

REPUBLIC OF KENYA



COUNTY GOVERNMENT OF NAKURU

**Tender Name: ESTABLISHMENT, SUPPLY, DELIVERY, INSTALLATION,
CONFIGURATION AND COMMISSIONING OF A DATA CENTER- PHASE I**

Tender No. NCG/EVIE/T/040/2018-2019

Instruction to Tenderers

Agreement

Annexes

JANUARY 2019

County Government of Nakuru
Department of **ICT & E-GOVERNMENT**
P.O. BOX 2870-20100
NAKURU

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SECTION I: INVITATION FOR TENDERS

TENDER REF. NO: NCG/EVIE/T/040/2018-2019

TENDER NAME: ESTABLISHMENT, SUPPLY, DELIVERY, INSTALLATION, CONFIGURATION AND COMMISSIONING OF A DATA CENTER- PHASE I

1.1 COUNTY GOVERNMENT OF NAKURU invites sealed tenders from eligible candidates for **(ESTABLISHMENT, SUPPLY, DELIVERY, INSTALLATION, CONFIGURATION AND COMMISSIONING OF A DATA CENTER- PHASE I).**

Bidding documents with detailed specifications may be obtained from the **Kenya Supplier Portal;** supplier.treasury.go.ke or from the county website; www.nakuru.go.ke free of charge.

1.2 Prices quoted should be net, inclusive of **all taxes**, and **delivery costs**, must be in Kenya Shillings and shall remain valid for **120** days from the closing date of the tender.

**THE COUNTY SECRETARY
NAKURU COUNTY GOVERNMENT**

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SECTION II: INSTRUCTIONS TO TENDERERS

2.1: ELIGIBLE TENDERERS

This Invitation for Tender for **ESTABLISHMENT, SUPPLY, DELIVERY, INSTALLATION, CONFIGURATION AND COMMISSIONING OF A DATA CENTER- PHASE I** is open to all tenderers eligible as described in the Invitation to Tender.

- 2.1.1 Nakuru County Government employees, committee members, board members and their relatives (spouse and children) are not eligible to participate in the tender.
- 2.1.2 Tenderers shall provide the qualification information statement that the tenderer (including all members of a joint venture and subcontractors) is not associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by **Nakuru County Government** to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods under this Invitation for tenders.
- 2.1.3 Tenderers shall not be under a declaration of ineligibility for corrupt and fraudulent practices.

2.2: ELIGIBLE GOODS

- 2.2.1 All goods to be supplied under the contract shall have their origin in eligible source countries.
- 2.2.2 For purposes of this clause, "origin" means the place where the goods are mined, grown, or produced. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially-recognized product results that is substantially different in basic characteristics or in purpose or utility from its components
- 2.2.3 The origin of goods is distinct from the nationality of the tenderer.

2.3: COST OF TENDERING

- 2.3.1 The Tenderer shall bear all costs associated with the preparation and submission of its tender, and Nakuru County Government, will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.
- 2.3.2 Bidding documents with detailed specifications may be obtained from the Kenya Supplier Portal; supplier.treasury.go.ke or from the county website; www.nakuru.go.ke free of charge.

2.3.3 All firms found capable of performing the contract satisfactorily in accordance with the set prequalification criteria shall be prequalified.

2.4: CONTENT OF THE TENDER DOCUMENT

- 2.4.1 The tender document comprises the documents listed below and addenda issued in accordance with clause 2.6 of these instructions to Tenderers
- (i) Invitation to Tender
 - (ii) Instructions to tenderers
 - (iii) General Conditions of Contract
 - (iv) Special Conditions of Contract
 - (v) Schedule of Requirements/Price Schedules
 - (vi) Tender Form
 - (vii) Contract Form
 - (viii) Tender Security Form
 - (ix) Performance Security Form
 - (x) Confidential Business Questionnaire
 - (xi) Oaths and Statutory Declaration Form
 - (xii) Manufacturer's Authorization Form
- 2.4.2 The Tenderer is expected to examine all instructions, forms, terms, and specifications in the tender documents. Failure to furnish all information required by the tender documents or to submit a tender not substantially responsive to the tender documents in every respect will be at the tenderers risk and may result in the rejection of its tender.

2.5: CLARIFICATION OF DOCUMENTS

- 2.5.1 A prospective tenderer requiring any clarification of the tender document may notify **Nakuru County Government** in writing or by post at **County Government's** address indicated in the Invitation to Tender. **The County Government** will respond in writing to any request for clarification of the tender documents, which it receives not later than seven (7) days prior to the deadline for the submission of tenders, prescribed by **The County Government**. Written copies of **The County Government** response will be sent to all prospective tenderers that have received the tender document.
- 2.5.2 **Nakuru County Government** shall reply to any clarifications sought by the tenderer within 3 days of receiving the request to enable the tenderer to make timely submission of its tender.

2.6: AMENDMENT OF DOCUMENTS

- 2.6.1 At any time prior to the deadline for submission of tenders, **Nakuru County Government**, for any reason, whether at its own initiative or in response to a clarification requested by a prospective tenderer, may modify the tender documents by amendment.
- 2.6.2 All prospective candidates that have received the tender documents will be notified of the amendment in writing or by post and will be binding on them.

2.6.3 In order to allow prospective tenderers reasonable time in which to take the amendment into account in preparing their tenders, **Nakuru County Government** at its discretion, may extend the deadline for the submission of tenders.

2.7: LANGUAGE OF TENDER

2.7.1 The tender prepared by the tenderer, as well as all correspondence and documents relating to the tender exchange by the tenderer and **Nakuru County Government**, shall be written in English language, provided that any printed literature furnished by the tenderer may be written in another language provided they are accompanied by an accurate English translation of the relevant passages in which case, for purposes of interpretation of the tender, the English translation shall govern.

2.8: DOCUMENTS COMPRISING OF TENDER

- 2.8.1 The tender prepared by the tenderers shall comprise the following components
- (a) a Tender Form and a Price Schedule completed in accordance with paragraph 2.9, 2.10 and 2.11 below
 - (b) documentary evidence established in accordance with paragraph 2.1 that the tenderer is eligible to tender and is qualified to perform the contract if its tender is accepted;
 - (c) documentary evidence established in accordance with paragraph 2.2 that the goods and ancillary services to be supplied by the tenderer are eligible goods and services and conform to the tender documents; and
 - (d) tender security furnished in accordance with paragraph 2.14

2.9: TENDER FORMS

2.9.1 The tenderer shall complete the Tender Form and the appropriate Price Schedule furnished in the tender documents, indicating the goods to be supplied, a brief description of the goods, their country of origin, quantity, and prices.

2.10: TENDER PRICES

2.10.1 The tenderer shall indicate on the appropriate Price Schedule the unit prices and total tender price of the goods it proposes to supply under the contract

2.10.2 Prices indicated on the Price Schedule shall include all costs including taxes, insurances and delivery to the premises of the entity.

2.10.3 Prices quoted by the tenderer shall be fixed during the Tender's performance of the contract and not subject to variation on any account. A tender submitted with an adjustable price quotation will be treated as non-responsive and will be rejected, pursuant to paragraph 2.22

2.10.4 The validity period of the tender shall be **120** days from the date of opening of the tender.

2.11: TENDER CURRENCIES

2.11.1 Prices shall be quoted in Kenya Shillings unless otherwise specified in the Appendix to Instructions to Tenderers.

2.12: TENDERERS ELIGIBILITY AND QUALIFICATIONS

2.12.1 Pursuant to paragraph 2.1. the tenderer shall furnish, as part of its tender, documents establishing the tenderers eligibility to tender and its qualifications to perform the contract if its tender is accepted.

2.12.2 The documentary evidence of the tenderers eligibility to tender shall establish to **Nakuru County Government** satisfaction that the tenderer, at the time of submission of its tender, is from an eligible source country as defined under paragraph 2.1

2.12.3 The documentary evidence of the tenderers qualifications to perform the contract if its tender is accepted shall be established to **Nakuru County Government's** satisfaction;

- (a) that, in the case of a tenderer offering to supply goods under the contract which the tenderer did not manufacture or otherwise produce, the tenderer has been duly authorized by the goods' Manufacturer or producer to supply the goods.
- (b) that the tenderer has the financial, technical, and production capability necessary to perform the contract;
- (c) that, in the case of a tenderer not doing business within Kenya, the tenderer is or will be (if awarded the contract) represented by an Agent in Kenya equipped, and able to carry out the Tenderer's maintenance, repair, and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications.

2.13 GOODS ELIGIBILITY AND CONFORMITY TO TENDER DOCUMENTS

2.13.1 Pursuant to paragraph 2.2 of this section, the tenderer shall furnish, as part of its tender documents establishing the eligibility and conformity to the tender documents of all goods which the tenderer proposes to supply under the contract

2.13.2 The documentary evidence of the eligibility of the goods shall consist of a statement in the Price Schedule of the country of origin of the goods and services offered which shall be confirmed by a certificate of origin issued at the time of shipment.

2.13.3 The documentary evidence of conformity of the goods to the tender documents may be in the form of literature, drawings, and data, and shall consist of:

- (a) a detailed description of the essential technical and performance characteristic of the goods;
- (b) a list giving full particulars, including available source and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the goods for a period of two (2) years, following commencement of the use of the goods by Nakuru County Government; and
- (c) a clause-by-clause commentary on Nakuru County Government Technical Specifications demonstrating substantial responsiveness of the goods and service to those specifications, or a statement of deviations and exceptions to the provisions of the Technical Specifications.

2.13.4 For purposes of the documentary evidence to be furnished pursuant to paragraph 2.13.3(c) above, the tenderer shall note that standards for workmanship, material, and equipment, as well as references to brand names or catalogue numbers designated by Nakuru County Government in its Technical Specifications, are intended to be descriptive only and not restrictive. The tenderer may substitute alternative standards, brand names, and/or catalogue numbers in its tender, provided that it demonstrates to The County Government satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

2.14 :TENDER SECURITY

2.14.1 The tenderer shall furnish, as part of its tender, a tender security for the amount specified in the Appendix to Invitation to Tenderers.

2.14.2 The tender security shall be in the amount of 2 per cent of the tender price.

2.14.3 The tender security is required to protect Nakuru County Government against the risk of Tenderer's conduct which would warrant the security's forfeiture, pursuant to paragraph 2.14.7.

2.14.4 The tender security shall be denominated in Kenya Shillings or in another freely convertible currency, and shall be in the form of a bank guarantee or a bank draft issued by a reputable bank located in Kenya or abroad, or a guarantee issued by a reputable insurance company in the form provided in the tender documents or another form acceptable to Nakuru County Government and valid for thirty (30) days beyond the validity of the tender.

2.14.5 Any tender not secured in accordance with paragraph 2.14.1 and 2.14.3 will be rejected by Nakuru County Government as non-responsive, pursuant to paragraph 2.22.

2.14.6 Unsuccessful Tenderer's tender security will be discharged or returned as promptly as possible as but not later than thirty (30) days after the expiration of the period of tender validity prescribed by Nakuru County Government.

2.14.7 The successful Tenderer's tender security will be discharged upon the tenderer signing the contract, pursuant to paragraph 2.27 and furnishing the performance security, pursuant to paragraph 2.28.

2.14.8 The tender security may be forfeited:

- (a) if a tenderer withdraws its tender during the period of tender validity specified by Nakuru County Government on the Tender Form; or
- (b) in the case of a successful tenderer, if the tenderer fails:
 - (i) to sign the contract in accordance with paragraph 2.27
 - or
 - (ii) to furnish performance security in accordance with paragraph 2.28

2.15: VALIDITY OF TENDERS

2.15.1 Tenders shall remain valid for **120** days or as specified in the Invitation to tender after the date of tender opening prescribed by Nakuru County Government, pursuant to paragraph 2.18. A tender valid for a shorter period shall be rejected by The County Government as non-responsive.

2.15.2 In exceptional circumstances, Nakuru County Government may solicit the Tenderer's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. The tender security provided under paragraph 2.14 shall also be suitably extended. A tenderer may refuse the request without forfeiting its tender security. A tenderer granting the request will not be required nor permitted to modify its tender.

2.16 FORMAT AND SIGNING OF TENDER

2.16.1 The tender shall have no interlineations, erasures, or overwriting except as necessary to correct errors made by the tenderer, in which case such corrections shall be initialed by the person or persons signing the tender.

2.16.2 : All required documents must be arranged chronologically as listed in the evaluation criteria and clearly marked.

2.17 : DEADLINE FOR SUBMISSION OF TENDERS

2.17.1 Tenders must be received by Nakuru County Government at the address specified under paragraph 2.17.2 no later than **Monday 13th may 2019.**

2.17.2 Nakuru County Government may, at its discretion, extend this deadline for the submission of tenders by amending the tender documents in accordance with paragraph 2.6, in which case all rights and obligations of Nakuru County Government and

candidates previously subject to the deadline will therefore be subject to the deadline as extended

2.18: MODIFICATION AND WITHDRAWAL OF TENDERS

- 2.18.1 The tenderer may modify or withdraw its tender after the tender's submission, provided that written notice of the modification, including substitution or withdrawal of the tenders, is received by Nakuru County Government prior to the deadline prescribed for submission of tenders.
- 2.18.2 The Tenderer's modification or withdrawal notice shall be prepared, sealed, marked, and dispatched in accordance with the provisions of paragraph 2.17. A withdrawal notice may also be sent by cable, telex but followed by a signed confirmation copy, postmarked not later than the deadline for submission of tenders.
- 2.18.3 No tender may be modified after the deadline for submission of tenders.
- 2.18.4 No tender may be withdrawn in the interval between the deadline for submission of tenders and the expiration of the period of tender validity specified by the tenderer on the Tender Form. Withdrawal of a tender during this interval may result in the Tenderer's forfeiture of its tender security, pursuant to paragraph 2.14.7
- 2.18.5 Nakuru County Government may at any time terminate procurement proceedings before contract award and shall not be liable to any person for the termination.
- 2.18.6 Nakuru County Government shall give prompt notice of the termination to the tenderers and on request give its reasons for termination within 14 days of receiving the request from any tenderer.

2.19 :OPENING OF TENDERS

- 2.19.1 Nakuru County Government will prepare minutes of the tender opening.

2.20 :CLARIFICATION OF TENDERS

- 2.20.1 To assist in the examination, evaluation and comparison of tenders Nakuru County Government may, at its discretion, ask the tenderer for a clarification of its tender. The request for clarification and the response shall be in writing, and no change in the prices or substance of the tender shall be sought, offered, or permitted.

2.20.2 Any effort by the tenderer to influence Nakuru County Government in the tender evaluation, tender comparison or contract award decisions may result in the rejection of the tenderer's tender.

2.21 :PRELIMINARY EXAMINATION

2.21.1 Nakuru County Government will examine the tenders to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the tenders are generally in order.

2.21.2 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 the candidate does not accept the correction of the errors, its tender will be rejected, and its tender security forfeited. If there is a discrepancy between words and figures the amount in words will prevail

2.21.3 Nakuru County Government may waive any minor informality or non-conformity or irregularity in a tender which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any tenderer.

2.21.4 Prior to the detailed evaluation, pursuant to paragraph 2.23 Nakuru County Government will determine the substantial responsiveness of each tender to the tender documents. For purposes of these paragraphs, a substantially responsive tender is one, which conforms to all the terms and conditions of the tender documents without material deviations. Nakuru County Government determination of a tender's responsiveness is to be based on the contents of the tender itself without recourse to extrinsic evidence.

2.21.5 If a tender is not substantially responsive, it will be rejected by Nakuru County Government and may not subsequently be made responsive by the tenderer by correction of the non-conformity.

2.22 :CONVERSION TO SINGLE CURRENCY

2.22.1 Where other currencies are used, the procuring entity will convert these currencies to Kenya Shillings **using the selling exchange rate on the date of tender** closing provided by the Central Bank of Kenya.

2.23 :EVALUATION AND COMPARISON OF TENDERS

2.23.1 Nakuru County Government will evaluate and compare the tenders which have been determined to be substantially responsive, pursuant to paragraph 2.22.

2.23.2 The tender evaluation committee shall evaluate the tender within **(30)** days of the validity period from the date of opening the tender.

2.23.3 A tenderer who gives false information in the tender document about its qualification or who refuses to enter into a contract after notification of contract award shall be considered for debarment from participating in future public procurement.

2.24 :PREFERENCE

2.24.1 Preference where allowed in the evaluation of tenders shall not exceed 15%

2.25 :CONTACTING THE NAKURU COUNTY GOVERNMENT

2.25.1 Subject to paragraph 2.21 no tenderer shall contact Nakuru County Government on any matter related to its tender, from the time of the tender opening to the time the contract is awarded.

2.25.2 Any effort by a tenderer to influence Nakuru County Government in its decisions on tender, evaluation, tender comparison, or contract award may result in the rejection of the Tenderer's tender.

2.26 :AWARD OF CONTRACT

(a) Post-qualification

2.26.1 In the absence of pre-qualification, Nakuru County Government will determine to its satisfaction whether the tenderer that is selected as having submitted the lowest evaluated responsive tender is qualified to perform the contract satisfactorily.

2.26.2 The determination will take into account the tenderer financial, technical, and production capabilities. It will be based upon an examination of the documentary evidence of the tenderers qualifications submitted by the tenderer, pursuant to paragraph 2.12.3 as well as such other information as Nakuru County Government deems necessary and appropriate.

2.26.3 An affirmative determination will be a prerequisite for award of the contract to the tenderer. A negative determination will result in rejection of the Tenderer's tender, in which event Nakuru County Government will proceed to the next lowest evaluated tender to make a similar determination of that Tenderer's capabilities to perform satisfactorily.

(b) Award Criteria

2.26.4 Nakuru County Government will award the contract to the successful tenderer(s) whose tender has been determined to be substantially responsive and has been determined to be the lowest evaluated tender, provided further through post qualification, that the tenderer is determined to be qualified to perform the contract satisfactorily.

(c) Nakuru County Government's Right to Vary quantities

2.26.5 Nakuru County Government reserves the right at the time of contract award to increase or decrease the quantity of goods originally specified in the Schedule of requirements without any change in unit price or other terms and conditions

(d) **Nakuru County Government's Right to Accept or Reject Any or All Tenders**

2.26.6 Nakuru County Government reserves the right to accept or reject any tender, and to annul the tendering process and reject all tenders at any time prior to contract award, without thereby incurring any liability to the affected tenderer or tenderers or any obligation to inform the affected tenderer or tenderers of the grounds for Nakuru County Government's action

2.27 :NOTIFICATION OF AWARD

2.27.1 Prior to the expiration of the period of tender validity, Nakuru County Government will notify the successful tenderer in writing that its tender has been accepted.

2.27.2 The notification of award will constitute the formation of the Contract but will have to wait until the contract is finally signed by both parties

2.27.3 Upon the successful Tenderer's furnishing of the performance security pursuant to paragraph 2.28, Nakuru County Government will promptly notify each unsuccessful Tenderer and will discharge its tender security, pursuant to paragraph 2.14

2.28 :SIGNING OF CONTRACT

2.28.1 At the same time as Nakuru County Government notifies the successful tenderer that its tender has been accepted, it will send the tenderer the Contract Form provided in the tender documents, incorporating all agreements between the parties.

2.28.2 The parties to the contract shall have it signed within **(30)** days from the date of notification of contract award unless there is an administrative review request.

2.28.3 Within thirty **(30)** days of receipt of the Contract Form, the successful tenderer shall sign and date the contract and return it to Nakuru County Government.

2.29 :PERFORMANCE SECURITY

2.29.1 Within Thirty (30) days of the receipt of notification of award from Nakuru County Government, the successful tenderer shall furnish the

2.29.2 performance security in accordance with the Conditions of Contract, in the Performance Security Form provided in the tender documents, or in another form acceptable to The County Government.

2.29.3 Failure of the successful tenderer to comply with the requirements of paragraph 2.27 or paragraph 2.28 shall constitute sufficient grounds for the annulment of the award and forfeiture of the tender security, in which event Nakuru County Government may make the award to the next lowest evaluated Candidate or call for new tenders.

2.30 :CORRUPT OR FRAUDULENT PRACTICES

2.30.1 Nakuru County Government requires that tenderers observe the highest standard of ethics during the procurement process and execution of contracts when used in the present regulations, the following terms are defined as follows;

2.30.2 "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and

2.30.3 "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of Nakuru County Government, and includes collusive practice among tenderer (prior to or after tender submission) designed to establish tender prices at artificial non-competitive levels and to deprive The County Government of the benefits of free and open competition;

2.30.4 Nakuru County Government will reject a proposal for award if it determines that the tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question.

2.30.5 Further a tenderer who is found to have indulged in corrupt or fraudulent practices risks being debarred from participating in public procurement in Kenya.

Appendix to Instructions to Tenderers

The following information regarding the particulars of the tender shall complement supplement or amend the provisions of the instructions to tenderers. Wherever there is a conflict between the provision of the instructions to tenderers and the provisions of the appendix, the provisions of the appendix herein shall prevail over those of the instructions to tenderers

INSTRUCTIONS TO TENDERERS REFERENCE	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
2.1.1: Eligible Tenderers	Registered Companies
2.12: Tender Security	2 per cent
2.16.4: Format and Signing of Tender	All Required documents must be arranged chronologically as listed in the evaluation criteria and clearly marked
2.18.1: Closing Date	See invitation to tenders
2.24: Evaluation and Comparison of tenders	See below
2.25: Performance bond	Performance bond of 10 per cent will be provided by the awarded firm upon signing of the contract.

- The tenderer may be requested to provide acceptable samples before the contract is signed.
- Order shall be placed "**as and when required**" during the contract period.

EVALUATION CRITERIA – **ESTABLISHMENT, SUPPLY, DELIVERY, INSTALLATION, CONFIGURATION AND COMMISSIONING OF A DATA CENTER- PHASE I**

The method of evaluation will be Merit Point System

The criteria of evaluation and the points to be awarded on each criterion will be as follows:

S/No	EVALUATION CRITERIA	SCORE
PRELIMINARY EVALUATION (Mandatory requirements)		
Bidders who will not meet these requirements will not proceed to Technical Evaluation)		
P1	Must submit a copy of Valid Tax Compliance Certificate	YES/NO
P2	Must submit a copy of a Valid Business Permit	YES/NO
P3	Must attach Company Registration certificate	YES/NO
P4	Must attach CR12	YES/NO
P5	Must dully fill the Tender document	YES/NO
P6	Must conduct a site visit before submitting the bid (Sign register)	YES/NO
P7	Evidence of physical registered office (attach utility bills/lease agreement/rental payment receipt/evidence of ownership of the premise)	YES/NO
TECHNICAL EVALUATION		
T1	The bidder must attach a proposal of the Data centre design that meet the minimum industry standards	40
T2	Detailed company profile	5
T3	1. Qualification and competence of Key staff	
	((Network engineers (2) with the following professional qualifications; <ul style="list-style-type: none"> • Bachelor’s degree with at least 3 years experience on similar projects • One (1) of the engineers must have been a lead engineer in 1(1) past similar project. • Experience in the deployment of Data Centre. • Cisco certified professionals with at least 3 years’ experience. (Attach academic and professional certificates for certifications and reference letters for projects handled)	15
T4	2.Experience of the firm	
	Tenderer/Bidder shall show proof of successfully undertaken similar projects in the last 3 years. A letter of award and/or copy of LSO should be attached.	15
T5	The bidder should provide methodology for the project	10
T6	Proposed training program and schedule for the IT staff	5
T7	Financial Capability (As supported by Audited Accounts for the last three (3) years 2015, 2016, 2017	10
	TOTAL SCORE	100
	Minimum score for technical evaluation shall be 70 marks	

FINANCIAL EVALUATION		
	Bidders who succeed at the technical evaluation stage will proceed to financial evaluation.	

- NB:**
- Bidders must meet all the mandatory requirements to qualify for technical evaluation
 - To qualify for financial evaluation, the bidder must score a minimum of 70 points (70) %
 - The bidder quoting the lowest price having attained 70% technical score shall be recommended for contract award.

 - Any information provided by the bidder may be verified by the County Government

 - If information is found to be false, the company will be disqualified.

SECTION III: GENERAL CONDITIONS OF CONTRACT

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SECTION III: GENERAL CONDITIONS OF CONTRACT

3.1 DEFINITIONS

3.1.1 In this Contract, the following terms shall be interpreted as indicated:-

- (a) **"The Contract"** means the agreement entered into between Procuring Entity and the tenderer, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
- (b) **"The Contract Price"** means the price payable to the tenderer under the Contract for the full and proper performance of its contractual obligations
- (c) **"The Goods"** means all of the equipment, machinery, and/or other materials, which the tenderer is required to supply Procuring Entity under the Contract.
- (d) **"Procuring Entity"** means the organization purchasing the Goods under this Contract.
- (e) **"The Tenderer"** means the individual or firm supplying the Goods under this Contract.

3.2 :APPLICATION

3.2.1 These General Conditions shall apply in all Contracts made by Nakuru County Government for the procurement installation and commissioning of equipment

3.3 :COUNTRY OF ORIGIN

3.3.1 For purposes of this clause, "Origin" means the place where the Goods were mined, grown or produced.

3.3.2 The origin of Goods and Services is distinct from the nationality of the tenderer.

3.4 :STANDARDS

3.4.1 The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications.

3.5 :USE OF CONTRACT DOCUMENTS AND INFORMATION

3.5.1 The tenderer shall not, without Nakuru County Government prior written consent, disclose the Contract, or any provision therefore, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of The County Government in connection therewith, to any person other than a person employed by the tenderer in the performance of the Contract.

- 3.5.2 The tenderer shall not, without Nakuru County Government's prior written consent, make use of any document or information enumerated in paragraph 3.5.1 above
- 3.5.3 Any document, other than the Contract itself, enumerated in paragraph 3.5.1 shall remain the property of Nakuru County Government and shall be returned (all copies) to The County Government on completion of the Tenderer's performance under the Contract if so required by The County Government.

3.6 **PATENT RIGHTS**

- 3.6.1 The tenderer shall indemnify Nakuru County Government against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof in Kenya.

3.7 **PERFORMANCE SECURITY**

- 3.7.1 Within thirty (30) days of receipt of the notification of Contract award, the successful tenderer shall furnish to Nakuru County Government the performance security in the amount specified in Special Conditions of Contract.
- 3.7.2 The proceeds of the performance security shall be payable to Nakuru County Government as compensation for any loss resulting from the Tenderer's failure to complete its obligations under the Contract.
- 3.7.3 The performance security shall be denominated in the currency of the Contract, or in a freely convertible currency acceptable to Nakuru County Government and shall be in the form of a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in Kenya or abroad, acceptable to The County Government, in the form provided in the tender documents.
- 3.7.4 The performance security will be discharged by Nakuru County Government and returned to the Candidate not later than thirty (30) days following the date of completion of the Tenderer's performance obligations under the Contract, including any warranty obligations, under the Contract

3.8 **INSPECTION AND TESTS**

- 3.8.1 Nakuru County Government or its representative shall have the right to inspect and/or to test the goods to confirm their conformity to the Contract specifications. Nakuru County Government shall notify the tenderer in writing in a timely manner, of the identity of any representatives retained for these purposes.
- 3.8.2 The inspections and tests may be conducted in the premises of the tenderer or its subcontractor(s), at point of delivery, and/or at the Goods' final destination. If conducted on the premises of the tenderer or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to Nakuru County Government.

- 3.8.3 Should any inspected or tested goods fail to conform to the Specifications, Nakuru County Government may reject the equipment, and the tenderer shall either replace the rejected equipment or make alterations necessary to make specification requirements free of costs to The County Government.
- 3.8.4 Nakuru County Government's right to inspect, test and where necessary, reject the goods after the Goods' arrival shall in no way be limited or waived by reason of the equipment having previously been inspected, tested and passed by The County Government or its representative prior to the equipment delivery.
- 3.8.5 Nothing in paragraph 3.8 shall in any way release the tenderer from any warranty or other obligations under this Contract.

3.9 **:PACKING**

- 3.9.1 The tenderer shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract.
- 3.9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract

3.10 **:DELIVERY AND DOCUMENTS**

- 3.10.1 Delivery of the Goods shall be made by the tenderer in accordance with the terms specified by Nakuru County Government in its Schedule of Requirements and the Special Conditions of Contract

3.11 **:INSURANCE**

- 3.11.1 The Goods supplied under the Contract shall be fully insured against loss or damage incidental to manufacturer or acquisition, transportation, storage, and delivery in the manner specified in the Special conditions of contract.

3.12: **PAYMENT**

- 3.12.1 The method and conditions of payment to be made to the tenderer under this Contract shall be specified in Special Conditions of Contract
- 3.12.2 Payments shall be made promptly by Nakuru County Government as specified in the contract

3.13 **PRICES**

- 3.13.1 Prices charged by the tenderer for goods delivered and services performed under the Contract shall not, with the exception of any price adjustments authorized in Special Conditions of Contract, vary from the prices by the tenderer in its tender.

- 3.13.2 Contract price variations shall not be allowed for contracts not exceeding one year (12 months)
- 3.13.3 Where contract price variation is allowed, the variation shall not exceed 10% of the original contract price.
- 3.13.4 Price variation request shall be processed by Nakuru County Government within **(30)** days of receiving the request.

3.14. ASSIGNMENT

- 3.14.1 The tenderer shall not assign, in whole or in part, its obligations to perform under this Contract, except with Nakuru County Government's prior written consent

3.15 SUBCONTRACTS

- 3.15.1 The tenderer shall notify Nakuru County Government in writing of all subcontracts awarded under this Contract if not already specified in the tender. Such notification, in the original tender or later, shall not relieve the tenderer from any liability or obligation under the Contract

3.16 TERMINATION FOR DEFAULT

- 3.16.1 Nakuru County Government may, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the tenderer, terminate this Contract in whole or in part
- (a) if the tenderer fails to deliver any or all of the goods within the period(s) specified in the Contract, or within any extension thereof granted by Nakuru County Government if the tenderer fails to perform any other obligation(s) under the Contract
 - (b) if the tenderer, in the judgment of Nakuru County Government has engaged in corrupt or fraudulent practices in competing for or in executing the Contract
- 3.16.2 In the event Nakuru County Government terminates the Contract in whole or in part, it may procure, upon such terms and in such manner as it deems appropriate, equipment similar to those undelivered, and the tenderer shall be liable to The County Government for any excess costs for such similar goods.

3.17 LIQUIDATED DAMAGES

- 3.17.1. If the tenderer fails to deliver any or all of the goods within the period(s) specified in the contract, Nakuru County Government shall, without prejudice to its other remedies under the contract, deduct from the contract prices liquidated damages sum equivalent to 0.5% of the delivered price of the delayed items up to a maximum deduction of 10% of the delayed goods. After this the tenderer may consider termination of the contract.

3.18 RESOLUTION OF DISPUTES

3.18.1 Nakuru County Government and the tenderer shall make every effort to resolve amicably by direct informal negotiation and disagreement or dispute arising between them under or in connection with the contract

3.18.2 If, after thirty (30) days from the commencement of such informal negotiations both parties have been unable to resolve amicably a contract dispute, either party may require adjudication in an agreed national or international forum, and/or international arbitration.

3.19 LANGUAGE AND LAW

3.19.1 The language of the contract and the law governing the contract shall be English language and the Laws of Kenya respectively unless otherwise stated.

3.20 FORCE MAJEURE

3.20.1 The tenderer shall not be liable for forfeiture of its performance security or termination for default if and to the extent that it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

VI: STANDARD FORMS

1. TENDER FORM.....
2. CONTRACT FORM.....
3. MANDATORY CONFIDENTIAL BUSINESS QUESTIONNAIRES.....
4. TENDER SECURITY FORM.....
5. PERFORMANCE SECURITY FORM.....
6. OATHS AND STATUTORY DECLARATION FORM.....
7. MANUFACTURER'S AUTHORIZATION FORM:.....

1. FORM OF TENDER (FILL THE PRICE SCHEDULE)

To: Nakuru County Government

Date:.....

P.O. Box 2870 – 20100

NAKURU

Tender No:

Tender Name:

Gentlemen and/or Ladies:-

1. Having examined the Tender documents including Addenda No. (Insert numbers) the receipt of which is hereby duly acknowledged, we the undersigned, offer to Supply Goods under this tender in conformity with the said Tender document for the sum of Ksh:.....[Total Tender amount in words].....

.....
.....

or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Tender.

2. We undertake, if our Tender is accepted, to **Supply and Delivery of**in accordance with the conditions of the tender.

3. We agree to abide by this Tender for a period of[number] days from the date fixed for Tender opening of the Instructions to Tenderers, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

4. This Tender, together with your written acceptance thereof and your notification of award, shall constitute a Contract between us subject to the signing of the contract by both parties.

5. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this day
of..... 2014

.....
.....
[Signature]

[In the capacity of]

Duly authorized to sign tender for and on behalf of.....

2. CONTRACT FORM

THIS AGREEMENT made the..... Day of..... 20.....

Between..... [Name of Procurement entity] of..... [Country of Procurement entity] (Hereinafter called "the Procuring entity") of the one part and [Name of tenderer] of [city and country of tenderer] (hereinafter called "the tenderer") of the other part:

WHEREAS Nakuru County Government invited tenders for supply of stationery materials and has accepted a tender by the tenderer for the supply of goods in the sum of Ksh.....[contract price in words in figures] (hereinafter called "the Contract Price").

NOW THIS AGREEMENT WITNESSTH AS FOLLOWS:-

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz:
 - (a) the Tender Form and the Price Schedule submitted by the tenderer;
 - (b) the Details of cover
 - (c) the General Conditions of Contract
 - (d) the Special Conditions of Contract
3. In consideration of the payments to be made by Nakuru County Government to the tenderer as hereinafter mentioned, the tenderer hereby covenants with Nakuru County Government to supply Goods and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. Nakuru County Government hereby covenants to pay the tenderer in consideration of the supply of goods and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the contract at the times and in the manner prescribed by the contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written

Signed, sealed, delivered by the (Nakuru County Government)

Signed, sealed, delivered by the (for the tenderer) in

the presence of

3. MANDATORY CONFIDENTIAL BUSINESS QUESTIONNAIRE
(Must be filled by all applicants who choose to participate in this Tender)

You are requested to give the particular indicated in Part 1 and either Part 2(a), 2(b), or 2(c)

Whichever applies to your type of business and part 3.

You are advised that it is a serious offence to give false information on this Form.

Name of Applicant(s).....

Part 1: General:

1.1: Business Name
.....

1.2: Certificate of Incorporation/Registration
No:.....

1.3: Location of business premises
.....

1.4: Plot No.
.....

1.5: Street/Road
.....

1.6: Postal Address
.....

1.7: Office Tel. No.
.....

1.8: Mobile:.....
....

1.9: Fax No:.....

1.10: Email Address.....
.....

1.11: Website.....
.....

1.12: Nature of business :(Indicate whether Manufacturer, Distributor e.t.c).....

1.13: Contact Person (Full Names).....

(a) Directors Name and Mobile Nos:.....

(b) If not Director, Title..... Power of Attorney (Yes/No) if yes, attach written document.

1.14: Maximum value of business which you can handle at any one time Kshs.

1.15: Name of your bankers Branch

Part 2(a) – Sole Proprietor:

2a.1: Your name in full Age

2a.2: Nationality Country of origin
Citizenship details.....

Party 2(b) – Partnership

2b.1: Give details of partners as follows

2b.2: Name	Nationality	Citizenship Details	Shares
1.	
.....			
2.	
.....			
3.	
.....			
4.	
.....			
5.	
.....			

Part 2(c) – Registered Company:

2c.1: Private or public

2c.2: State the nominal and issued capital of the company –

Nominal Kshs..

Issued Kshs.....

2c.3: Give details of all directors as follows

	Name	Nationality	Citizenship Details	Shares
1.	
2.	
3.	
4.	
5.	

Date..... Signature of Tenderer
.....

If a citizen, indicate under "Citizenship Details" whether by Birth, Naturalization or Registration

Part 3 – Eligibility Status

3.1 Are you related to an Employee who works in the Finance or Procurement Departments, or, is a member of the Tender Committee of Nakuru County Government?

Yes..... No:.....

3.2: If answer in '3.1' is **YES** give the relationship:.....

3.3: Does an Employee as in "3.1" above, sit in the Board of Directors or Management of your Organisation Subsidiaries or Joint Ventures?

Yes..... No.....

3.4: If answer in '3.3' above is YES give details.....

.....
.

.....
.

3.5: Has your Organisation, Subsidiary Joint Venture or Sub-contractor been involved in the past directly or indirectly with a firm or any of its affiliates that have been engaged by Nakuru County Government to provide consulting services for preparation of design, specifications and other documents to be used for procurement or the goods or services under this invitation? Yes.....
No.....

3.6: If answer in '3.5' above is YES give details.....

.....
.

.....
.

3.7: Are you under a declaration of ineligibility for corrupt and fraudulent practices? Yes..... No.....

3.8: If answer in '3.7' above is YES give details.....

.....
.

.....
.

3.9: Have you offered or given anything of value to influence the procurement process?
Yes..... No.....

3.10: If answer in '3.9' above is YES give details.....

.....
.

.....
.

I DECLARE that the information given on this form is correct to the best of my knowledge and belief.

Date:..... Signature of
Candidate:.....

If a Kenyan Citizen, indicate under "Citizenship Details" whether by Birth, Naturalization or registration.

4. TENDER SECURITY FORM

Whereas(hereinafter called <the tenderer> has submitted its bid

[Name of Bidder]

Datedfor supply of Building Materials (hereinafter called <the tenderer>

[Date of submission of bid]

KNOW ALL PEOPLE by these presents that WE
of.....having

[Name of bank] [Name of country]

Our registered office at (Hereinafter called <the procuring entity> in

[Name of procuring entity]

The sum of Kshs. for which payment well and truly to be made to

[State the amount]

Nakuru County Government, the Bank binds itself, its successors, and assigns by these presents. Sealed

With the Common Seal of the said Bank this day of
.....200.....

THE CONDITIONS of this obligation are:-

1. If the tenderer withdraws its tender during the period of tender validity specified by Nakuru County Government on the Form; or
2. If the tender, having been notified of the acceptance of its tender by Nakuru County Government during the period of tender validity

Fails or refuses to execute the Contract Form, if required; or

Fails or refuses to furnish the performance security, in accordance with the Instructions to tenders.

We undertake to pay to Nakuru County Government up to the above amount upon receipt of its first written demand, without The County Government having to substantiate its demand, provided that in its demand The County Government will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the conditions, specifying the occurred condition(s)

This tender guarantee will remain in force up to and including thirty **(30)** days after the period of tender validity, and any demand in respect thereof should reach the Bank not later than the above stated date.

Signature:..... Date:.....

Official Stamp:.....

5. PERFORMANCE SECURITY FORM

Nakuru County Government
P.O. Box 2870 – 20100

NAKURU

WHEREAS [Name of tenderer]

(Hereinafter called "the tenderer") has undertaken, in pursuance of Contract No..... [Reference number of the contract] dated..... 20.....to supply [*Tender for supply of Building Materials*] (Hereinafter called "the Contract")

AND WHEREAS it has been stipulated by you in the said Contract that the tenderer shall furnish you with a bank guarantee by a reputable bank for a sum specified therein as security for compliance with the Tenderer’s performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the tenderer a guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the tenderer, up to a total of[amount of the guarantee in words and figures], and we undertake to pay you, upon your first written demand declaring the tenderer to be in default under the Contract and without cavil or argument, any sum of money within the limits of [Amount of guarantee] as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the _____ day of _____ 20 ____ -

Signature and seal of the Guarantors

.....
[Name of bank of financial institution]

.....
[Address]

.....
[Date]

6. OATHS AND STATUTORY DECLARATION FORM

**REPUBLIC OF KENYA
IN THE MATTER OF OATHS AND STATUTORY DECLARATION ACT CHAPTER 15
OF THE LAWS OF KENYA AND IN THE MATTER OF THE PUBLIC PROCUREMENT
AND DISPOSAL ACT NO. 3 OF 2005**

I,..... Of P.O

Box.....

Being a resident of..... In the Republic of Kenya do hereby
make oath and state as follows:-

1. **THAT** I am the Chief Executive/Managing Director/Principal Officer/Director of..... (name of the Candidate) which is a Candidate in respect of Tender Number..... to supply goods, render services and/or carry out works for Nakuru County Government and duly authorized and competent to make this Affidavit.

2. **THAT** the aforesaid Candidate has not been requested to pay any inducement to any member of the Board, Management, Staff and/or employees and/or agents of Nakuru County Government, which is the procuring entity.

3. **THAT** the aforesaid Candidate, its servants and/or agents have not offered any inducement to any member of the Board, Management, Staff and/or employees and/or agents of Nakuru County Government.

4. **THAT** what is deponed to hereinabove is true to the best of my knowledge information and belief.

SWORN at..... by the said}

.....}

Name of chief Executive/Managing Director/}

Principal Officer/Director }

On this..... day of 20.....}

}

}

}

DEPONENT

Before me }

}

}

}

Commissioner for Oaths }

7. MANUFACTURER'S AUTHORIZATION FORM

To **NAKURU COUNTY GOVERNMENT**

WHEREAS who are established and reputable

[Name of the manufacturer]

Manufacturers

of

.....

[Name and/or description of the goods]

Having factories at *[Address of factory]* do

hereby authorize *[Name and address of Agent]* to submit a tender,

and subsequently negotiate and sign the Contract with you against tender No.

..... *[Reference of the Tender]* for the above goods manufactured by us.

We hereby extend our full guarantee and warranty as per the General Conditions of Contract for the goods offered for supply by the above firm against this Invitation for Tenders.

[Signature for and on behalf of manufacturer]

Note: This letter of authority should be on the letterhead of the Manufacturer and should be signed by a person competent.

TERMS OF REFERENCE

FOR

SUPPLY, DELIVERY, INSTALLATION,

CONFIGURATION AND

COMMISSIONING OF A DATA CENTER-

PHASE I

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Background

The County Government of Nakuru (CGN) is undertaking an ICT transformational project to enable it leverage on ICT to enhance both internal operation efficiency and service delivery to the citizens. As part of this transformation the County intends to implement robust infrastructure that will support the rollout of the ICT initiatives.

CGN intends to implement a Data center (DC) in **3 phases**. The DC design should clearly indicate the scope of each phase.

Nakuru County Government plans to setup and deploy a state tier II data center. This means all the active equipment in the DC will be dual-powered and have redundancy capacity.

The county plans to host the below systems that are critical for the county's operation in the DC.

- Revenue Collection system
- Lands Information Management System
- Human Resource management system
- Email system
- Storage and backup system for CCTV footage.

The DC will be established at the County Headquarters (HQ).

1.1 Scope of the assignment

The scope of this assignment will include:-

- Design of complete tier 2 data centre and not limited to design of Hardware, software and network infrastructure (Design document with detailed specifications to be attached)
- Site Preparation of the proposed Data Centre in terms of the civil, electrical and mechanical work required to build the Data Centre including false ceiling, raised floor and power supply (as per the proposed design above)
- Supply, installation and setting up of Air-Conditioning and cooling System, and Power Cabling in the Data Center (as per the proposed design above)
- Supply, installation and commission of 1 server (specifications below). The server will have RAID configured for failover and redundancy
- Supply of and installation of 1 42u cabinet as per proposed design above.
- Integration of the new DC infrastructure to the existing network

- Supply, installation and commission of virtualization software

Note: Bidders are expected to conduct a mandatory site survey prior to submission of tender documents.

NOTE: Full details of the various systems and components are contained in specification document, which is attached.

The specifications detail the required systems that need to be implemented in the Data Centre. It is the obligation of the bidder to determine the quantities of each item and provide information to justify the quantity specified. The specifications also outline the desired standards and specification for each item and material.

Hardware Requirement

2.1 Server Hardware Specifications

Array Enclosure	3U Disk Processor Enclosure
Drive Enclosures:	2.5-inch SAS/Flash (2U), 25 drives 3.5-inch SAS/Flash (3U), 15 drives
Max SAN Hosts	1,024
Min/Max Drives	4/125
Max FAST Cache	600GB
CPU/Memory per Array	2x Intel Xeon E5-2600 4-Core 1.2GHz/32GB
RAID	0/1/10/3/5/6
Max Raw Capacity	500TB
Protocols	FC, FCoE, NFS, CIFS, iSCSI,
Storage Types	Unified, SAN, NAS, Object
Drive Types	Flash SSD, SAS, NL-SAS
Capacity Optimization	Thin Provisioning, Block Deduplication, Block Compression, File-Level Deduplication and Compression
Performance	MCx, FAST VP, FAST Cache
Management	EMC Unisphere
Virtualization Support	VMware vSphere, VMware Horizon View, Microsoft Hyper-V, Citrix XenDesktop
Max Block UltraFlex I/O Modules per Array	6
Max Total Ports per Array	28
2/4/8Gb/s FC Max Ports per Array	24

1GBASE-T iSCSI Max Total Ports per Array	16
Max FCoE Ports Per Array	12
10GbE iSCSI Max Total Ports per Array	12
Control Stations	1 or 2
Max Supported LUNs	1,000 (Pooled)
Max LUN Size	256TB (Virtual Pool LUN)
Max File System Size	16TB
Number of File Data Movers	1, 2 or 3
CPU/Memory per Data Mover	Intel Xeon 5600/6GB
Standby Power System	Internal batteries, one for each storage processor
Embedded SAS IO Ports per Array	6
UltraFlex I/O Expansion Modules for Block	<ul style="list-style-type: none"> ○ 4-Port 2/4/8Gb/s Fibre Channel ○ 4-Port 1Gb/s (copper) iSCSI ○ 2-Port 10Gb/s (optical) iSCSI ○ 2-Port 10GBASE-T (copper) iSCSI ○ 2-Port 10GbE (optical or twinax) FCoE
UltraFlex I/O Expansion Modules for File	<ul style="list-style-type: none"> ○ 4-Port 1GBASE-T ○ 4-Port 1GBASE-T and 1GbE (optical) ○ 2-Port 10GbE (optical) ○ 2-Port 10GBASE-T (copper)

2.2 Server Software Specifications

The servers will be installed with virtualization software, VMware vSphere

- Windows server 2012 R2 Standard
- Symantec Backup Exec.
- Antivirus (server edition)

Civil Works & Network Infrastructure

The scope of services will cover, but not limited to, the implementation of the following areas:

- Building and Civil Works which includes raised floor – Raised floor enables flow of air and create pathways for network cables and power cables.
- Power Infrastructure
- Cooling System (CRAC Units)

NB: The scope of civil works is as per the proposed technical design

Technical Requirements and Physical Infrastructure guidelines

The following requirement shall act as guideline to the design of the data centre. However the consultant is at liberty to recommend and implement what is not captured in the guidelines.

4.1 Server Farm Area

The server farm area within the DC will host CGN as well as other county Servers and related systems. These servers may be Low end to High-end depending upon the applications hosted on them. These servers may be online or only for repository purpose. The applications which are running on the central-computing servers will have load balancing and high availability features.

This area will contain all the networking components from routers, switches to passive components. The data communication component area will terminate WAN connections, LAN Connections and host a network monitoring station for LAN & WAN. All the Data Center LAN connections will be provided through switches placed in this area.

This area will host the Security components. The security architecture will provide controlled access to the web and database servers from Internet and other networks. This would be multi-layer architecture with two layers of firewall separating the Internet, web, and database/application and Intranet zones.

4.2 Electrical Room

This area shall house all the Un-Interrupted Power Supply Units, Main Power Distribution Units (PDU) and Sub Distribution Units to feed the components such as PAC, UPS, lighting, fixtures etc. It is recommended to install transformer based PDUs in the CGN Data Centre.

It is also being proposed that the UPS and Electrical Room be located near to the server farm. It is advisable to the bidders to make appropriate suggestions in their Data Center Design.

4.3 Humidity, Ventilation and Air Conditioning Systems

The DC should be precision environment controlled. The temperature inside Server Farm area should be maintained at 23 degree centigrade with a precision of ± 1 degrees. The Precision Air Conditioning shall be provided for the Server Farm Phase. It is suggested to provide air supply typically through false flooring.

4.4 Air Conditioning

For the critical zones, a separate air conditioning system (precision air conditioning) should be exclusively installed to maintain the required temperature. The general requirements for the two zones are as specified below:

Critical Zone; Server Farm – should be provided with precision air conditioning on a 24 x 7 x 365 days operating basis at least meeting with Tier – II having n + 1 redundancy architecture requirements and having enough provision to scale it to next level as may be required in a later stage. The units should be able to switch the air conditioner on and off automatically and alternately for effective usage in pre defined sequence. The units should be down-flow fashion, air-cooled conditioning system. Precision Air Conditioning systems specifically designed for stringent environmental Control with automatic monitoring and control of cooling, heating, humidification, dehumidification and air filtration function should be installed.

Non Critical Zones - Non Critical Zones should be provided with split-type comfort air cooled system (at least meeting with Tier - II architecture requirements).

4.5 Ducting Requirements

Proper ducting mechanisms should be ensured for the requirement of Air Conditioning.

4.6 Natural Convection

As the conditioned air is supplied through the grills with volume control dampers on the floor, the cold air-cools the component in a much faster and efficient manner as it does moves up, after extracting heat from the component. This follows the natural convection path of the air. The warm air should be sucked at the top by machine, air-conditioned and then supplied back to the room.

4.7 Air Distribution

The air is to be distributed evenly by providing grills with VCDs (Volume Control Dampers) in the floor tiles.

4.8 Flexibility

The system should give the flexibility of discharging air at wherever point required even if the furniture is relocated. Changing the grill/tiles carrying grills, at suitable location

does this.

4.9 Electrical Work for DC

The electrical cabling work shall include the following:

- Power cabling
- Main electrical panel in Data Center
- UPS Distribution Board
- UPS point wiring
- Power Cabling for Utility component and Utility Points etc.
- Online UPS
- Separate Earth Pits for the component

The distribution of power from the UPS room to the following shall be considered:

- All proposed component for the production environment
- Existing servers and other components
- UPS 3 Nos. each of minimum 35 KVA with static bypass arrangement
Sub distribution panels for UPS
- Final Distribution shall be through Power Distributions Units (PDU)/MCB Distribution Boxes. Power in the racks and other component's shall be provided with three sockets with power coming from separate UPS in each of these sockets.
- The bidder is required to maintain two electrical distribution paths (one normal & one alternate) for the cabling inside the server farm area in the proposed Data Centre

Specifications for Electrical Cabling- Fire retardant cables of rated capacity exceeding the power requirement of fully blown configuration of the existing and proposed component to be used. For expansion needs suitable redundant power points to be provided at suitable locations. All materials used shall conform to IS

standards as per industry practice.

Bunching of Wires- Wires carrying current shall be so bunched in the conduit that the outgoing and return wires are drawn into the same conduit. Wires originating from two different phases shall not be run in the same conduit.

Drawing of Conductors – The drawing Aluminum / Copper conductor wires shall be executed with due regards to the following precautions while drawing insulated wires in to conduits. Care shall be taken to avoid scratches and kinks, which cause breakages.

Joints – All joints shall be made at main switches, distribution boards, socket outlets, lighting outlets and switch boxes only. No joints shall be made inside conduits and junctions boxes. Conductors shall be continuous from outlet to outlet.

Mains & Sub-Mains – Mains & sub-mains wires where called for shall be of the rated capacity and approved make. Every main and sub-main shall be drawn into an independent adequate size conduit. Adequate size draw boxes shall be provided at convenient locations to facilitate easy drawing of the mains and sub-mains. An independent earth wire of proper rating shall be provided. The earth wires shall run along the entire length of the mains and sub-mains.

Load Balancing – Balancing of circuits in three-phase installation shall be planned before the commencement of wiring.

Color Code of the Conductors – Color code shall be maintained for the entire wiring installation, Red, Yellow, Blue for three phases and “OFF” circuit black for neutral and green for earth (or bare earth).

Fixing of the Conduits – Conduits junction boxes shall be kept in position and proper holdfasts shall be provided. Conduits shall be so arranged as to facilitate easy drawing of the wires through them. Adequate junction boxes of approved shape & size shall be provided. All conduits shall be installed so as to avoid stream and hot water pipes. After conduits, junction boxes, outlet boxes & switch boxes are installed in position their outlets shall be properly plugged so that water, mortar, insects or any other foreign matter does not enter into conduit system. Conduits shall be laid in a neat and organize manner as directed and approved by the Information Technology Department Personnel or person on their behalf. Conductors shall be planned so as not to conflict with any other service pipe lines / ducts.

Protection – To minimize condensation or sweating inside the conductors all outlets of conduit system shall be adequately ventilated and approved by the proper competent authority. All screwed and socketed connections shall be adequately made fully water tight by use of proper jointing materials.

Switch-Outlet Boxes and Junction Boxes – All boxes shall conform to all prevailing National Standards. The cover plates shall be of best quality Hylam sheets Urea Formaldehyde Thermosetting insulating material conforming to the applicable national standards, which should be mechanically strong and fire retardant. Proper support shall be provided to the outer boxes to fix the cover plates of switches as required. Separate screwed earth terminals shall be provided inside the box for earthing purpose.

Inspection Boxes – Rust proof inspection boxes of required size having smooth external and internal Finish shall be provided to permit periodical inspection and to facilitate removal and replacement of wires when required.

Technical Specifications – Physical Components

5.1 Civil & Architectural work

The furnishing includes but not limited to the following

- Cement Concrete Work
- Cutting and chipping of existing floors
- Trench works
- Masonry works
- Glazing
- Hardware and Metals
- Paint work
- False Flooring
- Fixture
- Doors and Locking

The selected bidder should adhere to the following civil and interior specifications:

5.1.1 Raised Flooring

- Providing & fixing steel cementitious raised access floor of FFH upto 450mm finished with antistatic high pressure laminate in size 600 x 600 mm x 35 mm with point load 450 kg and uniform distribution load (UDL) 1350 kg per sq. metre as per following specifications: Panel Type - M 1000, Understructure- Edge Support Rigid Grid, Wear resistance (g / cm²) - < 0.08, Bottom profile - Hemispherical shape, Pedestal -all steel construction & silver zinc plated, Exposed surface- Special weather coating on entire surface of the tiles. The same should also be provided with wire manager and tile lifter etc.
- At least 1' 6" High from existing floor level using antistatic laminated tiles. Supply &

Fixing of 1.5 mm Antistatic Laminate skirting matching with floor tiles with 8mm thick MDF Board / Bison Board up to a height of 4".

- Supplying and fixing vinyl flooring with homogeneous flexible vinyl flooring of approved shade 2.0 mm thick in roll forms and manufacturers specification over the existing floor. Before laying, the existing flooring should be made free from dust and undulations. The finished flooring should be free from air bubbles and thoroughly cleaned without undulations.
- Providing and laying premium quality Granite white/ cream tiles of size 2'-0" x 2'-0", 8.5 mm thick set in cement mortar and pointing with approved tile joint filler compound of approved make of matching shade as per manufacturer's specification as directed. The work shall include the preparation of base surface, cleaning, and acid wash.
- Skirting up to a height of 4"
- Providing and fixing 9 mm thick floor insulation below the false flooring and joints should be finished properly as per manufacturer's specification.

5.1.2 Civil Work

- Providing and laying 115 mm thick brick work in cement mortar of 1:4 (1 cement : 4 sand) with bricks of approved quality chamber bricks of class designation 50.
- Providing & making SS signage with text in etched & black painted of Dline make or equivalent to be located as directed (wall mounted) for space nomenclature/ directions.
- Plastering with cement mortar 1:5 (1 cement : 5 sand) of 12 mm thick in interior face of the walls and concrete columns including hacking the concrete surface brushing, scaffolding, curing and surface shall be smooth trowel finish as per standard specification.
- Anti-termite treatment of the entire critical area.

5.1.3 PVC Conduit

- The conduits for all systems shall be high impact rigid PVC heavy-duty type and shall comply with I.E.E regulations for nonmetallic conduit 1.6 mm thick as per IS 9537/1983.
- All sections of conduit and relevant boxes shall be properly cleaned and glued using appropriate epoxy resin glue and the proper connecting pieces, like conduit fittings such as Mild Steel and should be so installed that they can remain accessible for existing cable or the installing of the additional cables.
- No conduit less than 20mm external diameter shall be used. Conduit runs shall be so arranged that the cables connected to separate main circuits shall be enclosed in separate conduits, and that all lead and return wire of each circuit shall be run to the same circuit.
- All conduits shall be smooth in bore, true in size and all ends where conduits are cut shall be carefully made true and all sharp edges trimmed.
- All joints between lengths of conduit or between conduit and fittings boxes shall be pushed firmly together and glued properly.
- Cables shall not be drawn into conduits until the conduit system is erected, firmly fixed and cleaned out. Not more than two right angle bends or the equivalent shall be permitted between draw or junction boxes. Bending radius shall comply with I.E.E regulations for PVC pipes.
- Conduit concealed in the ceiling slab shall run parallel to walls and beams and conduit concealed in the walls shall run vertical or horizontal.
- The chase in the wall required in the recessed conduit system shall be neatly made and shall be of angle dimensions to permit the conduit to be fixed in the manner desired. Conduit in chase shall be hold by steel hooks of approved design of 60cm center the chases shall be filled up neatly after erection of conduit and brought to the original finish of the wall with cement concrete mixture 1:3:6 using 6mm thick stone

aggregate and coarse sand.

5.2 Wiring

- Looping system of wiring shall be used, wires shall not be jointed. No reduction of strands is permitted at terminations. No wire smaller than 3.029 sq.mm. shall be used.
- PVC insulated copper conductor cable shall be used for sub circuit runs from the distribution boards to the points and shall be pulled into conduits. They shall be stranded copper conductors with thermoplastic insulation of 650 / 1100 volts grade. Color code for wiring shall be followed.
- Wherever wiring is run through trunking or raceways, the wires emerging from individual distributions shall be bunched together with cable straps at required regular intervals. Identification ferrules indicating the circuit and D.B. number shall be used for sub main, sub circuit wiring the ferrules shall be provided at both end of each sub main and sub-circuit.
- Where, single phase circuits are supplied from a three phase and a neutral distribution board, no conduit shall contain wiring fed from more than one phase in any one room in the premises, where all or part of the electrical load consists of lights, fans and/or other single phase current consuming devices, all shall be connected to the same phase of the supply.
- Circuits fed from distinct sources of supply or from different distribution boards or M.C.B.s shall not be bunched in one conduit. In large areas and other situations where the load is divided between two or three phases, no two single-phase switches connected to different phase shall be mounted within two meters of each other.
- All splicing shall be done by means of terminal blocks or connectors and no twisting connection between conductors shall be allowed.
- Metal clad sockets shall be of dia cast non-corroding zinc alloy and deeply recessed contact tubes. Visible scraping type earth terminal shall be provided. Socket shall have push on protective cap.

- All power sockets shall be piano type with associate's switch of same capacity. Switch and socket shall be enclosed in a M. S. sheet steel enclosure with the operating knob projecting. Entire assembly shall be suitable for wall mounting with Bakelite be connected on the live wire and neutrals of each circuit shall be continuous everywhere having no fuse or switch installed in the line excepting at the main panels and boards. Each power plug shall be connected to each separate and individual circuit unless specified otherwise. The power wiring shall be kept separate and distinct from lighting and fan wiring. Switch and socket for light and power shall be separate units and not combined one.
- Balancing of circuits in three phases installed shall be arranged before installation is taken up. Unless otherwise specified not more than ten light points shall be grouped on one circuit and the load per circuit shall not exceed 1000 watts The earth continuity insulated copper wire in Green color shall be run inside the conduit to earth the third pin or socket outlets, earth terminal of light fixtures, fan etc. as required. Lights points shall be either of single control, twin control or multiple points controlled by a single switch / MCB as per scheduled of work. Bare copper wire shall be provided with each circuit from DB as specified in the item of work and terminated in earth bar of DBs and switch boxes with proper lugs as required maximum number of PVC insulated 650 / 1100 grade copper conductor cable which can be drawn in a conduit.

5.2.1 Earthing

- All electrical components are to be earthen is to by connecting two earth tapes from the frame of the component ring will be connected via several earth electrodes. The cable arm will be earthen through the cable glands.
- Earthing should be done inside the Data Centre for the entire power system and provisioning should be there to earth UPS systems, Power distribution units, AC units etc. so as to avoid a ground differential. CGN shall provide the necessary space required to prepare the earthing pits.
- All metallic objects on the premises that are likely to be energized by electric currents should be effectively grounded.

- The connection to the earth or the electrode system should have sufficient low resistance in the range of 0 to 25 ohm to ensure prompt operation of respective protective devices in event of a ground fault, to provide the required safety from an electric shock to personnel & protect the equipment from voltage gradients which are likely to damage the equipment.
- Recommended levels for equipment grounding conductors should have very low impedance level less than 0.25 ohm.
- The Earth resistance shall be automatically measured on an online basis at a pre-configured interval and corrective action should be initiated based on the observation. The automatic Earthing measurements should be available on the UPS panel itself in the UPS room.
- There should be enough space between data and power cabling and there should not be any cross wiring of the two, in order to avoid any interference, or corruption of data.
- The earth connections shall be properly made .A small copper loop to bridge the top cover of the transformer and the tank shall be provided to avoid earth fault current passing through fastened bolts, when there is a lightning surge, high voltage surge or failure of bushings.

5.2.2 Cable Work

- Cable ducts should be of such dimension that the cables laid in it do not touch one another. If found necessary the cable shall be fixed with clamps on the walls of the duct. Cables shall be laid on the walls/on the trays as required using suitable clamping/ fixing arrangement as required. Cables shall be neatly arranged on the trays in such manner that a crisis crossing is avoided and final take off to switch gear is easily facilitated.
- All cables will be identified close to their termination point by cable number as per circuit schedule. Cable numbers will be punched on 2mm thick aluminum strips and

securely fastened to the. In case of control cables all covers shall be identified by their wire numbers by means of PVC ferrules. For trip circuit identification additional red ferrules are to be used only in the switch gear / control panels, cables shall be supported so as to prevent appreciable sagging. In general distance between supports shall not be greater than 600mm for horizontal run and 750mm for vertical run.

- Each section of the rising mains shall be provided with suitable wall straps so that same the can be mounted on the wall.
- Whenever the rising mains pass through the floor they shall be provided with a built-in fire proof barrier so that this barrier restricts the spread of fire through the rising mains from one section to the other adjacent section.
- Neoprene rubber gaskets shall be provided between the covers and channel to satisfy the operating conditions imposed by temperature weathering, durability etc.
- Necessary earthing arrangement shall be made alongside the rising mains enclosure by Mean of a GI strip of adequate size bolted to each section and shall be earthed at both ends. The rising mains enclosure shall be bolted type.
- The space between data and power cabling should be as per standards and there should not be any crisscross wiring of the two, in order to avoid any interference, or corruption of data.

5.3 Precision Air Conditioning

- The DC shall be provided with fully redundant Microprocessor based Precision Air-conditioning system. Cool air feed to the DC shall be bottom-charged or downward flow type using raised floor as supply plenum using perforated aluminum tiles for Air flow distribution. The return air flow shall be through false ceiling to cater to the natural upwardly movement of hot air. Cooling shall be done by the Precision Air-Conditioning system only. Forced cooling using Fans on False floor etc is not acceptable. A/C should be capable of providing sensible cooling capacities at design

ambient temperature & humidity with adequate airflow. The PAC should be capable to be integrated with the Building management System for effective monitoring. The PAC should be able to provide an alerting system in case there is a failure for proactive maintenance.

The bidder will be required to design, supply, transport, store, unpack, erect and test the successful commissioning and satisfactory completion of trial operations of the PAC systems for the Data Centre. This shall also include-

- Connecting the indoor unit with the mains electrical point
- Connecting indoor and outdoor units mechanically (with 18 G hard Gauge Copper piping).
- Connecting indoor and outdoor unit electrically.
- Nitrogen pressure testing, triple vacuum, final gas charging.
- Connecting the humidifier feed line with the point provided.
- Connecting the drain line with the point provided.
- Commissioning and handing over the unit to the customer.
- Operation and routine maintenance training to up to six persons nominated by the customer while commissioning the units at site

5.3.1 Temperature Requirements

The environment inside the DC shall need to be continuously maintained at $23 \pm 1^{\circ}$ Centigrade. It is advised that the temperature and humidity be controlled at desired levels. The necessary alarms for variation in temperatures shall be monitored on a 24x7 basis and logged for providing reports.

5.3.2 Relative Humidity (RH) requirements

Ambient RH levels shall need to be maintained at $50\% \pm 5$ non-condensing. Humidity sensors shall be deployed. The necessary alarms for variation in RH shall be monitored on a 24x7 basis and logged for providing reports.

5.3.3 Temperature & Relative Humidity Recorders

Temperature and Relative Humidity Recorders shall preferably be deployed for recording events of multiple locations within the DC. Records of events for about past 7 days shall be recorded and presentable whenever required by DC. Automatic recording of temperature and humidity using sensors located at various locations within the DC is necessary.

5.3.4 Air quality levels

The DC shall be kept at highest level of cleanliness to eliminate the impact of air quality on the hardware and other critical devices. The DC shall be deployed with efficient air filters to eliminate and arrest the possibility of airborne particulate matter which may cause air-flow clogging, gumming up of components, causing short-circuits, blocking the function of moving parts, causing components to overheat etc. Air filters shall be 95% efficiency & provide up-to 5 Micron particulate shall be deployed

5.3.5 Additional Points

- The precision air-conditioners should be capable of maintaining a temperature range of 23 degree with a maximum of 1 degree variation on higher and lower side and relative humidity of 50% with a maximum variation of 5% on higher and lower side.
- The precision air-conditioners shall have 2 independent refrigeration circuits (each comprising 1 no scroll compressors, refrigeration circuit and condensers) and dual blowers for flexibility of operations and better redundancy.
- The unit casing shall be in double skin construction for longer life of the unit and low noise level.
- For close control of the DC environment conditions (Temp. and RH) the controller shall have (PID) proportional integration and differential.
- The precision unit shall be air cooled refrigerant based system to avoid chilled water in critical space.

- The internal rack layout design shall follow cold aisle and hot aisle concept as recommended by Ashrae.
- The refrigerant used shall be environment friendly HFC, R-407-C/ equivalent in view of long term usage of the data center equipments, availability of spares and refrigerant.
- Fully Deployed Dynamic Smart Cooling with Auto sequencing Provision and Auto Power Management Features
- Thermal and CFD Analysis diagrams should be provided
- The fan section shall be designed for an external static pressure of 25 Pa. The fans shall be located downstream of the evaporator coil and be of the electronically commuted backward curved centrifugal type, double width, double inlet and statically and dynamically balanced. Each fan shall be direct driven by a high efficiency DC motor.
- The evaporator coil shall be A-shape coil (for down flow) incorporating draw-through air design for uniform air distribution. The coil shall be constructed of rifled bore copper tubes and louvered aluminum fins, with the frame and drip tray fabricated from heavy gauge aluminum. Face area of coil shall be selected corresponding to air velocity not exceeding 2.5 m/sec.
- Dehumidification shall be achieved by either reducing effective coil area by solenoid valve arrangement or using Dew point method of control. Whenever dehumidification is required, the control system shall enable a solenoid valve to limit the exchange surface of the evaporating coil, thereby providing a lower evaporating temperature.
- The humidifier and heaters shall be a built in feature in each machine individually. Humidification shall be provided by boiling water in a high temperature polypropylene steam generator. The steam shall be distributed evenly into the bypass airstreams of the environment control system to ensure full integration of the water vapor into the supply air without condensation. The humidifier shall have an efficiency of not less the 1.3 kg/kw and be fitted with an auto flush cycle

activated on demand from the microprocessor control system. The humidifier shall be fully serviceable with replacement electrodes. Wastewater shall be flushed from the humidifier by the initiation of the water supply solenoid water valve via a U-pipe overflow system. Drain solenoid valves shall not be used. Microprocessor should be able to control the humidification and heating through suitable sensors

Microprocessor Controls: Following features should be displayed on the units

- Room temperature and humidity.
- Supply fan working status
- Compressor working status
- Condenser fans working status
- Electric heaters working status
- Humidifier working status
- Manual / Auto unit status
- Line voltage value
- Temperature set point
- Humidity set point
- Working hours of main component i.e. compressors, fans, heater, humidifier etc.
- Unit working hours
- Current date and time
- Type of alarm (with automatic reset or block)
- The last 10 intervened alarms

The microprocessor should be able to perform following functions

- Testing of the working of display system
- Password for unit calibration values modification o Automatic re-start of program
- Cooling capacity control
- Compressor starting timer
- Humidifier capacity limitation
- Date and time of last 10 intervened alarm o Start / Stop status storage
- Random starting of the unit.
- Outlet for the connection to remote system
- Temperature and humidity set point calibration
- Delay of General Alarm activation
- Alarm calibration

Following alarms shall be displayed on screen of microprocessor unit:

- Air flow loss
- Clogged Filters
- Compressor low pressure
- Compressor high pressure
- Smoke – fire
- Humidifier Low water level
- High / Low room temperature

- High/Low room humidity
- Spare External Alarms
- Water Under floor

The control system shall include the following settable features:

- Unit identification number
- Startup Delay, Cold start Delay and Fan Run on timers
- Sensor Calibration
- Remote shutdown & general Alarm management
- Sequencing
- Return temperature control

5.4 Electrical Panels

- The Panels shall be of compartmentalized design so that circuit arc / flash products do not create secondary faults and be fabricated out of high quality CRCA sheet, suitable for indoor installation having dead front operated and floor mounting type.
- All CRCA sheet steel used in the construction of Panels shall be 2 mm. thick and shall be folded and braced as necessary to provide a rigid support for all components. Joints of any kind in sheet steel shall be seam welded, all welding slag grounded off and welding pits wiped smooth with plumber metal.
- The Panels shall be totally enclosed, completely dust and vermin proof and degree of protection being not less than IP: 54 to IS: 2147. Gaskets between all adjacent units and beneath all covers shall be provided to render the joints dust proof. All doors and covers shall be fully gasketed with foam rubber and /or rubber strips and shall be lockable.
- All panels and covers shall be properly fitted and secured with the frame and holds in the panel correctly positioned. Fixing screws shall enter into holes, tapped into an adequate thickness of metal or provided with bolts and nuts. Self-threading screws shall not be

used in the construction of Panels.

- A base channel of 75 mm. x 50 mm. x 6 mm. thick shall be provided at the bottom.
- Panels shall be preferably arranged in multi-tier formation. The size of the Panels shall be designed in such a way that the internal space is sufficient for hot air movement. If necessary, openings shall be provided for natural ventilation, but the said openings shall be screened with fine weld mesh. The entire electrical component shall be derated for 50°C.
- The Panels shall be provided with removable sheet steel plates at top and bottom to drill holes for cable / conduit entry at site.
- The Panels shall be designed to facilitate easy inspection, maintenance and repair.
- The Panels shall be sufficiently rigid to support the equipment without distortion under normal and under short circuit condition. They shall be suitably braced for short circuit duty

5.4.1 Circuit Compartments

- Each MCCB shall be housed in separate compartments and shall be enclosed on all sides. Sheet steel hinged lockable door shall be duty interlocked with the unit in 'ON' and 'OFF' position.
- All instruments and indicating lamp shall be mounted on the compartment door. Sheet steel barriers shall be provided between the tiers in a vertical section.

5.4.2 Electrical Power and Control Wiring Connection

- Terminal for both incoming and outgoing cable connections shall be suitable for 1100 V grade, aluminum / copper conductor XLPE insulated and PVC sheathed, armored cable and shall be suitable for connections of solder less sockets for the cable size as per the feeder capacity.
- Power connections for incoming feeders of the main Panels shall be suitable for 1100 V grade Aluminum conductor (XLPE) cables.

- Both control and power wiring shall be brought out in cable alley for ease of external connections, operation and maintenance.
- Both control and power terminals shall be properly shrouded.
- 10% spare terminals shall be provided on each terminal block. Sufficient terminals shall be provided on each terminal block, so that not more than one outgoing wire is connected to per terminal.
- Terminal strips for power and control shall preferably be separated from each other by suitable barriers of enclosures.
- Wiring inside the modules for power, control, protection and instruments etc. shall be done with use of 660 / 1100 V grade, FRLS insulated copper conductor cables conforming to IS. For current transformer circuits, 2.5 sq.mm. Copper conductor wire shall be used.
- Other control wiring shall be done with 1.5 sq.mm. Copper conductor wires.
- Wires for connections to the door shall be flexible. All conductors shall be crimped with solder less sockets at the ends before connections are made to the terminals.
- Control power supply to modules through the control transformer Control power wiring shall have control fuses, (HRC fuse type) for circuit protection. All indicating lamps shall be protected by HRC fuses.
- Particular care shall be taken to ensure that the layout of wiring is neat and orderly. Identification ferrules shall be fitted to all the wire termination for ease of identification and to facilitate checking and testing

5.4.3 Terminals

- The outgoing terminals and neutral link shall be brought out to a cable alley suitably located and accessible from the panel front.
- The current transformers for instruments metering shall be mounted on the disconnecting type terminal blocks.

- No direct connection of incoming or outgoing cables to internal components of the distribution board is permitted; only one conductor may be connected in one terminal

5.4.4 Cable Compartments

- Cable compartments of minimum 300 mm size shall be provided in the Panels for easy termination of all incoming and outgoing cables entering from bottom or top.
- Adequate supports shall be provided in the cable compartments to support cables.
- All outgoing and incoming feeder terminals shall be brought out to terminals blocks in the cable compartment.

5.4.5 Labels

- Engraved PVC labels shall be provided on all incoming and outgoing feeders. · Single line circuit diagram showing the arrangements of circuit inside the distribution board shall be pasted on inside of the panel door and covered with transparent laminated plastic sheet.

5.4.6 Name Plates

- A nameplate with the Panels designation in bold letters shall be fixed at top of the central panel.
- A separate nameplate giving feeder details shall be provided for each feeder module door.
- Inside the feeder compartments, the electrical components, equipments, accessories like switchgear, control gear, lamps, relays etc. shall suitably be identified by providing stickers.
- Engraved nameplates shall preferably be of 3 ply, (Red-White-Red or Black-White-Black) lamicold sheet. However, black engraved perplex sheet name plates shall also be acceptable. Engraving shall be done with square groove cutters.
- Nameplate shall be fastened by counter sund screws and not by adhesives

5.4.7 Danger Notice Plates

- The danger notice plate shall be affixed in a permanent manner on operating side of the Panels.
- The danger notice plate shall indicate danger notice both in Hindi and English and with a sign of skull and bones.
- The danger notice plates, in general, meet the requirements of local inspecting authorities.
- Overall dimensions of the danger notice plate shall be 200 mm. wide x 150 mm. high.
- The danger notice plate shall be made from minimum 1.6 mm. thick mild steel sheet and after due pre-treatment to the plate, the same shall be painted white with vitreous enamel paint on both front and rear surface of the plate.
- The letters, the figures, the conventional skull and bones etc. shall be positioned on plate as per recommendation of IS : 2551-1982.
- The said letters, the figures and the sign of skull and bones shall be painted in signal red colour as per IS : 5-1978.
- The danger plate shall have rounded corners. Location of fixing holes for the plate shall be decided to suit design of the Panels.
- The danger notice plate, if possible, it should be of ISI certification mark

5.4.8 Moulded Case Circuit Breakers

- The moulded case circuit breaker (MCCB) shall be air break type and having quick make - quick break with trip free operating mechanism.
- Housing of the MCCB shall be of heat resistant and flame retardant insulating material.
- Operating handle of the MCCB shall be in front and clearly indicate ON/OFF/TRIP positions.
- The electrical contact of the circuit breaker shall be of high conducting non-

deteriorating silver alloy contacts.

- The MCCB shall be provided microprocessor based overload and short circuit protection device.
- All the releases shall operate on common trip busbar so that in case of operation of any one of the releases in any of the three phases, it will cut off all the three phases and thereby single phasing of the system is avoided.
- The MCCB shall provide two sets of extra auxiliary contacts with connections for additional controls at future date.

5.4.9 Contactors

- The contactors shall meet with the requirements of IS : 2959 and BS : 7755.
- The contactors shall have minimum making and breaking capacity in accordance with utilization category AC3 and shall be suitable for minimum Class II intermittent duty.
- If the contactor forms part of a distribution board then a separate enclosure is not required, but the installation of the contactor shall be such that it is not possible to make an accidental contact with live parts

5.4.10 Indicating Lamps

Indicating lamps assembly shall be screw type with built in resistor having non-fading colour lens. LED type lamps are required.

Wiring for Remote ON, OFF, TRIP indicating lamp is required.

COMPLIANCE TO SPECIFICATIONS

- All the hardware specifications mentioned in the Tender Document are the required minimum, higher or better specifications would be acceptable.
- Component furnished shall be complete in every respect with all mountings, fittings, fixtures and standard accessories normally provided with such component's and/or needed for erection, completion and safe operation of the component's as required by applicable codes though they may not have been specifically detailed in the technical specification, unless included in the list of exclusions. All similar standard components/parts of similar standard components provided shall be inter-changeable with one another.
- The methodology of cabling and installation work to be adopted for the Data Center has to ensure minimum damage to the existing structure of the building. Any damage to the existing flooring/ walls/paint etc. shall be made good by the selected bidder. It is advised that bidder should visit site before submitting the tender to get apprised about the site conditions.
- The selected bidder shall be responsible for providing all materials, components, and services, specified or otherwise, which are required to fulfill the intent of ensuring operability, maintainability, and reliability of the complete component covered under this specification within his quoted price. This work shall be in compliance with all applicable standards, statutory regulations and safety requirements in force of the date of award of this contract.
- The selected bidder shall also be responsible for deputing qualified personnel for installation, testing, commissioning and other services under his scope of work as per this specification. All required tools for completing the scope of work as per the specification is also the responsibility of the selected bidder.
- The selected bidder shall perform the services and carry out its obligations with all due diligence, efficiency and economy in accordance with generally accepted professional techniques and practices and shall observe sound management practices and employ appropriate advance technology and safe methods. The selected bidder shall always act in respect of any matter relating to this contract or to the services as faithful advisers to the SDA.

- The selected bidder shall furnish complete, well-fabricated and reliably operating and secure systems to SDA. Design and selection of component and software shall be consistent with the requirements of long term trouble free operation with highest degree of reliability and maintainability. All components shall be constructed to operate safely without undue heating, vibration, wear, corrosion, electromagnetic interference or similar problems and all software shall be proven, tested and reliable.
- All interconnecting cables required to connect the communication component shall be furnished. All cables shall be fully assembled connector pre-terminated and factory tested as part of overall system checkout. Cables shall be neatly & properly tied up and dressed using appropriate cable hangers and Velcro bands. All the cables, connectors, sockets, panel's etc. shall be labeled for identification purpose.
- All the cabling should adhere to the TIA-942 Data Center Standard.
- All component, accessories and cables supplied under this contract shall be in accordance with the latest applicable recommendations, regulations and standards of:
 - CCITT/ITU - ANSI
 - IEC 60364
 - IEEE Standard 1100 -- TIA 942 - ISA 043
 - EIA/TIA 568 Standards
 - International Electro-technical Commission (IEC)
 - Cable (Cat 6) and cable accessories (Cat6) UL Listed and verified
- For parameters not covered under the above codes, internationally acceptable standards shall be accepted. The selected bidder shall furnish a complete list of all standards and codes under which his component is designed, manufactured and assembled along with the bids.
- Functionality/accessibility of each component of the system and the system as a whole should be demonstrated to the satisfaction of SDA.
- Reliable over voltage and over current protection circuits shall be provided in the component power supply units. The component power supply units shall be self protecting and also protect connected component's against interference, noise, voltage

dips and surges & impulses that may be present in the mains power supply sources. Component shall be guaranteed for operation over the following AC power range to be made available by SDA: 240 V AC +/-10%, 50 Hz +/- 5%

- The SDA shall provide suitable AC power at a single power point at one locations and distribution of this power to the various component's shall be responsibility of the selected bidder for which necessary distribution board, cable etc. shall be provided by the selected bidder.

Additional provisions

- All equipment and materials must be new. Used, re-conditioned, and refurbished
- equipment and materials are not acceptable
- In case the proposed item (material, product or service) being unavailable, the bidder should supply functionally equivalent or superior item with due approvals from CGN
- All components and installation methods shall be EIA/TIA 568A and TIA 942 approved and conforms to EIA/TIA 569 and TIA 942 practices and methods. The Structured Cabling System installed by the Contractor/bidder shall be capable of a minimum of 1000 MBPS network application.
- Review of components or documentation of components by CGN employees does not relieve the Contractor/bidder from meeting or exceeding the specifications outlined in this document.
- The Contractor/bidder will be responsible for the shipping, handling, and storage of all equipment and materials and to secure and protect it from theft.
- Contractor/bidder shall furnish and install all equipment, accessories, and materials necessary for a complete, functional Data Centre in accordance with the specifications.
- Contractor/bidder shall assume all responsibility to repair or replace fixtures and

materials it damages during its work on the site. Contractor/bidder shall be wholly financially responsible for damages realized by CGN as a result of the Contractor/bidders' activities.

- All items shall be quoted completely installed and functional as per specifications.
- Upon completion of the work, the Contractor/bidder shall reconnect any utilities, equipment, system furniture panels or trim, or appliances removed in the course of work, and replace all furniture, etc., moved for the performance of the work. Debris and rubbish caused by the work shall be removed from the premises. Site will be left in a clean, neat, and orderly fashion.
- Every bidder will be required to carry out a site survey in order to come up with optimized DC lay-out design that covers the CGN offices in scope.

CONDITIONS OF DELIVERY

- **Shipping**: The Bidder shall make all arrangements for transportation and insurance and is financially responsible for all costs related to these activities. All materials must be delivered to the Owner at installation. The contractor/bidder shall be responsible for delivery of all components and manpower to and from the facility. The cost of delivery shall be included in both the bidders' total bid price and unit pricing.
- The contractor/bidder shall take all steps necessary to insure that's CGN's facilities and their contents are not damaged in any way as a result of the contractor/bidders' activities.
- Contractor/bidder shall be wholly financially responsible for damages realized by CGN as a result of the contractor/bidders' activities

WARRANTY, CERTIFICATION AND MAINTENANCE

- Contractor/bidder shall warrant all materials, equipment and/or services delivered as a result of this document to be free from defect of material or workmanship and to conform strictly to the specifications.
- This warranty shall survive any inspection, delivery, acceptance, or payment by the CGN for a minimum period of five (5) years from the date of System Acceptance.
- Based upon the accepted installation contract, the Contractor/bidder shall furnish all labor and replacement parts and materials provided under warranty at no additional cost to CGN.
- Services performed by the Contractor/bidder under warranty must conform to the requirements and work standards outlined within this document.
- Warranty costs shall be included in the total bid price. All unit pricing shall also include warranty costs.
- The Contractor/bidder shall provide preventative maintenance, as required by the equipment manufacturer during the warranty period.
- The Contractor/bidder shall maintain a stock of repair replacement parts for all equipment offered under any contract resulting from this bid.
- The entire installation will be covered by a manufacturer's ten (10) year, or better, warranty on material and workmanship, supplied to CGN prior to any acceptance of the system. This 10 year warranty must be specific to the installation and must carry the manufacturer's authorized signature. This warranty shall include structure cabling and DC equipment.
- If during the Warranty Period, CGN discovers that the Contractor/bidder has utilized improper materials or improper installation methods for the system, the Contractor/bidder shall remedy the situation to the satisfaction of CGN inspectors, at the Contractor/bidder's expense.
- If after the warranty period, and during the life of the system, a flaw in the workmanship is discovered, that flaw will be repaired or replaced at no cost to CGN.

Examples of a flaw in workmanship would be the discovery of a jack that was not wired according to CGN standards, or the discovery of a cable that was not installed in accordance with the CGN Standards. Another example would be an installation oversight on the part of the Contractor/bidder/installer not an oversight of CGN.

SYSTEM PERFORMANCE (ACCEPTANCE) PERIOD

- The Data Centre components, cable distribution system, labeling systems, and all other components supplied as a result of this document shall be evaluated by CGN to determine if materials, installation methods, and/or procedures meet the requirements specified. In the event that any of the installation is found not to be compliant to CGN specification the vendor will be required to rectify these inconsistencies to the satisfaction of the CGN. This will be done at the Contractor/bidder's expense.
- System Cut-Over" shall be defined as the day all the systems specified and supplied as a result of this document are installed and capable of carrying network signals as specified. The contractor/bidder shall be responsible for notifying CGN of the date that the DC construction is completed and ready to be placed into active service. (This notification shall be on the contractor/bidder's letter-head and addressed to the individuals as specified in this document) CGN and Contractor/bidder shall mutually agree upon the exact date of System "Cut-Over".
- The System Performance Period shall be sixty (60) consecutive days and shall start on the day of System Cut-Over for each site.
- In the event of failures, malfunctions, or discoveries of improper materials or installation methods during the System Performance Period, the contractor/bidder shall be wholly responsible for taking all steps necessary to remedy the problems and/or bring the system into compliance with the specifications in this document. All remedies must be completed no later than five (7) days prior to the end of the System Performance Period.
- If CGN is satisfied with the contractor/bidder's remedy, the contractor/bidder, at the discretion of CGN, may be permitted to continue the System Performance Period's sixty (60) consecutive day requirement as if no interruption had occurred. If CGN is not satisfied with the contractor/bidder's remedy, the sixty (60) consecutive day period described herein shall start over.

- If during the System Performance Period, CGN discovers that the contractor/bidder has utilized improper materials or improper installation methods for the system, and the contractor/bidder is unable or unwilling to remedy such discoveries no later than the final day of the System Performance Period, CGN reserves the right to find the contractor/bidder in default.
- "Improper" shall be defined as any characteristic about a system component or installation method, which does not conform to the specifications, outlined in this document.
- If the Contractor/bidder is found in default, CGN shall not remit payment for any portion of the system installed by the Contractor/bidder and the Contractor/bidder shall remove the system equipment at no cost to CGN. A Contractor/bidder who is found in default shall forfeit all claims to payment from CGN. Allowances will be made only for circumstances and/or delays which are clearly beyond the control of the Contractor/bidder.
- Should the Contractor/bidder be found in default and CGN requests the Contractor/bidder to remove all components supplied, the Contractor/bidder is required to adhere to a removal schedule to be finally determined by CGN. This removal schedule shall insure that there is no disruption to the operations of CGN.
- The Contractor/bidder shall be wholly liable for any damage to CGN property caused by the Contractor/bidders' activities during System removal.
- The Contractor/bidder shall not initiate any activities for System removal unless and until the Contractor/bidder has received final approval from CGN for a System Removal Schedule.
- Upon completion of a successful System Acceptance Period, CGN will evaluate the Systems' performance.

- Acceptance form will be signed and returned to the Contractor/bidder.

VARIATIONS

- Any variation to CGN's DC Standards must be submitted to CGN in writing for approval. Any variation submitted to CGN will be considered on a case by case basis and will be approved in writing by CGN.

BILL OF QUANTITIES

NOTE:

- The bidder should attach their own detailed price schedule in a separate sheet.
- In case of discrepancy between unit price and total, the unit price shall prevail.
- Total cost of materials & works including VAT & any other applicable taxes (in kshs)