



CLUSTER

TRADING SERVICES

UNIT

ELECTRICITY UNIT

DEPARTMENT

CUSTOMER AND RETAIL SERVICES

PROCUREMENT DOCUMENT: GOODS / SERVICES

Documents can be obtained either in electronic format, issued by the eThekweni Municipality:

- a) Electronically downloaded documentation is obtainable from the National Treasury's eTenders website or the eThekweni Municipality's Website. The entire document should be printed and suitably bound by the tenderer.

Tender No: E.9807

SUPPLY, INSTALLATION, COMMISSIONING, SUPPORT AND MAINTENANCE OF HIGH TECHNOLOGY SOLUTION AND EQUIPMENTS WHICH INCLUDE INTELLIGENT VIDEO

Title: SURVEILLANCE SYSTEM, PROTECTIVE STRUCTURES, METER POSITION, METER ROOMS AND OTHE REVENUE PROTECTION EQUIPMENT FOR A PERIOD OF THIRTY-SIX MONTHS

CLARIFICATION MEETING AND QUERIES

Clarification Meeting: There will be no clarification meeting. Question must be emailed by 23 September 2022 and responses will be published on the Municipality website by 29 September 2022

Queries can be addressed to:

Contractual: Nyaniso Mlilo; Tel: 031-311-9422; email: Nyaniso.mlilo@durban.gov.za

Technical: Thulebona. Memela; Tel: 031-311-9850; email: Thulebona.Memela@durban.gov.za

DELIVERY OF TENDERS

Sealed Tenders, addressed to the City Manager and marked with the Tender Number, are to be placed in the Tender Box **Choose an item.** (and not any other municipal department), no later than:

Closing Date: Friday, 07 October 2022

Time: 11:00am

FACSIMILE, eMAIL or POSTED TENDERS WILL NOT BE ACCEPTED

Issued by:

ETHEKWINI MUNICIPALITY

NAME OF TENDERER:

Tender Price: R

VAT Registered: YES / NO
(circle applicable)

NAME OF TENDERER:	
Tender Price: R	VAT Registered: YES / NO (circle applicable)

PROCUREMENT DOCUMENT (Goods / Services)
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SECTION 1: GENERAL INFORMATION

YOU ARE HEREBY INVITED TO TENDER FOR REQUIREMENTS OF THE ETHEKWINI MUNICIPALITY
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TENDER No.: E.9807

DESCRIPTION: SUPPLY, INSTALLATION, COMMISSIONING, SUPPORT AND MAINTENANCE OF HIGH TECHNOLOGY SOLUTION AND EQUIPMENTS WHICH INCLUDE INTELLIGENT VIDEO SURVEILLANCE SYSTEM, PROTECTIVE STRUCTURES, METER POSITION, METER ROOMS AND OTHE REVENUE PROTECTION EQUIPMENT FOR A PERIOD OF THIRTY-SIX MONTHS

CLOSING DATE / TIME: Friday, 07 October 2022 at 11:00am

All tenders must be submitted on official tender documentation issued (in electronic format) by the eThekwin Municipality. Electronically downloaded documentation should be printed by tenderer.

Tenderers are required to be registered on the National Treasury Central Supplier Database (CSD) as a service provider. Tenderers must register as such upon being requested in writing to do so by the Employer, within the period contained in such a request. In the case of a Joint Venture, this requirement will apply individually to each party in the Joint Venture.

Tenderers should ensure that tenders are delivered timeously to the correct address as stated in the Conditions of Tender. If the tender is late, it will not be accepted for consideration.

The Municipality will consider a tender submitted in response to this request for tender to be an offer from your company to perform the supply on the basis of that tender. Accordingly, please review the attached General and Special Terms and Conditions which will form the basis for any supply arrangement entered into between the Municipality and your company.

The Municipality is seeking tenders from potential suppliers only and makes no representation or promise in relation to procuring work from a supplier or suppliers. The Municipality will not be responsible for any costs associated with preparing and submitting a tender.

The Municipality does not bind itself to accept the lowest or any tender. It reserves the right to accept the whole or any part of a tender to place orders. Bidders shall not bind the Municipality to any minimum quantity per order. The successful Tenderer (s) shall be bound to provide any quantities stipulated in the specification.

The successful tenderer will be required to fill in and sign a written Contract Form (MBD 7).

Registration on the eThekwin Municipality's Database can be done via website: <https://ethekwinivendor.durban.gov.za/>

NB: NO TENDER WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE
(as defined in Regulation 44 of the Local Government: Municipal Supply Chain Management Regulations).

**THE FOLLOWING PARTICULARS MUST BE FURNISHED
(Failure to do so may result in your tender being disqualified)**

Name of Tenderer:

Postal Address:

Street Address:

E-Mail Address:

Telephone Number:	-		-	
Cell phone Number:	-		-	
Facsimile Number:	-		-	

**Circle / Tick
Applicable**

Is your entity registered on the eThekweni Municipality's supplier database? YES / NO

If YES insert your PR Number: PR

Is your entity registered on the National Treasury Central Supplier Database (CSD)? YES / NO

If YES insert your MAAA Number: MAAA

Is your entity VAT registered? YES / NO

• If YES insert Vat Registration Number:

Has an original and valid **Tax Clearance Certificate** (MBD 2) been attached? YES / NO

Has a **Declaration of Interest** (MBD 4) been submitted? YES / NO

Has a **Declaration for Procurement Above R10 Million** (MBD 5) been submitted? YES / NO

Has a **B-BBEE Status Level Verification Certificate** (MBD 6.1) been submitted? YES / NO

- If YES, who was the certificate issued by?
- An accounting officer as contemplated in the Close Corporation Act.
 - A verification agency accredited by the South African National Accreditation System (SANAS).
 - A registered auditor.
 - Sworn Affidavit.

Has a **Declaration Certificate for Local Production and Content for Designated Sectors** (MBD 6.2) been submitted? YES / NO

Has a **Declaration of Bidder's Past SCM Practices** (MBD 8) been submitted? YES / NO

Has a **Certificate of Independent Bid Determination** (MBD 9) been submitted? YES / NO

Are you the accredited representative in South Africa for the goods / services / works offered? If YES, enclose proof. YES / NO

Signature of Tenderer: Date:

Name / Surname: (in block capitals)

Capacity under which this tender is signed:

SECTION 2: CONDITIONS OF TENDER – (Goods / Services : June 2019)**INDEX**

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SPECIAL / ADDITIONAL CONDITIONS OF TENDER

STANDARD CONDITIONS OF TENDER (Goods / Services)

1. DEFINITIONS

General:

- (1) Defined words / phrases are printed in *Italic font*.
- (2) Definitions apply to the singular as well as the plural.
- (3) Any reference to the masculine gender shall be taken to include the feminine and any reference to the feminine gender shall be taken to include the masculine.
- (4) The words “bid” and “tender”, and “bidder” and “tenderer” can be used interchangeably.
- (5) All definitions as defined in the ***General Conditions of Contract*** are applicable to these ***Standard Conditions of Tender***. These definitions include:
 4. “Closing time”
 5. “Contract”
 6. “Contract Price”
 7. “Corrupt practice”
 8. “Countervailing duties”
 9. “Country of origin”
 10. “Day”
 11. “Delivery”
 12. “Delivery ex stock”
 13. “Delivery into consignees store or to his site”
 14. “Dumping”
 15. “Force majeure”
 16. “Fraudulent practice”
 17. “GCC”
 18. “Goods”
 19. “Imported content”
 20. “Local content”
 21. “Manufacture”
 22. “Order”
 23. “Project site”
 24. “Purchaser”
 25. “Republic”
 26. “SCC”
 27. “Services”
 28. “Supplier”
 29. “Tort”
 30. “Turnkey”
 31. “Written” or “in writing”
- (6) **Bid or Tender:** The offer submitted in respect of an invitation to submit such an offer.
- (7) **Bidder or Tenderer:** An entity (company, close corporation, partnership, joint venture, sole proprietor) which submits a *bid/tender*.
- (8) **Municipality:** The eThekweni Municipality, as represented by the duly authorised delegate, official or committee.
- (9) **SCT:** Special Conditions of Tender (found in Section 3).
- (10) **Week:** A period of seven (7) consecutive *days*.
- (11) **Material Deviation:** A material deviation or qualification is one which, in the *Municipality’s* opinion, would:
 - (a) Detrimentally affect the scope, quality, or performance of the services or supply identified in the Scope;
 - (b) Significantly change the *Municipality’s* or the *Tenderer’s* risks and responsibilities under the contract; or
 - (c) Affect the competitive position of other *Tenderers* presenting responsive *tenders*, if it were to be rectified.

2. CONDITIONS OF TENDER & CONTRACT

The specification will be governed by the ***Standard Conditions of Tender*** (Goods and Services), ***Special Conditions of Tender (SCT)***, ***General Conditions of Contract (GCC)*** (Government Procurement General Conditions (July 2010), as amended by National Treasury Circular 52 dated 30 July 2010), the ***Special Conditions of Contract (SCC)***, the ***Occupational Health and Safety Act*** (Act No. 85 of 1993), and the ***eThekweni Code of Conduct***.

Complete Acceptance of Conditions

Unless otherwise expressly stipulated in a letter covering the *tender*, every *Tenderer* shall be deemed to have waived, renounced, and abandoned any conditions printed or written upon any stationery used for the purpose of, or in connection with, the submission of their *tender*, which are in conflict with the ***General Conditions of Contract*** and ***Special Conditions of Contract***. *Tenderers* are advised that any *material divergences / qualifications* from the official Conditions or Specification will render their *tenders* liable to disqualification.

3. TENDER INFORMATION

(1) General

- (a) *Tenders* will be liable for rejection unless made out on the official tendering documentation.
- (b) Any alterations effected upon any of the tendering documents must be clearly shown by means of a hand written (black, non-erasable ink), or typed, entry and must be signed in full by the *Tenderer*. **The use of correction fluid is not permitted.**
- (c) *Tenderers* may submit alternative solutions that, in the *Tenderer’s* opinion, are to the *Municipality’s* advantage economically and technically. Full technical details of the alternative *tender(s)* shall be submitted with the tender documents. Alternative *tender(s)* shall be submitted separately.

(2) Obtaining Tender Documentation

All tenders must be submitted on official tender documentation issued (either in hard copy or in electronic format) by the eThekweni Municipality. Electronically downloaded documentation (obtainable free of charge) should be printed and bound by tenderer. Hard copy versions are available as indicated on the tender notice, for the non-refundable tender charge as indicated in the ***SCT*** (payment by Bank Cheques (where the Drawer of the Cheque is the Bank) OR cash). Tender documents must be collected no later than 3 days prior to close of tender.

(3) Queries Relating to this Tender

Queries can be directed to the person / Department as stated in the ***SCT***.

(4) Briefing Session (Clarification Meeting)

Details of the briefing session are stated in the ***SCT***.

Failure to attend a ***compulsory*** briefing session will invalidate the *tender*. *Tenderers* must sign the attendance list in the name of the tendering entity. *Tenders* will only be evaluated from those tendering entities appearing on the attendance list.

(5) Closing Date and Delivery of Tender Submissions

Sealed *tenders* made out on the enclosed Official Tender Form, which shall be signed by or on behalf of the *Tenderer*, and addressed to the Head: Supply Chain Management Unit, marked with the appropriate Tender number, must be placed in the **Tender Box** as stated in the **SCT** not later than the **date and time** as stated in the **SCT**, where after they will be opened publicly.

All tender documents **must** be placed directly into the Tender Box and should not be delivered to any other Municipal Department. *Bidders* are advised that *tenders* submitted by post, fax or email **will not** be considered. All couriered documents must be placed directly into the Tender Box and should not be delivered to any other Municipal Department.

Any *tender* received after the closing date and time stated for the receipt thereof **shall not** be accepted for consideration and shall be returned to the *Tenderer*.

(6) Tender Validity and Withdrawal of Tenders

Tenders must hold good until 16:00 of the 5th week following the date on which *tenders* are opened, or during such other period as may be specified in the **SCT**. The *Municipality* may, during the period for which *tenders* are to remain open for acceptance, authorize a *Tenderer* to withdraw their *tender* in whole or in part on condition that the *Tenderer* pays to the *Municipality* on demand, a sum of one thousand Rand (R1,000.00). The *Municipality* may, if it thinks fit, waive payment of such sum in whole or in part.

4. RETURNABLE SCHEDULES, FORMS, CERTIFICATES

Each *Tenderer* shall complete fully and accurately the following documents and submit these documents with the *tender*:

(1) **Authority of Signatory:** In terms of Clause 4(10)(c) of the Conditions of Tender.

(2) **Declaration of Municipal Fees:** Only those *Bidders* whose municipal fees are fully paid, or those that have concluded acknowledgement of debt agreements with the *Municipality*, are eligible to *tender*.

All *Bidders* must sign the Declaration of Municipal Fees returnable form, declaring that their municipal fees are in order or that acknowledgement of debt agreements have been concluded, and include the relevant account numbers in the declaration. Failure to include account numbers or sign will invalidate the *tender*. The completion of the declaration is also applicable to *Bidders* outside of the eThekweni Municipal Area.

(3) **Declaration with respect to the Occupational Health and Safety Act:** Acceptance of undertaking in terms of the Occupational Health and Safety Act (Act 85 of 1993) and the relevant Regulations.

(4) **Consolidated Municipal Bidding Documents** (which includes):

- 1 **MBD 2:** Tax Clearance Certificate Requirements: *Bidders* are to include with their tender submission a valid (at time of tender closing), tax clearance certificate OR Tax Clearance Status PIN, which has sufficient validity to ensure that the tender process is adequately covered. Non-submission, or submission of an expired certificate/ TCS PIN, will preclude *Bidders* from the tender process.
- 2 **MBD 4:** Declaration of Interest: All *Bidders* are to sign the Declaration of Interest wherein they declare any relationship that may exist with an official of the *Municipality* involved in the evaluation process.

Regulation 44 of the Supply Chain Management Regulations states that a *Municipality* or *Municipal Entity* may not make any award to a person:

- (i) Who is in the service of the state;
- (ii) If that person is not a natural person, of which any Director, Manager, Principal, Shareholder or Stakeholder is a person in the service of the state; or
- (iii) Who is an advisor or consultant contracted with the *Municipality* or *municipal entity*.

Should a contract be awarded and it is subsequently established that Regulation 44 has been breached, the *Municipality* shall have the right to terminate the contract with immediate effect.

3 **MBD 5:** Declaration for Procurement Above R10 Million (if applicable): For all procurement expected to exceed R10 million (all applicable taxes included), *tenderers* must complete this questionnaire.

4 **MBD 6.1:** Preference Points Claim Form: For the awarding of Preference Points, *Bidders* are required to complete the attached MBD 6.1 form and return it with their tender submission. Failure on the part of a *tenderer* to submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS), or a Sworn Affidavit for an EME, or sworn affidavit for a QSE (in line with the revised BBBEE codes of Good Practice), together with the bid will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

The *Municipality* reserves the right to require of a *tenderer*, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the *Municipality*.

5 **MBD 6.2:** Declaration Certificate for Local Production and Content for Designated Sector: If this tender is subject to "Local Content and Production", the *tenderer* must complete and sign MBD 6.2 and attach Annexure C (of SATS 1286:2011).

6 **MBD 8:** Declaration of *Bidders* Past Supply Chain Management Practices Form: This form serves as a declaration to be used by *municipalities* and *municipal entities* in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.

7 **MBD 9:** Certificate of Independent Bid Determination: Section 4(1)(b)(iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms if it involves collusive tendering or tender rigging. In order to give effect to this, the Certificate of Bid Determination must be completed and submitted with the tender.

(5) **Official Tender Form** (see Section 9)**1. Legal Status of Tenderer**

It is essential for the purpose of entering into a legal contract that *Bidders* state on the Official Tender Form, under "Name and Address of Tenderer", their full legal status:

- (a) the full registered name of the company making a *tender*; or
- (b) if the *Tenderer* is a person conducting business under a recognised trading name then:
 - State the name of the person(s);
 - State recognised trading name; and
 - State whether an owner, co-owner, proprietor, etc.

(b) Signing of Official Tender Form

Failure of a *Tenderer* to complete, in its entirety, and sign the Official Tender Form will invalidate the *tender*.

(c) Authority of Signatory

Bidders are to complete and sign the Authority of Signatory returnable document, and attach the required additional documents.

(d) Differences or Discrepancies

Should there be any difference or discrepancy between the prices or price contained in the Official Tender Form and those contained in any covering letter from the *Tenderer*, the prices or price contained in the Official Tender Form shall prevail.

(6) **Any additional Schedules, Forms, or Certificates as stated in the SCT.****5. INFORMATION TO BE SUPPLIED REGARDING SUB-CONTRACTORS**

Bidders are to state in their *tenders*, or covering letters, whether, if the contract were to be awarded to them, the whole of the work would be executed by them in their own workshop / factory. If the answer is in the negative, they are required to state which part(s) would be handed to sub-contractors and the name and address of such sub-contractors.

6. SAMPLES

Bidders may be required to state where samples of the full range of products can be inspected or be required to submit samples for inspection prior to the closing date of the *tender*.

7. MANUFACTURERS

The names of the manufacturers of the goods or equipment offered must be stated in the *tender*.

Bidders who are not manufacturers, accredited distributors, or agents must provide a valid agreement / Joint Venture Agreement, entered into with the manufacturer, accredited distributors, or agents, with their submission. This agreement must meet all the requirements as laid down in the *tender* document, and must cover the contract period.

8. CLARIFICATION

The Head: Supply Chain Management Unit, or an authorized representative, may request clarification or further information on any aspect of the *tender*. The *Tenderer* **must** supply the requested information within the time specified. Failure to comply will render the *tender* non-responsive.

9. PRICING

Bidders would be precluded from this *tender* if their pricing structure deviates from the Official Tender Form.

• **Nett Prices**

All prices shall be quoted in South African currency (Rand) after deduction of any brokerage or discount allowed to the Municipality.

• **Unit Prices**

Bidders shall quote only one price in respect of each item. Such price is to hold good for the full duration of the contract period, being subject to variation only in accordance with specified criteria, as stated in the **Conditions of Contract**.

• **Firm Tenders**

Bidders may submit firm prices for each 12 month period. These prices shall be free from all fluctuations, including any statutory increases.

• **Value Added Tax (V.A.T)**

Prices exclusive and inclusive of VAT must be stated separately on the Official Tender Form.

10. ESTIMATED QUANTITIES

The estimated quantities are set out in Section 8 : Bill of Quantities / Schedule of Rates/Activities which forms part of the official tender documents. The quantities are stated purely for the information of the *Bidders* and are in order to ascertain an estimated total contract price. The *Supplier* will, however, be bound to supply whatever quantity or quantities the *Municipality* may actually require, and may be in excess or less than the estimated quantities stated.

11. DELIVERY, RISK, PACKAGES, ETC

- (1) Unless otherwise provided, all goods are to be supplied only against the form of order issued by the *Municipality*.
- (2) *Bidders* shall quote a unit price which shall include delivery to the specified delivery point, as stated in the **SCT**.
- (3) The risk in all goods purchased by the *Municipality* under the contract shall remain with the *Supplier* until such goods shall have been duly delivered.
- (4) *Bidders* shall clearly state the period within which delivery will be made after receipt of the official order, as this may be material in the adjudication of the *tender*.

12. RATES OF EXCHANGE

- (1) Where the goods are imported the *Supplier* shall, within seven days of date of official Purchase Order, arrange through their bankers for the foreign commitment to be covered forward down to the Rand in order to fix the rate of exchange. The *Supplier* shall notify the *Municipality* as soon as possible thereafter regarding the rate which has been fixed on such forward exchange.

Any increase or decrease between the basic rate of exchange as at a date seven days prior to the date of closing of *tenders* and that existing at the date of establishment of the forward exchange cover within the period stipulated above shall be paid or deducted by the *Municipality*. Upon the failure of the *Supplier* to arrange forward exchange cover, the *Supplier* shall be liable should there be any increase in the basic rate of exchange occurring after the last mentioned date.

The bank charges incurred in obtaining the forward exchange cover shall be for the *Municipality's* account.

- (2) The *Supplier* shall on request:
- Submit documentary proof of the rate of exchange; and
 - When an adjustment is claimed in terms of this sub-clause, whether by the *Supplier* or the *Municipality*, submit documentary proof to the satisfaction of the Deputy City Manager: Treasury in respect of such claim.

13. IMPORT PERMITS

- In order to minimise special importation, *Bidders* should, where possible, have recourse to local suppliers and / or manufacturers.
- Bidders* must state whether their *tender* is dependent upon the issue of a special import permit or whether they are able to supply the goods by making use of the import facilities available to them.
- In the event of a *tender* being dependent upon the issue of a special import permit, application for such special import permit shall be made by the *Tenderer*, unless otherwise provided for in the *SCT*.

14. EVALUATION PROCESS

The procedure for evaluation of responsive Tender Offers will be in accordance with the eThekweni Municipality's current SCM Policy and the Preferential Procurement Policy Framework Act (5 of 2000), and the Preferential Procurement Policy Framework Act Regulations (January 2017).

Details of additional evaluation criteria, if applicable, are stated in the *SCT*.

Evaluation points for price and preference will only be calculated for *Bidders* who comply with the contractual and technical specification, and if applicable, have attained the minimum Functionality Score as stated in the *SCT*.

The evaluation process of responsive *tenders* will be as follows:

- Score each *tender* in respect of the financial offer made and preferences claimed (if any);
 - Calculate the total number of evaluation points (T_{EV}) in accordance with the following formula:
 $T_{EV} = N_{FO} + N_P$ where: N_{FO} : is the number of evaluation points awarded for the financial offer; and N_P : is the number of evaluation points awarded for preferences claimed.
- Rank *tenders* from the highest number of evaluation points to the lowest.
 - Recommend the *Tenderer* with the highest number of evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
 - Rescore and re-rank all *Bidders* should there be compelling and justifiable reasons not to recommend the *Tenderer* with the highest number of evaluation points, and recommend the *Tenderer* with the highest number of evaluation points, unless there are compelling and justifiable reasons not to do so, and the process set out in this sub-clause is repeated.

(1) Evaluation points awarded for the financial offer:

The financial offer will be scored using the formula:

$$N_{FO} = W \left(1 - \frac{P - P_m}{P_m} \right)$$

Where the value of W is:

- 90** where the financial value inclusive of VAT of all responsive *tenders* received have a value in excess of R 50,000,000; OR
80 where the financial value inclusive of VAT of one or more responsive *tenders* offers have a value that equals or is less than R 50,000,000;
- P_m** is the comparative offer of the most favourable comparative offer; and
- P** is the comparative offer of the *tender* offer under consideration.

(2) Evaluation points awarded for preference:

Up to 100 minus W (see (1) above) tender evaluation points will be awarded for preference to *Bidders* who attain the BBBEE status level of contributor in accordance with the table below:

B-BBEE Status Level of Contributor	Number of Points where W = 90	Number of Points where W = 80
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-Compliant Contributor	0	0

15. **BRIBERY AND COMMUNICATION WITH COUNCILLORS / OFFICIALS**

(1) **Bribery**

No *Tenderer* shall offer, promise or give to any person or person connected with a *tender* or the awarding of a contract, any gratuity, bonus or discount etc, in connection with the obtaining of a contract.

(2) **Communication, Councillors and Officials**

A *Tenderer* shall not in any way communicate with a member of the *Municipality* or with any official of the *Municipality* on a question affecting any contract for the supply of goods or for any work, undertaking or services which is the subject of a *tender* during the period between the closing date for receipt of *tenders* and the dispatch of the written notification of the *Municipality's* decision on the award of the contract; provided that a *Tenderer* shall not hereby be precluded:

- (a) At the request of the Head: SCM Unit, or an authorized representative, from furnishing him with additional information or with a sample or specimen for testing purposes or otherwise from giving a demonstration so as to enable the recommendation to the Bid Committee on the award of the contract to be formulated;
- (b) From obtaining from the Head : SCM Unit, or an authorised representative, information as to the date upon which the award of the contract is likely to be made, or, after the decision upon the award has been made by the *Municipality* or any Committee to which the *Municipality* has delegated its powers, information as to the nature of the decision or such information as was publicly disclosed at the opening of *tenders* or from submitting to the Accounting Officer in writing any communication relating to their *tender* or the award of the contract or a request for leave to withdraw their *tender*; and
- (c) Provided further that nothing contained herein shall be construed so as to prevent information being sought and obtained from an Official in regard to any decision taken at an open Municipal meeting, or any Committee to which the *Municipality* has delegated its powers.

A contravention of subsection (1) and / or (2), or an attempt to contravene such subsection, shall be reported to the Accounting Officer, who may on receipt of such report disqualify the *tender* of the *Tenderer* concerned.

16. **NEGOTIATIONS WITH PREFERRED BIDDERS**

The *Municipality* reserves the right to invoke Regulation 24 of Municipal Finance Management Act if required.

- (1) The Accounting Officer may negotiate the final terms of a contract with *Bidders* identified through a competitive tendering process as preferred *Bidders*, provided that such negotiation:

- Does not allow any preferred *Tenderer* a second or unfair opportunity;
- Is not to the detriment of any other *Tenderer*; and
- Does not lead to a higher price than the *tender* as submitted.

- (2) Minutes of such negotiations must be kept for record purposes.
 (3) Such negotiation may be delegated by the Accounting Officer.

17. **CANCELLATION OF TENDER PROCESS**

The municipality is entitled to cancel the tender at any time before the award of a tender and the decision to cancel the tender shall be published in the same manner in which the original tender invitation was advertised. The Municipality shall, in no way, be liable for any damages whatsoever, including, without limitation, damages for loss of profit, in any way connected with the cancellation of this bid.

18. **ACCEPTANCE OF BID**

- (1) The *Municipality* does not bind itself to accept the lowest or any *tender*, and reserves the right to accept the whole or any part of a *tender* to place orders.
- (2) The *Municipality* reserves the right to accept more than one technically and contractually compliant *tender* for part or the whole of the contract and to place orders on the price and availability.
- (3) *Bidders* shall not bind the *Municipality* to any minimum quantity per order.
- (4) The successful *Tenderer* (s) shall be bound to provide any quantities stipulated in the specification.
- (5) Tenders will only be accepted on condition that:
 - (a) The *tender* is signed by a person authorised to sign on behalf of the *Tenderer* .
 - (b) A valid (at time of close of tenders), original, Tax Clearance Certificate is included with the *tender* submission, which has sufficient validity to ensure the process is adequately covered;
 - (c) A *Tenderer* who submitted their *tender* as a Joint Venture has included an acceptable Joint Venture Agreement and a B-BBEE Certificate pertaining to the Joint Venture with their *tender*.
- (6) Financial Standing: The Head: Supply Chain Management reserves the right to require *Bidders* to submit evidence that their financial standing is adequate to meet their obligations under the contract should they be successful.
- (7) Change of Ownership or Major Policy: Where it is known to a *Tenderer* that a change in ownership or major policy (of the tendering entity) will occur, or is likely to occur, during a specified contract period, the scope and effect thereof must be fully defined in a covering letter to be submitted with the *tender*.
- (8) Purchase of Goods From Other Sources: Nothing contained in this contract shall be held to restrain the *Municipality* from purchasing from persons other than the *Supplier*, any of the goods described or referred to in this contract, if it shall in its discretion think fit to do so.
- (9) Capability and Breach of Contract: Tenderers that do not have the capability of undertaking this enquiry in terms of the requirements of the contract or have been in breach of contract previously will not be considered.

19. **PAYMENT and FACTORING**

Payment will be as per the **Conditions of Contract**.

Payment will be made only to the *Supplier(s)*. Factoring arrangements will not be accepted.

20. **APPEALS**

In terms of Regulation 49 of the Municipal Supply Chain Management Regulations persons aggrieved by decisions or actions taken by the *Municipality*, may lodge an appeal within 14 days of the decision or action, in writing to the *Municipality*. The appeal (clearly setting out the reasons for the appeal) and queries with regard to decision of award are to be directed to the office of the City Manager, attention:

Ms. S. Pillay, P.O. Box 1394, Durban, 4000;
 eMail: Simone.Pillay@durban.gov.za.

SECTION 3: SPECIAL / ADDITIONAL CONDITIONS OF TENDER

3.1 SPECIAL CONDITIONS OF TENDER (SCT)

The **Standard Conditions of Tender** (Goods / Services) make several references to the **Special Conditions of Tender** (SCT) for details that apply specifically to this tender. The **Special Conditions of Tender** shall have precedence in the interpretation of any ambiguity or inconsistency between it and the **Standard Conditions of Tender**.

Each item below is cross-referenced to the clause in the **Standard Conditions of Tender** to which it mainly applies.

SCT 3(1) TENDER INFORMATION: General

The tender document comprises of a cover page and 111 pages. If an electronic version is downloaded from the internet the entire document is to be printed on A4 sized paper and appropriately bound.

SCT 3(2) TENDER INFORMATION: Obtaining Tender Documentation

Documents can be obtained either in electronic format, issued by the eThekweni Municipality:

- Electronically downloaded documentation is obtainable from the National Treasury's eTenders website or the eThekweni Municipality's Website. The entire document should be printed and suitably bound by the tenderer.

SCT 3(3) TENDER INFORMATION: Queries Relating to this Tender

General and Contractual Queries are to be directed to:

Nyaniso Mlilo; Tel: 031-311-9422; email: Nyaniso.mlilo@durban.gov.za

Technical Queries are to be directed to:

Thulebona. Memela; Tel: 031-311-9850; email: Thulebona.Memela@durban.gov.za

SCT 3(4) TENDER INFORMATION: Briefing Session

There will be no clarification meeting. Question must be emailed by 23 September 2022 and responses will be published on the Municipality website by 29 September 2022

SCT 3(5) TENDER INFORMATION: Closing Date and Delivery of Tender Submissions

Sealed Tenders, addressed to the City Manager and marked with the Tender Number, are to be placed in the Tender Box **Choose an item**. (and not any other municipal department), no later than: **Friday, 07 October 2022 at 11:00am**.

SCT 3(6) TENDER INFORMATION: Tender Validity and Withdrawal of Tenders

Tenders must hold good until 16:00 of the **12th week** following the date on which tenders are opened.

SCT 4(6) RETURNABLE SCHEDULES, FORMS, CERTIFICATES

The additional returnable schedules, forms, which can be found in Section 10, are:

3.2 **ADDITIONAL CONDITIONS OF TENDER (ACT)**

ACT 1 **ELIGIBILITY – CSD REGISTRATION**

Tenderers are required to be registered on the National Treasury Central Supplier Database (CSD) as a service provider. In the case of a Joint Venture, this requirement will apply individually to each party in the Joint Venture. Tenderers not so registered, at time of closing of tenders, will not be eligible to submit tenders.

The Tenderer's CSD Supplier Number (starting with "MAAA") is to be provided in the relevant portions of the tender submission.

Tenderers who wish to register on the CSD may do so via web address <https://secure.csd.gov.za>.

ACT 2.

SCHEDULE A - MANDATORY REQUIREMENTS

TABLE 1.Functional Requirements

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The system is mainly used for storing videos and pictures.		
2	At least two 64-bit 8-core processors with a clock rate of at least 2.0 GHz shall be configured.		
3	The memory shall be greater than or equal to 48 GB and use specifications higher than DDR4. A single device shall support a maximum of 24 disks (up to 64 GB per disk) to form 12 DDR4 channels.		
4	The device shall be installed in a 19-inch standard rack. The device shall adopt cable-free modular design with independent main control module, hot-swappable hard disk, and power module.		
5	A single device shall support at least 34 enterprise-level disks, with each having a minimum capacity of 16 TB.		
6	The system shall support hot swap and online replacement of faulty disks.		
7	The system shall provide two GE network ports and two 10 GE optical ports.		
8	The system shall support power modules in 1+1 redundancy mode and independent maintenance of power modules		
9	A single device shall support connection to at least 3024 cameras. The system shall support at least 1024-channel storage, 1024-channel forwarding, and 512-channel recording at the same time		
10	Two independent metadata disks (HDD of 1200 GB) shall be configured to form RAID 1.		
11	The system shall allow SATA hard disks to be installed and support hot swap and online replacement of faulty disks.		

TABLE 2. Specifications of Video Analytics Requirements

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	At least two 64-bit 24-core processors with a clock rate of at least 2.2 GHz shall be configured.		
2	The memory shall be greater than or equal to 512 GB and use DDR4 or higher specifications.		
3	The device shall be installed in a 19-inch standard rack. The device shall adopt cable-free modular design with independent main control module, hot-swappable disk, and power module.		
4	The system shall support power modules in 1+1 redundancy mode and independent maintenance of power modules.		
5	The system shall provide two GE network ports and two 10 GE optical ports. Expansion is supported.		
6	A single device shall support at least two types of accelerator cards		
7	A single device shall support at most 6 intelligent analysis accelerator cards.		
8	A single device shall support at least 144-channel 1080p video-based behaviour analysis		
9	A single device shall support license plate recognition		
10	The system shall support recognition of vehicle color, type, logo, and license plate color.		
11	The system shall support exact and fuzzy search of vehicles by license plate.		

TABLE 3. Specifications of Edge Storage and Analysis Device

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Applicable to small-scale campus scenarios and supports connection of up to 64 cameras.		
2	At Support 64-channel network video access, 320 Mbit/s video input		
3	At least 4 TOPS computing power		
4	Support 16 channels of all-channel image-based intelligent analysis		
5	Supports SafeVideo+ technology, ensuring that data is still readable and writable in remaining normal disks upon a RAID5 failure		
6	Support Video-based target analysis, Behaviour analysis and Video-based vehicle analysis		
7	4-channel alarm input, 2-channel alarm output		

TABLE 4. Specifications of All Flash Array for Production Data Storage

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Convergence of SAN and NAS (no additional NAS gateway required), NAS protocol (including NFS and CIFS), IP SAN protocol, and FC SAN protocol are configured.		
2	Active-active (A-A) architecture and load balancing		

	Storage with asymmetrical logical unit access (ALUA) architecture or active/passive controllers will not be accepted		
3	Supports controller expansion (up to ≥ 8 controllers)		
4	The total in-system level-1 cache capacity is ≥ 512 GB, and the level-1 cache capacity of any controller is ≥ 256 GB (excluding any performance acceleration module, FlashCache, PAM card, SSD cache, and SCM)		
5	The total number of physical cores of the controller processor is ≥ 48		
6	Full-series E2E NVMe architecture: The front end supports NVMe over FC or RDMA, and the back end supports NVMe over RDMA		
7	Support gateway-free active-active SAN and NAS architecture		
8	Supports RAID 5, RAID 6, and RAID-TP. RAID-TP is able to tolerate simultaneous failure of three disks. Product brochures or screenshots of the official website are required.		

TABLE 5. Specifications of Hybrid Disk Array for Video & Data Backup Storage

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	SAN and NAS unified storage (no additional NAS gateway required), NAS protocols (including NFS and CIFS), IP SAN, and FC SAN protocols are configured.		
2	Active-active (A-A) architecture, load balancing		
3	The total level-1 cache capacity in the system is ≥ 384 GB, and the level-1 cache capacity of any controller is ≥ 192 GB (excluding any performance acceleration module, FlashCache, PAM, SSD Cache, or SCM).		
4	$\geq 1,200$ slots for dual controllers		
5	Gateway-free A-A solution for both SAN and NAS		
6	Supports controller expansion (up to ≥ 8 controllers)		
7	When two controllers are configured. The total number of cores of the controller processors is greater than or equal to 48.		

TABLE 6. Specifications of Storage O&M Platform

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	One set of software supports SLA customization, and automatic provisioning, O&M, and troubleshooting		
2	Assistant automation based on administrator customization For Storage Resource: The administrator specifies storage devices and storage pools, and customizes LUN parameters (basic LUN attributes, QoS policies, and resource optimization policies) and zoning policies For SAN Switch Resource: The administrator creates an alias to create a zone (port zoning and WWN zoning are supported)		
3	E2E alarm and event management (alarm masking, correlation, aggregation; event level confirmation/clear/modification; alarm and event clearance suggestions/remarks/marks; associated object alarm)		
4	Performance threshold and disk health check		
5	Capacity forecasting for storage devices, storage pool and service levels in the next three months		
6	Problem analysis about E2E topology (Automatic SAN topology drawing based on hosts, volumes, and storage devices),		

	performance correlation (Performance and alarm correlation analysis of multiple objects and indicators on the SAN)		
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TABLE 7. Specifications of Application Server

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Server (2 x 2.1 Hz/10Core or above CPU, 2*32G memory or above, at least 2 x 600GB 10K SAS, at least support 0, 1,10 RAID, at least 2 x GE + 2 x 10GE network cards, redundant power supply)		

TABLE 8. Specifications of O&M Platform for Server

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Provides remote and centralized management of remote sites. One set of management software can manage up to 500 sites. Multiple cascaded sets of management software can manage up to 20,000 sites		
2	The centralized management software must supports basic operations on switches, routers, firewalls, storage devices, servers, UPSs, virtualization resources, and Docker resources		
3	Management software provide real-time alarm monitoring, including the alarm severity, name, device, description, location, source, counts, time, acknowledgment, and handling suggestions		
4	Displays sites on a geographic information system (GIS) map. Users can select one or more sites to view information		
5	Supports the deployment of applications using VM templates and software packages and allows template orchestration by dragging elements on GUIs		
6	Solution must include at least 1 physical server in the cabinet for delivery		

TABLE 9. Specifications of Dedicates All Flash Backup Storage

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Active-active architecture, load balancing: Nodes and controllers work in active-active mode, balancing service loads among all controllers.		
2	Zero service interruption: If one out of two controllers on a node fails, backup services are switched to the normal controller within seconds, ensuring zero service interruption.		
3	Controllers can be expanded. Number of controllers supported ≥ 4		
4	Share protocols such as NFS V3/V4.1 and SMB 2.0/3.0; Fibre Channel and iSCSI protocols; NDMP		
5	The total cache capacity in the system is greater than or equal to 512 GB, and the cache capacity of any controller is greater than or equal to 256 GB (excluding any performance acceleration module, FlashCache, PAM, SSD Cache, or SCM).		

6	Front-end host ports type: 8/16/32 Gbit/s Fibre Channel, 10GE, 25GE, 40GE, 100GE		
7	SAS SSD. Enterprise-level SSDs (non-SATA SSDs) are used.		
8	1. RAID 6 and RAID-TP are supported, tolerating simultaneous failure of three disks. 2. Three disks in a RAID group are allowed to fail simultaneously without any data loss or service interruption. 3. It takes only 30 minutes to reconstruct 1 TB data.		
9	Deduplication and compression are supported.		
10	The maximum physical bandwidth of each node reaches 33 TB/hour.		
11	SMB 2.0 and SMB 3.0 failover functions are supported, ensuring service continuity in the event of controller failure.		

TABLE 10. Specifications of Off Premise Infrastructure As A Service (IAAS) Cloud Platform

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The off premise cloud platform must provide Infrastructure As A Service and be designed with a High Availability (HA) architecture, minimizing downtime due to hardware and/or software failures.		
2	The off premise cloud platform must comply the data security related standards as below: a) ISO 27001:2013 - Information security management b) ISO 27018:2019 - Personnel data protection c) ISO 22301:2012 - Business continuity system standard d) PCI DSS Certification -Payment Card Industry Data Security standards e) TL 9000- Quality management system requirements f) CSA STAR -Cloud security (Proof of Compliance required)		
3	The off premise cloud platform must support data redundancy in case of disk failure in an object storage component. The Object Storage must provide APIs and clients based on POSIX file semantics. Object Storage must support Hot storage, warm storage and cold storage for archiving. Particularly for achieving, the proposed object storage for achieving can be read directly. And the bandwidth of uploading single-stream large objects upload should be not less than 2.4 Gbit/s. 99.999999999% (12 nines) of data durability are required for Object Storage.		
4	The off premise cloud platform must be deployed in a virtual server environment, providing the capacity to enable the performance noted in this specification. Operation System of the VM on Cloud can be reinstalled or switched to another Operation System on the web portal with clicks.		
5	Image management should be provided for the virtual machines on Cloud and support importing different images with vhd,vmrk,qcow2,qcow,qed,vhdx,raw formats so that existed system could be migrated and integrated into the new platform.		
6	Backup service should be provided within the off premise cloud platform. The backup service should support both Bare metal server and Virtual machines on Cloud and support hour-level backup for these servers. This must be provided as part of the		

	Cloud solution and costed accordingly.		
7	A storage level replication service should be provided for the disaster recovery solution within off premise cloud platform. This service must support virtual machines within the cloud environment. There should not be any plug-ins or hardware requirement to realize disaster recovery feature. MAC address or IP address of virtual machines should remained the same when doing switchover to disaster recovery site on the cloud management portal.		
8	The off premise cloud platform must be located within SA borders, and data must not leave the SA border		

TABLE 11. Specifications of Artificial Intelligent Contact Center (AICC) as a Service

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The Artificial Intelligence Contact Center (AICC) can be deployed in a public cloud environment.		
2	A tenant administrator can view the statistics on valid outbound call tasks.		
3	Web channel information is configured for customers to connect to the server through the H5 client.		
4	When a customer initiates a conversation and the agent is in the Busy state, the system displays a message indicating that the customer is in a queue. The customer can manually cancel the queuing function.		
5	The system provides several agent allocation modes, such as best skill matching, average allocation, priority of agents with more skills, and allocation by skill level. Ensure that each call is allocated to the most appropriate agent. Ensure that the calls with the same skill type and level requirements can be served in the first come first served mode. Agents of the same skill type and level are supported. Incoming calls are allocated to agents who are idle for the longest time.		
6	Outbound call tasks, including predicted, intelligent, automatic, previewed, and manual outbound calls, can be maintained to perform telemarketing.		
7	A user can dial the access number of a specified call center. Based on the called number, digit collection information, and user information, the system allocates the voice call to the automatic IVR or an idle agent who can process the voice call according to the call routing policy configured in the call center. If the IVR system provides services for subscribers, the system plays a voice to instruct the subscribers to handle the services after the IVR system answers the calls. If an agent provides services for a user, the agent can provide the services for the user after answering a call.		
8	Based on the characteristics of call surges in the call center, the system provides the capability of queuing calls. Calls that cannot be served immediately are queued. Calls with different skill requirements are queued in different queues. The calls in different queues can be served according to the queue parameters set by the system.		

9	The IVR system implements automatic voice services. The IVR system is similar to a running platform of an automatic service flow. After a call is connected, the IVR system automatically plays a voice prompt to implement various complicated services.		
10	Agent recording supports conference recording. The conference recording function is to add agents and users to a conference when agents and users talk with each other by using the conference resources of the ACD. Then the system records voices through the conference resources. Conference recording files can be in VOX or WAV format.		
11	The system supports the transfer of CDR files to enterprises through file transfer. Enterprises can import CDR files to the database and perform secondary development based on the CDR information.		
12	<p>The agent is a functional entity that implements multiple services through the interaction between agents and the system. The agent provides manual services for call center users. The system provides open APIs for basic agent functions to implement the following functions:</p> <ul style="list-style-type: none"> ● Sign-in ● Logout ● Answer ● Release ● Busy/Idle ● Rest ● Internal call ● Internal help ● Call transfer ● Holding/Unholding a Call ● Three-party call ● Transfer-out ● Outgoing call ● Entering/Exiting the Working State ● Setting Call Data ● Recording download interface 		
13	<p>The system opens the interfaces of agent connection, mobile agent, and system monitoring capabilities. The interfaces facilitate enterprise customers in different industries to develop upper-level service systems based on the AICC to meet customers' requirements for different service scenarios. The CC-Gateway is the gateway for agents to sign in to the CTI platform and perform call operations. The agent framework of the AICC and the agent system of third-party systems connect to the CTI platform using the CC-Gateway. The RESTful interfaces provided by the CC-Gateway can help third-party systems to rapidly construct the basic functions of the call center without setting up platform devices. This reduces the operations cost of the call center. Third-party systems can implement the following functions using integrated interfaces:</p> <ul style="list-style-type: none"> ● Agent state control, such as setting the agent state to busy, idle, or rest ● Agent call control, such as call answering, call transfer, three-party call, and help-seeking ● Recording and playback control ● Real-time inspection functions, such as insertion, interception, and listening ● Call data query ● Real-time inspection ● Queue information query 		

	● Sending and receiving multimedia messages		
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TABLE 12. Specifications of Indoor Dome Cameras

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Image Sensor: 1/2.7" 2-megapixel progressive scan CMOS		
2	Effective Pixels: 1920(H)*1080(V)		
3	Minimum Illumination: Color: 0.002 lux (F1.2, AGC ON, 1/30s shutter speed); B/W: 0.0005lux (F1.2, AGC ON, 1/30s shutter speed)		
4	WDR: 120 dB		
5	Focal Length: 2.8-12mm		
6	Maximum Radiation Distance: 30 m		
7	Video Encoding Format: H.265/H.264/MJPEG		
8	Behaviour Analysis: Fast movement detection, tripwire crossing detection, intrusion detection, area entry/exit detection, and loitering detection		
9	Computing power: 1 TOPS		
10	Memory: DDR3, 256MB		
11	Flash: 256MB		
12	Ingress Protection Rating: IP67		
13	Surge Protection Rating: 4kV		

TABLE 13. Specifications of 5MP Indoor Dome Cameras

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Image Sensor: 1/2.7" CMOS/5MP 2560(H)*1920(V)		
2	Min illumination: Color: 0.005 lux (F1.6, AGC ON); B/W: 0.0025 lux (F1.6, AGC ON) or 0 lux (infrared illuminator enabled)		
3	WDR: 120 dB		
4	Focal Length: 2.8-12mm		
5	Maximum Radiation Distance: 30 m		
6	Video Encoding Format: H.265/H.264/MJPEG		
7	Behaviour Analysis: Fast movement detection, tripwire crossing detection, intrusion detection, area entry/exit detection, and loitering detection		
8	Computing power: 1 TOPS		
9	Memory: DDR3, 1GBMB		
10	Flash: 512MB		
11	Ingress Protection Rating: IP67		
12	Surge Protection Rating: 4kV		

TABLE 14. Specifications of Outdoor Bullet Camera

No.	Purchaser's requirements	Bidder's offer	Compliance statement
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1	Image Sensor: 1/2.7" 2-megapixel progressive scan CMOS		
2	Effective Pixels: 1920(H)*1080(V)		
3	Minimum Illumination: Color: 0.005 lux (F1.2, AGC ON, 1/30s shutter speed); B/W: 0.0025 lux (F1.2, AGC ON, 1/30s shutter speed)		
4	WDR: 120 dB		
5	Focal Length: 2.8-12mm		
6	Maximum Radiation Distance: 50 m		
7	Video Encoding Format: H.265/H.264/MJPEG		
8	Behavior Analysis: Fast movement detection, tripwire crossing detection, intrusion detection, area entry/exit detection, and loitering detection		
9	Computing power: 1 TOPS		
10	Memory: DDR3, 256MB * 2		
11	Flash: 512MB		
12	Ingress Protection Rating: IP67		
13	Surge Protection Rating: 4kV		

TABLE 15. Specifications of 5MP Outdoor Bullet Cameras

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Image Sensor: 1/2.7" CMOS/5MP 2560(H)*1920(V)		
2	Min illumination: Color: 0.005 lux (F1.6, AGC ON); B/W: 0.0025 lux (F1.6, AGC ON) or 0lux (infrared illuminator enabled)		
3	WDR: 120 dB		
4	Focal Length: 2.8-12mm		
5	Maximum Radiation Distance: 50 m		
6	Video Encoding Format: H.265/H.264/MJPEG		
7	Behaviour Analysis: Fast movement detection, tripwire crossing detection, intrusion detection, area entry/exit detection, and loitering detection		
8	Computing power: 1 TOPS		
9	Memory: DDR4, 1GBMB		
10	Flash: 512MB		
11	Ingress Protection Rating: IP67		
12	Surge Protection Rating: 4kV		

TABLE 16. Specifications of Outdoor Bullet Camera (Long Range)

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Image Sensor: 1/2.7" 2-megapixel progressive scan CMOS		
2	Effective Pixels: 1920(H)*1080(V)		
3	Minimum Illumination: Color: 0.005 lux (F1.2, AGC ON, 1/30s shutter speed); B/W: 0.0025 lux (F1.2, AGC ON, 1/30s shutter speed)		
4	WDR: 120 dB		
5	Focal Length: 7-35mm		

6	Video Encoding Format: H.265/H.264/MJPEG		
7	Behavior Analysis: Fast movement detection, tripwire crossing detection, intrusion detection, area entry/exit detection, and loitering detection		
8	Computing power: 1 TOPS		
9	Memory: DDR3, 256MB * 2		
10	Flash: 256MB		
11	Ingress Protection Rating: IP67		
12	Surge Protection Rating: 4kV		

TABLE 17. Specifications of Anti-Corrosion Bullet Camera

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Image Sensor: 1/1.8" 2-megapixel progressive scan CMOS		
2	Effective Pixels: 1920(H)*1080(V)		
3	Minimum Illumination: Color: 0.001 lux (F1.2, AGC ON, 1/30s shutter speed); B/W: 0.0001 lux (F1.2, AGC ON, 1/30s shutter speed) or 0 lux (infrared illuminator enabled)		
4	Class D anti-corrosion		
5	Focal Length: 8-32mm		
6	Maximum Radiation Distance: 50 m		
7	Video Encoding Format: H.265/H.264/MJPEG		
8	Behaviour Analysis: Fast movement detection, tripwire crossing detection, intrusion detection, area entry/exit detection, and loitering detection		
9	Computing power: 1 TOPS		
10	Memory: DDR3, 0.5GB		
11	Flash: 512MB		
12	Ingress Protection Rating: IP67		
13	Surge Protection Rating: 4kV		

TABLE 18. Specifications of Outdoor High Speed PTZ Dome Camera

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Image Sensor: 1/2.7" 2-megapixel progressive scan CMOS		
2	Effective Pixels: 1920(H)*1080(V)		
3	Minimum Illumination: Color: 0.005 lux (F1.2, AGC ON, 1/30s shutter speed); B/W: 0.0005 lux (F1.2, AGC ON, 1/30s shutter speed)		
4	WDR: 120 Db		
5	Focal Length: 5-165mm		
6	Maximum Radiation Distance: 200 m		
7	Zoom: 33x optical zoom and 16x digital zoom		
8	Frame Rate: 60/50/30/25fps		
9	Video Encoding Format: H.265/H.264/MJPEG		
10	Behaviour Analysis: Fast movement detection, tripwire crossing detection, intrusion detection, area entry/exit detection, and loitering detection		
11	Computing power: 1 TOPS		
12	Memory: DDR3, 512MB		

13	Flash: 256MB		
14	Ingress Protection Rating: IP66		
15	Surge Protection Rating: 6kV		

TABLE 19. Specifications of Anti-Corrosion IR PTZ Dome Camera

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Image Sensor: 1/2.7" 2-megapixel progressive scan CMOS		
2	Effective Pixels: 1920(H)*1080(V)		
3	Minimum Illumination: Color: 0.005 lux (F1.2, AGC ON, 1/30s shutter speed); B/W: 0.0005 lux (F1.2, AGC ON, 1/30s shutter speed)		
4	Class D anti-corrosion		
5	Focal Length: 5-165mm		
6	Maximum Radiation Distance: 200 m		
7	Zoom: 33x optical zoom and 16x digital zoom		
8	Video Encoding Format: H.265/H.264/MJPEG		
9	Behaviour Analysis: Fast movement detection, tripwire crossing detection, intrusion detection, area entry/exit detection, and loitering detection		
10	Computing power: 1 TOPS		
11	Memory: DDR3, 512MB		
12	Flash: 256MB		
13	Ingress Protection Rating: IP66		
14	Surge Protection Rating: 6kV		

TABLE 20. Specifications of 4K IR PTZ Dome Camera

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Image Sensor: 1/1.8" CMOS/8MP 3840(H)*2160(V)		
2	Minimum Illumination: Color: 0.005 lux (F1.2, AGC ON, 1/30s shutter speed); B/W: 0.0005 lux (F1.2, AGC ON, 1/30s shutter speed)		
3	Focal Length: 6-240mm		
4	Maximum Radiation Distance: 250 m		
5	Zoom: 33x optical zoom and 16x digital zoom		
6	Video Encoding Format: H.265/H.264/MJPEG		
7	Behaviour Analysis: Fast movement detection, tripwire crossing detection, intrusion detection, area entry/exit detection, and loitering detection		
8	Computing power: 2 TOPS		
9	Memory: DDR4 2.0 GB		
10	SPI NAND FLASH 512.0 MB		
11	IK10		
12	Surge Protection Rating: 6kV		

TABLE 21. Specifications of Thermal PTZ Camera

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Image Sensor: 1/1.8" 4-megapixel progressive scan CMOS		
2	Minimum Illumination: Color: 0.001 lux (F1.2, AGC ON, 1/30s shutter speed); B/W: 0.0002 lux (F1.2, AGC ON, 1/30s shutter speed)		
3	2 TOPS computing power		
4	Supports backlight adaptation, overcast adaptation, and speed adaptation		
5	Focal Length: 6.25-300mm		
6	Focal Length: 75 mm		
7	Zoom: 33x optical zoom and 16x digital zoom		
8	Rotation angle: Pan: 0° to 360°; Tilt: -40° to +90°		
9	Pan speed: Manual: 0.1–100°/s Speed for moving to the preset position: 100°/s		
10	Tilt speed: Manual: 0.1–40°/s Speed for moving to the preset position: 40°/s		
11	120 dB super wide dynamic range (WDR), ensuring that both foreground and background objects are clearly identified in environments with sharp light contrast		
12	Thermal sensor type: Uncooled vanadium oxide (VOx) thermal sensor technology		
13	Thermal sensitivity: $\leq 50\text{mK}@25^{\circ}\text{C}, \text{F}\#1.0$		
14	10 kV surge protection		

TABLE 22. Specifications of Siren

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	High brightness, alarm sound and selectable tones		
2	PC housing, Fresnel Type design, high transmittance, anti-UV, anti-aging.		
3	Both xenon light tube and Led light tube are available		
4	Several mounting styles for selections, such as screws fixing, magnetic fixing or flange type		
5	Several tones		

TABLE 23. Specifications of Outdoor Supporting CCTV Pole

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The vendor should provide a pole for the site, all components can be mounted on it, including cameras, power system, network devices, and antennas and so on. And the pole should provide space for internal cabling.		
2	The material of the pole: carbon structural steel Q235b. The pole surface treatment: hot-zinc coated and plastic spraying. Wind resistance level: 40m/s or 144km/h.		
3	The pole is at least 6 meters high, a single cantilever can support 3 bullet cameras and 1 dome camera mounted on it.		
4	The pole should integrate with lightning rod, enhance the		

	reliability of the site.		
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TABLE 24. Specifications of Outdoor Integrated Power and Network Services

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The vendor should provide a highly integrated or high efficient outdoor solution with power modular and network modular for the IVS site.		
2	The input frequency range of power modular shall support 45Hz~65Hz, rated frequency compatible with 50Hz/60Hz.		
3	The operating voltage range of power modular shall support 85Vac~290Vac, the grid input mode compatible with 220Vac single-phase.		
4	The power modular can provide multi-mode voltage output, such as 12Vdc/24Vac/PoE/POE+/PoE++, for different kinds of power load.		
5	The protecting level of power modular should be greater than or equal to IP55, to mean wind, sand and other severe environment application.		
6	The power system should can be pole-mounted and wall-mounted.		
7	The power system should use lithium battery as the backup energy. The battery will be not less than 50Ah. Should be blade design and the protecting level should be greater than or equal to IP55. Life Cycle not less than 1200 times @100% DOD, 35°C.		
8	The power system can operate properly in the temperature range of -40°C to 55°C.		
9	Network devices should be pre-integrated in the power system.		
10	The power system should have surge protection (AC input SPD: 20kA/20kA 8/20μs), and the output terminals should also have surge protection.		
11	The power system should provide at least 1 northbound RS485 terminal. The power system should have protected functions as follows: a) Input overvoltage protection and input under voltage protection. b) Input overcurrent protection. c) Output overvoltage protection. d) Output short circuit protection. e) Output current limiting protection. f) Over temperature protection.		
12	The power modular could be power supplied by solar as well. MPPT tracing precision $\geq 98\%$		
13	Two pcs of solar panel needed. Each panel $\geq 375w$		

TABLE 25. Specifications of Core Switch

No.	Purchaser's requirements	Bidder's offer	Compliance statement
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1	Forwarding Performance support 43,200 Mpps		
2	Switching Capacity support 57.6 Tbit/s		
3	A maximum of 288 x 100GE, 288 x 40GE, 480 x 25GE or 576 x 10GE ports		
4	12 slots for line cards, 4 slots for SFUs, 2 slots for MPUs, and 6 slots for power modules		
5	Support IPv4 dynamic routing protocols such as RIP, OSPF, IS-IS, and BGP		
6	Relative humidity: 5% to 95% (non-condensing)		

TABLE 26. Specifications of Aggregation Switch

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	24 x 10 Gig SFP+, 6 x 40/100 Gig QSFP28		
2	Dual pluggable power modules, 1+1 power backup		
3	Switching capacity: 1.68Tbps/2.4Tbps		
4	Support IPv4 dynamic routing protocols such as RIP, OSPF, IS-IS, and BGP		

TABLE 27. Specifications of Access Switch

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1.0	8-Port Switch		
1	8 x 10/100/1000Base-T POE+ ports, 4 x 10 GE SFP ports		
2	AC power supply		
3	Forwarding performance: 72 Mpps		
4	Switching capacity : 96 Gbps/336 Gbps		
5	Support IPv4 dynamic routing protocols such as OSPF		
2.0	24-Port Switch		
1	24 x 10/100/1000Base-T POE+ ports, 4 x 10 GE SFP ports		
2	AC power supply		
3	Forwarding performance: 96 Mpps		
4	Switching capacity: 128 Gbps/336 Gbps		
5	Support IPv4 dynamic routing protocols such as OSPF		
3.0	48-Port Switch		
1	48 x 10/100/1000Base-T POE+ ports, 4 x 10 GE SFP ports		
2	AC power supply		
3	Forwarding performance: 132 Mpps		
4	Switching capacity: 176 Gbps/432 Gbps		
5	Support IPv4 dynamic routing protocols such as OSPF		

4.0	Backhaul Industry Switch		
1	Switching Capacity: 168 Gbit/s		
2	Forwarding Performance: 41.7 mpps		
3	Ports: 8 x 10/100/1000Base-T Ethernet ports and 2 x 10 GE SFP+ ports		
4	Operating Temperature: –40°C to +75°C		
5	IP Rating: IP55		

TABLE 28. Specifications of Data Center Spine

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Support 16 slot line card, provide up to 576 x 100GE, 576 x 40GE, 2,304 x 25GE, or 2,304 x 10GE line-rate ports		
2	Switching capacity 173/1548Tbit/s		
3	Forwarding rate 45,120 Mpps		
4	Switching fabric module slots: 6		
5	Support Ansible automatic configuration		
6	Support IPv6 VXLAN over IPv4		

TABLE 29. Specifications of Data Center Leaf

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1.0	Data Center Leaf (SFP+ Port)		
1	Support 48 x 10GE SFP+ ports, 6 x 40/100GE QSFP28 ports.		
2	Support M-LAG system, M-LAG supports dual-homing to Ethernet, VXLAN, and IP networks, allowing for flexible networking		
3	Switching capacity 2.16Tbps		
4	Forwarding performance 940Mpps		
5	Supports IPv4 dynamic routing protocols, such as RIP, OSPF, IS-IS, and BGP.		
2.0	Data Center Leaf (Base-T Port)		
1	Support 48 x 10GE Base-T ports, 6 x 40/100GE QSFP28 ports.		
2	Support M-LAG system, M-LAG supports dual-homing to Ethernet, VXLAN, and IP networks, allowing for flexible networking		
3	Switching capacity 2.16Tbps		
4	Forwarding performance 940Mpps		
5	Supports IPv4 dynamic routing protocols, such as RIP, OSPF, IS-IS, and BGP.		

TABLE 30. Specifications of Access Point

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1.0	Indoor Access Point		
1	Radio Protocols: 802.11a/b/g/n/ac/ac wave2/ax		
2	MIMO: Spatial Streams: 2.4 GHz: 4x4:4; 5 GHz: 4x4:4		
3	Built-in dynamic-zoom smart antennas		
4	Support independent radio for scanning		
5	at least one 1G/10GE SFP+ interface		
6	Support Operating temperature: -10°C ~ +50°C.		
2.0	Outdoor Access Point		
1	Radio Protocols: 802.11a/b/g/n/ac/ac wave2/ax		
2	MIMO: Spatial Streams: 2.4 GHz: 4 x 4:4, 5 GHz: 4 x 4:4		
3	Built-in Smart Antennas		
4	at least one 10GE SFP+ interface		
5	Support Operating temperature: -40°C ~ +65°C		
6	Support IP68 waterproof and dustproof and 6kV surge protection capability of Ethernet interface		

TABLE 31. Specifications of Wireless Controller

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1.0	Big Campus Wireless Controller		
1	12 x GE + 12 x 10 GE + 2 x 40 GE (including 1 x 40 GE and 4 x 10 GE, which are mutually exclusive)		
2	Management of up to 2K Access Point.		
3	Forwarding Capability 120 Gbit/s(direct forwarding) 60 Gbit/s(tunnel forwarding)		
4	Maximum Number of Access Users: 32K		
5	Support IPv6 dynamic routing protocols, including OSPFv3 and BGP4+		
6	AC Active/Standby Mode: 1 + 1 HSB or N + 1 backup		
2.0	Small Campus Wireless Controller		
1	Provides 2 x 10GE optical interfaces and 10 x GE electrical interfaces		
2	Management of up to 256 Access Point.		
3	Forwarding Capability 10 Gbit/s		
4	Maximum Number of Access Users: 4K		
5	Support IPv6 dynamic routing protocols, including OSPFv3 and BGP4+		

6	AC Active/Standby Mode: 1 + 1 HSB or N + 1 backup		
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TABLE 32. Specifications of Router

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1.0	P Router		
1	Switching Capacity: 2.4 Tbit/s		
2	Forwarding Performance: 453 Mpps		
3	Max. Capacity of a Board: 200 Gbit/s		
4	Support height(U) no more than 3U		
5	Support long term Operating temperature -20℃~55℃		
6	Support 100GE/50GE/40GE/25GE/ 10GE/GE interface		
2.0	PE Router		
1	Switching Capacity: 352 Gbit/s		
2	Forwarding Performance: 72 Mpps		
3	Capacity Density (G/U): 176		
4	Power Supply Module: 1+1 (DC)		
5	Fan Module: 3		
3.0	Big Branch Router		
1	Forwarding Performance: 12 Gbit/s		
2	IPsec Performance (IMIX): 7.5 Gbit/s		
3	SIC Slots: 4, support 5G-SIC		
4	1*RJ45 Console Port		
5	Support Hot Swapping		
4.0	Small Branch Router		
1	Forwarding Performance: 2 Gbit/s		
2	IPsec Performance (IMIX): 2 Gbit/s		
3	SIC Slots: 4, support 5G-SIC		
4	Fixed WAN Ports: 2 x GE RJ45 and 2 x GE SFP Fixed LAN Ports: 2 x GE SFP and 3 x GE RJ45		
5	Support Hot Swapping		

TABLE 33. Specifications of Platform

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	A Cloud-based Platform		
2	Support basic services, management, control, and analysis.		
3	Support SD-WAN Convergent Management		
4	Support Multi-tenant Management		

5	Support User Access Authentication, such as 802.1X, portal, SMS and social media		
6	Capability Openness, provide 170+ northbound RESTful APIs for user management, topology management, access authentication, service configuration, and performance monitoring		

TABLE 34. Specifications of Optical Transceiver

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Optical Transceiver,SFP+,10G,Multi-mode Module(850nm,0.3km,LC)		
2	Optical Transceiver,SFP+,10G,Single-mode Module(1310nm,10km,LC)		
3	40GBASE-LR4 optical transceiver, QSFP+, 40G, single-mode module (1310nm, 10km, LC)		
4	40GBase-SDLC Optical Transceiver,QSFP+,40G,Multi-mode(850nm,PAM4,0.1km-OM3,0.15km-OM4,LC)		
5	100GBase-LR4 Optical Transceiver,QSFP28,100G,Single-mode module (1310nm,10km,LC)		
6	100GBase-4WDM-40 Optical Transceiver,QSFP28,100G,Single-mode module (1310nm,40km,LC)		
7	Active Optical Cable ,QSFP28,100G,(850nm,10m,AOC)		

TABLE 35. Specifications of Access Control

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1.0	Multi-Security Management Platform		
1	Support Personnel management subsystem, Access control subsystem, Channel gate management, visitor management subsystem.		
2	Server Configuration, 8*2.5inch HDD Chassis, With 2*GE and 2*10GE SFP+		
2.0	Side Swing Barrier		
1	Long service life: 10 million rotations		
2	Operation: stable, low noise and fast speed		
3	Anti-pinch: 10 pairs of infrared sensors, strong anti-trailing ability		
4	External connection: integration of MF card reader and face recognition collector to realize the pass of card verification and face recognition		
5	Safety: When fire alarm, the power will automatically open the gate		
3.0	Central Swing Barrier		
1	Long service life: 10 million rotations		

2	Operation: stable, low noise and fast speed		
3	Anti-pinch: 10 pairs of infrared sensors, strong anti-trailing ability		
4	External connection: integration of MF card reader and face recognition collector to realize the pass of card verification and face recognition		
5	Safety: When fire alarm, the power will automatically open the gate		
4.0 Face Pad for Personnel Access			
1	Algorithm: Support 1 TOPS computing power		
2	Face recognition speed: 0.2 s per face		
3	Face: 1:N face recognition, front-end recognition supports 30,000 faces; and this terminal can support that dock with a face recognition server to realise 200,000 faces;		
4	It supports face recognition in a wide range, and can recognize faces within 0.3-2m from the device		
5.0 Face Pad for Access Control			
1	Detection method: live detection, and strong anti-counterfeiting ability		
2	Multiple communication methods: WIFI,TCP/IP, RS485, Wiegand, relay		
3	Angle: Support the maximum 30 degrees angle recognition		
4	Wide operating temperature range: 0°C~45°C		
6.0 Face Pad for Face Registration			
1	Face: 1:N face recognition, front-end recognition supports 30,000 faces; and this terminal can support that dock with a face recognition server to realise 200,000 faces;		
2	It supports face recognition in a wide range, and can recognize faces within 0.3-2m from the device		
3	It adopts low-power design, which is more green and energy-saving. When no one uses it, it can sleep automatically, and the power consumption during sleep is less than 5W. When someone needs to use it, the device can wake up quickly and efficiently.		
4	Screen: 8-inch IPS HD screen		
7.0 MF Card Reader			
1	Design: beautiful appearance, high-end grade, with LED indicator		
2	Function: pure RF card reader, support RS485 communication, support MF card S50 S70		
3	Sound: buzzer		
4	Protection: IP65		
8.0 MF card			
1	Identification distance: 20MM-50MM		
2	The surface effect of the card: glossy (matte side optional)		
9.0 Double Door Lock			
1	Power-on to lock		

2	Holding Force: 2*280kg		
3	Working Voltage: DC12V/24V input		
10.0 Exit Button			
1	Door opening method: contact-free induction exit (infrared detection) to prevent the spread of contact infectious diseases		
2	Protection: firm and durable, resistant to high temperature and impact		
3	Technology: Infrared optical technology		
4	Installation: humanized design, easy to use and simple to install		
5	Communication: relay switch output		
11.0 Emergency Glass Switch			
1	Applicable types: safety door, escape door, safety system		
2	Optional accessories: glass sheet, transparent cover		
3	Panel treatment: fireproof material, matte die-casting		
12.0 Door Closer			
1	Installation size: 19*208mm		
2	Applicable door weight: 80—120kg		
13.0 Parking Barrier			
1	Function: Servo motor, fast opening speed, low noise during operation		
2	Size: pole length 6 meters, opening speed 4.5 seconds, adjustable starting angle		
3	Lights: The chassis has red and green LED lights		
4	Life: the minimum number of trouble-free operations 5 million times		
5	Emergency: Automatically open the gate when power is off, and quickly pass in an emergency		
6	Integration: radar vehicle detector, automatic rod drop, intelligent anti-smashing		
7	Safety: The impact-off rod design improves safety		
14.0 License Plate Recognition			
1	Recognition speed: less than 200ms		
2	Adaptable vehicle speed: 0~30km/h		
3	Function: Recognize license plate number		
4	Algorithm: Embedded license plate recognition algorithm, the recognition rate can reach 99.5%		
5	Light: integrated automatic control fill light, automatic switching between day and night mode		
15.0 Decoder			
1	Function: Card issuer comes with card reader antenna, working frequency is 13.56MHz		
2	Identification distance: within 0~8cm (different according to different working environment and different cards)		

3	Data reception: within the effective distance, the data reception time is less than 0.5s		
4	Power supply: USB interface power supply +5V power supply, working current is less than 80mA		
5	Output method: USB format data output		

TABLE 36. Specifications of MS-OTN equipment in access site

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The bidding equipment must support installation in ETSI Rack(2200*600*300mm).		
2	The bidding equipment rack cannot be higher than 2 U, must support more than or equal to 6 service slots.		
3	the cross-connection capability of bidding equipment must be greater than or equal to 800 Gbit/s ODUk (k=0, 1, 2, 2e, 3, 4, flex), 60 Gbit/s VC4 and 400 Gbit/s packet.		
4	The main control board of the bidding equipment must support 1+1 back up.		
5	The bidding equipment must support both AC and DC power supply modes. The equipment must work on -40V to -72V for DC power supply. The power supply module must support 1+1 back up		
6	The bidding equipment must support access and exchange of PCM, PDH, SDH and ETH services in one set of equipment instead of extended subracks.		
7	10G/100G/200G line boards must support OTN+SDH+Packet hybrid transmission. Services must be transmitted over the same wavelength to reduce wavelength waste and improve bandwidth utilization.		
8	The bidding equipment must support the OTN architecture, separate tributary boards and line boards, and unified VC/PKT/ODUK switching boards to facilitate smooth service upgrade and evolution.		
9	The operation environment of bidding equipment must comply with ETSI EN 300 019-1-3, NEBS GR-63-CORE, and YD/T 1821-2008.		
10	The bidding equipment must support Long-term operating temperature: -5°C to 50°C.		
11	The bidding equipment must support Long-term operating humidity: 5% to 85%.		
12	The bidding equipment must support 4*10G Universal Line Service Processing Board for VC/PKT/ODUK(k=0,1,2,3,4,flex).		
13	The bidding equipment must support 10*10GE(SFP+) Ethernet Processing Board, supporting 10GE/GE/FE on one interface.		
14	The bidding equipment must support DDN Processing Board, supporting framed E1 signals, sub-rate or N x 64 kbit/s signals, G.703 64 kbit/s codirectional/contradirectional signals, X.21/V.35 signals and RS232/RS422/RS485/RS232-trans/RS422-trans signals.		
15	The bidding equipment must support 2M Optical Interface, E1		

	Electrical Interface Board, supporting optical interfaces integrated according to the IEEE C37.94 (2017) specification. And the board supports yellow path detection, link fault response, and 2 Mbit/s optical transparent transmission.		
16	The bidding equipment must support 2/4 Wire and E&M Processing Board, supporting point-to-multipoint and point-to-point functions on the voice channel, such as master-slave voice conferencing or point-to-multipoint announcement.		
17	The bidding equipment must support FXS/FXO Processing Board, providing FXS/FXO ports, which can be configured on the NMS.		
18	The bidding equipment must support E1 tributary board.		
19	The bidding equipment must support STM-16/STM-4/STM-1 optical interface board.		
20	The bidding equipment must support the encryption function of physical layer AES256 and provides product manual certification.		
21	The bidding equipment must support STM-1/4/16/64、FE/GE/10GE、FC1G/2G/4G/8G/16G/32G service access.		
22	The bidding equipment must support Multi-rate Universal Service Processing Board, supporting SDH services (such as STM-1, STM-4, STM-16, STM-64), Ethernet services (such as FE, GE, 10GE), and OTN services (such as OTU1, OTU2, and OTU2e).		
23	The bidding equipment must support synchronous Ethernet: G.8262/G.8264(OTN & packet & SDH)/IEEE 1588v2 (OTN & packet)/ time synchronization ITU-T G.8275.1/G.8273.2 (OTN & packet). Synchronous Ethernet requires a precision of +/-4.6 ppm.		
24	The bidding equipment must support monitoring the optical power, OSNR, and wavelength values of all wavelengths. Performance parameters such as 10G/100G/200G OSNR can be reported to the NMS, and the E2E 10G/100G/200G OSNR can be managed online. The detection precision must be ± 1 dB. Screenshots of related cases are provided.		
25	The bidding equipment must support online fiber monitoring to locate fiber faults. Screenshots of the fiber performance monitoring on the NMS are required.		
26	The bidding equipment must support latency detection through the NMS. The NMS screenshot of the delay detection function must be provided with the official seal of the device manufacturer or the bidding seal.		
27	The power supply, control board, clock board, and cross-connect board of the bidding equipment must be configured with 1+1 protection. For boards with hot backup, the active and standby boards can be forcibly switched over through the NMS.		
28	To avoid misoperation of the power relay protection device caused by network communication faults, the bidder shall provide the lossless switching function of the relay protection service to ensure the reliability of the power network. For service protection, the following conditions must be met: 1. At least two protection trails must be supported to provide protection against multiple (more than two) fiber cuts. 2. If the working path is interrupted or abnormal, protection switching is performed. Services are not interrupted or bit errors occur.		

TABLE 37. Specifications of Electrical-layer MS-OTN equipment in backbone sites

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The bidding equipment must support installation in ETSI Rack(2200*600*300mm).		
2	The bidding equipment rack cannot be higher than 5 U, must support more than or equal to 14 service slots.		
3	the cross-connection capability of bidding equipment must be greater than or equal to 920G Gbit/s ODUk (k=0, 1, 2, 2e, 3, 4, flex), 160 Gbit/s VC4 and 920 Gbit/s packet.		
4	The main control board of the bidding equipment must support 1+1 back up.		
5	The bidding equipment must support both AC and DC power supply modes. The equipment must work on -40V to -72V for DC power supply. the power supply module must support 1+1 back up.		
6	The bidding equipment must support access PCM, PDH, SDH and ETH services in one set of equipment instead of extended subracks.		
7	10G/100G/200G line boards must support OTN+SDH+Packet hybrid transmission. Services must be transmitted over the same wavelength to reduce wavelength waste and improve bandwidth utilization.		
8	The bidding equipment must support the OTN architecture, separate tributary boards and line boards, and unified VC/PKT/ODUK switching boards to facilitate smooth service upgrade and evolution.		
9	The operation environment of bidding equipment must comply with ETSI EN 300 019-1-3, NEBS GR-63-CORE, and YD/T 1821-2008.		
10	The bidding equipment must support Long-term operating temperature: -5°C to 50°C.		
11	The bidding equipment must support Long-term operating humidity: 5% to 85%.		
12	The bidding equipment must support 4*10G Universal Line Service Processing Board for VC/PKT/ODUK(k=0,1,2,3,4,flex).		
13	The bidding equipment must support 200G unified line service processing board (including 100G line capacity, supporting RTU extension).		
14	The bidding equipment must support 10*10GE(SFP+) Ethernet Processing Board, supporting 10GE/GE/FE on one interface.		
15	The bidding equipment must support DDN Processing Board, supporting framed E1 signals, sub-rate or N x 64 kbit/s signals, G.703 64 kbit/s codirectional/contradirectional signals, X.21/V.35 signals and RS232/RS422/RS485/RS232-trans/RS422-trans signals.		
16	The bidding equipment must support 2M Optical Interface, E1 Electrical Interface Board, supporting optical interfaces integrated according to the IEEE C37.94 (2017) specification. And the board supports yellow path detection, link fault response, and 2		

	Mbit/s optical transparent transmission.		
17	The bidding equipment must support 2/4 Wire and E&M Processing Board, supporting point-to-multipoint and point-to-point functions on the voice channel, such as master-slave voice conferencing or point-to-multipoint announcement.		
18	The bidding equipment must support FXS/FXO Processing Board, providing FXS/FXO ports, which can be configured on the NMS.		
19	The bidding equipment must support E1 tributary board.		
20	The bidding equipment must support STM-16/STM-4/STM-1-optical interface board.		
21	The bidding equipment must support the encryption function of physical layer AES256 and provides product manual certification.		
22	The bidding equipment must support STM-1/4/16/64、FE/GE/10GE、FC1G/2G/4G/8G/16G/32G service access.		
23	The bidding equipment must support Multi-rate Universal Service Processing Board, supporting SDH services (such as STM-1, STM-4, STM-16, STM-64), Ethernet services (such as FE, GE, 10GE), and OTN services (such as OTU1, OTU2, and OTU2e).		
24	The bidding equipment must support synchronous Ethernet: G.8262/G.8264(OTN & packet & SDH)/IEEE 1588v2 (OTN & packet)/ time synchronization ITU-T G.8275.1/G.8273.2 (OTN & packet). Synchronous Ethernet requires a precision of +/-4.6 ppm.		
25	The bidding equipment must support monitoring the optical power, OSNR, and wavelength values of all wavelengths. Performance parameters such as 10G/100G/200G OSNR can be reported to the NMS, and the E2E 10G/100G/200G OSNR can be managed online. The detection precision must be ± 1 dB. Screenshots of related cases are provided.		
26	The bidding equipment must support online fiber monitoring to locate fiber faults. Screenshots of the fiber performance monitoring on the NMS are required.		
27	The bidding equipment must support latency detection through the NMS. The NMS screenshot of the delay detection function must be provided with the official seal of the device manufacturer or the bidding seal.		
28	The power supply, control board, clock board, and cross-connect board of the bidding equipment must be configured with 1+1 protection. For boards with hot backup, the active and standby boards can be forcibly switched over through the NMS.		
29	To avoid misoperation of the power relay protection device caused by network communication faults, the bidder shall provide the lossless switching function of the relay protection service to ensure the reliability of the power network. For service protection, the following conditions must be met: 1. At least two protection trails must be supported to provide protection against multiple (more than two) fiber cuts. 2. If the working path is interrupted or abnormal, protection switching is performed. Services are not interrupted or bit errors occur.		

TABLE 38. Specifications of Optical-layer MS-OTN equipment in backbone sites

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The bidding equipment must support installation in ETSI Rack(2200*600*300mm).		
2	The bidding equipment rack cannot be higher than 2 U, and should have more than or equal to 6 service slots.		
3	The main control board of the bidding equipment must support 1+1 back up.		
4	The bidding equipment must support both AC and DC power supply modes. The equipment must work on -40V to -72V for DC power supply. the power supply module must support 1+1 back up.		
5	The bidding equipment must support DWDM: 1529.16nm ~ 1560.61nm (C Band, ITU-T G.694.1).		
6	The bidding equipment must support DWDM 80 wavelength.		
7	The operation environment of bidding equipment must comply with ETSI EN 300 019-1-3, NEBS GR-63-CORE, and YD/T 1821-2008.		
8	The bidding equipment must support Long-term operating temperature: -5°C to 50°C.		
9	The bidding equipment must support Long-term operating humidity: 5% to 85%.		
10	The bidding equipment must support CD ROADM networking. The WSS has at least 9 dimensions.		
11	The bidding equipment must support System Control & Communication Board with OSC.		
12	The bidding equipment must support Both East & West Directional Fiber Interface Board (Dual FIU subcard).		
13	The bidding equipment must support Two-directional optical supervisory channel and timing transmission unit (with OTDR).		
14	The bidding equipment must support Enhanced 40-Channel Multiplexing/Demultiplexing Board for one optical direction.		
15	The bidding equipment must support 8-channel Optical Power Monitor Board.		
16	The bidding equipment must support Interleaver Board (C Band).		
17	The bidding equipment must support Optical amplifier unit and DCM unit.		

TABLE 39. Specifications of cabinet

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Operating temperature range: -20°C~50°C		
2	Storage temperature range: -40°C~70°C		
3	Cabinet protection level: IP55.		
4	Cabinet size: height does not exceed 2000mm, width and depth		

	does not exceed 750mm.		
5	The power system sub-rack should be capable for both AC and DC power equipment. Supports for IT and CT equipment accommodation		
6	Total space $\geq 40U$ Power sub-rack space $\leq 5U$		
7	The sub-rack have capability to support at least 500 Ah Lithium batteries		
8	Each Lithium battery should have high cycle performance: cycle life ≥ 3500 times at 0.5C, 85% DOD, 35° C; designed service life ≥ 15 years		
9	200Ah lithium battery needed at first stage		
10	Lithium battery should have multiple intelligent anti-theft measures: Displacement and communication interruption software lock; Buzzer alarm function;		
11	The load branches have the capacity no less than 2 × 125A, 8 × 63A, 14 × 32A		
12	All the operations and O&M must be performed from the front. The user interface board of the monitoring module should be on the front of the cabinet for easy plugging and unplugging.		
13	DC air conditioner should support at least 2800W cooling capacity		
14	For future expansion should support optional additional air conditioner installation to reach 4500W in total.		

TABLE 40. Specifications of DC distribution of the proposed cabinet

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	1U DC distribution unit, 19-inch rack mounting		
2	Each DC distribution unit 200A		
3	Cable routing: Front-in, front-out		
4	The load branches should have two levels for important load and secondary load.		
5	The important load branches have the capacity no less than 2 × 32A, 2 × 20A, 2 × 16A		
6	The secondary load branches have the capacity no less than 6 × 63A, 4 × 32A		
7	Monitoring: For improve security. The distribution unit should support detection of total input current. And support RS485, support Modbus protocol for communication.		

TABLE 41. Specifications of PtMP Microwave equipment in access site

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1.	The system shall operate in 4910MHz~5970MHz band.		
2.	The system shall support PTP and PMP application sharing the same hardware.		
3.	The system shall support 10/20/40/80 MHz channel spacing.		
4.	The system shall support MCS0-MCS9 (BPSK-256QAM) to realize large capacity transmission.		
5.	The system shall support throughput of 250Mbps or above for remote equipment, and throughput of 750Mbps or above for aggregation equipment.		
6.	The system shall support TDD and TDMA functions.		

7.	The system shall support configurable downlink and uplink ratio, and the adjustable ratio shall be configured as 1:9, 2:8, 3:7, 4:6, 5:5, 6:4, 7:3, 8:2, 9:1.		
8.	The system shall support Adaptive Modulation function.		
9.	The system shall support automatic channel selection (ACS), and dynamic frequency selection (DFS) functions		
10.	The system shall support GPS simultaneous transmission and reception technology.		
11.	The system shall support AES-256 bit encryption.		
12.	The system shall support dying gasp function to accurately locate power failure.		
13.	The system shall support remote management by using WLAN module, and realize the operation and maintenance under tower.		
14.	The system shall support initial configuration data import, back up NE data, and update software by using USB flash drive.		
15.	The remote equipment should support at least 1*GE (electrical), 1*GE (POE) interface, and the aggregation equipment should support at least 1*GE (optical), 1*GE (electrical), 1*GE (PoE) interface.		
16.	The Tx Power of bidding system shall support up to 24dBm.		
17.	The Receiver Sensitivity of bidding system shall support up to -90 dBm.		
18.	The aggregation equipment support sector antennas in PMP application and flat antennas in PTP application.		
19.	The gain of Sector antenna support 17 dBi or above, and support 90° Horizontal half-power angle.		
20.	The gain of flat antenna support 22 dBi or above.		
21.	The MTBF of bidding system support 100 years or above.		
22.	The system shall support maximum 2048 bytes frame size.		
23.	The system shall support Adds, deletes, and swaps VLAN tags that comply with IEEE 802.1Q/P, and forwards packets based on VLAN tags.		
24.	The VLAN ID support ranges from 1 to 4094.		
25.	The system shall support at least 4 level QoS scheduling.		
26.	The system shall support SP, WRR, port shaping and tail discarding.		
27.	The system shall adopt alloy enclosure and support salt spray corrosion resistance.		
28.	The system shall support IP67 protection.		
29.	The system shall support up to 10KV surge protection without additional lightning arrester, comply with IEC/EN 61000-4-5 standard.		
30.	The system shall support wide temperature range of -40°C ~+60°C.		
31.	The system shall support Relative humidity of 5% to 100%.		
32.	The system shall be managed through Web-based network management system.		
33.	The traditional band (6~38GHz) radio system and Sub-6G radio system shall be Self-developed products that provided by one vendor.		

TABLE 42. Specifications of E-Band or Licensed Point to Point (PtP) Microwave equipment

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1.0	E-band Point to Point (PtP) Microwave		
1.	The frequency band must be 71~76 paired with 81~86GHz.		
2.	Single E-band ODU type shall support entire 71-76 GHz frequency range for low type ODU.		
3.	Single E-band ODU shall support entire 81-86 GHz frequency range for high type ODU.		
4.	The max normal Tx power must not be less than 18dBm for QPSK.		
5.	The max normal Tx power must not be less than 15dBm for 16QAM.		
6.	The max normal Tx power must not be less than 15dBm for 32QAM&64QAM.		
7.	The max normal Tx power must not be less than 14dBm for 128QAM.		
8.	The max normal Tx power must not be less than 13dBm for 256QAM.		
9.	The max normal Tx power must not be less than 11dBm for 512QAM.		
10.	The equipment for bidding must support AMAC (Adaptive Modulation, Adaptive Coding and Channel spacing). The AC shift must support five mode.		
11.	The Adaptive Modulation changes must be hitless.		
12.	The Adaptive Modulation changes shall cope with fading speed of 100dB/sec.		
13.	The Adaptive Modulation changes shall be unidirectional.		
14.	The max throughput must be not less than 7.5Gbps. Please provide details for different modes.		
15.	Power over Ethernet must be supported.		
16.	The operating temperature range must be from -33°C to +55°C.		
17.	IP65 compliance to IEC 60529 for waterproof resiliency must be supported.		
18.	The equipment must have 8kA anti-lightning capability.		
19.	Link layer according to IEEE 802.3ah must be supported.		
20.	Ethernet OAM according to 802.1ag must be supported.		
21.	Test & Turn-up with RFC 2544 LBM/LBR loopback features must be supported.		
22.	Test & Turn-up with ITU-T Y.1564 loopback features must be supported.		
23.	ITU-T Y.1731 must be supported.		
24.	RMON according to RFC 2819 must be supported.		
25.	RMON counters shall be available on 15 minutes basis.		
26.	RMON statistics shall be available per port - including radio.		
27.	RMON statistics shall also be available per VLAN.		
28.	Counters statistics shall be available on 15 min. and 24 h. basis.		
29.	Radio link Threshold counters must be supported.		
30.	SNMPv3 with full CLI config equivalent must be supported.		
31.	Equipment has to support In-Band-Management over the radio channel.		
32.	The equipment must have USB interface for configuration and		

	maintenance.		
33.	The equipment must have Wi-Fi function for configuration and maintenance.		
34.	The equipment must have maintenance capability without climbing the tower.		
35.	TWAMP light complied with RFC 5357 must be supported.		
36.	Bandwidth Notification complied with ITU-T Y.1731 must be supported.		
37.	SNMPv3 get and set function must be supported.		
38.	The E-Band product proposed must be delivered more than 16,000 hops so far.		
39.	The E-Band product proposed must be used in more than 50 operators worldwide.		
2.0	Licensed Point to Point (PtP) Microwave		
1.	The system shall operate in traditional licensed band (6~38GHz).		
2.	The equipment for bidding should support all of modulation scheme like QPSK/16QAM/32QAM/64QAM/128QAM/256QAM/512QAM/1024QAM/2048QAM/4096QAM.		
3.	The equipment for bidding must support hitless AM (adaptive modulation), with 13 modulation scheme (including QPSK Strong/QPSK/16QAMStrong/16QAM/32QAM/64QAM/128QAM/256QAM/512QAM/1024QAM/2048QAM/4096QAM)		
4.	The equipment for bidding must support Ethernet OAM complied with IEEE 802.1ag and IEEE 802.3ah, as below: a) Link Discovery and Link monitoring b) Remote fault detect c) Remote loopback d) LPT(Link Pass Through) e) CC (Continuous Check) f) LB (Loop Back) g) LT (Link Pass Trace)		
5.	The equipment should support the physical link aggregation (PLA) function, which aggregates all Ethernet transmission paths in several Integrated IP radio links into a logical Ethernet link for higher Ethernet bandwidth and Ethernet transmission reliability.		
6.	The equipment should support EPLA (enhanced physical link aggregation) technology, which shares load based on the bandwidth at the physical layer to achieve link aggregation.		
7.	The equipment should support 4 links PLA in one group at tail site.		
8.	The equipment should support 8 links PLA in one group at aggregation site.		
9.	The equipment should support 16 links PLA at large aggregation/Trunk node.		
10.	The equipment for bidding should support Link State Pass Through (LPT), LPT detects a fault that occurs at a service access node or on a service network, and then instructs the equipment at both ends of a service network to immediately start a backup network for communication. LPT ensures proper transmission of important data.		
11.	The equipment for bidding must support ERPS (comply with G.8032) function for Ethernet ring protection.		
12.	The equipment should support RMON which compliant with RFC2819.		
13.	The equipment should supports eight classes of CoS, and supports traffic classification based on the port, DSCP, or IEEE 802.1p/802.1Q/802.1ad standard.		
14.	The equipment for bidding should support IP and OSI protocol		

	for the interconnection with third vender's NMS.		
15.	The equipment should support 1:1 MPLS APS, Tunnel or PW APS, and MS-PW.		
16.	The equipment for bidding should support TDM CES, and meet the requirements of RFC 4553 and RFC 5086.		
17.	The equipment for bidding should support MS-PW(multi-section pseudo wire), and meet the requirements of RFC 5254, draft-ietf-pwe3-ms-pw-arch-02 and draft-ietf-pwe3-segmented-pw-03.		
18.	The equipment for bidding should support ATM PWE3 pseudo wire, and meet the requirements of RFC 4717 and RFC 4816.		
19.	The equipment for bidding should support PW and Tunnel label simultaneously, and meet the requirements of RFC 3985.		
20.	The equipment for bidding should support packet Fragment function to optimize the delay variation performance.		
21.	The equipment for bidding should support MPLS-TP, which comply with ITU-T : G.8113.1, to easy realized the E2E packet network		
22.	The equipment for bidding should support CES (Circuit Emulation Structure) of channelized STM-1 signal (formed by E1).		
23.	The equipment for bidding should support H-QOS, that brings higher quality assurance		
24.	The equipment for bidding should support L3 feature in one box, supporting RSVP tunnel and MP- IBGP.		
25.	The equipment for bidding should support LDP LSP function.		
26.	The equipment for bidding should support VPN FRR function.		
27.	The equipment for bidding should support OSPF function.		
28.	The equipment for bidding should support IS-IS function.		
29.	The equipment for bidding should support VPLS function.		
30.	The equipment for bidding should support WRED function for packet drop.		
31.	The equipment for bidding must have MEF9 and MEF14 certificate.		
32.	The equipment for bidding must have MEF 2.0 certificate		

TABLE 43. Specifications of power supply system for Microwave

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Operating temperature range: -40°C~50°C		
2	Storage temperature range: -40°C~70°C		
3	Cabinet protection level: IP55.		
4	User space $\geq 5U$		
5	System capacity: Max 5 pcs 3000W PSU, 12KW(N+1).		

Network Management System for Network equipment

In order to better manage the CCTV backhaul network system, a network management system (NMS) is required. The proposed NMS system shall manage the transmission device and microwave device in the bidding by tender. Multiple NMSs are not permit. Specifications of Network Management System:

TABLE 44. Specifications of Network Management System

No.	Purchaser's requirements	Bidder's	Compliance
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		offer	statement
1	The proposed NMS system shall be configured or higher than the configuration: 2*10Core/2.2GHz CPU, 4*32G Memory, 8*600GB SAS HDD.		
2	The system shall comply with ITU-T G.784.		
3	NEs and connections shall be displayed on the topology.		
4	To display different states of NEs and subnets, alarms in the topology view shall be displayed as different colour or symbol.		
5	NMS shall generate appropriate alarms by monitoring the performance of the circuits.		
6	Alarms may be listed in NMS. Each alarm shall have a defined alarm type category.		
7	Graphic display shall be available and the alarm status shall be monitored via graphic display.		
8	All alarms shall be recalled from memory when it is necessary to keep them on the platform for at least 6 months. When requested, date and time records shall be exported.		
9	This system must manage both transmission equipment and microwave equipment in this chapter.		

TABLE 45. Specifications of Display Screen

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	55-inch LCD screen, full high definition, ultra-narrow side		
2	Resolution: 1090 * 1080		
3	Brightness: at least 450 cd/m2		

TABLE 46. Specifications of Multi-Screen Processing Controller

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Support up to 16 channel HDMI (High definition multimedia interface) input		
2	Support up to 16 channel HDMI (High definition multimedia interface)/DVI (Digital visual interface) output (To screen)		

TABLE 47. Specifications of Decoder

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Video output through High-definition Multimedia Interface (HDMI) ports.		
2	Video decoding in H.265/H.264 Baseline Profile (BP), Main Profile (MP), or High Profile (HP) format.		
3	Real-time decoding of 4K or 1080P or 720P or a lower resolution.		
4	Decoding of video playback.		
5	Remotely obtains the system running status, operation logs, security logs, and alarm logs.		

TABLE 48. Specifications of Workstation

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	I7-6600 CPU @3.2 GHZ		
2	16GB memory		
3	64-bit Windows10 Professional		

TABLE 49. Specifications of 65/75/86-inch Videoconferencing Interactive Whiteboard

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The bidding product should use an embedded operating system and an industrial architecture. The product must have embedded smart white board, touch screen, speaker, microphone, camera and codec.		
2	Compatible with conference software such as Zoom, Teams, and Webex.		
3	The bidding product should support standard interfaces for OPS to provide extra services.		
4	The bidding product should provide no less than 65/86-inch whiteboard display screen, and the maximum display resolution is not less than 3840*2160, the refresh rate is not less than 60Hz.		
5	The bidding product should support no less than 20 touch points with $\pm 1\text{mm}$ precision, and no less than 2 styluses.		
6	The bidding product should support Hardware Anti-Blue Light.		
7	The bidding product must support adaptive panoramic shooting, the system can be automatically adjusted according to the number of participants and location, the panoramic screen should cover all participants, and ensure that the participants are displayed in the middle.		
8	The bidding product should support 12 built-in linear microphone arrays, 20 KHz full band audio pickup, the pickup radius is not less than 8 meters, and the audio pickup is not less than 180° forward.		
9	Users can zoom in and choose to view any single site without administrators in multi-stream conferences.		
10	The bidding product should support video + presentation with 1080p 30fps+1080p 30fps, 1080p 30fps+4K 8fps		
11	The bidding product should support the reverse control of the PC's shared desktop through the electronic whiteboard in the wireless sharing mode, which is convenient for sharing documents.		
12	The bidding product must support wireless presentation sharing of the PC desktop by transmitter. The video resolution is not less than 4K and support audio transmission.		
13	The bidding product should support mobile device wireless projection function, mobile device's projection content can be sent to the remote site, the video clarity is not less than 1080P		
14	The bidding product should support two persons writing at the same time, providing stroke effect and realistic writing experience when writing on the electronic whiteboard.		

TABLE 50. Specifications of HD Camera

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Supports at least 1080p 60fps and 12x optical zoom		
2	Supports a 1/2.5-inch CMOS image sensor that supports at least 8.51 megapixel		
3	Supports a horizontal viewing angle of at least 80° without adding an external wide-angle lens.		
4	Support no less than 2 HD video outputs		
5	Supports RF remote control		

TABLE 51. Specifications of Microphone

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Compact design with omnidirectional, 6-meter voice pickup distance and 360° voice pickup range.		
2	Supports automatic echo cancellation (AEC), automatic gain control (AGC), and automatic noise suppression (ANS).		
3	The sampling rate is not less than 48 kHz.		
4	Supports cascading of three microphone arrays to meet various application requirements for different-sized conference rooms.		
5	Obtains power from the endpoint and requires no additional power supplies.		

TABLE 52. Specifications of Mobile Video Surveillance System

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The proposed solution should support the integration of mobile video surveillance system and intelligent video surveillance system.		
2	Supports the voice and video communication with operators and onsite personnel.		
3	Supports multiple video sources including fixed cameras, LTE handheld devices and other video devices and the following are the functionalities: a) To display intelligent surveillance cameras list or LTE handheld devices list; b) To preview surveillance or LTE videos; c) To broadcast media channel surveillance or LTE videos; d) To perform camera control of PTZ cameras.		
4	Supports P2P video calls between LTE terminals.		
5	Supports P2P voice and video calls between mobile video management console and LTE terminals.		
6	Supports group video call between console and LTE terminal.		
7	Supports LTE terminals mobile video uploading to the console.		
8	Supports allows operators to control camera rights, and set PTZ		

	control rights and camera access rights.		
9	Supports LTE terminal users to control camera rights, and set PTZ control rights and camera access rights for terminal users.		
10	Supports provide voice, video, SMS and rich media recording.		

TABLE 53. Specifications of Mobile Handheld Terminal to Check the Video Surveillance System

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The proposed solution should support the connection of onsite personnel and intelligent video surveillance system.		
2	Supports CE/EAC/Notification report or certificate.		
3	Support the public network operating bands: a) UMTS Band 1/2/8; b) GSM 900/1800/1900; c) LTE Band 1/2/3/4/5/7/8/20/26/28/38/39/40/41.		
4	Compact and light modelling, the weight is not more than 230g, the appearance is suitable for the officer, portable and easy to use.		
5	Supports handset terminal viewing fixed cameras surveillance in real time.		
6	Supports video uploading, video format includes QCIF, CIF, D1, 720P and 1080P.		
7	Supports provide the dedicated emergency call key which is marked with conspicuous colour.		
8	Satisfy related standards in terms of vibration, drop at normal temperature, waterproof & dustproof and mechanical shock. In addition, the level of waterproof & dustproof is IP67 at least, the testing report from the third party should be submitted as well.		
9	The operating system is not lower than Android 8.0.		
10	Supports P2P video calls between terminals, inter-terminal video surveillance, video distribution and acceptance.		

TABLE 54. Specifications of Mobile Vehicle Terminal to Check the Video Surveillance System

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The proposed solution should support the connection of onsite vehicles and intelligent video surveillance system.		
2	Support the public network operating bands: a) UMTS900/1900/2100; b) GSM850/900/1800/1900 and LTE; c) Band1/2/3/4/5/7/8/20/26/28/38/39/40/41.		
3	Need apply the RAM which is not less than 3GB and the FLASH which is 32GB at least.		

4	Speaker power is not less than 4W.		
5	Support touch screen which size is not less 5.0 inches.		
6	Several functions are available. Such as trunking group call, broadcast call, emergency call, P2P call and so on.		
7	Support remote software upgrade and parameter configuration through air interface, including but not limited to IMEI binding, application white list, port management, remote setup, Bluetooth, WLAN and other remote settings of function switch.		
8	Support features including Wi-Fi 802.11b/g/n and Wi-Fi hot spots.		
9	Satisfy related standards in terms of drop at normal temperature, waterproof & dustproof and shock and impact satisfy ETSI 300 019-1-5 class 5M3 standard.		
10	Support vehicle terminal viewing fixed cameras surveillance in real time.		

TABLE 55. Specifications of Body-worn Camera for Mobile Video Surveillance

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The proposed solution should support the communication between onsite personnel and operator in the CCTV monitoring center.		
2	Support push to talk over Cellular.		
3	Support 4K(30FPS), 1080P(30FPS), 720P(30FPS) and 480P(30FPS) video resolution.		
4	Support wide-angle image acquisition, horizontal angle of image up to 128 degrees, vertical angle of image up to 70 degrees.		
5	Support upload the real-time mobile video to CCTV center by pushing on key.		
6	Support LED light and Infrared night-vision mode.		
7	Supports report GIS information.		
8	Supports contain an SOS hardware button, the hardware should be designed on the top of body camera to avoiding trigger fault SOS alarm.		
9	Supports LTE & WiFi & Bluetooth.		
10	Support IP68 rating for water and dust proof, support 2 meters anti-drop protection, and complies with U.S. military standard MIL-STD-810G.		

TABLE 56. Specifications of Dock Station for Body-worn Camera

No.	Purchaser's requirements	Bidder's offer	Compliance statement
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1	The dock station should support charging and recording the data of body-worn camera at the same time.		
2	The dock station should support 4TB data storage at least. And the screen is not less than 18 inch and should be touch screen.		
3	Automatically collects audio, video, image, and log data of registered.		
4	Protects data collected by devices to prevent unauthorized processes from reading, modifying and deleting audio and video data collected from devices.		
5	Support encrypted storage for the evidence, support peripheral access control to prevent unauthorized USB storage devices from accessing the network and prevent data leakage.		
6	Manages user rights, including view, export, and cancel user's rights.		
7	After a marked file expires, it is automatically deleted. You can configure the storage period for common files and marked files.		
8	The evidence can be viewed, deleted, and highlighted.		
9	Supports resuming from breakpoint.		

TABLE 57. Specifications of Offline Recording System

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The proposed solution should support multiple storage modes, such as centralized, hybrid, and distributed storage.		
2	Supports an independent background management interface that separates login from the user operation interface to prevent maintenance personnel from mis-operations on data files.		
3	Supports fast data collection. The maximum average data collection speed is 5 MB/s when the data collection station is fully loaded.		
4	Supports hierarchical networking and upper-level and lower-level management modes. Users at different levels can manage their own platforms.		
5	The system provides the function of managing user organization units. Supports manually adding user organizations.		
6	Users with system permission can view the media filming of all personnel or designated personnel of the department within a period of time.		
7	The system has a complete management function of body-worn camera and supports the management of 2000 body-worn cameras.		
8	Control the access of the dock station to prevent unauthorized collection workstations from accessing the system.		

TABLE 58. Specifications of Modular 3-phase UPS

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	The proposed solution shall provide the module UPS and lithium battery must be sourced from one brand.		
2	The proposed UPS shall be 400KVA/400KW chassis with modular design.		
3	Power Module should be 100KW per module.		
4	UPS - High efficiency of up to 96% and the efficiency of commonly used load rate (20%-40%) is not less than 95%.		
5	UPS - Modular design and all the modules include Power Module, monitor module and bypass module shall be hot-swappable, to facilitates capacity expansion and maintenance.		
6	UPS - Have pre-failure alarm system, which can detect the fan speed and the capacitance of bus capacitors in real time and sends alarm when the fan speed or capacitance is too low than expected.		
7	Ups - Real-time monitoring over the temperature of each terminal of circuit breaker and busbar, send alarm when the temperature is abnormal.		
8	UPS - Input voltage range (Vac): 140-480VAC.		
9	UPS - Overload capacity: 110% overload for 60min; 125% over load for 10min; 150% overload for 1min.		
10	Lithium battery - Lithium battery cells should be made of lithium iron phosphate (LFP) to ensure cell stability		
11	Each Lithium battery Cabinet should support 300kW load at least 10mins		
12	Lithium battery - The lithium battery cabinet consists of the lithium battery module, intelligent battery management module, and power distribution. The power distribution unit (PDU) of the lithium battery cabinet provides an output circuit breaker to facilitate battery connection and disconnection and implement reliable battery protection.		
13	Lithium battery - The following information is displayed on the LCD and the communication information is displayed (Screenshots of the LCD are required). The UPS monitoring page displays the lithium battery system information (analog parameters such as the battery cell voltage extremum), battery rack system information (analog parameters such as the battery cell voltage extremum), and BMU alarms in each rack of the lithium battery system.		

14	Lithium battery - Lithium battery with fire extinguishing		
15	Lithium battery - The battery cell needs to provide a third-party report on Nail Penetration Test conducted by a well-known organization such as TUV.		
16	Lithium battery - The battery cell has passed reliability tests such as overdischarge, overcharge, external short circuit, extrusion, heavy object impact, mechanical impact, heating, and drop tests. In addition, well-known third-party reports such as TUV reports must be provided.		

TABLE 59. Specifications of Rack-Mounted UPS

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	6kVA/6kW; 10kVA/10kW		
2	Compatible with tower and rack mounting.		
3	1U high for 6kW UPS; 2U high for 10kW UPS		
4	Efficiency reach to 96%		
5	Lithium battery support,		
6	Lithium battery - LFP material; 240Vdc, 20 Ah		
7	Lithium battery - 3500 cycles @ 2C, 85% DOD, 30°C, 3U high		

TABLE 60. Specifications of Residential Inverter

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Be equipped with AFCI function, which have been certificated by 3rd party		
2	Max. efficiency >98.2%		
3	European weighted efficiency >97.4%		
4	Start-up voltage: 100V		
5	Number of MPP trackers: 2		
6	Grid connection: Single Phase		
7	Adjustable power factor: -0.8-0.8		
8	Cooling: Natural convection		
9	Display: LED indicators; integrated WLAN + FusionSolar APP		
10	Compatible with self-brand optimizer		
11	Compatible with self-brand lithium-ion battery		
12	Protection Degree: IP66		

TABLE 61. Specifications of Residential battery

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Modular design battery module		
2	New and old battery are able to work together		
3	DOD: 100%		
4	Operating temperature:		
5	-20°C ~ + 55°C		
6	Noise emission: <29dB		
7	Cell technology: Lithium-iron phosphate (LiFePO4)		
8	Certificates: CE, RCM, CEC, VDE2510-50, IEC62619, IEC 60730, UN38.3		

TABLE 62. Specifications of C&I Inverter

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Max. Efficiency: > 98.6%		
2	European Efficiency: > 98.3%		
3	Max. Current per MPPT: >=26A		
4	Adjustable Power Factor Range: > 98.6%		
5	Be equipped with AFCI function, which have been certificated by 3rd party		
6	Protection Degree: IP66		
7	Display: LED Indicators, Integrated WLAN + FusionSolar APP		

TABLE 63. Specifications of Utility Inverter

No.	Purchaser's requirements	Bidder's offer	Compliance statement
1	Max. Efficiency: >=99%		
2	European Efficiency: > 98.5%		
3	MPPT Operating Voltage Range: 500 V ~ 1,500 V		
4	Max. Total Harmonic Distortion: <1%		
5	Obtains power from the endpoint and requires no additional power supplies.		
6	Nominal Output Voltage: 800V		
7	Nominal Output Voltage		

8	Display: LED Indicators, WLAN + APP		
9	Protection Degree: IP66		

EVALUATION CRITERIA, USING FUNCTIONALITY APPROACH

The procedure for evaluation of responsive Tender Offers will be in accordance with the eThekweni Municipality's current SCM Policy, the Preferential Procurement Policy Framework Act No 5 of 2000, and the Preferential Procurement Policy Framework Act Regulations (January 2017).

The procedure for the evaluation of responsive tenders is Price and Preference, with Functionality.

Price and Preference

- The **80/20** preference points system will be used where the financial value (incl. VAT) of one or more responsive tender offers have a value that equals or is less than R 50,000,000. The **Price Points** formula and allocated **Preference Points** will be according to the above specified PPPFA Regulations.

SECTION 4: RETURNABLE TENDER DOCUMENTS

The required returnable documents are as detailed in [Section 2 \(Clause 4\)](#): "Returnable Schedules, Forms, Certificates" of the Conditions of Tender / Special Conditions of Tender.

The Tender Form can be found in [Section 9](#): “Official Tender Form”, and any additional schedules, forms, certificates can be found in [Section 10](#): “Annexures”.

a) AUTHORITY OF SIGNATORY

Reference is made to the Conditions of Tender: [Clause 4\(5\)\(c\)](#).

Indicate the status of the tenderer by ticking the appropriate box hereunder.

COMPANY		CLOSE CORPORATION		PARTNERSHIP		JOINT VENTURE		SOLE PROPRIETOR	
Refer to Notes at the bottom of the page									

I / We, the undersigned, being the Chairperson (Company), Member(s) (Close Corporation), Partners (Partnership), Sole Owner (Sole Proprietor), Lead Partner (JV), in the company / business trading as:

.....

hereby authorise Mr/Mrs/Ms

acting in the capacity of

to sign all documents in connection with the tender for Contract No. [E.9807](#) and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

Notes

The following documents must be attached to the back inside cover to this procurement document:

If a Company : a "Resolution of the Board" in this regard.

If a Joint Venture : a "Power of Attorney" signed by the legally authorised signatories of all the partners to the Joint venture.

b) DECLARATION OF MUNICIPAL FEES

I, the undersigned, do hereby declare that the Municipal fees of

.....
(full name of Company / Close Corporation / partnership / sole proprietary/Joint Venture)

(hereinafter referred to as the TENDERER) are, as at the date hereunder, fully paid or an Acknowledgement of Debt has been concluded with the Municipality to pay the said charges in instalments.

The following account details relate to property of the said TENDERER:

Account

Account Number: to be completed by tenderer.

Consolidated Account No.

--	--	--	--	--	--	--	--	--	--	--	--	--

Electricity

--	--	--	--	--	--	--	--	--	--	--	--	--

Water

--	--	--	--	--	--	--	--	--	--	--	--	--

Rates

--	--	--	--	--	--	--	--	--	--	--	--	--

Other

--	--	--	--	--	--	--	--	--	--	--	--	--

Other

--	--	--	--	--	--	--	--	--	--	--	--	--

Other

--	--	--	--	--	--	--	--	--	--	--	--	--

I acknowledge that should the aforesaid Municipal charges fall into arrears, the Municipality may take such remedial action as is required, including termination of any contract, and any payments due to the Contractor by the Municipality shall be first set off against such arrears. **ATTACHED, to the back inside cover of this document, please find copies of the above account's and or agreements signed with the Municipality.**

- Where the TENDERER'S place of business or business interests are outside the jurisdiction of eThekweni Municipality, a copy of the accounts/agreements from the relevant municipality must be attached (to the back inside cover of this document).
- **Where the tenderer's Municipal Accounts are part of their lease agreement, then a copy of the agreement, or official letter to that effect is to be attached (to the back inside cover of this document).**

NAME :

(Block Capitals)

SIGNATURE :

DATE:

(of person authorised to sign on behalf of the Tenderer)

c) DECLARATION WITH RESPECT TO THE OCCUPATIONAL HEALTH AND SAFETY ACT
Definitions

The Act: The Occupational Health and Safety Act No 85 of 1993 (as amended by the Occupational Health and Safety Amendment Act No 181 of 1993), and any associated / applicable Regulations.

Declaration by Tenderer

1. I, the undersigned, hereby declare and confirm that I am fully conversant with the Act.
2. I hereby declare that my company has the competence and the necessary resources to safely carry out the work / supply / services under this contract in compliance with the Act, and the Employer's / Purchaser's / Client's Health and Safety Specifications.
3. I hereby undertake, if my tender is accepted, to provide on request a suitable and sufficiently documented Health and Safety Plan which plan shall be subject to approval by the Employer / Purchaser / Client.
4. I hereby confirm that adequate provision has been made in my tendered rates to cover the cost of all resources, actions, training and all health and safety measures envisaged in the Act, and that I will be liable for any penalties that may be applied by the Employer / Purchaser / Client for failure to comply with the provisions of the Act.
5. I agree that my failure to complete and execute this declaration to the satisfaction of the Employer / Purchaser / Client will mean that I am unable to comply with the requirements of the Act and accept that my tender will be prejudiced and may be rejected at the discretion of the Employer / Purchaser / Client.

NAME : (Block Capitals)

SIGNATURE : DATE:
(of person authorised to sign on behalf of the Tenderer)

d) CONSOLIDATED MUNICIPAL BIDDING DOCUMENTSThe following **SECTIONS** are required to be completed as part of this procurement document

<u>Section</u>	<u>Description</u>	<u>Required?</u>
A	General Enterprise Information	Yes
B	MBD2: Tax Clearance Certificate Requirements	Yes
C	MBD4: Declaration of Interest	Yes
D	MBD5: Declaration for Procurement Above R10 Million	Yes
E	MBD6.1: Preference Points Claim Form ITO the Preferential Regulations	Yes
F	MBD6.2: Declaration Certificate for Local Production and Content for Designated Sectors.....	Yes
G	MBD8: Declaration of Bidder's Past SCM Practices	Yes
H	MBD9: Certificate of Independent Bid Determination	Yes
I	Confirmations, Authorities, Certifications, Acknowledgements and Signatures	Yes

NOTES

1. MSCM Regulations: "in the service of the state" means to be:
 - (a) a member of –
 - (i) any municipal council;
 - (ii) any provincial legislature; or
 - (iii) the national Assembly or the national Council of provinces;
 - (b) a member of the board of directors of any municipal enterprise;
 - (c) an official of any municipality or municipal enterprise;
 - (d) an employee of any national or provincial department, national or provincial public enterprise or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
 - (e) a member of the accounting authority of any national or provincial public enterprise; or
 - (f) an employee of Parliament or a provincial legislature.
2. "Shareholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.
3. Includes price quotations, advertised competitive bids, limited bids and proposals.
4. Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

Ref	Description	Complete as Applicable
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SECTION A : GENERAL ENTERPRISE INFORMATION

1.0	Full Name of bidder or his or her representative	
1.1	ID Number of bidder or his or her representative	
1.2	Position occupied in the enterprise	
2.0	Name of enterprise:	
2.1	Tax Reference number, if any:	
2.2	VAT registration number, if any:	
2.3	CIDB registration number, if any:	
2.4	Company registration number, if applicable:	
2.5	Close corporation number, if applicable:	
2.6	Supplier reference number (PR), if any:	PR:
2.7	South African Revenue Service Tax Compliance Status PIN :	
2.8	National Treasury Central Supplier Database registration number	MAAA:

3.0 The names of all directors / trustees / shareholders / members / sole proprietors / partners in partnerships, their individual identity numbers and state employee numbers must be indicated below. In the case of a joint venture, information in respect of each partnering enterprise must be completed and submitted

Full Name	Identity No.	State Employee No.	Personal income tax No. *
Use additional pages if necessary			

Ref	Description	Complete or Circle Applicable
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SECTION B : MBD 2 : TAX CLEARANCE CERTIFICATE REQUIREMENTS

It is a condition of bid that the taxes of the successful bidder must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the bidder's tax obligations.

- 1.0 In order to meet this requirement bidders are required to complete the TCC 001 : "Application for a Tax Clearance Certificate" form and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign bidders / individuals who wish to submit bids.
- 2.0 SARS will then furnish the bidder with a Tax Clearance Certificate that will be valid for a period of 1 (one) year from the date of approval.
- 3.0 The original Tax Clearance Certificate must be submitted together with the bid (attached to the inside back cover of this procurement document). Failure to submit the original and valid Tax Clearance Certificate will result in the invalidation of the bid. Certified copies of the Tax Clearance Certificate will not be acceptable.
- 4.0 In bids where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Clearance Certificate.
- 5.0 Copies of the TCC 001 : "Application for a Tax Clearance Certificate" form are available from any SARS branch office nationally or on the website www.sars.gov.za.
- 6.0 Applications for the Tax Clearance Certificates may also be made via eFiling. In order to use this provision, taxpayers will need to register with SARS as efilers through the website www.sars.gov.za.
- 7.0 Notwithstanding Clauses 1.0 to 6.0 above: Since 18 April 2016, SARS has introduced a new Tax Compliance Status System (TCS). As part of this enhanced system, tenderers can now submit a Tax Compliance Status PIN instead of an original Tax Clearance Certificate (TCC). This TCS PIN can be used by third parties to certify the taxpayer's real-time compliance status. This number, if available, is to be entered in Item 2.7 of Section A of these consolidated Municipal Bidding Documents.
For further particulars please contact your nearest SARS branch, or call the SARS Contact Centre on 0800 00 7277, or log onto SARS eFiling.

Attach a valid Tax Clearance Certificate OR Tax Compliance Status PIN, issued by the TCS System of the South African Revenue Service, to the inside back cover of this procurement document

SECTION C : MBD 4 : DECLARATION OF INTEREST

No bid will be accepted from persons "in the service of the state". Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority and/or take an oath declaring his/her interest. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

1.0	Are you presently in the service of the state? If yes, furnish particulars :	YES	NO
2.0	Have you been in the service of the state for the past twelve months? If yes, furnish particulars :	YES	NO
3.0	Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid? If yes, furnish particulars :	YES	NO
4.0	Are you, aware of any relationship (family, friend, other) between any other bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? If yes, furnish particulars :	YES	NO
5.0	Are any of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state? If yes, furnish particulars:	YES	NO
6.0	Are any spouse, child or parent of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state? If yes, furnish particulars:	YES	NO
7.0	Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract? If yes, furnish particulars:	YES	NO
8.0	The names of all directors / trustees / shareholders / members / sole proprietors / partners in partnerships, their individual identity numbers and state employee numbers are indicated in SECTION A .		

Ref	Description	Complete or Circle Applicable
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SECTION D : MBD 5 : DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)

For all procurement expected to exceed R10 million (all applicable taxes included), bidders must complete the following questionnaire.

1.0	Are you by law required to prepare annual financial statements for auditing?	YES	NO
	If YES, you will be required to submit audited annual financial statements (on request during the tender evaluation period) for the past three years or since the date of establishment if established during the past three years.		
2.0	Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days?	YES	NO
	If NO, this serves to certify that the bidder has no undisputed commitments for municipal services towards any municipality for more than three months or other service provider in respect of which payment is overdue for more than 30 days.		
	If YES, provide particulars on a letterhead. (Attach this letter to the back inside cover of this procurement document).		
3.0	Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?	YES	NO
	If YES, provide particulars on a letterhead. (Attach this letter to the back inside cover of this procurement document).		
4.0	Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic?	YES	NO
	If YES, provide particulars on a letterhead. (Attach this letter to the back inside cover of this procurement document).		

SECTION E : MBD 6.1 : PREFERENCE POINTS CLAIM ITO THE PREFERENTIAL REGULATIONS

Preference points for this tender shall be awarded as per the Tender Data and the Preferential Procurement Regulations (2017).

Failure on the part of a tenderer to submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS), or a Sworn Affidavit for an EME, or sworn affidavit for a QSE (in line with the revised BBBEE codes of Good Practice), together with the bid will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

The Employer reserves the right to require of a tenderer, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the Employer.

DECLARATION

1.0	B-BBEE Status Level of Contribution claimed:	
	Will any portion of the contract be sub-contracted?	YES NO
	If YES, indicate:	
	(i) what percentage of the contract will be subcontracted?	
	(ii) the name of the sub-contractor?	
	Name :	
	(iii) the B-BBEE status level of the sub-contractor?	
	(iv) whether the sub-contractor is an EME?	YES NO

The undersigned, certify that the B-BBEE status level of contribution indicated in paragraph 1.0 above qualifies the company / firm for preference points and acknowledges that the remedies as per Clause 14 of the Preferential Procurement Regulations (2017) shall apply.

Attach a B-BBEE Verification Certificate to the inside back cover of this procurement document

Ref	Description	Complete or Circle Applicable
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SECTION F : MBD 6.2 : DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

This Municipal Bidding Document (MBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2011 and the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

- 1.0 General Conditions
- 1.1 Preferential Procurement Regulations, 2017 (Regulation 8) makes provision for the promotion of local production and content.
- 1.2 Regulation 8.(1) prescribes that in the case of designated sectors, where in the award of bids local production and content is of critical importance, such bids must be advertised with the specific bidding condition that only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.
- 1.3 Where necessary, for bids referred to in paragraph 1.2 above, a two stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.
- 1.4 A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.
- 1.5 The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where : x is the imported content in Rand
y is the bid price in Rand excluding value added tax (VAT).

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date of advertisement of the bid as required in paragraph 4.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on [http://www.thedti.gov.za/industrial development/ip.jsp](http://www.thedti.gov.za/industrial%20development/ip.jsp) at no cost.
- 1.6 A bid may be disqualified if –
 - (a) this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation; and
 - (b) the bidder fails to declare that the Local Content Declaration Templates (Annex C, D and E) have been audited and certified as correct.
- 2.0 Definitions
- 2.1 “bid” includes written price quotations, advertised competitive bids or proposals;
- 2.2 “bid price” price offered by the bidder, excluding value added tax (VAT);
- 2.3 “contract” means the agreement that results from the acceptance of a bid by an organ of state;
- 2.4 “designated sector” means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;
- 2.5 “duly sign” means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility (close corporation, partnership or individual).
- 2.6 “imported content” means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad (this includes labour and intellectual property costs), plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;
- 2.7 “local content” means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;
- 2.8 “stipulated minimum threshold” means that portion of local production and content as determined by the Department of Trade and Industry; and
- 2.9 “sub-contract” means the primary contractor’s assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.
- 3.0 The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

<u>Description of services, works or goods</u>	<u>Stipulated minimum threshold</u>
..... %
..... %
..... %

Ref	Description	Complete or Circle Applicable
4.0	Does any portion of the services, works or goods offered have any imported content?	YES NO
4.1	If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by the SARB for the specific currency at 12:00 on the date of advertisement of the bid. The relevant rates of exchange information is accessible on www.reservebank.co.za . Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011): US Dollar : <input type="text"/> Pound Sterling : <input type="text"/> Euro : <input type="text"/> Yen : <input type="text"/> Other : <input type="text"/> NB: Bidders must submit proof of the SARB rate (s) of exchange used.	
5.0	Were the Local Content Declaration Templates (Annex C, D and E) audited and certified as correct?	YES NO
5.1	If yes, provide the following particulars: (a) Full name of auditor: (b) Practice number: (c) Telephone number: Cell number: (d) Email address: (Documentary proof regarding the declaration will, when required, be submitted to the satisfaction of the Accounting Officer / Accounting Authority)	
6.0	Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the dti must be informed accordingly in order for the dti to verify and in consultation with the Accounting Officer / Accounting Authority provide directives in this regard.	

LOCAL CONTENT DECLARATION

(REFER TO ANNEX B OF SATS 1286:2011)

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (Close Corporation, Partnership or Individual)

.....
IN RESPECT OF BID No:

.....
ISSUED BY: (Procurement Authority / Name of Municipality / Municipal Entity)

NB 1 - The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

NB 2 - Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on [http://www.thedti.gov.za/industrial development/ip.jsp](http://www.thedti.gov.za/industrial%20development/ip.jsp). Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below. Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned in Section H of these Consolidated MBD returnable questionnaires (comprising 8 pages), do hereby declare the following:

- (a) The facts contained herein fall within my own personal knowledge.
- (b) I have satisfied myself that:
- (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
 - (ii) the declaration templates have been audited and certified to be correct.
- (c) The local content percentages (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C;
- | | |
|--|---|
| 1. Bid price, excluding VAT (y) | R |
| 2. Imported content (x), as calculated in terms of SATS 1286:2011 | R |
| 3. Stipulated minimum threshold for local content (paragraph 3 above)..... | % |
| 4. Local content %, as calculated in terms of SATS 1286:2011 | % |

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above. The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

- (d) I accept that the Procurement Authority / Municipality /Municipal Entity has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.
- (e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Municipal / Municipal Entity imposing any or all of the remedies as provided for in Regulation 13 of the Preferential Procurement Regulations, 2017 promulgated under the Preferential Policy Framework Act (PPFA), 2000 (Act No. 5 of 2000).

Ref	Description	Complete or Circle Applicable
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SECTION G : MBD8 : DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

This Municipal Bidding Document must form part of all bids invited. It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.

The bid of any bidder may be rejected if that bidder, or any of its directors have:

- abused the municipal entity's supply chain management system or committed any improper conduct in relation to such system;
- been convicted for fraud or corruption during the past five years;
- wilfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
- been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).

In order to give effect to the above, the following questions must be answered.

1.0	Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector?	YES	NO
	Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer / Authority of the institution that imposed the restriction after the audi alteram partem rule was applied. The Database of Restricted Suppliers now resides on the National Treasury's website (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.		
	If yes, furnish particulars :		
2.0	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)?	YES	NO
	The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.		
	If yes, furnish particulars :		
3.0	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	YES	NO
	If yes, furnish particulars :		
4.0	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	YES	NO
	If yes, furnish particulars :		
5.0	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	YES	NO
	If yes, furnish particulars :		

SECTION H : MBD9 : CERTIFICATE OF INDEPENDENT BID DETERMINATION

Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a pe se prohibition meaning that it cannot be justified under any grounds.

Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:

- take all reasonable steps to prevent such abuse;
- reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
- cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.

The following MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.

In order to give effect to the above, the following Certificate of Bid Determination must be completed and submitted with the bid. The undersigned, in submitting the accompanying bid, in response to the invitation for the bid do hereby make the following statements that I certify to be true and complete in every respect:

- I have read and I understand the contents of this Certificate;
- I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;

Ref	Description	Complete or Circle Applicable
3.0	I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;	
4.0	Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;	
5.0	For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who: <ol style="list-style-type: none"> has been requested to submit a bid in response to this bid invitation; could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and provides the same goods and services as the bidder and/or is in the same line of business as the bidder. 	
6.0	The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium ³ will not be construed as collusive bidding. (Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.	
7.0	In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding: <ol style="list-style-type: none"> prices; geographical area where product or service will be rendered (market allocation); methods, factors or formulas used to calculate prices; the intention or decision to submit or not to submit, a bid; the submission of a bid which does not meet the specifications and conditions of the bid; bidding with the intention not to win the bid. 	
8.0	In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.	
9.0	The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.	
10.0	I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No. 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 or any other applicable legislation.	

SECTION I : CONFIRMATIONS, AUTHORITIES, CERTIFICATIONS, ACKNOWLEDGEMENTS and SIGNATURES

The undersigned, who warrants that he/she is duly authorised to do so on behalf of the enterprise:

- Confirms that the contents of these Consolidated MBD returnable questionnaires (comprising 8 pages) are within my personal knowledge and are to the best of my belief both true and correct;
- Confirms that neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercise, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
- Confirms that no partner, member, director or other person, who wholly or partly exercise control over the enterprise, has within the last five years been convicted of fraud or corruption;
- Confirms that I/we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the bidders or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest;
- Certify that the B-BBEE status level of contribution indicated in Section E : Item 1.0 qualifies the enterprise for preference points and acknowledges that the remedies as per Clause 13 of the Preferential Procurement Regulations (2011) shall apply. In the event of a contract being awarded as a result of points claimed, the enterprise may be required to furnish documentary proof to the satisfaction of the employer that the claims are correct;
- Accept that, in addition to cancellation of a contract, action may be taken against me should these declarations prove to be false.

Signed Date

Name Position

SECTION 5: CONDITIONS OF CONTRACT**GOVERNMENT PROCUREMENT: CONDITIONS OF CONTRACT (July 2010)**

The **Conditions of Contract** are the **General Conditions of Contract** as published by the National Treasury titled "Government Procurement: General Conditions of Contract (July 2010), as amended by National Treasury Circular 52 dated 30 July 2010, hereinafter referred to as **GCC**.

THE NATIONAL TREASURY**Republic of South Africa**

**GOVERNMENT PROCUREMENT:
GENERAL CONDITIONS OF CONTRACT**

July 2010

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1. Definitions

The following terms shall be interpreted as indicated:

- "Closing time" means the date and hour specified in the bidding documents for the receipt of bids.
 - "Contract" means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
 - "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.
 - "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.
 - "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.
 - "Country of origin" means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.
 - "Day" means calendar day.
 - "Delivery" means delivery in compliance of the conditions of the contract or order.
 - "Delivery ex stock" means immediate delivery directly from stock actually on hand.
 - "Delivery into consignees store or to his site" means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the goods are so delivered and a valid receipt is obtained.
 - "Dumping" occurs when a private enterprise abroad markets its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the RSA.
 - "Force majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
 - "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.
 - "GCC" means the General Conditions of Contract.
 - "Goods" means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.
 - "Imported content" means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the goods covered by the bid will be manufactured.
 - "Local content" means that portion of the bidding price, which is not included in the imported content provided that local manufacture does take place.
 - "Manufacture" means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.
 - "Order" means an official written order issued for the supply of goods or works or the rendering of a service.
 - "Project site," where applicable, means the place indicated in bidding documents.
 - "Purchaser" means the organization purchasing the goods.
 - "Republic" means the Republic of South Africa.
 - "SCC" means the Special Conditions of Contract.
 - "Services" means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such obligations of the supplier covered under the contract.
 - "Supplier" means the successful bidder who is awarded the contract to maintain and administer the required and specified service(s) to the State.
 - "Tort" means in breach of contract.
 - "Turnkey" means a procurement process where one service provider assumes total responsibility for all aspects of the project and delivers the full end product / service required by the contract.
- 1.28 "Written" or "in writing" means hand-written in ink or any form of electronic or mechanical writing.

2. Application

- 2.1 These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services (excluding professional services related to the building and construction industry), sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.
- 2.2 Where applicable, special conditions of contract are also laid down to cover specific goods, services or works.
- 2.3 Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

3. General

- 3.1 Unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid. Where applicable a non-refundable fee for documents may be charged.
- 3.2 Invitations to bid are usually published in locally distributed news media and on the municipality/municipal entity website.

4. Standards

- 4.1 The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

5. Use of contract documents and information inspection

- 5.1 The supplier shall not, without the purchaser's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.
- 5.2 The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.
- 5.3 Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.
- 5.4 The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

6. Patent Rights

- 6.1 The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.
- 6.2 When a supplier developed documentation / projects for the municipality / municipal entity, the intellectual, copy and patent rights or ownership of such documents or projects will vest in the municipality / municipal entity.

7. Performance security

- 7.1 Within thirty (30) days of receipt of the notification of contract award, the successful bidder shall furnish to the purchaser the performance security of the [amount specified in SCC](#).
- 7.2 The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.
- 7.3 The performance security shall be denominated in the currency of the contract or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms:
- a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or
 - (b) a cashier's or certified cheque.
- 7.4 The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, [unless otherwise specified](#).

8. Inspections, tests and analyses

- 8.1 All pre-bidding testing will be for the account of the bidder.
- 8.2 If it is a bid condition that goods to be produced or services to be rendered should at any stage be subject to inspections, tests and analyses, the bidder or contractor's premises shall be open, at all reasonable hours, for inspection by a representative of the purchaser or organization acting on behalf of the purchaser.

- 8.3 If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.

- 8.4 If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the goods to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.

- 8.5 Where the goods or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such goods or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.

- 8.6 Goods and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.

- 8.7 Any contract goods may on or after delivery be inspected, tested or analysed and may be rejected if found not to comply with the requirements of the contract. Such rejected goods shall be held at the cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with goods, which do comply with the requirements of the contract. Failing such removal the rejected goods shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute goods forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected goods, purchase such goods as may be necessary at the expense of the supplier.

- 8.8 The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 22 of GCC.

9. Packing

- 9.1 The supplier 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. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.
- 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, [including additional requirements](#), if any, and in any subsequent instructions ordered by the purchaser.

10. Delivery and documents

- 10.1 Delivery of the goods and arrangements for shipping and clearance obligations, shall be made by the supplier in accordance with the terms [specified in the contract](#).

11. Insurance

- 11.1 The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery [in the manner specified](#).

12. Transportation

- 12.1 Should a price other than an all-inclusive delivered price be required, [this shall be specified](#).

13. Incidental Services

13.1 The supplier may be required to provide any or all of the following services, **including additional services**, if any:

- (a) performance or supervision of on-site assembly and/or commissioning of the supplied goods;
- (b) furnishing of tools required for assembly and/or maintenance of the supplied goods;
- (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
- (d) performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this contract; and
- (e) training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.

13.2 Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.

14. Spare parts

14.1 **As specified**, the supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the supplier:

- such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and;
- (b) in the event of termination of production of the spare parts:
 - d) advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and
 - (ii) following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

15. Warranty

15.1 The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

15.2 This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, **unless specified otherwise**.

15.3 The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the supplier shall, **within the period specified** and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.

15.5 If the supplier, having been notified, fails to remedy the defect(s) **within the period specified**, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract.

16. Payment

16.1 The method and conditions of payment to be made to the supplier under this contract **shall be specified**.

16.2 The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfilment of other obligations stipulated in the contract.

16.3 Payments shall be made promptly by the purchaser, but in no case later than thirty (30) days after submission of an invoice or claim by the supplier.

16.4 Payment will be made in Rand **unless otherwise stipulated**.

17. Prices

17.1 Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any **price adjustments authorized** or in the purchaser's request for bid validity extension, as the case may be.

18. Variation orders

18.1 In cases where the estimated value of the envisaged changes in purchase does not vary more than 15% of the total value of the original contract, the contractor may be instructed to deliver the goods or render the services as such. In cases of measurable quantities, the contractor may be approached to reduce the unit price, and such offers may be accepted provided that there is no escalation in price.

19. Assignment

19.1 The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

20. Subcontracts

20.1 The supplier shall notify the purchaser in writing of all subcontracts awarded under this contracts if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the supplier from any liability or obligation under the contract.

21. Delays in the supplier's performance

21.1 Delivery of the goods and performance of services shall be made by the supplier in accordance with the **time schedule prescribed** by the purchaser in the contract.

21.2 If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.

21.3 The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the supplier's point of supply is not situated at or near the place where the goods are required, or the supplier's services are not readily available.

- 21.4 Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 22.2 without the application of penalties.
- 21.5 Upon any delay beyond the delivery period in the case of a goods contract, the purchaser shall, without cancelling the contract, be entitled to purchase goods of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.
- 22. Penalties**
- 22.1 Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.
- 23. Termination for default**
- 23.1 The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:
- if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;
 - if the supplier fails to perform any other obligation(s) under the contract; or
 - if the supplier, in the judgement of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.
- 23.2 In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner, as it deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.
- 23.3 Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.
- 23.4 If a purchaser intends imposing a restriction on a supplier or any person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated fourteen (14) days the purchaser may regard the supplier as having no objection and proceed with the restriction.
- 23.5 Any restriction imposed on any person by the purchaser will, at the discretion of the purchaser, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first-mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the purchaser actively associated.
- 23.6 If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:
- the name and address of the supplier and / or person restricted by the purchaser;
 - the date of commencement of the restriction
 - the period of restriction; and
 - the reasons for the restriction.
- These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.
- 23.7 If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website.
- 24. Antidumping and countervailing duties and rights**
- 24.1 When, after the date of bid, provisional payments are required, or anti-dumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the supplier to the purchaser or the purchaser may deduct such amounts from moneys (if any) which may otherwise be due to the supplier in regard to goods or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which may be due to him.
- 25. Force Majeure**
- 25.1 Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.
- 25.2 If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.
- 26. Termination for insolvency**
- 26.1 The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the purchaser.

27. Settlement of Disputes

- 27.1 If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.
- 27.2 If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.
- 27.3 Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.
- 27.4 Notwithstanding any reference to mediation and/or court proceedings herein,
- (a) the parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and
 - (b) the purchaser shall pay the supplier any monies due the supplier for goods delivered and / or services rendered according to the prescripts of the contract.

28. Limitation of Liability

- 28.1 Except in cases of criminal negligence or wilful misconduct, and in the case of infringement pursuant to Clause 6;
- (a) the supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and
 - (b) the aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

29. Governing language

- 29.1 The contract shall be written in English. All correspondence and other documents pertaining to the contract that is exchanged by the parties shall also be written in English.

30. Applicable law

- 30.1 The contract shall be interpreted in accordance with South African laws, unless otherwise specified.

31. Notices

- 31.1 Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice.
- 31.2 The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.

32. Taxes and duties

- 32.1 A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.
- 32.2 A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.
- 32.3 No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid SARS must have certified that the tax matters of the preferred bidder are in order.
- 32.4 No contract shall be concluded with any bidder whose municipal rates and taxes and municipal services charges are in arrears.

33. Transfer of Contracts

- 33.1 The contractor shall not abandon, transfer, cede assign or sublet a contract or part thereof without the written permission of the purchaser.

34. Amendment of contracts

- 34.1 No agreement to amend or vary a contract or order or the conditions, stipulations or provisions thereof shall be valid and of any force unless such agreement to amend or vary is entered into in writing and signed by the contracting parties. Any waiver of the requirement that the agreement to amend or vary shall be in writing, shall also be in writing.

35. Prohibition of restrictive practices

- 35.1 In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder(s) is / are or a contractor(s) was / were involved in collusive bidding.
- 35.2 If a bidder(s) or contractor(s) based on reasonable grounds or evidence obtained by the purchaser has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in section 59 of the Competition Act No 89 Of 1998.
- 35.3 If a bidder(s) or contractor(s) has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.

SECTION 6: SPECIAL / ADDITIONAL CONDITIONS OF CONTRACT

The **Conditions of Contract** make reference to the **Special Conditions of Contract (SSC)** for details that apply specifically to this bid. The **Special Conditions of Contract** shall have precedence in the interpretation of any ambiguity or inconsistency between it and the **Conditions of Contract**.

Each item below is cross-referenced to the clause in the **Conditions of Contract** to which it mainly applies.

SCC 1.2 **CONTRACT**

This contract will commence on the date on the kick off meeting after a letter of award has been issued and shall terminate on 36 months for the commencement date issue on the kick of date

SCC 7.1 **PERFORMANCE SECURITY**

The liability and time for submission of the Performance Security will be as follows:

- (a) For contracts of value less than R 1,000,000 (incl) the liability of the Performance Security shall be Nil.
- (b) For contracts of value greater than R 1,000,000 and less than R 10,000,000 (incl) the liability of the Performance Security shall be 5% of the total tender value.
- (c) For contracts of value greater than R 10,000,000 (incl) the liability of the Performance Security shall be 10% of the total tender value.

The Contractor will be required to furnish the Performance Security (Surety Bond), from a bank or approved insurance company within fourteen (14) days of notification of award.

SCC 15.4 **WARRANTY**

The goods will have a two year warranty from the date of installation and the service provider will be liable to replace any substandard goods.

SCC 16.1 **PAYMENT**

The Contractor shall submit to the Department concerned a detailed account which shall reflect the identifying number of each item / service. Payment will be made on this account when checked and substantiated by the authorised official.

Payment for goods received and accepted by the Municipality shall be made no later than 30 days after submission of invoice or claim, provided however that all the terms of the contract are duly complied with.

Payment will be made only to the supplier. Factoring arrangements will not be accepted.

SCC 17 PRICES

Prices are fixed for the duration of the contract which is year 1, year 2 and year3

SCC 21.1 DELAYS IN THE SUPPLIER'S PERFORMANCE

The time schedule for the delivery of goods and performance of services is 30 days

SCC 22.1 PENALTIES

Replace this clause with the following:

"If the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price (as a penalty):

- A penalty of 5% of the order value for each day delivery is delayed.

The purchaser may also consider termination of the contract pursuant to GCC Clause 23."

ADDITIONAL CONDITIONS OF CONTRACT**ACC1 PERFORMANCE MONITORING & ASSESSMENT OF SERVICE PROVIDERS**

For contract awards that are greater than R10m, the Contractor shall be subjected to "Performance Monitoring" assessments in terms of the applicable Section of the Council's current Supply Chain Management Policy.

ACC2 QUALITY OF PRODUCTS

No inferior products will be accepted under this enquiry.

Should there be any cause for complaint against the standard of service or quality of products offered which is not resolved within a period of 10 working days, the Municipality reserves the right to cancel the contract after serving one month's notice, in writing, to the supplier involved. Should such notice be given, the supplier shall nevertheless be obliged to perform the duties covered by the contract up to the date of expiration of the period of notice.

ACC3 SATISFACTORY PERFORMANCE

The supplier shall employ for the purpose of this contract only such personnel as are careful and competent and the Municipality shall be at liberty to object to and require the supplier to remove from the job forthwith any person, including supervisory staff, employed by the supplier who, in the opinion of the Municipality, misconducts himself/herself or is incompetent or negligent in the proper performance of his/her duties and such person shall not again be employed upon this contract without the permission of the Municipality.

ACC4 OCCUPATIONAL INJURIES AND DISEASES ACT

This act replaces the Workmen's Compensation Act:

The supplier shall, before commencement of work, produce documentary proof to the Deputy Municipal Manager, Treasury: Finance that he has complied in all respects with the

provisions of the Occupational Injuries and Diseases Act. The supplier undertakes that he/she will perform and comply with all provisions of the Occupational Injuries and Diseases Act and more particularly that he/she will render all returns and pay all assessments for which he/she is liable in terms of such Act.

ACC6 **DAMAGE TO PERSONS AND PROPERTY**

- (1) The supplier **shall** indemnify and keep indemnified the Council against any claim for death, injury, damage or loss to any person or property whatsoever in respect thereof or in relation thereto.
- (2) The supplier enters into this contract as an independent contractor and shall be solely liable in respect of any claim for death, injury, damage or loss to any person or property whatsoever in respect thereof or in relation thereto.

ACC7 **ESTIMATED QUANTITIES**

The quantities stated in Section 8 are applicable for evaluation purposes only. The final quantity of goods and services required shall vary, depending on the total number of actual instances a service/goods will be required over the Contract Period. The rates tendered shall be applicable, irrespective of the total quantity of goods and services procured over the contract duration.

ACC8 **SERVICE PROVIDER OFFICE REQUIREMENTS**

The recommended service provider must have or establish for the duration of the contract, a local presence (within the geographical eThekweni boundary).

ACC9 **EMPOWERMENT REQUIREMENT**

This successful tenderer is required to subcontract a minimum of 30 percent of the contract value which include (supply of equipment, Installations and Commissioning) to EME's or QSE's that are from the Priority Population Group.

SECTION 7: SCOPE AND SPECIFICATION OF REQUIRED SUPPLY / SERVICES

7.1. Description of Works

Background

eThekwini Electricity is the licensed electricity distributor of the eThekwini Municipality, on the east coast of South Africa. eThekwini Electricity supplies more than 700 000 customers in an area covering nearly 2 000 square kilometres. This encompasses the area of the eThekwini Metropolitan Region and some adjacent areas. Electricity for the main supply to the Metro Region is purchased at 275 000 volts.

eThekwini Electricity plans to set up a video evidence system to protect power facilities from theft. Video monitoring is a key component of an electric utility's comprehensive physical security plan. For utilities following NERC CIP 014 and the NERC Security Guideline for the Electricity Sector, a evidence system is required to visually monitor Meter Room, Meter boxes, protective structures, prevent and investigate various types of security threats including theft, unauthorized access, vandalism and sabotage to the critical infrastructure and theft of Electricity by bypassing meters. Unmanned remote sites provide an easy target for intruders, and security threats are constant with the theft of copper and damage to high-value electrical components and material. Theft and vandalism not only cause loss of equipment and revenue but are also a danger to the public, utility personnel, and the intruder, as these actions could affect the performance of the live system. The highlights of equipment protection for eThekwini Electricity are summarized as below:

Extensible Solution

The total solution that the eThekwini Electricity look forward should be Extensible. There are around 300 Protective Structures, 1000 Metering position and 5000 meter rooms. When a new site is deployed, the site can be added to the system flexibly.

Technology Feasibility Considerations

The responder to this RFP should free open to propose solutions meanwhile at the same time, the responder should clearly indicate or summarize that the feasible methods to turn the solutions reality, considering the practical political, economic and environmental situation in South Africa. Risks and conditions of adopting different methods shall be summarized from the project management perspective. The mentioned conditions should cater both for with or without the control of eThekwini Electricity.

References

The responder shall provide case studies for the solution they responded, in order for a better understanding to the practice of such solution. The responder shall provide true Key Event Assurance experience for the projects they participated. Confidential information can be ignored in this document. The eThekwini Electricity would like to learn in such critical event, how would the proposed solution help to achieve the mission, as well as how would the service providers and end users react and respond to such critical event.

7.2. Description of System

Overview of the Required System

Products and solutions should be integrated. Based on this understanding, the products proposed here is a kind of terminal or end user interfaced products that will be massively used by daily or regularly purpose. After the further analysis, the eThekwini Electricity is seeking for Intelligent Video Surveillance System equipped with Front-end cameras, back-end storage and analysis platform, CCTV Monitoring Center.

Intelligent Video Surveillance System should include the Protective structure video surveillance system, the metering positions and meter room video surveillance system. Network infrastructure is an important part of eThekwini Electricity. Network solution used to connect all other systems, including CCTV and Servers etc. Fiber and Microwave network transmission is adopted used. All cameras surveillance position connect to PoE switch via IP network, all video footage will be sent to platform at Electricity Dept. for 90 days with 1080p resolution continuously.

The system can be divided into three parts:

Video management system: This system is mainly responsible for video storage and intelligent analysis and video wall.

Network system: This system consists mainly of a wired network system that connects all systems, Data Center network, etc.

Peripheral Unit system: This system mainly includes cameras, siren, etc.

The bidders are required to include any other components that will make the proposed system complete and usable.

Intelligent Video Surveillance Minimum Specifications

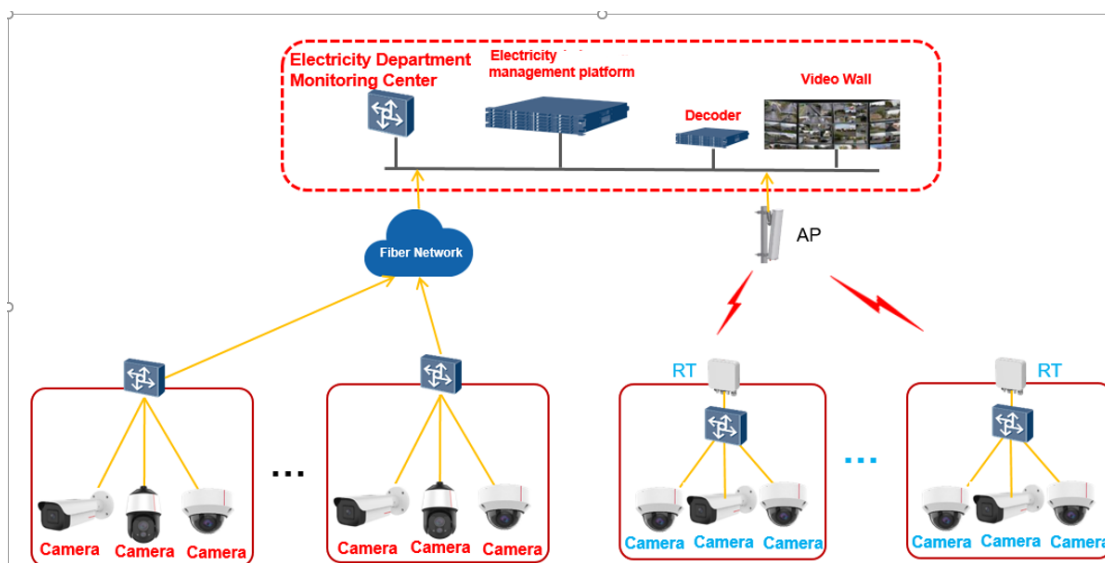
To build an Intelligent Video Surveillance System for eThekwini Electricity, a Video Surveillance System is required. The system is supposed to:

Support cover all critical or vulnerable metering position, including Protective structures, vulnerable CDU's and Meter rooms

Supports behaviour analysis, such as intrusion detection, tripwire detection, loitering detection

Support Automatic Number Plate Recognition and Vehicle make/model/colour, recognition Support Facial Recognition and Human Body Recognition

The System can be associated with the siren. When an intrusion is detected, the siren can sound an alarm. The following figure shows the overall solution of the video surveillance system:



Typical Scenario:

In MV substation, there are 5 cameras, 4 bullet cameras are wall mounted around the walls, and one Dome camera is ceiling mounted.

In the HV substation, a total of 20 cameras need to be installed, of which bullet Camera needs to be wall mounted and PTZ camera needs to be mounted on a 6.8-meter-high pole.

In Protective structure, fiber network transmission is adopted if there is existing fiber in the area, but if there is no fiber then Microwave transmission is to be used. All cameras at surveillance positions are connect to PoE switch via IP network, all video footage will be sent to platform at Electricity Dept. for 90 days with 1080p resolution continuously.

For each large surveillance position, there are 1 up to 20 cameras needed to be installed. Main coverage scenarios include perimeter video surveillance entrance and exit surveillance, indoor situation surveillance, key device and instrument monitoring, and intelligent device status detection

For each small surveillance position, there are 1 up to 5 cameras needed to be installed. Main coverage scenarios include perimeter video surveillance front and side door, indoor situation surveillance, key device and instrument monitoring.

The following systems and works will be deployed on a turn-key basis:

Application systems:

- Video Management System
- Video Analytics System

Infrastructure:

- Edge Storage and Analysis Device
- Indoor Dome Cameras
- 5MP Indoor Dome Cameras
- Outdoor Bullet Camera
- 5MP Outdoor Bullet Cameras
- Outdoor Bullet Camera (Long Range)
- Anti-Corrosion Bullet Camera
- High Speed PTZ Dome Camera
- Anti-Corrosion IR PTZ Dome Camera
- 4K IR PTZ Dome Camera
- Thermal PTZ Camera

- Siren
- Access Control
- Outdoor Supporting CCTV Pole
- Outdoor Integrated Power and Network Services
- Outdoor Solar Power
- Site Regular Maintenance

Software and algorithm license:

- Video Management System software
- Video Analytics System software
- Facial recognition algorithm license
- License plate recognition algorithm license
- Network Solution
- Network infrastructure is an important part of eThekweni Electricity. Network solution used to connect all other systems, including CCTV and Servers etc.

The Network Solution is supposed to:

- A wired network system that connects all systems;
- Data Center network
- Wi-Fi system for office;
- Management and maintenance platform for all network device;
- Authentication platform for terminal users;
- Application systems:
- Management System for all network devices
- Authentication and Authorization System

Infrastructure:

- Wired Network
- Core Switch
- Aggregation/Edge Switch
- Access Switch
- Industrial Switch use outside
- DC Spine Switch
- DC Leaf Switch
- Routers
- Wireless Network
- Access Point
- Cloud base controller for Access Point
- Access Controller license for Access Point
- Platform
- Management, Authentication and Authorization System based on one platform
- License for network devices

CCTV Back Haul Network

The CCTV backhaul network is used to transmit CCTV video signals generated by the video surveillance system to the data center and Control Center. The system will mainly cover the Metering position and related infrastructure of eThekweni Electricity. MS-OTN (Multi-Service Optical Transport Network) transmission devices will be required for optical fiber-covered major substation. Microwave equipment will be required in substation without optical fiber.

1.1 MS-OTN devices for CCTV back haul network

MS-OTN devices will be required to connect the substation with optical fiber to data center and control center, which will have 2 layers:

1) Access layer:

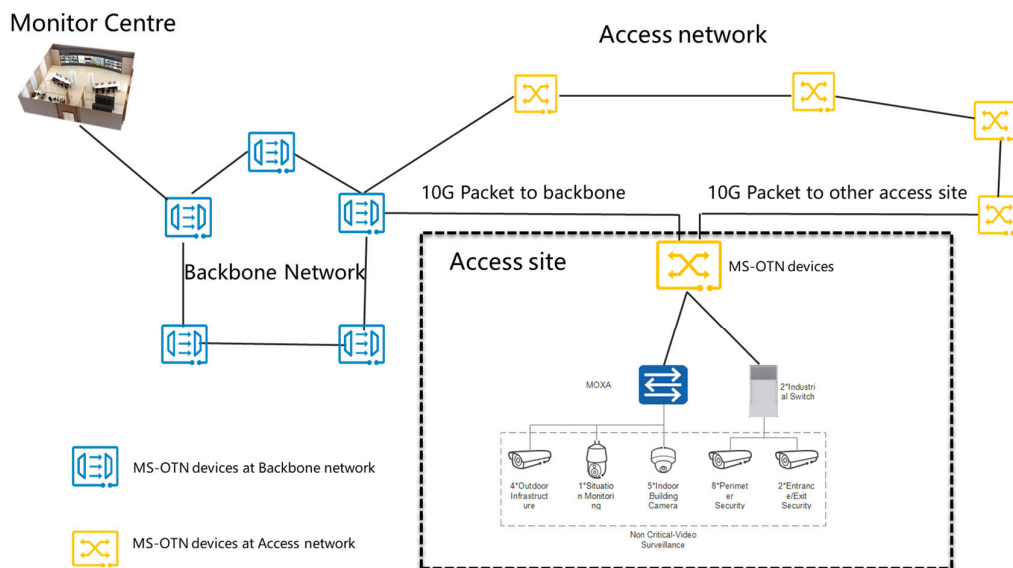
The link bandwidth is 10G, which is used to transmit CCTV signals from substations at the edge of the network to the backbone network.

2) Backbone

Using DWDM technology, a ring topology core network is planned to aggregate large bandwidth of video surveillance signals to the data center and control center.

1.1.1 MS-OTN equipment in Access layer of CCTV backhaul network

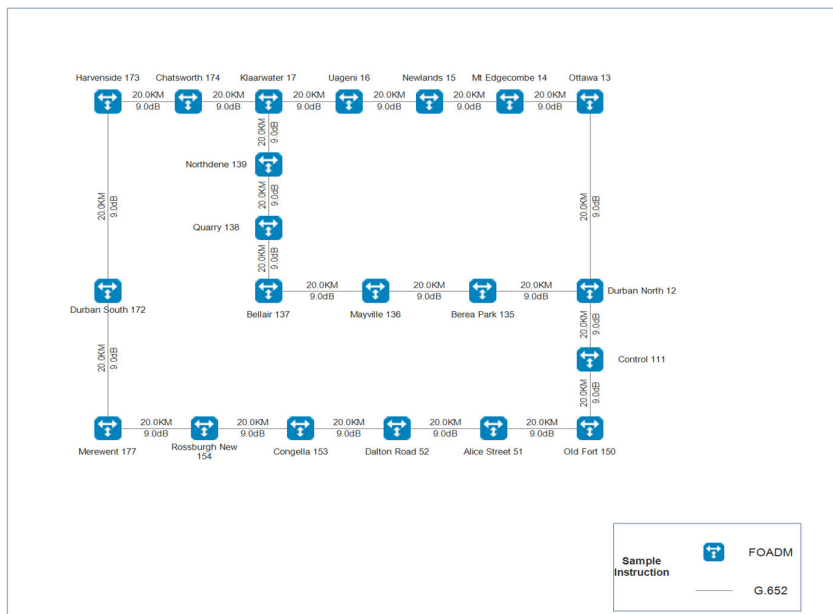
MS-OTN equipment will be deployed in substation with optical fiber to access switches and other equipment by 10GE/GE interface. About 20 cameras will be connected in each site. The topology of the CCTV backhaul network access layer is shown in the figure below.



- MS-OTN equipment is connected to other access sites on the backhaul link or transmission equipment on the backbone network through the 10G link. Therefore, a single site may be connected with more than two other sites.
- The equipment shall comply with the latest relevant standards of ITU-T, IEEE and ETSI. The Declaration of Conformity, which states that the bidding systems subject to the tender shall conform to the relevant standards, shall be provided with the bid.
- To ensure the maturity, reliability, and future evolution of the network, the bidder should rank top 3 of WDM market share from Ovum or Cignal in year 2021.

1.1.2 MS-OTN equipment in backbone of CCTV backhaul network

The backbone network of the CCTV video backhaul system consists of 10 core sites and 11 relay sites, which uses DWDM 40-wave system. The function of this network is to converge the traffic of the CCTV backhaul network from the access layer to the cloud storage centre and control center. The distance between each station will not exceed 20 kilometres.



Services design requirement :

No	Site Name	Line Configurations	Client Configurations
1	Control 111	48x10G+1x100G	52x10GE +8xGE/FE
2	Uageni 16	8x10G+1x100G	12x10GE +8xGE/FE
3	Quarry 138	8x10G	2x10GE+8xGE/FE
4	Alice Street 51	1x10G	2x10GE+8xGE/FE
5	Mayville 136	1x10G	2x10GE+8xGE/FE
6	Newlands 15	2x10G	2x10GE+8xGE/FE
7	Congella 153	2x10G	2x10GE+8xGE/FE
8	Dalton Road 52	2x10G	2x10GE+8xGE/FE
9	Rosburgh New 154	8x10G	2x10GE+8xGE/FE
10	Ottawa 13	8x10G	2x10GE+8xGE/FE
11	Durban South 172	8x10G	2x10GE+8xGE/FE
12	Merewent 177	1x10G	2x10GE+8xGE/FE
13	Berea Park 135	2x10G	2x10GE+8xGE/FE
14	Mt Edgecombe 14	1x10G	2x10GE+8xGE/FE
15	Harvenside 173	3x10G	2x10GE+8xGE/FE
16	Northdene 139	1x10G	2x10GE+8xGE/FE
17	Bellair 137	3x10G	2x10GE+8xGE/FE
18	Klaarwater 17	8x10G	2x10GE+8xGE/FE
19	Old Fort 150	8x10G	2x10GE+8xGE/FE
20	Durban North 12	8x10G	2x10GE+8xGE/FE
21	Chatsworth 174	1x10G	2x10GE+8xGE/FE
Other Sites	1 Direction Site	1x10G	2x10GE+8xGE/FE
	2 Directions Site	2x10G	2x10GE+8xGE/FE
	3 Directions Site	3x10G	2x10GE+8xGE/FE
	4 Directions Site	4x10G	2x10GE+8xGE/FE

All the line ports connect to Control 111 directly bypass the optical layer (Through 10G Line Port)
The 10G Line interfaces are using for the aggregated traffic from the connected access sites
The 10GE/GE/FE client interfaces are using for the local traffic in access layer.

The 100G Line Ports between Control 111 and Uageni 16 are using for the cloud storage traffic.

MS-OTN equipment in backbone sites:

The equipment at the backbone sites requires optical and electrical separation.

Additional Terms:

(1) The MS-OTN equipment in both access layer and backbone layer for CCTV backhaul network can be mixed with each other, that is, the backbone MS-OTN can be used for the access layer, and the access layer MS-OTN can also be used for the backbone layer.

(2) The access layer currently only considers the video backhaul service, and is designed to be transported in the packet plane of MS-OTN. It can also be designed to be transported in the SDH or OTN plane of MS-OTN equipment.

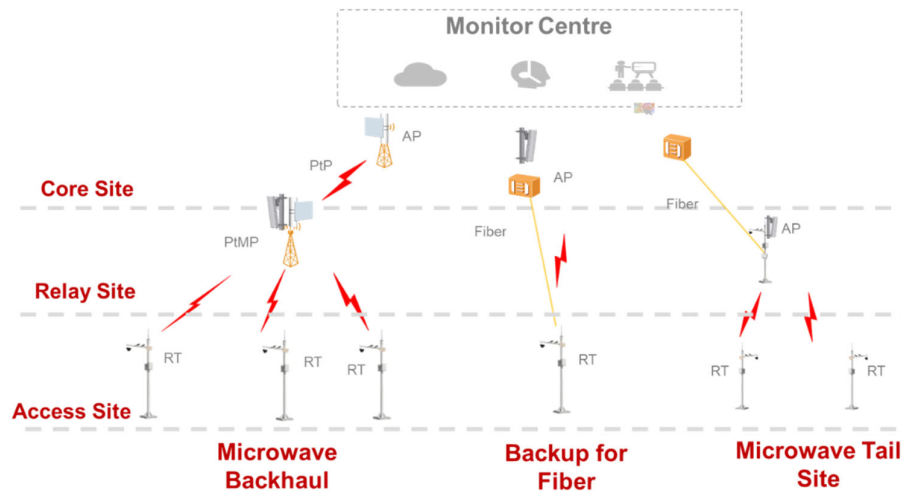
(3) The single-span site distance in access layer or backbone layer shall not exceed 80 kilometers.

(4) The MS-OTN equipment is usually placed in the ETSI cabinet. In some sites with high temperature, the temperature in the ETSI cabinet may exceed 50 degrees, and the equipment can be placed in a cabinet with air conditioning to ensure the operation of the equipment.

2.2 Microwave equipment for CCTV back haul network

2.2.1 CCTV backhaul network access layer topology and services requirement

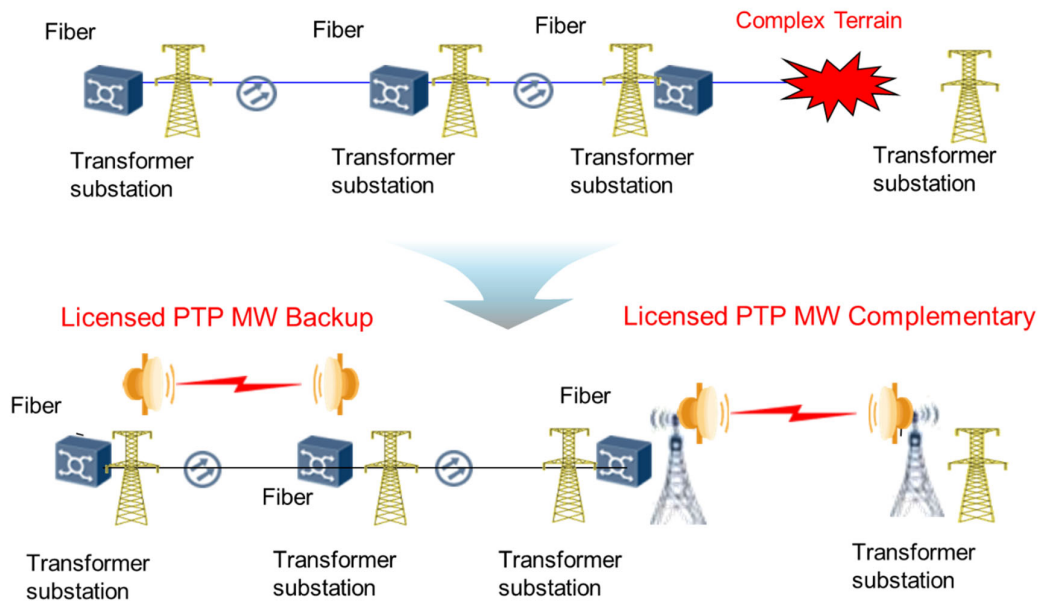
Point to Multi-point (PtMP) Microwave equipment will be deployed in each CCTV site if there is no optical fiber. About 5 cameras will be connected in each site. The topology of the CCTV backhaul network access layer is shown in the figure below.



Typical Scenario: A PtMP network is composed of 1 access point (AP) and 5 remote terminals (RTs, based on requirement and networking planning result). Each RT should support 2-3 cameras. The distance is around 1-2km and there is line of sight between the sites.

2.2.2 CCTV backhaul network backbone topology and services requirement

The bidder should provide the licensed wireless transmission solution as the complementary or backup of backbone network. The function of this network is to converge the traffic of the CCTV backhaul network from the access layer to the cloud storage centre and control centre. The distance between each station will not exceed 10 kilometres.



Typical Scenario: A PtP network is composed of 1 hop of E-band or Licensed microwave. Each link should support 100Mbps. The distance is around 3-5km and there is line of sight between the sites.

Mobile Video Surveillance System

In order to improve the efficiency of the management of mobile video, the following systems and works will introduce the supply, provision, Installation, and operation of a mobile video surveillance system.

The topology of the mobile video surveillance system is shown in the figure below.



The following systems and works will be deployed on a turn-key basis:

Application systems:

- Mobile Video Surveillance System
- Offline Recording System

Infrastructure:

- Servers and Gateway
- Mobile Handheld Terminal to Check the Video Surveillance System
- Mobile Vehicle Terminal to Check the Video Surveillance System
- Body-worn Camera for Mobile Video Surveillance
- Dock Station for Body-worn Camera

Typical Scenario: mobile video surveillance system is composed of 2 operators, 2 groups and 100 mobile terminals. The system needs to support the integration of mobile video surveillance system and intelligent video surveillance system. The GIS function should be realized on the provided map layer information.

SECTION 8: BILL OF QUANTITIES / SCHEDULE OF RATES / ACTIVITIES**Activity / Pricing Schedule****Schedule of Pricing Year 1****NB:**

- The bidder is required to break down the unit pricing into details as much as possible.
- The scope of works and the quantities may be adjusted at evaluation stage to align with the end-users requirement and budget for a particular financial year within the 3 years framework contract.
- Value added tax. (VAT) should be quoted separately from the unit prices.

Schedule of Pricing**Table A: Intelligent Video Surveillance**

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Video Surveillance Management and Recording System Server	1		
2.	Video Surveillance Analytics System Sever	1		
3.	Edge Storage and Analysis Device	1		
4.	Storage Capacity (16 TB enterprise-class SATA disk)	1		
5.	Storage Capacity (10 TB enterprise-class SATA disk)	1		
6.	Video and image analysis unit type1	1		
7.	Video and image analysis unit type2	1		
8.	Vehicle recognition algorithm license	1		
9.	Face recognition algorithm license	1		
10.	12-months Subscription and Support of Face recognition algorithm license	1		
11.	12-months Subscription and Support of Vehicle recognition algorithm license	1		
12.	2MP Indoor Dome Cameras	1		
13.	5MP Indoor Dome Cameras	1		
14.	2MP Outdoor Bullet Camera	1		
15.	5MP Outdoor Bullet Camera	1		
16.	2MP Outdoor Bullet Camera (Long Range)	1		
17.	2MP Anti-Corrosion Bullet Camera	1		
18.	2MP Outdoor High Speed PTZ Dome Camera	1		
19.	2MP Anti-Corrosion IR PTZ Dome Camera	1		
20.	4K IR PTZ Dome Camera	1		
21.	Thermal PTZ Camera	1		
22.	Siren	1		
23.	Outdoor Supporting CCTV Pole	1		
24.	Outdoor Integrated Power and Network Services	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of Video Surveillance Management and Recording System Server	1		
2.	12-months Technical Support Service of Video Surveillance Analytics System Sever	1		
3.	12-months Technical Support Service of Edge Storage and Analysis Device	1		
4.	12-months Technical Support Service of 2MP	1		

	Indoor Dome Cameras			
5.	12-months Technical Support Service of 5MP Indoor Dome Cameras	1		
6.	12-months Technical Support Service of 2MP Outdoor Bullet Camera	1		
7.	12-months Technical Support Service of 5MP Outdoor Bullet Camera	1		
8.	12-months Technical Support Service of 2MP Outdoor Bullet Camera (Long Range)	1		
9.	12-months Technical Support Service of 2MP Anti-Corrosion Bullet Camera	1		
10.	12-months Technical Support Service of 2MP Outdoor High Speed PTZ Dome Camera	1		
11.	12-months Technical Support Service of 2MP Anti-Corrosion IR PTZ Dome Camera	1		
12.	12-months Technical Support Service of 4K IR PTZ Dome Camera	1		
13.	12-months Technical Support Service of Thermal PTZ Camera	1		
14.	12-months Technical Support Service of Siren	1		
15.	12-months Technical Support Service of Outdoor Supporting CCTV Pole	1		
16.	12-months Technical Support Service of Outdoor Integrated Power and Network Services	1		
17.	Installation and Commissioning of Video Surveillance Management and Recording System Server	1		
18.	Installation and Commissioning of Video Surveillance Analytics System Sever	1		
19.	Installation and Commissioning of Edge Storage and Analysis Device	1		
20.	Installation and Commissioning of Dome Camera	1		
21.	Installation and Commissioning of Bullet Camera	1		
22.	Installation and Commissioning of PTZ Camera	1		
23.	Installation and Commissioning of Siren	1		
24.	Installation and Commissioning of Outdoor Supporting CCTV Pole	1		
25.	Installation and Commissioning of Outdoor Integrated Power and Network Services	1		
26.	Planning Design and Implementation Service For Video Surveillance	1		
27.	Planning Design and Implementation Service For IVS Micro Edge	1		
28.	Installation and Commissioning of Decoder	1		
3.0	Training			
1.	Technical training for Intelligent Video Surveillance (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table B: Storage Solution

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			

1.	Hybrid Intelligent Storage Controller Enclosure with built-in software and license	1		
2.	All Flash Storage Controller Enclosure with built-in software and license	1		
3.	Application Server	1		
4.	DME Storage platform (100T,3 year)	1		
5.	Server Management platform for 2 servers	1		
6.	Dedicate All Flash Backup Storage Controller Enclosure with Software Essential License (40TB)	1		
7.	3.84TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
8.	7.68TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
9.	10TB 7.2K RPM NL-SAS Disk Unit (3.5") for Hybrid Intelligent Storage	1		
10.	1.8TB 10K RPM SAS Disk Unit (2.5") for Hybrid Intelligent Storage	1		
11.	3.84TB SAS SSD or NVMe Palm SSD Disk Unit (7") for All Flash Storage	1		
12.	7.68TB SAS SSD or NVMe Palm SSD Disk Unit (7") for All Flash Storage	1		
13.	3.84TB SAS SSD for Dedicate All Flash Backup Storage	1		
14.	7.68TB SAS SSD for Dedicate All Flash Backup Storage	1		
15.	Disk Enclosure for Hybrid Intelligent Storage	1		
16.	Disk Enclosure for Dedicate All Flash Backup Storage	1		
17.	NVME SSD Disk Enclosure for All Flash Storage	1		
18.	SAS SSD Disk Enclosure for All Flash Storage	1		
19.	4 ports SmartIO I/O module (SFP+,16Gb FC) for All Flash Storage	1		
20.	4 ports SmartIO I/O module (SFP+,16Gb FC) for Hybrid Intelligent Storage	1		
21.	4 ports SmartIO I/O module (SFP+,16Gb FC) for Dedicate All Flash Backup Storage	1		
22.	4 ports SmartIO I/O module (SFP+,10Gb ETH) for All Flash Storage	1		
23.	4 ports SmartIO I/O module (SFP+,10Gb ETH) for Hybrid Intelligent Storage	1		
24.	4 ports SmartIO I/O module (SFP+,10Gb ETH) for Dedicate All Flash Backup Storage	1		
25.	Dedicate All Flash Backup Storage Software Capacity License (Per TB)	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of Hybrid Intelligent Storage Controller Enclosure	1		
2.	12-months Technical Support Service of All Flash Storage Controller Enclosure	1		
3.	12-months Technical Support Service of Application Server	1		
4.	12-months Technical Support Service of Dedicate All Flash Backup Storage Controller Enclosure with Software Essential License (40TB)	1		
5.	12-months Technical Support Service of	1		

	7.68TB SAS SSD or NVMe Palm SSD Disk Unit (7")			
6.	12-months Technical Support Service of 3.84TB SAS SSD or NVMe Palm SAS Disk Unit (7")	1		
7.	12-months Technical Support Service of 3.84TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
8.	12-months Technical Support Service of 7.68TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
9.	12-months Technical Support Service of Disk Enclosure for Hybrid Intelligent Storage	1		
10.	12-months Technical Support Service of Disk Enclosure for Dedicate All Flash Backup Storage	1		
11.	12-months Technical Support Service of SAS SSD Disk Enclosure for All Flash Storage	1		
12.	12-months Technical Support Service of Smart NVME SSD Disk Enclosure for All Flash Storage	1		
13.	Installation and Commissioning of All Flash Storage	1		
14.	Installation and Commissioning of Hybrid Storage	1		
15.	Installation and Commissioning of Dedicate All Flash Backup Storage	1		
16.	Installation and Commissioning of DME Storage platform for 2 devices	1		
17.	Data Migration Service of Centralised Storage(per 100TB, 10 Hosts)	1		
3.0	Training			
1.	Technical training for DME Storage Platform (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

1

Table C: Access site CCTV backhaul network devices

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	ETSI Rack(2200*600*300mm)	1		
2.	ETSI Rack(2200*600*600mm)	1		
3.	Assembly Chassis with DC power module	1		
4.	Assembly Chassis with AC power module	1		
5.	Universal Cross Connect, System Control and Clock Processing Board	1		
6.	Auxiliary Interface Board	1		
7.	Two-directional optical supervisory channel and timing transmission unit	1		
8.	10*Multi-rate Universal Service Processing Board	1		
9.	1*STM-64 Optical Interface Board	1		

10.	4*STM-16/8*STM-4/8*STM-1-optical interface board	1		
11.	4*STM-16 Optical Interface Board	1		
12.	4*STM-4/4*STM-1-Optical Interface Board	1		
13.	10-port Gigabit Ethernet Switching Processing Board	1		
14.	4*GE(SFP) Ethernet switching Processing Board	1		
15.	8-Port 100M Fast Ethernet Processing Board with LAN Switch	1		
16.	32xE1/T1 tributary board	1		
17.	32xE1(75&120ohm)/T1(100ohm) Electrical Interface Board	1		
18.	8 x 2M Optical Tributary Board	1		
19.	10*10GE(SFP+) Ethernet Processing Board	1		
20.	8-Port 2/4 Wire and E&M Processing Board	1		
21.	DDN Processing Board	1		
22.	12-Port FXS/FXO Processing Board	1		
23.	UPM and installing accessories(2000W)	1		
24.	UPM and installing accessories(4000W)	1		
25.	Basic Software Package	1		
26.	Chassis PACKET Function Fee	1		
27.	Universal Line Card Packet Encapsulation Ability fee	1		
28.	Packet Service License (Per 10GE Port)	1		
29.	Packet Service License (Per GE Port)	1		
30.	OSU Function Fee for 10G Line Rate and below (per port)	1		
31.	OSU Function Fee for Tributary side	1		
32.	Chassis OTN Function Fee (Per Subrack)	1		
33.	Chassis SDH Function Fee	1		
34.	Fiber Doctor Management System Software Fee	1		
35.	IEEE 1588V2 Function Fee	1		
36.	Additional fee for customization requirements of transport cabinets	1		
37.	Optical Transceiver,eSFP,1310nm,STM1,-15~-8dBm,-28dBm,LC,SM,15km	1		
38.	Optical Transceiver, eSFP,1310nm, STM1, -5~0dBm, -37dBm,LC,SM,40km	1		
39.	Optical Functional Module,1000BASE-T-SFP Module,RJ45 Electrical Module,Auto Negotiate,Longest Transimission Distance 100m,-40~85	1		
40.	Optical Transceiver,	1		

	eSFP,1310nm,155M~2.67G, -5~0dBm, -21dBm,LC,SM,15km			
41.	eSFP-125M~2.67G-1310nm-40km-SM	1		
42.	Optical transceiver, SFP+,1310nm,8.5Gb/s-11.1Gb/s with CDR, -6.0~-1.0dBm, -14.4dBm,LC,SM,10km	1		
43.	Low Speed Transceiver, eSFP,1550nm,125M~2.67G, -2dBm,3dBm, -28dBm,LC,SMF,80km	1		
44.	Optical Transceiver, eSFP,1310nm, STM16, -2~3dBm, -29dBm,LC,SM,40km	1		
45.	Optical transceiver,eSFP,1310nm,1.25Gb/s,-9~-3dBm,-20dBm,LC,Single Mode,10km	1		
46.	Optical Transceiver,eSFP,1310nm,1.25Gb/s,-5~0dBm,-23dBm,LC,SM,40km	1		
47.	Optical transceiver, SFP+,1310nm,10Gb/s, -8.2~0.5dBm, -12.6dBm,LC,SM,10km	1		
48.	Optical transceiver, SFP+,1550nm,9.95~11.1Gb/s, -4.7~4dBm, -14.1dBm,LC,SM, 40km	1		
49.	XFP SFP+ Transceiver-SFP+-1310nm-10G/1G--8.2dbm-0.5dbm-Single-mode-14.4dbm-LC-10km	1		
50.	Optical Transceiver,eSFP,850nm,2.125Gb/s(Multi rate) ,-9.5~-2.5dBm,-17dBm,LC,MM,0.5km	1		
51.	Optical transceiver, SFP+,850nm,10Gb/s, -7.3~-1dBm, -9.9dBm, LC, MM,0.3km	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of ETSI Rack(2200*600*300mm)	1		
2.	12-months Technical Support Service of ETSI Rack(2200*600*600mm)	1		
3.	12-months Technical Support Service of Assembly Chassis with DC power module	1		
4.	12-months Technical Support Service of Assembly Chassis with AC power module	1		
5.	Installation and commissioning of MS-OTN products for per subRack	1		
6.	Planning Design of MS-OTN products for per subRack	1		
7.	Installation and commissioning of MS-OTN products for per Line Board	1		
8.	Installation and commissioning of MS-OTN products for per Tributary Board	1		
3.0 Training				
1.	Technical training for MS-OTN products (Maximum 12 people per course, 1 person-day)	1		

SUB TOTAL		1
15% VAT		
GRAND TOTAL		

Table D: Electrical-layer MS-OTN equipment in backbone sites

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	ETSI Rack(2200*600*300mm)	1		
2.	ETSI Rack(2200*600*600mm)	1		
3.	Assembly Chassis with DC power module	1		
4.	Assembly Chassis with AC power module	1		
5.	Universal Cross Connect, System Control and Clock Processing Board(XCH)	1		
6.	Universal Cross Connect, System Control and Clock Processing Board(XCME)	1		
7.	Universal Cross Connect, System Control and Clock Processing Board(XCS)	1		
8.	Auxiliary Interface Board	1		
9.	Two-directional optical supervisory channel and timing transmission unit	1		
10.	Enhanced 8 x Multi-rate-Service ports Multiplexing Optical Wavelength Conversion Board	1		
11.	2*10Gbit/s Wavelength Conversion Board	1		
12.	200G unified line service processing board	1		
13.	200G CFP2A24(Metro+, SDFEC2@200G e16QAM/100G QPSK/etc., flex rate, Coherent, Tunable, Extended C Band, -10dBm-1dBm, -18dBm, Flexgrid)	1		
14.	200G CFP2A15(Metro, SDFEC2@200G 16QAM/SDFEC2 @100G QPSK/etc., flex rate, Coherent, Tunable, Extended C Band, -10dBm-1dBm, -18dBm, Fixed)	1		
15.	100G Unifued Line Service Processing Board	1		
16.	100G CFP2A62(LH, SDFEC2, Coherent wDCM, Tunable, Extended C Band, -10dBm-1dBm, -18dBm, Fixed)	1		
17.	4*10G Universal Line Service Processing Board	1		
18.	10*2.5G&10G Universal Line Service Processing Board	1		
19.	2*100G Tributary Service Processing Board	1		
20.	10*Multi-rate Universal Service Processing Board	1		
21.	2*STM-64 Optical Interface Board	1		
22.	1*STM-64 Optical Interface Board	1		

23.	4*STM-16/8*STM-4/8*STM-1-optical interface board	1		
24.	1*STM-16-Optical Interface Board	1		
25.	4*STM-4/4*STM-1-Optical Interface Board	1		
26.	10-port Gigabit Ethernet Switching Processing Board	1		
27.	4*GE(SFP) Ethernet switching Processing Board	1		
28.	32xE1/T1 tributary board	1		
29.	32xE1(75&120ohm)/T1(100ohm) Electrical Interface Board	1		
30.	10 x 2M Optical Tributary Board	1		
31.	8 x 2M Optical Tributary Board	1		
32.	10*10GE(SFP+)Ethernet Processing Board	1		
33.	8-Port 2/4 Wire and E&M Processing Board	1		
34.	DDN Processing Board	1		
35.	12-Port FXS/FXO Processing Board	1		
36.	Client Port Enable RTU for 100G QSFP Port	1		
37.	Line Port Enable RTU for 200G CFP/CFP2 Port	1		
38.	Line Capacity RTU for 200G CFP/CFP2 Port(Per 100G)	1		
39.	UPM and installing accessories(2000W)	1		
40.	UPM and installing accessories(4000W)	1		
41.	Basic Software Package	1		
42.	Chassis PACKET Function Fee	1		
43.	Universal Line Card Packet Encapsulation Ability fee (Per Unit)	1		
44.	Packet Service License (Per 10GE Port)	1		
45.	Packet Service License (Per GE Port)	1		
46.	OSU Function Fee for 10G Line Rate and below (per port)	1		
47.	OSU Function Fee for 100G Line Rate (per port)	1		
48.	OSU Function Fee for Tributary side (per TTA board)	1		
49.	OSU Function Fee for Tributary side (per E1 board)	1		
50.	Chassis OTN Function Fee (Per Subrack)	1		
51.	Chassis SDH Function Fee (Per Subrack)	1		
52.	SDH Centralized Cross Connect Capacity Fee(160G)	1		
53.	Optical Doctor Management System Software Fee Per Port(10G)	1		

54.	Optical Doctor Management System Software Fee Per Port(100G)	1		
55.	Fiber Doctor Management System Software Fee	1		
56.	IEEE 1588V2 Function Fee (Per Subrack)	1		
57.	Additional fee for customization requirements of transport cabinets	1		
58.	150km OSC Transceiver(1491nm)	1		
59.	150km OSC Transceiver(1511nm)	1		
60.	BiDi Transceiver,eSFP,1310nm(Tx)1490nm(Rx),12.5M~2.67Gbps,-5dBm,0dBm,-18dBm,LC,SM,15km,-40~85 degC	1		
61.	Optical Transceiver-TSFP+-Extended C Band-9.95~11.3Gbps with CDR--1dBm-3dBm--16dBm-LC-SMF-40km	1		
62.	Optical Transceiver-TSFP+-1553.33~1560.61nm-8.5~11.1Gbps with CDR--3dBm-3dBm--16dBm-LC-SMF-40km	1		
63.	Low Speed Transceiver,eSFP,1310nm,1.25Gb/s,-9dBm,-3dBm,-19dBm,LC(-40~85),10km	1		
64.	Optical Functional Module,1000BASE-T-SFP Module,RJ45 Electrical Module,Auto Negotiate,Longest Transimission Distance 100m,-40~85	1		
65.	Optical Transceiver,eSFP,1310nm,STM1,-15~-8dBm,-28dBm,LC,SM,15km	1		
66.	Optical Transceiver,eSFP,1310nm,155M~2.67G,-5~0dBm,-21dBm,LC,SM,15km	1		
67.	Optical Transceiver,SFP+,1560.2nm,8.5G~11.1Gbps,-1~3dBm,-16dBm,LC,SMF,40km	1		
68.	Optical transceiver,SFP+,1550nm,10Gb/s,-1~2dBm,-16dBm,LC,SM,40km,with CDR	1		
69.	Optical transceiver,SFP+,1310nm,8.5Gb/s-11.1Gb/s with CDR,-6.0~-1.0dBm,-14.4dBm,LC,SM,10km	1		
70.	Optical Transceiver,CFP2,4*25&4*28Gb/s(1310nm Band),103.125&111.81Gb/s,-1.3dBm,4.5dBm,-8.6dBm,LC straight,SMF,10km	1		
71.	High Speed Transceiver,QSFP28,1310nm,100G,2dBm,6.5 dBm,-28dBm,LC,80km	1		
72.	Optical Transceiver,eSFP,1310nm,STM1,-5~0dBm,-37dBm,LC,SM,40km	1		
73.	eSFP-125M~2.67G-1310nm-40km-SM	1		

74.	Low Speed Transceiver,eSFP,1550nm,125M~2.67G,- 2dBm,3dBm,-28dBm,LC,SMF,80km	1		
75.	Optical transceiver,SFP+,1550nm,10Gb/s with CDR,0dBm,4dBm,-24dBm,LC,SM,80km,with CDR	1		
76.	Optical Transceiver,eSFP,850nm,2.125Gb/s(Multi rate) ,-9.5~-2.5dBm,-17dBm,LC,MM,0.5km	1		
77.	Optical transceiver,eSFP,1310nm,1.25Gb/s,- 9~-3dBm,-20dBm,LC,Single Mode,10km	1		
78.	Optical Transceiver,eSFP,1310nm,1.25Gb/s,- 5~0dBm,-23dBm,LC,SM,40km	1		
79.	Optical Transceiver,eSFP,1550nm,1.25Gb/s,- 2~5dBm,-23dBm,LC,SM,80km	1		
80.	Optical transceiver,SFP+,850nm,10Gb/s,- 7.3~-1dBm,-9.9dBm,LC, MM,0.3km	1		
81.	Optical transceiver,SFP+,1310nm,10Gb/s,- 8.2~0.5dBm,-12.6dBm,LC,SM,10km	1		
82.	Optical transceiver,SFP+,1550nm,9.95~11.1Gb/s,- 4.7~4dBm,-14.1dBm,LC,SM,40km	1		
83.	Optical Transceiver,eSFP,1310nm,2.048Mb/s,- 15dBm,-8dBm,-26dBm,LC,SM,2km	1		
84.	XFP SFP+ Transceiver-SFP+-1310nm- 10G/1G--8.2dbm-0.5dbm-Single-mode- 14.4dbm-LC-10km	1		
85.	Optical transceiver,SFP+,850nm,10Gb/s,- 7.3~-1dBm,-9.9dBm,LC, MM,0.3km	1		
86.	High Speed Transceiver,QSFP28,850nm,100G,- 8.4dBm,2.4dBm,- 10.3dBm,MPO,MM,0.1km,OM4	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of ETSI Rack(2200*600*300mm)	1		
2.	12-months Technical Support Service of ETSI Rack(2200*600*600mm)	1		
3.	12-months Technical Support Service of Assembly Chassis with 2 DC power modules	1		
4.	12-months Technical Support Service of Assembly Chassis with 2 AC power modules	1		
5.	12-months Technical Support Service of 200G unified line service processing board	1		
6.	12-months Technical Support Service of 200G CFP2A24	1		
7.	12-months Technical Support Service of 200G CFP2A15	1		

8.	12-months Technical Support Service of 2*100G Tributary Service Processing Board	1		
9.	12-months Technical Support Service of 100G CFP2A62	1		
10.	12-months Technical Support Service of 100G Unifed Line Service Processing Board	1		
11.	12-months Technical Support Service of Optical Transceiver, CFP2, 4*25&4*28Gb/s(1310nm Band), 103.125&111.81Gb/s, -1.3dBm, 4.5dBm, -8.6dBm, LC straight, SMF, 10km	1		
12.	12-months Technical Support Service of High Speed Transceiver, QSFP28, 850nm, 100G, -8.4dBm, 2.4dBm, -10.3dBm, MPO, MM, 0.1km, OM4	1		
13.	12-months Technical Support Service of High Speed Transceiver, QSFP28, 1310nm, 100G, 2dBm, 6.5dBm, -28dBm, LC, 80km	1		
14.	Installation and commissioning of Electrical-layer MS-OTN equipment for per subRack	1		
15.	Planning Design Service of Electrical-layer MS-OTN products for per subRack	1		
16.	Installation and commissioning of Electrical-layer MS-OTN products for per Line Board	1		
17.	Installation and commissioning of Electrical-layer MS-OTN products for per Tributary Board	1		
3.0	Training			
1.	Technical training for Electrical-layer MS-OTN equipment (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table E: Optical-layer MS-OTN equipment in backbone sites

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	ETSI Rack(2000*600*300mm)	1		
2.	ETSI Rack(2000*600*600mm)	1		
3.	Assembly Chassis with DC power module	1		
4.	Assembly Chassis with AC power module	1		
5.	System Control & Communication Board with OSC	1		
6.	Auxiliary Interface Board	1		
7.	Enhanced 4-ch Add/Drop Multiplexer	1		

8.	Enhanced 8-ch Optical Add/Drop Multiplexing Board	1		
9.	Enhanced 40-Channel Multiplexing/Demultiplexing Board	1		
10.	Wavelength Selective Multiplexing and Demultiplexing Board	1		
11.	4-Port Wavelength Selective Multiplexing and Demultiplexing Board	1		
12.	Both East & West Directional Fiber Interface Board (Dual FIU subcard)	1		
13.	Fiber Interface Board (Single FIU subcard)	1		
14.	Optical Line Protection Board	1		
15.	OA base board with 2 pluggable ports	1		
16.	C-BAND Optical Amplifier Unit	1		
17.	8-channel Optical Power Monitor Board	1		
18.	Two-directional optical supervisory channel and timing transmission unit	1		
19.	Dispersion Compensation Module (compensate 10km)	1		
20.	Dispersion Compensation Module (compensate 20km)	1		
21.	Dispersion Compensation Module (compensate 40km)	1		
22.	Dispersion Compensation Module (compensate 60km)	1		
23.	Dispersion Compensation Module (compensate 80km)	1		
24.	DCM fixed box Assemble	1		
25.	2*10Gbit/s Wavelength Conversion Board	1		
26.	Enhanced 8 x Multi-rate-Service ports Multiplexing Optical Wavelength Conversion Board (OTU2)	1		
27.	2 x 100Gbit/s Or 10 x 10Gbit/s Multi-rate Ports Wavelength Conversion Board	1		
28.	4-channel 100Gbit/s to 2-Channel OTUC2 Service Convergence Wavelength Conversion Board	1		
29.	12*Multi-rate Service Multiplexing Into OTU4 Wavelength Conversion Board	1		
30.	UPM and installing accessories(2000W)	1		
31.	UPM and installing accessories(4000W)	1		
32.	OLine Capacity RTU for 200G CFP/CFP2 Port(Per 100G)	1		
33.	Client Port Enable RTU for 100G QSFP Port	1		
34.	Client Port Enable RTU for 10G SFP Port	1		
35.	Line Capacity RTU(Per 10G)	1		

36.	WSMD9XF Ports RTU(Right for more than 4 ports)	1		
37.	Additional fee for customization requirements of transport cabinets	1		
38.	Pluggable Optical Amplifier, C-band, Gain 20~31dB, Max 20dBm Out, Support WD	1		
39.	Pluggable Optical Amplifier, C-band, Gain 16~23dB, Max 20dBm Out, Support WD	1		
40.	Pluggable Optical Amplifier, C-band, Gain 23dB, Max 20dBm Out, Support WD	1		
41.	Pluggable Optical Amplifier, C-band, Gain 16dB, Max 23dBm Out, Support WD	1		
42.	Pluggable single wave Optical Amplifier, Gain 30dB	1		
43.	Basic Software Package	1		
44.	Optical Doctor Management System Software Fee Per Port(10G)	1		
45.	Optical Doctor Management System Software Fee Per Port(100G)	1		
46.	Optical Doctor Management System Software Fee Per Port(200G)	1		
47.	Fiber Doctor Management System Software Fee	1		
48.	IEEE 1588V2 Function Fee(Per Subrack)	1		
49.	Encryption Function Software Fee (per board)	1		
50.	Optical Transceiver,eSFP,1310nm,STM1,-15~-8dBm,-28dBm,LC,SM,15km	1		
51.	Optical Transceiver,eSFP,1310nm,STM1,-5~0dBm,-37dBm,LC,SM,40km	1		
52.	Optical Transceiver-TSFP+-Extended C Band-9.95~11.3Gbps with CDR--1dBm-3dBm--16dBm-LC-SMF-40km	1		
53.	Optical transceiver,SFP+,1310nm,8.5Gb/s-11.1Gb/s with CDR,-6.0~-1.0dBm,-14.4dBm,LC,SM,10km	1		
54.	Optical transceiver,SFP+,1550nm,10Gb/s,-1~2dBm,-16dBm,LC,SM,40km,with CDR	1		
55.	Optical transceiver,SFP+,1550nm,10Gb/s with CDR,0dBm,4dBm,-24dBm,LC,SM,80km,with CDR	1		
56.	Optical Functional Module,1000BASE-T-SFP Module,RJ45 Electrical Module,Auto Negotiate,Longest Transimission Distance 100m,-40~85	1		
57.	Optical Transceiver,eSFP,1550nm,STM1,-5~0dBm,-37dBm,LC,SM,80km	1		
58.	Optical Transceiver,eSFP,850nm,2.125Gb/s(Multi rate) ,-9.5~-2.5dBm,-17dBm,LC,MM,0.5km	1		

59.	Optical transceiver,eSFP,1310nm,1.25Gb/s,-9~-3dBm,-20dBm,LC,Single Mode,10km	1		
60.	Optical Transceiver,eSFP,1310nm,1.25Gb/s,-5~0dBm,-23dBm,LC,SM,40km	1		
61.	Optical transceiver,SFP+,1310nm,0.125Gb/s-11.1Gb/s with CDR,-6.0~-1.0dBm,-14.4dBm,LC,SM,10km	1		
62.	High Speed Transceiver,QSFP28,850nm,100G,-8.4dBm,2.4dBm,-10.3dBm,MPO,MM,0.1km,OM4	1		
63.	High Speed Transceiver,QSFP28,1310,100GE,-3.1dBm,4dBm,-7.1dBm,LC,SMF,2km,PAM4	1		
64.	150km OSC Transceiver(1491nm)	1		
65.	150km OSC Transceiver(1511nm)	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of ETSI Rack(2200*600*300mm)	1		
2.	12-months Technical Support Service of ETSI Rack(2200*600*600mm)	1		
3.	12-months Technical Support Service of Assembly Chassis with DC powered modules	1		
4.	12-months Technical Support Service of Assembly Chassis with AC powered modules			
5.	12-months Technical Support Service of 2 x 100Gbit/s Or 10 x 10Gbit/s Multi-rate Ports Wavelength Conversion Board	1		
6.	12-months Technical Support Service of 4-Port Wavelength Selective Multiplexing and Demultiplexing Board	1		
7.	12-months Technical Support Service of 4-channel 100Gbit/s to 2-Channel OTUC2 Service Convergence Wavelength Conversion Board	1		
8.	12-months Technical Support Service of 12*Multi-rate Service Multiplexing Into OTU4 Wavelength Conversion Board	1		
9.	12-months Technical Support Service of High Speed Transceiver,QSFP28,850nm,100G,-8.4dBm,2.4dBm,-10.3dBm,MPO,MM,0.1km,OM4	1		
10.	12-months Technical Support Service of High Speed Transceiver,QSFP28,1310,100GE,-3.1dBm,4dBm,-7.1dBm,LC,SMF,2km,PAM4	1		
11.	Installation and commissioning of Optical-layer MS-OTN equipment for per subRack	1		
12.	Planning Design Service of Optical-layer MS-OTN products for per subRack	1		
13.	Installation and commissioning of Optical-layer	1		

	MS-OTN products for per Line Board			
14.	Installation and commissioning of Optical-layer MS-OTN products for per Tributary Board	1		
3.0	Training			
1.	Technical training for Optical-layer MS-OTN equipment (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table F: Microwave Equipment

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	PtMP Microwave, per AP	1		
2.	PtMP Microwave, per RT	1		
3.	E-band PtP Microwave, per hop	1		
4.	Licensed PtP Microwave, per hop	1		
5.	Basic Capacity License (per 40Mbps)	1		
6.	power supply system for microwave equipment	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of PtMP Microwave, per AP	1		
2.	12-months Technical Support Service of PtMP Microwave, per RT	1		
3.	12-months Technical Support Service of E-band PtP Microwave, per hop	1		
4.	12-months Technical Support Service of Licensed PtP Microwave, per hop	1		
5.	12-months Technical Support Service of Basic Capacity License(per 40Mbps)	1		
6.	12-months Technical Support Service of power supply system for microwave equipment	1		
7.	Installation and commissioning of PtMP Microwave, per AP	1		
8.	Planning Design Service of PtMP Microwave, per AP	1		
9.	Installation and commissioning of PtMP Microwave, per RT	1		
10.	Planning Design Service of PtMP Microwave, per RT	1		
11.	Installation and commissioning of E-band PtP Microwave, per hop	1		
12.	Planning Design Service of E-band PtP Microwave, per hop	1		
13.	Installation and commissioning of Licensed PtP Microwave, per hop	1		
14.	Planning Design Service of Licensed PtP Microwave, per hop	1		
15.	Installation and commissioning of power supply system for microwave equipment	1		
16.	Installation and commissioning of Microwave Management Platform	1		
17.	Planning Design Service of Microwave	1		

	Management Platform			
3.0	Training			
1.	Technical training for Microwave equipment (Maximum 12 people per course, 1 person-day)	1		
			SUB TOTAL	
			15% VAT	
			GRAND TOTAL	

Table G: Network Management System for MS-OTN and Microwave

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Basic Platform and Web Portal Software Package	1		
2.	NCE Geo redundancy system	1		
3.	Basic Northbound Interface for Manager(Includes SNMP, CORBA, XML, etc.),per 5 equivalent NEs	1		
4.	Value-added open APIs (Includes REST, Kafka, etc.), per 5 equivalent NEs	1		
5.	Basic Function Package for Optical Domain OTN Device Management(Per 5 equivalent NEs)	1		
6.	BOD/BC Function Package (Per 5 equivalent Nes)	1		
7.	Latency Map Function Package(Per 5 equivalent Nes)	1		
8.	DefaultMulti-dimensional visualization function package for optical network(Per 5 Equivalent Nes)	1		
9.	Fault simulation Function package(Per 5 Equivalent Nes)	1		
10.	Health Assurance Function Package for Optical Network(Per 5 Equivalent Nes)	1		
11.	Basic Function Package for Microwave Management(Per 50 Equivalent Nes)	1		
12.	FusionSphere Virtualization Suite Standard Edition License ,per CPU	1		
13.	1U/2U Rack Server Integrative AC Cabinet	1		
14.	2*28Core/2.2GHz CPU,16*32G Memory,12*1200GB SAS HDD	1		
15.	2*24Core/2.2GHz CPU,12*32G Memory,12*1200GB SAS HDD	1		
16.	2*10Core/2.2GHz CPU,4*32G Memory,8*600GB SAS HDD	1		
17.	Network 24-Port GE Switch	1		
18.	KVM,KVM 4 in 1 Control Module,1U, 17" LED, 8 KVM ports, 110V/240V AC	1		
19.	WebLCT device commissioning software license(per device)	1		

20.	Door(Dual)_with package	1		
21.	Basic platform and web portal software package,1 Year Subscription and Support	1		
22.	NCE Geo redundancy system, 1 Year Subscription and Support	1		
23.	Basic Northbound Interface for Manager(Includes SNMP, CORBA, XML, etc.), per 5 equivalent NEs, 1 Year Subscription and Support	1		
24.	Value-added open APIs (Includes Rest, Kafka, etc.),per 5 equivalent NEs, 1 Year Subscription and Support	1		
25.	Basic Function Package for Optical Domain OTN Device Management (Per 5 equivalent Nes),1 Year Subscription and Support	1		
26.	BOD/BC Function Package(Per 5 equivalent Nes),1 Year Subscription and Support	1		
27.	Latency Map Function Package(Per 5 equivalent Nes),1 Year Subscription and Support	1		
28.	Fault simulation Function package(Per 5 Equivalent Nes), 1 Year Subscription and Supportperpetual License	1		
29.	Multi-dimensional visualization function package for optical network(Per 5 Equivalent Nes),1 Year Subscription and Support	1		
30.	Health Assurance Function Package for Optical Network(Per 5 Equivalent Nes),1 Year Subscription and Support	1		
31.	Basic Function Package for Microwave Management (Per 50 Equivalent Nes),1 Year Subscription and Support	1		
32.	FusionCompute Virtualization Suite Standard Edition,1 Year Subscription and Support,per CPU	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of NMS	1		
2.	Installation and Commissioning of NMS	1		
3.	Planning Design Service of NMS	1		
3.0 Training				
1.	Technical training for NMS platform (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				
Table H: Cabinet for the MS-OTN equipment				
No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			

1.	Outdoor cabinet with Subrack (AC&DC power supply)	1		
2.	Rectifier Module	1		
3.	Inverter Module	1		
4.	AC Output Module,16A/1P*3	1		
5.	100 Ah Lithium battery	1		
6.	Expansion DC cooling unit	1		
7.	1U DC distribution unit	1		
8.	Power Monitor system	1		
9.	Power Monitor license per site	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of one cabinet	1		
2.	Installation and Commissioning of one cabinet	1		
3.0 Training				
1.	Technical training for Outdoor Cabinet Power System (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table I: Campus network and Access Control system

No	Item	Quantity	Unit Price	Total Price
1.0 Hardware and Software				
1.	Core Switch	1		
2.	Aggregation Switch	1		
3.	8-port Access Switch	1		
4.	24-port Access Switch	1		
5.	48-port Access Switch	1		
6.	Backhaul Industry Switch	1		
7.	Data Center Spine Switch	1		
8.	Data Center Leaf Switch (SFP+ Port)	1		
9.	Data Center Leaf Switch (Base-T Port)	1		
10.	Indoor Access Point	1		
11.	Outdoor Access Point	1		
12.	Big Campus Wireless Controller	1		
13.	Small Campus Wireless Controller	1		
14.	P Router	1		
15.	PE Router	1		
16.	Big Branch Router	1		
17.	Small Branch Router	1		
18.	Management Platform Software and Hardware	1		
19.	Optical Transceiver,SFP+,10G,Multi-mode Module(850nm,0.3km,LC)	1		

20.	Optical Transceiver,SFP+,10G,Single-mode Module(1310nm,10km,LC)	1		
21.	40GBASE-LR4 optical transceiver, QSFP+, 40G, single-mode module (1310nm, 10km, LC)	1		
22.	40GBase-SDLC Optical Transceiver,QSFP+,40G,Multi-mode(850nm,PAM4,0.1km-OM3,0.15km-OM4,LC)	1		
23.	100GBase-LR4 Optical Transceiver,QSFP28,100G,Single-mode module (1310nm,10km,LC)	1		
24.	100GBase-4WDM-40 Optical Transceiver,QSFP28,100G,Single-mode module (1310nm,40km,LC)	1		
25.	Active Optical Cable ,QSFP28,100G,(850nm,10m,AOC)	1		
26.	Access Control Multi-Security Management Platform	1		
27.	Side Swing Barrier	1		
28.	Central Swing Barrier	1		
29.	Face Pad for Personnel Access	1		
30.	Face Pad for Access Control	1		
31.	Face Pad for Face Registration	1		
32.	MF Card Reader	1		
33.	MF card	1		
34.	Double Door Lock	1		
35.	Exit Button	1		
36.	Emergency Glass Switch	1		
37.	Door Closer	1		
38.	Parking Barrier	1		
39.	License Plate Recognition	1		
40.	Decoder	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of Core Switch	1		
2.	12-months Technical Support Service of Aggregation Switch	1		
3.	12-months Technical Support Service of 8-port Access Switch	1		
4.	12-months Technical Support Service of 24-port Access Switch	1		
5.	12-months Technical Support Service of 48-port Access Switch	1		
6.	12-months Technical Support Service of Backhaul Industry Switch	1		

7.	12-months Technical Support Service of Data Center Spine Switch	1		
8.	12-months Technical Support Service of Data Center Leaf Switch (SFP+ Port)	1		
9.	12-months Technical Support Service of Data Center Leaf Switch (Base-T Port)	1		
10.	12-months Technical Support Service of Indoor Access Point	1		
11.	12-months Technical Support Service of Outdoor Access Point	1		
12.	12-months Technical Support Service of Big Campus Wireless Controller	1		
13.	12-months Technical Support Service of Small Campus Wireless Controller	1		
14.	12-months Technical Support Service of P Router Hardware and Software	1		
15.	12-months Technical Support Service of PE Router	1		
16.	12-months Technical Support Service of Big Branch Router	1		
17.	12-months Technical Support Service of Small Branch Router	1		
18.	12-months Technical Support Service of Management Platform Software and Hardware	1		
19.	12-months Technical Support Service of Access Control Multi-Security Management Platform	1		
20.	12-months Technical Support Service of Side Swing Barrier	1		
21.	12-months Technical Support Service of Central Swing Barrier	1		
22.	12-months Technical Support Service of Face Pad for Personnel Access	1		
23.	12-months Technical Support Service of Face Pad for Access Control	1		
24.	12-months Technical Support Service of Face Pad for Face Registration	1		
25.	12-months Technical Support Service of MF Card Reader	1		
26.	12-months Technical Support Service of Double Door Lock	1		
27.	12-months Technical Support Service of Exit Button	1		
28.	12-months Technical Support Service of Emergency Glass Switch	1		
29.	12-months Technical Support Service of Door Closer	1		

30.	12-months Technical Support Service of Parking Barrier	1		
31.	12-months Technical Support Service of License Plate Recognition	1		
32.	12-months Technical Support Service of Decoder	1		
33.	Installation and commissioning for Core Switch	1		
34.	Planning Design Service of Core Switch	1		
35.	Installation and commissioning for Aggregation Switch	1		
36.	Planning Design Service of Aggregation Switch	1		
37.	Installation and commissioning for Access Switch(8 Ports)	1		
38.	Planning Design Service of Access Switch(8 Ports)	1		
39.	Installation and commissioning for Access Switch(24 Ports)	1		
40.	Planning Design Service of Access Switch(24 Ports)	1		
41.	Installation and commissioning for Access Switch(48 Ports)	1		
42.	Planning Design Service of Access Switch(48 Ports)	1		
43.	Installation and commissioning for NMS	1		
44.	Installation and commissioning for Indoor Access Point devices	1		
45.	Planning Design Service of Indoor Access Point devices	1		
46.	Installation and commissioning for Outdoor Access Point devices	1		
47.	Planning Design Service of Outdoor Access Point devices	1		
48.	Installation and commissioning for Big Campus Wireless Controller	1		
49.	Planning Design Service of Big Campus Wireless Controller	1		
50.	Installation and commissioning for Small Campus Wireless Controller	1		
51.	Planning Design Service of Small Campus Wireless Controller	1		
52.	Installation and commissioning for P Router	1		
53.	Planning Design Service of P Router	1		
54.	Installation and commissioning for PE Router	1		
55.	Planning Design Service of PE Router	1		
56.	Installation and commissioning for Big Branch Router	1		

57.	Planning Design Service of Big Branch Router	1		
58.	Installation and commissioning for Small Branch Router	1		
59.	Planning Design Service of Small Branch Router	1		
60.	1 person-day On-site service for Access Control	1		
61.	1 person-day Custom development for Access Control	1		
3.0	Training			
1.	Technical training for Network Solution Equipment (Maximum 12 people per course, 1 person-day)	1		
2.	Technical training for Access Control System (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table J: CCTV Monitoring Center System

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Display Screen	1		
2.	Multi-Screen Processing Controller	1		
3.	Decoder	1		
4.	Workstation	1		
5.	65 inch Videoconferencing Interactive Whiteboard	1		
6.	75 inch Videoconferencing Interactive Whiteboard	1		
7.	86 inch Videoconferencing Interactive Whiteboard	1		
8.	Wall mount bracket for 65 inch Interactive Whiteboard	1		
9.	Rolling stand for 65 inch Interactive Whiteboard	1		
10.	Rolling stand for 86 inch Interactive Whiteboard	1		
11.	HD Camera	1		
12.	Microphone	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of Display Screen	1		
2.	12-months Technical Support Service of Multi-Screen Processing Controller	1		
3.	12-months Technical Support Service of Decoder	1		
4.	12-months Technical Support Service of Workstation	1		
5.	12-months Technical Support Service of 65 inch Videoconferencing Interactive Whiteboard	1		
6.	12-months Technical Support Service of 75	1		

	inch Videoconferencing Interactive Whiteboard			
7.	12-months Technical Support Service of 86 inch Videoconferencing Interactive Whiteboard	1		
8.	12-months Technical Support Service of HD Camera	1		
9.	12-months Technical Support Service of Microphone	1		
10.	Installation and Commissioning of Display Screen	1		
11.	Installation and Commissioning of 65 inch Videoconferencing Interactive Whiteboard	1		
12.	Installation and Commissioning of 86 inch Videoconferencing Interactive Whiteboard	1		
13.	Installation and Commissioning of HD Camera	1		
3.0	Training			
1.	Technical training for CCTV Monitoring Center System (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table K: Off Premise Infrastructure As A Service (IAAS) Cloud Platform

No	Item	Quantity	Unit Price	Total Price
1.0	Cloud Service			
1.	Elastic Cloud Server -2vCPU, 16G Memory-Windows, Yearly	1		
2.	Elastic Cloud Server -4vCPU, 32G Memory-Windows Yearly	1		
3.	Elastic Cloud Server -8vCPU, 64G Memory-Windows Yearly	1		
4.	Elastic Cloud Server -12vCPU, 96G Memory-Windows Yearly	1		
5.	Elastic Cloud Server -16vCPU, 128G Memory-Windows Yearly	1		
6.	Elastic Cloud Server -24CPU, 192G Memory-Windows Yearly	1		
7.	Elastic Cloud Server -32vCPU, 256G Memory-Windows Yearly	1		
8.	Elastic Cloud Server -64vCPU, 512G Memory-Windows Yearly	1		
9.	Elastic Volume Service- 100GB High IO, Yearly	1		
10.	Elastic Volume Service- 100GB Ultra-High IO, Yearly	1		
11.	Cloud Backup and Recovery for Server vault, 1000GB, Yearly	1		

12.	Storage Disaster Recovery Service, Per Agent, Yearly	1		
13.	Standard Object Storage, 1024GB, Yearly	1		
14.	Elastic IP, 10 Mbps, Yearly	1		
15.	Virtual Private Network, 10 Mbps, Yearly	1		
16.	Web Application Firewall, Professional, Yearly	1		
17.	Host Security Service, Enterprise edition, Yearly	1		
2.0	Support			
1.	Support Plans-Busines, Yearly Case severity/Response time: General guidance < 24 hours System exception < 12 hours Production system exception < 4 hours Production system unavailability < 1 hour	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table L: Artificial Intelligent Contact Center As A Service

No	Item	Quantity	Unit Price	Total Price
1.0	User Subscription			
1.	Standard Call Center Agent (include voice agent inbound & out bound, multimedia agent web chat, IVR, case management) per agent per year	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table M: Mobile Video Surveillance System

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Mobile Video Surveillance Sever	1		
2.	Mobile Video Surveillance Recording and Playback Server	1		
3.	Trunking Service Function Software	1		
4.	Console Software	1		
5.	Audio Concurrent Num License	1		
6.	Video Concurrent Num License	1		
7.	Group Access License	1		
8.	User Access License	1		
9.	GIS User Access License	1		
10.	Instant Message User Access License	1		
11.	Operator Sit Account License	1		

12.	Mobile Handheld Terminal to Check the Video Surveillance System	1		
13.	Optional Extra: Battery	1		
14.	Optional Extra: Desktop Charger	1		
15.	Mobile Vehicle Terminal to Check the Video Surveillance System	1		
16.	Body-worn Camera for Mobile Video Surveillance	1		
17.	Docking Station for Body-worn Camera	1		
18.	Offline Recording System Sever	1		
19.	Offline Recording System Software	1		
2.0	Support and Installation			
1.	12-Months Application Software Support Service of Server	1		
2.	12-Months Application Software Support Service of Basic Software	1		
3.	12-Months Application Software Support Service of Recording Software	1		
4.	12-Months Application Software Support Service of Concurrent NUM License	1		
5.	12-Months Application Software Support Service of User Access License	1		
6.	12-Months Application Software Support Service of Operating Sit Account License	1		
7.	12-Months Application Software Support Service of Offline Recording System Software	1		
10.	Installation and Commissioning of Server	1		
11.	Installation and Commissioning of Mobile Video Surveillance System	1		
12.	Installation and Commissioning of Terminals, Per Mobile Handheld Terminal or Body-worn Camera	1		
13.	Installation and Commissioning of Mobile Vehicle Terminal	1		
14.	Installation and Commissioning of Dock Station	1		
15.	Installation and Commissioning of Offline Recording System	1		
3.0	Training			
1.	Technical Training for Mobile Video Surveillance System (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table N: Modular 3-phase UPS equipment

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Modular UPS 400KVA/400KW chassis	1		
2.	100kW Power Module	1		
3.	Power Cable for UPS 10m per unit	1		
4.	Lithium battery Cabinet (10min@300kW)	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of Modular UPS 400KVA/400KW chassis	1		
2.	12-months Technical Support Service of 100kW Power Module	1		
3.	12-months Technical Support Service of Lithium battery Cabinet (10min@300kW)	1		
4.	Installation and Commissioning for Modular UPS	1		
5.	Installation and Commissioning for Lithium battery Cabinet (10min@300kW)	1		
6.	Health Check for UPS & Lithium battery	1		
3.0	Training			
1.	Technical Training for Modular 3-phase UPS and lithium battery (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table O: Rack-Mounted UPS equipment

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	6kVA/6kW UPS	1		
2.	10kVA/10kW UPS	1		
3.	240V/20Ah Lithium battery	1		
4.	SNMP card	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of 6kVA/6kW UPS	1		
2.	12-months Technical Support Service of 10kVA/10kW UPS	1		
3.	12-months Technical Support Service of 240V/20Ah Lithium battery	1		
4.	12-months Technical Support Service of SNMP card	1		
5.	Installation and Commissioning for Rack-Mounted UPS	1		

3.0	Training			
1.	Technical Training for Rack-Mounted UPS and lithium battery (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table P: Digital Power equipment

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Residential inverter-2KTL	1		
2.	Residential inverter-5KTL	1		
3.	Residential power module	1		
4.	Residential battery module– 5KWH	1		
5.	Residential-Backup Box	1		
6.	C&I inverter – 40KTL	1		
7.	C&I inverter – 100KTL	1		
8.	Utility inverter – 200KTL	1		
9.	Smart transformer station,STS-3000K	1		
10.	Smart transformer station,STS-6000K	1		
2.0	Support and Installation			
1.	10 years warranty extension- inverter-2KTL	1		
2.	10 years warranty extension- inverter-5KTL	1		
3.	10 years warranty extension- inverter-40KTL	1		
4.	10 years warranty extension- inverter-100KTL	1		
5.	10 years warranty extension- inverter-200KTL	1		
3.0	Training			
1.	Technical Training for Digital Power equipment (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Schedule of Pricing Year 2

NB:

- The bidder is required to break down the unit pricing into details as much as possible.
- The scope of works and the quantities may be adjusted at evaluation stage to align with the end-users requirement and budget for a particular financial year within the 3 years framework contract.
- Value added tax. (VAT) should be quoted separately from the unit prices.

Schedule of Pricing

Table A: Intelligent Video Surveillance

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Video Surveillance Management and Recording System Server	1		
2.	Video Surveillance Analytics System Sever	1		
3.	Edge Storage and Analysis Device	1		
4.	Storage Capacity (16 TB enterprise-class SATA disk)	1		
5.	Storage Capacity (10 TB enterprise-class SATA disk)	1		
6.	Video and image analysis unit type1	1		
7.	Video and image analysis unit type2	1		
8.	Vehicle recognition algorithm license	1		
9.	Face recognition algorithm license	1		
10.	12-months Subscription and Support of Face recognition algorithm license	1		
11.	12-months Subscription and Support of Vehicle recognition algorithm license	1		
12.	2MP Indoor Dome Cameras	1		
13.	5MP Indoor Dome Cameras	1		
14.	2MP Outdoor Bullet Camera	1		
15.	5MP Outdoor Bullet Camera	1		
16.	2MP Outdoor Bullet Camera (Long Range)	1		
17.	2MP Anti-Corrosion Bullet Camera	1		
18.	2MP Outdoor High Speed PTZ Dome Camera	1		
19.	2MP Anti-Corrosion IR PTZ Dome Camera	1		
20.	4K IR PTZ Dome Camera	1		
21.	Thermal PTZ Camera	1		
22.	Siren	1		
23.	Outdoor Supporting CCTV Pole	1		
24.	Outdoor Integrated Power and Network Services	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of Video Surveillance Management and Recording System Server	1		
2.	12-months Technical Support Service of Video Surveillance Analytics System Sever	1		
3.	12-months Technical Support Service of Edge Storage and Analysis Device	1		
4.	12-months Technical Support Service of 2MP Indoor Dome Cameras	1		
5.	12-months Technical Support Service of 5MP Indoor Dome Cameras	1		
6.	12-months Technical Support Service of 2MP Outdoor Bullet Camera	1		

7.	12-months Technical Support Service of 5MP Outdoor Bullet Camera	1		
8.	12-months Technical Support Service of 2MP Outdoor Bullet Camera (Long Range)	1		
9.	12-months Technical Support Service of 2MP Anti-Corrosion Bullet Camera	1		
10.	12-months Technical Support Service of 2MP Outdoor High Speed PTZ Dome Camera	1		
11.	12-months Technical Support Service of 2MP Anti-Corrosion IR PTZ Dome Camera	1		
12.	12-months Technical Support Service of 4K IR PTZ Dome Camera	1		
13.	12-months Technical Support Service of Thermal PTZ Camera	1		
14.	12-months Technical Support Service of Siren	1		
15.	12-months Technical Support Service of Outdoor Supporting CCTV Pole	1		
16.	12-months Technical Support Service of Outdoor Integrated Power and Network Services	1		
17.	Installation and Commissioning of Video Surveillance Management and Recording System Server	1		
18.	Installation and Commissioning of Video Surveillance Analytics System Sever	1		
19.	Installation and Commissioning of Edge Storage and Analysis Device	1		
20.	Installation and Commissioning of Dome Camera	1		
21.	Installation and Commissioning of Bullet Camera	1		
22.	Installation and Commissioning of PTZ Camera	1		
23.	Installation and Commissioning of Siren	1		
24.	Installation and Commissioning of Outdoor Supporting CCTV Pole	1		
25.	Installation and Commissioning of Outdoor Integrated Power and Network Services	1		
26.	Planning Design and Implementation Service For Video Surveillance	1		
27.	Planning Design and Implementation Service For IVS Micro Edge	1		
28.	Installation and Commissioning of Decoder	1		
3.0 Training				
1.	Technical training for Intelligent Video Surveillance (Maximum 12 people per course, 1 person-day)	1		
			SUB TOTAL	
			15% VAT	
			GRAND TOTAL	

Table B: Storage Solution

No	Item	Quantity	Unit Price	Total Price
1.0 Hardware and Software				
1.	Hybrid Intelligent Storage Controller Enclosure with built-in software and license	1		
2.	All Flash Storage Controller Enclosure with built-in software and license	1		
3.	Application Server	1		

4.	DME Storage platform (100T,3 year)	1		
5.	Server Management platform for 2 servers	1		
6.	Dedicate All Flash Backup Storage Controller Enclosure with Software Essential License (40TB)	1		
7.	3.84TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
8.	7.68TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
9.	10TB 7.2K RPM NL-SAS Disk Unit (3.5") for Hybrid Intelligent Storage	1		
10.	1.8TB 10K RPM SAS Disk Unit (2.5") for Hybrid Intelligent Storage	1		
11.	3.84TB SAS SSD or NVMe Palm SSD Disk Unit (7") for All Flash Storage	1		
12.	7.68TB SAS SSD or NVMe Palm SSD Disk Unit (7") for All Flash Storage	1		
13.	3.84TB SAS SSD for Dedicate All Flash Backup Storage	1		
14.	7.68TB SAS SSD for Dedicate All Flash Backup Storage	1		
15.	Disk Enclosure for Hybrid Intelligent Storage	1		
16.	Disk Enclosure for Dedicate All Flash Backup Storage	1		
17.	NVME SSD Disk Enclosure for All Flash Storage	1		
18.	SAS SSD Disk Enclosure for All Flash Storage	1		
19.	4 ports SmartIO I/O module (SFP+,16Gb FC) for All Flash Storage	1		
20.	4 ports SmartIO I/O module (SFP+,16Gb FC) for Hybrid Intelligent Storage	1		
21.	4 ports SmartIO I/O module (SFP+,16Gb FC) for Dedicate All Flash Backup Storage	1		
22.	4 ports SmartIO I/O module (SFP+,10Gb ETH) for All Flash Storage	1		
23.	4 ports SmartIO I/O module (SFP+,10Gb ETH) for Hybrid Intelligent Storage	1		
24.	4 ports SmartIO I/O module (SFP+,10Gb ETH) for Dedicate All Flash Backup Storage	1		
25.	Dedicate All Flash Backup Storage Software Capacity License (Per TB)	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of Hybrid Intelligent Storage Controller Enclosure	1		
2.	12-months Technical Support Service of All Flash Storage Controller Enclosure	1		
3.	12-months Technical Support Service of Application Server	1		
4.	12-months Technical Support Service of Dedicate All Flash Backup Storage Controller Enclosure with Software Essential License (40TB)	1		
5.	12-months Technical Support Service of 7.68TB SAS SSD or NVMe Palm SSD Disk Unit (7")	1		
6.	12-months Technical Support Service of 3.84TB SAS SSD or NVMe Palm SAS Disk Unit (7")	1		

7.	12-months Technical Support Service of 3.84TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
8.	12-months Technical Support Service of 7.68TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
9.	12-months Technical Support Service of Disk Enclosure for Hybrid Intelligent Storage	1		
10.	12-months Technical Support Service of Disk Enclosure for Dedicate All Flash Backup Storage	1		
11.	12-months Technical Support Service of SAS SSD Disk Enclosure for All Flash Storage	1		
12.	12-months Technical Support Service of Smart NVME SSD Disk Enclosure for All Flash Storage	1		
13.	Installation and Commissioning of All Flash Storage	1		
14.	Installation and Commissioning of Hybrid Storage	1		
15.	Installation and Commissioning of Dedicate All Flash Backup Storage	1		
16.	Installation and Commissioning of DME Storage platform for 2 devices	1		
17.	Data Migration Service of Centralised Storage(per 100TB, 10 Hosts)	1		
3.0	Training			
1.	Technical training for DME Storage Platform (Maximum 12 people per course, 1 person-day)	1		
			SUB TOTAL	
			15% VAT	
			GRAND TOTAL	

1

Table C: Access site CCTV backhaul network devices

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	ETSI Rack(2200*600*300mm)	1		
2.	ETSI Rack(2200*600*600mm)	1		
3.	Assembly Chassis with DC power module	1		
4.	Assembly Chassis with AC power module	1		
5.	Universal Cross Connect, System Control and Clock Processing Board	1		
6.	Auxiliary Interface Board	1		
7.	Two-directional optical supervisory channel and timing transmission unit	1		
8.	10*Multi-rate Universal Service Processing Board	1		
9.	1*STM-64 Optical Interface Board	1		
10.	4*STM-16/8*STM-4/8*STM-1-optical interface board	1		
11.	4*STM-16 Optical Interface Board	1		
12.	4*STM-4/4*STM-1-Optical Interface Board	1		

13.	10-port Gigabit Ethernet Switching Processing Board	1		
14.	4*GE(SFP) Ethernet switching Processing Board	1		
15.	8-Port 100M Fast Ethernet Processing Board with LAN Switch	1		
16.	32xE1/T1 tributary board	1		
17.	32xE1(75&120ohm)/T1(100ohm) Electrical Interface Board	1		
18.	8 x 2M Optical Tributary Board	1		
19.	10*10GE(SFP+) Ethernet Processing Board	1		
20.	8-Port 2/4 Wire and E&M Processing Board	1		
21.	DDN Processing Board	1		
22.	12-Port FXS/FXO Processing Board	1		
23.	UPM and installing accessories(2000W)	1		
24.	UPM and installing accessories(4000W)	1		
25.	Basic Software Package	1		
26.	Chassis PACKET Function Fee	1		
27.	Universal Line Card Packet Encapsulation Ability fee	1		
28.	Packet Service License (Per 10GE Port)	1		
29.	Packet Service License (Per GE Port)	1		
30.	OSU Function Fee for 10G Line Rate and below (per port)	1		
31.	OSU Function Fee for Tributary side	1		
32.	Chassis OTN Function Fee (Per Subrack)	1		
33.	Chassis SDH Function Fee	1		
34.	Fiber Doctor Management System Software Fee	1		
35.	IEEE 1588V2 Function Fee	1		
36.	Additional fee for customization requirements of transport cabinets	1		
37.	Optical Transceiver,eSFP,1310nm,STM1,-15~-8dBm,-28dBm,LC,SM,15km	1		
38.	Optical Transceiver, eSFP,1310nm, STM1, -5~0dBm, -37dBm,LC,SM,40km	1		
39.	Optical Functional Module,1000BASE-T-SFP Module,RJ45 Electrical Module,Auto Negotiate,Longest Transimission Distance 100m,-40~85	1		
40.	Optical Transceiver, eSFP,1310nm,155M~2.67G, -5~0dBm, -21dBm,LC,SM,15km	1		
41.	eSFP-125M~2.67G-1310nm-40km-SM	1		
42.	Optical transceiver, SFP+,1310nm,8.5Gb/s-	1		

	11.1Gb/s with CDR, -6.0~-1.0dBm, -14.4dBm,LC,SM,10km			
43.	Low Speed Transceiver, eSFP,1550nm,125M~2.67G, -2dBm,3dBm, -28dBm,LC,SMF,80km	1		
44.	Optical Transceiver, eSFP,1310nm, STM16, -2~3dBm, -29dBm,LC,SM,40km	1		
45.	Optical transceiver,eSFP,1310nm,1.25Gb/s,-9~-3dBm,-20dBm,LC,Single Mode,10km	1		
46.	Optical Transceiver,eSFP,1310nm,1.25Gb/s,-5~0dBm,-23dBm,LC,SM,40km	1		
47.	Optical transceiver, SFP+,1310nm,10Gb/s, -8.2~-0.5dBm, -12.6dBm,LC,SM,10km	1		
48.	Optical transceiver, SFP+,1550nm,9.95~11.1Gb/s, -4.7~4dBm, -14.1dBm,LC,SM, 40km	1		
49.	XFP SFP+ Transceiver-SFP+-1310nm-10G/1G--8.2dbm-0.5dbm-Single-mode-14.4dbm-LC-10km	1		
50.	Optical Transceiver,eSFP,850nm,2.125Gb/s(Multi rate) ,-9.5~-2.5dBm,-17dBm,LC,MM,0.5km	1		
51.	Optical transceiver, SFP+,850nm,10Gb/s, -7.3~-1dBm, -9.9dBm, LC, MM,0.3km	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of ETSI Rack(2200*600*300mm)	1		
2.	12-months Technical Support Service of ETSI Rack(2200*600*600mm)	1		
3.	12-months Technical Support Service of Assembly Chassis with DC power module	1		
4.	12-months Technical Support Service of Assembly Chassis with AC power module	1		
5.	Installation and commissioning of MS-OTN products for per subRack	1		
6.	Planning Design of MS-OTN products for per subRack	1		
7.	Installation and commissioning of MS-OTN products for per Line Board	1		
8.	Installation and commissioning of MS-OTN products for per Tributary Board	1		
3.0 Training				
1.	Technical training for MS-OTN products (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				1
15% VAT				
GRAND TOTAL				

Table D: Electrical-layer MS-OTN equipment in backbone sites

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	ETSI Rack(2200*600*300mm)	1		
2.	ETSI Rack(2200*600*600mm)	1		
3.	Assembly Chassis with DC power module	1		
4.	Assembly Chassis with AC power module	1		
5.	Universal Cross Connect, System Control and Clock Processing Board(XCH)	1		
6.	Universal Cross Connect, System Control and Clock Processing Board(XCME)	1		
7.	Universal Cross Connect, System Control and Clock Processing Board(XCS)	1		
8.	Auxiliary Interface Board	1		
9.	Two-directional optical supervisory channel and timing transmission unit	1		
10.	Enhanced 8 x Multi-rate-Service ports Multiplexing Optical Wavelength Conversion Board	1		
11.	2*10Gbit/s Wavelength Conversion Board	1		
12.	200G unified line service processing board	1		
13.	200G CFP2A24(Metro+, SDFEC2@200G e16QAM/100G QPSK/etc., flex rate, Coherent, Tunable, Extended C Band, -10dBm-1dBm, -18dBm, Flexgrid)	1		
14.	200G CFP2A15(Metro, SDFEC2@200G 16QAM/SDFEC2 @100G QPSK/etc., flex rate, Coherent, Tunable, Extended C Band, -10dBm-1dBm, -18dBm, Fixed)	1		
15.	100G Unifed Line Service Processing Board	1		
16.	100G CFP2A62(LH, SDFEC2, Coherent wDCM, Tunable, Extended C Band, -10dBm-1dBm, -18dBm, Fixed)	1		
17.	4*10G Universal Line Service Processing Board	1		
18.	10*2.5G&10G Universal Line Service Processing Board	1		
19.	2*100G Tributary Service Processing Board	1		
20.	10*Multi-rate Universal Service Processing Board	1		
21.	2*STM-64 Optical Interface Board	1		
22.	1*STM-64 Optical Interface Board	1		
23.	4*STM-16/8*STM-4/8*STM-1-optical interface board	1		
24.	1*STM-16-Optical Interface Board	1		
25.	4*STM-4/4*STM-1-Optical Interface Board	1		

26.	10-port Gigabit Ethernet Switching Processing Board	1		
27.	4*GE(SFP) Ethernet switching Processing Board	1		
28.	32xE1/T1 tributary board	1		
29.	32xE1(75&120ohm)/T1(100ohm) Electrical Interface Board	1		
30.	10 x 2M Optical Tributary Board	1		
31.	8 x 2M Optical Tributary Board	1		
32.	10*10GE(SFP+)Ethernet Processing Board	1		
33.	8-Port 2/4 Wire and E&M Processing Board	1		
34.	DDN Processing Board	1		
35.	12-Port FXS/FXO Processing Board	1		
36.	Client Port Enable RTU for 100G QSFP Port	1		
37.	Line Port Enable RTU for 200G CFP/CFP2 Port	1		
38.	Line Capacity RTU for 200G CFP/CFP2 Port(Per 100G)	1		
39.	UPM and installing accessories(2000W)	1		
40.	UPM and installing accessories(4000W)	1		
41.	Basic Software Package	1		
42.	Chassis PACKET Function Fee	1		
43.	Universal Line Card Packet Encapsulation Ability fee (Per Unit)	1		
44.	Packet Service License (Per 10GE Port)	1		
45.	Packet Service License (Per GE Port)	1		
46.	OSU Function Fee for 10G Line Rate and below (per port)	1		
47.	OSU Function Fee for 100G Line Rate (per port)	1		
48.	OSU Function Fee for Tributary side (per TTA board)	1		
49.	OSU Function Fee for Tributary side (per E1 board)	1		
50.	Chassis OTN Function Fee (Per Subrack)	1		
51.	Chassis SDH Function Fee (Per Subrack)	1		
52.	SDH Centralized Cross Connect Capacity Fee(160G)	1		
53.	Optical Doctor Management System Software Fee Per Port(10G)	1		
54.	Optical Doctor Management System Software Fee Per Port(100G)	1		
55.	Fiber Doctor Management System Software Fee	1		
56.	IEEE 1588V2 Function Fee (Per Subrack)	1		

57.	Additional fee for customization requirements of transport cabinets	1		
58.	150km OSC Transceiver(1491nm)	1		
59.	150km OSC Transceiver(1511nm)	1		
60.	BiDi Transceiver,eSFP,1310nm(Tx)1490nm(Rx),125M~2.67Gbps,-5dBm,0dBm,-18dBm,LC,SM,15km,-40~85 degC	1		
61.	Optical Transceiver-TSFP+-Extended C Band-9.95~11.3Gbps with CDR--1dBm-3dBm--16dBm-LC-SMF-40km	1		
62.	Optical Transceiver-TSFP+-1553.33~1560.61nm-8.5~11.1Gbps with CDR--3dBm-3dBm--16dBm-LC-SMF-40km	1		
63.	Low Speed Transceiver,eSFP,1310nm,1.25Gb/s,-9dBm,-3dBm,-19dBm,LC(-40~85),10km	1		
64.	Optical Functional Module,1000BASE-T-SFP Module,RJ45 Electrical Module,Auto Negotiate,Longest Transimission Distance 100m,-40~85	1		
65.	Optical Transceiver,eSFP,1310nm,STM1,-15~-8dBm,-28dBm,LC,SM,15km	1		
66.	Optical Transceiver,eSFP,1310nm,155M~2.67G,-5~0dBm,-21dBm,LC,SM,15km	1		
67.	Optical Transceiver,SFP+,1560.2nm,8.5G~11.1Gbps,-1~3dBm,-16dBm,LC,SMF,40km	1		
68.	Optical transceiver,SFP+,1550nm,10Gb/s,-1~2dBm,-16dBm,LC,SM,40km,with CDR	1		
69.	Optical transceiver,SFP+,1310nm,8.5Gb/s-11.1Gb/s with CDR,-6.0~-1.0dBm,-14.4dBm,LC,SM,10km	1		
70.	Optical Transceiver,CFP2,4*25&4*28Gb/s(1310nm Band),103.125&111.81Gb/s,-1.3dBm,4.5dBm,-8.6dBm,LC straight,SMF,10km	1		
71.	High Speed Transceiver,QSFP28,1310nm,100G,2dBm,6.5 dBm,-28dBm,LC,80km	1		
72.	Optical Transceiver,eSFP,1310nm,STM1,-5~0dBm,-37dBm,LC,SM,40km	1		
73.	eSFP-125M~2.67G-1310nm-40km-SM	1		
74.	Low Speed Transceiver,eSFP,1550nm,125M~2.67G,-2dBm,3dBm,-28dBm,LC,SMF,80km	1		
75.	Optical transceiver,SFP+,1550nm,10Gb/s with CDR,0dBm,4dBm,-24dBm,LC,SM,80km,with CDR	1		

76.	Optical Transceiver,eSFP,850nm,2.125Gb/s(Multi rate) ,-9.5~-2.5dBm,-17dBm,LC,MM,0.5km	1		
77.	Optical transceiver,eSFP,1310nm,1.25Gb/s,-9~-3dBm,-20dBm,LC,Single Mode,10km	1		
78.	Optical Transceiver,eSFP,1310nm,1.25Gb/s,-5~0dBm,-23dBm,LC,SM,40km	1		
79.	Optical Transceiver,eSFP,1550nm,1.25Gb/s,-2~5dBm,-23dBm,LC,SM,80km	1		
80.	Optical transceiver,SFP+,850nm,10Gb/s,-7.3~-1dBm,-9.9dBm,LC, MM,0.3km	1		
81.	Optical transceiver,SFP+,1310nm,10Gb/s,-8.2~0.5dBm,-12.6dBm,LC,SM,10km	1		
82.	Optical transceiver,SFP+,1550nm,9.95~11.1Gb/s,-4.7~4dBm,-14.1dBm,LC,SM,40km	1		
83.	Optical Transceiver,eSFP,1310nm,2.048Mb/s,-15dBm,-8dBm,-26dBm,LC,SM,2km	1		
84.	XFP SFP+ Transceiver-SFP+-1310nm-10G/1G--8.2dbm-0.5dbm-Single-mode-14.4dbm-LC-10km	1		
85.	Optical transceiver,SFP+,850nm,10Gb/s,-7.3~-1dBm,-9.9dBm,LC, MM,0.3km	1		
86.	High Speed Transceiver,QSFP28,850nm,100G,-8.4dBm,2.4dBm,-10.3dBm,MPO,MM,0.1km,OM4	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of ETSI Rack(2200*600*300mm)	1		
2.	12-months Technical Support Service of ETSI Rack(2200*600*600mm)	1		
3.	12-months Technical Support Service of Assembly Chassis with 2 DC power modules	1		
4.	12-months Technical Support Service of Assembly Chassis with 2 AC power modules	1		
5.	12-months Technical Support Service of 200G unified line service processing board	1		
6.	12-months Technical Support Service of 200G CFP2A24	1		
7.	12-months Technical Support Service of 200G CFP2A15	1		
8.	12-months Technical Support Service of 2*100G Tributary Service Processing Board	1		
9.	12-months Technical Support Service of 100G CFP2A62	1		
10.	12-months Technical Support Service of 100G Unifued Line Service Processing Board	1		

11.	12-months Technical Support Service of Optical Transceiver,CFP2,4*25&4*28Gb/s(1310nm Band),103.125&111.81Gb/s,-1.3dBm,4.5dBm,-8.6dBm,LC straight,SMF,10km	1		
12.	12-months Technical Support Service of High Speed Transceiver,QSFP28,850nm,100G,-8.4dBm,2.4dBm,-10.3dBm,MPO,MM,0.1km,OM4	1		
13.	12-months Technical Support Service of High Speed Transceiver,QSFP28,1310nm,100G,2dBm,6.5dBm,-28dBm,LC,80km	1		
14.	Installation and commissioning of Electrical-layer MS-OTN equipment for per subRack	1		
15.	Planning Design Service of Electrical-layer MS-OTN products for per subRack	1		
16.	Installation and commissioning of Electrical-layer MS-OTN products for per Line Board	1		
17.	Installation and commissioning of Electrical-layer MS-OTN products for per Tributary Board	1		
3.0	Training			
1.	Technical training for Electrical-layer MS-OTN equipment (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table E: Optical-layer MS-OTN equipment in backbone sites

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	ETSI Rack(2000*600*300mm)	1		
2.	ETSI Rack(2000*600*600mm)	1		
3.	Assembly Chassis with DC power module	1		
4.	Assembly Chassis with AC power module	1		
5.	System Control & Communication Board with OSC	1		
6.	Auxiliary Interface Board	1		
7.	Enhanced 4-ch Add/Drop Multiplexer	1		
8.	Enhanced 8-ch Optical Add/Drop Multiplexing Board	1		
9.	Enhanced 40-Channel Multiplexing/Demultiplexing Board	1		
10.	Wavelength Selective Multiplexing and Demultiplexing Board	1		

11.	4-Port Wavelength Selective Multiplexing and Demultiplexing Board	1		
12.	Both East & West Directional Fiber Interface Board (Dual FIU subcard)	1		
13.	Fiber Interface Board (Single FIU subcard)	1		
14.	Optical Line Protection Board	1		
15.	OA base board with 2 pluggable ports	1		
16.	C-BAND Optical Amplifier Unit	1		
17.	8-channel Optical Power Monitor Board	1		
18.	Two-directional optical supervisory channel and timing transmission unit	1		
19.	Dispersion Compensation Module (compensate 10km)	1		
20.	Dispersion Compensation Module (compensate 20km)	1		
21.	Dispersion Compensation Module (compensate 40km)	1		
22.	Dispersion Compensation Module (compensate 60km)	1		
23.	Dispersion Compensation Module (compensate 80km)	1		
24.	DCM fixed box Assemble	1		
25.	2*10Gbit/s Wavelength Conversion Board	1		
26.	Enhanced 8 x Multi-rate-Service ports Multiplexing Optical Wavelength Conversion Board (OTU2)	1		
27.	2 x 100Gbit/s Or 10 x 10Gbit/s Multi-rate Ports Wavelength Conversion Board	1		
28.	4-channel 100Gbit/s to 2-Channel OTUC2 Service Convergence Wavelength Conversion Board	1		
29.	12*Multi-rate Service Multiplexing Into OTU4 Wavelength Conversion Board	1		
30.	UPM and installing accessories(2000W)	1		
31.	UPM and installing accessories(4000W)	1		
32.	OLine Capacity RTU for 200G CFP/CFP2 Port(Per 100G)	1		
33.	Client Port Enable RTU for 100G QSFP Port	1		
34.	Client Port Enable RTU for 10G SFP Port	1		
35.	Line Capacity RTU(Per 10G)	1		
36.	WSMD9XF Ports RTU(Right for more than 4 ports)	1		
37.	Additional fee for customization requirements of transport cabinets	1		
38.	Pluggable Optical Amplifier, C-band, Gain 20~31dB, Max 20dBm Out, Support WD	1		

39.	Pluggable Optical Amplifier, C-band, Gain 16~23dB, Max 20dBm Out, Support WD	1		
40.	Pluggable Optical Amplifier, C-band, Gain 23dB, Max 20dBm Out, Support WD	1		
41.	Pluggable Optical Amplifier, C-band, Gain 16dB, Max 23dBm Out, Support WD	1		
42.	Pluggable single wave Optical Amplifier, Gain 30dB	1		
43.	Basic Software Package	1		
44.	Optical Doctor Management System Software Fee Per Port(10G)	1		
45.	Optical Doctor Management System Software Fee Per Port(100G)	1		
46.	Optical Doctor Management System Software Fee Per Port(200G)	1		
47.	Fiber Doctor Management System Software Fee	1		
48.	IEEE 1588V2 Function Fee(Per Subrack)	1		
49.	Encryption Function Software Fee (per board)	1		
50.	Optical Transceiver,eSFP,1310nm,STM1,-15~-8dBm,-28dBm,LC,SM,15km	1		
51.	Optical Transceiver,eSFP,1310nm,STM1,-5~0dBm,-37dBm,LC,SM,40km	1		
52.	Optical Transceiver-TSFP+-Extended C Band-9.95~11.3Gbps with CDR--1dBm-3dBm--16dBm-LC-SMF-40km	1		
53.	Optical transceiver,SFP+,1310nm,8.5Gb/s-11.1Gb/s with CDR,-6.0~-1.0dBm,-14.4dBm,LC,SM,10km	1		
54.	Optical transceiver,SFP+,1550nm,10Gb/s,-1~2dBm,-16dBm,LC,SM,40km,with CDR	1		
55.	Optical transceiver,SFP+,1550nm,10Gb/s with CDR,0dBm,4dBm,-24dBm,LC,SM,80km,with CDR	1		
56.	Optical Functional Module,1000BASE-T-SFP Module,RJ45 Electrical Module,Auto Negotiate,Longest Transimission Distance 100m,-40~85	1		
57.	Optical Transceiver,eSFP,1550nm,STM1,-5~0dBm,-37dBm,LC,SM,80km	1		
58.	Optical Transceiver,eSFP,850nm,2.125Gb/s(Multi rate) ,-9.5~-2.5dBm,-17dBm,LC,MM,0.5km	1		
59.	Optical transceiver,eSFP,1310nm,1.25Gb/s,-9~-3dBm,-20dBm,LC,Single Mode,10km	1		
60.	Optical Transceiver,eSFP,1310nm,1.25Gb/s,-5~0dBm,-23dBm,LC,SM,40km	1		
61.	Optical transceiver,SFP+,1310nm,0.125Gb/s-11.1Gb/s with CDR,-6.0~-1.0dBm,-	1		

	14.4dBm,LC,SM,10km			
62.	High Speed Transceiver,QSFP28,850nm,100G,-8.4dBm,2.4dBm,-10.3dBm,MPO,MM,0.1km,OM4	1		
63.	High Speed Transceiver,QSFP28,1310,100GE,-3.1dBm,4dBm,-7.1dBm,LC,SMF,2km,PAM4	1		
64.	150km OSC Transceiver(1491nm)	1		
65.	150km OSC Transceiver(1511nm)	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of ETSI Rack(2200*600*300mm)	1		
2.	12-months Technical Support Service of ETSI Rack(2200*600*600mm)	1		
3.	12-months Technical Support Service of Assembly Chassis with DC powered modules	1		
4.	12-months Technical Support Service of Assembly Chassis with AC powered modules			
5.	12-months Technical Support Service of 2 x 100Gbit/s Or 10 x 10Gbit/s Multi-rate Ports Wavelength Conversion Board	1		
6.	12-months Technical Support Service of 4-Port Wavelength Selective Multiplexing and Demultiplexing Board	1		
7.	12-months Technical Support Service of 4-channel 100Gbit/s to 2-Channel OTUC2 Service Convergence Wavelength Conversion Board	1		
8.	12-months Technical Support Service of 12*Multi-rate Service Multiplexing Into OTU4 Wavelength Conversion Board	1		
9.	12-months Technical Support Service of High Speed Transceiver,QSFP28,850nm,100G,-8.4dBm,2.4dBm,-10.3dBm,MPO,MM,0.1km,OM4	1		
10.	12-months Technical Support Service of High Speed Transceiver,QSFP28,1310,100GE,-3.1dBm,4dBm,-7.1dBm,LC,SMF,2km,PAM4	1		
11.	Installation and commissioning of Optical-layer MS-OTN equipment for per subRack	1		
12.	Planning Design Service of Optical-layer MS-OTN products for per subRack	1		
13.	Installation and commissioning of Optical-layer MS-OTN products for per Line Board	1		
14.	Installation and commissioning of Optical-layer MS-OTN products for per Tributary Board	1		
3.0 Training				
1.	Technical training for Optical-layer MS-OTN	1		

equipment (Maximum 12 people per course, 1 person-day)			
SUB TOTAL			
15% VAT			
GRAND TOTAL			

Table F: Microwave Equipment

No	Item	Quantity	Unit Price	Total Price
1.0 Hardware and Software				
1.	PtMP Microwave, per AP	1		
2.	PtMP Microwave, per RT	1		
3.	E-band PtP Microwave, per hop	1		
4.	Licensed PtP Microwave, per hop	1		
5.	Basic Capacity License (per 40Mbps)	1		
6.	power supply system for microwave equipment	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of PtMP Microwave, per AP	1		
2.	12-months Technical Support Service of PtMP Microwave, per RT	1		
3.	12-months Technical Support Service of E-band PtP Microwave, per hop	1		
4.	12-months Technical Support Service of Licensed PtP Microwave, per hop	1		
5.	12-months Technical Support Service of Basic Capacity License(per 40Mbps)	1		
6.	12-months Technical Support Service of power supply system for microwave equipment	1		
7.	Installation and commissioning of PtMP Microwave, per AP	1		
8.	Planning Design Service of PtMP Microwave, per AP	1		
9.	Installation and commissioning of PtMP Microwave, per RT	1		
10.	Planning Design Service of PtMP Microwave, per RT	1		
11.	Installation and commissioning of E-band PtP Microwave, per hop	1		
12.	Planning Design Service of E-band PtP Microwave, per hop	1		
13.	Installation and commissioning of Licensed PtP Microwave, per hop	1		
14.	Planning Design Service of Licensed PtP Microwave, per hop	1		
15.	Installation and commissioning of power supply system for microwave equipment	1		
16.	Installation and commissioning of Microwave Management Platform	1		
17.	Planning Design Service of Microwave Management Platform	1		
3.0 Training				
1.	Technical training for Microwave equipment (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				

15% VAT	
GRAND TOTAL	

Table G: Network Management System for MS-OTN and Microwave

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Basic Platform and Web Portal Software Package	1		
2.	NCE Geo redundancy system	1		
3.	Basic Northbound Interface for Manager(Includes SNMP, CORBA, XML, etc.),per 5 equivalent NEs	1		
4.	Value-added open APIs (Includes REST, Kafka, etc.), per 5 equivalent NEs	1		
5.	Basic Function Package for Optical Domain OTN Device Management(Per 5 equivalent NEs)	1		
6.	BOD/BC Function Package (Per 5 equivalent Nes)	1		
7.	Latency Map Function Package(Per 5 equivalent Nes)	1		
8.	DefaultMulti-dimensional visualization function package for optical network(Per 5 Equivalent Nes)	1		
9.	Fault simulation Function package(Per 5 Equivalent Nes)	1		
10.	Health Assurance Function Package for Optical Network(Per 5 Equivalent Nes)	1		
11.	Basic Function Package for Microwave Management(Per 50 Equivalent Nes)	1		
12.	FusionSphere Virtualization Suite Standard Edition License ,per CPU	1		
13.	1U/2U Rack Server Integrative AC Cabinet	1		
14.	2*28Core/2.2GHz CPU,16*32G Memory,12*1200GB SAS HDD	1		
15.	2*24Core/2.2GHz CPU,12*32G Memory,12*1200GB SAS HDD	1		
16.	2*10Core/2.2GHz CPU,4*32G Memory,8*600GB SAS HDD	1		
17.	Network 24-Port GE Switch	1		
18.	KVM,KVM 4 in 1 Control Module,1U, 17" LED, 8 KVM ports, 110V/240V AC	1		
19.	WebLCT device commissioning software license(per device)	1		
20.	Door(Dual)_with package	1		
21.	Basic platform and web portal software package,1 Year Subscription and Support	1		
22.	NCE Geo redundancy system, 1 Year	1		

	Subscription and Support			
23.	Basic Northbound Interface for Manager(Includes SNMP, CORBA, XML, etc.), per 5 equivalent NEs, 1 Year Subscription and Support	1		
24.	Value-added open APIs (Includes Rest, Kafka, etc.),per 5 equivalent NEs, 1 Year Subscription and Support	1		
25.	Basic Function Package for Optical Domain OTN Device Management (Per 5 equivalent Nes),1 Year Subscription and Support	1		
26.	BOD/BC Function Package(Per 5 equivalent Nes),1 Year Subscription and Support	1		
27.	Latency Map Function Package(Per 5 equivalent Nes),1 Year Subscription and Support	1		
28.	Fault simulation Function package(Per 5 Equivalent Nes), 1 Year Subscription and Supportperpetual License	1		
29.	Multi-dimensional visualization function package for optical network(Per 5 Equivalent Nes),1 Year Subscription and Support	1		
30.	Health Assurance Function Package for Optical Network(Per 5 Equivalent Nes),1 Year Subscription and Support	1		
31.	Basic Function Package for Microwave Management (Per 50 Equivalent Nes),1 Year Subscription and Support	1		
32.	FusionCompute Virtualization Suite Standard Edition,1 Year Subscription and Support,per CPU	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of NMS	1		
2.	Installation and Commissioning of NMS	1		
3.	Planning Design Service of NMS	1		
3.0	Training			
1.	Technical training for NMS platform (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table H: Cabinet for the MS-OTN equipment

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Outdoor cabinet with Subrack (AC&DC power supply)	1		
2.	Rectifier Module	1		
3.	Inverter Module	1		
4.	AC Output Module,16A/1P*3	1		

5.	100 Ah Lithium battery	1		
6.	Expansion DC cooling unit	1		
7.	1U DC distribution unit	1		
8.	Power Monitor system	1		
9.	Power Monitor license per site	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of one cabinet	1		
2.	Installation and Commissioning of one cabinet	1		
3.0	Training			
1.	Technical training for Outdoor Cabinet Power System (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table I: Campus network and Access Control system

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Core Switch	1		
2.	Aggregation Switch	1		
3.	8-port Access Switch	1		
4.	24-port Access Switch	1		
5.	48-port Access Switch	1		
6.	Backhaul Industry Switch	1		
7.	Data Center Spine Switch	1		
8.	Data Center Leaf Switch (SFP+ Port)	1		
9.	Data Center Leaf Switch (Base-T Port)	1		
10.	Indoor Access Point	1		
11.	Outdoor Access Point	1		
12.	Big Campus Wireless Controller	1		
13.	Small Campus Wireless Controller	1		
14.	P Router	1		
15.	PE Router	1		
16.	Big Branch Router	1		
17.	Small Branch Router	1		
18.	Management Platform Software and Hardware	1		
19.	Optical Transceiver,SFP+,10G,Multi-mode Module(850nm,0.3km,LC)	1		
20.	Optical Transceiver,SFP+,10G,Single-mode Module(1310nm,10km,LC)	1		
21.	40GBASE-LR4 optical transceiver, QSFP+, 40G, single-mode module (1310nm, 10km, LC)	1		

22.	40GBase-SDLC Optical Transceiver, QSFP+, 40G, Multi-mode (850nm, PAM4, 0.1km-OM3, 0.15km-OM4, LC)	1		
23.	100GBase-LR4 Optical Transceiver, QSFP28, 100G, Single-mode module (1310nm, 10km, LC)	1		
24.	100GBase-4WDM-40 Optical Transceiver, QSFP28, 100G, Single-mode module (1310nm, 40km, LC)	1		
25.	Active Optical Cable, QSFP28, 100G, (850nm, 10m, AOC)	1		
26.	Access Control Multi-Security Management Platform	1		
27.	Side Swing Barrier	1		
28.	Central Swing Barrier	1		
29.	Face Pad for Personnel Access	1		
30.	Face Pad for Access Control	1		
31.	Face Pad for Face Registration	1		
32.	MF Card Reader	1		
33.	MF card	1		
34.	Double Door Lock	1		
35.	Exit Button	1		
36.	Emergency Glass Switch	1		
37.	Door Closer	1		
38.	Parking Barrier	1		
39.	License Plate Recognition	1		
40.	Decoder	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of Core Switch	1		
2.	12-months Technical Support Service of Aggregation Switch	1		
3.	12-months Technical Support Service of 8-port Access Switch	1		
4.	12-months Technical Support Service of 24-port Access Switch	1		
5.	12-months Technical Support Service of 48-port Access Switch	1		
6.	12-months Technical Support Service of Backhaul Industry Switch	1		
7.	12-months Technical Support Service of Data Center Spine Switch	1		
8.	12-months Technical Support Service of Data Center Leaf Switch (SFP+ Port)	1		

9.	12-months Technical Support Service of Data Center Leaf Switch (Base-T Port)	1		
10.	12-months Technical Support Service of Indoor Access Point	1		
11.	12-months Technical Support Service of Outdoor Access Point	1		
12.	12-months Technical Support Service of Big Campus Wireless Controller	1		
13.	12-months Technical Support Service of Small Campus Wireless Controller	1		
14.	12-months Technical Support Service of P Router Hardware and Software	1		
15.	12-months Technical Support Service of PE Router	1		
16.	12-months Technical Support Service of Big Branch Router	1		
17.	12-months Technical Support Service of Small Branch Router	1		
18.	12-months Technical Support Service of Management Platform Software and Hardware	1		
19.	12-months Technical Support Service of Access Control Multi-Security Management Platform	1		
20.	12-months Technical Support Service of Side Swing Barrier	1		
21.	12-months Technical Support Service of Central Swing Barrier	1		
22.	12-months Technical Support Service of Face Pad for Personnel Access	1		
23.	12-months Technical Support Service of Face Pad for Access Control	1		
24.	12-months Technical Support Service of Face Pad for Face Registration	1		
25.	12-months Technical Support Service of MF Card Reader	1		
26.	12-months Technical Support Service of Double Door Lock	1		
27.	12-months Technical Support Service of Exit Button	1		
28.	12-months Technical Support Service of Emergency Glass Switch	1		
29.	12-months Technical Support Service of Door Closer	1		
30.	12-months Technical Support Service of Parking Barrier	1		
31.	12-months Technical Support Service of License Plate Recognition	1		

32.	12-months Technical Support Service of Decoder	1		
33.	Installation and commissioning for Core Switch	1		
34.	Planning Design Service of Core Switch	1		
35.	Installation and commissioning for Aggregation Switch	1		
36.	Planning Design Service of Aggregation Switch	1		
37.	Installation and commissioning for Access Switch(8 Ports)	1		
38.	Planning Design Service of Access Switch(8 Ports)	1		
39.	Installation and commissioning for Access Switch(24 Ports)	1		
40.	Planning Design Service of Access Switch(24 Ports)	1		
41.	Installation and commissioning for Access Switch(48 Ports)	1		
42.	Planning Design Service of Access Switch(48 Ports)	1		
43.	Installation and commissioning for NMS	1		
44.	Installation and commissioning for Indoor Access Point devices	1		
45.	Planning Design Service of Indoor Access Point devices	1		
46.	Installation and commissioning for Outdoor Access Point devices	1		
47.	Planning Design Service of Outdoor Access Point devices	1		
48.	Installation and commissioning for Big Campus Wireless Controller	1		
49.	Planning Design Service of Big Campus Wireless Controller	1		
50.	Installation and commissioning for Small Campus Wireless Controller	1		
51.	Planning Design Service of Small Campus Wireless Controller	1		
52.	Installation and commissioning for P Router	1		
53.	Planning Design Service of P Router	1		
54.	Installation and commissioning for PE Router	1		
55.	Planning Design Service of PE Router	1		
56.	Installation and commissioning for Big Branch Router	1		
57.	Planning Design Service of Big Branch Router	1		
58.	Installation and commissioning for Small Branch Router	1		

59.	Planning Design Service of Small Branch Router	1		
60.	1 person-day On-site service for Access Control	1		
61.	1 person-day Custom development for Access Control	1		
3.0	Training			
1.	Technical training for Network Solution Equipment (Maximum 12 people per course, 1 person-day)	1		
2.	Technical training for Access Control System (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table J: CCTV Monitoring Center System

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Display Screen	1		
2.	Multi-Screen Processing Controller	1		
3.	Decoder	1		
4.	Workstation	1		
5.	65 inch Videoconferencing Interactive Whiteboard	1		
6.	75 inch Videoconferencing Interactive Whiteboard	1		
7.	86 inch Videoconferencing Interactive Whiteboard	1		
8.	Wall mount bracket for 65 inch Interactive Whiteboard	1		
9.	Rolling stand for 65 inch Interactive Whiteboard	1		
10.	Rolling stand for 86 inch Interactive Whiteboard	1		
11.	HD Camera	1		
12.	Microphone	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of Display Screen	1		
2.	12-months Technical Support Service of Multi-Screen Processing Controller	1		
3.	12-months Technical Support Service of Decoder	1		
4.	12-months Technical Support Service of Workstation	1		
5.	12-months Technical Support Service of 65 inch Videoconferencing Interactive Whiteboard	1		
6.	12-months Technical Support Service of 75 inch Videoconferencing Interactive Whiteboard	1		
7.	12-months Technical Support Service of 86 inch Videoconferencing Interactive	1		

	Whiteboard			
8.	12-months Technical Support Service of HD Camera	1		
9.	12-months Technical Support Service of Microphone	1		
10.	Installation and Commissioning of Display Screen	1		
11.	Installation and Commissioning of 65 inch Videoconferencing Interactive Whiteboard	1		
12.	Installation and Commissioning of 86 inch Videoconferencing Interactive Whiteboard	1		
13.	Installation and Commissioning of HD Camera	1		
3.0	Training			
1.	Technical training for CCTV Monitoring Center System (Maximum 12 people per course, 1 person-day)	1		
			SUB TOTAL	
			15% VAT	
			GRAND TOTAL	

Table K: Off Premise Infrastructure As A Service (IAAS) Cloud Platform

No	Item	Quantity	Unit Price	Total Price
1.0	Cloud Service			
1.	Elastic Cloud Server -2vCPU, 16G Memory-Windows, Yearly	1		
2.	Elastic Cloud Server -4vCPU, 32G Memory-Windows Yearly	1		
3.	Elastic Cloud Server -8vCPU, 64G Memory-Windows Yearly	1		
4.	Elastic Cloud Server -12vCPU, 96G Memory-Windows Yearly	1		
5.	Elastic Cloud Server -16vCPU, 128G Memory-Windows Yearly	1		
6.	Elastic Cloud Server -24CPU, 192G Memory-Windows Yearly	1		
7.	Elastic Cloud Server -32vCPU, 256G Memory-Windows Yearly	1		
8.	Elastic Cloud Server -64vCPU, 512G Memory-Windows Yearly	1		
9.	Elastic Volume Service- 100GB High IO, Yearly	1		
10.	Elastic Volume Service- 100GB Ultra-High IO, Yearly	1		
11.	Cloud Backup and Recovery for Server vault, 1000GB, Yearly	1		
12.	Storage Disaster Recovery Service, Per Agent,	1		

	Yearly			
13.	Standard Object Storage, 1024GB, Yearly	1		
14.	Elastic IP, 10 Mbps, Yearly	1		
15.	Virtual Private Network, 10 Mbps, Yearly	1		
16.	Web Application Firewall, Professional, Yearly	1		
17.	Host Security Service, Enterprise edition, Yearly	1		
2.0	Support			
1.	Support Plans-Busines, Yearly Case severity/Response time: General guidance < 24 hours System exception < 12 hours Production system exception < 4 hours Production system unavailability < 1 hour	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table L: Artificial Intelligent Contact Center As A Service

No	Item	Quantity	Unit Price	Total Price
1.0	User Subscription			
1.	Standard Call Center Agent (include voice agent inbound & out bound, multimedia agent web chat, IVR, case management) per agent per year	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table M: Mobile Video Surveillance System

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Mobile Video Surveillance Sever	1		
2.	Mobile Video Surveillance Recording and Playback Server	1		
3.	Trunking Service Function Software	1		
4.	Console Software	1		
5.	Audio Concurrent Num License	1		
6.	Video Concurrent Num License	1		
7.	Group Access License	1		
8.	User Access License	1		
9.	GIS User Access License	1		
10.	Instant Message User Access License	1		
11.	Operator Sit Account License	1		

12.	Mobile Handheld Terminal to Check the Video Surveillance System	1		
13.	Optional Extra: Battery	1		
14.	Optional Extra: Desktop Charger	1		
15.	Mobile Vehicle Terminal to Check the Video Surveillance System	1		
16.	Body-worn Camera for Mobile Video Surveillance	1		
17.	Docking Station for Body-worn Camera	1		
18.	Offline Recording System Sever	1		
19.	Offline Recording System Software	1		
2.0	Support and Installation			
1.	12-Months Application Software Support Service of Server	1		
2.	12-Months Application Software Support Service of Basic Software	1		
3.	12-Months Application Software Support Service of Recording Software	1		
4.	12-Months Application Software Support Service of Concurrent NUM License	1		
5.	12-Months Application Software Support Service of User Access License	1		
6.	12-Months Application Software Support Service of Operating Sit Account License	1		
7.	12-Months Application Software Support Service of Offline Recording System Software	1		
10.	Installation and Commissioning of Server	1		
11.	Installation and Commissioning of Mobile Video Surveillance System	1		
12.	Installation and Commissioning of Terminals, Per Mobile Handheld Terminal or Body-worn Camera	1		
13.	Installation and Commissioning of Mobile Vehicle Terminal	1		
14.	Installation and Commissioning of Dock Station	1		
15.	Installation and Commissioning of Offline Recording System	1		
3.0	Training			
1.	Technical Training for Mobile Video Surveillance System (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table N: Modular 3-phase UPS equipment

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Modular UPS 400KVA/400KW chassis	1		
2.	100kW Power Module	1		
3.	Power Cable for UPS 10m per unit	1		
4.	Lithium battery Cabinet (10min@300kW)	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of Modular UPS 400KVA/400KW chassis	1		
2.	12-months Technical Support Service of 100kW Power Module	1		
3.	12-months Technical Support Service of Lithium battery Cabinet (10min@300kW)	1		
4.	Installation and Commissioning for Modular UPS	1		
5.	Installation and Commissioning for Lithium battery Cabinet (10min@300kW)	1		
6.	Health Check for UPS & Lithium battery	1		
3.0	Training			
1.	Technical Training for Modular 3-phase UPS and lithium battery (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table O: Rack-Mounted UPS equipment

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	6kVA/6kW UPS	1		
2.	10kVA/10kW UPS	1		
3.	240V/20Ah Lithium battery	1		
4.	SNMP card	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of 6kVA/6kW UPS	1		
2.	12-months Technical Support Service of 10kVA/10kW UPS	1		
3.	12-months Technical Support Service of 240V/20Ah Lithium battery	1		
4.	12-months Technical Support Service of SNMP card	1		
5.	Installation and Commissioning for Rack-Mounted UPS	1		

3.0	Training			
1.	Technical Training for Rack-Mounted UPS and lithium battery (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table P: Digital Power equipment

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Residential inverter-2KTL	1		
2.	Residential inverter-5KTL	1		
3.	Residential power module	1		
4.	Residential battery module– 5KWH	1		
5.	Residential-Backup Box	1		
6.	C&I inverter – 40KTL	1		
7.	C&I inverter – 100KTL	1		
8.	Utility inverter – 200KTL	1		
9.	Smart transformer station,STS-3000K	1		
10.	Smart transformer station,STS-6000K	1		
2.0	Support and Installation			
1.	10 years warranty extension- inverter-2KTL	1		
2.	10 years warranty extension- inverter-5KTL	1		
3.	10 years warranty extension- inverter-40KTL	1		
4.	10 years warranty extension- inverter-100KTL	1		
5.	10 years warranty extension- inverter-200KTL	1		
3.0	Training			
1.	Technical Training for Digital Power equipment (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Schedule of Pricing Year 3

NB:

- The bidder is required to break down the unit pricing into details as much as possible.
- The scope of works and the quantities may be adjusted at evaluation stage to align with the end-users requirement and budget for a particular financial year within the 3 years framework contract.
- Value added tax. (VAT) should be quoted separately from the unit prices.

Schedule of Pricing

Table A: Intelligent Video Surveillance

No	Item	Quantity	Unit Price	Total Price
1.0 Hardware and Software				
1.	Video Surveillance Management and Recording System Server	1		
2.	Video Surveillance Analytics System Sever	1		
3.	Edge Storage and Analysis Device	1		
4.	Storage Capacity (16 TB enterprise-class SATA disk)	1		
5.	Storage Capacity (10 TB enterprise-class SATA disk)	1		
6.	Video and image analysis unit type1	1		
7.	Video and image analysis unit type2	1		
8.	Vehicle recognition algorithm license	1		
9.	Face recognition algorithm license	1		
10.	12-months Subscription and Support of Face recognition algorithm license	1		
11.	12-months Subscription and Support of Vehicle recognition algorithm license	1		
12.	2MP Indoor Dome Cameras	1		
13.	5MP Indoor Dome Cameras	1		
14.	2MP Outdoor Bullet Camera	1		
15.	5MP Outdoor Bullet Camera	1		
16.	2MP Outdoor Bullet Camera (Long Range)	1		
17.	2MP Anti-Corrosion Bullet Camera	1		
18.	2MP Outdoor High Speed PTZ Dome Camera	1		
19.	2MP Anti-Corrosion IR PTZ Dome Camera	1		
20.	4K IR PTZ Dome Camera	1		
21.	Thermal PTZ Camera	1		
22.	Siren	1		
23.	Outdoor Supporting CCTV Pole	1		
24.	Outdoor Integrated Power and Network Services	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of Video Surveillance Management and Recording System Server	1		
2.	12-months Technical Support Service of Video Surveillance Analytics System Sever	1		
3.	12-months Technical Support Service of Edge Storage and Analysis Device	1		
4.	12-months Technical Support Service of 2MP Indoor Dome Cameras	1		
5.	12-months Technical Support Service of 5MP Indoor Dome Cameras	1		
6.	12-months Technical Support Service of 2MP Outdoor Bullet Camera	1		

7.	12-months Technical Support Service of 5MP Outdoor Bullet Camera	1		
8.	12-months Technical Support Service of 2MP Outdoor Bullet Camera (Long Range)	1		
9.	12-months Technical Support Service of 2MP Anti-Corrosion Bullet Camera	1		
10.	12-months Technical Support Service of 2MP Outdoor High Speed PTZ Dome Camera	1		
11.	12-months Technical Support Service of 2MP Anti-Corrosion IR PTZ Dome Camera	1		
12.	12-months Technical Support Service of 4K IR PTZ Dome Camera	1		
13.	12-months Technical Support Service of Thermal PTZ Camera	1		
14.	12-months Technical Support Service of Siren	1		
15.	12-months Technical Support Service of Outdoor Supporting CCTV Pole	1		
16.	12-months Technical Support Service of Outdoor Integrated Power and Network Services	1		
17.	Installation and Commissioning of Video Surveillance Management and Recording System Server	1		
18.	Installation and Commissioning of Video Surveillance Analytics System Sever	1		
19.	Installation and Commissioning of Edge Storage and Analysis Device	1		
20.	Installation and Commissioning of Dome Camera	1		
21.	Installation and Commissioning of Bullet Camera	1		
22.	Installation and Commissioning of PTZ Camera	1		
23.	Installation and Commissioning of Siren	1		
24.	Installation and Commissioning of Outdoor Supporting CCTV Pole	1		
25.	Installation and Commissioning of Outdoor Integrated Power and Network Services	1		
26.	Planning Design and Implementation Service For Video Surveillance	1		
27.	Planning Design and Implementation Service For IVS Micro Edge	1		
28.	Installation and Commissioning of Decoder	1		
3.0 Training				
1.	Technical training for Intelligent Video Surveillance (Maximum 12 people per course, 1 person-day)	1		
			SUB TOTAL	
			15% VAT	
			GRAND TOTAL	

Table B: Storage Solution

No	Item	Quantity	Unit Price	Total Price
1.0 Hardware and Software				
1.	Hybrid Intelligent Storage Controller Enclosure with built-in software and license	1		
2.	All Flash Storage Controller Enclosure with built-in software and license	1		
3.	Application Server	1		

4.	DME Storage platform (100T,3 year)	1		
5.	Server Management platform for 2 servers	1		
6.	Dedicate All Flash Backup Storage Controller Enclosure with Software Essential License (40TB)	1		
7.	3.84TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
8.	7.68TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
9.	10TB 7.2K RPM NL-SAS Disk Unit (3.5") for Hybrid Intelligent Storage	1		
10.	1.8TB 10K RPM SAS Disk Unit (2.5") for Hybrid Intelligent Storage	1		
11.	3.84TB SAS SSD or NVMe Palm SSD Disk Unit (7") for All Flash Storage	1		
12.	7.68TB SAS SSD or NVMe Palm SSD Disk Unit (7") for All Flash Storage	1		
13.	3.84TB SAS SSD for Dedicate All Flash Backup Storage	1		
14.	7.68TB SAS SSD for Dedicate All Flash Backup Storage	1		
15.	Disk Enclosure for Hybrid Intelligent Storage	1		
16.	Disk Enclosure for Dedicate All Flash Backup Storage	1		
17.	NVME SSD Disk Enclosure for All Flash Storage	1		
18.	SAS SSD Disk Enclosure for All Flash Storage	1		
19.	4 ports SmartIO I/O module (SFP+,16Gb FC) for All Flash Storage	1		
20.	4 ports SmartIO I/O module (SFP+,16Gb FC) for Hybrid Intelligent Storage	1		
21.	4 ports SmartIO I/O module (SFP+,16Gb FC) for Dedicate All Flash Backup Storage	1		
22.	4 ports SmartIO I/O module (SFP+,10Gb ETH) for All Flash Storage	1		
23.	4 ports SmartIO I/O module (SFP+,10Gb ETH) for Hybrid Intelligent Storage	1		
24.	4 ports SmartIO I/O module (SFP+,10Gb ETH) for Dedicate All Flash Backup Storage	1		
25.	Dedicate All Flash Backup Storage Software Capacity License (Per TB)	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of Hybrid Intelligent Storage Controller Enclosure	1		
2.	12-months Technical Support Service of All Flash Storage Controller Enclosure	1		
3.	12-months Technical Support Service of Application Server	1		
4.	12-months Technical Support Service of Dedicate All Flash Backup Storage Controller Enclosure with Software Essential License (40TB)	1		
5.	12-months Technical Support Service of 7.68TB SAS SSD or NVMe Palm SSD Disk Unit (7")	1		
6.	12-months Technical Support Service of 3.84TB SAS SSD or NVMe Palm SAS Disk Unit (7")	1		

7.	12-months Technical Support Service of 3.84TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
8.	12-months Technical Support Service of 7.68TB SSD SAS Disk Unit for Hybrid Intelligent Storage	1		
9.	12-months Technical Support Service of Disk Enclosure for Hybrid Intelligent Storage	1		
10.	12-months Technical Support Service of Disk Enclosure for Dedicate All Flash Backup Storage	1		
11.	12-months Technical Support Service of SAS SSD Disk Enclosure for All Flash Storage	1		
12.	12-months Technical Support Service of Smart NVME SSD Disk Enclosure for All Flash Storage	1		
13.	Installation and Commissioning of All Flash Storage	1		
14.	Installation and Commissioning of Hybrid Storage	1		
15.	Installation and Commissioning of Dedicate All Flash Backup Storage	1		
16.	Installation and Commissioning of DME Storage platform for 2 devices	1		
17.	Data Migration Service of Centralised Storage(per 100TB, 10 Hosts)	1		
3.0	Training			
1.	Technical training for DME Storage Platform (Maximum 12 people per course, 1 person-day)	1		
			SUB TOTAL	
			15% VAT	
			GRAND TOTAL	

1

Table C: Access site CCTV backhaul network devices

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	ETSI Rack(2200*600*300mm)	1		
2.	ETSI Rack(2200*600*600mm)	1		
3.	Assembly Chassis with DC power module	1		
4.	Assembly Chassis with AC power module	1		
5.	Universal Cross Connect, System Control and Clock Processing Board	1		
6.	Auxiliary Interface Board	1		
7.	Two-directional optical supervisory channel and timing transmission unit	1		
8.	10*Multi-rate Universal Service Processing Board	1		
9.	1*STM-64 Optical Interface Board	1		
10.	4*STM-16/8*STM-4/8*STM-1-optical interface board	1		
11.	4*STM-16 Optical Interface Board	1		
12.	4*STM-4/4*STM-1-Optical Interface Board	1		

13.	10-port Gigabit Ethernet Switching Processing Board	1		
14.	4*GE(SFP) Ethernet switching Processing Board	1		
15.	8-Port 100M Fast Ethernet Processing Board with LAN Switch	1		
16.	32xE1/T1 tributary board	1		
17.	32xE1(75&120ohm)/T1(100ohm) Electrical Interface Board	1		
18.	8 x 2M Optical Tributary Board	1		
19.	10*10GE(SFP+) Ethernet Processing Board	1		
20.	8-Port 2/4 Wire and E&M Processing Board	1		
21.	DDN Processing Board	1		
22.	12-Port FXS/FXO Processing Board	1		
23.	UPM and installing accessories(2000W)	1		
24.	UPM and installing accessories(4000W)	1		
25.	Basic Software Package	1		
26.	Chassis PACKET Function Fee	1		
27.	Universal Line Card Packet Encapsulation Ability fee	1		
28.	Packet Service License (Per 10GE Port)	1		
29.	Packet Service License (Per GE Port)	1		
30.	OSU Function Fee for 10G Line Rate and below (per port)	1		
31.	OSU Function Fee for Tributary side	1		
32.	Chassis OTN Function Fee (Per Subrack)	1		
33.	Chassis SDH Function Fee	1		
34.	Fiber Doctor Management System Software Fee	1		
35.	IEEE 1588V2 Function Fee	1		
36.	Additional fee for customization requirements of transport cabinets	1		
37.	Optical Transceiver,eSFP,1310nm,STM1,-15~-8dBm,-28dBm,LC,SM,15km	1		
38.	Optical Transceiver, eSFP,1310nm, STM1, -5~0dBm, -37dBm,LC,SM,40km	1		
39.	Optical Functional Module,1000BASE-T-SFP Module,RJ45 Electrical Module,Auto Negotiate,Longest Transimission Distance 100m,-40~85	1		
40.	Optical Transceiver, eSFP,1310nm,155M~2.67G, -5~0dBm, -21dBm,LC,SM,15km	1		
41.	eSFP-125M~2.67G-1310nm-40km-SM	1		
42.	Optical transceiver, SFP+,1310nm,8.5Gb/s-	1		

	11.1Gb/s with CDR, -6.0~-1.0dBm, -14.4dBm,LC,SM,10km			
43.	Low Speed Transceiver, eSFP,1550nm,125M~2.67G, -2dBm,3dBm, -28dBm,LC,SMF,80km	1		
44.	Optical Transceiver, eSFP,1310nm, STM16, -2~3dBm, -29dBm,LC,SM,40km	1		
45.	Optical transceiver,eSFP,1310nm,1.25Gb/s,-9~-3dBm,-20dBm,LC,Single Mode,10km	1		
46.	Optical Transceiver,eSFP,1310nm,1.25Gb/s,-5~0dBm,-23dBm,LC,SM,40km	1		
47.	Optical transceiver, SFP+,1310nm,10Gb/s, -8.2~-0.5dBm, -12.6dBm,LC,SM,10km	1		
48.	Optical transceiver, SFP+,1550nm,9.95~11.1Gb/s, -4.7~4dBm, -14.1dBm,LC,SM, 40km	1		
49.	XFP SFP+ Transceiver-SFP+-1310nm-10G/1G--8.2dbm-0.5dbm-Single-mode-14.4dbm-LC-10km	1		
50.	Optical Transceiver,eSFP,850nm,2.125Gb/s(Multi rate) ,-9.5~-2.5dBm,-17dBm,LC,MM,0.5km	1		
51.	Optical transceiver, SFP+,850nm,10Gb/s, -7.3~-1dBm, -9.9dBm, LC, MM,0.3km	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of ETSI Rack(2200*600*300mm)	1		
2.	12-months Technical Support Service of ETSI Rack(2200*600*600mm)	1		
3.	12-months Technical Support Service of Assembly Chassis with DC power module	1		
4.	12-months Technical Support Service of Assembly Chassis with AC power module	1		
5.	Installation and commissioning of MS-OTN products for per subRack	1		
6.	Planning Design of MS-OTN products for per subRack	1		
7.	Installation and commissioning of MS-OTN products for per Line Board	1		
8.	Installation and commissioning of MS-OTN products for per Tributary Board	1		
3.0 Training				
1.	Technical training for MS-OTN products (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				1
15% VAT				
GRAND TOTAL				

Table D: Electrical-layer MS-OTN equipment in backbone sites

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	ETSI Rack(2200*600*300mm)	1		
2.	ETSI Rack(2200*600*600mm)	1		
3.	Assembly Chassis with DC power module	1		
4.	Assembly Chassis with AC power module	1		
5.	Universal Cross Connect, System Control and Clock Processing Board(XCH)	1		
6.	Universal Cross Connect, System Control and Clock Processing Board(XCME)	1		
7.	Universal Cross Connect, System Control and Clock Processing Board(XCS)	1		
8.	Auxiliary Interface Board	1		
9.	Two-directional optical supervisory channel and timing transmission unit	1		
10.	Enhanced 8 x Multi-rate-Service ports Multiplexing Optical Wavelength Conversion Board	1		
11.	2*10Gbit/s Wavelength Conversion Board	1		
12.	200G unified line service processing board	1		
13.	200G CFP2A24(Metro+, SDFEC2@200G e16QAM/100G QPSK/etc., flex rate, Coherent, Tunable, Extended C Band, -10dBm-1dBm, -18dBm, Flexgrid)	1		
14.	200G CFP2A15(Metro, SDFEC2@200G 16QAM/SDFEC2 @100G QPSK/etc., flex rate, Coherent, Tunable, Extended C Band, -10dBm-1dBm, -18dBm, Fixed)	1		
15.	100G Unifued Line Service Processing Board	1		
16.	100G CFP2A62(LH, SDFEC2, Coherent wDCM, Tunable, Extended C Band, -10dBm-1dBm, -18dBm, Fixed)	1		
17.	4*10G Universal Line Service Processing Board	1		
18.	10*2.5G&10G Universal Line Service Processing Board	1		
19.	2*100G Tributary Service Processing Board	1		
20.	10*Multi-rate Universal Service Processing Board	1		
21.	2*STM-64 Optical Interface Board	1		
22.	1*STM-64 Optical Interface Board	1		
23.	4*STM-16/8*STM-4/8*STM-1-optical interface board	1		
24.	1*STM-16-Optical Interface Board	1		
25.	4*STM-4/4*STM-1-Optical Interface Board	1		

26.	10-port Gigabit Ethernet Switching Processing Board	1		
27.	4*GE(SFP) Ethernet switching Processing Board	1		
28.	32xE1/T1 tributary board	1		
29.	32xE1(75&120ohm)/T1(100ohm) Electrical Interface Board	1		
30.	10 x 2M Optical Tributary Board	1		
31.	8 x 2M Optical Tributary Board	1		
32.	10*10GE(SFP+)Ethernet Processing Board	1		
33.	8-Port 2/4 Wire and E&M Processing Board	1		
34.	DDN Processing Board	1		
35.	12-Port FXS/FXO Processing Board	1		
36.	Client Port Enable RTU for 100G QSFP Port	1		
37.	Line Port Enable RTU for 200G CFP/CFP2 Port	1		
38.	Line Capacity RTU for 200G CFP/CFP2 Port(Per 100G)	1		
39.	UPM and installing accessories(2000W)	1		
40.	UPM and installing accessories(4000W)	1		
41.	Basic Software Package	1		
42.	Chassis PACKET Function Fee	1		
43.	Universal Line Card Packet Encapsulation Ability fee (Per Unit)	1		
44.	Packet Service License (Per 10GE Port)	1		
45.	Packet Service License (Per GE Port)	1		
46.	OSU Function Fee for 10G Line Rate and below (per port)	1		
47.	OSU Function Fee for 100G Line Rate (per port)	1		
48.	OSU Function Fee for Tributary side (per TTA board)	1		
49.	OSU Function Fee for Tributary side (per E1 board)	1		
50.	Chassis OTN Function Fee (Per Subrack)	1		
51.	Chassis SDH Function Fee (Per Subrack)	1		
52.	SDH Centralized Cross Connect Capacity Fee(160G)	1		
53.	Optical Doctor Management System Software Fee Per Port(10G)	1		
54.	Optical Doctor Management System Software Fee Per Port(100G)	1		
55.	Fiber Doctor Management System Software Fee	1		
56.	IEEE 1588V2 Function Fee (Per Subrack)	1		

57.	Additional fee for customization requirements of transport cabinets	1		
58.	150km OSC Transceiver(1491nm)	1		
59.	150km OSC Transceiver(1511nm)	1		
60.	BiDi Transceiver,eSFP,1310nm(Tx)1490nm(Rx),125M~2.67Gbps,-5dBm,0dBm,-18dBm,LC,SM,15km,-40~85 degC	1		
61.	Optical Transceiver-TSFP+-Extended C Band-9.95~11.3Gbps with CDR--1dBm-3dBm--16dBm-LC-SMF-40km	1		
62.	Optical Transceiver-TSFP+-1553.33~1560.61nm-8.5~11.1Gbps with CDR--3dBm-3dBm--16dBm-LC-SMF-40km	1		
63.	Low Speed Transceiver,eSFP,1310nm,1.25Gb/s,-9dBm,-3dBm,-19dBm,LC(-40~85),10km	1		
64.	Optical Functional Module,1000BASE-T-SFP Module,RJ45 Electrical Module,Auto Negotiate,Longest Transimission Distance 100m,-40~85	1		
65.	Optical Transceiver,eSFP,1310nm,STM1,-15~-8dBm,-28dBm,LC,SM,15km	1		
66.	Optical Transceiver,eSFP,1310nm,155M~2.67G,-5~0dBm,-21dBm,LC,SM,15km	1		
67.	Optical Transceiver,SFP+,1560.2nm,8.5G~11.1Gbps,-1~3dBm,-16dBm,LC,SMF,40km	1		
68.	Optical transceiver,SFP+,1550nm,10Gb/s,-1~2dBm,-16dBm,LC,SM,40km,with CDR	1		
69.	Optical transceiver,SFP+,1310nm,8.5Gb/s-11.1Gb/s with CDR,-6.0~-1.0dBm,-14.4dBm,LC,SM,10km	1		
70.	Optical Transceiver,CFP2,4*25&4*28Gb/s(1310nm Band),103.125&111.81Gb/s,-1.3dBm,4.5dBm,-8.6dBm,LC straight,SMF,10km	1		
71.	High Speed Transceiver,QSFP28,1310nm,100G,2dBm,6.5 dBm,-28dBm,LC,80km	1		
72.	Optical Transceiver,eSFP,1310nm,STM1,-5~0dBm,-37dBm,LC,SM,40km	1		
73.	eSFP-125M~2.67G-1310nm-40km-SM	1		
74.	Low Speed Transceiver,eSFP,1550nm,125M~2.67G,-2dBm,3dBm,-28dBm,LC,SMF,80km	1		
75.	Optical transceiver,SFP+,1550nm,10Gb/s with CDR,0dBm,4dBm,-24dBm,LC,SM,80km,with CDR	1		

76.	Optical Transceiver,eSFP,850nm,2.125Gb/s(Multi rate) ,-9.5~-2.5dBm,-17dBm,LC,MM,0.5km	1		
77.	Optical transceiver,eSFP,1310nm,1.25Gb/s,-9~-3dBm,-20dBm,LC,Single Mode,10km	1		
78.	Optical Transceiver,eSFP,1310nm,1.25Gb/s,-5~0dBm,-23dBm,LC,SM,40km	1		
79.	Optical Transceiver,eSFP,1550nm,1.25Gb/s,-2~5dBm,-23dBm,LC,SM,80km	1		
80.	Optical transceiver,SFP+,850nm,10Gb/s,-7.3~-1dBm,-9.9dBm,LC, MM,0.3km	1		
81.	Optical transceiver,SFP+,1310nm,10Gb/s,-8.2~0.5dBm,-12.6dBm,LC,SM,10km	1		
82.	Optical transceiver,SFP+,1550nm,9.95~11.1Gb/s,-4.7~4dBm,-14.1dBm,LC,SM,40km	1		
83.	Optical Transceiver,eSFP,1310nm,2.048Mb/s,-15dBm,-8dBm,-26dBm,LC,SM,2km	1		
84.	XFP SFP+ Transceiver-SFP+-1310nm-10G/1G--8.2dbm-0.5dbm-Single-mode-14.4dbm-LC-10km	1		
85.	Optical transceiver,SFP+,850nm,10Gb/s,-7.3~-1dBm,-9.9dBm,LC, MM,0.3km	1		
86.	High Speed Transceiver,QSFP28,850nm,100G,-8.4dBm,2.4dBm,-10.3dBm,MPO,MM,0.1km,OM4	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of ETSI Rack(2200*600*300mm)	1		
2.	12-months Technical Support Service of ETSI Rack(2200*600*600mm)	1		
3.	12-months Technical Support Service of Assembly Chassis with 2 DC power modules	1		
4.	12-months Technical Support Service of Assembly Chassis with 2 AC power modules	1		
5.	12-months Technical Support Service of 200G unified line service processing board	1		
6.	12-months Technical Support Service of 200G CFP2A24	1		
7.	12-months Technical Support Service of 200G CFP2A15	1		
8.	12-months Technical Support Service of 2*100G Tributary Service Processing Board	1		
9.	12-months Technical Support Service of 100G CFP2A62	1		
10.	12-months Technical Support Service of 100G Unifued Line Service Processing Board	1		

11.	12-months Technical Support Service of Optical Transceiver,CFP2,4*25&4*28Gb/s(1310nm Band),103.125&111.81Gb/s,-1.3dBm,4.5dBm,-8.6dBm,LC straight,SMF,10km	1		
12.	12-months Technical Support Service of High Speed Transceiver,QSFP28,850nm,100G,-8.4dBm,2.4dBm,-10.3dBm,MPO,MM,0.1km,OM4	1		
13.	12-months Technical Support Service of High Speed Transceiver,QSFP28,1310nm,100G,2dBm,6.5dBm,-28dBm,LC,80km	1		
14.	Installation and commissioning of Electrical-layer MS-OTN equipment for per subRack	1		
15.	Planning Design Service of Electrical-layer MS-OTN products for per subRack	1		
16.	Installation and commissioning of Electrical-layer MS-OTN products for per Line Board	1		
17.	Installation and commissioning of Electrical-layer MS-OTN products for per Tributary Board	1		
3.0	Training			
1.	Technical training for Electrical-layer MS-OTN equipment (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table E: Optical-layer MS-OTN equipment in backbone sites

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	ETSI Rack(2000*600*300mm)	1		
2.	ETSI Rack(2000*600*600mm)	1		
3.	Assembly Chassis with DC power module	1		
4.	Assembly Chassis with AC power module	1		
5.	System Control & Communication Board with OSC	1		
6.	Auxiliary Interface Board	1		
7.	Enhanced 4-ch Add/Drop Multiplexer	1		
8.	Enhanced 8-ch Optical Add/Drop Multiplexing Board	1		
9.	Enhanced 40-Channel Multiplexing/Demultiplexing Board	1		
10.	Wavelength Selective Multiplexing and Demultiplexing Board	1		

11.	4-Port Wavelength Selective Multiplexing and Demultiplexing Board	1		
12.	Both East & West Directional Fiber Interface Board (Dual FIU subcard)	1		
13.	Fiber Interface Board (Single FIU subcard)	1		
14.	Optical Line Protection Board	1		
15.	OA base board with 2 pluggable ports	1		
16.	C-BAND Optical Amplifier Unit	1		
17.	8-channel Optical Power Monitor Board	1		
18.	Two-directional optical supervisory channel and timing transmission unit	1		
19.	Dispersion Compensation Module (compensate 10km)	1		
20.	Dispersion Compensation Module (compensate 20km)	1		
21.	Dispersion Compensation Module (compensate 40km)	1		
22.	Dispersion Compensation Module (compensate 60km)	1		
23.	Dispersion Compensation Module (compensate 80km)	1		
24.	DCM fixed box Assemble	1		
25.	2*10Gbit/s Wavelength Conversion Board	1		
26.	Enhanced 8 x Multi-rate-Service ports Multiplexing Optical Wavelength Conversion Board (OTU2)	1		
27.	2 x 100Gbit/s Or 10 x 10Gbit/s Multi-rate Ports Wavelength Conversion Board	1		
28.	4-channel 100Gbit/s to 2-Channel OTUC2 Service Convergence Wavelength Conversion Board	1		
29.	12*Multi-rate Service Multiplexing Into OTU4 Wavelength Conversion Board	1		
30.	UPM and installing accessories(2000W)	1		
31.	UPM and installing accessories(4000W)	1		
32.	OLine Capacity RTU for 200G CFP/CFP2 Port(Per 100G)	1		
33.	Client Port Enable RTU for 100G QSFP Port	1		
34.	Client Port Enable RTU for 10G SFP Port	1		
35.	Line Capacity RTU(Per 10G)	1		
36.	WSMD9XF Ports RTU(Right for more than 4 ports)	1		
37.	Additional fee for customization requirements of transport cabinets	1		
38.	Pluggable Optical Amplifier, C-band, Gain 20~31dB, Max 20dBm Out, Support WD	1		

39.	Pluggable Optical Amplifier, C-band, Gain 16~23dB, Max 20dBm Out, Support WD	1		
40.	Pluggable Optical Amplifier, C-band, Gain 23dB, Max 20dBm Out, Support WD	1		
41.	Pluggable Optical Amplifier, C-band, Gain 16dB, Max 23dBm Out, Support WD	1		
42.	Pluggable single wave Optical Amplifier, Gain 30dB	1		
43.	Basic Software Package	1		
44.	Optical Doctor Management System Software Fee Per Port(10G)	1		
45.	Optical Doctor Management System Software Fee Per Port(100G)	1		
46.	Optical Doctor Management System Software Fee Per Port(200G)	1		
47.	Fiber Doctor Management System Software Fee	1		
48.	IEEE 1588V2 Function Fee(Per Subrack)	1		
49.	Encryption Function Software Fee (per board)	1		
50.	Optical Transceiver,eSFP,1310nm,STM1,-15~-8dBm,-28dBm,LC,SM,15km	1		
51.	Optical Transceiver,eSFP,1310nm,STM1,-5~0dBm,-37dBm,LC,SM,40km	1		
52.	Optical Transceiver-TSFP+-Extended C Band-9.95~11.3Gbps with CDR--1dBm-3dBm--16dBm-LC-SMF-40km	1		
53.	Optical transceiver,SFP+,1310nm,8.5Gb/s-11.1Gb/s with CDR,-6.0~-1.0dBm,-14.4dBm,LC,SM,10km	1		
54.	Optical transceiver,SFP+,1550nm,10Gb/s,-1~2dBm,-16dBm,LC,SM,40km,with CDR	1		
55.	Optical transceiver,SFP+,1550nm,10Gb/s with CDR,0dBm,4dBm,-24dBm,LC,SM,80km,with CDR	1		
56.	Optical Functional Module,1000BASE-T-SFP Module,RJ45 Electrical Module,Auto Negotiate,Longest Transimission Distance 100m,-40~85	1		
57.	Optical Transceiver,eSFP,1550nm,STM1,-5~0dBm,-37dBm,LC,SM,80km	1		
58.	Optical Transceiver,eSFP,850nm,2.125Gb/s(Multi rate) ,-9.5~-2.5dBm,-17dBm,LC,MM,0.5km	1		
59.	Optical transceiver,eSFP,1310nm,1.25Gb/s,-9~-3dBm,-20dBm,LC,Single Mode,10km	1		
60.	Optical Transceiver,eSFP,1310nm,1.25Gb/s,-5~0dBm,-23dBm,LC,SM,40km	1		
61.	Optical transceiver,SFP+,1310nm,0.125Gb/s-11.1Gb/s with CDR,-6.0~-1.0dBm,-	1		

	14.4dBm,LC,SM,10km			
62.	High Speed Transceiver,QSFP28,850nm,100G,-8.4dBm,2.4dBm,-10.3dBm,MPO,MM,0.1km,OM4	1		
63.	High Speed Transceiver,QSFP28,1310,100GE,-3.1dBm,4dBm,-7.1dBm,LC,SMF,2km,PAM4	1		
64.	150km OSC Transceiver(1491nm)	1		
65.	150km OSC Transceiver(1511nm)	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of ETSI Rack(2200*600*300mm)	1		
2.	12-months Technical Support Service of ETSI Rack(2200*600*600mm)	1		
3.	12-months Technical Support Service of Assembly Chassis with DC powered modules	1		
4.	12-months Technical Support Service of Assembly Chassis with AC powered modules			
5.	12-months Technical Support Service of 2 x 100Gbit/s Or 10 x 10Gbit/s Multi-rate Ports Wavelength Conversion Board	1		
6.	12-months Technical Support Service of 4-Port Wavelength Selective Multiplexing and Demultiplexing Board	1		
7.	12-months Technical Support Service of 4-channel 100Gbit/s to 2-Channel OTUC2 Service Convergence Wavelength Conversion Board	1		
8.	12-months Technical Support Service of 12*Multi-rate Service Multiplexing Into OTU4 Wavelength Conversion Board	1		
9.	12-months Technical Support Service of High Speed Transceiver,QSFP28,850nm,100G,-8.4dBm,2.4dBm,-10.3dBm,MPO,MM,0.1km,OM4	1		
10.	12-months Technical Support Service of High Speed Transceiver,QSFP28,1310,100GE,-3.1dBm,4dBm,-7.1dBm,LC,SMF,2km,PAM4	1		
11.	Installation and commissioning of Optical-layer MS-OTN equipment for per subRack	1		
12.	Planning Design Service of Optical-layer MS-OTN products for per subRack	1		
13.	Installation and commissioning of Optical-layer MS-OTN products for per Line Board	1		
14.	Installation and commissioning of Optical-layer MS-OTN products for per Tributary Board	1		
3.0 Training				
1.	Technical training for Optical-layer MS-OTN	1		

equipment (Maximum 12 people per course, 1 person-day)			
SUB TOTAL			
15% VAT			
GRAND TOTAL			

Table F: Microwave Equipment

No	Item	Quantity	Unit Price	Total Price
1.0 Hardware and Software				
1.	PtMP Microwave, per AP	1		
2.	PtMP Microwave, per RT	1		
3.	E-band PtP Microwave, per hop	1		
4.	Licensed PtP Microwave, per hop	1		
5.	Basic Capacity License (per 40Mbps)	1		
6.	power supply system for microwave equipment	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of PtMP Microwave, per AP	1		
2.	12-months Technical Support Service of PtMP Microwave, per RT	1		
3.	12-months Technical Support Service of E-band PtP Microwave, per hop	1		
4.	12-months Technical Support Service of Licensed PtP Microwave, per hop	1		
5.	12-months Technical Support Service of Basic Capacity License(per 40Mbps)	1		
6.	12-months Technical Support Service of power supply system for microwave equipment	1		
7.	Installation and commissioning of PtMP Microwave, per AP	1		
8.	Planning Design Service of PtMP Microwave, per AP	1		
9.	Installation and commissioning of PtMP Microwave, per RT	1		
10.	Planning Design Service of PtMP Microwave, per RT	1		
11.	Installation and commissioning of E-band PtP Microwave, per hop	1		
12.	Planning Design Service of E-band PtP Microwave, per hop	1		
13.	Installation and commissioning of Licensed PtP Microwave, per hop	1		
14.	Planning Design Service of Licensed PtP Microwave, per hop	1		
15.	Installation and commissioning of power supply system for microwave equipment	1		
16.	Installation and commissioning of Microwave Management Platform	1		
17.	Planning Design Service of Microwave Management Platform	1		
3.0 Training				
1.	Technical training for Microwave equipment (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				

15% VAT	
GRAND TOTAL	

Table G: Network Management System for MS-OTN and Microwave

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Basic Platform and Web Portal Software Package	1		
2.	NCE Geo redundancy system	1		
3.	Basic Northbound Interface for Manager(Includes SNMP, CORBA, XML, etc.),per 5 equivalent NEs	1		
4.	Value-added open APIs (Includes REST, Kafka, etc.), per 5 equivalent NEs	1		
5.	Basic Function Package for Optical Domain OTN Device Management(Per 5 equivalent NEs)	1		
6.	BOD/BC Function Package (Per 5 equivalent Nes)	1		
7.	Latency Map Function Package(Per 5 equivalent Nes)	1		
8.	DefaultMulti-dimensional visualization function package for optical network(Per 5 Equivalent Nes)	1		
9.	Fault simulation Function package(Per 5 Equivalent Nes)	1		
10.	Health Assurance Function Package for Optical Network(Per 5 Equivalent Nes)	1		
11.	Basic Function Package for Microwave Management(Per 50 Equivalent Nes)	1		
12.	FusionSphere Virtualization Suite Standard Edition License ,per CPU	1		
13.	1U/2U Rack Server Integrative AC Cabinet	1		
14.	2*28Core/2.2GHz CPU,16*32G Memory,12*1200GB SAS HDD	1		
15.	2*24Core/2.2GHz CPU,12*32G Memory,12*1200GB SAS HDD	1		
16.	2*10Core/2.2GHz CPU,4*32G Memory,8*600GB SAS HDD	1		
17.	Network 24-Port GE Switch	1		
18.	KVM,KVM 4 in 1 Control Module,1U, 17" LED, 8 KVM ports, 110V/240V AC	1		
19.	WebLCT device commissioning software license(per device)	1		
20.	Door(Dual)_with package	1		
21.	Basic platform and web portal software package,1 Year Subscription and Support	1		
22.	NCE Geo redundancy system, 1 Year	1		

	Subscription and Support			
23.	Basic Northbound Interface for Manager(Includes SNMP, CORBA, XML, etc.), per 5 equivalent NEs, 1 Year Subscription and Support	1		
24.	Value-added open APIs (Includes Rest, Kafka, etc.),per 5 equivalent NEs, 1 Year Subscription and Support	1		
25.	Basic Function Package for Optical Domain OTN Device Management (Per 5 equivalent Nes),1 Year Subscription and Support	1		
26.	BOD/BC Function Package(Per 5 equivalent Nes),1 Year Subscription and Support	1		
27.	Latency Map Function Package(Per 5 equivalent Nes),1 Year Subscription and Support	1		
28.	Fault simulation Function package(Per 5 Equivalent Nes), 1 Year Subscription and Supportperpetual License	1		
29.	Multi-dimensional visualization function package for optical network(Per 5 Equivalent Nes),1 Year Subscription and Support	1		
30.	Health Assurance Function Package for Optical Network(Per 5 Equivalent Nes),1 Year Subscription and Support	1		
31.	Basic Function Package for Microwave Management (Per 50 Equivalent Nes),1 Year Subscription and Support	1		
32.	FusionCompute Virtualization Suite Standard Edition,1 Year Subscription and Support,per CPU	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of NMS	1		
2.	Installation and Commissioning of NMS	1		
3.	Planning Design Service of NMS	1		
3.0	Training			
1.	Technical training for NMS platform (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table H: Cabinet for the MS-OTN equipment

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Outdoor cabinet with Subrack (AC&DC power supply)	1		
2.	Rectifier Module	1		
3.	Inverter Module	1		
4.	AC Output Module,16A/1P*3	1		

5.	100 Ah Lithium battery	1		
6.	Expansion DC cooling unit	1		
7.	1U DC distribution unit	1		
8.	Power Monitor system	1		
9.	Power Monitor license per site	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of one cabinet	1		
2.	Installation and Commissioning of one cabinet	1		
3.0	Training			
1.	Technical training for Outdoor Cabinet Power System (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table I: Campus network and Access Control system

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Core Switch	1		
2.	Aggregation Switch	1		
3.	8-port Access Switch	1		
4.	24-port Access Switch	1		
5.	48-port Access Switch	1		
6.	Backhaul Industry Switch	1		
7.	Data Center Spine Switch	1		
8.	Data Center Leaf Switch (SFP+ Port)	1		
9.	Data Center Leaf Switch (Base-T Port)	1		
10.	Indoor Access Point	1		
11.	Outdoor Access Point	1		
12.	Big Campus Wireless Controller	1		
13.	Small Campus Wireless Controller	1		
14.	P Router	1		
15.	PE Router	1		
16.	Big Branch Router	1		
17.	Small Branch Router	1		
18.	Management Platform Software and Hardware	1		
19.	Optical Transceiver,SFP+,10G,Multi-mode Module(850nm,0.3km,LC)	1		
20.	Optical Transceiver,SFP+,10G,Single-mode Module(1310nm,10km,LC)	1		
21.	40GBASE-LR4 optical transceiver, QSFP+, 40G, single-mode module (1310nm, 10km, LC)	1		

22.	40GBase-SDLC Optical Transceiver, QSFP+, 40G, Multi-mode (850nm, PAM4, 0.1km-OM3, 0.15km-OM4, LC)	1		
23.	100GBase-LR4 Optical Transceiver, QSFP28, 100G, Single-mode module (1310nm, 10km, LC)	1		
24.	100GBase-4WDM-40 Optical Transceiver, QSFP28, 100G, Single-mode module (1310nm, 40km, LC)	1		
25.	Active Optical Cable, QSFP28, 100G, (850nm, 10m, AOC)	1		
26.	Access Control Multi-Security Management Platform	1		
27.	Side Swing Barrier	1		
28.	Central Swing Barrier	1		
29.	Face Pad for Personnel Access	1		
30.	Face Pad for Access Control	1		
31.	Face Pad for Face Registration	1		
32.	MF Card Reader	1		
33.	MF card	1		
34.	Double Door Lock	1		
35.	Exit Button	1		
36.	Emergency Glass Switch	1		
37.	Door Closer	1		
38.	Parking Barrier	1		
39.	License Plate Recognition	1		
40.	Decoder	1		
2.0 Support and Installation				
1.	12-months Technical Support Service of Core Switch	1		
2.	12-months Technical Support Service of Aggregation Switch	1		
3.	12-months Technical Support Service of 8-port Access Switch	1		
4.	12-months Technical Support Service of 24-port Access Switch	1		
5.	12-months Technical Support Service of 48-port Access Switch	1		
6.	12-months Technical Support Service of Backhaul Industry Switch	1		
7.	12-months Technical Support Service of Data Center Spine Switch	1		
8.	12-months Technical Support Service of Data Center Leaf Switch (SFP+ Port)	1		

9.	12-months Technical Support Service of Data Center Leaf Switch (Base-T Port)	1		
10.	12-months Technical Support Service of Indoor Access Point	1		
11.	12-months Technical Support Service of Outdoor Access Point	1		
12.	12-months Technical Support Service of Big Campus Wireless Controller	1		
13.	12-months Technical Support Service of Small Campus Wireless Controller	1		
14.	12-months Technical Support Service of P Router Hardware and Software	1		
15.	12-months Technical Support Service of PE Router	1		
16.	12-months Technical Support Service of Big Branch Router	1		
17.	12-months Technical Support Service of Small Branch Router	1		
18.	12-months Technical Support Service of Management Platform Software and Hardware	1		
19.	12-months Technical Support Service of Access Control Multi-Security Management Platform	1		
20.	12-months Technical Support Service of Side Swing Barrier	1		
21.	12-months Technical Support Service of Central Swing Barrier	1		
22.	12-months Technical Support Service of Face Pad for Personnel Access	1		
23.	12-months Technical Support Service of Face Pad for Access Control	1		
24.	12-months Technical Support Service of Face Pad for Face Registration	1		
25.	12-months Technical Support Service of MF Card Reader	1		
26.	12-months Technical Support Service of Double Door Lock	1		
27.	12-months Technical Support Service of Exit Button	1		
28.	12-months Technical Support Service of Emergency Glass Switch	1		
29.	12-months Technical Support Service of Door Closer	1		
30.	12-months Technical Support Service of Parking Barrier	1		
31.	12-months Technical Support Service of License Plate Recognition	1		

32.	12-months Technical Support Service of Decoder	1		
33.	Installation and commissioning for Core Switch	1		
34.	Planning Design Service of Core Switch	1		
35.	Installation and commissioning for Aggregation Switch	1		
36.	Planning Design Service of Aggregation Switch	1		
37.	Installation and commissioning for Access Switch(8 Ports)	1		
38.	Planning Design Service of Access Switch(8 Ports)	1		
39.	Installation and commissioning for Access Switch(24 Ports)	1		
40.	Planning Design Service of Access Switch(24 Ports)	1		
41.	Installation and commissioning for Access Switch(48 Ports)	1		
42.	Planning Design Service of Access Switch(48 Ports)	1		
43.	Installation and commissioning for NMS	1		
44.	Installation and commissioning for Indoor Access Point devices	1		
45.	Planning Design Service of Indoor Access Point devices	1		
46.	Installation and commissioning for Outdoor Access Point devices	1		
47.	Planning Design Service of Outdoor Access Point devices	1		
48.	Installation and commissioning for Big Campus Wireless Controller	1		
49.	Planning Design Service of Big Campus Wireless Controller	1		
50.	Installation and commissioning for Small Campus Wireless Controller	1		
51.	Planning Design Service of Small Campus Wireless Controller	1		
52.	Installation and commissioning for P Router	1		
53.	Planning Design Service of P Router	1		
54.	Installation and commissioning for PE Router	1		
55.	Planning Design Service of PE Router	1		
56.	Installation and commissioning for Big Branch Router	1		
57.	Planning Design Service of Big Branch Router	1		
58.	Installation and commissioning for Small Branch Router	1		

59.	Planning Design Service of Small Branch Router	1		
60.	1 person-day On-site service for Access Control	1		
61.	1 person-day Custom development for Access Control	1		
3.0	Training			
1.	Technical training for Network Solution Equipment (Maximum 12 people per course, 1 person-day)	1		
2.	Technical training for Access Control System (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table J: CCTV Monitoring Center System

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Display Screen	1		
2.	Multi-Screen Processing Controller	1		
3.	Decoder	1		
4.	Workstation	1		
5.	65 inch Videoconferencing Interactive Whiteboard	1		
6.	75 inch Videoconferencing Interactive Whiteboard	1		
7.	86 inch Videoconferencing Interactive Whiteboard	1		
8.	Wall mount bracket for 65 inch Interactive Whiteboard	1		
9.	Rolling stand for 65 inch Interactive Whiteboard	1		
10.	Rolling stand for 86 inch Interactive Whiteboard	1		
11.	HD Camera	1		
12.	Microphone	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of Display Screen	1		
2.	12-months Technical Support Service of Multi-Screen Processing Controller	1		
3.	12-months Technical Support Service of Decoder	1		
4.	12-months Technical Support Service of Workstation	1		
5.	12-months Technical Support Service of 65 inch Videoconferencing Interactive Whiteboard	1		
6.	12-months Technical Support Service of 75 inch Videoconferencing Interactive Whiteboard	1		
7.	12-months Technical Support Service of 86 inch Videoconferencing Interactive	1		

	Whiteboard			
8.	12-months Technical Support Service of HD Camera	1		
9.	12-months Technical Support Service of Microphone	1		
10.	Installation and Commissioning of Display Screen	1		
11.	Installation and Commissioning of 65 inch Videoconferencing Interactive Whiteboard	1		
12.	Installation and Commissioning of 86 inch Videoconferencing Interactive Whiteboard	1		
13.	Installation and Commissioning of HD Camera	1		
3.0	Training			
1.	Technical training for CCTV Monitoring Center System (Maximum 12 people per course, 1 person-day)	1		
			SUB TOTAL	
			15% VAT	
			GRAND TOTAL	

Table K: Off Premise Infrastructure As A Service (IAAS) Cloud Platform

No	Item	Quantity	Unit Price	Total Price
1.0	Cloud Service			
1.	Elastic Cloud Server -2vCPU, 16G Memory-Windows, Yearly	1		
2.	Elastic Cloud Server -4vCPU, 32G Memory-Windows Yearly	1		
3.	Elastic Cloud Server -8vCPU, 64G Memory-Windows Yearly	1		
4.	Elastic Cloud Server -12vCPU, 96G Memory-Windows Yearly	1		
5.	Elastic Cloud Server -16vCPU, 128G Memory-Windows Yearly	1		
6.	Elastic Cloud Server -24vCPU, 192G Memory-Windows Yearly	1		
7.	Elastic Cloud Server -32vCPU, 256G Memory-Windows Yearly	1		
8.	Elastic Cloud Server -64vCPU, 512G Memory-Windows Yearly	1		
9.	Elastic Volume Service- 100GB High IO, Yearly	1		
10.	Elastic Volume Service- 100GB Ultra-High IO, Yearly	1		
11.	Cloud Backup and Recovery for Server vault, 1000GB, Yearly	1		
12.	Storage Disaster Recovery Service, Per Agent, Yearly	1		

13.	Standard Object Storage, 1024GB, Yearly	1		
14.	Elastic IP, 10 Mbps, Yearly	1		
15.	Virtual Private Network, 10 Mbps, Yearly	1		
16.	Web Application Firewall, Professional, Yearly	1		
17.	Host Security Service, Enterprise edition, Yearly	1		
2.0	Support			
1.	Support Plans-Busines, Yearly Case severity/Response time: General guidance < 24 hours System exception < 12 hours Production system exception < 4 hours Production system unavailability < 1 hour	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table L: Artificial Intelligent Contact Center As A Service

No	Item	Quantity	Unit Price	Total Price
1.0	User Subscription			
1.	Standard Call Center Agent (include voice agent inbound & out bound, multimedia agent web chat, IVR, case management) per agent per year	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table M: Mobile Video Surveillance System

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Mobile Video Surveillance Sever	1		
2.	Mobile Video Surveillance Recording and Playback Server	1		
3.	Trunking Service Function Software	1		
4.	Console Software	1		
5.	Audio Concurrent Num License	1		
6.	Video Concurrent Num License	1		
7.	Group Access License	1		
8.	User Access License	1		
9.	GIS User Access License	1		
10.	Instant Message User Access License	1		
11.	Operator Sit Account License	1		
12.	Mobile Handheld Terminal to Check the Video Surveillance System	1		

13.	Optional Extra: Battery	1		
14.	Optional Extra: Desktop Charger	1		
15.	Mobile Vehicle Terminal to Check the Video Surveillance System	1		
16.	Body-worn Camera for Mobile Video Surveillance	1		
17.	Docking Station for Body-worn Camera	1		
18.	Offline Recording System Sever	1		
19.	Offline Recording System Software	1		
2.0 Support and Installation				
1.	12-Months Application Software Support Service of Server	1		
2.	12-Months Application Software Support Service of Basic Software	1		
3.	12-Months Application Software Support Service of Recording Software	1		
4.	12-Months Application Software Support Service of Concurrent NUM License	1		
5.	12-Months Application Software Support Service of User Access License	1		
6.	12-Months Application Software Support Service of Operating Sit Account License	1		
7.	12-Months Application Software Support Service of Offline Recording System Software	1		
10.	Installation and Commissioning of Server	1		
11.	Installation and Commissioning of Mobile Video Surveillance System	1		
12.	Installation and Commissioning of Terminals, Per Mobile Handheld Terminal or Body-worn Camera	1		
13.	Installation and Commissioning of Mobile Vehicle Terminal	1		
14.	Installation and Commissioning of Dock Station	1		
15.	Installation and Commissioning of Offline Recording System	1		
3.0 Training				
1.	Technical Training for Mobile Video Surveillance System (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				
Table N: Modular 3-phase UPS equipment				
No	Item	Quantity	Unit Price	Total Price

1.0	Hardware and Software			
1.	Modular UPS 400KVA/400KW chassis	1		
2.	100kW Power Module	1		
3.	Power Cable for UPS 10m per unit	1		
4.	Lithium battery Cabinet (10min@300kW)	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of Modular UPS 400KVA/400KW chassis	1		
2.	12-months Technical Support Service of 100kW Power Module	1		
3.	12-months Technical Support Service of Lithium battery Cabinet (10min@300kW)	1		
4.	Installation and Commissioning for Modular UPS	1		
5.	Installation and Commissioning for Lithium battery Cabinet (10min@300kW)	1		
6.	Health Check for UPS & Lithium battery	1		
3.0	Training			
1.	Technical Training for Modular 3-phase UPS and lithium battery (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table O: Rack-Mounted UPS equipment

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	6kVA/6kW UPS	1		
2.	10kVA/10kW UPS	1		
3.	240V/20Ah Lithium battery	1		
4.	SNMP card	1		
2.0	Support and Installation			
1.	12-months Technical Support Service of 6kVA/6kW UPS	1		
2.	12-months Technical Support Service of 10kVA/10kW UPS	1		
3.	12-months Technical Support Service of 240V/20Ah Lithium battery	1		
4.	12-months Technical Support Service of SNMP card	1		
5.	Installation and Commissioning for Rack-Mounted UPS	1		
3.0	Training			

1.	Technical Training for Rack-Mounted UPS and lithium battery (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Table P: Digital Power equipment

No	Item	Quantity	Unit Price	Total Price
1.0	Hardware and Software			
1.	Residential inverter-2KTL	1		
2.	Residential inverter-5KTL	1		
3.	Residential power module	1		
4.	Residential battery module– 5KWH	1		
5.	Residential-Backup Box	1		
6.	C&I inverter – 40KTL	1		
7.	C&I inverter – 100KTL	1		
8.	Utility inverter – 200KTL	1		
9.	Smart transformer station,STS-3000K	1		
10.	Smart transformer station,STS-6000K	1		
2.0	Support and Installation			
1.	10 years warranty extension- inverter-2KTL	1		
2.	10 years warranty extension- inverter-5KTL	1		
3.	10 years warranty extension- inverter-40KTL	1		
4.	10 years warranty extension- inverter-100KTL	1		
5.	10 years warranty extension- inverter-200KTL	1		
3.0	Training			
1.	Technical Training for Digital Power equipment (Maximum 12 people per course, 1 person-day)	1		
SUB TOTAL				
15% VAT				
GRAND TOTAL				

Total Year 1 (Vat excluded)	Total Year 2 (Vat excl)	Total Year 3 (Vat excl)	Total 1+2+3 (Vat excl)
R	R	R	R
		VAT	R
		Total VAT Incl	R

(Carried forward to the Official Tender Form)

SECTION 9 : OFFICIAL TENDER FORM

Part A: OFFER BY TENDERER - In response to **Tender Number : E.9807** I / we hereby offer to supply the goods / services detailed hereunder in accordance with the Technical Specification, and subject to the Standard and Special Conditions of Tender (Goods/Services), and General and Special Conditions of Contract, which accompanied your Tender (with which I / we acknowledge myself / ourselves to be fully acquainted) at the price stated below, or in the case of individual rates are indicated in Section 8 : Bill Of Quantities / Schedule of Rates / Activities.

QUOTATION PRICE EXCLUSIVE OF VAT	VAT AMOUNT	QUOTATION PRICE INCLUSIVE OF VAT
R	R	* R
* AMOUNT IN WORDS (incl. VAT):		

I / We hereby agree that this tender will hold good and remain open for acceptance as specified in the Conditions of Tender or during such other period as may be specified in the Special Conditions of Tender.

eThekwini Vendor Portal Registration Number:

PR

C.S.D Registration Number:

MAAA

S.A.R.S Pin Number:

Completion of the following is compulsory. Failure to declare the following will invalidate your offer.

Declaration of Interest

Are any of the entity's directors, managers, principle shareholder or stakeholders currently in the service of the state or have been in the service of the state in the past twelve (12) months?				<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is any spouse, child or parent of the entity's directors, managers, principle shareholder or stakeholder currently in the service of the state or have been in the service of the state in the past twelve (12) months?				<input type="checkbox"/> Yes	<input type="checkbox"/> No
Name of entity's member	Position in Entity	Name of Relative (if applicable)	Name of State Institution	Nature of Relationship	
Do you or any other directors, managers, principle shareholder or stakeholder of your entity have any relationship (spouse, family, friend, associate) with persons in the service of the state and/or who may be involved with the evaluation of this quotation? If yes please furnish particulars below				<input type="checkbox"/> Yes	<input type="checkbox"/> No
Name of entity's member	Position in Entity	Name of Relative (if applicable)	Name of State Institution	Nature of Relationship	

Refer to the Consolidated MBD Documents in Section 4(d) for the definition of "in service of the State"

* Signature :

* Name (capitals):

Date:

Capacity:

* Name of Business:

Tel:

Address:

Fax:

* Denotes Mandatory Information

Failure to complete the Mandatory Information and sign this Tender Form will invalidate the tender

Part B: ACCEPTANCE BY PURCHASER - The Purchaser, as represented by the following Official, hereby accepts the Tenderer's offer in terms of the Conditions of Tender, Specifications, and Conditions of Contract.

Signature:

Name (capitals):

Date:

Capacity:

