacks shall have certified		

	performance to the channel specifications of ISO/IEC 11801 Class EA, ANSI/TIA-568.2-D Category 6A and IEEE 802.3bt		
2	Shall be Intertek certified to IEC 60603-7 plug performance.		
3	Plug retention force, min: 133N. UL Listed		
4	The information outlet shall have a Current Rating of 1.5 A at 20°C		
5	Faceplate shall be available in 1 or 2 port square version, with shuttered ports. UL94V-0 rated, Thermoplastic material.		
J	**Fibre Pathway System**		
1	The fibre raceways system shall be available in 4-, 6-, 12- and 24- inch length of straight sections.		
2	Fibre runner and accessories shall have height of 4 inch/100mm at minimum, at all sections of the pathway.		
3	Each system components and joints must have modular snap-fit design, without the need of screw, nuts or bolts.		
4	Each rack should have one fibre drop of adequate dimension. From fibre drop to rack top cable must pass through flexible hose.		
5	All materials in the offered overhead fibre routing systems must meet UL 94V-0, standards compliant.		

	This may excludes the flex tube drops.		
6	System shall be made from a low-smoke, non-brominated, non-chlorinated, flame-retardant material and is loaded stress tested under high temperature and humidity to verify durability under extreme conditions.		
7	Fibre patch cord bend radius of at least two inches (5.08 cm) shall be maintained at all points in the offered system.		
K	**Copper Wire Basket System**		
1	Copper Pathway 300mm x 100mm x 2000m (WxHxL) Sections		
2	The Pathway system shall provide 100mm (4inch) high side walls for sufficient cable placement.		
3	System shall be suspended from the ceiling using M12 threaded rods, 1.8 mtr long.		
4	Material shall be Mild steel		
5	Shall provide bend radius controlled drop down kits for cable drop into each rack		
6	Shall be available with all accessories like Horizontal T, Cross section, Elbow, 90°/45° bends etc., to customize as per DC layout.		

7.7.11 DCIM (Datacenter infrastructure management)

Rating/Sizing: As per bidder's solution

Product/Solution Description Datacenter Infrastructure Management (DCIM) Solution tool has to integrate all possible Non IT and IT field devices into one platform for effective monitoring of Datacenter operation.
Scope of Work Supply of all ends to end hardware and software, Installation, testing and commissioning Maintenance for 5 years including product/solution upgrades, patch updating, etc. Integration of existing OSDC -1 and OSDC – 2.0.

Sl.No	Technical Specification	Fully Complied/Partially Complied/ Not Complied	Remark
1	**General** DCIM software OEM should have its own dedicated Business Units within the company to handle the following: a. Datacenter Lifecycle services for Performing Regular Datacenter Audits and help in Improving the throughput of implemented OEM solutions at client end including DCIM. b. Global scale Datacenter Service & Support Team for Implementation and troubleshooting DCIM c. DCIM R&D center to support faster turnaround time for any customized plugin		

	development if may be required for client-side integration.		
2	Proposed DCIM system should be modular and support perpetual licensing which provides us flexibility to purchase and expand enhanced modules according to our future need.		
3	DCIM server/VM system should allow integration of client email server via SMTP channel as well as it should support integration to SMS Gateway servers by utilizing the HTTP post Method.		
4	The application should provide real time Power Usage Effectiveness (PUE), DCIE values and able to deliver Weekly, Monthly, Quarterly & Yearly PUE report.		
5	DCIM should be able to generate Custom Dashboard and Reports pertaining to Energy sub systems in the following ways: a. Create dashboard to reflect the real time PUE values of the Data Center by pulling in necessary data from various resources. b. Using the values from various sources it should be able create Custom Energy Reports or Cost Reports and allow for auto scheduling as may be needed. High availability for DCIM should be applicable for End to End DCIM Application, DCIM		

	Database & including client DCIM modules.		
6	**MONITORING LAYER-** polling all Infrastructure Monitoring Points- Modbus, IP, TCP		
7	DCIM OEM should propose a Monitoring System that operates on Ethernet network at the least and talks to Building side device aggregators using MODBUS TCP/WEBAPI/REST/SOAP and it should support SNMP v1 and v3 for devices that have SNMP NMC systems for monitoring them.		
8	It is required that the DCIM OEM shares a list of KPI for the client datacenter which will be depicted on the dashboard and/or reports.		
9	**Device Discovery & Configuration** The Monitoring Application shall be capable of auto discovering devices when connected to the private LAN Network A, as well as functioning as a DHCP server to assign IP addresses from a user defined IP address scheme.		
10	The Monitoring Application shall also be capable of discovering devices with static IP addresses on the private LAN Network B, defined by its IP address and subnet mask.		
11	The user shall have the ability to schedule discovery of new devices with the following configurable settings: a) IP or OP Range b.)		

	SNMP Settings c) Day of the Week d.) Time of the Day		
12	**Alarm Status Tracking** DCIM Monitoring layer should have Alarm filters in the Monitoring dashboard. The solution should provide alert compression and advanced alerting algorithms including deviation from normal and time over threshold to help reduce false positive alarms.		
13	**Email Server Integration** DCIM Monitoring Layer server/VM system should allow integration of client email server via SMTP channel.		
14	**Trend Analysis** Should offer Graphical trending analysis for historical data pertaining to day, week, month, year and user defined durations.		
15	**Rule Creations for Threshold Alert** Proposed DCIM solution should allow for custom logics for creating Rules of Escalation and Email alerts for various devices based on alarm severity and priority.		
16	**Auto Timed Reporting** DCIM Monitoring Layer should allow for Auto Timed/Scheduled Report Emailing to selected audience on required key		

	performance indicators. These Reports should be mailed to relevant users as CSV format.		
17	**Security** Authentication and Encryption: The communication between the client and the Monitoring Application shall be secured via a Secure Sockets Layer (SSL) 168-bit Triple-DES (Data Encryption Standard) encoded connection. Open LDAP and Active Directory: The Monitoring Application shall have Open Lightweight Directory Access Protocol and Active Directory support.		
18	The log in to the user interface of Monitoring Application shall use Secure Socket Layer (SSL) or Secure Socket Handling (SSH) authenticate. The web launch to devices shall occur through a HTTP or HTTPS connection. To increase security, the HTTP or HTTPS connection and the HTTP or HTTPS port shall be user configurable for each device, through the Monitoring Application user Interface.		
19	**User Management and Access control** The Monitoring Application shall allow the user to create user accounts ranging from Administrator Access to View Only Access with unique login user name and password.		

20	An administrator shall have full read/write access to all the Monitoring Application's functionality.		
21	The "View Only Access" users shall only have access, limited to viewing specific groups or devices within those groups, as well as creating graphing trending reports as well as exporting device data reports. The "Read Only" access user shall not be allowed to change the Monitoring Application configuration or device configurations.		
22	**OPERATIONS LAYER-** Responsible for Analytics and Insightful data analysis of DCIM data points		
23	**Concept** Operations Layer of DCIM should facilitate the complete Lifecycle approach for Datacenter management involving: a. Analysis, b. Design, c. Implement, d. Operate, e. Evaluate		
24	DCIM Operations Layer will have the capability to configure a bird's eye view of the room layout to ensure the layout in the data center model accurately represents the real-world physical environment of the room. This includes any physical attributes of the room such as size, shape, doors, windows, aisles, containments, false floor creations, false ceiling creation and ability to duct the		

	Racks, Containments and CRAC units to False ceiling as per site requirement.		
25	DCIM Operations Layer should have an ability to import an AutoCAD floor drawing and display the floor layout.		
26	DCIM Operations Layer should offer back export of the datacenter design created or modified within DCIM		
27	DCIM Operations Layer should have a combination of Thick client/ Web client version so that basic operations tasks can be performed from the web client itself.		
28	Web client view of the DCIM should offer at least the following functionalities: a. Perform simple rack inventory edits. b. Perform quick search and view simultaneous rack front/rear view for the datacenter. c. User Access Control and license management d. User Experience customization like Logo and colour themes. e. Customize the language of operation		
29	DCIM Operations Layer will be able to provide a product catalogue that contains up-to-date floor and rack mounted data center equipment having drag & drop functionality to populate devices & design DC floor layout within the system as per physical layout/actuals. This product catalogue should be periodically updateable with new devices map repository.		

30	DCIM Operations Layer should offer inventory and mapping of Direct Current Powered devices like Fuses, Rectifiers along with AC powered. This means that user should be able to create a Power path with both types of sources at the same time if required.		
31	The DCIM tool will have the capability to render the floor layout in both 2D and 3D view.		
32	DCIM Operations Layer should offer capability to create Cages on datacenter floor and visualize the same in both variants: a. Glass cage b. Mesh Cage c. Solid wall. Cages should not be confused with Zones or Rows as Row or Zone mapping is different to Caging.		
33	**Capacity Planning** With reference to Space Management in Datacenter, DCIM should offer following information on the layout view for the following parameters: a. Room Area b. Reserved Area: For specific Process/Client c. Closed: Area filled already and is not available d. Internal Use: Area used by Internal Racks e. Space Efficiency: Ratio between Room Area and sum of Reserved Area, Closed Area and Reserved Area.		

34	The proposed solution must offer intuitive, color-coded drawings in both plan and rack elevation views which allows users to: - View Rack U-space availability - View Rack Power availability - View Rack weight/Floor Loading - View Raised Floor & Rack space utilization		
35	**Predictive Analysis** Predictive Analysis/What If Analysis & Hypothetical Provisioning/Modelling to ease decision making (such as, Am I having sufficient power, cooling & space to place new equipment, etc.)		
36	**Power Path Map** The System should offer mapping capability from UPS to individual Rack within the datacenter. This mapping should be made available as a Power Layout Map within the system.		
37	**Impact Simulation** Impact simulation: Generates a list of equipment that would be impacted if the selected piece of equipment, e.g. a UPS or cooling unit, about to fail or put in maintenance mode.		
38	The DCIM tool will have a dedicated Equipment browser view where device Fields can be customized and sorted as per user need. It should allow for export of		

	these data fields in the same format in a CSV file which can be opened in Excel as set by the user in the Equipment browser and also to save these formats for later use inside the DCIM.		
39	**Recommendation Engine** As a part of the Management Layer it is expected that DCIM tool helps Datacenter Manager with insights into day to day activities for the datacenter including and not limited to: 1. U space occupancy details for an equipment 2. Floor loading of the Racks 3. Power path configurations 4. Power Draw configurations across Supply Breakers 5. Redundancy of Power supply to Racks 6. Rack's estimated and Peak Load values 7. Associated Device Data Communication Lost		
40	**Datacenter Thermal Analysis & Design** The graphical floor plan of the configured data center layout should include overlays showcasing: A. Capture index (CI), B. 2D rendering of the temperature map(including airflow and temperature thresholds) C. Supply temperature D. Airflow		

	G. Number of cooling units and room-based cooling parameters. The data is expected to be simulated/real time on the basis of plate rating of various cooling devices, racks, perforated tiles, grilles etc.		
41	DCIM should facilitate the 2D model to depict equipment placed on Rack Mounted Trays and at the same time CFD/Thermal Heat map like Model should be able to detect airflow around that equipment when mounted inside the Rack.		
42	DCIM 2D model should allow for PAN, ZOOM, Rotate the datacenter views as per user requirement.		
43	DCIM thermal model should allow Third Party Building Management Rack T/H sensors also to be utilized for calculating Thermal Maps apart from the DCIM OEM's own T/H sensors.		
44	**Change Management** The DCIM tool should enable operators to gain control over the data center environment by implementing organized moves, adds, and change work processes by providing workflow system that can develop and assign work orders, reserve space, track status, and provide a historical audit trail.		
45	Ability to create multiple tasks and track task status for each work order.		

46	Ability to create work order templates that can be used for recurring work types like maintenance activities or standard procedure for installation of a certain type of server.		
47	Support workflow management that should allow for easy implementation and tracking of organized moves, additions, and changes.		
48	Support audit trail reporting that would show asset moves, additions, and changes by date/time, owner, and work orders.		
49	Every network management change should be recorded in audit trail report		
50	Ability to review, reject, or approve requests		
51	Generate e-mail notifications for every state change in the change management process		
52	Produce reports of changes and work order status		
53	Integrate with third party ticketing systems to import tickets, assign work orders, and track status updates		
54	**REPORTING & DASHBOARD SYSTEM** Proposed platform should offer Dashboard & Reporting System on data center key performance indicators, displaying customizable information for a high-level overview of data center operations.		

55	It should have an internal Performance monitoring system which can monitor and trend the Thread Pool of this Reporting server along with maintaining the Audit Log for the same.		
56	It should allow creation of Custom Formula Fields from the SQL query to display Table results the way user wants in his final Reports.		
57	It should allow creation of User Input based Reporting Fields which can generate Table data based on run time input Box from where the data is used to fine tune the Table results and consequently to be used for Report Creation.		
58	As a part of the Dashboard & Reporting System it should allow auto scheduling of these Reports to user defined email ids via client's SMTP server attaching reports to the email .		
59	Dashboard & Reporting System should offer capability to depict any report generated through the same as a Dashboard widget which can show the data trend on polling cycle defined by user.		
60	**Report Name** The DCIM software shall be able to support the following standard report templates out-of-box:		
61	**Capacity History**		

	The DCIM software shall generate a capacity history report that shows the capacity change history for one or more data centres over a user-specified period of time. Allow users to choose data from various capacity categories including power, cooling, space, network and energy efficiency, etc.		
62	**Continuous Free U-Space** Provides information about continuous free u-space per rack.		
63	**Customer Inventory Report** Reports all customer inventory (server, rack DPU, racks, cages, PDUs, etc) for one or multiple customer accounts. Customer names and accounts can be selected at the time of report generation.		
64	**Executive Power** Provides a summary of total capacity, free capacity, measured peak, failover load, and power sold/all coated data in a report format. The report is sorted by data center sites and rooms.		
65	**Executive Space** Provides space usage stats in terms of total, sold, open, reserved, etc square footage and rack counts information. It is sorted by		

	data center sites and then data center rooms.		
66	**Panel Schedule** The DCIM software shall generate a report showing the configuration of the breaker panels including breakers and power consumers.		
67	**Rack U-Space** The DCIM software shall generate a rack space report that displays the amount of available positions in specified racks for equipment that takes up one or more U positions.		
68	**Device Warranty Reports** Provides a colour coded warranty report for datacenter infrastructure devices showcasing all devices out of warranty as Red and all devices in warranty as Green.		
69	**Communication Status** The DCIM software shall generate a Report showing Communication status for all monitored Infrastructure devices.		
70	**Device Sensor Report** The DCIM software shall generate a Report showing status of the User selected Device		

	sensor across daily, monthly , weekly period.		

7.7.12IT Rack and Rack Access Control

Product/Solution Description Server and Network Racks of 42U and 800mm width x 1200mm depth for the datacentre area
Scope of Work Supply, unloading, storing, shifting, installation, testing and commissioning Maintenance for 5 years.

S.N.	Minimum Required Specifications	Compliance (Complied / Not complied)	Remark
1	42U Server rack with dimension (HWD) 2000mmX800/750mmX1200mm. The design of the rack should be in accordance with the following agency standards or certifications. · EIA-310 standard for IT rail hole spacing · CE/UL		
2	The rack frame shall be constructed as a welded steel/ bolted frame and frame shall have the depth marking for ease of EIA rail installation. Rack should be fully assembled at factory. Load carrying capacity 1500kg or more		
3	All 19" rails should be made of minimum 14-gauge steel, 5 times folded for maximum rigidity and must have EIA-310 standard hole-mounting pattern with U marking on front and rear of each rail for ease of installation.		
4	EIA rails two sets should be fully depth adjustable within use space area. 19" Rails should accept tool less Cable Management Accessories.		
5	Rack should have single front door 16GA and split rear door 18GA. Doors shall be tool-less lift off and field reversable design and must allow min. 120º door opening for ease during maintenance activity.		
6	Rack should have side panels with slam latch for quick and easy installation and maintenance,		

	single person removal and installation eliminates the manpower dependencies.		
7	All rack components door, side panel, top panel, 19" rail, PDU bracket, PDU button mount shall be directly grounded to the frame to eliminate any external grounding wire and frame must have provision of grounding points to ground each rack to the building ground.		
8	Rack shall have the necessary hardware accessories, ((100mm, Base frame, 30 each M6 cage nuts and screws), Cage nut installation tool, plastic gland plates (tool less removable) for top panel cable entry). Every rack should have the baying kit to help seal the gap between the racks to maintain proper air circulation.		
9	Each rack should have provision to seal the space between the 19" rail and the side panels to prevent air recirculation within the rack.		
10	Rack frame and all the sheet metal components of the rack should be powder coated black colour.		
11	Rack must be supplied with minimum 30 nos. of tool-less plastic blanking panels to avoid air recirculation.		
12	**Rack Access Control**		
13	The access locks should be universal and vendor agnostic solution which will retrofit in the proposed cabinets or enclosures seamlessly.		
14	Each Rack should have only one Card cum Biometric reader for authentication.		
15	OEM should be able to provide support for the following access card types viz. Proximity, Mifare Smart Card, HID-iclass, HID-Prox		
16	Rack Access control solution should provide Graphical DC Racks View with Live Monitoring page for Door access/status live events and component status. And every single step and stages of door access should get logged.		
17	Minimum Following events and Alarms to be generated; a) Successful door access authentication b) Unauthorized access tried on the door c) Rack door is opened for a long time d) Door open but lock is closed e) One side rear door is opened but other side is locked		

	f) Biometric cum Card reader went to a power cycle g) Lock is opened remotely over IP		
18	The Rack Access Control system should have the capability to send Email and/Or SMS notification for any abnormal and unauthorized access.		
19	Front and Rear Doors of Racks opening should be authenticated by Card and Biometric with event notification on software and Reader and with LED indication on door lock which will help to identify the lock status. It should have different LED Color Indications for "Normal" status, "Open" status, "handle open but lock closed" status and both "Lock and handle open" status		
20	Any manual override and tampering of locks should generate alarm on software monitoring page and record the event for audit purpose.		
21	The Rack Access Control system should support "Maintenance Period" operations and "No Access Locking days" operation of Data centre as per the datacenter policy.		
22	Any remote door open should be recorded with the purpose of audit and compliance. The special permissions required from super admin should enable the process.		
23	Super Admin, Shift Admin, Visitor/Vendor level user configuration and access roll as per Data centre policy should be configurable in the rack access control solution. Super Admin should have access to all Racks, Admin will have access to permitted racks independently.		
23	The solution should have the capability of 4 eye principle authentication i.e. two persons should authenticate via card + fingerprint individually. This feature will be useful to accompany vendor with an authorized person.		
24	The Rack Access Control solution should help to give access to non-permanent users for a limited period of time defined by the admin. This is meant for vendors visiting Datacenter for activities like maintenance, troubleshooting etc.		
25	The Vendor/OEM should have the capability to provide Card cum Biometric access control per rack & for a group of racks which consist of a minimum of 32 locks which in turn can be managed by a single centralized management software. The Optional feature of managing a		

	group of racks with single or few readers will help save IP addresses and further help with less cabling.		
26	The management software should support LDAP integration.		

7.7.13IPDU for Rack

IPDUs and Sensors			
S. No.	**Technical Specifications**	**Compliance (Complied / Not complied)**	**Remark**
1	Each rack should have 2 IPDUs. The IPDUs should be connected to the two different UPS sources A and B individually. The 2 IPDUs in each rack should have different chassis/port colour for identification of UPS source.		
2	Single phase IPDUs should have input rating of 32Amp, 230V and 3-phase IPDUs for SDC-1 should have rating of 32Amp, 400V, 3-phase for OSDC 2.0and vertical form factor. Input cable of the PDU's must be minimum 1.8 meter-long, and the input industrial plug should be IEC60309, Splash proof IP44.		
3	All IPDUs iPDU should have minimum 30 X C13 outlets and 6 X C19 outlets. All outlets should provide the locking feature without use of special power cables to provide high retention to avoid accidental dislodging of power cords. In case IPDU don't support this feature, bidder to provide locking cables.		
4	Monitoring parameters - The IPDU should have monitoring capability at Input , outlet (+/- 1%		

	accuracy) Following monitoring parameter should be available at Outlet, Inlet and phase circuit breaker: a. Voltage (V) b. Current (A) c. Power factor d. Active power (W) e. Apparent power (VA) f. Energy consumption (kwh) The metering accuracy should be +/- 1% compliant to ANSI C12.1 and IEC 62053-21 at 1% Accuracy Class Requirements.		
5	The IPDUs should have flash mounted low profile hydraulic magnetic circuit breaker for over current protection. The no. of breakers should be as per IEC guidelines.		
6	IPDU should support High Operating temperature up to 45°C to take care of high operating temperature at back of Rack.		
7	Network communication - PDU should have Network Port. IPDU should support communication protocols including DHCP, HTTP, HTTPS, Ipv4, Ipv6, LDAP, NTP, RADIUS, RSTP, SSH, SMTP, SSL, SNMP (v1, v2, v3), Syslog.		
8	The IPDU should support the daisy chain of minimum 4 units to reduce network port requirement and ensure continuous flow of data onnetwork to monitoring tool/BMS/DCIM even a break in daisy chain occurs.		

9	The IPDU shall have LED display, to easily read the displayed values when PDU is mounted upside down, based on the site requirement.		
10	Each IPDUs should be supplied with minimum 1 Nos of combo sensor each rack with a combination of Temp. and humidity.		
11	IPDU should support configuration of user defined thresholds, reports and email alerts and send it automatically to the configured users automatically on the scheduled time intervals		
12	The IPDU should have approvals form RoHS, CE		
13	iPDU should support integration with Power Management Software/DCIM for providing periodical data of power consumption		

7.7.14Oil Type Transformers

Rating/Sizing: 2 MVA Oil type 33/.433

S. No.	Technical Specifications	Fully Complied/Partially Complied/ Not Complied	Remark
1	SCOPE This specification covers the supply and delivery of outdoor type oil immersed, naturally cooled power transformers. The schedule of requirements enclosed with this specification given quantity requirements, rated KVA and voltage ratio etc.		
2	SERVICE CONDITIONS: Height above sea level Maximum 58 Metres Temperature in summer Minimum 46°c Temperature in winter Efficiency 15°c Efficiency :As defined under IS:1180 -2014 with Latest amendments as per Efficiency Level-2 NATURE OF ELECTRIC SUPPLY: Primary 33000 Volts, 3 phase, 3 wire 50 C/S. Secondary 433 Volts, 3 phase, 4 wire 50 c/S		
3	GENERAL REQUIREMENT:		

	The transformer shall be double-wounded, 3 phase, oil immersed naturally cooled out-door type especially suitable for Operation in tropical climate, windings and connections shall be in copper. The Transformer should be Eco – Friendly Green Transformer on ester oil to reduce the carbon foot print. The transformers are to be installed in electrically exposed area. The transformers with all accessories shall be capable of withstanding the thermal and mechanical effects of shorts circuit at the terminals of any winding without adverse effect.		
4	NATURE OF LOAD: Mixed load of lights, fans and motive power and shall be suitable for balance & unbalance load. Power factor at full load 0.9 (Approx.).		
5	RATED KVA The rated KVA of the transformers shall be 2000 KVA-ONAN as indicated in the schedule of requirement. The transformers shall be capable of continuous operation at its output under the following conditions. Voltage varying by +/-10%. Frequency varying by +/- 3%.		
6	VECTOR GROUP: Vector Group- Dyn 11.		
7	TAPPINGS Electrically Operated Automatic Onload Tap changing device shall be provided on Higher		

	voltage side for tapping from +5% to -15% of the input voltage in steps of 1.25%		
8	TERMINAL ARRANGEMENTS Higher voltage Side: Bare Bushings with terminal connectors/A cable box to take in 3 core 400sq.mm. XLPE cable on the HT side. Lower Voltage Side: On the lower voltage side transformers shall be provided with cable end box with copper bars to take in XLPE insulated PVC sheathed Two 3 core 300sq.mm. Armoured cable of aluminium conductor. Each phase bus bar should be suitable for taking two, 400sq.mm. single leads of Aluminium cables (XLPE insulated PVC sheathed). The neutral of the transformer winding shall brought out into separate weatherproof bushings on the body of tank for being earthed.		
9	TRANSFORMER OIL The transformer shall be supplied with first filling of transformer oil.		
10	TEMPERATURE RISE This shall be as per limits specified in the table under clause 3.2 of IS 2026 (P-II) 1977		
11	PARALLEL OPERATION The transformers offered for the same vector group rating and voltage ratio should be capable of operating in parallel satisfactorily.		
12	EARTHING: The transformer tank should be provided with two suitable earth terminals for earthing		

13	STANDARD SPECIFICATION The transformers shall comply with IS-2026-1977 main standard specification for Power Transformer as amended till date. The transformer oil shall comply with IS 335-1972 'Indian Standard Specification for insulating oil and transformer and switchgears*1 as amended till date. The tenderer shall indicate the class of insulation adopted in the transformer. The design of transformers shall be such as to reduce noise and vibration to the level obtained in good modern practice. The tank shall be of electrically welded construction and fabricated from sheet steel of adequate thickness. Tanks shall be hydraulically tested to ensure that they are leak proof and subjected to vacuum test. The Inside surface of tank shall be provided a coating of Oil resistant clear varnish or paint after treatment of inside surface by sand blasting. The tank shall have adequate strength to withstand without any deformation (i) mechanical shock during transportation and (ii) oil filling by vacuum test. The radiators shall be as per IEEMA & shall have Sheet thickness 1.2mm. All insulating material shall be of proven design. Coils shall be so insulated that the voltage stresses are minimum.		

	The end turns on the high voltage windings shall have reinforced insulation to withstand any of the voltage surges likely to occur switching or any other abnormal system conditions.		
14	PROVISION OF FITTINGS The transformers shall be provided with following fitting Rating & diagram plate. Terminal marking plate. Two earthing terminals. Lifting lugs. Drain valve with plug. Dehydrating Silica gel breather. Oil level indicator. Thermometers with thermometer sockets & leads. Oil & winding temperature indicators with alarm & trip contacts with capillary. Oil conservator Tank filter cap, drain valve and magnetic oil level gauge Oil filling hole and cap. Filter valve. Bi-directional Rollers. Explosion vent.		

	Air Release Valve. H.V. Cable Box L.V. Cable Box with copper bus bars Marshalling Box Buchholz Relay with alarm & trip contacts & shut OFF valves Radiators with shut off valves & air release plugs. Oil immersed On Load Tap Changer with Remote Tap Changing Cubical with AVR Oil Surge Relay Steel bolts and nuts exposed to the atmosphere shall be either galvanized or zinc passivated to make them as rust free.		
15	TEST Tests as per clause 16.1.2 of IS 2026-77 will be witnessed at makers works, by inspecting officer. These test certificates shall be supplied to consignee after the inspecting officer passes the transformer		
16	DISPATCH The transformer shall be dispatched duly filled with the oil. The transformer should be packed in all efficient manner so that the transformer cooling tubes, bushings and terminals and other fittings are not damaged in transit. NOTE: Transformers complete with all accessories and shall be as per relevant latest IS etc.		

17	INSTALLATION Installation shall conform to Indian Standard Code of Practices IS: 1886-1967 and meet with the approval of the Electrical Inspectorate and other statutory bodies. Transformers shall be positioned with acceptable clearance all round & its wheels shall be either locked or provided with wheel stoppers. Visual inspection shall be conducted for mechanical damage to any part or parts, leaking tanks, tubes or bushings. Suitable steps shall be taken to rectify the defects immediately. Neutral earthing shall be done with the star point of L V winding shall be earthed by means of two separate and distinct earth conductors copper strip.		
18	COMMISSIONING The following pre-commissioning tests shall be conducted and test results recorded. Continuity of the windings. Oil level, breather with Silica gel, Vent pipe, Buchholz relay direction & operations shall be proper. Setting of OTI, WTI & Tap Insulation resistance between windings and also between windings and earth.		

	Testing of oil in accordance with latest IS amended up-to date. In case the I R value and the dielectric strength of the oil are not found satisfactory, the transformers shall be dried out in the manner described in IS : 1886-1967. Drying out shall be carried out by means of a streamline filter. Insulation resistance and oil tests shall be conducted after the drying out and the transformer shall be energized if the tests are satisfactory. After energizing, transformer shall be kept on 'No Load' for a period of 24 hours before load is switched. Thereafter Transformers shall be brought up to full load over a period of one hour.		

7.7.15Fire Detection & Alarm System

Sizing: As per bidder's solution

Product/Solution Description Addressable fire detection system will be implemented all across the Datacenter and support area. The integration of Fire system has to be with DCIM and other critical equipment. Scope of Work Supply, Installation, testing and Commissioning of Fire detection and alarm system Maintenance of the same for 5 years Integration with Building fire panel and DCIM Integration with Access Doors and PAC

Sl. No	**Requirement**	**Compliance (Fully or better complied/ Partially complied/Not complied)**	**Remark (If any)**
1	2 loop panel with LCD display, Per loop 250 Devices handling capacity of any combination, power supply and battery backup. If require Each Loop shall be able to configure in two physical loop.		
2	The fire alarm system shall be integrated with the access control system to deactivate all door locks in case of emergency.		
3	Instructions/signal from panel should also shut down the PACs in case of fire.		
4	The fire alarm system should also be integrated with the BMS through SNMP		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
	CARD/Modbus/BACnet interface to get all the alerts and alarm on the BMS		
5	Each Loop with 250 device capacity capable to handle the following detectors and devices.		
6	Analogue Addressable Photo type Smoke Detector with Detector base Server Farm Area		
7	Analogue Addressable Multi Criteria type Smoke Detector with Detector base for Utility area		
8	Intelligent Analogue Addressable Smoke Detector., UL Listed 268, software Programming only.		
9	Addressable Break Glass type Manual Call Point		
10	Addressable Monitor Modules		
11	Addressable Control Modules		
12	100 DB Sounder		
13	Integration with PAC and BMS System		
14	Broadcasting in regional language other the English during evacuation process with integration of public address system		
15	All cables must be FRLS type. All conduits must be metal type.		
OEM Qualification Criteria			
1	Service center in Bhubaneswar		
2	At least 100 installations In India. Self-declaration from OEM to be submitted		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
3	Must have installation in at least 5 Datacenters in India. Documentary proof to be submitted.		

7.7.16Gas Based Fire Suppression System: - Suppression system (NOVEC 1230)

Sizing: As per Bidders solution

Product/Solution Description

Gas based fire suppression system is required to be used for Server room, UPS and Electrical rooms (for Datacentre floor). Cylinders for Server Hall is suggested to be placed on the outside the server hall on the exit path (near Staircase). There are three voids in the server hall. One is room void, second is floor void and third is containment void. All the voids have to be covered. There are 5 containments which have to be considered for gas and nozzle calculation.

Scope of Work

Removal of existing fire hydrant pipes and nozzles from the server farm area and handing over to estate department.

Supply of NOVEC 1230 cylinder with Gas, all accessories, installation, testing and commissioning of the same.

Maintenance for 5 years.

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
1	The bidder shall supply, install, test and put in operation (NOVEC) 1230 based fire suppression system. The fire suppression system shall include and not be limited to gas release control panel, CCOE approved seamless cylinders, discharge valve (with solenoid or pneumatic actuator), discharge pipe, non-return valve and all other accessories required to provide a complete operation system meeting applicable requirements of NFPA 2001 standards and installed in compliance with all applicable requirements of the local codes and standards.		
2	The work under this system shall consist of design, supply, installation, testing, training & handing over of all materials, equipment, hardware, software appliances and necessary labour to commission the said system, complete with all the required components strictly as per the enclosed tender specifications, design details. The scope also include the supply, installation & commissioning of any material or equipment including civil works that are not specifically mentioned in the specifications and design details		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
	but are required for successful commissioning of the project.		
3	The system design should be based on the specifications contained herein, NFPA 2001 & in accordance with the requirements specified in the design manual of the agent. The bidder, shall confirm compliance to the above along with their bid.		
4	The system shall be properly filled and supplied by an approved OEM (Original Equipment Manufacturer)		
5	Generally the key components* of the system shall be VdS or LPCB or FM/UL listed. The NOVEC 1230 gas shall:		
6	Comply with NFPA 2001 or ISO 14520 standard and have the approval from US EPA (Environmental Protection Agency) for use as a total flooding fire extinguishant for the protection of occupied space:		
7	Must have zero ozone depletion potential (ODP)		
8	Have a short life span in the atmosphere, with atmospheric life time of less than 5 days		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
9	Be efficient, effective and does not require excessive space and high pressure for storage;		
10	The system shall be designed taking the minimum design concentration as per NFPA 2001(Latest Edition) guidelines & as applicable to class 'A' & C risks. The NOVEC 1230 agent shall be stored in seamless steel cylinders and dry nitrogen shall be added to provide additional energy to give the required rapid discharge. At the normal operating pressure of 42bar at 21Deg C, the agent is a liquid in the container.		
11	As per the regulations of the Chief Controller of Explosives (CCE) Nagpur, any system which has a working pressure above 19 bar (280 psi) will require the use of seamless cylinders that have been duly approved by the CCE, Nagpur.		
12	ROOM INTEGRITY TEST		
13	NFPA2001 states that the design concentration of a clean agent post discharge shall be maintained for a sufficient period of time to ensure there is no re-ignition of fire once suppressed. NFPA 2001 and 12A require an enclosure integrity test as part of the acceptance		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
	procedure for all clean agent systems. This includes halocarbon and inert agents. This comprehensive test and calculation predicts the leakage area corresponding to the retention time of agent in the enclosure on discharge. Most specification state it must be ten minutes.		
14	Portable ABC /Co2 /Foam type Extinguisher for UPS, electrical room.		
OEM Qualification Criteria			
1	Service centre in Bhubaneswar		
2	At least 50 installations In India. Self-declaration from OEM to be submitted		
3	Must have installation in at least 5 Datacentres in India. Documentary proof to be submitted.		

7.7.17Access Control System

Sizing: All doors to be controlled by card reader. Server hall entry by Biometric reader

Product/Solution Description Access control system to the datacenter will be at 3 level. Starting from the entry to the facility to the Server hall, support area, UPS and electrical room, all entry and exits to be controlled. Scope of Work Supply, Installation, Testing and commissioning of Access control system with all accessories Maintenance for 5 years

Sl. No	**Requirement**	**Compliance (Fully or better complied/ Partially complied/Not complied)**	**Remark (If any)**
1	The Integrated Access Control System's (ACS) primary function shall be to regulate access through specific doors, gates or barriers to secured areas of the facility.		
2	An Intelligent System Controller (ISC) shall link the ACS software to all other field hardware. It shall provide full distributed processing for access control and alarm monitoring operations. Controller should be 8 doors, 40,000 cards capacity,10000 events. Interface on RS232,RS485 and TCP/IP.		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
3	A Dual Reader Interface Module (DRIM) shall be available for each controlled door and provide the ability to connect up to two card readers or entry devices		
4	Smart card readers at every Critical door for Entry and Exist. Biometric finger print Card reader for Critical door of Server room Door only for Entry Point and exist Smart card readers.		
5	Enterprise Version Server Software for Access control &Time and Attendance with capability to service Minimum 1 concurrent clients, Inclusive of One Server & One Client License.		
6	Shall be capable to communicate with centralized command software (BMS).		
7	Software shall Programmable functions, controller downloads and uploads, multi-level local and global anti-pass-back, integration with fire systems, grouping of escape routes, door security clearance, import and export utilities, etc.		
8	• Multiple layers of maps with interactive icons;		
9	• Alarm recognition and treatment;		
10	• Scheduled times for door clearance;		
11	• Send emails and SMS to selected users; • Multiple card formats and facility codes;		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
12	• Flexible commands for card users such as temporary access level (shift changes) and provisional cards, card lock, penalties, card and event tracking, Double custody of access cards, etc.; • control, multi-level locker and rack control with required Hardware controller		
13	SITC of Multi Format Card Readers		
14	SITC of Biometric + Smart Card Readers, shall have 2" IPS (In Plane Switching) touch screen LCD with Corning Glass scratchproof protective glass with Smart card reader module. Authentication shall be done in 1 second and the 1GB memory on board for user storage of minimum 5000 users with a card & 25000 events transaction log capability.		
15	SITC for Panic Bar with alarm for emergency exit doors.		
OEM Qualification Criteria			
1	Service centre in Bhubaneswar		
2	At least 100 installations In India. Self-declaration from OEM to be submitted		
3	Must have installation in at least 5 Datacentres in India. Documentary proof to be submitted.		

7.7.18High Sensitivity Smoke Detection System

Sizing: As per bidders solution

Product/Solution Description

A high performance aspirating smoke detection system shall be supplied, installed and commissioned by the specialist contractor in accordance with the requirements detailed in the NFPA – 72, Aspirating Detection Systems.

Scope of Work

Supply, Installation, Testing and commissioning of Access control system with all accessories

Maintenance for 5 years

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
1	The panels shall be mounted inside the risk protected and there shall be a network of air sampling pipe work.		
2	The High Sensitivity Smoke detection consist of highly sensitive Laser-based Smoke Detectors with aspirators connected to networks of sampling pipes. The alarms are generated once the laser sensor receives smoke at a pre-determined obscuration level to activate and alert, Fire 1, Fire 2 and alert signal.		
3	The signal is extended to the Fire Alarm monitor Modules / BMS through Volt free contacts for further investigation.		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
4	When required, it shall be possible to connect an interface card for open Protocol output to BMS system for online Monitoring with Software level integration.		
5	When required, an optional remote Display unit shall be provided to monitor each detector, and a Programmer shall be supplied to configure the system.		
6	The system shall include all equipment's, appliances and labour necessary to install the system, complete with high sensitive LASER-based 7Smoke Detectors with aspirators connected to network of sampling pipes.		
7	The Bidder shall also make provision in the Aspirating Smoke Detectors to trip AHU and to shut fire dampers in the event of fire through the relay contacts.		
8	Codes and standards The entire installation shall be installed to comply one or more of the following codes and standards : NFPA Standards, British Standards, BS 5839 part :1		
9	Approvals		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
	All the equipment's shall be tested, approved, and/or listed by : o LPCB (Loss Prevention Certification Board), UK FM Approved for hazardous locations Class 1,Div 2 UL (Underwriters Laboratories Inc.), US ULC (Underwriters Laboratories Canada), Canada o Vds (Verband der Sachversicherer e.V), Germany		
10	The System shall consist of a high sensitive LASER-based smoke detector, aspirator, and filter.		
11	It shall have a display featuring LEDs and Reset/Isolate button. The system shall be configured by a programmer that is either integral to the system, portable or PC based.		
12	The system shall allow programming of: Multiple Smoke Threshold Alarm Levels Time Delays. Faults including airflow, detector, power, filter block and network as well as an indication of the urgency of the fault.		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
	Configurable relay outputs for remote indication of alarm and fault Conditions. It shall consist of an air sampling pipe network to transport air to the detection system, supported by calculations from a computer-based design modelling tool. Optional equipment may include intelligent remote displays and/or a high level interface with the building fire alarm system, or a dedicated System Management graphics package.		
13	Performance Requirements Shall provide very early smoke detection and provide multiple output levels corresponding to Alert, Action, and Fire 1 & 2. These levels shall be programmable and shall be able to set sensitivities ranging from 0.025 – 20% obscuration / meter Shall report any fault on the unit by using configurable fault output relays or via the graphics Software. Shall monitor for filter contamination.		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
	Shall incorporate a flow sensor in each pipe and provide staged airflow faults.		
14	Materials and Equipment's Both Light Scattering and Particle Counting shall be utilized in the device as follows: The Laser detection Chamber shall be of the mass Light Scattering type and capable of detecting a wide range of smoke particle types of varying size. A particle counting method shall be employed for the purposes of Preventing large particles from affecting the true smoke reading. Monitoring contamination of the filter (dust & dirt etc.) to notify automatically when maintenance is required. The Laser Detection Chamber shall incorporate a separate secondary clean air feed from the filter; providing clean air barriers across critical detector optics to eliminate internal detector contamination. The detector shall not use adaptive algorithms to adjust the sensitivity from the		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
	set during commissioning. A learning tool shall be provided to ensure the best selection of appropriate alarm thresholds during the commissioning process.		
15	Detector Assembly The Detector, Filter, Aspirator and Relay Outputs shall be housed in a mounting box and shall be arranged in such a way that air is drawn continuously from the fire risk area by the Aspirator and a sample passed through the Dual Stage Filter and then to the detector. The detector shall be LASER-based and shall have an obscuration sensitivity range of 0.025 – 20% obs/m. The detector shall have four programmable smoke alarm thresholds across its sensitivity range with adjustable time delays for each threshold between 0 - 60 seconds. The detector shall also incorporate the facility to transmit a fault through a relay. The detector shall have a single pipe inlet that must contain an ultrasonic flow sensor. High flow fault (urgent and non-		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
	urgent) and low flow fault (urgent and non-urgent) can be reported. The filter must be a two-stage disposable filter cartridge. The first stage shall be capable of filtering particles in excess of 20 microns from the air sample. The second stage shall be ultra-fine, removing more than 99% of contaminant particles of 0.3 microns or larger, to provide a clean air barrier around the detector's optics to prevent contamination and increase service life. The aspirator shall be a purpose-designed rotary vane air pump. It shall be capable of allowing/ supporting for a single pipe run / multiple sampling pipe runs with a transport time of less than 90 seconds. Detectors shall be capable of supporting a single pipe run of 25m with a maximum transport time of 120 seconds or as appropriate standards dictate. The Assembly must contain relays for fire 1, Action and fault conditions. The relays shall be software programmable (latching or non-latching). The relays must be rated at 2 A at 30V DC. Remote relays shall be		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
	offered as an option and either configured to replicate those on the detector or programmed differently. The Assembly shall have built-in event and smoke logging. It shall store smoke levels, alarm conditions, operator actions and faults. The date and time of each event shall be recorded. Each detector (Zone) shall be capable of storing up to 18000 events.		
16	Displays on the Detector Assembly The detector will be provided with LED indicators. Each Detector shall provide the following features at a minimum. Alert, Alarm, Fire 1 and Fire 2 corresponding to the alarm thresholds of the detector. o Smoke Dial display represents the level of smoke present. Fault Indicator. Disabled indicator.		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
	Buttons supporting the following features shall be accessible to authorized personnel. Reset – Unlatches all latched alarm and faults. Disable – Disables the fire relay outputs from actuating and indicates a fault.		
17	Sampling Pipe The sampling pipe shall be smooth bore with an outside diameter of 25mm and internal diameter of 21mm should be used. The pipe material should be suitable for the environment in which it is installed, or should be the material as required by the specifying body. All joints in the sampling pipe must be air tight and made by using solvent cement, except at entry to the detector The pipe shall be identified as Aspirating Smoke Detector Pipe along its entire length at regular intervals not exceeding		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
	the manufacturer's recommendation or that of local codes and standards. All pipes should be supported at not less than 1.5m centres, or that of the local codes or standards. The far end of each trunk or branch pipe shall be fitted an end cap and drilled with a hole appropriately sized to achieve the performance as specified and as calculated by the system design.		
18	Sampling Holes Sampling Holes of 2mm, or otherwise appropriately sized holes, shall not be separated by more than the maximum distance allowable for conventional detectors as specified in the local codes & standards. Intervals may vary according to calculations. Each sampling point shall be identified in accordance with Codes or Standards. Consideration shall be given to the manufacturer's recommendations and standards in relation to the number of Sampling Points and the distance of the		

Sl. No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark
	Sampling Points from the ceiling and roof structure and forced ventilation systems.		
OEM Qualification Criteria			
1	Service center in Bhubaneswar		
2	At least 100 installations In India. Self declaration from OEM to be submitted		
3	Must have installation in at least 5 Datacenters in India. Documentary proof to be submitted.		

7.7.19IP Based CCTV System

Sizing: All area inside and outside the Datacentre to be covered under surveillance.

Product/Solution Description All areas to be covered under surveillance. Inside the server hall all aisles to be covered. No dark spot inside the server hall and support area except manager's cabins. Scope of Work Supply, installation, testing and commissioning of IP CCTV system Maintenance for 5 years. The CCTV systems of the existing DC has to be replaced with IP CCTV with a single monitoring for both the DC

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
1	2 megapixel (1920 x 1080) resolution Indoor Camera with 1/2.9" 2.19M CMOS or better , Lens- 3.2 ~ 10mm varifocal lens or better ,Min 30fps@all resolutions (H.264), H.264, MJPEG codec supported, Multiple streaming and User Access 6 users at unicast , Auto Day & Night ,WDR -120dB or better, Tampering, Motion detection, Micro SD/SDHC memory slot Min support 32GB, PoE , Hallway view, IR Range 20m		
2	2 megapixel (1920 x 1080) resolution weather proof bullet type camera with /2.9" 2.19M CMOS, Lens 3.2 ~ 10mm varifocal lens or better, Min 30fps@all resolutions (H.264), H.264, MJPEG codec supported, Multiple streaming and User Access 6 users at unicast , Auto Day & Night ,WDR -120dB or better, Tampering, Motion detection, Micro SD/SDHC memory slot Min support 32GB, PoE , Hallway view, IR Range 30m, IP66 support		
3	2MP (1920 x 1080) resolution outdoor PTZ camera with 1/2.8" 2M CMOS , Focal Length 5 ~ 100mm , zoom 20X , Pan- 360˚ Endless, Tilt Range200˚ ,Pan / Tilt Speed-P reset : 500˚/sec, Manual : 0.24˚/sec ~ 200˚/sec, Pre-set -300, Swing, Group , Trace, Tour (1ea), Auto run,		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
	ScheduleH.265, H.264, MJPEG codec support, Multiple streaming, auto Day & Night (ICR), HLC/ BLC WDR120 dB, DIS with Built-in Gyro sensor, Tampering, Motion detection, Memory slot and support Min 256GB, IP66, IK10		
4	32CH, Max. 12MP Camera supported, 256Mbps network camera recording, Transmission Bandwidth 500Mbps, Support 4K video out on HDMI monitor, Simultaneous Playback Min 16CH Support Dual monitor video out, Support H.265, H.264, MJPEG compression, . 8 internal HDDs support e-SATA / iSCSI external storage, backup from camera SD card & Failover support- N+N / N+1, Operating Temperature +0°C ~ +40°C, Humidity 20% ~ 85% RH or better.		
OEM Qualification Criteria			
1	Service centre in Bhubaneswar		
2	At least 100 installations In India. Self-declaration from OEM to be submitted		
3	Must have installation in at least 5 Datacentres in India. Documentary proof to be submitted.		

7.7.20Water Leak Detection System

Rating/Sizing: 4 / 8 zones

Product/Solution Description

A central control apparatus electrically interconnected with a plurality of circuits which enable water leaks to be accurately detected in a diversity of devices including air conditioners, compressor coils, hot water appliances, and pipes, and for communicating the severity of the water-related problem. A plurality of water sensors are incorporated into specially designed probes of the preferred embodiment wherein water leaks may be accurately and reliably detected in a diversity of water-dependent appliances and devices. The product shall be designed and should be easily installed and to be inherently devoid of any safety hazards. The total area under protection shall be divided into multiple zones. When there is a potential leak detected, the product shall be able to locate the zone(s) in which the leak has occurred with the corresponding zone name.

Scope of Work

Supply, Installation, testing and commissioning of Water leak detection system

Maintenance for 5 years

Sl.No	**Requirement**	**Compliance (Fully or better complied/ Partially complied/Not complied)**	**Remark (If any)**
1	Control Panel with 4 x 20 LCD		
2	4 / 8 zones		
3	Sensing technology shall be only AC		
4	Isolate facility for each zone		
5	Common fire interface relay		
6	Fault relay		
7	Hooter output		
8	Zone alarm & fault LED Indication		
9	MODBUS RTU for BMS integration		

OEM Qualification Criteria			
1	Service centre in Bhubaneswar		
2	At least 100 installations In India. Self-declaration from OEM to be submitted		
3	Must have installation in at least 5 Datacentres in India. Documentary proof to be submitted.		

7.7.21Video Wall (DLP based)

Sl.No	**Requirement**	**Compliance (Fully or better complied/ Partially complied/Not complied)**	**Remark (If any)**
1	Video wall: 70" inches diagonal, 4X2 arrangement, Visual Display Unit / Rear Projection Module must be based on DLP-Laser Based Video wall		
2	The native resolution of each Visual Display Unit / Rear Projection Module should be 1920 X 1080 pixels only		
3	The Light source lifetime of 70" DLP Laser lit cubes should be 100,000 hrs. The brightness uniformity should be > 95%.		
4	The screen should have low inter screen gap < 1 mm to give seamless viewing experience.		
5	Video Wall Controller:		
A	Should be based on Intel Xeon Octa Core 2 Ghz or more		
B	RAM 32GB, HDD 1TB, I redundant power supply,		
C	Min 6 DVI inputs		

6	The software should enable display of the screen content of the operator PC / workstation connected on the LAN with the Display Controller on to the video wall in scalable and moveable windows in real-time environment.		

7.7.22Ultrasonic Rodent Repellent system

Rating/Sizing:

Product/Solution Description

The objective is to protect the entire premise all the voids against rodents. The purpose is to keep the rodents away from the floor by generating very high frequency sound waves (above 20 Khz) which are not legible to human ear but irritates rodents. The objective is to protect all the cables below floor, above ceiling & room void from damage caused by rodents.

Scope of Work

Supply, Installation, testing and commissioning of Water leak detection system

Maintenance for 5 years

Rodent Repellent system shall be provided on in all voids.

Sl.No	**Requirement**	**Compliance (Fully or better complied/ Partially complied/Not complied)**	**Remark (If any)**
Mandatory Technical Requirements			
1	2x16 LCD		
2	System Healthy relay		
3	Mini Exhaust Fan		
4	RS485 MODBUS RTU for BMS Integration		
5	Test Transducer Menu		
6	Programmable Sweep Time & delay		

7.7.23Physical Access Control System

Rating/Sizing: Full height

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
A	Full Height Turnstile for Data Centre Entrance		
	Standard measurements: Total height: 2275 mm Headroom: 2075 mm Outside diameter 1500 mm Inside diameter: 1400 mm Upper part of the body: 200 mm Construction:		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
	The side body parts are designed with LSG 8 mm glass panels and connected with one another in the area of the centre post. The upper dustproof cover is made from raw aluminium plating. Two maintenance openings are integrated into the lower ceiling plate; the outer maintenance opening can be locked. The blocking element on the side wall is made of rectangular aluminium profiles. Finish: Plastic coated in an RAL colour or anodized natural tone. Function: The security revolving door is equipped with a low energy SK-M servo positioning drive for automatic access control and active locking. The selected rotation direction is released for a rotary cycle by a floating signal initiated by an on-site element (or one supplied by the customer). The selected rotation direction is released by a release impulse for the entry or exit direction. Electrical system: The network-compatible bus control unit is integrated into the unit. Power supply 100–240 VAC		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
	50/60 Hz 253 VA. Four floating inputs for on-site control and five floating outputs for further on-site processing.		
1	servo positioning drives		
2	standby power consumption 17 VA swing flap barrier		
3	Wings opening/ closing time should be 0.3 seconds minimum, which can be adjusted as per client requirement		
OEM Qualification Criteria			
1	Service supports all major cities in India		

7.7.243D X-ray Baggage Scanner

Rating/Sizing: As per bidder solution

Product/Solution Description 3D X-ray Baggage Scanners Scope of Work SUPPLY INSTALLATION TESTING COMMISSIONING OF X-RAY BAGGAGE SCANNERS

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
1	X Ray baggage Scanner Technology should be based on Dual energy based isometric X-Ray imaging.		
2	The Baggage scanner should produce isometric view (virtual 3D view) of the objects scanned to have more detailed information, which are not visible in traditional single view baggage scanners, which generates only the top or bottom (2D) view of the scanned objects.		
3	Machine should generate the images in such a way that the depth of any scanned object can be visualized appropriately to further analyse the details of the object inside a baggage for better identification of harmful objects like Gun/Knife etc.		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
4	Tunnel Size - Minimum 60 cm W (width) x Minimum 40 cm H (Height)		
5	Conveyor belt speed should be between 0.2 and 0.3 meter per second. Conveyor movement bi-directional		
6	All machines should operate on 230 VAC, 50 Hz power supply		
7	Conveyor Capacity - 160 kg evenly distributed		
8	Through put should be 500 bags per hour		
9	Video display - 17" or better LCD Monitor High resolution, low radiation, flicker free, resolution at least 1280x1024, 24 bit true colour real time processing		
10	Health & Safety - The machine must comply with requirements of health and safety regulations with regards to mechanical, Electrical and radiation hazards. The supplier/manufactures should furnish Test Certificate from Atomic Energy Regulatory Board of India regarding radiation safety.		
11	Computer Specifications - 1. Processor: Intel i3 or better 2. Memory: 4GB RAM		

Sl.No	Requirement	Compliance (Fully or better complied/ Partially complied/Not complied)	Remark (If any)
	3. Storage: 160GB HDD 4. Video Card: 512MB Graphic card 5. Backup: UPS (10 Min) for Computer		

7.7.25Tier Certification by Uptime Institute

The bidder must ensure that the Data centre gets certified for Tier III or higher as feasible and suitable from Uptime Institute Inc.

The Data Centre Facility to be constructed under this contract shall be Uptime Institute Tier III Gold Certified. The successful bidder shall obtain the following as part of this certification process:

1. Tier III Certification of Design Documents for Complete Data Centre Facility Design
2. Tier III Certification of Constructed Facility for all areas of Data Centre Facility to be constructed under this contract
3. Tier III Certification of Operational Sustainability

All Certifications shall be kept valid for the contract period

The necessary certifications will be obtained on the behalf of the client and passed on to them on award.

The successful bidder shall be responsible for all associated cost for obtaining & maintaining these certifications.

In case the testing fails during certification process, bid must incur all the cost till the testing is successfully over and certification is done

8 Health Safety Environment

HSE Team Responsibilities:

1. Ensure all workers are knowledgeable and have access to the latest publications of applicable laws and regulations, including:
2. HSE rules and safe work standards;
3. Operating and critical task procedures;
4. Emergency response procedures; and
5. Environmental protection requirements;
6. Ensure worksites offer safe and healthy working conditions;
7. Ensure property and equipment are maintained to Company and manufacturer standards;
8. Ensure site-specific safe work practices (e.g., start-up and shutdown practices) are developed for each facility as required, and implement training of site employees and contractors to ensure procedures are understood;
9. Communicate HSE performance expectations, requirements and results to employees and contractors;
10. Reinforce program objectives, policies and regulatory requirements by insisting on performance and behaviour that meet Company standards;
11. Ensure compliance and incident reports are submitted as required;
12. Ensure incidents are investigated and followed up with appropriate corrective actions;
13. Identify training programs and opportunities as needed;
14. Understand regulatory requirements.
15. Understand and implement the corporate HSE Management System;
16. Identify, eliminate or minimize hazards;
17. Identify and correct unsafe work habits;
18. Ensure workers are properly qualified and trained to perform their work, know what is expected of them, and are prepared to deal with the hazards of their work and worksites;
19. Monitor work to ensure contractors and their employees comply with corporate standards and government legislation and regulation;
20. Ensure personal protective equipment is available, properly used, maintained and replaced as necessary;
21. Monitor facilities for HSE performance, hazards and general housekeeping standards;
22. Assist management in the continued development of HSE programs;

23. Ensure required pre-job meetings and regular HSE meetings are held and recorded; and
24. Review inspection, audit reports, and respond to reported deficiencies.

Employees and workers will meet the following HSE responsibilities:

1. Learn and abide by HSE standards and regulations that pertain to their work, and contact a supervisor if there is any confusion over what is required;
2. Take an active part in learning, developing and promoting HSE programs and goals;
3. Refuse to perform work they are not qualified to do or when unsafe conditions exist;
4. Attempt to correct unsafe or hazardous conditions. Where conditions cannot be corrected, report the hazards to a supervisor;
5. Immediately report all incidents to a supervisor;
6. Keep written records of incidents;
7. Maintain the appearance of Company facilities and promote good relations with local officials and residents;
8. Maintain and operate equipment in a manner that minimizes leaks, spills, emissions, noise and other hazards;
9. Know the locations of emergency, personal protective and spill response equipment and how to properly use it;
10. Clean up and report spills as they occur; and Monitor activities of fellow employees and workers, especially new or inexperienced workers, to ensure they do not place themselves or others at risk.

Visitors

A visitor is anyone who will be on a worksite for a short period of time (e.g., less than a day) and who must be accompanied at all times to ensure he or she is protected from the hazards on the site. Visitors include government representatives, students, senior Company employees and others. Visitors will meet the following HSE responsibilities:

1. Refrain from entering Company property or worksites except when permission has been granted by a Company supervisor, and only when accompanied by a Company representative, unless otherwise approved; and

2. Wear appropriate protective clothing and equipment in accordance with the standard requirements for the area and work conditions.

9 Project Timelines

SI shall deliver all project activities/milestones/deliverables to the Client as per the timelines stated in this section. OCAC or its authorized representative shall take thirty (30) days to review and provide comments on all respective deliverables. SI shall ensure that all comments provided by the OCAC, or its authorized representative shall be incorporated in the final version of all deliverables.

All deliverables indicated in the tables below are indicative only and shall be read in conjunction with the Scope of Work section and Standard Form of Contract of the RFP for detailed requirements. Client or its authorized representative reserves the right to ask for additional information, documents and deliverables throughout the Project.

T0- Represents the Project Start Date (i.e. agreement signoff Date of kick off meeting).

W- Represents the timeline in Weeks after agreement signoff kick off meeting.

Week	Activity	OCAC	Consultant	Successful Bidder	Remarks
L0	Project Award	√	√	√	Issue of Letter of Intent (LOI). Letter of acceptance by successful bidder within 7 days of LOI. Draft MSA will be shared to successful bidder within 10 days of acceptance by bidder.
L0+ 4 Weeks= L1	Project Initiation	√	√	√	MSA to be signed within 1 Month from the date of issuance of LOI and PBG @ 10% of the TCV (Total Contract Value) to be submitted simultaneously.
T0	Project Kick-off & Mobilization	√	√	√	Kick-off meeting to happen within 7 days

Week	Activity	OCAC	Consultant	Successful Bidder	Remarks
					from the date of signing of MSA along with all the stake holders; Project plan to be submitted. T0 = Project Start Date
T0 + 1 Months = M1	Preparation & Submission of layout, GFC drawing, civil works for approval	√	√	√	Submission of design documents, layout, drawing etc. for statutory approvals and Uptime Institute Design Certification
T0 + 2 Months = M2	Finalization and Approval of the submitted layout, etc.	√	√	√	BIDDER has to work with OCAC for approval from other statutory bodies.
T0 + 4 Months = M3	Completion of Civil & Interior Works AND Delivery & Installation of Electrical Low Side, HVAC Low Side, IBMS Low Side Works and Structure Cabling		√	√	Completion of all Civil and Interior works and inspection report of all item delivered & erected. Bidder to furnish monthly progress report.
T0 + 6 Months = M4	Delivery & Installation of Electrical High Side Works, HVAC High Side Works, IBMS High Side Works, Lifts, UPS & Battery, DG, Rack & IP-PDU, Video Wall, Passive Cabling for DC		√	√	Bidder needs to furnish weekly progress report.

Week	Activity	OCAC	Consultant	Successful Bidder	Remarks
T0 + 7 Months = M5	Commissioning & Testing of all Non-IT systems (PAT of Non-IT System)	√	√	√	Bidder to carry out integrated system testing of all equipment and rectify all snags. Consultant to work with BIDDER for User acceptance Test sign-off of Non-IT Infrastructure system from OCAC
T0 + 8 Months = M7	Project Sign-Off & FAT (Go-Live of the Project)	√	√	√	Successful Final Acceptance Test of all commissioned IT and Non systems and Issue Go-Live Certificate from OCAC

* - Its Bidder responsibility to insure MSA signoff will be complete within 30 Days from issuing of LOI; else T0 will be treated as Project start date

10 Liquidated Damages

Except as provided under clause "Force Majeure", if the selected bidder fails to deliver any or all the Goods or perform the Related Services within the period specified in the Contract, OCAC may without prejudice to all its other remedies under the Contract deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in sub clause **(iv)** below for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the percentage specified in sub clause **(iv)**. Once the maximum timeline is reached, the Purchaser may terminate the Contract pursuant to clause "Termination".

The time specified for delivery in the tender form shall be deemed to be the essence of the contract and the selected bidder shall arrange goods supply and related services within the specified period

Delivery and completion period may be extended with or without liquidated damages if the delay in the supply of goods or service is on account of hindrances beyond the control of the selected bidder to be determined by OCAC.

a. The supplier/ selected bidder(s) shall request in writing to OCAC giving reasons for extending the delivery period of service if he finds himself unable to complete the supply of goods or service within the stipulated delivery period or is unable to maintain prorate progress in the supply of goods or service delivery. This request shall be submitted as soon as a hindrance in delivery of goods and service occurs or within **15 days** from such occurrence but before expiry of stipulated period of completion of delivery of goods and service after which such request shall not be entertained.

b. OCAC shall examine the justification of causes of hindrance in the delivery of goods and service and the period of delay occurred due to that and recommend the competent authority on the period of extension which should be granted with or without liquidated damages.

c. If the competent authority agrees to extend the delivery period/ schedule, an amendment to the contract with suitable denial clauses and with or without liquidated damages shall be issued. The amendment letter shall mention that no extra price or additional cost for any reason, whatsoever beyond the contracted cost shall be paid for the delayed supply of goods and service.

d. It shall be at the discretion of the competent authority to accept or not to accept the supply of goods and/ or services rendered by the contractor after the expiry of the stipulated delivery period, if no formal extension in delivery period has been applied and granted. The competent authority shall have right to cancel the contract with respect to undelivered goods and/ or service.

a. The maximum amount of liquidated damages shall be 7.5% of the total order value.

b. OCAC reserves its right to recover these amounts by any mode such as adjusting from any payments to be made by OCAC to the bidder.

iv. In case of extension in the delivery and/ or completion period is granted with full liquidated damages, the recovery shall be made on the basis of following percentages of value of goods which the selected bidder has failed to supply or complete:

No.	**Condition**
1	For delay in delivery and services and/ or completion beyond the schedule mentioned in the Project timelines milestone wise (mentioned in payment schedule) , **LD @ 0.5%** per week or part thereof for the pending materials order value up to maximum **7.5%** will be deducted.

11 Payment schedule

Payment will be released to the successfully shortlisted bidder in phased manner as stated below:

Deliverables	Timelines	Payment	Remarks
Inception Report / Mobilization Advance	T0 + 2Months	10% of total capex quoted value	The bidder would be given 10% of payment after the project kick off and submission of inception report and Tier III/Rated 3 Design Certification
Delivery of Non-IT components of OSDC 2.0 – Phase 1	T0 + 4 Months	30% of total capex quoted value	HT panel, Transformer, MV panels, DG set, Outdoor and indoor BBTs, Racks, In-Row PACs, Perimeter PACs, IPDUs and UPS with Batteries.
Delivery of Non-IT components of OSDC 2.0 – Phase 2	T0 + 5 Months	20% of total capex quoted value	Delivery of all Passive cabling (Fibre and copper), Electrical cables, Cable trays and Raceways.
Supply and Installation & Commissioning of all Non-IT components of DC	T0 + 7 Months	20% of total capex quoted value	On Successful supply and installation and commissioning of all remaining items.
Final Acceptance Test & Go-Live of DC	T0 + 9 Months	10% of total capex quoted value	On successful completion of final acceptance test and submission of completion certificate and Tier III/ Rated 3 construction certification.
On successful running of DC for one year from final acceptance test and migration along		Final 10% of capex quoted value	The payment will be against submission of Performance Bank Guarantee, 10% of quoted value valid for 1 year.

with submission of requisite documentation			
Operations and maintenance Management for 5-year payable quarterly		25% (per quarter) of the yearly quoted price. 1st quarter pay-out will be made post submission of structured cabling certification valid for 25 yrs.	Payment terms would be quarterly in arrears after making do adjustment with SLA/ performance

Note: -

1. All the payments will be made to the successful bidder in Indian Rupees only. Payments will be made after thirty (30) days of receiving the invoice subject to approval from competent authority. The billing has to be made in the name of OCAC.
2. Tax shall be shown extra by the Bidder in their invoices for the items applicable. The same shall be paid by OCAC as per actual after verification. Similarly, if there is any tax savings, the same shall be reduced from the payable amount.
3. In case of any new incidence of tax or any change in existing tax rates taking place during the Agreement Period, that shall be borne and payable by OCAC over and above the agreed price for each item as may be applicable as per the Invoice raised by either Party/Member of the on OCAC. Similarly, any reduction in taxes shall be to the benefit of OCAC. All invoices produced to OCAC for payment should be with TAX invoice.
4. The bidder must raise the GST invoice within 7 days of Delivery of the complete items as per milestone. No partial payment will be accepted beyond the stated milestone.
5. Payment will be made on actual measurement of products and services consumed at site. There are approximate quantities mentioned in the Bill of

material. Bidder may increase the quantity as per their solution. Decreasing of quantity at bidding stage for the quantity already mentioned in the price bid is not allowed. The 'rate only' items will not be considered for evaluation.

12 Service Level Agreement

This SLA document provides for minimum level of services required as per contractual obligations based on performance indicators and measurements thereof to be offered by BIDDER to OSDC. The BIDDER shall ensure provisioning of all required services while monitoring the performance of the same to effectively comply with the performance levels to provide quality services. The BIDDER shall meet service level objectives and corresponding parameters to ensure the delivery and quality of services on time as per standard mentioned in the document. Service level indicators & and the target performance levels to be maintained by the Bidder during the contract period. SLA shall be strictly imposed and a third-party audit/certification agency shall be deployed for certifying the performance of the Bidder against the target performance metrics. All logs, reports and data that shall be made available for the purpose of evaluation/audit of SLA parameters/target performance metrics should be system generated only.

The benefits of this SLA are to:

1. Trigger a process that applies Customer and the Bidder management attention to some aspect of performance when that aspect drops below an agreed upon threshold, or target.
2. Makes explicit the expectations that Customer has for performance.
3. Helps Customer to control the service level and performance of Bidder services.
4. The Bidder shall have to submit a quarterly report to monitor the performance of the services being provided by the Bidder and the effectiveness of this SLA

12.1 Brief Description of the services provided

The Bidder will provide following services for Site Preparation & Supply, Installation and Maintenance of basic Infrastructure for the establishment of State Data Centre at the proposed site. The exact scope and boundaries of services provided as part of this Contract are detailed in Detail Scope of Work therein of this RFP.

1. Site Preparation of the proposed Data Center in terms of the civil, electrical and mechanical work required to Build and maintain the Data Centre.
2. Supply, installation and setting up of the necessary basic Infrastructure (state of Art UPS and Air-conditioning System, Transformer, Fire management, Lighting system, Fire Detection and Control system, Structure Cabling, etc.).
3. Supply, installation and setting up of the physical security system and CCTV surveillance systems.
4. Five years on-site maintenance of all the equipment's and their components supplied in setting up the basic Infrastructure in the proposed Odisha State Data Centre.
5. Onsite support for Data Centre Infrastructure Operations on 24*7*365 basis by skill manpower / Personnel for a period of five years to ensure 99.982% availability

12.2 SLA Definitions

For purposes of this Service Level Agreement, the definitions and terms as specified in the contract along with the following terms shall have the meanings set forth below:

"**Availability**" shall mean the time for which the services and facilities offered by the Bidders are available for conducting operations from the equipment hosted in the Data Centre.

"**Downtime**" is the time the services and facilities are not available to Customer, which excludes the scheduled outages planned in advance for the Data Centre.

"**Helpdesk Support**" shall mean the Bidder's 24x7x365 Helpdesk Support Centre which shall handle Fault reporting, Trouble handling, Ticketing and related enquiries during this contract

"**Incident**" refers to any event / abnormalities in the functioning of the Data Centre Equipment / Services that may lead to disruption in normal operations of the Data Centre services.

Critical: Incidents, whose resolution shall require additional investment in component or time or shall involve coordination with OEMs. These incidents shall impact the overall functioning of the SDC. For example, Power failure, failure of Spine switch, etc.

Medium: Incidents, whose resolution shall require replacement of hardware of software parts, requiring significant interruption in working of that individual component. For example, installation of operating system, replacement of switch, etc.

Low: Incidents, whose resolution shall require changes in configuration of hardware or software, which will not significantly interrupt working of that component.

"**Resolution Time**", means time taken by the Bidder staff to troubleshoot and fix the problem from the time the call has been logged at the Helpdesk till the time the problem has been fixed.

12.3 Category of SLA

This SLA document provides minimum level of services required as per contractual obligations based on performance indicators and measurements thereof. The DCO shall ensure provisioning of all required services while monitoring the performance of the same to effectively comply with the performance levels.

The SLA has been logically segregated in the following categories:

1. Performance Related Service Level
2. IT infrastructure related service level.
3. Virtual Infrastructure Related Service Level
4. Security and Incident Management
5. Helpdesk Support Services
6. Manpower related Service Level
7. Compliance & Reporting Procedure
8. Civil major and minor Works

12.4 Targets of Service Level Agreement

SLA clause provides for minimum level of services required as per contractual obligations based on performance indicators and measurements thereof. The Bidder shall ensure provisioning of all required services while monitoring the performance of the same to effectively comply with the performance levels. The services provided by the Bidder shall be reviewed by the Consultant/ TPA and Customer shall:

1. Check performance of the Bidder against this SLA over the review period and consider any key issues of the past period's performance statistics including major incidents, service trends, etc.
2. Discuss escalated problems, new issues and matters still outstanding for resolution.

3. Review of statistics related to rectification of outstanding faults and agreed changes.
4. Obtain suggestions for changes to improve the service levels.

In case desired, Consultant /Customer may initiate an interim review to check the performance and the obligations of the Bidder. The SLA may be reviewed and revised in accordance to the define procedures. The procedures in will be used if there is a dispute between Consultant/TPA /Customer and the Bidder on what the performance targets should be.

12.5 Performance Related Service Levels

S No	Measurement	Definition	Interval	Target	Target in Time	Penalty
1.	Data Center Availability	Availability = {1-[(Downtime) / (Total Time – Maintenance Time)]}*100 Availability of Power will be measured upto the socket level in the equipment room that will be providing power to the racks.	Quarterly	>= 99.98%	25 minutes Continuous downtime	No Penalty
				>= 99.75% to <99.98%	<= 30 minutes to > 25 minutes of downtime	0.5% of the QGR value
				< 99.75%	> 30 minutes of downtime	For every 0.25% reduction in the uptime there will be a penalty of 2% QGR.
2.	Temperature	The server farm area temperature should be maintained all the time.	Quarterly	20 + - 2 Degree Centigrade in the server farm area all the time.	0-4 instances in a week	No Penalty

S No	Measurement	Definition	Interval	Target	Target in Time	Penalty
		Temperature log reports should be stored for a period of minimum 4 months.		20 + - 2 Degree Centigrade in the server farm area all the time.	5 no of instances or more than that in a week	Penalty of 0.25% of the QGR value for [If Instances count more than 10 in one QGR then it Record as Event of Default], a letter of warning may be issued to the bidder.
3	Humidity	The server farm humidity should be maintained all the time. Humidity log reports should be stored for a period of minimum 4 months.	Quarterly	The humidity should be within range of 50% +- 5 RH all the time	0-4 instances	No Penalty
					5 no of instances or more than that in a week	0.25% of the QGR value for [If Instances count more than 10 in one QGR then it Record as Event of Default], a letter of warning may be issued to the bidder.
4.	CCTV camera Availability Shall be measured for all cameras	Availability = {1-[(Downtime) / (Total Time – Maintenance Time)]}*100	Quarterly	>= 99.98%	25 minutes	No penalty
				Between 99.98% and 99.75%	<= 30 minutes to > 25 minutes of downtime	0.5% of the QGR value.
				< 99.75%	> 30 minutes of downtime	1% of the QGR value.

S No	Measurement	Definition	Interval	Target	Target in Time	Penalty
	installed and NVR					
5	CCTV Footage Availability	CCTV footage/NVR data should be kept stored for some period of time.	Quarterly	The SI/DCO should maintain the CCTV footage recordings of past 7days at given point of time. The recordings should be taken back up and store for minimum of 3 months.	7 days with NVR and 3 months with storage.	0.01% of the QGR value plus Letter of Warning to be issued to the bidder.
6.	Availability of Access Control Devices	Availability = {1-[(Downtime) / (Total Time – Maintenance Time)]}*100	Quarterly	>= 99.98%	25 minutes	No penalty
				Between 99.98% and 99.75%	<= 30 minutes to > 25 minutes of downtime	0.5% of the QGR value on an incremental basis.
				< 99.75%	> 30 minutes of Downtime	1% of the QGR value

12.6 Manpower Service Levels

Sl. No.	Definition	Measurement Interval	Target	Penalty
1	Resource availability for all services agreed for	Quarterly	Single absence of a	No Penalty

	Operation and Maintenance purpose of the project. DCO manpower should be available 24x7x365 days.		single resource	(if replaced by equivalent skilled resource) Replacement should be subject to prior approval of Project Manager OSDC/ OCAC.
				Double of the cost of the absent resource for the period of absence.

NB: Minimum no of Resource need to be present in all shift at Data Centre should be not less than as specified in the RFP. (Excluding Holidays)

The replacement of manpower by bidder after deployment will be allowed (without penalty) only in below cases.

1. The resource leaves the organization by submitting resignation with present employer and a copy of resignation should be marked to OCAC/OSDC.
2. Bidder will withdraw the resource as per its own organization policy in case of non-performance and non-corporation in line with the OSDC guidelines.
3. For Skills and Competence level the resource profile, educational qualification and certifications should be verified by the Consultant and OCAC/OSDC jointly prior to deployment.
4. No resource will be absent without prior permission from the designated authority.
5. A Background Verification may be carried out for selected resources to ensure no criminal history present.
6. All resources required to be covered under EPFO, ESIC and minimum wages as applicable.

12.7 Compliance & Reporting Procedures

	Measurement	Definition	Measurement	Target	Penalty
	Submission of MIS Reports and QGR reports	The Bidder shall submit the MIS reports and QGR reports Quarterly and as and when required to the OCAC/OSDC, Odisha	Quarterly	Report for the previous quarter shall be submitted within the first week of next quarter.	No Penalty
				Delay beyond the date of submission	0.01% of the QGR value for every week time delay
	Incident Reporting	Any failure/incident on any part of the Data Centre infrastructure or its facilities shall be communicated immediately to Customer as an exceptional report giving details of downtime, if any.	Quarterly	100% Critical incidents to be reported to Customer within 1 hour with the cause, action and remedy for the incident.	No Penalty
				Delay beyond an hour	1% of the QGR Payment for every hour's delay on an incremental basis.
	Change Management	Measurement of quality and timeliness of changes to the	Quarterly	100% of changes should follow formal change control procedures. All	0.1% of the QGR value for every non-compliance

	Measurement	Definition	Measurement	Target	Penalty
		Data Centre facilities		changes need to be approved by Customer. It should be implemented on time and as per schedule & without any disruption to business	of Change request on an incremental basis.
	Scheduled Maintenance	Measures timely maintenance of the equipment installed at the Data Centre. The Bidder shall provide a detailed equipment maintenance plan on the commencement of the project.	Quarterly	100 % of scheduled maintenance should be carried out as per maintenance plan submitted by the Bidder. Any scheduled maintenance needs to be planned and intimated to Customer at least 2 working days in advance	0.1% of the QGR Payment for every non-compliance on an incremental basis
	Implementation of Audit Recommendations	Implementation of audit recommendations by OCAC/OSDC or its auditor which have been	Half-yearly	100% on time to be implemented as per timelines agreed upon with Customer	0.5 % of the QGR Payment for every non compliance

	Measurement	Definition	Measurement	Target	Penalty
		agreed by Bidder & Customer to be implemented.			
	Maintenance of Inventory	The Bidder should maintain an inventory of items that will be required on an ongoing basis for maintenance	Quarterly	100% as per the inventory log committed and maintained by Bidder.	0.1% of the QGR Payment for every non compliance

12.8 Civil and Electrical Major and Minor Works

S. No	Type of work	Resolution Time	Penalty
1.	Major Any civil/ electrical work as defined in Scope of work of this RFP Major Civil Work including the False Flooring, False Ceiling, Doors & Locking, Partitioning, Fire Proofing of all surfaces, Furniture & Fixtures and Painting to be replaced/carried out within 5 days of reporting the problem or opening of the request.	T= 5 days	No Penalty
		T1 = T+2 days	0.05% of the QGR for every unresolved call
		T2 = T1+2	1% of the QGR for every unresolved call
		> T2	2% of the QGR for every unresolved call

	The DCO should maintain sufficient inventory to carry out civil and electrical repairs without any disruption to operations. For critical items, the resolution time shall be mutually agreed by the State and the DCO at the time of award of contract. T shall be the agreed resolution time		
	Minor Minor Civil Work including Cement Concrete Work, Masonry Work, Trench Work, Storage, Glazing and Scaffolding Work to be carried within 4 days of the reporting problem	T = 7 days	No Penalty
		T1 = T+1 days	0.05% of the QGR for every unresolved call
		T2 = T1+2	1% of the QGR for every unresolved call
		> T2	2% of the QGR for every unresolved call

12.9 SLA Change Control

It is acknowledged that this SLA may change as Customer's business needs evolve over the course of the contract period. This document also defines the following management procedures:

1. A process for negotiating changes to the SLA and methodology.
2. An issue management process for documenting and resolving difficult issues.
3. Customer and Bidder management escalation process to be used in the event that an issue is not being resolved in a timely manner by the lowest possible level of management.

Any changes to the levels of service provided during the term of this Agreement will be requested, documented and negotiated in good faith by both parties. Either party can request a change. Changes will be documented as an addendum to this SLA and, subsequently, the SLA methodology and the Contract.

12.10 SLA Change Process

The parties may amend this SLA by mutual agreement in accordance with terms of this contract. Changes can be proposed by either party. The Bidder can initiate an SLA review with the Customer.

Normally, the forum for negotiating SLA changes will be Customer's meetings with consultant or TPA. Unresolved issues will be addressed using the issue management process described in Clause 5 of this document.

The Bidder shall maintain and distribute current copies of the SLA document as directed by Customer. Additional copies of the current SLA will be made available at all times to authorized parties.

12.11 Penalty

Penalty Capping:

Note: Equipment Availability Related penalties shall be governed by the following conditions:

1. The penalty shall be calculated on QGR as per the SLA defined.
2. The total quarterly deduction should not exceed 20% of the total applicable fee in a quarter.

Penalty for Non-Measurable of QGR Parameters:

The below penalty will not be included in the maximum overall QGR penalty of 10% enforced on DCO. However, in case of non-measurable of any of the two QGR parameters mentioned below,

then maximum penalty of 10% or 10% plus Non Measurable Parameter Penalty which ever will be more will levied on DCO.

a) For not measurable of Security and Incident Management SLA's. Penalty of Rs. 50,000/- would be enforced on DCO.

b) For not measurable of IT Infrastructure related SLA's. Penalty of Rs. 50,000/- would be enforced on DCO.

c) For not measurable of Physical Infrastructure related SLA's. Penalty of Rs. 50,000/- would be enforced on DCO.

d) For not measurable of Major and Minor Civil/ Electrical Works SLAs. Penalty of Rs. 25,000/- would be enforced on DCO.

e) For not measurable of Helpdesk Services. Penalty of Rs 50,000/- would be enforced on DCO.

f) For not measurable of Compliance and Reporting SLA's. Penalty of Rs. 50,000/- would be enforced on DCO.

g) For not measurable of Manpower Availability. Penalty of Rs 50,000/- would be enforced on DCO.

12.12 Project Management

To consider the complexity of the project, the implementation of the same requires a robust but flexible project governance and management structure. It is proposed to form a Project Monitoring Committee chaired by Competent Authority for providing overall strategy and policy guidelines with adequate members from the project stakeholders. Further, it is proposed that a Project Management Unit (PMU) shall be designed and set up for ongoing tracking of the project. The proposed PMU shall be supporting OCAC in project monitoring and management of the project. The Project Governance team should be adequately staffed and strong enough to identify the risk and suggest risk mitigation.

The Project Monitoring Committee, chaired by Competent Authority, a flexible membership will exist from the stakeholders on need basis. The committee will be supported by the Project Management Unit (PMU).

The Bidder should submit the project plan along with technical bid submission

Indicative Reporting Mechanism

Activity	Daily	Weekly	Fortnightly	Monthly	Quarterly
Project Review Meetings by OCAC		√	√	√	√
Weekly status review meetings		√			
Daily team review meetings	√				
SLA review report		√			
Issue matrix		√			
Risk matrix			√		

12.13 Partial Acceptance Test (PAT)

Partial Acceptance Testing (PAT): After completion of mentioned stages of work as per timelines provided in the RFP, the System integrator shall request for Partial Acceptance Test (PAT).

Partial Acceptance Test will be conducted by the Consultant in accordance with the timelines, scope of work as mentioned in the RFP and the solution documents proposed by the System Integrator and accepted by OCAC.

The consultant will review the report prepared by SI and submit the report of PAT to OCAC and subject to its acceptance, it shall be deemed as completion of Partial Acceptance Test (PAT).

12.14 Final Acceptance Testing (FAT)

The acceptance of the Data Centre including DC site in accordance with the requirements shall be conducted. After successful testing of the features, facilities, functionalities and integrity of the commissioned devices, equipment and services by the PMU, a Final Acceptance Test (FAT) Certificate shall be issued by OCAC to the System Integrator. The date on which Final Acceptance certificate is issued shall be deemed to be the date of successful commissioning of the DC. The FAT certificate will be signed by the System Integrator, Consultant and OCAC.

The test shall include the following:

1. All civil, electrical, air-conditioning works, etc., are completed as per the RFP specifications and solution documents proposed by the System Integrator and accepted by OCAC.
2. All hardware and software items must be installed at DC site as per RFP specifications and solution documents.
3. Availability of all the defined services shall be verified (by whom). The System Integrator shall be required to demonstrate all the features/facilities/functionalities as mentioned in the RFP and solution documents.
4. The PMU in consultation with OCAC shall define detailed test plan.
5. System Integrator will arrange the test equipment's required for performance verification and provide documented test results.
6. All documentation as defined in the RFP should be completed before the final acceptance test.
7. The training requirements as mentioned should be completed before the final acceptance test.
8. All punch-points of Partial Acceptance Test (PAT) must be addressed and resolved before the final acceptance test.
9. Any delay by the System Integrator in the Final Acceptance Testing shall liable the SI for imposition of appropriate Penalties.

12.15 Roles and Responsibilities

Role and Responsibilities – System Integrator.

1. Preparation of Design of Physical Infrastructure comprising of Civil, Electrical & Mechanical, IT and Non-IT works required to build Odisha State Data Centre2.0. This shall also include site preparation to make it suitable for setting up a tier III Data Centre (OSDC 2.0).
2. Preparation and submission of Comprehensive and Detailed Project implementation Plans and Schedules separately for each modules.
3. Supply, deployment and implementation of multi-layer security, Networking, IT and Non-IT Components and other specified infrastructure at the OSDC 2.0.
4. Ensure timely resolution of all errors, faults and problems related to operation of the OSDC 2.0 coordinating with the OEMs.
5. Scheduled and preventative maintenance of all Equipment (active and passive) installed to run the operation of OSDC 2.0.
6. Routine review of operational and other associated service availability with OCAC.
7. Proper cabling and Tagging at OSDC 2.0 and should be periodically updated.
8. Management, Maintenance and operations of all the OSDC 2.0 Equipment.
9. Ensure compliance of Security Standards of the network and enforcing access control as per the information security policy of MeitY.
10. Liaison with the Primary/Secondary Bandwidth Service Provider(s) and Internet Bandwidth provider(s) for better availability of the network as per SLA defined in this document.
11. Preparation and submission of separate PAT & FAT Plans and schedules for all infrastructure, equipment's (IT and Non-IT) and services for OSDC 2.0.
12. Preparation and submission of Manpower Deployment plan and schedule with list of staff to deployed under the project at various positions during different parts/stages of the project.

Role and Responsibilities – OCAC

1. Provide support and suitable space for build part of OSDC 2.0 and during deployment of associated Non-IT & IT infrastructure and facilities.
2. Provide the approval of design, implementation plan and schedules.
3. Provide all necessary support in terms of site availability, clearances, access etc.

4. Support in resolving issues and escalations with the consortium partner if any.

Role and Responsibilities –Consultant.

1. Bid Process Management
    a. Assistance in Pre-Bid meeting and resolution
    b. Assistance in preparation of Corrigendum and Q&A's
    c. Complete an evaluation matrix rating for each of the bidders
    d. Assistance in selection of the eligible highest ranked submission(s) that have met all mandatory technical and other mandatory requirements set out in the related procurement document as per matrix
    e. Assist in ensuring that the agreement between OCAC and the successful Bidder is defined formally in a signed written contract before commencement of provision of the goods, services or construction.
2. Project implementation and monitoring.
    a. Review the project plan and milestone prepared by the vendor and communicate deviations to OCAC
    b. Regular site visits during implementation phase and update status to OCAC
    c. Vet timelines prescribed for execution and completion of the project.
    d. Prepare monthly report on the progress of the supply, implementation and deviation
    e. Co-ordinate monthly meetings onsite with OCAC representative and bidder along with vendor (if required).
    f. Preparation and submission of separate PAT & FAT plans and schedules for the OSDC 2.0 infrastructure, operation and associated services.
3. PAT & FAT
    a. Creation of PAT test plan for all components and infrastructure
    b. Identification of Test scenarios
    c. Creation of PAT test cases
    d. Conduct and evaluation of test cases
    e. Confirmation of compliance with requirements and standards
    f. Performing Final Acceptance Test of OSDC 2.0 infrastructure, operation and associated services in co-ordination with the Service Integrator.

Role and Responsibilities – TPA

1. Any change-request and configuration change will be reviewed and approved by TPA.

2. NMS system should be configured for auto-reporting of SLA, Dashboard, Ticket Closure System and Invoice Generation.
3. Monitoring of SLA parameters defined for System Integrator/Managed Service Provider(s) as per the signed agreement.
4. Periodic Inventory audit of OSDC 2.0 equipment.
5. Periodic audit of the operation & associated services and submission of audited report of OSDC 2.0.
6. Submission of MIS reports as per the requirements of Government of Odisha/OCAC.
7. Periodic Security audit of the OSDC 2.0 as per Security Standards preferably at an interval of 6 months after start of successful operation.
8. Verification and Generation of Reports for implementing SLA.
9. Verification of Invoices submitted by the System Integrator/Managed Service Provider(s) and submission of signed reports on Correctness of the same after incorporating SLA Penalties for the purpose of release of payment by OCAC.

12.16 Minimum Bill of Quantity

Below mention BOQ are Indicative only, Final BoQ may vary depends upon Solution proposed by Selected Bidder. Selected Bidder requested to submit detailed BoQ as per the proposed solution.

Sl. No	Description	UOM	Qty	Unit Rate	GST	Total Unit Rate inclusive GST	Amount without GST	Amount With GST
			A	B	C	D=B+C	E=BXA	F=DXA
A	**CIVIL & INTERIOR WORKS:**							
1	Dismantling existing Wall, Doors , Window or any structure of any material	Lot	1					
2	Removal of Debris from the site and disposing the same at a location as intimated by client	Lot	1					
3	Brick wall with plaster	Sqr Mtr	130					
4	Closing of Doors, Windows if any with brick & plaster, Plywood, Gypsum etc.	Sqr Mtr	20					
5	Creation of Ramp with desired top finish from outside to building ground floor	Cu Mtr	10					
6	Creation of Toilet area with Male and female section including floor and wall tile fittings, plumbing, Electrical, doors, windows, exhausts etc. All fittings inside the toilet to be approved by OCAC before installation.	Lot	1					
7	Fire Rate partition panel kingspan-jindal or equivalent including frame and accessories required to complete wall on façade side.	Sqr Mtr	200					

8	Vitrified tile flooring including floor preparation required to install the tiles.	Sqr Mtr	110					
9	Raise flooring in server hall of 300mm height	Sqr Mtr	350					
10	All types of Skirting wherever required	Sqr Mtr	20					
11	Gypsum partition 100 mm with double skinned fire rated panels, floor and ceiling channels, Studs, taping and jointing, complete with all accessories	Sqr Mtr	250					
12	Glass partition - Fire rated including SS frames/patch fittings wherever required.	Sqr Mtr	20					
13	Glass partition - Non fire rated, patch fittings wherever required.	Sqr Mtr	200					
14	Carpet flooring (Nylon carpet. Shade and quality to be approved by OCAC)	Sqr Mtr	300					
15	PCC flooring as per CPWD specifications	Sqr Mtr	900					
16	POP and Punning	Sqr Mtr	100					
17	Epoxy flooring	Sqr Mtr	40					
18	Anti-static PVC flooring	Sqr Mtr	100					
19	Nitrile rubber Insulation 23 mm (minimum) under floor and roof including skirting	Sqr Mtr	850					
20	Rolling shutter with 30% air vents	Sqr Mtr	28					
21	PVC door with frame	Nos	4					
22	Fire rated door - for UPS rooms- minimum width 1500mm - double leaf	Nos	2					
23	Fire rated door - Entry to server farm area from material lift lobby side. Minimum width 1500mm - double door	Nos	2					
24	Fire rated door - Entry to staging room - single leaf - minimum width 1200 mm	Nos	7					
25	Fire rated Glass door 1200 x 2300 single leaf	Nos	2					

26	Designer privacy film on glass Door	Lot	1					
27	Flush door	R/o	1					
28	Glass doors with all accessories	Nos	15					
29	Modular false ceiling with mineral fibre tegular edge panels, 0.5 NRC.	Sqr Mtr	350					
30	Gypsum false ceiling with frames, taping and jointing	Sqr Mtr	100					
31	Fire rated paint	Sqr Mtr	500					
32	Premium Emulsion paint	Sqr Mtr	550					
33	Anti-Rust enamel Paint	Lot	1					
34	Exterior paint for Utility buildings	Sqr Mtr	30					
35	Earth pit cover with brick work and plaster	Nos	15					
36	Earth Excavation and filling and disposal/re-use	Cu Mtr	185					
37	Trench cover (RCC)	Sqr Mtr	165					
38	MS (ISMB/ISMC) structure for ODU platform with stair case, side safety rail, complete with all welding, antirust paint etc.	KG	25000					
39	Creation of Panel room with brick wall, RCC roof , upVC windows, fire rated doors, fire rated paint, Epoxy flooring, Underground trench, GI chekered plate, Exhaust fans etc. (If first floor of existing panel room will be used then this item is not required)	Lot	1					
40	Creation of stair case from Ground till roof of existing transformer room and then RAMP to the proposed panel room. (If panel room is created in ground floor then this item is not required)	Lot	1					
41	Security desk	Nos	2					
42	3+2 seater sofa along with tea table for waiting area near security	Nos	2					

43	Centre table for waiting area	Nos	2					
44	Reception table with corean top. Min size of 2.5 sqr mtr	Nos	1					
45	Modular workstation desk for office area	Seat	24					
46	Manager Table	Nos	3					
47	Meeting room table	Nos	2					
48	NOC technical desk	Nos	12					
49	Bunk bed (2Tier)	Nos	1					
50	Breakout area/Cafeteria Table	Nos	3					
51	Breakout area/Cafeteria Chair	Nos	9					
52	Staging room table	Nos	1					
53	Staging room chair	Nos	3					
54	NOC room Chair	Nos	12					
55	Workstation chair for office	Nos	24					
56	Conference table	Nos	1					
57	Conference chair	Nos	14					
58	Manager's chair	Nos	3					
59	Manager room visitor chair	Nos	9					
60	Storage Units	Nos	10					
61	Meeting room chair	Nos	6					
62	Other chairs	Nos	4					
63	Storage unit of 2 mtr height and 0.4 mtr depth, made of laminated particle board with shelves, lock and key.	Sqr Mtr	16					
64	Hand operated fork lift	Nos	1					
65	Paper shredder (motorised)	Nos	1					
66	Water filter with RO facility (minimum 50 ltr capacity)	Nos	2					
67	Water dispenser	Nos	3					
68	Shoe stand 20 pair shoe capacity	Nos	2					

69	Creation of steps with MDF board and top surface with vinyl and anti skidding tape	Sqr Mtr	2					
70	DG foundation and double tier structure for 2 nos 2 MVA DG.	Lot	1					
71	Transformer Foundation, periphery bed preparation, 2 side RCC wall creation for each transformer etc.	nos	2					
72	Creation of cemented carpet road from existing transformer to the road to withstand a 3 ton rolling load (from ocac tower to main road). The width of the road to be 4 mtr.	Mtr	35					
73	Window vertical blinds as per approved shade and quality	Sqr Mtr	70					
74	Wire Mesh partition for Transformer yard with gate.	Sqr Mtr	10					
75	Fixed Iron Grill partition	Kg	500					
76	Key Box for 50 keys	Nos	1					
77	Shoe Shiner (dual shade electrically motor operated with sensor)	Nos	2					
78	Dust bin (Stainless steel)	Nos	15					
79	Tile puller (3 cup suction type)	Nos	3					
80	Vacuum Cleaner (wet and Dry) Industrial type	Nos	2					
81	Cold lock panels (4" x 8")	Nos	40					
82	Emergency Exit Ramp	Mtr	3					
83	While board	Sqr Mtr	2					
84	Pin up Notice board	Sqr Mtr	2					
85	Refrigerator 300 Ltr	Nos	1					
86	Tea/ Coffee Vending machine	Nos	1					
87	Campus beautification including cost of architect, material and installation as per design.	Lot	1					

	ELECTRICAL SYSTEM							
88	HT Panel with 2 incomer , 1 Bus coupler and 4 outgoing and accessories	Nos	1					
89	Metering panel	Nos	2					
90	2000KVA 33/.433 ONAN, Oil type Transformer with OLTC	Nos	2					
91	Removal of existing metring panel, HT cable, HT panel, DG sync panel, 3 nos of 400 kva DG with exhaust.	Lot	1					
92	Indoor/Outdoor/Straight Through type heat shrinkable cable termination kit	Nos	12					
93	Diesel Generator (Data Centre continuous rated) (Rating 2000 KVA or more, as per Bidder's design and Up time guidelines)	Nos	2					
94	DGs to panel controls cabling	Lot	1					
95	HSD tank and accessories including Pumps	Nos	2					
96	DG exhaust stack as manufacturer standard and compliance as per CPCB norms.	Mtr	30					
97	Fuel piping with valves and accessories.	Mtr	180					
98	Fuel Pump with intrinsically safe meter having feature to connect to DCIM for real time fuel consumption monitoring	Nos	2					
99	HT grade cable of 3 core 95 sq mm from HT panel to all 4 transformers	Mtr	100					
100	HT cable termination at HT panel side and all 4 nos. transformer side	Lot	1					
101	4 Core Aluminium XLPE Armoured cable 25 sq mm	Mtr	50					
102	4 Core Aluminium XLPE Armoured cable 150 sq mm	Mtr	560					
103	4 Core Aluminium XLPE Armoured cable 240 sq mm	Mtr	160					

104	4 Core Aluminium XLPE Armoured cable 300 sq mm	Mtr	3380					
105	4 Core Aluminium XLPE Armoured cable 10 sq mm	Mtr	R/O					
106	4 Core Aluminium XLPE Armoured cable 35 sq mm	Mtr	R/O					
107	Termination, double compression /single compression glands as required for 4 Core Aluminium XLPE Armoured cable 25 sq mm	Lot	1					
108	Termination, double compression /single compression glands as required for 4 Core Aluminium XLPE Armoured cable 150 sq mm	Lot	1					
109	Termination, double compression /single compression glands as required for 4 Core Aluminium XLPE Armoured cable 240 sq mm	Lot	1					
110	Termination, double compression /single compression glands as required for 4 Core Aluminium XLPE Armoured cable 300 sq mm	Lot	1					
111	Termination, double compression /single compression glands as required for 4 Core Aluminium XLPE Armoured cable 10 sq mm	Lot	R/O					
112	Termination, double compression /single compression glands as required for 4 Core Aluminium XLPE Armoured cable 35 sq mm	Lot	R/O					
113	4 Core Copper XLPE FRLS Unarmoured/Flexible cable 4 sq mm	Mtr	870					
114	4 Core Copper XLPE FRLS Unarmoured/Flexible cable 6 sq mm	Mtr	780					
115	4 Core Copper XLPE FRLS Unarmoured/Flexible cable 16 sq mm	Mtr	1500					

116	4 Core Copper XLPE FRLS Unarmoured/Flexible cable 25 sq mm	Mtr	425					
117	4 Core Copper XLPE FRLS Unarmoured/Flexible cable 50 sq mm	Mtr	600					
118	4 Core Copper XLPE FRLS Unarmoured/Flexible cable 185 sq mm	Mtr	650					
119	1 Core Copper XLPE FRLS Unarmoured/Flexible cable 10 sq mm	Mtr	R/O					
120	1 Core Copper XLPE FRLS Unarmoured/Flexible cable 25 sq mm	Mtr	R/O					
121	1 Core Copper XLPE FRLS Unarmoured/Flexible cable 50 sq mm	Mtr	R/O					
122	1 Core Copper XLPE FRLS Unarmoured/Flexible cable 120 sq mm	Mtr	R/O					
123	Termination, double compression /single compression glands as required for 4 Core Copper XLPE FRLS Unarmoured/Flexible cable 4 sq mm	Lot	1					
124	Termination, double compression /single compression glands as required for 4 Core Copper XLPE FRLS Unarmoured/Flexible cable 6 sq mm	Lot	1					
125	Termination, double compression /single compression glands as required for 4 Core Copper XLPE FRLS Unarmoured/Flexible cable 16 sq mm	Lot	1					
126	Termination, double compression /single compression glands as required for 4 Core Copper XLPE FRLS Unarmoured/Flexible cable 25 sq mm	Lot	1					
127	Termination, double compression /single compression glands as required for 4 Core Copper XLPE FRLS Unarmoured/Flexible cable 50 sq mm	Lot	1					

128	Termination, double compression /single compression glands as required for 4 Core Copper XLPE FRLS Unarmoured/Flexible cable 185 sq mm	Lot	1					
129	Termination, double compression /single compression glands as required for 1 Core Copper XLPE FRLS Unarmoured/Flexible cable 10 sq mm	Lot	R/O					
130	Termination, double compression /single compression glands as required for 1 Core Copper XLPE FRLS Unarmoured/Flexible cable 25 sq mm	Lot	R/O					
131	Termination, double compression /single compression glands as required for 1 Core Copper XLPE FRLS Unarmoured/Flexible cable 50 sq mm	Lot	R/O					
132	Termination, double compression /single compression glands as required for 1 Core Copper XLPE FRLS Unarmoured/Flexible cable 120 sq mm	Lot	R/O					
133	UPS systems 2 x 500 KVA for Critical Load	Set	2					
134	UPS systems 2 x 60 KVA for Non-Critical Load with SMF batteries for 30 minutes backup including battery stand	Set	1					
135	Lithium Ion batteries for Critical load for 15 minutes back up on each UPS including battery stand.	Set	2					
136	Battery bank breaker with housing	Nos	4					
137	Outdoor type AL Sandwith BBT of 3200A with End termination Box and with all accessories from transformers till Transformer output panels (Bidder to assess length as per their solution)	Set	2					

138	Indoor type AL Sandwich BBT of 3200A for tie breaker between panels	Mr	15					
139	Main LT panel (Transformer output) -1	Nos	1					
140	Main LT panel (Transformer output) -2	Nos	1					
141	Capacitor Panel -1	Nos	1					
142	Capacitor Panel -2	Nos	1					
143	DC Main LT panel 1 (DCMLTP 1) with all associates	Nos	1					
144	DC Main LT panel 1 (DCMLTP 2) with all associates	Nos	1					
145	SDC 1.0 LT panel (SDC LTP 2) with all accessories	Nos	1					
146	DG output panel 1 (IP 66) outdoor type	Nos	1					
147	DG output panel 2 (IP 66) outdoor type	Nos	1					
148	Floor Mounted Distribution panel (UPS output) -1	Nos	1					
149	Floor Mounted Distribution panel (UPS output) -2	Nos	1					
150	Copper Earth pit	Nos	16					
151	GI Earth Pit	Nos	14					
152	Copper earth Strip with insulation	Mtr	850					
153	GI Earth Strip with insulation	Mtr	925					
154	Distribution Board (TPN)	Nos	6					
155	Distribution Board (SPN)	Nos	15					
156	Sub mains cabling	Mtr	1250					
157	Light, Power point Wiring, Ac point wiring from DB	Lot	1					
158	Modular switch board with switches and sockets for wall	Nos	100					
159	Modular switch board with switches and sockets for Desk	Nos	80					
160	MS Conduit with accessories	Lot	1					

161	PVC conduit with accessories	Lot	1					
162	Flexible MS conduit	Lot	1					
163	Flexible PVC conduit	Lot	1					
164	LED lights Rectangular	Nos	12					
165	LED light Round 6" dia	Nos	60					
166	LED Lights Square 2'x2'	Nos	150					
167	LED lights Square 1'x1'	Nos	0					
168	Occupancy sensor range 6-7 meter	Nos	25					
169	NEMA (IEC 309) connectors with breaker	Nos	10					
170	Track bus way (Cu continuous BBT) inside Data Centre with all accessories	Mtr	168					
171	Tap off box with accessories for track busway system	Nos	166					
172	HVAC panel	Nos	2					
173	Auto transfer switch for PAC (if required)	R/o						
174	Industrial Socket for PAC and CAC	Nos	10					
175	Equi-potential grid on DC below raise floor by 25x3 copper strip with insulation (1mtr x 1 mtr matrix)	Lot	1					
176	Perforated cable tray (factory made galvanized). Please add items for various size	Mtr	385					
177	MS raceway with cover. Please add items for various size	Mtr	300					
178	Ladder tray. (Please add items for various sizes)	Mtr	300					
179	PVC raceway under PCC floor for support area cabling	Mtr	125					
180	Wall fans	Nos	6					
181	Ceiling Fan 42-inch swipe	Nos	3					
182	Single line diagram A2 size laminated	Nos	4					

183	Exhaust fan (min 18 inch dia) with gravity damper	Nos	8					
184	Clamp meter AC, DC, with clamp side suitable to fit in 240 sqr mm single core cable	Nos	2					
185	Intelligent PDU for racks for OSDC 2.0 (32A 3 phase)	Nos	170					
186	Intelligent PDU for racks for OSDC 1.0 (32A 1 phase)	Nos	70					
187	Thermal Temperature gun	Nos	1					
188	Round bottomed fire buckets-4 Nos	Set	6					
189	shock treatment chart	Set	6					
190	Danger boards	Nos	20					
191	First aid box	Nos	2					
192	Fixing of As built Single line drawing duly laminated / framed in A1 size.	Lot	1					
193	cable route markers with necessary angle iron supports	Lot	1					
194	Temporary lighting, temporary DB, Power Supply to all service vendor for DC construction till Go-live.	Lot	1					
	HVAC SYSTEM							
195	In-row Precision Air conditioner with all accessories	Nos	25					
196	Front throw Precision Air conditioner for Power room - min 10 TR with all accessories	Noss	4					
197	Refrigerant piping with insulation and termination	Mtr	1200					
198	Dehumidifier water line piping with all accessories	Mtr	100					
199	VRV/VRF system with all accessories	HP	78					

200	Comfort AC indoor unit (rating and quantity as per bidder's solution)	Nos	22					
201	Refrigerant piping for VRV/VRF system with insulation	Mtr	320					
202	Cold aisle containment with door and accessories	Sqr. Mtr	45					
203	Sliding door on one side of hot aisle	Sqr. Mtr	10					
204	Removal and closing of AHU duct at floor	Lot	1					
205	Disconnection of existing AHU from main line and closing the pipe opening with valve.	Lot	1					
	SAFETY, SECURITY, SURVEILLANCE AND MONITORING SYSTEM							
206	Addressable fire alarm system with all accessories. Fire alarm panel to have redundant controller for concurrent maintainability	Lot	1					
207	Gas based suppression system (NOVEC 1230 from 3M) for Server Hall with all Gas release panel, detectors, piping, all types of actuators, manifolds, cylinders, Gas, and all accessories that completes the systems to make it operational	Lot	1					
208	Gas based suppression system (NOVEC 1230 from 3M) for both power rooms (two separate systems) with all Gas release panel, detectors, piping, all types of actuators, manifolds, cylinders, Gas, and all accessories that completes the systems to make it operational	Lot	1					
209	Aspiration smoke detection system with zone based panel, piping, sensor and all accessories to make it operational	Lot	1					

210	IP based Close circuit tele vision (CCTV) with NVR, Network switch cabling, power supply and all accessories	Nos	1					
211	PTZ Camera-IP	Nos	5					
212	Bullet fixed camera-IP	Nos	7					
213	Dome camera-IP	Nos	42					
214	55-inch LED Display screen	Nos	1					
215	Door Access control system with Biometric, pin pad and contactless reader and with all accessories as per bidders' solution	Lot	1					
216	Flap Barrier with contact less reader/QR code reader/Biometric as per bidder's solution	Nos	2					
217	Swipe barrier	Nos	1					
218	Full height turnstile (Tube stile) with biometric reader	Nos	1					
219	Baggage scanner	Nos	1					
220	Metal detector Full height	Nos	1					
221	Handheld metal detector	Nos	4					
222	Fire extinguisher as required as per local fire norms	Nos	15					
223	Water leak detection system with all accessories	Lot	1					
224	Rodent repellent system with panel, satellite and all accessories	Lot	1					
225	Public address system with Amplifier, speakers, microphone, Rack and with all accessories to make it complete and operational	Lot	1					
226	Data Centre Infrastructure Monitoring system (Inducing hardware and software required for integration with existing BMS system)	Lot	1					

227	Rack access control system for all the racks in server room and telecom room and with cabling and accessories to make the work complete and functional	Lot	1					
228	Rack humidity and temp sensor for all the racks in server room and telecom room with cabling and accessories to make the work complete and functional	Lot	1					
229	Removal of fire hydrant system from server hall and extension of nozzle in the support area	Lot	1					
230	Computers for Access control system (Intel i5, 32 GB RAM, 1Tb SSD, 32" LED)	Nos	1					
231	Computers for CCTV as per bidder's solution	Nos	1					
232	Computer for DCIM as per bidder's solution	Nos	1					
233	Degausser (for CD, DVD, SATA/HDD drive with receipt printing)	Nos	1					
234	Mobile Computer Trolley with monitor, keyboard and mouse of desired specifications.	Set	1					
235	Safety Gloves, Jacket, Boot, Goggles, Fireman's axe Etc.	Set	2					
236	Evacuation Chart	Nos	5					
237	Signage's	Nos	30					
238	Self-illumination tape	Mtr	100					
239	Portable oxygen cylinder (min 3 ltrs) with mask	Nos	2					
240	LED torch (industrial type)	Nos	2					
241	Portable emergency light (industrial grade)	Nos	2					
242	Visitor management system with all hardware such as Photo I card printer, Computer, camera and software etc.	Lot	1					
	NETWORKING SYSTEM							

243	Cat6A cable	Mtr	45000					
244	Vertical Cable Manager	Nos	180					
245	Cat6A patch cord 1 mtr	Nos	800					
246	Cat6A patch cord 2 mtr	Nos	600					
247	Cat6A patch cord 3 mtr	Nos	400					
248	Cat6A patch cord 10 mtr	Nos	200					
249	MPO-MPO 12f fibre trunk(5m)	Nos	100					
250	MPO-MPO 12f fibre trunk(7m)	Nos	150					
251	MPO-MPO 12f fibre trunk(10m)	Nos	200					
252	MPO-MPO 12f fibre trunk(15m)	Nos	200					
253	MPO-MPO 12f fibre trunk(20m)	Nos	200					
254	MPO-LC Module(24f) A	Nos	400					
255	MPO-LC Module(24f) B	Nos	400					
256	1U 96F MPO panel	Nos	R/o					
257	Blind plate	Nos	120					
258	LC duplex patch cord 3m	Nos	2500					
259	LC duplex patch cord 7m	Nos	2000					
260	LC duplex patch cord 10m	Nos	2000					
261	LC duplex patch cord 20m	Nos	1000					
262	Cat6A I/O tool less	Nos	2000					
263	Cat6A patch panel angled(24 port)	Nos	180					
264	Total Cat6 A Cable	BOX	100					
265	42U Network Rack 800 x 1200	Nos	10					
266	42U server Racks 800 x 1200	Nos	73					
267	42U POE rack 600 x 1000	Nos	2					
268	Horizontal Cable managers	Nos	500					
269	Cable basket min size 400mmx50mm with accessories	Mtr	200					
270	Fibre Runner with accessories for all 83 racks	Lot	1					

271	Faceplate - quad	Nos	400					
272	12 core, OM4 indoor distribution cable, LSZH	Mtr	R/o					
273	96F, SM Tight Buffered Indoor Cable, LotZH	Mtr	R/o					
274	24F, SM Tight Buffered Indoor Cable, LSZH	Mtr	R/o					
275	Conduit with accessories	Lot	1					
276	Digital EPABX System with cabling	Set	1					
277	Desk Digital EPABX Phones	Nos	35					
278	IP Phones	Nos	15					
278	Videowall Cubes(70 Inch) diagonal 4X2 configuration complete with base stand, controller and all accessories	Nos	1					
F	**CERTIFICATION & HEALTH CHECK**		0					
280	Uptime Tier-III Certification for Designing	Lot	1					
281	Uptime Tier-III Certification for Construction	Lot	1					
282	Uptime Tier-III Certification for Operation sustainability	Lot	1					
283	Half yearly health check with tools such as Power analyser (Class A, thermal imager, Balometer (Air hood), Anemometer, clamp meter, Vibration and sound meter etc. Report to be submitted on every 6 months to OCAC.	Half yearly	10					
284	Charges for Electrical Approvals form Electrical Inspector, Fire Department, PCB, PESO and other statutory bodies of Govt. of Orissa/India (statuary charges if any will be paid by department/ OCAC)	Lot	1					

285	Operation and maintenance for 5 years including engaging manpower as required	Years	5					
286	Any other item as per bidders solution (Bidder may add line items, quantity, and cost as per format)							

13 Operations and Maintenance Management

The selected bidder will provide 24x7x365 operating and maintaining services for a period of 5 years from the date of final acceptance test. The scope of the services for overall Physical and IT infrastructure management as per ITIL framework during this period shall include 24x7X365 Monitoring, Maintenance and Management of the entire Data Centre, along with providing Helpdesk services to ensure an uptime efficiency of minimum 99.982 in Odisha State Data Centre 2.0 (OSDC 2.0) and other facilities managed. This provides guarantee and accountability for the operations team, service providers and end users to meet the criteria for 24 x 7 service requirement. The goal is to achieve full uptime potential, obtain maximum leverage of the installed infrastructure or design, improve operations efficiency and realize opportunities for energy efficiency. This mainly provides the guidance and framework to drive best practices for the effective management and operations of the Odisha State Data Centre (OSDC).

1. Human Resource and Planning
2. Policies and Procedures
3. Maintenance Management
4. Operations Monitoring
5. Access Management
6. Training and Development
7. Reports
8. Documentation
9. Certification
10. Automation of Services
11. Human Resource and Planning

The right number of qualified individuals organized correctly is critical to Odisha State Data Centre (OSDC) 2.0 meeting long-term performance objectives. Enough qualified in-house staff and/or vendor support must be available to perform all the maintenance activities and operate the Data Centre to provide the greatest opportunity to meet the uptime objective. All personnel working in Odisha State Data Centre (OSDC) 2.0 must

have the experience and technical qualifications necessary to perform their assigned activities without impacting the Data Centre operations.

Requirements

1. Organizational Structure - this shows the structure of DC department and define which team is responsible or related to the Data Centre operations.
2. DC Team Escalation Matrix – this specifies multiple user contacts to be notified in the event of critical issues or emergency.
3. Staff Qualifications – this is to ensure that the team assign to handle the Data Centre are qualified, trained and has enough experience to properly manage its operations.
4. RACI Matrix – this clearly states or assigns who is Responsible, Accountable, Consulted or Informed in relation to each specific tasks to be defined as per the requirement.

Planned Resource during O & M Activity for (IT & Non-IT)

O&M Manpower Resources (Shift Wise)			Resources Detail			
Sl No	IT Manpower	Qty	General Shift	1st Shift	2nd Shift	3rd Shift
1	DC Project Manager	1	√	x	x	x
2	BMS Expert	3	x	√	√	√
3	Multi Skilled Technician (Electrical/Mechanical)	6	x	√	√	√
4	Housekeeping Staff	4		√ (2)	√	√
5	Security Guard	9	√	√ (3)	√ (3)	√ (2)
6	Front Desk Executive	1	√	x	x	X
	Total	24				

Note: Above manpower requirement table is indicative as minimum requirement for 24*365 days support for OSDC 2.0 and existing DC, bidder should have a clear prospective of the requirement of manpower to maintain the project and achieve the

required SLA. Bidder should have their enough additional resource to meet the challenge of leave/replacement/changes and smooth delivery of services.

IT manpower (except Helpdesk Executive) resources mentioned in resource table must be a payroll employee of the successful bidder company.

Resource Qualification and Experience

Sl No	Non IT Manpower	Minimum Qualification & Relevant Experience
1	DC Project Manager	B.E. /B. Tech in Electrical or equivalent with 10 Years' experience including minimum 4-year experience in Data Centre Non-IT Operation Management of Non-IT services.
2	BMS Expert	Diploma in Electrical/ EEE or higher qualification with 8+ years' of experience including minimum 3-years' experience in Data Centre BMS environment.
3	Multi Skilled Technician	Diploma in Electrical with 8 Years' experience including minimum 3-year experience in HT/LT Installation/ Maintenance.
4	House Keeping	With relevant experience of 6 months or more.
5	Security Guard	With relevant experience of 3 years or more.
8	Front desk Executive	Graduate with good communication skill and PGDCA or higher with 1 Years' of relevant experience.

Note:

All the above-mentioned employee's Qualifications and Certifications will be verified by OCAC/Composite Team/ Consultant after award of the contract. The same will be verified by TPA (assigned) on time-to-time basis during the Operation and Maintenance phase of bidder.

Upon finding any deficiency in any of the profile parameter, may reject any of the manpower by giving 15 days' time, which the bidder has to replace the resource within the time frame.

13.1 Policies and Procedures

An effective Odisha State Data Centre (OSDC) 2.0 management strategy includes policies and procedures that needs to be documented and enforced to ensure that they are understood and followed as inconsistencies in the performance can lead to service interruptions or downtime.

Requirements

1. Data Centre User Manual – This includes all information that is critical to run the Data Centre from construction phase to operation.
2. Data Centre Instructions – This are set of rules inside the Data Centre that prevents any risk to Data Centre operations.
3. Emergency / Crisis Management Plan – this is to ensure control and management inside the Data Centre during an emergency or abnormal situations.
4. SOP's – Set of instructions or guide to operate DC configurations on normal conditions
5. Health & Safety Procedures – Set of HSE guidelines specifically for the Data Centre to prevent accidents or harm to the DC team or visitors.
6. Change Management Procedures – this is to review and approve the proposed changes and evaluate the risk that comes with it.
7. Access Procedures - this access guideline specifies the criteria for granting access to specific individuals or groups, and the different levels of access allowed.
8. Maintenance Procedures – this specifies how a maintenance procedure is scheduled and performed.

13.2 Maintenance Management

An effective maintenance program is necessary to keep equipment in an optimum condition, minimize failures and prevent downtime. This includes preventive and predictive maintenance, strong vendor support, failure analysis, life cycle tracking and documentation. Any level of vendor support to maintain infrastructure should have a corresponding list of qualified vendors with formal contracts specifying the scope of work, call-in process, qualifications, and response times to ensure the level of service required meets the uptime objectives. Housekeeping is also an equally important aspect of maintenance to keep combustibles and contaminants out of the Data Centre and technical rooms. For the purpose of proper upkeep of equipment's installed at Odisha State Data Centre (OSDC) 2.0, there is a need to study OEM documents:

Requirements

1. List of Equipment – this includes Generator, UPS, HT Panel, LT Panel cooling, Fire Alarm & Suppression, Access control & CCTV and related sensors. It is an indicative list not an exhaustive one.
2. Specialized Vendor Details – This contains the details of the vendor(s) assigned to maintain DC equipment. Technician information, qualifications and certifications should be available.
3. Service Level Agreements – Should clearly define the Response Time and Conditions to match our requirement as well as OEM recommendations.
4. Planned Preventive Maintenance (PPM) – PPM schedule should be fixed for the entire period of contract. So we can plan other activities accordingly without conflict.
5. Sequence of Operation – This shows the operation of any equipment with redundant functionality in case of a primary source failure. Example: UPS, Generator, Etc.
6. Escalation Matrix or Emergency Call-out Matrix – This allows to clearly identify the response team responsible for any equipment failure
7. Service Evaluation – This is to evaluate the assigned team and request for changes if required. This will increase the quality to the support from the service team.
8. Methodology and Risk Assessment – This is to provide information on how the maintenance will be performed and the risk that comes with it. This is required for all maintenance activities – may it be major or minor.
9. Housekeeping Schedule – This can either be planned or on-call but otherwise required. Housekeeping Team will be supervised at all times.
10. Critical Spare Parts - These are list of spare parts to be made available on site to sustain operation of DC critical equipment.
11. End-of-life study – This is to indicate that the product is in the end of its useful life and the vendor stops marketing, selling, or sustaining it.
12. Life Cycle study – This will enable the team to know when the equipment has reached its peak performance and will be subject to replacement.
13. Predictive Maintenance – This will allow the team to alter PPM schedule to match the equipment maintenance as required.
14. Anticipation and Forecasting – This is essential for laying out plans to sustain or improve the Data Centre services.

13.3 Operations & Maintenance Monitoring

The O& M monitoring should continuously observe at the network level for the ability to look at all assets, physical and virtual, that reside on the LAN, even those that are offline, and all inter-connections between them. This monitoring should be done on a continuous basis and should be capable of monitoring dynamic network fabrics. This is should also include monitoring for missing patches or application or configuration changes that can introduce vulnerabilities that can be exploited.

Requirements

1. Physical or Visual Inspection – This should be on daily basis at random times. Daily inspection should be routine work for the Data Centre managers. This involves visual checking of the electrical devices, cooling equipment, UPS, sensors, lighting, etc.
2. Online / Remote monitoring – This type of monitoring is applied to all Data Centre components connected to the network (DCIM) and also to the BMS alerts. This shows actual information received from sensors, smart devices, etc.
3. Critical Alerts – There should be an automated system capable of sending alerts or notification through Email or SMS to all Data Centre manages for any critical system failure that requires immediate action.

13.4 Access Management

This access guideline specifies the criteria for granting Odisha State Data Centre 2.0 (OSDC 2.0) access to specific individuals or groups, and the different levels of access allowed. These are composed of instructions and policies to restrict and prevent unauthorized and unqualified access that may cause any type of risk to our operation.

Requirements

1. Permit to Access (PTA) – This provides access to the Data Centre strictly for inspection or survey purposes only. Any type of work or configuration will not be allowed.
    a. Permanent Access – given to authorized or qualified Data Centre managers or operations team only.
    b. Temporary Access – also called visitor access. This is given to individuals authorized to access the Data Centre for a period of time, with proper approval from OCAC or authorized person.

2. Permit to Work (PTW) – This allows an individual to do work such a configuration, updates, shutdown, patching, maintenance etc. This also applies to DC maintenance vendors.
3. Permit to Modify Equipment (PTME) – This allows an individual to add, remove or replace any equipment from the Data Centre, with proper approval from OCAC or authorized person.
4. No Objection Certificates (NOC) – This is to allow any new requirement or projects directly impacting Data Centre operations.
5. Change Request Forms (CR) – This is required for any major modification or change request on the existing setup of the Data Centre. This also covers revoking access permissions to existing permanent users.

13.5 Training and Development

Proper training and induction ensures that the team understands the policies, procedures, and unique requirements for working inside the Data Centre. This is essential in avoiding unplanned outages and ensuring proper response to both anticipated and unplanned events.

Requirements

1. Data Centre Induction – This is having the team familiarize with the existing configuration of the Data Centre and to follow the guidelines for operation.
2. Data Centre Trainings – All DC operations team should have the basic and effective knowledge on how the facility operates as per the implemented design. This involves network connection, power, cooling and support.
3. Lead bidder shall provide all necessary training to OCAC officials and authorised team members for the purpose of successful functioning of the Data Centre operation and management.

13.6 Documentation

These are set of references or records provided on paper or on digital media. These documents act as the store of collective organizational and operational knowledge regarding the processes and can be accessed by anyone in times of need. All these documents should be latest, updated, protected and available.

Requirements

1. Asset list – list of equipment installed for Data Centre operations.

2. As-built drawings – final approved layouts as installed before activation. This is used as basis and includes civil, electrical, IT, Non-IT, and passive components.
3. Licenses – licenses for all IT, Non-IT, applications, databases and passive components (wherever applicable) should be made available for support and service.
4. Operation manuals – used as reference for the equipment functions.
5. Procedure manuals – used as reference for the specified OEM procedures.
6. Data Sheets – reference for equipment specification.
7. Equipment Set Points – reference for equipment configuration.
8. Testing and Commissioning – verifies proper operations of systems via documented testing procedures and establishes performance criteria in line with OEM standards.
9. Warranty Certification – an effective warranty management program secures operational stability through knowing the limits and exceptions of the product as per OEM. This includes all electrical, IT, Non-IT, and passive components (wherever applicable) and should be made available for support and service.

13.7 Reporting

This is to communicate the compiled information as outcome of any activity related to the Data Centre operations. It is important that these documents are accurate, objective and complete according to its purpose as this is the only relevant factor used for referencing.

1. Data Centre Activity Report – This includes total number of PTA (Permit to access), PTW (Permit to Work), NOC and CR (Change Request) can be monitored monthly, quarterly and annually.
2. PM (Preventive maintenance Reports) – This should be submitted monthly or as per OEM. This ensures proper maintenance has been done.
3. Incident Report – It is required to monitor every incident to prevent recurrence.
4. KPI Report – This is to monitor all targeted activities. Can be monitored monthly, quarterly and annually.
5. The reports supported must include one that monitors service availability (including Mean Time to Repair (MTTR), Mean Time between Failure (MTBF), and Maximum Outage Time thresholds (MOTT) and the other that monitors service transaction response time.

6. The system must provide a historical reporting facility that will allow for the generation of on-demand and scheduled reports of Service related metrics with capabilities for customization of the report presentation.
7. The system should provide for defining service policies like Service Condition High\Low Sensitivity, Port Status High\Low Sensitivity should be provided out of the box.
8. The system should display option on Services, Customer, SLA's, SLA templates. The customer definition option should allow to associate a service or an SLA with a customer.

13.8 Monthly reports

Consolidated component-wise infrastructure availability and resource utilization report as mentioned bellow has to be submitted to all the stockholders involved in the project in hardcopy as well as in softcopy.

1. Component wise infrastructure availability and resource utilization.
2. Consolidated SLA / non-conformance report.
3. Summary of issues / complaints logged at the Technical Support desk
4. Summary of resolved, unresolved and escalated issues / complaints
5. Issues / Complaints Analysis report for virus calls, call trend, call history, etc.
6. Summary of systems rebooted.
7. Log of backup and restoration undertaken
8. Summary of issues / complaints logged with the OEMs.
9. Summary of changes undertaken in the Data Centre including major changes like configuration changes, patch upgrades, database reorganization, storage reorganization, etc. and minor changes like log truncation, volume expansion, user creation, user password reset, etc.
10. Summary of component wise Data Centre uptime.
11. Summary of changes in the Data Centre.
12. Log of preventive / scheduled maintenance undertaken
13. Log of break-fix maintenance undertaken
14. Summary of attendance of bidder's staff at the Data Centre.
15. Inventory of spare parts in the Data Centre.

13.9 Quarterly reports

Consolidated as well as detail component-wise infrastructure availability, bandwidth utilization, resource utilization and manpower availability report as mentioned bellow has to be submitted to all the stockholders involved in the project in hardcopy as well as in softcopy.

1. Component wise infrastructure availability and resource utilization.
2. Consolidated SLA / (non)-conformance report.
3. Summary of component wise Data Centre uptime.
4. Summary of changes in the Data Centre.
5. Log of preventive / scheduled maintenance undertaken
6. Log of break-fix maintenance undertaken
7. Details of attendance of manpower availability at the Data Centre.

13.10 Half-Yearly reports

Consolidated component-wise infrastructure availability and resource utilization report as mentioned bellow has to be submitted to all the stockholders involved in the project in softcopy.

1. Data Centre Security Audit Report
2. infrastructure Upgrade / Obsolescence Report.
3. Consolidated component-wise infrastructure availability and resource utilization report to be submitted to all the stockholders involved in the project in hardcopy.

13.11 MIS reports and deliverables

The Lead bidder shall be required to submit the reports as specified hereunder on a regular basis in a format decided by OCAC. The following is only an indicative list of MIS reports which should be in conjunction to the reporting features highlighted in RFP. The bidder should submit reports to all the stockholders involved in the project and hardcopy may have to be submitted as when required or asked by OCAC.

13.12 Performance - Monitoring, Management and Reporting

The proposed performance management system shall integrate network, server and database performance information and alarms in a single console and provide a unified

reporting interface for network components. The proposed performance management system must integrate network, server & database performance reporting information and alarms in a single console in order to provide a unified reporting interface.

13.13 Constitution of the Team

1. The Lead bidder shall provision for adequate onsite support to provide 24x7x365 onsite operations and maintenance services to OCAC as defined in the scope of work.
2. Lead bidder shall provide adequate number of administrators, each responsible for its respective specific role at the SDC. The bidder must provide clear definition of the role and responsibility of each manpower resource as part of the Technical Bid in the format specified in Contents of the Bid.
3. Onsite resources will follow six working days per week cycle, and will be entitled for all national holidays. In required resources would be called on Holiday/odd hours, in such case they will be entitled for compensatory leaves.
4. All the critical (L2 & above) onsite resources deployed at SDC have to be on Lead bidder's payroll.
5. Onsite resources for Network, Security and technical support will work in shifts to provide 24x7x365 onsite operations and maintenance services to SDC.
6. All the concerned onsite staff shall log an attendance on a daily basis. Lead bidder shall maintain a database of attendance of his staff at the SDC. The attendance database should have facility to track attendance and draw out MIS reports as desired by OCAC. Lead bidder shall submit the attendance records in a format and as per schedule desired by OCAC.
7. Lead bidder should ensure that all the personnel identified for this project have high level of integrity. Lead bidder should undertake necessary due diligence to ensure that the personnel have high standard of trustworthiness. Lead bidder should obtain an undertaking from each of the personnel assigned and the same should be submitted to OCAC as and when demanded by OCAC.
8. Lead bidder shall be responsible for any mishaps or security breaches that happen due to bidder's personnel / personnel appointed by bidder for execution of services.

9. A Project In-charge should be appointed on a full-time basis. The Project In-charge shall be responsible for the overall project and shall be a single point of contact for OCAC.
10. Lead bidder should estimate and propose the personnel required during the Installation, Commissioning and Maintenance phase and provide the estimation as part of the Technical Bid in the format specified in Contents of the Bid.
11. The following clause defines the skill sets and qualification requirement for Project In-Charge.
12. Project In-charge
    a. Should be deployed at the Data Centre site on a full-time basis.
    b. Should be responsible for the overall contract performance and should not serve in any other capacity under this contract.
    c. Should be responsible for organizing, planning, directing, and coordinating the overall program effort and managing the team.
    d. Should have extensive experience and proven expertise in managing infrastructure project of similar type and complexity.
    e. Should have a thorough understanding and knowledge of the principles and methodologies associated with program management, vendor management, quality assurance metrics and techniques, and configuration management tools.

13.14 Commissioning of System

1. Bidder should describe in advance the tests and details of the process that will be adopted to demonstrate the correct working of the equipment supplied both individually and as an integrated system.
2. System testing schedules, formats for testing and commissioning reports and dissemination mechanism for such reports shall be drawn by the Lead bidder in consultation with OCAC.
3. Commissioning of the solution shall be considered to be complete only after the following conditions have been met successfully to the satisfaction of OCAC.
    a. Successful completion of Integrated system Acceptance Tests with fully simulated load on each rack, and submission of necessary reports and certificates to OCAC.

b. All the equipment installed will be tested with full data center load (with dummy load for each rack). A 72 hours power logging to be done by power quality analyser (class A) at input and put of transformer output panel, DC MLTPs, UPS output (FMPDU), UPS, HVAC panel etc. Thermography to be done at each terminal power while on full load.
c. Delivery of all the items under the proposed bill of material at the designated locations of installation. Short shipment of goods will not be acceptable.
d. Installation and Configuration of all the components of the solutions including, but not limited to, hardware, software, devices, accessories, etc. to the satisfaction of OCAC.
e. Successful completion of Commissioning would need to be certified by OCAC and operations shall commence only after approval of OCAC.

13.15 O & M Roles and Responsibilities

Responsibilities of the Lead bidder:

1. Lead bidder shall prepare and then seek approval from OCAC on all the infrastructure solution architecture, diagrams and plans before commencement of installation.
2. Lead bidder shall follow Change Management Procedures, Information Security Policies as suggested by OCAC.
3. Lead bidder shall ensure proper handover/ takeover of documents & other relevant materials in the event of change in personnel.
4. Lead bidder shall share and review all internal documents / reports used to monitor & execute the project with OCAC as and when desired.
5. Lead bidder shall proactively interact with other vendors / third parties / OEMs to ensure that the equipment is upgraded and maintained at a periodic interval. OCAC would only pay the services charges applicable for operations and maintenance of the Data Centre.
6. Lead bidder would manage all aspects of Vendor management.

Responsibilities of OCAC:

1. OCAC shall provide approvals & sign-offs to the deliverables within the stipulated time period.

2. OCAC shall direct and monitor the activities performed by the Lead bidder as per the RFP Document and in turn validate the service levels attained as per the SLA document.

14 Proforma and Schedules

14.1 Proforma 1: Proposal Covering Letter

PROPOSAL COVERING LETTER:

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Sir/Madam,

Ref: Request for Proposal (RFP): Selection of System Integrator for "Design, Build, Installation, Commissioning, Integration and Operation & Maintenance of Non-IT infrastructure for Extension of Odisha State Data Centre OSDC 2.0 at OCAC Tower, Bhubaneswar"

Have examined the RFP, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to provide best of quality goods and professional services as required and outlined in the RFP for the Selection of System Integrator for Design, Build, Commission and O&M of Odisha State Data Centre 2.0 (OSDC 2.0) to meet such requirements and provide such services as required are set out in the RFP.

We attach hereto the technical response as required by the RFP, which constitutes our proposal. We undertake that, if our proposal is accepted, to adhere to the Project Timeline and Service Levels given in the RFP for various activities.

If our proposal is accepted, we will obtain a performance bank guarantee in the given format in the RFP document issued by a Scheduled Commercial Bank in India, acceptable to OCAC, for a sum equivalent to 10% of the total price as quoted in our financial proposal for the due performance of the contract.

We agree for unconditional acceptance of all the terms and conditions set out in the RFP document and also agree to abide by this RFP response for a period of 180 days from the bid opening date and it shall remain binding upon us with full force and virtue, until within this period a formal contract is prepared and executed, this RFP response, together with your written acceptance thereof in your notification of award, shall constitute a binding contract between us and OCAC.

We confirm that the information contained in this proposal or any part thereof, including its exhibits, schedules, and other documents and instruments delivered or to be delivered to OCAC is true, accurate, and complete. This proposal includes all information necessary to ensure that the statements therein do not in whole or in part mislead OCAC as to any material fact.

We agree that you are not bound to accept the lowest or any RFP response you may receive. We also agree that you reserve the right in absolute sense to reject all or any of the products / services specified in the RFP response.

It is hereby confirmed that we are entitled to act on behalf of our corporation/ company/ firm / organization and empowered to sign this document as well as such relevant documents, which may be required in this connection.

Dated this _____ Day of 2019

(Signature) (In the capacity of)

Having the Power of Attorney & duly authorized to sign the RFP Response for and on behalf of:

(Name and Address of Company) Seal/Stamp of Bidder

Witness Signature:

Witness Name:

Witness Address:

CERTIFICATE AS TO AUTHORISED SIGNATORIES

I, certify that I am ..... of the ....., and that ..... who signed the above Bid is authorized to bind the corporation by authority of its governing body.

14.2 Proforma 2: Declaration of Acceptance of Terms & Conditions of RFP

DECLARATION OF ACCEPTANCE OF TERMS & CONDITIONS CONTAINED IN THE RFP

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Sir/Madam,

I have carefully gone through the Terms & Conditions contained in the RFP Document [OCAC/_____/___] regarding RFP for Selection of System Integrator "Design, Build, Installation, Commissioning, Integration and Operation & Maintenance of Non-IT infrastructure for Extension of Odisha State Data Centre at OCAC Tower, Bhubaneswar"

I declare that all the provisions of this RFP document read along with the proposal submitted by my Company along with my consortium partner. I certify that I am an authorized signatory of my company and therefore, competent to make this declaration. I further certify that, interpretation made by OCAC technical committee is the final and binding on me.

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

14.3 Proforma 3: Undertaking on Total Responsibility

Undertaking of Total Responsibility

(On the Bidder's Letterhead)

RFP Ref. No. OCAC/_____/___ Date:

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Dear Sir,

Sub: Undertaking on Total Responsibility

This is to certify that we undertake total responsibility for the successful and defect free operation of the proposed Project, as per the requirements and terms and condition of the RFP for Selection of System Integrator for "Design, Build, Installation, Commissioning, Integration and Operation & Maintenance of Non-IT infrastructure for Extension of Odisha State Data Centre at OCAC Tower, Bhubaneswar"

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

14.4 Proforma 4: Format of Technical Proposal Document

RFP Ref. No.: OCAC/_____/___ Date:

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Subject: Submission of Technical proposal for "Selection of System Integrator for Design, Build, Commission and O&M of Odisha State Data Centre 2.0 (OSDC 2.0)".

Dear Sir/Madam,

We, the undersigned, offer to provide Systems Implementation solutions to OCAC Ltd on <Name of the Systems Implementation engagement> with your Request for Proposal dated <insert date> and our Proposal. We are hereby submitting our Proposal, which includes this technical bid and the Financial Bid separately.

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 Data sheet.

We agree to abide by all the terms and conditions of the RFP document. We would hold the terms of our bid valid for 180 days as stipulated in the RFP document.

We hereby declare that we are not insolvent, in receivership, bankrupt or being wound up, our affairs are not being administered by a court or a judicial officer, our business activities have not been suspended and we are not the subject of legal proceedings for any of the foregoing.

We understand you are not bound to accept any Proposal you receive.

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

14.5 Proforma 5: Forwarding Letter for Earnest Money Deposit

Forwarding Letter for Earnest Money Deposit

From (Name & complete address of the bidder) _____ _____ _____ _____	To General Manager (Admin) Odisha Computer Application Centre, N1/ 7D, Acharya Vihar Square, Near Planetarium, P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Dear Sir/Madam,

Subject: EMD submission for the RFP "Selection of System Integrator for Design, Build, Commission and O&M of Odisha State Data Centre 2.0 (OSDC 2.0) OCAC tower, Bhubaneswar"

Reference: RFP number <OCAC/____/__> **Dated <__/____/____>**

We, M/s <_____>, having carefully read and examined in detail the RFP document for ""Design, Build, Installation, Commissioning, Integration and Operation & Maintenance of Non-IT infrastructure for Extension of Odisha State Data Centre at OCAC Tower, Bhubaneswar"" at OCAC Tower, Bhubaneswar, published by OCAC hereby submit EMD of Rs. < _____ >/- (Rupees <_____> Only) in the form of Bank Guarantee. The details are as under:

Name of Issuing Bank :

Bank Guarantee number :

Amount :

Dated :

We M/s _____ have read and understood the clauses of RFP document towards forfeiture of EMD.

Thanking you,

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

Encl: - Copy of Earnest Money Deposit

14.6 Proforma 6: Format for furnishing Earnest Money Deposit

Whereas _____ (hereinafter called the "tenderer") has submitted their offer dated_____ for Selection of System Integrator for "Design, Build, Installation, Commissioning, Integration and Operation & Maintenance of Non-IT infrastructure for Extension of Odisha State Data Centre at OCAC Tower, Bhubaneswar" (OSDC 2.0) hereinafter called the "RFP") against the purchaser's RFP enquiry No. OCAC/_____/_____ KNOW ALL MEN by these presents that We _____< Bank Name> of _____ having our registered office at _____ are bound unto _____ (hereinafter called the "Purchaser) in the sum of _____ for which payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents.

Sealed with the Common Seal of the said Bank this ___ day of _____ , 2019.

THE CONDITIONS OF THIS OBLIGATION ARE:

If the bidder withdraws or amends, impairs or derogates from the RFP in any respect within the period of validity of this RFP.

If the bidder having been notified of the acceptance of his RFP by the purchaser during the period of its validity: -

If the bidder fails to furnish the Performance Security for the due performance of the contract.

Fails or refuses to accept/execute the contract.

We undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including 180 days from the last date of RFP submission date/ RFP validity date and any demand in respect thereof should reach the Bank not later than the above date.

_____

(Signature of the authorized officer of the Bank)

_____

Name and designation of the officer

_____

Seal, name & address of the Bank and address of the Branch

14.7 Proforma 7: Company Profile of Bidder

Company Profile of the Bidder

Requirements	Details	Remarks
Name of the Company/Firm		
Date of Incorporation (Registration Number & Registering Authority)		
GST and PAN No.		
Legal Status of the Company in India & Nature of Business in India	Public Ltd Company/ Private / Partnership Firm	
Address of the Registered Head Office in India		
Date of Commencement of Business		
Address of the office in Odisha (if any)		
Active ISO/ SEI CMMI Level status (Enclosed Certificate)		
Details of the Contact Person	Name: Designation: E-mail id: Phone& Fax number:	
Details of the Contact Person to whom all references shall be made regarding this RFP	Name: Designation:	

	E-mail id: Phone& Fax number:	
Web-Site & -mail ID for any grievance		

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

14.8 Proforma 8: Declaration regarding Clean Track Record

DECLARATION REGARDING CLEAN TRACK RECORD

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Sir/Madam,

I have carefully gone through the Terms & Conditions contained in the RFP Document [OCAC/_____/__] regarding RFP for Selection of System Integrator for "Design, Build, Installation, Commissioning, Integration and Operation & Maintenance of Non-IT infrastructure for Extension of Odisha State Data Centre at OCAC Tower, Bhubaneswar".

I hereby declare that my company along with consortium partner has not been debarred / blacklisted by any Government / Semi-Government organizations of Central Govt./ State Govt. / PSUs. I further certify that I am competent authority in my company has authorized me to make this declaration.

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

14.9 Proforma 9: Undertaking on litigation

Undertaking on litigation(s)

This is to certify that << COMPANY NAME >> is not involved in any major litigation that may have an impact of affecting or compromising the delivery of services as required under this RFP.

Company Secretary / Authorized Signatory

Name of Signatory:

Bidder Company Name:

Date:

Place:

14.10 Proforma 10: Undertaking on Not Being Black-Listed

Undertaking on Not Being Black-Listed

This is to certify that << COMPANY NAME >> is not blacklisted by the Government of Odisha or any of its agencies for any reasons whatsoever and not blacklisted by Central / any other State/UT Government or its agencies for indulging in corrupt or fraudulent practices or for indulging in unfair trade practices and not backed out from executing the work after award of the work as on the RFP submission date.

Company Secretary / Authorized Signatory

Name of Signatory:

Bidder Company Name:

Date:

Place:

14.11 Proforma 11: Undertaking of Service Level Compliance

Undertaking of Service Level Compliance
(On the Bidder's Letterhead)

RFP Ref. No.: OCAC/_____/__ Date:

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Dear Sir/Madam,

Sub: Undertaking on Service Level Compliance

I/We as Implementing Agency do hereby undertake that we shall monitor, maintain, and comply with the service levels stated in the RFP to provide quality service to OCAC.

However, if the proposed resources, Non-IT Infrastructure are found to be insufficient in meeting the RFP and/or the service level requirements given by OCAC, then we will augment the same without any additional cost to OCAC.

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

14.12 Proforma 12: Authorization Letters from all OEMs

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Dear Sir

WHEREAS <Name of the Original Equipment Manufacturer> who are official producers of <Name of Products intended for this Tender> and having production facilities at <Address of Mfg. Facility> do hereby authorize <Name of the bidder with complete address> (hereinafter, the "Bidder") to submit a bid of the following Products produced by us, for the Supply and Support Requirements associated with the above Invitation for Bids.

When resold by <Name of the bidder>, these products will carry a 5 years warranty from the date of handover of the project to OCAC by our reseller.

We assure you that in the event of <name of the Bidder> not being able to fulfil its obligation as our Service Provider in respect of our standard Warranty Terms we would continue to meet our Warranty Terms as prescribed in the tender terms.

We confirm that <Name of the bidder> is our authorized service provider/system integrator and can hence provide maintenance and upgrade support for our products.

We confirm that the products quoted are on our current product list and are not likely to be discontinued within 7 years from the day of this letter. We assure availability of spares for the products for the next Seven years.

We also confirm that any bidder who offer our products without our authorization as above, OCAC at its discretion may decide to disqualify the bidder and we will have no

objection in this regard. Further, in such case we confirm that such bidder will not be authorized to bid for our products in any of the RFP call by OCAC in future.

We conform that our products, the ones for which this MAF is being issued to bidder are manufactured in a country that shares geographical border with India.

We confirm that the technical compliance submitted by <Name of the bidder> has been duly endorsed by us with stamp and signature.

Signature

Note: This letter of authority must be on the letterhead of the Manufacturer and duly signed by an authorized person not below capacity of General Manager/Business unit head or Equivalent

Yours faithfully,

For and on behalf of M/s _____ (Name of the manufacturer)

Signature _____

Name :

Designation :

Address :

Date :

Directorate Seal

Note: This letter of authority should be on the letterhead of the concerned manufacturer and should be signed by a person competent and having the power of attorney to bind the manufacturer.

14.13 Proforma 13: OEM's Support Form

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Reference: Supply of equipment/software/license for the project "Design, Build, Installation, Commissioning, Integration and Operation & Maintenance of Non-IT infrastructure for Extension of Odisha State Data Centre at OCAC Tower, Bhubaneswar"

Sir/Madam,

We _____, (name and address of the manufacturer) who are established and reputed manufacturers of _____ having factories at _____ (addresses of manufacturing locations) do hereby assure that we would support our equipment/software/license and freely upgrade them for a period of Five years of Operations and Maintenance, from the date of go-live of the project, by M/s _____ (name and address of the Bidder) who has proposed to use for the project "Design, Build, Installation, Commissioning, Integration and Operation & Maintenance of Non-IT & IT infrastructure for Extension of Odisha State Data Centre at OCAC Tower, Bhubaneswar" (OSDC 2.0) or his successor. We would also adhere to the timelines for maintenance as indicated in this RFP by closely working with the Bidder or his successor for a period of five years from the date of supply of the equipment. We abide by the commercials quoted by the Bidder towards AMC/warrnaty charges for five years from the date of supply and successful commissioning of equipment(s) i.e Go-Live.

We confirm that the products quoted will not be end of life for next seven years from the last date of submission of bids

Yours faithfully,

For and on behalf of M/s _____ (Name of the manufacturer)

Signature _____

Name :

Designation :

Address :

Date :

Directorate Seal

Note: This letter of authority should be on the letterhead of the concerned manufacturer and should be signed by a person competent and having the power of attorney to bind the manufacturer.

10.1 Proforma 14: Warranty Certificate

(On Bidder's Letterhead)

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Sir/Madam,

We warrant that the equipment(s) supplied under the contract would be newly manufactured, free from all encumbrances, defects and faults in material or workmanship or manufacture, shall be of the highest grade and quality, shall be consistent with the established and generally accepted standards for materials of the type ordered, shall be in full conformity with the specifications, drawings of samples, if any, and shall operate as designed. We shall be fully responsible for its efficient and effective operation. We also warrant that the services provided under the contract shall be as per the Service Level Agreement (SLA) with GoO/OCAC.

The obligations under the warranty expressed above shall include all costs relating to labour, spares, maintenance (preventive as well as unscheduled), and transport charges from site to manufacturer's works / service facilities and back for repair or modification or replacement at site of the equipment or any part of the equipment, which under normal care and proper use and maintenance proves defective in design, material or workmanship or fails to operate effectively and efficiently or conform to the specifications and for which notice is promptly given by GoO to us (Bidder). We shall provide on-site support for all the equipment and services supplied hereunder during the period of this warranty (5 years after acceptance for equipment (5 years for the date of go-live) and entire service period for services).

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

10.2 Proforma 15: Technical specification compliance by OEM/Bidder.

Minimum Criteria and Condition for OEM and Bidder for Technical Specifications

The OEM for all the above-mentioned equipment's should be able to support the Warranty and Replacement services efficiently.

Please fill up compliance statement as per below format with Technical Proposal for all items as per Technical specification mentioned in this RFP.

<< OEM Name >> << Table need to modify as per specification table>>

Device Name				
Make				
Model				
S No.	**System**	**Description**	**Compliance (Y/N)**	**Remarks**

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator and OEM)

Name: Place:

Designation: Date:

10.3 Proforma 16: Statement of No Deviation from Requirement Specifications

RFP Ref. No.: OCAC/_____/____ Date:

To
General Manager (Admin)
Odisha Computer Application Centre,
N1/ 7D, Acharya Vihar Square, Near Planetarium,
P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Sir,

There are no technical deviations (null deviations) from the requirement specifications of tendered items and schedule of requirements. The entire work shall be performed as per your specifications and documents.

This is to certify that our proposed solution meets all the requirements of the RfP including but not limited to Scope of Work, stated Project Outcomes (including SLAs), Business Requirements and Functional Specifications/ Requirements.

We further certify that our proposed solution meets, is equivalent or better than the minimum technical specifications as given in the RfP.

We understand that the Bill of Quantity provided in the RfP is indicative, we confirm that we have undertaken our own assessment to finalize the components and quantity.

In case, any item of hardware or software is found non-compliant at any stage during project implementation, it would be replaced with a fully compliant product/solution at no additional cost to OCAC. In case of non-adherence of this activity, OCAC reserves the right to cancel the contract, in case the said Contract is awarded to us by OCAC.

We further confirm that our commercial proposal is for the entire scope of work, comprising all required components and our obligations, for meeting the scope of work.

Thanking you,

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

10.4 Proforma 17: Bidder's Net worth

Net Worth calculation

(On Applicant's Statutory Auditor's letterhead)

Date:

This is to certify that we M/s---------- are the statutory Auditors of M/s---------- and that the below mentioned calculations are true as per the Audited Financial Statements of M/s---------- for the below mentioned years.

S No.	Annual Sales Turnover Calculation
1	Paid up Share Capital as per B/S (A)
2	Add: Free Reserves as per B/S (B)
3	Less: Deferred Payment if any as per B/S (C)
4	Amount of probable impact on reserves due to audit qualification (D)
5	Net Worth (F) =(A)+(B)(C)-(D)
6	Annual Turnover (F) ==(A)-(B)-(C)-(D)-(E)

Note: Please attach audited Balance Sheets and IT return statements to confirming the figures mentioned in columns.

Company Secretary / Statutory Auditor

Name of Signatory:

Bidder Company Name:

Date:

10.5 Proforma 18: Project Credentials Format

Sl. No.	Item	Detail
General Information		
1.	Customer Name/ Government Department	
2.	Details of Contact Person • Name: • Designation: • Email: • Phone: & Fax: • Mailing Address:	
Project Details		
3.	Name of the project	
4.	Government/Non-government	
5.	Start Date/End Date	
6.	Current Status	(work in Progress (PAT/FAT/Go-Live) OR completed)
7.	Contract Tenure	
8.	Area of the Data Centre	
9.	Effort involved in Payroll person-months in the complete project	
10	Order Value of the project (in Crores)	
11.	Please provide copies of Work Order or Certificate of Completion for completed projects from the customer	
More than one same table content may be provided for more than one project detail.		

I do hereby acknowledge that the details provided above are true to best of my knowledge.

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:
Designation: Date:

10.6 Proforma 19: Format for providing CV of Key Personnel

Curriculum Vitae of Key Personnel's

The bidder shall provide the summary table of details of the manpower that will be deployed on this project during the implementation.

Table-A

S No	Type of Resource	Name of Resources	Key Responsibilities	Highest Academic Qualifications and Certifications(e.g. PMP/CDCP /ATD/CCNA/ITIL)	Years of Relevant Experience
1	Project Manager				
2	---				
3	---				
4	---				
5	---				
6	Others				
…					

Table-B

Sl. No.	Particulars	Details	Supporting document
1.	Key resource / Non Key resource		
2.	Name of the Personal		
3.	Current Designation/Job title		
4.	Current job responsibilities		
5.	Proposed Role in this project		
6.	Total experience and relevant experience (in years)		
7.	Number of years with the organization and date of joining the firm		
8.	Whether resource is engaged by the firm in its own payrolls	YES/NO	
9.	Summary of Professional / Domain Experience		
10.	Date of Birth		
11.	Academic Qualifications: Degree Academic institution graduated from Year of graduation Specialization (if any) Key achievements and other relevant information (if any)		Attach certificate of highest qualification
12.	Professional Certifications/ Training		Attach relevant certificates
13.	Membership of Professional Associations		
14.	Employment Record*		
15.	Details of similar project handled & the role assigned		

Sl. No.	Particulars	Details	Supporting document
	Prior project experience Project name Customer Key project features in brief Location of the project Designation Role Responsibilities and activities Duration of the project		
16.	Detailed tasks Proposed to be assigned	Work already undertaken that best illustrates capability to handle the tasks assigned**	
17.	Signature of the representative		

I hereby declare that the above mentioned resource would be available during the project phase of this RFP.

*Starting with present position, list in reverse order every employment held by the staff member since graduation

**Among the assignments in which the staff has been involved, indicate brief details of the project in which this responsibility was assigned (including nature and duration of duty)

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

10.7 Proforma 20: Detailed Timelines and Work Plan with proposed Manpower Strength

The Bidder is supposed to specify a detailed work plan for all activities that will be carried out during the project implementation phase and proposed engagement of manpower strength on monthly basis.

<Bidder to insert project plan prepared in MPP>

Indicate all main activities of the assignment, including delivery of reports (e.g. inception, interim and final reports) and other benchmarks such as Customer approvals. Duration of activities shall be indicated in the form of a bar chart. Please specify other activity (Addition or Deletion), if not listed in the form.

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

10.8 Proforma 21: Format for Performance for Bank Guarantee (PBG)

Ref. No._____

Bank Guarantee No _____ Dated_____

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Dear Sir/Madam,

In consideration of Odisha Computer Application Centre, OCAC tower, Bhubaneswar – 751013, Odisha, India, India (hereinafter referred to as 'OCAC', which expression shall, unless repugnant to the context or meaning thereof, include all its successors, administrators, executors and assignees) after receipt of the Letter of Intent (LOI) dated _____ with M/s _____ having it's registered / head office at _____ (hereinafter referred to as the SYSTEMS INTEGRATOR) which expression shall, unless repugnant to the context or meaning thereof include all its successors, administrators, executors and assignees) and OCAC having agreed that the SYSTEM INTEGRATOR shall furnish to OCAC a performance guarantee for 10% of the Total Project Cost for the faithful performance of the entire contract.

We (name of the bank) _____ registered under the laws of _____ having head / registered office at _____ (hereinafter referred to as "the Bank", which expression shall, unless repugnant to the context or meaning thereof, include all its successors, administrators, executors and permitted assignees) do hereby guarantee and undertake to pay immediately on first demand in writing any / all moneys to the extent of 10% of the Total Project Cost without any demur, reservation, contest or protest and / or without any reference to the SYSTEMS INTEGRATOR. Any such demand made by OCAC on the Bank by serving a written notice

shall be conclusive and binding, without any proof, on the bank as regards the amount due and payable, notwithstanding any dispute(s) pending before any Court, Tribunal, Arbitrator or any other authority and / or any other matter or thing whatsoever, as liability under these presents being absolute and unequivocal. We agree that the guarantee herein contained shall be irrevocable and shall continue to be enforceable until it is discharged by OCAC in writing. This guarantee shall not be determined, discharged or affected by the liquidation, winding up, dissolution or insolvency of the SYSTEM INTEGRATOR and shall remain valid, binding and operative against the bank.

The Bank also agrees that OCAC at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance, without proceeding against the SYSTEM INTEGRATOR and notwithstanding any security or other guarantee that OCAC may have in relation to the SYSTEMS INTEGRATOR's liabilities.

The Bank further agrees that OCAC shall have the fullest liberty without our consented without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said contract or to extend time of performance by the said SYSTEMS INTEGRATOR(s) from time to time or to postpone for any time or from time to time exercise of any of the powers vested in OCAC against the said SYSTEMS INTEGRATOR(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said SYSTEMS INTEGRATOR(s) or for any forbearance, act or omission on the part of OCAC or any indulgence by OCAC to the said SYSTEMS INTEGRATOR(s) or any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

The Bank further agrees that the Guarantee herein contained shall remain in full force during the period that is taken for the performance of the contract and all dues of OCAC under or by virtue of this contract have been fully paid and its claim satisfied or discharged or till OCAC discharges this guarantee in writing, whichever is earlier.

This Guarantee shall not be discharged by any change in our constitution, in the constitution of OCAC or that of the SYSTEMS INTEGRATOR.

The Bank confirms that this guarantee has been issued with observance of appropriate laws of the country of issue.

The Bank also agrees that this guarantee shall be governed and construed in accordance with Indian Laws and subject to the exclusive jurisdiction of Indian Courts of OCAC.

Notwithstanding anything contained herein above, our liability under this Guarantee is limited to Indian Rs. (in figures) _____ (Indian Rupees (in words) _____) and our guarantee shall remain in force until _____ (indicate OCAC date of expiry of bank guarantee). Any claim under this Guarantee must be received by us before the expiry of this Bank Guarantee. If no such claim has been received by us by the said date, the rights of OCAC under this Guarantee will cease. However, if such a claim has been received by us within the said date, all the rights of OCAC under this Guarantee shall be valid and shall not cease until we have satisfied that claim.

In witness whereof, the Bank through its authorized officer has set its hand and stamp on this _____ Day of _____ 2019 at _____

10.9 Proforma 22: Format of Commercial Proposal Document

Format for reporting commercials and mandatory letters that needs to be part of the commercial proposal document. Breakdown of cost mentioned, cost of each component, operating cost, employee cost, cost of operations and management, any other cost which the Bidder feels.

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Subject: Submission of Commercial proposal for "Selection of System Integrator for Design, Build, Installation, Commissioning, Integration and Operation & Maintenance of Non-IT & IT infrastructure for Extension of Odisha State Data Centre at OCAC Tower, Bhubaneswar".

Reference: RFP No: OCAC/_____/___ Dated: __/____/_____

We, the undersigned Bidder, having read and examined in detail the RFP documents for "RFP for Selection of System Integrator for "Design, Build, Installation, Commissioning, Integration and Operation & Maintenance of Non-IT infrastructure for Extension of Odisha State Data Centre at OCAC Tower, Bhubaneswar, (OSDC 2.0)". I / we do hereby propose to provide services as specified in the RFP documents number OCAC/____/__ Dated __/__/_____

1. PRICE PROPOSAL AND VALIDITY

All the prices mentioned in our RFP are in accordance with the terms as specified in the RFP documents. All the prices and other terms and conditions of this RFP are valid for a period of 180 days as desired in the RFP

We hereby confirm that our RFP prices include all taxes. However, all the taxes are quoted separately under relevant sections.

We have studied the clause relating to Indian Income Tax and hereby declare that if any income tax, surcharge on Income Tax, Professional and any other corporate Tax in altercated under the law, we shall pay the same.

2. UNIT RATES

We have indicated in the relevant schedules enclosed the unit rates for the purpose of on account of payment as well as for price adjustment in case of any increase to / decrease from the scope of work under the contract.

3. DEVIATIONS

We declare that all the services shall be performed strictly in accordance with the RFP documents except for the variations and deviations, all of which have been detailed out exhaustively in the following statement, irrespective of whatever has been stated to the contrary anywhere else in our proposal. Further, we agree that additional conditions, if any, found in the RFP documents, other than those stated in deviation schedule, shall not be given effect to.

4. RFP PRICING

We further confirm that the prices stated in our proposal are in accordance with your Instruction to Bidders included in RFP documents.

5. QUALIFYING DATA

We confirm having submitted the information as required by you in your Instruction to Bidders. In case you require any other further information/documentary proof in this regard before evaluation of our RFP, we agree to furnish the same in time to your satisfaction.

6. PROPOSAL PRICE

We declare that our Proposal Price is for the entire scope of the work as specified in the Schedule of Requirements and RFP documents.

7. PERFORMANCE BANK GUARANTEE BOND

We hereby declare that in case the contract is awarded to us, we shall submit the PBG bond in the form prescribed in Proforma of Bank Guarantee towards PBG and as per General Conditions of Contract. We hereby declare that our RFP is made in good faith, without collusion or fraud and the information contained in the RFP is true and correct to the best of our knowledge and belief. We understand that our RFP is binding on us and that you are not bound to accept a RFP you receive. We confirm that no Technical deviations are attached here with this commercial offer.

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date:

10.10 Proforma 23: Undertaking on Exit Management and Transition

Undertaking on Exit Management and Transition

(On the Bidder's Letterhead)

RFP Ref. No: OCAC/_____/___ Date:

To

General Manager (Admin)

Odisha Computer Application Centre,

N1/ 7D, Acharya Vihar Square, Near Planetarium,

P.O. – RRL, Bhubaneswar, Odisha, Pin-751013

Dear Sir/Madam,

Sub: Undertaking on Exit Management and Transition

I/We hereby undertake that at the time of completion of our engagement with OCAC, either at the End of Contract or termination of Contract before planned Contract Period for any reason, we shall successfully carry out the exit management and transition of this Project to OCAC or to an agency identified by OCAC to the satisfaction of OCAC. I/We further undertake to complete the following as part of the Exit management and transition:

We undertake to complete the updation of all Project documents and other artefacts and handover the same to OCAC before transition.

We undertake to design standard operating procedures to manage system (including application and IT systems), document the same and train OCAC personnel on the same.

If OCAC decides to take over the operations and maintenance of the Project on its own or identifies or selects any other agency for providing operations & maintenance services on this Project, then we shall provide necessary handholding and transition support, which shall include but not be limited to, conducting detailed walkthrough and demonstrations for the IT Infrastructure, handing over all relevant documentation, addressing the queries/clarifications of the new agency with respect to the working / performance levels of the ICT components , conducting Training sessions etc.

I/We also understand that the Exit management and transition will be considered complete on the basis of approval from OCAC.

Yours sincerely,

(Seal & Signature of the Authorized signatory of the System Integrator)

Name: Place:

Designation: Date: