



CLUSTER
TRADING SERVICES
UNIT
ELECTRICITY
DEPARTMENT
HV OPERATIONS

PROCUREMENT DOCUMENT

GOODS / SERVICES

Documents are to be obtained, free of charge, in electronic format, from the [National Treasury's eTenders website](#) or the [eThekweni Municipality's website](#).

Tender No: 29836-5E

Title: Supply, testing and delivery of 11 kV single busbar fixed pattern switchgear and associated equipment housed in an e-House

CLARIFICATION MEETING AND QUERIES

Clarification Meeting: N/A

Queries can be addressed to:

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

Technical: Fezeka Mhosho; Tel: 031 321 9206; email: fezeka.mhosho@durban.gov.za, All email queries must be submitted by 19 June 2025 and consolidated question and answers to be uploaded on the website on 26 June 2025.

DELIVERY OF TENDERS

Sealed Tenders, addressed to the City Manager and marked with the Tender Number, are to be placed in the Tender Box **located in the ground floor foyer of the Municipal Buildings, 166 KE Masinga Road (Old Fort Rd), Durban** (and not any other municipal department), no later than:

Closing Date: Friday, 04 July 2025

Time: 11:00am

FACSIMILE, eMAIL or POSTED TENDERS WILL NOT BE ACCEPTED

Issued by:

ETHEKWINI MUNICIPALITY

Deputy Head: HV OPERATIONS

Issued: May 2025

Document Version: 24/02/2023(b)

NAME OF TENDERER:

Tender Price: R

VAT Registered: YES / NO
(Circle applicable)

PROCUREMENT DOCUMENT (Goods / Services)

INDEX

Section	Page
1) General Information	3
2) Conditions of Tender (Goods / Services: July 2016).....	5
3) Special / Additional Conditions of Tender	12
4) Returnable Tender Documents	17
5) General Conditions of Contract (NT Circular 52: July 2010)	33
6) Special / Additional Conditions of Contract.....	40
7) Scope and Specification of Required Supply / Services	45
a) Scope of Supply / Services	
b) Specifications	
c) Drawings (if applicable)	
8) Bill of Quantities / Schedule of Rates/Activities	86
9) Official Tender Form	92
10) Schedules	

SECTION 1: GENERAL INFORMATION

YOU ARE HEREBY INVITED TO TENDER FOR REQUIREMENTS OF THE ETHEKWINI MUNICIPALITY
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TENDER No.: 29836-5E

DESCRIPTION: **Supply, testing and delivery of 11 kV single busbar fixed pattern switchgear and associated equipment housed in an e-House**CLOSING DATE / TIME: **Friday, 04 July 2025 at 11:00am**

All tenders must be submitted on official tender documentation issued (in electronic format) by the eThekwini Municipality from:

- the National Treasury's eTenders website (<https://www.etenders.gov.za/>), or
- the eThekwini Municipality's website (<https://www.durban.gov.za/pages/business/procurement>).

Electronically downloaded documentation should be printed by the tenderer.

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.

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

Tenderers should ensure that tenders are delivered timeously to the correct address as stated in the Conditions of Tender. If a 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).

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 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**

Insert a SARS Tax Compliance Status PIN

Is your entity VAT registered? YES / NO

- **If YES insert** Vat Registration Number:

Has a **Declaration of Municipal Fees** been submitted? 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 **Preference Points Claim** (MBD 6.1) 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** at the back of the tender submission. 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

1. **DEFINITIONS**
2. **CONDITIONS OF TENDER & CONTRACT**
3. **TENDER INFORMATION**
 - (1) General
 - (2) Obtaining Tender Documents
 - (3) Queries Relating to this Tender
 - (4) Briefing Session (Clarification Meeting)
 - (5) Closing Date and Delivery of Tender Submissions
 - (6) Tender Validity and Withdrawal of Tenders
4. **RETURNABLE SCHEDULES, FORMS, CERTIFICATES**
 - (1) Authority of Signatory
 - (2) Tax Compliance Status PIN / Tax Clearance Certificate
 - (3) Declaration of Municipal Fees
 - (4) Health and Safety
 - (5) Municipal Bidding Documents
 - (a) MBD 4: Declaration of Interest
 - (b) MBD 5: Declaration for Procurement Above R10 Million
 - (c) MDB 6.1: Preference Points Claim
 - (d) MBD 8: Declaration of Bidder's Past Supply Chain Management Practices
 - (e) MBD 9: Certificate of Independent Bid Determination
 - (5) Official Tender Form
 - (6) Additional Schedules, Forms, or Certificates
5. **INFORMATION TO BE SUPPLIED RE SUB-CONTRACTORS**
6. **SAMPLES**
7. **MANUFACTURERS**
8. **CLARIFICATION**
9. **PRICING**
10. **ESTIMATED QUANTITIES**
11. **DELIVERY, RISK, PACKAGES, ETC**
12. **RATES OF EXCHANGE**
13. **IMPORT PERMITS**
14. **EVALUATION PROCESS**
15. **BRIBERY AND COMMUNICATION WITH COUNCILLORS / OFFICIALS**
16. **NEGOTIATIONS WITH PREFERRED TENDERERS**
17. **CANCELLATION OF TENDER PROCESS**
18. **ACCEPTANCE OF TENDER**
19. **PAYMENT and FACTORING**
20. **APPEAL PROCESS**

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:
 - "Closing time"
 - "Contract"
 - "Contract Price"
 - "Corrupt practice"
 - "Countervailing duties"
 - "Country of origin"
 - "Day"
 - "Delivery"
 - "Delivery ex stock"
 - "Delivery into consignees store or to his site"
 - "Dumping"
 - "Force majeure"
 - "Fraudulent practice"
 - "GCC"
 - "Goods"
 - "Imported content"
 - "Local content"
 - "Manufacture"
 - "Order"
 - "Project site"
 - "Purchaser"
 - "Republic"
 - "SCC"
 - "Services"
 - "Supplier"
 - "Tort"
 - "Turnkey"
 - "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, in electronic format, by the eThekweni Municipality. Electronically downloaded documentation (obtainable free of charge) should be printed and suitably bound by tenderer.
- (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 City Manager, 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 12th 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(5)(c) of the Conditions of Tender.
- (2) **Tax Compliance Status PIN / Tax Clearance Certificate:** SARS has introduced a new Tax Compliance Status System. Tenderers can submit a Tax Compliance Status PIN (TCS PIN) instead of an original Tax Clearance Certificate. This TCS PIN can be used by third parties to certify the taxpayer's real-time compliance status.
- (3) **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.
- (4) **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.

(5) Municipal Bidding Documents (which includes):

- (a) **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.
- (b) **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.
- (c) **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 complete and submit this form will be interpreted to mean that preference points for **Specific Goals** 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*.
- (d) **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.
- (e) **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)**(a) 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:

- (i) the full registered name of the company making a *tender*; or
- (ii) 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.

(1) Nett Prices

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

(2) 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**.

(3) Firm Tenders

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

(4) 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 exceed, or be 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

- (1) In order to minimise special importation, *Bidders* should, where possible, have recourse to local suppliers and / or manufacturers.
- (2) *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.
- (3) 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 (November 2022).

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:

Reference is to be made to the Special Conditions of Tender (*SCT*), and returnable form 5(c) in Section 4.

INCOME-GENERATING CONTRACTS

The financial offer will be scored using the formula:

$$N_{FO} = W \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)$$

GOODS and SERVICES

The financial offer will be scored using the formula:

$$N_{FO} = W \left(1 - \frac{Pt - P_{min}}{P_{min}} \right)$$

Where the value of W is:

- (a) **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.
- It is unclear** (at the time of advertising) which of the two preference point systems applies. Either the 80/20 or 90/10 preference point system will apply, determined by the price offered by the lowest acceptable tender.

(b) **P_{max}** is the comparative offer of the most favourable comparative offer (highest acceptable tender).

(c) **P_{min}** is the comparative offer of the most favourable comparative offer (lowest acceptable tender).

(d) **P_t** is the comparative offer of the *tender* offer under consideration.

(2) Evaluation points awarded for preference:

The **Specific Goals** for Preference Points are specified in the *SCT*.

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 OR Tax Compliance Status PIN is included with the *tender* submission. Both should have 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 conditions 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 123 pages.

SCT 3(2) TENDER INFORMATION: Obtaining Tender Documentation

Documents are issued by the eThekweni Municipality electronic format.

Electronically downloaded documentation is obtainable from:

- the National Treasury's eTenders website
 - (<https://www.etenders.gov.za/>), or
- the eThekweni Municipality's website
 - (<https://www.durban.gov.za/pages/business/procurement>).

The entire document should be printed on A4 paper (one sided), 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:

Fezeka Mhosho; Tel: 031 321 9206; email: fezeka.mhosho@durban.gov.za, All email queries must be submitted by 19 June 2025 and consolidated question and answers to be uploaded on the website on 26 June 2025.

SCT 3(4) TENDER INFORMATION: Briefing Session

N/A

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 **located in the ground floor foyer of the Municipal Buildings, 166 KE Masinga Road (Old Fort Rd), Durban** (and not any other municipal department), no later than: **Friday, 04 July 2025 at 11:00am**.

Bidders are required to also make an electronic submission via SSS. Bidders must ensure that the hard copy and electronic submission are the same, failing which the submission will be deemed invalid. Bidders are responsible for resolving all access rights and submission queries before the tender closing date.

SSS Queries Contact: Lindo Dlamini: Tel: 031-3227133/031-3227153 email: supplier.selfservice@durban.gov.za

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:

1. Schedule B1 – B6
2. Schedule C1 – C6

SCT 11(2) DELIVERY, RISK, PACKAGES, ETC

The quoted bid prices shall include supply, delivery charges to and off loading at various specified substations in the eThekweni Municipal Area, Durban, South Africa.

SCT 14 EVALUATION PROCESS

14.1 Price and Preference

The procedure for the evaluation of responsive tenders is **PRICE AND PREFERENCE** in accordance with the Employer's current SCM Policy, the Preferential Procurement Policy Framework Act (5 of 2000), and the Preferential Procurement Policy Framework Act Regulations (2022).

The **90/10** preference point system will apply.

BILL OF QUANTITIES / SCHEDULE OF RATES / ACTIVITIES will be evaluated as a whole.

The evaluation will be based upon the following:

- a) The total price;
- b) The 90/10 procurement point system.

14.2 Preference Point System and Specific Goals

The definitions as per the SCM Policy are applicable.

Preference Points (either 20 or 10) will be derived from points claimed on Returnable Document **MBD 6.1: "Preference Points Claim Form"** (in Section 4 of this procurement document) for the **Specific Goal(s)** as indicated on the table(s) below, and according to the specified **Goal Weightings**.

Ownership Goal

The tendering entity's **Percentage Ownership**, in terms of the **Ownership Category(s)** listed below, is to be used in the determination of the tenderer's claim for **Preference Points**.

Goal Weighting 50%			
Ownership Categories	Criteria	80/20	90/10
Race: Black (w1)	0%	n/a	0
	>0% and <51%	n/a	4
	≥51% and <100%	n/a	7.5
	100%	n/a	10
Gender: Female (w2)	0%	n/a	0
	>0% and <51%	n/a	4
	≥51% and <100%	n/a	7.5
	100%	n/a	10
Disabilities (w3)	0%	n/a	0
	>0% and <51%	n/a	4
	≥51% and <100%	n/a	7.5
	100%	n/a	10
Proof of claim as declared on MBD 6.1 (1 or more of the following will be used in verifying the tenderer's status) <ul style="list-style-type: none"> • Companies and Intellectual Property Commission registration document (CIPC) • CSD report. • B-BBEE Certificate of the tendering entity. • Consolidated B-BBEE Certificate if the tendering entity is a Consortium, Joint Venture, or Trust (Issued by verification agency accredited by the South African Accreditation System). • Agreement for a Consortium, Joint Venture, or Trust. 			
The Category Weightings of the Ownership Categories will be: w1 = 45%, w2=45%, w3=10% (where: w1 + w2 + w3 = 100%)			

RDP Goal: The promotion of South African owned enterprises

The tendering entity's **Address** (as stated on the National Treasury Central Supplier Database (CSD) or on the eThekweni Municipality Vendor Portal) is to be used in the determination of the tenderer's claim for **Preference Points** for this Specific Goal.

Goal Weighting 50%		
Location	80/20	90/10
Not in South Africa	n/a	0
South Africa	n/a	2.5
KZN	n/a	5
ETM	n/a	10
Proof of claim as declared on MBD 6.1 (1 or more of the following will be used in verifying the tenderer's status) <ul style="list-style-type: none"> • CSD report 		

14.3 FUNCTIONALITY

Functionality is to be used as a threshold. Tender offers that fail to score the minimum number of evaluation points for Functionality will be rejected as non-responsive.

The evaluation criteria for measuring Functionality are:

- a) Schedule C4: Functionality evaluation where a minimum score of 65 is required.

14.4 TECHNICAL

Tender offers that do not comply with the requirements of this tender document will be deemed as divergent.

The following schedule will be used to evaluate the technical requirements:

- a) Schedule B: Technical evaluation. All items as specified as a requirement to be complied with.

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 on the information table in Section 1.

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

ACT 2 AWARDING OF TENDER

The Awarding of the contract is subject to the availability of budget.

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.

- 1) Authority of Signatory
- 2) Tax Compliance Status PIN / Tax Clearance Certificate
- 3) Declaration of Municipal Fees
- 4) Declaration with respect to The Occupational Health and Safety Act
- 5(a) MBD 4: Declaration of Interest
- 5(b) MBD 5: Declaration for Procurement Above R10 Million
- 5(c) MBD 6.1: Preference Points Claim
- 5(d) MBD 8: Declaration of Bidder’s Past Supply Chain Management Practices
- 5(e) MBD 9: Certificate of Independent Bid Determination

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

1) 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. [29836-5E](#) and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

Notes

Tenderers are to include, at the back of their tender submission document, a printout of the following documents:

- 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.

2) **TAX COMPLIANCE STATUS PIN / TAX CLEARANCE CERTIFICATE**

SARS has introduced a new Tax Compliance Status System. Tenderers can submit a Tax Compliance Status PIN (TCS PIN) instead of an original Tax Clearance Certificate. This TCS PIN can be used by third parties to certify the taxpayer’s real-time compliance status.

Separate Tax Clearance Certificates / TCS PINs are required for each entity in a Joint Venture.

The TCS PIN(s) are to be entered on the information table in **SECTION 1: GENERAL INFORMATION**.

Tenderers are to include, at the back of their tender submission document, a printout of their Tax Compliance Status PIN (TCS PIN) OR an original Tax Clearance Certificate.

Failure to include the required document will make the tender submission non-responsive.

*I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct, **and that the requested documentation has been included in the tender submission.***

NAME (Block Capitals): _____

Date

SIGNATURE: _____

3) 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:

<u>Account</u>	<u>Account Number:</u> to be completed by tenderer.																							
Consolidated Account No.	<table border="1" style="width: 100%; height: 20px;"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																							
Electricity	<table border="1" style="width: 100%; height: 20px;"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																							
Water	<table border="1" style="width: 100%; height: 20px;"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																							
Rates	<table border="1" style="width: 100%; height: 20px;"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																							
Other	<table border="1" style="width: 100%; height: 20px;"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																							

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.

- 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).

Tenderers are to be include, at the back of their tender submission document, a printout of the above account's and or agreements signed with the municipality.

Failure to include the required document will make the tender submission non-responsive.

NAME (Block Capitals):

Date:

SIGNATURE:

.....

.....

4) 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):**Date:****SIGNATURE:**

5(a) MBD 4: DECLARATION OF INTEREST

NOTES
 MSCM Regulations: "in the service of the state" means to be:
 (a) a member of:
 (i) any municipal council.
 (ii) any provincial legislature.
 (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.
 (f) an employee of Parliament or a provincial legislature.
 "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.

- 1 No bid will be accepted from persons **in the service of the state**.

- 2 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.

- 3 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

3.1 Name of enterprise	
Name of enterprise's representative	
3.2 ID Number of enterprise's representative	
3.3 Position enterprise's representative occupies in the enterprise	
3.4 Company Registration number	
3.5 Tax Reference number	
3.6 VAT registration number	

3.7 The names of all directors / trustees / shareholders / members / sole proprietors / partners in partnerships, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below. In the case of a joint venture, information in respect of each partnering enterprise must be completed and submitted.

3.8 Are you presently in the service of the state? If yes, furnish particulars:	Circle Applicable	
	YES	NO

.....

3.9 Have you been in the service of the state for the past twelve months?	YES	NO
---	-----	----

If yes, furnish particulars:

3.10 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:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">YES</td> <td style="width: 50%; padding: 2px;">NO</td> </tr> </table>	YES	NO
YES	NO		
3.11 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:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">YES</td> <td style="width: 50%; padding: 2px;">NO</td> </tr> </table>	YES	NO
YES	NO		
3.12 Are any of the company’s directors, trustees, managers, principle shareholders or stakeholders in service of the state? If yes, furnish particulars:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">YES</td> <td style="width: 50%; padding: 2px;">NO</td> </tr> </table>	YES	NO
YES	NO		
3.13 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:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">YES</td> <td style="width: 50%; padding: 2px;">NO</td> </tr> </table>	YES	NO
YES	NO		
3.14 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:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">YES</td> <td style="width: 50%; padding: 2px;">NO</td> </tr> </table>	YES	NO
YES	NO		

4 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			

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

NAME (Block Capitals):

Date:

SIGNATURE:

5(b) **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.

	Circle Applicable	
1.0 Are you by law required to prepare annual financial statements for auditing?	YES	NO
1.1 If YES, submit audited annual financial statements 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
2.1 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.		
2.2 If YES, provide particulars.		
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
3.1 If YES, provide particulars.		
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
4.1 If YES, provide particulars.		

If required by 1.1 above, tenderers are to include, at the back of their tender submission document, a printout of their audited annual financial statements.

*I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct, **and, if required, that the requested documentation has been included in the tender submission.***

NAME (Block Capitals): **Date**

SIGNATURE:

5(c) MBD 6.1: PREFERENCE POINTS CLAIM
In terms of THE PREFERENTIAL PROCUREMENT REGULATIONS (2022)

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

1.0 GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included).
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2 **The 90/10 preference point system will be applicable in this tender.**

1.3 Preference Points for this tender shall be awarded for:

- **Price and Specific Goals:** Either 80 or 90 (price) and 20 or 10 (specific goals), in terms of 1.2 above.
- The total Preference Points, for Price and Specific Goals, is 100.

1.4 Failure on the part of the tenderer to submit the required proof or documentation, in terms of the requirements in the (Special) Conditions of Tender for claiming **Specific Goal** preference points, will be interpreted that preference points for **Specific Goals** are not claimed.

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

2.0 DEFINITIONS

2.1 **“tender”** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation.

2.2 **“price”** means an amount of money tendered for goods or services and includes all applicable taxes less all unconditional discounts.

2.3 **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes.

2.4 **“tender for income-generating contracts”** means a written offer in the form determined by Municipality in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the Municipality and a third party that produces revenue for the Municipality, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions.

2.5 **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3.0 FORMULA FOR CALCULATION OF PREFERENCE PRICE POINTS

3.1 PROCUREMENT OF GOODS AND SERVICES

PRICE POINTS: A maximum of 90 points is allocated for price on the following basis:

90 / 10 Points System

$$P_s = 90 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right)$$

Where:

P_s = Points scored for price of tender under consideration

P_t = Price of tender under consideration

P_{min} = Price of lowest acceptable tender

4.0 POINTS AWARDED FOR SPECIFIC GOALS

- 4.1 In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the **points claimed** for the goal(s) stated in **Table 1** below, as supported by proof/ documentation stated in the **Conditions of Tender**:
- 4.2 In cases where the municipality intends to use Regulation 3(2) of the Regulations, which states that if it is unclear whether the 80/20 or 90/10 preference point system applies, the municipality must, in the tender documents, stipulate in the case of:
- an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system, or
 - any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the municipality must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

TABLE 1: Specific Goals for the tender and maximum points for each goal are indicated per the table below.

Tenderers are to indicate their points claim for each of the Specific Goals in the shaded blocks.

The Specific Goals to be allocated points in terms of this tender	Maximum Number of points ALLOCATED (80/20 system)	Maximum Number of points ALLOCATED (90/10 system)	Number of points CLAIMED (80/20 system)	Number of points CLAIMED (90/10 system)
Ownership Goal Race: Black (w1)	n/a	2.25		
Ownership Goal Gender: Female (w2)	n/a	2.25		
Ownership Goal Disability: (w3)	n/a	0.5		
RDP Goal: The promotion of South African owned enterprises.	n/a	5		
Total CLAIMED Points (20/10 Maximum)				

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, certify that the points claimed, based on the specific goals as specified in the tender, qualifies the tendering entity for the preference(s) shown.

I acknowledge that:

- 1) The information furnished is true and correct.
- 2) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form.
- 3) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct.
- 4) If the specific goals have been claimed or obtained on a fraudulent basis, or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have:
 - (a) disqualify the person from the tendering process.
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct.
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation.
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

NAME (Block Capitals): _____

Date: _____

SIGNATURE: _____

5(d) MBD 8: DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

- 1.0 This Municipal Bidding Document must form part of all bids invited.
- 2.0 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.
- 3.0 The bid of any bidder may be rejected if that bidder, or any of its directors have:
 - a) abused the municipal entity's supply chain management system or committed any improper conduct in relation to such system.
 - b) been convicted for fraud or corruption during the past five years.
 - c) wilfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years.
 - d) 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).
- 4.0 In order to give effect to the above, the following questions must be completed and submitted with the bid.

4.1 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?

(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.

Circle Applicable	
YES	NO

4.1.1 If YES, provide particulars.

.....

4.2 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)?

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.

YES	NO
-----	----

4.2.1 If YES, provide particulars.

.....

4.3 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
-----	----

4.3.1 If YES, provide particulars.

.....

4.4 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
-----	----

4.4.1 If YES, provide particulars.

.....
.....

4.5 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
-----	----

4.5.1 If YES, provide particulars.

.....
.....

I, the undersigned, who warrants that they are authorised to sign on behalf of the Tenderer, confirms that the information contained in this form is within my personal knowledge and is to the best of my belief both true and correct.

I accept that, in addition to cancellation of a contract, action may be taken against me should this declaration prove to be false.

NAME (Block Capitals):

Date:

SIGNATURE:

.....
.....

5(e) MBD 9: CERTIFICATE OF INDEPENDENT BID DETERMINATION**NOTES**

- ¹ Includes price quotations, advertised competitive bids, limited bids and proposals.
- ² 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.
- ³ 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.

- 1.0 This Municipal Bidding Document (MBD) must form part of all **bids**¹ invited.
- 2.0 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.
- 3.0 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.
- 4.0 This 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**.
- 5.0 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid.

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

(Name of Municipality / Municipal Entity)

do hereby make the following statements that I certify to be true and complete in every respect.

I certify, on behalf of:

(Name of Bidder)

that:

1. I have read and I understand the contents of this Certificate.
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect.
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. 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. 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:
 - (a) has been requested to submit a bid in response to this bid invitation.
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience.
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder.
6. 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 consortium³ will not be construed as collusive bidding.

-
-
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
- (a) prices.
 - (b) geographical area where product or service will be rendered (market allocation).
 - (c) methods, factors or formulas used to calculate prices.
 - (d) the intention or decision to submit or not to submit, a bid.
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid.
 - (f) bidding with the intention not to win the bid.
8. 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. 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. 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.

NAME (Block Capitals): _____

Date: _____

SIGNATURE: _____

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

TABLE OF CLAUSES

1.	Definitions.....	35
2.	Application.....	35
3.	General	35
4.	Standards.....	36
5.	Use of contract documents and information inspection	36
6.	Patent Rights.....	36
7.	Performance security	36
8.	Inspections, tests and analyses	36
9.	Packing.....	36
10.	Delivery and documents.....	36
11.	Insurance	36
12.	Transportation	36
13.	Incidental Services	37
14.	Spare parts.....	37
15.	Warranty.....	37
16.	Payment.....	37
17.	Prices.....	37
18.	Variation orders.....	37
19.	Assignment	37
20.	Subcontracts.....	37
21.	Delays in the supplier's performance.....	37
22.	Penalties	38
23.	Termination for default	38
24.	Anti-dumping and countervailing duties and rights.....	38
25.	Force Majeure.....	38
26.	Termination for insolvency.....	38
27.	Settlement of Disputes	39
28.	Limitation of Liability	39
29.	Governing language.....	39
30.	Applicable law.....	39
31.	Notices	39
32.	Taxes and duties	39
33.	Transfer of contracts	39
34.	Amendments of contracts	39
35.	Prohibition of restrictive practices	39

1. Definitions

The following terms shall be interpreted as indicated:

- 1.1 "Closing time" means the date and hour specified in the bidding documents for the receipt of bids.
- 1.2 "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.
- 1.3 "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.
- 1.4 "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.
- 1.5 "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.
- 1.6 "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.
- 1.7 "Day" means calendar day.
- 1.8 "Delivery" means delivery in compliance of the conditions of the contract or order.
- 1.9 "Delivery ex stock" means immediate delivery directly from stock actually on hand.
- 1.10 "Delivery into consignee 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.
- 1.11 "Dumping" occurs when a private enterprise abroad market 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.
- 1.12 "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.
- 1.13 "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.
- 1.14 "GCC" means the General Conditions of Contract.
- 1.15 "Goods" means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.
- 1.16 "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.
- 1.17 "Local content" means that portion of the bidding price, which is not included in the imported content provided that local manufacture does take place.
- 1.18 "Manufacture" means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.
- 1.19 "Order" means an official written order issued for the supply of goods or works or the rendering of a service.
- 1.20 "Project site," where applicable, means the place indicated in bidding documents.
- 1.21 "Purchaser" means the organization purchasing the goods.
- 1.22 "Republic" means the Republic of South Africa.
- 1.23 "SCC" means the Special Conditions of Contract.
- 1.24 "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.
- 1.25 "Supplier" means the successful bidder who is awarded the contract to maintain and administer the required and specified service(s) to the State.
- 1.26 "Tort" means in breach of contract.
- 1.27 "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) 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:
- performance or supervision of on-site assembly and/or commissioning of the supplied goods;
 - furnishing of tools required for assembly and/or maintenance of the supplied goods;
 - furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
 - 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
 - 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;
 - in the event of termination of production of the spare parts:
 - advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and
 - 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 fulfillment 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 (SCC)** 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 and terminate on occurrence of the following events respectively:

- Commence 14 days after issue of Letter of Award
- Terminate after 36 months of commencement, which should be accompanied with a Completion Certificate.

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 9.2 PACKING

The completed e-House shall be delivered to the specified substations within the eThekweni Municipal Area.

SCC 10.1 DELIVERY AND DOCUMENTS

The quoted bid prices shall include supply, testing and delivery charges to and off loading at various substations in the eThekweni Municipal Area, Durban, South Africa.

SCC 11.1 INSURANCE

Insurance of works for the transport of material to site will be for the full value of materials.

The insurance cover shall not carry a first loss amount greater than R50,000 for contract price greater than R 4,000,000.

SCC 15.2 WARRANTY

The minimum warranty for the arc sensors (protection) shall be 5 years, and all other equipment shall have a minimum warranty of 10 years.

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 16.2 PAYMENT

Payment for Materials shall be made as follows:

- 1) 90% of the material price on delivery to site
- 2) 10% of the material price one month after the date of Handing Over

SCC 17 PRICES

Prices shall be fixed for the first 12 months of the contract. No claim by the Contractor for an adjustment will be entertained unless the details required below are included with their bid.

Contract Price Adjustments

Should the bid prices be subject to contract price adjustments during the contract, such as for labour and for raw materials, the bid shall include details for calculating above adjustments in accordance with an industrially recognised contract price adjustment formula, such as that of Steel and Engineering Industries Federation of South Africa (SEIFSA).

- a) Where SEIFSA indices cannot be applied, bidders shall submit details of alternative formulae for approval.
- b) Where SEIFSA indices are used, the base indices shall be those published one month prior to month of bid closing.
- c) Where the base index is defined as that last published, the date of the index shall not be more than four months prior to the month of bid closing.
- d) Adjustments for Supply and Delivery shall be based on the index at least two months prior to the date the goods are ready for despatch in the case of the Consumer Price Index, Material or Labour adjustments and at least four months prior to despatch in the case of copper price adjustment.
- e) Adjustments for Site Erection shall be based on the index for the month which is one month prior to the contractual completion of erection.
- f) The calculation of contract price adjustment shall not be applied to more than 90% of the contract value.
- g) Price adjustment claims shall be submitted within 120 days from date of each delivery or service and shall be accompanied by calculations showing how the adjustments were arrived at. Claims submitted after the stipulated 120 days will not be considered.

Freight, duty, landing charges

Where the Goods or Materials to be supplied have to be imported, the bidder shall, notwithstanding anything to the contrary contained in the General Conditions of Contract, base their tender on the duty and landing charges ruling as at the date fourteen days prior to the closing date of tenders and tenderers shall state such freight rates, duty and landing charges in the Bid. No claim by the Contractor for an adjustment will be entertained unless the details required by this Clause are included with their bid.

Where freight rates actually paid by the Contractor are higher or lower than the rates upon which the contract price was based then any difference between the freight rates upon which the tender was based and the freight rates actually paid by the Contractor shall be paid or deducted by the Municipality, as the case may be.

Where the rates of duty or landing charges are varied between the date of bid and the date of clearing, any increase or decrease in the rates ruling at the date of tender, shall be paid or deducted by the Municipality.

The Contractor shall:

- 1) Submit documentary proof of the freight rates, duty and landing charges paid by him, and
- 2) When an adjustment is claimed in terms of this Clause, submit documentary proof to the satisfaction of the Municipality in support of such claim.

In the absence of such proof, no claim by the Contractor for any increase will be entertained.

SCC 21.1 DELAYS IN THE SUPPLIER'S PERFORMANCE

The time schedule for the delivery of goods and performance of services is detailed in Schedule C4.3.

SCC 22.1 PENALTIES

“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 R1 000 per day 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.

ACC5 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.

ACC6 RATE OF EXCHANGE VARIATION

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

forward cover shall be from a reputable South African bank. The Contractor is to confirm with the employer prior to placing forward cover if the service provider is acceptable.

Any increase or decrease between the basic rate of exchange as at 12:00 on the date of close of the bid 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 Contractor to arrange forward exchange cover, the Contractor shall be liable should there be an 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.

ACC7

ESTIMATED QUANTITIES

The quantities stated in Section 8 are applicable for evaluation purposes only. The final quantity of goods and services required may 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. CPA adjustments shall be applicable where the necessary detailed adjustment calculations were provided with the bid as per SCC 17.

SECTION 7: SCOPE AND SPECIFICATION OF REQUIRED SUPPLY / SERVICES

1.0 SCOPE

To supply, test and deliver a single busbar fixed pattern (non-withdrawable), assembled metal-enclosed switchgear for rated voltages of 12 kV and associated equipment housed in an e-House.

2.0 SPECIFICATION

This specification details the supply, testing and delivery for single busbar fixed pattern (non-withdrawable), assembled metal-enclosed switchgear for rated voltages of 12 kV and for indoor installation in an e-house.

3.0 NORMATIVE REFERENCES

3.1 The following standards contain provisions that through reference in the text, constitute requirements of this specification. At the time of publication, editions indicated were valid.

STANDARD	DESCRIPTION
IEC 60051	Direct acting analogue electrical measuring instruments and their accessories
SANS 60137	Insulated bushings for alternating voltages above 1 000 V
SANS 60269-1	Low-voltage fuses, Part 1: General requirements
SANS 60269-2	Low-voltage fuses, Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial applications)
SANS 62271-1	High-Voltage switchgear and control gear, Part 1: Common specifications
NRS 003 / SANS 1885	Ac metal-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 36 kV
NRS 012/ SANS 876	Cable terminations and live conductors within air insulated enclosures (insulation co-ordination) for rated ac voltages of 7,2 kV up to and including 36 kV
SANS 1091	National colour standards
SANS 61869	Current transformers and Voltage transformers
SANS 1274	Coating applied by the powder coating process
SANS 279-1	Paints and varnishes – Scratch test
SANS 121	Hot dip galvanised coatings on fabricated iron and steel articles
SANS 1019	Standard voltages, currents, and insulation levels for electricity supply
SANS 1574	Electric cables - Flexible cords and flexible cables
SANS 2409	Paints and varnishes – Cross cut test
SANS 61869-2	Instrument transformers - Part 2: Additional requirements for Current transformers
SANS 61869-3	Instrument transformers - Part 3: Inductive voltage transformers
SANS 60265-1	High Voltage Switches-Part 1, High voltage switches for rated voltage above 1 kV and less than 52 kV
SANS 62271-100	High-voltage switchgear and control gear, Part 100: Alternating-current circuit-breakers
SANS 62271-200	High-voltage switchgear and control gear, Part 200: Ac metal-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 52 kV
SANS 62271-102	High-voltage switchgear and control gear, Part 102: Alternating current disconnectors and earthing switches
EN 50181	Plug-in type bushings above 1 kV up to 36 kV and from 250 A to 1,25 kA for equipment other than liquid filled transformers
NRS 053/ SANS 1332	Accessories for Medium-Voltage Power Cables (3,8/6,6 kV to 19/33 kV)
NRS 075	Mechanical Torque Shear Connectors

STANDARD	DESCRIPTION
SANS 97	Electric Cables: Impregnated paper insulated metal sheathed cables for rated voltages from 3,3/3,3 kV up to 19/33 kV
SANS 1339	Electric cables - Cross-linked polyethylene (XLPE) - insulated cables for voltages from 3,8/6,6 kV to 19/33 kV
SANS 10198-10	The selection, handling and installation of rating not exceeding 33 kV - Part 10: Jointing and termination of paper insulated cables
SANS/IEC 61238-1-1	Compression and mechanical connectors for power cables for rated voltages up to 30 kV (Um = 36 kV) - Part 1: Test methods and requirements
IEC 60055-1	Paper insulated metal sheathed cables for rated voltages up to 18/30 kV (with copper or aluminium conductors and excluding gas pressure and oil filled cables) - Part 1: Test on cables and their accessories.
IEC 61442	Electrical Cables - Test methods for accessories for power with rated voltages from 6 kV (Um = 7,2 kV) up to 30 kV (Um = 36 kV)
SANS 9227	Corrosion tests in artificial atmospheres – Salt spray tests
IEC 61850-3	Communication Networks and Systems in Substations
Communications Networks Applicable Environmental and EMI Tests	
Compliance with IEC 61850-3 with the following tests:	
IEC 61000-4-2	ESD
IEC 61000-4-3	Radiated RFI
IEC 61000-4-4	Burst (Fast Transient)
IEC 61000-4-5	Surge
IEC 61000-4-6	Induced (Conducted) RFI
IEC 61000-4-8	Magnetic Field Enclosure ports
IEC 61000-4-29	Voltage Dips and Interrupts DC
IEC 61000-4-11	Voltage Dips and Interrupts AC
IEC 61000-4-12	Damped Oscillatory
IEC 61000-4-16	Mains Frequency Voltage
IEC 61000-4-17	Ripple on DC Power Supply
IEC 60255-27	Dielectric Strength
IEC 60255-27	HV Impulse
Compliance with IEEE 1613 with the following tests:	
IEEE C37.90.3	ESD
IEEE C37.90.2	Radiated RFI Enclosure ports 35 V/m
IEEE C37.90.1	Fast Transient
IEEE C37.90.1	Oscillatory
IEEE C37.90	HV Impulse
IEEE C37.90	Dielectric Strength
Environmental Tests:	
IEC 60068-2-1	Cold Temperature Test
IEC 60068-2-2	Dry Heat Test
IEC 60068-2-30	Humidity (Damp Heat, Cyclic)
IEC 60255-21-1	Vibration
IEC 60255-21-2	Shock
Ethernet Standards:	
IEEE 802.3	for 10 BaseT
IEEE 802.3u	for 100 BaseT(X) and 100Base FX
IEEE 802.3ab	for 1000 BaseT(X)
IEEE 802.3z	for 1000 BaseX
IEEE 802.3x	for Flow Control
IEEE 802.1D-2004	for Spanning Tree Protocol

STANDARD	DESCRIPTION
IEEE 802.1Q-2005	for Multiple Spanning Tree Protocol
IEEE 802.1w	for Rapid STP
IEEE 802.1Q	for VLAN Tagging
IEEE 802.1p	for Class of Service (QOS)

3.2 Bidders shall note that, as all standards are subject to revisions, they are encouraged to investigate the possibility of applying the most recent edition of the above standards.

4.0 GENERAL REQUIREMENTS

4.1 Systems and Operating/Environmental conditions

The relevant items detailed in Schedule A are for use in an e-House which form part of eThekweni Electricity's medium voltage (11 kV) system and shall be designed to operate satisfactorily when subjected to the following operating conditions:

No.	Description	Detail
4.1.1	Climate	humid and sub-tropical
4.1.2	Altitude	from sea-level to 1 000 m
4.1.3	Ambient temperature	from 0°C to 50°C
4.1.4	Maximum relative humidity	95 %
4.1.5	Highest system phase-to-phase voltage	12 kV
4.1.6	System frequency	50 Hz
4.1.7	System neutral earthing	solidly
4.1.8	Rated normal current	2 000 A / 630 A
4.1.9	Fault level	25 kA
4.1.10	Service configuration of switchboard	In-line extendable to form a continuous bank

4.2 General description

4.2.1 The metal enclosed switchgear shall comply with the latest version of NRS 003/SANS 1885 and SANS 62271-200.

4.2.2 The circuit breaker panels required shall be of the universal type and wired to accommodate the following IED options:

- a) Incoming circuit breaker – wired for transformer differential protection, standby earth fault protection, restricted earth fault protection, overcurrent / earth fault protection, directional overcurrent protection and form of busbar protection.
- b) Feeder circuit breaker – wired for cable differential protection, overcurrent / earth fault protection, sensitive earth fault protection, auto-reclosing functionality, and form of busbar protection.

4.2.3 The communication and SCADA requirements will enable remote control and monitoring of the switchgear.

4.2.4 All panels shall be housed in a custom-built e-house solution.

4.2.5 It is preferable that auxiliary electronic devices such as power supplies have a feature to be monitored or redundancy to be provided.

4.2.6 The switchgear colour shall be RAL7032 or a similar colour, as approved by the Engineer.

5.0 SWITCHGEAR

5.1 Circuit breaker

5.1.1 Circuit-breakers shall be designed in accordance with SANS 62271-100.

5.1.2 The circuit-breaker shall be of the fixed type and comply with the requirements of clause 4.3.3 of SANS 1885/NRS 003.

5.1.3 The circuit-breaker shall be fixed and compact.

5.1.4 The circuit breaker shall have definite mechanical indication, clearly visible from the front of the panel, to show the following:

- a) circuit-breaker open and closed indications, which shall be visible with the circuit-breaker in any position, where applicable;
- b) stored energy device charged or discharged;
- c) earth-position indication.
- d) disconnecting switch position connected or disconnected (or in test position);

5.1.5 The primary insulation (where arc interruption occurs) of circuit-breakers shall be of the vacuum type. All secondary insulation shall be either SF₆, screened solid or a combination.

5.1.6 The circuit-breaker operating mechanism shall be an integral part of the circuit-breaker unit.

5.1.7 The closing mechanism for operating the circuit breaker shall be a dc motor wound spring to close and mechanical stored energy to open. The mechanism shall be electrically and manually chargeable with the closing and tripping operation being initiated electrically or mechanically.

5.1.8 The total coil power shall not exceed 1,5 kW per circuit breaker for the spring charged closing mechanism.

5.1.9 Adequately rated "a" and "b" control contacts shall be provided on each breaker.

5.1.10 The electrical tripping circuit of the circuit-breaker shall be isolated when the circuit-breaker is in the earthing position.

5.1.11 A mechanical trip facility shall be provided with a locking off facility. The locking off facility shall be manufactured from mechanically robust material due to the use of locks and callipers. The trip button as well as the orifice for any operating handle shall be able to be locked off.

5.2 Earthing Facilities

5.2.1 Each panel excluding the bus-section panel shall have circuit side (power cable) earthing facilities that are rated for fault-making and is tested in accordance with the latest version of SANS IEC 62271-102.

5.2.2 Circuit-side earthing shall be of an integral earthing type either to the circuit breaker or the panel.

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- 5.2.3 All earthing switches and earthing devices shall be fully rated for the specified short time withstand of the panel.
- 5.2.4 The frame of each earth switching device shall have a reliable earthing terminal that has a clamping bolt for connection to an earth conductor rated for the specified fault conditions. The diameter of the clamping bolt shall be at least M12.
- 5.2.5 Each switchgear panel shall include a copper earthing bar at least 25 mm wide with a cross-sectional area of at least 125 mm², to facilitate earthing of cable sheaths and armour. The earth bar shall be suitable for interconnection to the adjacent switchgear panels. The current density in the earthing conductor shall be 200 A/mm² minimum. If the earth bar is exposed to the atmosphere, it shall be tinned. Notwithstanding, the switchgear and earths provided shall be able to handle the rated fault levels.

5.3 Disconnecting Switch

- 5.3.1 The disconnecting switches shall comply with the latest version of NRS 031.
- 5.3.2 The switches shall be capable of carrying the full load current continuously and the specified fault current for 3 seconds as specified in Section 10: Schedule B1.
- 5.3.3 Under normal conditions, the disconnecting switches shall be operated by electrical means for an open or close. Manual operation must always be possible.
- 5.3.4 Electrical interlocks shall be incorporated to preclude the possibility of opening or closing this disconnecting switch while the associated circuit breaker or earthing switches are closed.
- 5.3.5 Provision shall be made for the locking of the switch in the open or closed position by means of padlocks. When the switch is padlocked in the open or closed position the electrical control circuit must be automatically disconnected.
- 5.3.6 The primary method of indicating whether the switch is open or closed must be mechanical and shall be positively driven from the primary operating arm of the switch. This indication must be clearly distinguishable from the normal operating level of the switchroom. Electrical indicators in the local control kiosk shall provide a secondary method of indicating the switch position.

5.4 Cable Test Facility Requirements

- 5.4.1 Integral cable test facilities shall be accessible from the front of the circuit breaker panel and independent of the cable termination enclosure.

Note: Separate cable test facilities that are independent of the cable termination enclosure eliminate the need to access and interfere with the cable terminations for cable testing. If separate cable test facilities are not provided, access to the cable termination enclosure is required to test the cable and this may compromise the internal arc classification (IAC) of the switchgear if the other functions are live. Replacement of separable connectors or their associated test points and caps after testing will require cleaning and re-lubrication.

- 5.4.2 Where separate cable test facilities that are independent of the cable termination enclosures are provided, it shall be possible to connect cable test equipment (e.g., voltage withstand or fault locating equipment) to the cable through the cable test facility without compromising the IAC of the circuit breaker panel.
- 5.4.3 The type of cable test facility offered shall be stated in Schedule B1. Details of the design shall be provided with the bid documentation.

- 5.4.4 Each cable test facility shall be interlocked with its associated earth switch to ensure that the test terminals of the cable test facility are not accessible when the cable is energized. Access to the test terminals of the cable test facility shall only be possible when the associated earth switch is in the EARTH position.
- 5.4.5 Where removable short-circuiting connections are provided for cable earthing (e.g., a removable star point connection), the re-instatement of these connections following cable testing shall not require the use of tools and/or the application of specific torque settings. This implies that no bolted connections are accepted. It shall not be possible to close the cable test facility if the short-circuit connections have not been re-instated. It shall not be possible to physically remove the short-circuiting connections from the switchgear.

Note: Consideration should be given to measures intended to prevent theft of the short-circuiting connections.

- 5.4.6 Where test probes are required in order to carry out cable testing, a complete set of three test probes shall be supplied with each board and securely mounted at a readily accessible location on the inside of the e-House.
- 5.4.7 If neither integral nor separate cable test facilities can be provided that complies with the above, a voltage detection system of capacitive type, which complies with the latest version of IEC 62271-213 shall be provided. Access to the cable compartment shall only be possible when the associated earth switch is in the EARTH position.

5.5 Enclosure

- 5.5.1 Enclosures shall be metallic and have a degree of protection of IP3X according to Table 7 of the latest version of SANS 60529.
- 5.5.2 Covers or doors that give access to tool-based accessible power compartments shall comply with clause 5.102.2(a) of the latest version of SANS 62271-200.
- 5.5.3 Covers or doors that give access to interlocked accessible power compartments shall comply with clause 5.102.2(b) of the latest version of SANS 62271-200.
- 5.5.4 Inspection windows shall comply with clause 5.102.4 of the latest version of SANS 62271-200.
- 5.5.5 Service continuity of the switchgear shall be category LSC2A.
- 5.5.6 The switchgear shall have a partitioning class that shall be PM as specified in clause 3.109.1 of the latest version of SANS 62271-200.
- 5.5.7 The door for the LV compartment shall have a three-point locking mechanism.
- 5.5.8 The panel colour shall be RAL7032 or a similar colour, as approved by the Engineer.

5.6 Internal Arc Classification

- 5.6.1 The internal arc classification (IAC) shall be AFLR in accordance with the latest version of SANS 62271-200.
- 5.6.2 The switchgear shall be tested according to the latest version of SANS 62271-200, with the following additional requirements:

- 5.6.3 All power compartments shall be tested i.e., “busbar compartment, circuit breaker compartment, cable compartment and current transformer compartment”.
- 5.6.4 All panels shall be tested with the correct size current transformers.
- 5.6.5 Where power cables impede the venting of the compartment, they shall be installed for testing purposes.
- 5.6.6 Test shall be carried out according to “Type A” i.e., “Metal-enclosed switchgear and control gear with accessibility restricted to authorised personnel only”.
- 5.6.7 The testing conditions shall be represented as close as possible to those of normal service. They shall be represented by a floor, the ceiling above the top of the power compartments, lateral and rear walls. The clearance of the room simulation shall be in accordance with clause AA.3 (a) of the latest version of SANS 62271-200. The arrangements of the cotton indicators shall be in accordance with clause AA.2 of the latest version of SANS 62271-200.
- 5.6.8 Test voltage, current and duration for 11 kV panels shall be 12 kV/25 kA for 1 second.

5.7 Bus-zone Protection

General (All Schemes)

- 5.7.1 Two types of protection schemes shall be considered namely high impedance bus-zone protection and arc flash detection. Only one of these schemes shall be offered.
- 5.7.2 The detection scheme shall provide 2 zones of protection separated by the bus section breaker.
- 5.7.3 If any additional IEDs are required, these should preferably be mounted on the door of the 11 kV bus section circuit breaker. If this is not possible due to space constraints, an additional wall mounted panel shall be housed in the control room.
- 5.7.4 Any external IED, slave unit, signal amplifier or power supply that interfaces with the master unit shall be configured, either with or without the master unit, in a manner which allows an alarm to be sent back to SCADA.
- 5.7.5 Fault location discrimination and zone segregation must be incorporated into the offered protection scheme to ensure selective operation.
- 5.7.6 All tripping associated with the bus zone protection scheme shall comply with eThekweni Electricity’s Protection Philosophy requirements e.g., all tripping of upstream breakers/incoming breakers shall be carried out through the local HV Master IED and not by directly tripping the relevant breaker.

High Impedance Bus-zone Protection (if required)

- 5.7.7 The protection functions to be incorporated in the 11 kV Busbar Protection and General Control scheme are as follows:
- High impedance principal Busbar Protection (instantaneous)
 - High impedance principal current transformer circuit supervision and shorting (delayed)
- 5.7.8 The busbar protection scheme shall energise a bus wire to initiate bus zone tripping on feeders and incomers on which an overcurrent or earth fault start has occurred.

Arc Flash Detection (if required)

- 5.7.9 If arc flash protection is used, the bus-zone arc flash detection scheme shall be a minimum of 2 trip criteria (2 out of 2) and shall be user configurable i.e., light and current, light only, current only, etc.
- 5.7.10 In the event of the trip criteria being met in a feeder cable compartment, the arc flash detection scheme shall isolate the faulted feeder only. The arc flash detection scheme shall indicate which arc flash detection sensor on which panel initiated the arc protection operation. If differential protection is operational, the protection IED shall provide a facility in the IED configuration to trip the remote end circuit breaker via the cable differential IED such that the fault is isolated.
- 5.7.11 In the event of the trip criteria being met in an incomer cable compartment, the arc flash detection scheme shall initiate a master operation to trip the remote breaker. The arc flash detection scheme shall indicate which arc flash detection sensor on which panel initiated the arc protection operation.
- 5.7.12 In the event of the trip criteria being met in either the busbar or circuit breaker compartment, the arc flash detection scheme shall isolate that zone by tripping all respective panels in that zone including the bus section. The arc flash detection scheme shall indicate which arc flash detection sensor on which panel initiated the arc protection operation.
- 5.7.13 The arc sensor sensitivity distance shall be at least 3 metres and shall detect light from incident angle of ± 130 degrees. The light sensor shall be compatible with the IED.
- 5.7.14 In the event of a failure of an arc sensor in a panel, the arc detection scheme shall disable the arc protection scheme for that respective panel only and shall indicate an alarm. The remaining healthy sensors and panel must remain functional.
- 5.7.15 Sensors shall be mounted so that they can be easily removed and tested as and when required.
- 5.7.16 To ensure reliability and continuity of operation for the life of the arc flash detection protection scheme, Bidders shall provide support for the duration of the “active” and “classic” phase of the protection IEDs and arc sensors used in the offered arc protection scheme where, the “active” phase is the duration which the protection IED or arc sensor is made available by the original equipment manufacturer as an extension of their exiting commercialised offering and can be purchased as spare parts and the “classic” phase is the duration which the protection IED or arc sensor is made available by the original equipment manufacturer to support the existing installed base of products even though the products are no longer being marketed and sold by the original equipment manufacturer.
- 5.7.17 Arc sensors shall hold a minimum 5-year warranty period. Diagnosing of defects, removal and collection from site, repair/replacement, delivery to eThekwin Electricity, installation and retesting and commissioning of the associated equipment shall be for the Bidder’s account during the 5-year warranty period.
- 5.7.18 The integrity of the scheme (overcurrent IED, arc sensors, master units, slave units and cabling between units) shall be self-monitored.
- 5.7.19 The arc protection scheme shall be able to clear any 11 kV feeder acting as an incomer to the board (i.e., 11 kV parallels).
- 5.7.20 The arc flash detection device shall be able to detect all possible arcs of different magnitude and spectrums that may occur in any power compartment. The arc flash detection device shall be monitored by the protection IED.

5.8 Cable Compartment Requirements

- 5.8.1 Cable compartments shall be suitable for the termination of cables in air and shall comply with the requirements of the latest version of NRS 012 / SANS 876.
- 5.8.2 Incomer bushings shall be inner-cone bushing catering for a size 3 plug.
- 5.8.3 Feeder bushings shall be screened Type C dimensions in accordance with EN 50181.
- 5.8.4 The phase sequence on all cable terminations shall be identical on all panels in the switchboard.
- 5.8.5 The current transformers shall not, in anyway, interfere with or impede access to the cable termination.

5.9 Busbars

- 5.9.1 All busbar systems shall either be SF₆, or solidly screened or a combination.
- 5.9.2 All busbars shall be rated to carry 2 000 A. The bus-section shall also have a rating of 2 000 A.

5.10 Current Transformers

- 5.10.1 Current transformers shall comply with the requirements of SANS 61869-2. Ring type CTs will be considered for evaluation. The CTs shall be housed either within a separate power compartment or around the cable bushings.
- 5.10.2 The class and ratio of all current transformers are specified in Schedule A.
- 5.10.3 The number of current transformers shall conform to the requirements listed in Schedule A.
- 5.10.4 The limits of temperature rise of the windings of the current transformers at the full load continuous primary current rating of the switchgear panel shall comply with the latest version of SANS 61869-2.
- 5.10.5 All current transformers shall be naturally air cooled. Their secondary terminal connections shall be safely and readily accessible with the circuit isolated. The current transformers in the switchgear panel shall be readily accessible with only the circuit-side isolated for removal/replacement without extensive dismantling of primary circuits.
- 5.10.6 All the current transformers shall have a short-time current rating of not less than the short-time current rating of the associated switchgear panel.
- 5.10.7 Current transformers specified for overcurrent and earth fault protection may also be used for indicating instruments provided that the current transformers are suitably rated, and accuracies can be maintained within the specified limits. If these CTs are to be used, then the instrument shall be fitted with saturation CTs.
- 5.10.8 Each current transformer shall be fitted with rating plates.
- 5.10.9 Approved means should be incorporated to allow primary injection testing to be carried out after the panel is in service.
- 5.10.10 All terminals of the current transformers shall be terminated individually into shorting blocks in the IED compartment to facilitate changing of the star point and ratio.

5.11 Voltage Transformers

- 5.11.1 Voltage transformers shall comply with the requirements of the latest version of SANS 61869-3 and should be of the encapsulated type that is totally encapsulated in epoxy resins or other suitable material.
- 5.11.2 Fixed or withdrawable type voltage transformers shall be fitted in a metal screen, which shall be earthed.
- 5.11.3 Voltage transformers shall be so arranged that they can be isolated and removed when the associated circuit is dead.
- 5.11.4 The voltage transformer primary bushings shall be connected to the circuit-side.
- 5.11.5 The voltage transformer unit shall be complete with fuses.
- 5.11.6 Lockable metal shutters for withdrawable voltage transformers shall be provided to cover the fixed isolating contacts automatically when the voltage transformer or fuse is withdrawn/removed. Padlocking facilities shall be provided for locking these shutters in the closed position and for locking the voltage transformer in the isolate/removed position.

5.12 Instruments

- 5.12.1 All instruments shall be flush-mounted industrial type instruments that comply with the requirements of the relevant parts of the latest version of IEC 60051.
- 5.12.2 A combined ammeter/thermal maximum demand indicator shall be provided. The ammeter shall be provided with a scale of 0-500 A. The ammeter shall be suitably protected from damage as a result of the conduction of full rated fault current through the associated switchgear and shall therefore be fitted with saturation CTs. The ammeter shall be wired directly into the white phase CT secondary wiring and no selector switch must be provided.
- 5.12.3 The required instruments ammeter, alarm cancellation switch, local/remote switch, CT test block, trip test jack plug and luminous indicator and protection IEDs shall be provided on the switchgear and shall be clearly visible and operable from a standing position in front of the IED compartment. With respect to bus-section IED compartment the required instruments is an alarm cancellation switch, local/remote switch, an open and close switch, and open/close plug.

5.13 Corrosion Protection

- 5.13.1 The painting process is considered to be of major importance in the highly corrosive climate of the eThekweni area.
- 5.13.2 The manufacturer shall ensure that the coating system used on the switchgear is for C5-I.
- 5.13.3 The metal shall be treated by means of a zinc phosphate process and thereafter powder coated by means of an electrostatic process.
- 5.13.4 All washers, nuts and bolts shall be stainless steel.

6.0 COMMUNICATION AND SCADA ACCESSORIES

The Communication and SCADA Accessories consist of:

- a) A substation SCADA Gateway, which is linked through an available communication channel to the remote SCADA Master station, and enables remote control and monitoring of the substation;
- b) A Communication Panel, which accommodates the SCADA gateway and other communication equipment;
- c) A Substation Ethernet switch, to connect all Ethernet devices to the substation LAN;
- d) A Communication cabling system, to link IEDs and other devices to the Substation Ethernet Switch.
- e) Communication Modem to provide a secondary/redundant communication link to the eThekwini WAN.
- f) A GPS clock that is able to distribute time on the LAN over SNTP.

6.1 SCADA Gateway and HMI

- 6.1.1 A detailed user manual shall be provided for the configuration of the SCADA gateway.
- 6.1.2 The SCADA gateway shall communicate with eThekwini Electricity's SCADA master station using DNP3 class level 3 and IEC 60870-5-104 supporting both solicited and unsolicited modes.

Note: The bidder shall detail the protocols used in the internal operation of the SCADA Gateway. The internal architecture of the SCADA Gateway hardware shall be included in the bid submission.
- 6.1.3 The configuration of the SCADA Gateway for communication with substation devices shall be according to the latest version of IEC 61850.
- 6.1.4 The SCADA gateway shall communicate with the protection IEDs.
- 6.1.5 The cost of all associated software and firmware shall be included in the bid price of the SCADA Gateway.
- 6.1.6 The following ports shall be provided for on the SCADA Gateway:
 - a) One RS 232 serial port for serial communications with the master station;
 - b) One 100baseT Ethernet RJ45 port for protocol communication with the master station, and for remote engineering viz., device configuration, and diagnostics viewing.
 - c) One 100baseT Ethernet RJ45 port shall be provided for communication between the SCADA Gateway and the substation Ethernet switch for IEC 61850 communications.
- 6.1.7 The SCADA Gateway shall have an option to receive time synchronisation periodically from the Master Station as defined in the DNP 3, IEC 60870-5-101, and the IEC 60870-5-104 protocols.
- 6.1.8 The SCADA Gateway shall support scan and alarm inhibit functions received the master station.

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- 6.1.9 The SCADA Gateway shall have comprehensive self-test and diagnostic facilities. Alarms from self-test should be able to be configured as internal indication bits within the DNP3 protocol.
- 6.1.10 The SCADA Gateway shall have local indications (LED with correct labels) for all major failures.
- 6.1.11 The SCADA Gateway shall keep the record of all fatal errors/restarts/faults in the non-volatile event buffer memory.
- 6.1.12 The SCADA Gateway shall have a supervisory control switch.
- 6.1.13 The SCADA Gateway shall have the ability to force remote points that allows for tele-control commissioning between the SCADA Gateway and Control Centre.
- 6.1.14 There shall be no reconfiguration of control signals with logic on the SCADA gateway. This shall be handled on the IED end.
- 6.1.15 The SCADA Gateway shall have the capability to receive reset instructions directly from the Master Station within the framework of DNP 3 protocol.
- 6.1.16 The SCADA Gateway shall be remotely rebootable through the WAN interface.
- 6.1.17 The SCADAS gateway shall be synchronised to the GPS clock using SNTP
- 6.1.18 The successful bidder shall be responsible for the full commissioning of the SCADA Gateway from IED to SCADA Gateway and shall provide a signal schedule for communications with the master station.
- 6.1.19 The successful bidder shall ensure that handover is undertaken through a data-pack that includes: 61850 configuration of the IEDs and scheme, configuration of the switch, configuration of the Gateway and supervisory schedules & SCADA Gateway panel key.
- 6.1.20 The SCADA Gateway shall have an additional 16 discrete inputs (24V), 12 double discrete outputs (12V) and 8 analogue inputs (0-20mA). These inputs shall be interfaced to the gateway via IEC61850/IP.
- 6.1.21 The SCADA Gateway shall be powered from the substation 110 V dc battery and be protected to withstand and operate at boost level voltages. There shall be 12 V fused contacts available inside the Communication Panel that would be used to power up a modem.
- 6.1.22 The SCADA gateway shall have sufficient protection against adverse operating conditions such as reverse polarity, overcurrent and under voltage conditions.
- 6.1.23 The power shall be distributed by means of manually operated miniature circuit breakers, moulded-case type and shall provide thermal, overcurrent and instantaneous short circuit protection.
- 6.1.24 The bidder shall be prepared to setup a fully functional SCADA Gateway for demonstration and test purposes. This will preferably be set up at eThekweni's premises Or at the bidders site. The bidder will be contacted by a Project Engineer to request for this setup and the bidder shall plan within one week to setup the fully functional unit. The total cost for the setup shall be borne by the bidder.

Note: The bidder shall provide all other necessary equipment to allow for a fully functional SCADA Gateway to be demonstrated.

- a) In conjunction with the setup of the **fully functional SCADA Gateway** the bidder shall also:

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- i) Submit a SCADA Gateway DNP3.0 profile conformance statement;
 - b) During the **fully functional SCADA Gateway** demonstration and test the bidder shall:
 - i) Successfully demonstrate the IEC 61850 communication link between at least one IED and the SCADA Gateway;
 - ii) Successfully demonstrate the DNP3.0 communication protocol between the SCADA Gateway and eThekweni Electricity's SCADA Master Station using a GPRS modem; and
 - iii) Successfully demonstrate the ability the SCADA Gateway to recover on its own, without human intervention after communication link failure.
- 6.1.25 A successful demonstration of the field/remote telemetered data being sent to the Master Station is required.
- 6.1.26 The SCADA gateway shall accept polling messages from at least two separate master station(s) simultaneously.
- 6.1.27 The bidder shall provide transducers for ambient temperature and humidity monitoring and provide one door contact switch. These shall be powered directly by the DC voltage from the mobile board battery supply.
- 6.1.28 The bidder shall be required to wire the battery charger alarms to the SCADA Gateway input/output module.
- 6.1.29 The RTU shall support a TCP inactivity configurable time-out setting for the DNP3 protocol.
- 6.1.30 The SCADA gateway shall have HMI functionalities and a 19" (minimum size) full HD colour flat touch screen display of industrial grade, with sufficient touch sensitivity and resolution to allow accurate selection and interaction with substation visualisations in order to prevent operator error.
- 6.1.31 The HMI shall provide the overall view of the 11 kV single busbar switchgear and individual bay schematic views.
- 6.1.32 The overall view of the 11 kV single busbar switchgear shall comprise:
 - a) overall 11 kV switchgear schematic diagram (single line diagram with appropriate symbols for circuit breakers, earth switches, isolators and current and voltage transformers, etc.);
 - b) status of all equipment (e.g., open/closed for circuit breakers, earth switches and isolators, etc.);
 - c) measured values (e.g., currents and voltages);
 - d) general bay alarms; and
 - e) overall substation event record window (showing event description and time-stamp). Real time substation dc voltage
- 6.1.33 The overall view of the 11 kV single busbar switchgear shall be the default home page view and this shall be reverted to after a selectable delay time.
- 6.1.34 Individual bay views shall be selected from the overall view of the 11 kV single busbar switchgear and these shall comprise:
 - a) bay schematic diagram (single line diagram with appropriate symbols for circuit breakers, earth switches, isolators, voltage and/or current transformers, etc.);
 - b) status of all bay equipment (e.g., open/closed for circuit breakers, earth switches and isolator etc.);

- c) measured bay values (e.g., currents and voltages);
- d) specific bay alarms;
- e) bay event record window (showing event description and time-stamp); and
- f) operating option buttons.

6.1.35 Bay designations shall consist of user configurable text fields. These text fields shall be used for all views and event records. Should a bay designation require modification, it shall only be necessary to carry this out in one place.

6.1.36 Operation of equipment shall be possible from the bay view only and shall be performed as follows:

- a) selection of bay to be operated on;
- b) selection of appropriate operation button;
- c) confirmation of the selected operation; and
- d) indication of unsuccessful operation if applicable and reason if known to the HMI.

6.1.37 For HMI control, the operation of equipment and viewing of events shall be possible using the touch screen.

6.1.38 The HMI shall maintain a database of all substation events with bay designation, event description and time-stamp. Selectable event types shall be displayed in the event windows for overall and bay specific views and these shall typically include the following events:

- a) change of status of primary equipment;
- b) alarms;
- c) protection operations; and
- d) HMI and SCADA operation commands.

The above events shall be time-stamped with the time as recorded by the IED and shall be listed in chronological order according to the time-stamp.

6.1.39 The maximum delay for refreshing and displaying updates on the HMI shall be 1s.

6.1.40 The configuration of the HMI shall be according to the IEC 61850 specification.

6.1.41 Full details of the HMI shall be submitted with the tender. The functionality of the HMI shall be subject to amendments by and approval of an eThekwini SCADA representative and shall be demonstrated during the design approval stage of the contract.

6.1.42 Valid licenses and installation disks shall be supplied for operating systems and software. Documented procedures and recovery disks shall be provided to enable recovery from a hardware failure.

6.1.43 Conformal coating of the main components of SCADA Gateway shall be offered.

6.1.44 It shall be ensured that all connectors are vibration proof, with the unit being transported to different locations throughout eThekwini Municipal Area.

6.1.45 The HMI shall be housed in an IP52 rated panel. The panel front door cover shall be labelled with clear, legible and indelible markings that read HMI panel.

6.2 Communication and Fibre Termination Panel

- 6.2.1 The Communication and SCADA Panel shall be housed in an IP52 rated 600 × 600 × 2100 mm (WxDxH) floor-mounted panel that has minimum space for 42U 19inch rack mountable rails with gland plate for secondary cables.
- 6.2.2 The panel shall have a label affixed on the cover door that reads “Communication and SCADA Panel”. These labels shall be clear, legible with indelible marking.
- 6.2.3 The proposed detailed layouts of these panels are shown in Figure 1 below. This is an indicative diagram in terms of reserved equipment positions. The build of the panel shall be according to this layout for the items offered in the bid.

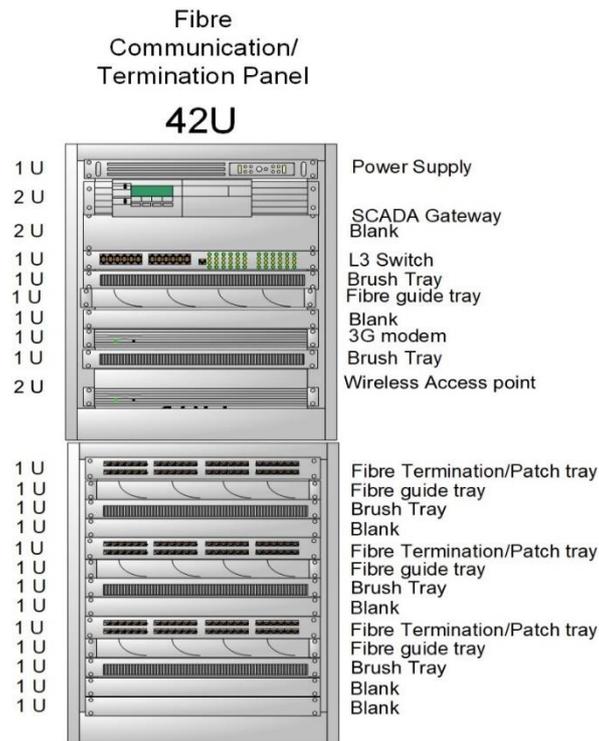


Figure 1 – Communication and SCADA panel layout

The panel shall be populated with the following equipment:

Equipment	Quantity
SCADA Gateway	1
L3 switch	1
Power supply	If required
Blanking Plates	As required to close blanks
Fibre Shelves	3
Fibre guide trays	4
Brush trays	5

6.2.4 Panel finish

- The panel shall be epoxy powder coated in accordance with the latest version of SANS 1274.
- The panel colour shall be RAL7032 or a similar colour, as approved by the Engineer.
- The punched uprights and DIN rail shall be yellow passivated.

- d) The cable tray shall be hot dip galvanised to 45 µm in thickness in accordance with the latest version of SANS 121.
- e) All bolts and nuts shall be stainless steel.

6.2.5 Fibre and communication panel accessories

- a) The fibre and communication panel shall have fibre termination accessories, 48 core fibre rack mountable 19" fibre optic termination shelf and 19 patch cord channels as specified in Schedule A.
- b) The panel shall include one SCADA Gateway as per **clause 6.1**.
- c) The panel shall include one substation Ethernet switch (Layer 3) as per **clause 6.4**.
- d) The panel shall include one Modem as per **clause 6.5**.

6.3 Substation Communication Cabling

- 6.3.1 Category 6 (CAT6) Shielded Twisted Pair (STP) cables shall be used to connect between the Ethernet switch and the IEC 61850 protection IEDs.
- 6.3.2 CAT6 STP cables shall be appropriately earthed and screened and fitted with screened RJ45 connectors.
- 6.3.3 An overhead galvanised wire mesh cable tray, with bend limitation/control shall be installed above the 11 kV switchboard (where applicable), between the 11 kV switchboard and the communication/termination panels.
- 6.3.4 Each single mode fibre optic cable for differential protection shall be installed in a 23 mm HDPE flexible corrugated conduit between the protection IED and fibre termination panel.
- 6.3.5 Each single mode fibre optic patch lead (up to 30 m in length) for differential protection shall be installed in a 23 mm HDPE flexible corrugated conduit between the protection IED and fibre termination panel. The fibre patch cable shall be duplex single-mode APC and allow for the following combination of connectors:
 - a) LC-ST;
 - b) LX5-ST; and
 - c) LC-LC.

6.4 Ethernet Switch (Layer 3)

6.4.1 General

- 6.4.1.1 The protection IEDs and the SCADA Gateway shall be connected to an Ethernet switch using CAT6 STP cables detailed in **clause 6.3**.
- 6.4.1.2 Compatibility with existing hardware
 - a) The Bidder shall ensure that equipment offered is compatible with existing hardware installed in the distributor substations. Any modification on existing equipment/hardware will **not** be allowed.
 - b) The equipment supplied shall be interchangeable with existing hardware because it will be used in the upgrading of existing sites. Below is listed a table of equipment:

Manufacturer	Model	Firmware Version
ABB	AFR677	8.0.09
Ruggedcom/Siemens	RX1500	2.6.3
Moxa	PT-7828	V3.6

6.4.1.3 System demonstration

The Bidder shall be prepared to arrange a fully working demonstration of the main components of the system to illustrate the system's functions and capabilities to representatives of eThekweni. This will preferably be set up at eThekweni's premises, otherwise a virtual session to be arranged. Alternatively, a sample of the switch shall be provided, if required.

6.4.2 Technical requirements

- 6.4.2.1 The substation Ethernet switch shall be designed with the following features:
 - a) 19" rack mountable 1U height;

- b) electronic printed circuit board that has conformal coating, to prevent corrosion;
- c) minimum ingress protection (IP) of IP30;
- d) epoxy coated metal housing;
- e) LED lights indicating link and activity status of each port visible on the front of the device;
- f) dual power supply of 110 V d.c nominal voltage with at least 20 % voltage range (88 V d.c. to 250 V d.c. preferred); and
- g) terminal block connections.

6.4.2.2 The substation Ethernet switch shall have the following interfaces:

- a) minimum of 16 × 10/100 TX copper access ports;
- b) minimum of 2 × optical ports with (Small Form-factor Pluggable) SFP cages;
- c) minimum of 2 × single-mode SFPs to be supplied 1 310 nm, support minimum distance of 10 km, dual LC connectors and extended temperature range from 0 °C to +75 °C (1000 BASE LX); and
- d) minimum of 2 × 10/100/1000TX copper access ports.

6.4.2.3 The substation Ethernet switch shall be designed for the following switching requirements:

- a) switching method: store and forward;
- b) VLAN (802.1Q);
- c) Minimum number VLANs: 64;
- d) Traffic prioritisation;
- e) Port rate limiting (Ingress and Egress) in steps of kbps;
- f) Flow control (IEEE 802.3);
- g) Link aggregation IEEE 802.3ad (LACP, Link Aggregation Control Protocol);
- h) RSTP (Rapid Spanning Tree Protocol) IEEE 802.1D;
- i) MSTP 802.1Q-2005 (formerly 802.1s); and
- j) Quality of service (802.1p).

6.4.2.4 The management of the substation Ethernet switch shall be achieved by:

- a) Port mirroring;
- b) IGMP snooping and multicast filtering;
- c) SNMP V1, V2c, V3, Configuration;
- d) Command Line Interface/Telnet access;
- e) WEB Interface;
- f) SFP Diagnostics;
- g) LLDP topology discovery;
- h) Simple Network Time Protocol (SNTP) V2;
- i) Trivial File Transfer Protocol (TFTP);
- j) Dynamic Host Configuration Protocol (DHCP) Server/Client/IED; and
- k) Remote viewing of configuration through web browser.

6.4.2.5 The substation Ethernet switch shall have the following security features:

- a) Authentication (IEEE 802.1x);
- b) Mac address filtering;
- c) Local Logfile and Syslog reporting;
- d) SSH encryption;
- e) Radius centralised password management;
- f) Multi level user passwords;
- g) Disabling of ports; and
- h) IP address filtering.

6.4.2.6 The substation Ethernet switch shall be designed with the following additional features:

- a) EMC hardened as per IEEE 1613.1;
- b) IEC 61850-3: Electric Utility Substations;
- c) be able to withstand an extended temperature rating from -30 °C to +75°C continuous and humidity of 95 %; and
- d) fan-less design.

6.4.2.7 The substation Ethernet switch warranty period shall be a minimum of 10 years from the date of handover to EE and be applicable to design and manufacturing related product defects.

6.4.2.8 Environmental and EMI tests -The substation Ethernet switch shall comply with following:

- a) IEC 61850-3 and testing shall be undertaken in accordance with all parts of IEC 61000 that are in Table 1;
- b) IEEE 1613 and testing shall be undertaken in accordance with all parts of IEEE C37.90 that are in Table 1;
- c) the environmental tests to be undertaken in accordance with all parts of IEC 60068, IEC 60255-21-1 and IEC 60255-21-2 that are detailed in Table 1; and
- d) Ethernet standards in accordance with all relevant parts of IEEE 802.

6.4.2.9 Protocols supported for the substation Ethernet switch shall be the following:

- a) IGMPv1/v2 - Internet Group Management Protocol;
- b) SNMPv1/v2c/v3 - Simple Network Management Protocol;
- c) DHCP Server/Client - Dynamic Host Configuration Protocol;
- d) TFTP - Trivial File Transfer Protocol;
- e) SNTP - Simple Network Time Protocol;
- f) RMON - The Remote Network Monitoring;
- g) HTTP;
- h) HTTPS;
- i) Telnet;
- j) RADIUS - Remote Authentication Dial In User Service;
- k) TCP - TRANSMISSION CONTROL PROTOCOL;
- l) Multilink PPP – Point-to-Point Protocol;
- m) GOOSE Messaging;
- n) Layer 3 redundancy: VRRP; and
- o) Layer 3 routing:
 - i) Static routing;
 - ii) RIP V1/V2 - Routing Information Protocol; and
 - iii) OSPF -Open Shortest Path First.

6.5 Modem

6.5.1 The wireless communication modem shall be an industrial grade device capable of supporting reliable, fast and secure data transmission between two sites over public mobile networks and the internet. The wireless router shall use open protocols and shall comply with this specification.

6.5.2 The wireless router shall support the hardware properties detailed below:

- a) Network: Quad band HSPA/UMTS 800/850/1900/2100 MHz, GSM/GPRS/EDGE 850/900/1800/1900 MHz with Transparent hand-over between UMTS and GSM networks. IEEE 802.11 2.4-2.483 GHz Wi-Fi capable;
- b) GPS receiver: Integrated GPS receiver with external Antenna interface;
- c) Ethernet switch: 4 port Ethernet switch 10/100BaseTX, RJ45 connector, Auto MDI/MDIX;
- d) Subscriber Identity Module (SIM) card: 2 x SIM trays;
- e) Antenna interface: 50 Ω SMA female (GSM and GPS);
- f) Power to be supplied by battery charger. Appropriate power supply to be installed if required voltage for modem is not 110V dc.
- g) Temperature range: -0 °C to +60 °C;

6.5.3 The wireless router shall run a Linux based operating system and support the following software features:

- a) Interface and connection management tool for SIM and PIN management, automatic or manual network selection, dial out (on demand, permanent) and fallback to backup profile or SIM;
- b) The system shall support static routing, NAPT/Port forwarding;
- c) The security module shall feature a stateful inspection firewall, access control lists and NAPT/Port forwarding; and
- d) The system shall feature secure network access by supporting an OpenVPN 2.0 Native Client. The system shall support data confidentiality and integrity protection.

6.5.4 The wireless router shall support the following network protocols:

- a) ICMP;
- b) TCP/IP;
- c) UDP;
- d) DHCP;
- e) Telnet;

- f) DNS;
- g) SNMP;
- h) HTTP;
- i) SMTP;
- j) HTTPS;
- k) SNTP;
- l) SSL; and
- m) IPsec.

6.5.5 The wireless router shall support the following services:

- a) DHCP server;
- b) Web server;
- c) SSH server;
- d) Telnet server;
- e) SNMPv1/v2c/v3Agent;
- f) NTP server.

6.5.6 The system administration configuration and management shall be possible via the following:

- a) configuration via Web Manager;
- b) configuration via Command Line Interface (CLI) accessible via Secure Shell (SSH) and telnet;
- c) batch configuration with text files;
- d) user administration;

6.5.7 The wireless modem shall be supplied with antenna(s) with mounting brackets. There are two types of antennas required i.e. a medium gain and a high gain unit. The high gain antenna shall be utilised in areas where the signal strength is low. The antenna shall meet the following requirements:

- a) Frequency: GSM 900 MHz, PCN 1800 MHz, DCS 1900 MHz, 3G (UMTS 2.1 GHz), GPS 1575.42 MHz, IEEE 802.11 2.4-2.483 GHz;
- b) Polarization: GSM - Horizontal, GPS – RHCP;
- c) Gain: GSM: Medium gain: 2-3 dBi, High gain: 4-6 dBi, GPS: 3-5 dBic, IEEE 802.11 4-7 dBi omnidirectional;
- d) VSWR: < 2,5:1;
- e) Operating Temperature: -20 °C to +75 °C;
- f) Connector (GSM, GPS): 50 Ω SMA male;
- g) Cable: Type RG174 coaxial. Length: 5 m standard, 10 m optional. All cables be shall be labelled;
- h) Mounting: Screw on vandal proof hole/roof mounting or L-bracket mountable; and
- i) The GPS antenna shall be installed outdoors, with unobstructed vertical view of the sky.

7.0 PROTECTION SCHEMES, FUNCTIONS AND IEDS

7.1 11 kV Feeder Scheme

7.1.1 The protection functions to be incorporated in an 11 kV feeder protection scheme are as follows:

- a) Cable differential protection
- b) Overcurrent and Earth fault protection;
- c) Sensitive Earth Fault protection incorporated into Overcurrent/Earth Fault IED;
- d) Arc protection incorporated into Overcurrent/Earth fault IED (if offered).
- e) Trip Circuit Supervision incorporated into Overcurrent/Earth Fault IED

7.1.2 The control and status requirements for 11 kV feeders as specified in the drawings issued with this specification shall be incorporated in the same IED which is used for the Overcurrent and Earth fault protection function.

7.1.3 The ac & dc Schematic and Protection and Control Logic drawings for the 11 kV feeder protection

scheme are included with this specification. This is however for a double busbar board.

7.1.4 On” and “Off” push button logic inputs shall be provided in the overcurrent/earth fault IED to enable or disable the Sensitive Earth Fault function. The push buttons will be mounted on the front face of the 11 kV feeders.

7.1.5 The overcurrent IED shall not be equipped with a latching function for overcurrent pick-ups.

7.2 132/11 kV Transformer Scheme

7.2.1 The protection functions to be incorporated in a 132/11 kV transformer protection and control scheme, in two relays. The main relay, to be supplied, shall have the following functionality:

- a) 2 Stage Standby Earth fault protection (LV Neutral)
- b) HV Restricted Earth fault protection
- c) LV Restricted Earth fault protection
- d) Transformer Biased Differential protection
- e) Transformer Trips and alarms as specified in the drawings issued with this specification
- f) 11 kV Trip Circuit Supervision
- g) Sequential Switching Initiate

7.2.2 The backup relay, shall have the following functionality:

- a) Directional Overcurrent protection (LV);
- b) Overcurrent and Earth fault protection (LV); and
- c) Arc protection for cable, circuit breaker and busbar compartments (If offered).

7.2.3 HV and LV latching Master Trip functions shall be incorporated in the main relay. These will be initiated by protection functions as indicated in the drawings issued with this specification. Relays in which the latching master trip functions are not incorporated shall initiate the master trip in the relevant relay via GOOSE messages and also trip the appropriate circuit breakers directly.

7.2.4 Transformer pick-ups for through faults shall be latched, stored as an event and be indicated through a separate LED.

7.2.5 The ac & dc schematic and Protection and Control Logic drawings for the 132/11 kV transformer protection scheme are included with this specification. This is however for a double busbar board.

7.2.6 A Voltage Regulation function in a dedicated relay is required.

7.2.7 The control and status requirements for the 132/11 kV transformer scheme as specified in the drawings issued with this specification shall be shared between the relays to the approval of the Engineer.

7.2.8 One relay shall be provided with an LCD mimic to indicate the status of switchgear and measured values in the associated transformer feeder bay. This mimic shall be permanently displayed. A Trip-Neutral-Close switch shall be supplied for control of the 132 kV circuit breaker in this case.

7.3 11 kV General Control Scheme

7.3.1 The control and status requirements for the 11 kV Bus-Section as specified in the drawings issued with this specification shall be incorporated in a separate IED.

7.3.2 A Sequential Switching Scheme shall be provided to allow automatic closure of bus-section in the event of a loss of supply to a busbar resulting from a transformer fault as specified in the drawings issued with this specification. This shall be incorporated into the same IED as in 7.3.1 above.

“On” and “Off” push button logic inputs shall be provided in the IED to enable or disable the Sequential Switching function. The push buttons will be mounted on the front face of the bus-coupler panel by the 11 kV switchboard supplier.

7.3.3 A General Alarm feature shall provide indication and an audible alarm contact in the event of any general substation alarm as specified in the drawings issued with this specification and shall be incorporated in the same IED as in 7.3.1.

7.4 Protection IED Functions**Overcurrent and Earth Fault Protection**

7.4.1 Where overcurrent, earth fault and sensitive earth fault (SEF) protection functions are required as back-up protection, these shall be implemented in a stand-alone IED and not as secondary functions of any other IED.

7.4.2 Overcurrent elements shall be of the programmable type with:

- a) standard IEC operating characteristics;
- b) selectable definite time option;
- c) adjustable operating settings from 50% to 200% of the normal full load secondary current in 10% increments or smaller;
- d) an adjustable time multiplier setting from 0,1 to 1 in increments of 0,05 or smaller; and
- e) a high-set feature with an adjustable range of 1 to 20 times the overcurrent setting in increments of 1 or less and an adjustable definite time characteristic up to 500 ms in increments of 50 ms or less.

7.4.3 Earth fault elements shall be of the programmable type with:

- a) standard IEC operating characteristics;
- b) selectable definite time option;
- c) adjustable operating settings from 10% to 80% of the normal full load secondary current;
- d) an adjustable time multiplier setting from 0,1 to 1 in increments of 0,05 or smaller; and
- e) a high-set feature with an adjustable range of 1 to 20 times the overcurrent setting in increments of 1 or less and an adjustable definite time characteristic up to 500 ms in increments of 50 ms or less.

- 7.4.4 SEF elements shall be of the programmable type with:
- a) adjustable operating settings from 0.1% to 10% in 0.001 steps of the normal full load secondary current; and
 - b) an adjustable definite time delay between 1 and 10 seconds.

7.4.5 Where overcurrent and earth fault functions are incorporated into one IED all three phases and earth currents shall be monitored.

Directional Overcurrent (DOC) Protection

- 7.4.6 Directional overcurrent elements shall be of the programmable type with:
- a) standard IEC operating characteristics;
 - b) selectable definite time option with settable times in increments on 500 ms or less;
 - c) adjustable operating settings from 10% to 200% of the normal full load secondary current in 5% increments or smaller;
 - d) an adjustable time multiplier setting from 0,1 to 1 in increments of 0,05 or smaller;
 - e) the vector relationship between voltage and current inputs shall be selectable and configurable to cater for different VT winding arrangements;
 - f) VT fail detection; and
 - g) blocking of the DOC function in the event of VT failure.

Transformer Biased Differential Protection

- 7.4.7 Transformer Biased Differential Protection shall be stable for magnetising inrush and through faults and additional biasing shall be employed to cater for tap position mismatch.
- 7.4.8 Current transformers for transformer biased differential protection will be connected in “star” formation. The IED shall be programmable for vector group and CT ratio. Zero sequence currents shall be capable of being eliminated in the IED for differential current calculation.
- 7.4.9 An additional unrestrained instantaneous high-set transformer differential function shall be provided.
- 7.4.10 Over-flux blocking shall be employed in the transformer differential function.

Transformer Protection Trip and Alarm Inputs

- 7.4.11 IEDs shall have the necessary provision for Transformer Trip and alarm input signals (e.g., Buchholz) as shown on the drawings issued with this specification. Trip Input signals associated with the HV Master trip shall be connected to inputs of the IED. The standby earth fault (SBEF) function shall have definite time properties with settable times in increments of 500 ms or less.

Trip Circuit Supervision

- 7.4.12 A trip circuit supervision feature shall be provided in at least one IEC 61850 IED per bay to monitor the continuity of the trip circuit and trip coil of the associated circuit breaker in both the open and closed condition. For 132 kV and higher circuit breakers, both main and back-up trip circuits and trip coils shall be supervised.

- 7.4.13 Spurious discontinuity of the trip circuit during opening and closing of the circuit breaker and racking out of the breaker from the service position shall be ignored by the use of an appropriate time delay feature.
- 7.4.14 Snubber circuits shall be installed to prevent damage and overvoltage to protection IEDs from transient oscillations of voltage and current waves.

Voltage Regulation

- 7.4.15 The voltage regulation function shall be carried out on a IED dedicated to and designed specifically for this function.
- 7.4.16 This IED shall preferably comply with IEC 61850 to achieve the indication and control philosophy indicated on the drawings issued with this specification. If this requirement is not met, the indication and control philosophy will be required to be implemented by means of contact inputs and outputs to an associated IEC 61850 IED. Tenderers shall include details of how this is to be achieved with their tender submission.
- 7.4.17 The voltage regulating IED will initiate tapping of the transformer by means of voltage free contacts for raise and lower operations. The IED shall have inputs to accept status information from the transformer which will have voltage free contacts, to indicate tap position, tap changer ac supply fail and tap change in progress. Tap position will be in 5-bit binary coded decimal (BCD) format.
- 7.4.18 External panel face mounted push buttons shall be provided to select Auto operation and Manual operation and to initiate Manual Raise and Manual Lower commands. These shall be inputs to the IED.
- 7.4.19 The IED shall display voltage and tap position.
- 7.4.20 VT and CT ratios shall be as specified in Schedule A. These ratios shall be configurable in the IED.
- 7.4.21 The IED shall implement overcurrent and under-voltage tap change blocking. Overcurrent and under-voltage blocking levels shall be programmable.
- 7.4.22 The IED shall initiate a tap change time-out alarm if the Tap Change in Progress contact is closed for longer than a programmable time. This shall inhibit Auto operation.
- 7.4.23 In Auto operation mode, the IED shall automatically regulate the secondary transformer voltage according to the following scheme:

- a) No operation while voltage is within a band around a voltage set point. The set point and band width shall be programmable.
- b) When the voltage deviates outside of the above bandwidth, the IED shall initiate a tap change command after a time period determined according to one of the following characteristics:

Definite Time Characteristic

- First tap change initiated after a programmable definite time
- Successive tap change (if voltage subsequent to First tap still outside band width) initiated after a separately programmable definite time

Inverse Time Characteristic

- Tap changes initiated after a time period according to an inverse time/voltage deviation relationship with programmable time multiplier

- 7.4.24 In Auto operation mode, the IED shall detect if transformers are in parallel by means of transformer incomer, bus-section and bus-coupler switchgear position and status. The busbar arrangement shall be modelled in the IED according to the schematic drawing issued with this specification. The transformer and busbar arrangement shall be capable of being displayed on the IED.
- 7.4.25 Parallel Auto control shall be according to the Circulating Current ($\Delta I \sin\phi$) method. There shall be a programmable limit for circulating current magnitude after which an Excessive Circulating Current alarm shall be initiated and further tap change operations shall be inhibited.
- 7.4.26 The IED shall implement a Line Drop Compensation feature with programmable resistance and reactance values.

11 kV Feeder Cable Differential Protection

- 7.4.27 The differential protection function shall utilise single mode fibre communication links/channels. Fibre links shall be taken to the rear of each switchgear panel then to the central communication panel. The use of external media converters shall not be accepted. The differential protection element shall allow for mismatch CT ratios with a minimum factor of 0 to 2 in steps of 0,01.
- 7.4.28 The differential protection function shall be capable of accepting in-zone power transformers and be capable of 2nd harmonic blocking.
- 7.4.29 The differential protection function shall have communication channel monitoring.

7.5 **Protection IEDs**

7.5.1 **General**

- 7.5.1.1 All protection IEDs shall be numerical type microprocessor based unless otherwise approved by the Engineer.
- 7.5.1.2 All protective IEDs shall be of the flush mounting, withdrawable type and shall be contained in dust-proof cases (IP30 rating from the front and IP1X from the rear) with an interior finish of aluminium or other approved corrosion resistant material. The IEDs shall be constructed in such a manner that facilitates a quick replacement of modules or the complete IED.
- 7.5.1.3 IED terminals shall accept standard ring type lugs, unless approved by Engineer.
- 7.5.1.4 All dc operated IEDs shall operate satisfactorily in a voltage range of $\pm 20\%$ of the nominal battery voltage.
- 7.5.1.5 Preference will be given to IEDs with a modular architecture, where the individual modules can be replaced, or additional modules added. IEDs and/or modules shall have a sealable, latching arrangement to firmly secure them in the service position.
- 7.5.1.6 Numerical IEDs shall have a keypad and LCD type interface accessible from the front. This shall provide a facility to amend settings manually from the keypad. All functions except the reset function shall be password protected.
- 7.5.1.7 IEDs shall have sufficient labelled LEDs to indicate the cause of trip and other status indications shown in drawings issued with this tender.
- 7.5.1.8 The IED LCD shall display text messages which shall default to the phase currents and voltages when the IED is in normal service.

If specified in Schedule A, IEDs shall be provided with an LCD mimic to indicate the status of switchgear and measured values in the bay. In this case, the display shall default to the mimic.

- 7.5.1.9 Where tripping and closing contacts are required, these shall be adequately rated. IEDs shall have sufficient contacts to comply with this specification and drawings. Contacts shall be of silver, platinum or other approved material and shall be capable of repeated operation with the minimum of deterioration. A snubber circuit shall be wired across the IED contacts to mitigate against the tripping and closing contacts being exposed to higher than rated currents by any external factors.
- 7.5.1.10 Protection IEDs required to trip 132 kV or higher voltage circuit breakers shall be equipped with at least two sets of tripping contacts to enable simultaneous operation of the main and back-up trip coils of the circuit breakers.
- 7.5.1.11 It shall not be possible to operate any IED by hand to "trip" from the front face.
- 7.5.1.12 Multiple function IEDs shall have enough inputs and output contacts to comply with drawings issued with this specification.
- 7.5.1.13 IEDs shall be provided with an alarm contact which closes when the IED fails.
- 7.5.1.14 All IEDs shall support the ability to view settings and real-time information via a web server hosted on the IED.
- 7.5.1.15 All IEDs shall support the ability to automatically upload disturbance record files to a remote file server.
- 7.5.1.16 All IEDs shall comply with the NERC-CIP security recommendations for password levels.

7.5.2 Logic Capabilities and Engineering Functions

- 7.5.2.1 At least one IED associated with each bay (including MV switches) shall have an event configurable oscillographic recording capability for at least 8 events. The IED shall be programmable to select whether storage of recordings is non-overwriting or overwriting (i.e., first in, first out). Oscillographic recordings shall be available in "COMTRADE" format.
- 7.5.2.2 At least one IED associated with each bay (including MV switches) shall be capable of recording and storing load current profiles. In the case of bays fitted with voltage transformers kVAh and kWh profiles shall also be stored. The integration period shall be selectable from 1 minute to 60 minutes. At least 3 months' worth of data shall be capable of being stored in the case of 30-minute integration periods.
- 7.5.2.3 The IEDs shall have programmable logic capabilities with sufficient gates, timers and variables capable of performing the logic functionality as shown on the drawings issued with this specification. Provision for spare capacity must be provided for future modification or upgrades to the IED.
- 7.5.2.4 All control logic functionality should be implemented within the IED. Where auxiliary contact copying IEDs and/or timers are required in protection schemes, these shall be protection class and the use of these shall be to the approval of the Engineer.
- 7.5.2.5 The IED shall be capable of accepting the changing of individual protection settings while in service.
- 7.5.2.6 Engineering functions and programming of the IED shall be possible using a PC via a UTP port on the Ethernet switch using software that shall operate on the latest version of Microsoft Windows. The software shall also be compatible with previous versions of Microsoft Windows. Three copies of

engineering software shall be supplied on a USB memory stick. The price of this software and USBs shall be included in the price of the IEDs.

- 7.5.2.7 The IEDs shall preferably support either the test or maintenance mode features as specified within the latest version of IEC 61850 standard to allow for the testing of schemes within energised substations.

7.6 **Transformer Relay Panel**

- 7.6.1 Two transformer schemes which include IEDs, LEDs, pushbuttons, test blocks, fuses, links, etc., required for the 132/11 kV Transformer scheme shall be accommodated in a **single** floor mounted control panel. This shall also make provision for the voltage regulation IED and all associated ancillary equipment as well.
- 7.6.2 Control panels shall be designed to be vermin proof.
- 7.6.3 The panels shall be fabricated of 3CR12 corrosion resistant steel or better material of at least 2 mm thickness. The panels shall be painted, or powder coated as specified in Clauses 7.6.15 and 7.6.16.
- 7.6.4 Panels shall be designed to allow for all IEDs, pushbuttons, switches, LEDs, etc., to be of the flush mounted type. All IED cases shall be earthed.
- 7.6.5 Each cubicle shall be accessible from the rear through full height, removable, hinged doors fitted with switches for automatic cubicle lighting.
- 7.6.6 All current transformer circuits shall be provided with plug-in type test terminal blocks (with CT shorting feature when plug is withdrawn) which shall be mounted on the front of the IED panel. This shall include current transformer circuits where the IED is to be supplied on this contract, but the current transformer is to be supplied by others.
- 7.6.7 All fuses and links except for CT earthing shall be positioned on the front of the control panel unless otherwise approved. CT earthing links shall be of the screw/slider rail mounted terminal type to the approval of the Engineer.
- 7.6.8 All terminal blocks for current transformers and IED connections shall be neatly finished and readily accessible. All terminal connectors shall be of the spring-loaded type. Pinch type terminals in which the screw bears directly on the wire strand will not be accepted. Lugs and terminals shall incorporate a feature which prevents the lug(s) from being inadvertently withdrawn from the terminal even if the terminal screw has not been tightened regardless of the orientation of the lug(s). The width of the terminal shall not be less than 6 mm. Samples of all terminals to be used shall be submitted for approval prior to manufacture of control panels. Each end of each wire shall be fitted with the crimp lug/connector suited to the type of terminal provided.
- 7.6.9 Terminals at 110 V or 220 V ac and dc shall be segregated from other terminals and shrouded, with the voltage prominently marked on the shrouds. All terminations shall be clearly identified.
- 7.6.10 Panels shall have a clearly labelled mimic diagram marked thereon which shall indicate the state of all the equipment. The mimic diagram shall match from panel to panel to form a continuous schematic. Indicators shall be of the cluster LED type with a minimum diameter of 25 mm.
- 7.6.11 Auto-Reclose switches shall be of the "Pistol Grip", thumb push-button, double action, lockable type.
- 7.6.12 Each panel shall be provided with a copper earth bar which shall be earthed using a flexible, green and yellow PVC insulated 70 mm² copper conductor bolted to the panel earth bar and control room earth bar (supplied and installed by others) by means of crimped lugs.

- 7.6.13 The external surfaces of indoor control equipment shall receive a coat of an approved phosphate primer, an undercoat, and two coats of RAL7032 or a similar colour, as approved by the Engineer.
- 7.6.14 The internal surfaces of cubicles containing wiring and other apparatus shall receive a coat of an approved phosphate primer, an undercoat and two coats of white enamel paint.

8.0 PANEL WIRING FOR TRANSFORMER RELAY PANEL

- 8.1 Panel wiring shall be accommodated in PVC trunking with removable covers.
- 8.2 Panel wiring between trunking and termination points shall be neatly cable tied.
- 8.3 Panel wiring shall comply with the drawings issued with this tender or other drawings approved by the engineer.
- 8.4 Wiring shall be coloured as follows unless otherwise approved:
- a) Current and voltage transformer secondary wiring shall be red, white and blue corresponding to the respective phase.
 - b) Neutral connections shall be black.
 - c) Earth connections shall be green/yellow.
 - d) Other wiring shall be grey.
- 8.5 Panel wiring shall have a minimum conductor cross-sectional area of 2.5 mm².
- 8.6 Each end of each wire shall be provided with a ferrule bearing a number corresponding to that on the drawings.
- 8.7 Additional red ferrules marked 'T' in white, must also be fitted on all wires associated with trip circuits.
- 8.8 The wiring of current transformer circuits, ac voltage circuits and dc voltage circuits shall be kept separate as far as possible.
- 8.9 Wiring shall be fitted with appropriate lugs for connection to terminals and other termination points.
- 8.10 All bus wiring shall be installed prior to factory testing. Wiring shall be disconnected at one end only and removed to one of the panels for transportation, delivery and final termination on site.
- 8.11 All IED cases shall be connected to the panel earth bar.

9.0 BATTERIES AND CHARGER

9.1 General

The wall mounted switchgear tripping battery and charger units shall comply with the requirements of SANS 1652 or any other equivalent standard, unless otherwise specified below.

9.2 AC Supply Details to Charger

The unit shall be suitable for supply from a 230 V single phase, 50 Hz, local 16 A UPS type switch socket outlet.

9.3 DC Tripping Supply from Batteries

- 9.3.1 The tripping supply from the whole unit shall be 110 V and be derived from series-connected cells as described under clause 9.6.
- 9.3.2 The positive and negative outputs shall each be isolated by a fuse-link and holder, complying with SABS IEC 269-2 or any other equivalent standard. Termination of the voltage shall be on Klippon spring loaded terminals with pre-insulated lugs.

9.4 Duty Requirements

Specific duty requirements:

AC supply ON

- a) supply a standing load that will be capable of handling the 12-feeder e-House at 110 V dc, which may or may not be present; and at the same time
- b) supply a switchable standing load capable of handling the 12-feeder e-House, which may or may not be present; and at the same time
- c) Maintain cells in a fully charged condition.

AC Supply OFF

- a) supply a standing load that will be capable of handling the 12-feeder e-House at 110 V dc for 15 hours after loss of the AC supply; and thereafter
- b) Retain sufficient battery capacity to continue charging when the ac supply is re-instated after 15 hours, without loss of battery life.

9.5 Enclosure

- 9.5.1 The battery and charger shall be housed in a vertical metal enclosure, galvanized to inhibit corrosion. Suitable surface preparation shall be applied prior to the application of two coats of RAL7032 or a similar colour, as approved by the Engineer.
- 9.5.2 The enclosure shall be divided into an upper and lower compartment with the charger housed in the upper compartment and the battery in the lower. The upper compartment shall be fully sealed to prevent ingress of dust and dirt and the products produced during charging of the battery.
- 9.5.3 The charger unit shall be mounted such that all the components are mounted on/in a removable tray/box for quick and easy replacement (of the whole unit), repair and/or inspection. The main input and outgoing circuits shall be terminated on a terminal block (spring loaded Klippon) inside the top chamber within easy access from two 20 mm holes for the attachment of standard conduit or pressure glands for alarms and tripping supplies.
- 9.5.4 The lower compartment shall contain the battery and shall be ventilated to permit the escape to atmosphere of any gases generated during charging. The battery shall be mounted in such a manner so as to permit adequate clearance space above the upper/back cells so as to allow all aspects of maintenance to be carried out i.e., checking the voltage, specific gravity and topping up of water of each individual cell, where applicable, without the removal or disconnection of the whole battery. To enable the enclosure to be transported without the individual cells or the whole battery being displaced, the necessary transport brackets shall be supplied and fitted.
- 9.5.5 The enclosure shall have a front access door, fitted with swivel type latches which may be sealed closed with a conventional lead seal and wire, such that this door fully seals the upper compartment and closes the lower and prevents unauthorised access. If a standard panel lock is also supplied, then a key shall be provided with every enclosure. All specified instruments, switches, LEDs, etc. (of the charger unit) shall be visible with the door closed.

9.6 Cells and Battery

- 9.6.1 The battery shall be of the nickel-cadmium type, which requires low maintenance, it is advisable to

have containers including several cells in series in order to optimise the installation cost. Each block shall have a lid that covers connectors and valves to keep them clean. The battery shall have a minimum capacity of 50 ampere hours and housed in a transparent case. The battery shall be capable of satisfying the duty requirements of section 9.4 without reducing the service life of the cells to less than 15 years. The cell connections shall be of a nut and bolt type with easily removable nickel-plated copper connecting straps. The nut and bolt shall be stainless steel (grade 308 or equivalent). The number of cells shall be chosen such that the output voltage is at no time greater than 15% above that specified under clause 9.4.1.

- 9.6.2 Vented cells shall be supplied in a transparent plastic case and the cells shall be step mounted in a tray so that the electrolyte levels of all the cells are easily visible.
- 9.6.3 The tray shall be galvanised and painted and be deep enough so as to carry all the cells and the full volume of electrolyte from one cell. The tray shall be totally removable with all the cells interconnected.
- 9.6.4 Vented cells shall be supplied with transport caps fitted, and plastic flip top vent caps ready for fitment at the time commissioning the cells.
- 9.6.5 Each battery bank shall be supplied with the correct Box/Link spanner set.
- 9.6.6 The cells shall be delivered in a fully charged condition suitable for immediate service. The individual cells shall all have been tested to 100% capacity before delivery.
- 9.6.7 The battery service life shall preferably be 20 years but not less than 15 years.

9.7 Charger Unit

- 9.7.1 The charger unit shall be kept as simple as possible with LEDs and indicators mounted on the front panel of the charger unit.
- 9.7.2 The charge unit shall be capable of meeting the following two separate requirements:
 - a) supply the continuous switchable standing load; and
 - b) maintain the battery at full charge whilst the ac supply remains ON irrespective of whether the standing load is present or not.
- 9.7.3 The standing load may be switched off and the charger design shall allow for this.
- 9.7.4 The boost voltage shall not exceed that specified by the cell manufacturer.
- 9.7.5 The float voltage shall be set to that specified by the cell manufacturer.
- 9.7.6 The "ON/OFF" switch, "BATTERY TEST" push-button and "BOOST/FLOAT" manual push-button shall be situated externally on the charger unit but not on the front face (i.e., inside the enclosure when the door is closed).
- 9.7.7 The "Alarm Accept/Reset" switch shall be fitted on the front face of the charger unit.
- 9.7.8 The manual boost shall not be a switch but a push-button. When the pushbutton is operated, the manual boost shall latch into the "ON" condition for a limited time and then switch "OFF" automatically (i.e., trigger an electronic timer circuit). The bidder shall declare this time period which could be used to ascertain the alternative "ON" period for the manual "OFF" pushbutton. Alternatively, the boost condition may be terminated by a manual "OFF" push-button.
- 9.7.9 The minimum charge shall be 110 V dc, 10 ampere unit.
- 9.7.10 The unit is to be supplied with 4 outgoing output load circuits, each to be isolated by a fuse and a link or double pole MCBs.
- 9.7.11 Monitoring of DC charger and specifically the battery levels to power down devices should battery levels reach critical level and stagger the device reboot once AC has been restored. This is to

preserve the protection the IED power supplies and the circuit breaker charging motor.

9.8 Instrumentation

The following instruments shall be included:

- a) An ammeter of good industrial grade with a scale length of not less than 95 mm to indicate the charging current.
- b) A voltmeter (state of charge indicator) matching the instrument in clause 9.8.1 a), which shall indicate the battery condition when loaded by a resistor switched by a timed push-button mounted inside the top compartment. The indicator shall be clearly marked to indicate whether the battery is fully charged or not when loaded at 1 ampere per ampere hour capacity for approximately 5 seconds.
- c) An "ON/OFF" switch mounted on the charger unit such that it is not on the front face and the toggle movement is downwards to switch "on".
- d) An indicating lamp/LED coloured red and mounted on the front panel, to indicate when the charger supply is "on" and labelled "MAINS ON".

9.9 Auto Battery Test

The charger shall have an automatic battery test facility. This facility shall load the bank for a set period of time via a resistor and at set time intervals.

9.10 Auxiliaries/Alarms

- 9.10.1 An ac Supply Fail alarm with a delay of 30 s shall illuminate a red LED and at the same time drop off a dedicated IED which closes a pair of voltage free contacts wired to terminal blocks. This LED shall be clearly labelled "ac SUPPLY FAIL" including the contacts on the terminal block.
- 9.10.2 A Low dc Voltage alarm shall illuminate a red LED and at the same time drop off a IED which closes a pair of voltage free contacts wired to terminal blocks. This LED shall be clearly labelled "LOW dc VOLTAGE" including the contacts on the terminal block.
- 9.10.3 A Battery Test Fail alarm shall illuminate a red LED and at the same time operate a IED which closes a pair of voltage free contacts wired to terminal blocks. This LED shall be clearly labelled "BATTERY TEST FAIL" including the contacts on the terminal block.
- 9.10.4 A two way switching circuit shall be incorporated into the alarm for "AC SUPPLY FAIL" so that in the event of a planned "AC SUPPLY FAIL" the alarm may be accepted. When the supply is restored, the alarm will again come up but now can be placed in the run/normal mode. The two-way switch shall be labelled "NORMAL" in the one position and "ALARM ACCEPTED" in the other with an overall label "ALARM SWITCH". This shall be visible on the front face of the charger unit. Further to this, all other alarms shall pass through to eThekweni Electricity's Control Centre even while the AC Supply Fail alarm is in the "ALARM ACCEPTED" mode.
- 9.10.5 A suitable earth-fault detection system should be supplied, for earth faults above 10 mA. Provision should be made for local and remote indications of positive and negative earth-faults.
- 9.10.6 There shall be real-time monitoring of the DC battery voltage.

10.0 TESTING

Switchgear

10.1 General

- 10.1.1 It shall be the responsibility of the supplier to ensure that type tests are valid. eThekweni Electricity

may require drawings from the supplier to take to a testing authority for validity.

10.1.2 Should reasonable doubt exist as to the validity of test certificates submitted, for example by virtue of modifications made to the switchgear, eThekweni Electricity may direct that further test be carried out at a recognized test facility in the presence of a representative of the purchaser, on a sample unit of the switchgear in question. The cost of these tests shall be for the expense of the supplier.

10.1.3 If switchgear of South African manufacture or assembly to overseas design is offered, test certificates relating to the South African complete switchgear assembly shall be submitted, and shall be accompanied by a statement that the South African manufactured unit is identical (this shall be verified by an accredited test authority in accordance with ILAC, see note below) with the overseas product and the number of such units already produced and installed in South Africa shall be stated.

Note: Identical in terms of all design parameters as developed and tested by the original manufacturer.

10.2 Type test

The supplier shall prove the ability of the switchgear to pass all the mandatory type tests as stated in clause 6.1 a) to g), j), k), n) and o) and if applicable clauses h) and l) of the latest version of SANS 62271-200. The supplier shall also provide a humidity test report.

10.3 Routine tests

The routine test shall be made on each transport unit at the manufacturer's works to ensure that the switchgear is in accordance with the equipment on which the type test has been carried out. All the routine tests shall be in accordance with clause 7.0 of the latest version of SANS 62271-200.

10.4 Factory acceptance testing

10.4.1 All switchgear, once installed in e-house, will be subjected by the purchaser to 80 % power frequency voltage test in accordance with clause 7.105 of the latest version of SANS 62271-200.

10.4.2 Resistance test on all primary connections at not less than 100 A and up to the rated current of the circuit.

10.4.3 Primary injection tests with standard settings.

10.4.4 Secondary injection tests with standard settings. The results shall be generated via the test set electronically. Example: omicron or equivalent test set.

10.4.5 In the event of protection and control schemes being supplied by others, the secondary connections of the plant as well as the protection equipment, that will be free issued, shall be wired by the Tenderer. It is the responsibility of the Tenderer to integrate these protection and control schemes and testing of these schemes will be witnessed by an eThekweni Electricity representative.

10.4.6 The Contractor shall give at least one months (or two months for overseas testing laboratories) notice of the date on which the equipment will be ready for testing, in order for the Engineer to arrange for the presence of witnesses if deemed necessary.

10.4.7 All as-built drawings, test plans and procedures shall be shared two weeks prior to the date on which the equipment will be ready for testing.

10.5 Tests on painted surfaces

Protection of coatings against corrosion shall be assessed using test samples of the same materials used in the construction of the switchgear and subjected to the same painting procedures as the switchgear. The following tests shall be performed:

- a) Adhesion test in accordance with the latest version of SANS 2409: the cross-cutting coefficient shall be not less than 8.
- b) Exposure to salt fog for 168 h in accordance with latest version of SANS 9227: the coated surface shall show no visible defects and the underlying metal shall be free from corrosion and scale, and
- c) Scratch resistance test in accordance with the latest version of SANS 279: when a mass-load of 1 kg is applied to the test needle, the scratch produced shall not have penetrated to the underlying metal. The scratch shall have no jagged edges.

11.0 MARKING/LABELLING**11.1 Main circuit designation labels**

Main circuit designation labels shall be blank sandwich-board or equivalent (white-black-white) that can be removed easily for engraving. These shall be located on the front and back of each switchgear panel and shall be at least 150 mm wide and 35 mm high.

11.2 Rating plates

11.2.1 All rating plates shall comply with the relevant requirements of clause 5.10 of the latest version of SANS 62271-200 and shall be of intrinsically corrosion-resistant metal with the following details clearly, legibly and indelibly marked thereon:

- a) the manufacturer's name;
- b) the manufacturer's type number;
- c) the manufacturer's serial number;
- d) the year of manufacture;
- e) the rated values;
- f) the short time withstand current; and
- g) arc classification.

11.2.2 Circuit-breaker rating plates shall comply with the requirements of the latest version of SANS 62271-100 and shall include the actual ratings to which the circuit-breaker has been type tested. These shall be fixed in a position that is visible when the circuit-breaker is in the service position.

11.2.3 Current transformer rating plates shall comply with the requirements of SANS IEC 61869, and shall be duplicated, one fixed to the current transformer, the other fixed in a conspicuous position on the corresponding circuit breaker panel, such that it can be read when the switchgear panel is in service.

11.2.4 A main switchboard label shall be supplied with every switchboard. The label shall be mounted centre top of the switchboard. The font size shall be 30 mm in height. The material shall be corrosion resistant metal.

11.3 Function labels

- 11.3.1 All IEDs shall be appropriately identified to indicate their function.
- 11.3.2 All IEDs, instruments, fuses, control switches, luminous indicator, test blocks and links, the functions of which are not identified by signs or pictograms, shall be clearly labelled in text with black letters of minimum height 5 mm on a white background, to indicate their functions. All labels shall be securely attached.
- 11.3.3 Each fuse, link, protection IED, control handle and indicator LED shall be fitted with engraved labels to indicate the function.
- 11.3.4 Where necessary, labels shall be repeated inside the switchgear.
- 11.3.5 Terminal blocks or rail-mounted terminals shall be labelled to identify them when more than one block is used.
- 11.3.6 Removable doors and panels shall be labelled to facilitate replacement in the correct position.
- 11.3.7 Main circuit labels shall be either on a fixed portion of the panel or on a bracket. They shall not be fixed to removable doors.
- 11.3.8 ON, OFF and EARTH position labels shall comply with clause 5.12 of the latest version of SANS 62271-1.
- 11.3.9 All dc cables shall be labelled and marked for point-to-point tracing according to the specification by the eThekweni Electricity's DC Systems Division. The labelling required includes for cables connected to the charger, the breaker feeding the charger in the ac DB, the fuses, etc. The labelling specification shall be provided upon the award of the contract.
- 11.3.10 All hardware components of the communication system shall be clearly labelled to indicate its purpose and designation.
- 11.3.11 All communication cables shall be labelled according to the specification by the eThekweni Electricity Communication Networks Branch. The labelling specification shall be provided upon the award of the contract.
- 11.3.12 The control panels shall be fitted with labels indicating the RESET procedure to be followed after the device operated.

12.0 E-HOUSE AND STAND

- 12.1 The e-house shall either be completely welded or bolted system.
- 12.2 The e-house enclosure shall be suitably sized, designed and stiffened for transportation to site by sea and road with all electrical equipment preinstalled. The e-house enclosure design shall be purpose built for the offered switchgear, including cable entries.
- 12.3 The weight, dimensions and lifting arrangements shall be provided to the purchaser of the e-house with all equipment installed.
- 12.4 E-house shall be bolted or welded on a trailer for ease of transportation.
- 12.5 If switchgear has a rear entry, access to the cable compartment shall be provided from the outside

- of the e-house. For each panel there will be a cover that can be taken off to gain access to the cable compartment.
- 12.6 The e-house shall be low maintenance. It is required that the e-house enclosure be suitable for spray washing if excessive dirt has accumulated on the outside and that damaged wall panels can be replaced on-site.
- 12.7 The e-house shall come with a complete HVAC system accommodating all rooms. The system shall provide temperature control. It shall have a wall mounted control from within the e-house. A slight positive pressure shall be maintained to prevent any dust ingress.
- 12.8 All wall and floor openings shall be hermetically sealed to maintain the integrity of house structure and protection class IP54 when room is air conditioned.
- 12.9 All external cables to and from the bottom shall be sealed with approved cable glands.
- 12.10 A layout drawing showing equipment layout and dimensions, door locations and e-house size shall be provided with the tender.
- 12.11 Walls, roof and doors shall be a double layered structure made from stainless steel, grade 3CR12. The exterior walls shall be a minimum of 2 mm and interior walls a minimum of 1.6 mm. Insulation shall be a minimum of 45 mm and have a certified fire rating of at least 60 minutes.
- 12.12 A dual pitch safari roof structure made of stainless steel, grade 3CR12, shall be provided that can be removed during transportation.
- 12.13 Doors shall be provided with a gasket to provide an effective seal against wind-driven rain when closed. All doors open outwards to a maximum swing of 100°. There shall be doors at both exits with eThekweni approved substation locks. Panic bars to be included on all doors. The door size shall be a minimum of 900 mm wide. One of the doors shall be designated as an equipment door for equipment loading and off-loading. The equipment doors shall be of adequate size to insert/remove the largest piece of equipment in the e-house.
- 12.14 Access steps and platforms shall be provided for each exterior door. The steps shall have a 200 mm maximum rise and a 280 mm minimum depth tread. Removable handrails shall be provided on platforms and on both sides of steps.
- 12.15 Supply voltage for lighting receptacles and equipment accessories shall comply with the latest NRS 048-2. Wiring of these services shall comply with the latest version of SANS 10148-1.
- 12.16 A minimum of one distribution board shall be provided with integral main breaker, branch circuit breakers, neutral bus and ground bus. A minimum of three circuit breakers shall be provided as spares for customer use.
- 12.17 Interior and exterior lights shall be of LED type. Fixtures shall be attached to ceilings and shall be located to obtain illumination as uniform as possible to avoid possible shadows and glare. Lighting shall be provided to provide a minimum in-service lighting level of 200 lux on the floor level with 150 lux on vertical face of each equipment line up. Interior battery backup lighting to be provided.
- 12.18 Two-way light switches shall be provided at each door. A photocell shall be provided for automatic outdoor light activation.
- 12.19 The painting of the exterior of the e-house shall comply with C5-M corrosive environment with the following layers being a guide with a total thickness of 320 µm. Painting procedure shall be provided

with tender. Finishing colour shall be RAL 7035.

- a) First Layer: Versatile primer for long-term protection, 60 µm.
- b) Second Layer: Epoxy based paint, 100 µm.
- c) Third Layer: Epoxy based paint, 100 µm.
- d) Top Layer: Polyurethane finishing coat for protection of structural steel, 60 µm.

- 12.20 Earthing shall be in accordance with the latest version of IEC 60364. Stranded copper and stainless steel two-hole ground pads shall be at each corner of the exterior of the e-house for earth connection. An interior earthing loop shall be provided and connected to the exterior ground pads. The loop shall consist of 50 x 6 mm tinned copper bus bar located at the bottom of e-house and all equipment shall be connected to this loop. The switchgear shall also be connected to this earthing loop at a minimum of two ends.
- 12.21 All secondary wiring and cable trays shall be in accordance with the latest version of IEC standards. The wiring shall be installed in cable trays attached to the roof, under the floor level or routed through structural members. Light fittings, switches and socket outlets shall be installed to local standards.
- 12.22 Two CO₂ fire extinguishers shall be attached to the inside and outside of e-house.
- 12.23 If medium voltage cables are accessed from the back of the switchgear, there shall be suitable hinged panels provided in the e-house wall at the back of the circuit breaker panels in order to allow access to the circuit breaker panels for termination of the cables and inspection of the current transformer connections.
- 12.24 Provision shall be made for arc flash venting in the form of an arc duct that will vent to the outside.
- 12.25 The e-house shall be supplied with a complete supporting structure or stand to lift the e-house 1.2 m above the ground for easy cable entry.
- 12.26 The entire structure or stand shall be designed and constructed to allow lifting and transportation without damage, deformation, or the need for on-site remedial works.
- 12.27 All structural members of the stand shall be designed to exceed the static and dynamic loads.
- 12.28 The e-house shall be bolted onto the structure or stand with a trailer for ease of transportation.
- 12.29 The stand shall be made of stainless steel, grade 3CR12.
- 12.30 The e-House shall have two separate rooms. One for the switchgear and one for the ancillary equipment.
- 12.31 Testing required:
- a) Visual test of welding
 - b) Penetrating dye test of welding points
 - c) Check continuity of wiring, earthing of equipment, operation of all lights and HVAC system.
 - d) Testing of paint thickness in factory.

e) Any other tests that may be relevant.

13.0 GENERAL

- 13.1 Switch panels may be rejected if not delivered complete, with all IEDs, instruments, rating plates and eThekwini Electricity DC number plates.
- 13.2 The successful bidder shall provide two small brass eThekwini Electricity (TE) plates engraved with the DC registration number provided at the time of ordering. These two plates shall be attached prominently; one on the fixed portion of the circuit breaker panel and the other on its draw out portion, where applicable
- 13.3 A full set of operating handles and tools shall be accommodated in a suitable lockable cabinet inside the e-house.

14.0 DOCUMENTATION, DRAWINGS AND MANUALS

- 14.1 Schedule B3 lists the drawings issued with this tender. The issue of these drawings does not absolve the Contractor from the normal responsibilities of providing a satisfactory scheme or from submitting drawings of systems proposed for approval by the Engineer.
- 14.2 The purpose of the schematic drawings issued with this enquiry is to clarify the requirements detailed in this specification. Tenderers shall comply with the schematic drawings to ensure the successful implementation of the Substation Automation scheme.
- 14.3 The Contractor shall produce a complete set of schematic drawings including the full schematics of the primary equipment for approval by the Engineer.

NOTE: BIDDERS SHALL SEPARATE INFORMATION (SCADA, PROTECTION, COMMUNICATION, SWITCHGEAR, GENERAL, etc.) FOR EASE OF EVALUATION.

- 14.4 The Contractor shall issue approved schematic drawings to the 11 kV switchboard showing the front panel face arrangement and cut-outs to accommodate IEDs (if applicable), push buttons, etc. during handover.
- 14.5 The ac and dc schematic drawings shall be in AutoCad 2024 ".dwg" format. Approval and as-commissioned drawings shall be provided both in paper format and in electronic format on a USB memory stick.
- 14.6 All the as-commissioned drawings must be checked and/or approved by a registered professional engineer.
- 14.7 The contractor must provide all supplied IED configuration files.
- 14.8 Three paper copy sets of manuals for IEDs, and associated equipment shall be provided to the Engineer as soon as possible after contract award but not later than submission of drawings for approval. If addition, electronic versions of manuals shall be provided on a USB memory stick.

15.0 TRAINING

15.1 Training shall be provided as follows:

- a) Switchgear Operator training priced per session comprising of 20 candidates.

- b) Switchgear Maintenance and Inspection training shall be undertaken by the OEM specialist and be priced per session comprising of 10 candidates.
- c) Protection IED training priced per session comprising 10 candidates.
- d) SCADA training priced per session comprising 10 candidates.

Note: The SCADA training shall include the complete configuration of the RTU and include a site or workshop installation for DNP3 point testing.

- e) Communication equipment training priced per session comprising 10 candidates.

15.2 The venue shall be provided by eThekweni Electricity.

15.3 One of the supplied boards will be used for hardware and firmware training on-site.

15.4 All training material shall be provided by the successful bidder and shall be in the form of a comprehensive booklet as well as in a USB memory stick.

SCHEDULE A: SYSTEM PARAMETERS AND PARTICULARS OF EQUIPMENT REQUIRED

This contract is for the supply, testing and delivery of 11 kV single busbar fixed pattern switchgear and associated equipment housed in an e-house.

Orders shall comprise various quantities of the following main elements (The drawings issued with this specification are for tendering purposes. The successful Tenderer will be required to produce re-engineered drawings for each order based on the particular requirements and the price thereof shall be included in the price of the various items):

1. EQUIPMENT DESCRIPTION

Item	Description
630 A Feeder	630 A feeder switch panel with 2 000 A three phase single busbars, protection IED. CTs as per requirement for 11 kV feeder
2 000 A Incomer	2 000 A transformer switch panel with 2 000 A three phase single busbars. CTs and VTs as per requirement for 2 000 A incomers.
2 000 A Bus-Section	2 000 A Bus-Section switch panel with 2 000 A three phase single busbars.
e-House	A customised e-house capable of fitting 10 feeders, 2 incomers and 1 Bus-Section panels. The e-House should also house a communication panel, fibre termination panel, transformer control panel and battery & charger.
IED for 11 kV feeder schemes	A IED incorporating protection functions as well as control and status requirements as detailed in technical specification.
IED for Bus-Section	A IED indicating the control and status requirements for the Bus-Section shall be supplied. This IED shall also make provision for a general alarm feature.
Transformer Control Panel	Single transformer relay panel that will include two transformer schemes. Each scheme to include a main protection relay, backup protection relay as well as a voltage regulating relay as per requirements. All other ancillary equipment to also be included in the panel.
Fibre Communication Panel	A panel inclusive of power supply, SCADA gateway, substation Ethernet L3 switch, communication modem, brush trays for cable management, 1U blanking plates and fibre patch cord tray.
Control Panels	Control panels for all feeders and incomers which will be housed in the control room. A local/remote control switch on each panel as well as open/close control switches for the disconnectors and circuit breakers.
Battery and charger	An integrated battery/charger shall be supplied and installed in the e-House. The batteries and charger shall be rated to handle all the duty requirements of a 10-feeder e-House.

2. SCHEDULE OF EQUIPMENT

2.1 Switchgear

Description		Feeder	Incomer	Bus Section	
1. Switch Unit	Circuit Label	Blank	Incomer T1 or T2	Bus Section	
	DC Reg No	To be advised	To be advised	To be advised	
	Minimum Current Rating	630	2 000	2 000	
2. Current Transformers	Overcurrent, Earth Fault & Sensitive earth fault	Yes			
	Overcurrent, Earth Fault & Directional Overcurrent		Yes		
	Cable Differential Protection	Yes			
	Differential Transformer Protection		Yes		
	Restricted EF Protection		Yes		
	Spare/Bus-zone	Yes	Yes		
3. Voltage Transformers	Number of phases Burden VA/Phase Class & Accuracy Voltage Factor Ratio To Plug into		3 100 0,5 1,9 11 000/110 Circuit		
4. Cable Boxes & Glands	Main	No. of Cables	1	6	
		No. of Cores	3	1	
		Size mm ²	240/300	630	
		Type of Insulation	Air	Air	
		Bushing type	Type "C"	Inner Cone	
5. Switches and pushbuttons	TNC Control Switch	Yes	Yes		
	Local/Remote Switch	Yes	Yes		
	Position Selector Interlock	Yes	Yes		
	Trip Push Button Lockable	Yes	Yes		
	SEF On/Off Switch	Yes	-		
6. Indication	Mimic	Yes	Yes	Yes	
7. Protection Equipment	Over current, earth fault & sensitive earth fault IED	Yes	Yes		
	Cable differential protection IED	Yes			
	Trip Circuit Supervision (Flagging, flush mount)	Yes	Yes		
	Auxiliary IEDs and lamps to complete protection and control scheme				
	Light detection for arc protection in cable compartment	If offered	If offered		
	Light detection for arc protection in busbar and circuit breaker compartments	If offered	If offered	If offered	
	IED for general control scheme			Yes	
8. General	Fuses & Links	Yes	Yes		
	Plug-in type Test Blocks	3	4		

3. CURRENT TRANSFORMERS

Current transformers shall comply with the following:

LOCATION	CORE	PROTECTION FUNCTION	RATIO	CLASS	BURDEN (VA)	Min VKP @ LOWEST RATIO (V)	MAX I _{MAG} (mA)	R _{MAX} HIGHEST RATIO (Ω)
Incomer 132/11 kV, 30 MVA Trfr panel	1	Trfr Diff	1 800/1	X		250	50	7,2
	2	REF	1 800/5	X		300	50	0,8
	3	DOC, O/C & E/F	1800/1	5P20	10			
	4	Spare/Bus-zone	2000/5	X		350	35	2.0
Feeder panel	1	Cable Diff	500/1	X		250	50	1,6
	2	O/C, E/F & SE/F	500/1	5P20	10			
	3	Spare/Bus-zone	2000/5	X		350	35	2.0
Ring type CT for LV REF on transformer NER	1	LV REF	1 800/5	X		300	50	0,8

NOTES:

1. The address for delivery for each switchboard will be made known at time of order. All addresses will be within a 35 km radius of central Durban and will have hardened road access.
2. If all CTs cannot be fitted in a specific panel, a ring type CT shall be made available to accommodate the spare core. This CT shall be easily accessible and can be replaced without tampering with other compartments.
3. IEC type test certificates for all CTs shall be submitted with Tender.
4. Ring type CT for LV REF on transformer NER shall have an internal diameter of 80 mm. The CT shall be delivered securely packaged and crated for long-term storage, with all packaging clearly labelled with the CT specifications in indelible markings. The instructions for the storage and handling shall also be provided with the package.

4. COMMUNICATION AND SCADA PANEL ACCESSORIES

PANEL	ACCESSORIES	DETAILS
Communication Panel	Fibre termination accessories	a) Three 48 core fibre patch tray with LC ACP midcouplers as per details below; b) Four fibre patch cord tray/channel for limiting the bending radius of fibre patch cords as per below; c) Five brush tray; and d) Several 1U blanking plates depending on panel size spaces. All blanks must be filled a blanking plate
	48 core fibre rack mountable 19" fibre optic termination shelf	a) The fibre termination shelf shall be suitable for the purpose of fibre termination and management. b) The fibre termination shelf shall have a slide out front facing tray for access to pigtailed. c) The construction of shelf shall be corrosion resistance. d) The fibre termination shelf shall conform to a laser cut manufacturing processes. e) The fibre termination shelf shall be 1U (one rack unit) high with mounting hole centres that are 19" rack mountable. f) The termination shelf shall have a sliding type rack mount bracket for depth adjustments and shall be supplied with cage nuts and screws. g) The fibre termination shelf shall have a minimum two (2) appropriately sized knockouts and glands on the rear face of the shelf to accommodate fibre cable of 6-12mm outer diameter. Minimum of 2 glands to be supplied in the kit. h) The fibre termination shelf shall contain cable clamps behind every knockout for securely fixing the fibre optic cables strength member. i) The front face of the tray shall have 24 duplex Lucent Connector (LC) ACP ports for 48 fibre terminations. j) The entry holes for the mid-couplers shall lie horizontally with 12 on the top row and 12 at the bottom row. k) The entrance hole for each mid-couplers shall be numbered from left to right, with the fibre core numbers. Example: The first mid-coupler hole on the left shall be marked above with "1/2" and the last marked with "47/48". l) The fibre termination shelf shall have a lockable front face with spring type screws. m) The fibre termination shelf shall include a splice management kit.
	19" patch cord channel	a) Designed to safely organise and limit the bending radius of fibre patch cords; b) Constructed with a material which is aluminium and high-density polyethylene (HDPE); c) Having 6 bend radius limiters mounted on the front of the channel; and d) 19" wide and 1U in height with dimensions 495 mm x 41 mm x 95 mm



SECTION 8: BILL OF QUANTITIES / SCHEDULE OF RATES / ACTIVITIES**8.1. PRICING INSTRUCTIONS****8.1.1 GENERAL**

The Bill of Quantities forms part of the Contract Documents and must be read and priced in conjunction with all the other documents comprising the Contract Documents.

8.1.2 QUANTITIES REFLECTED IN THE SCHEDULE

The quantities given in the Bill of Quantities are estimates only, and subject to re-measuring during the execution of the work. The Contractor shall obtain the Employer's Agent's detailed instructions for all work before ordering any materials or executing work or making arrangements for it.

The Works as finally completed in accordance with the Contract shall be measured and paid for as specified in the Bill of Quantities and in accordance with the General and Special Conditions of Contract, the Specifications and Project Specifications and the Drawings. Unless otherwise stated, items are measured net in accordance with the Drawings, and no allowance has been made for waste.

The validity of the contract will in no way be affected by differences between the quantities in the Bill of Quantities and the quantities finally certified for payment.

8.1.3 FREIGHT, DUTY, LANDING CHARGES

Where the Goods or Materials to be supplied have to be imported, the bidder shall, notwithstanding anything to the contrary contained in the General Conditions of Contract, base their tender on the duty and landing charges ruling as at the date fourteen days prior to the closing date of tenders and tenderers shall state such freight rates, duty and landing charges in the Bid. No claim by the Contractor for an adjustment will be entertained unless the details required by this Clause are included with their bid.

Where freight rates actually paid by the Contractor are higher or lower than the rates upon which the contract price was based then any difference between the freight rates upon which the tender was based and the freight rates actually paid by the Contractor shall be paid or deducted by the Municipality, as the case may be.

Where the rates of duty or landing charges are varied between the date of bid and the date of clearing, any increase or decrease in the rates ruling at the date of tender, shall be paid or deducted by the Municipality.

The Contractor shall:

- 1) Submit documentary proof of the freight rates, duty and landing charges paid by him, and
- 2) When an adjustment is claimed in terms of this Clause, submit documentary proof to the satisfaction of the Municipality in support of such claim.

In the absence of such proof, no claim by the Contractor for any increase will be entertained.

8.1.4 RATE OF EXCHANGE VARIATION

Where the goods are imported the Contractor shall within seven days of date of Official Purchase Order, arrange through his bankers for the foreign commitment to be covered forward down to the

Rand in order to fix the rate of exchange. The Contractor shall ensure that the forward cover is directly arranged with a reputable bank and not any other internal arrangement. The contractor shall also notify the Municipality as soon as possible thereafter regarding the rate which has been fixed on such forward exchange.

Where the contract is for the supply of an indefinite quantity of goods/services over a fixed period, the requirement to arrange forward cover in respect of variations in the rate of exchange within 7 days shall be applied to the notification of each order rather than notification of acceptance of tender.

Any increase or decrease between the basic rate of exchange as at a date seven days prior to the date of closing of Bids 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 Contractor to arrange forward exchange cover, the Contractor shall be liable should there be an increase in the basic rate of exchange occurring after the last mentioned date.

8.1.4 CONTRACT PRICE ADJUSTMENT

This clause shall take precedence over all other clauses with respect to price adjustments. Should the bid prices be subject to contract price adjustments during the contract, such as for labour and for raw materials, the bid shall include details for calculating above adjustments in accordance with an industrially recognised contract price adjustment formula, such as that of Steel and Engineering Industries Federation of South Africa (SEIFSA).

- a) Where SEIFSA indices cannot be applied, bidders shall submit details of alternative formulae for approval.
- b) Where SEIFSA indices are used, the base indices shall be those published one month prior to month of bid closing.
- c) Where the base index is defined as that last published, the date of the index shall not be more than four months prior to the month of bid closing.
- d) Adjustments for Supply and Delivery shall be based on the index at least two months prior to the date the goods are ready for despatch in the case of the Consumer Price Index, Material or Labour adjustments and at least four months prior to despatch in the case of copper price adjustment.
- e) Adjustments for Site Erection shall be based on the index for the month which is one month prior to the contractual completion of erection.
- f) The calculation of contract price adjustment shall not be applied to more than 90% of the contract value.
- g) Price adjustment claims shall be submitted within 120 days from date of each delivery or service and shall be accompanied by calculations showing how the adjustments were arrived at. Claims submitted after the stipulated 120 days will not be considered.

8.4 **BOQ**

Item	Outline description (As further outlined in Schedule A)	1	2	3	Unit	4	5	6
		Unit Price Excl. VAT		Estimated Quantity		Total Price Excl. VAT Cols. [(1+2) x3] R	VAT	Total Price Incl VAT Cols. (4+5) R
		FOB Value (SA Currency)	Balance (SA Currency)					
1	630 A Feeder as specified in Schedule A: 2.1 Switchgear			20	each			
2	2 000 A Incomer as specified in Schedule A: 2.1 Switchgear			4	each			
3	2 000 A Bus Section as specified in Schedule A: 2.1 Switchgear			2	each			
4	Operating tools housed in a cabinet for switchgear			2	each			
5	Training per session							
	a) Operator training as specified in 15.0			2	session			
	b) Maintenance and inspection training as specified in 15.0			2	session			
	c) Protection IED training as specified in 15.0			2	session			
	d) SCADA gateway and HMI training as specified in 15.0			2	session			
	e) Substation ethernet L3 switch training as specified in 15.0			2	session			
	f) Communication equipment training as specified in 15.0			2	session			
6	IED for 11 kV General Control scheme on Bus-Section specified in 7.0 of the technical specification			2	each			
7	O/C and E/F IED for 11 kV feeder scheme specified in 7.0 of the technical specification			20	each			
8	Cable differential IED for 11 kV feeder scheme specified in 7.0 of the technical specification			20	each			
10	Transformer protection control panel specified in 7.0 of the technical specification.			2	each			
11	Bus-zone protection - Include all ancillary equipment for bus-zone protection. I.e., high impedance bus-zone (wiring, IEDs, etc.), arc flash detection (arc sensors, cabling, IEDs, etc.)			2	each			
12	Ring type CT for NER LV REF protection as specified in Schedule A: 3. Current Transformers			2	each			
13	Communication and SCADA Panel equipment inclusive of all accessories as specified in 6.0 of technical specification			2	each			
14	Batteries and charger as specified in 9.0 of technical specification			2	each			

Item	Outline description (As further outlined in Schedule A)	1	2	3	Unit	4	5	6
		Unit Price Excl. VAT		Estimated Quantity		Total Price Excl. VAT Cols. [(1+2) x3] R	VAT	Total Price Incl VAT Cols. (4+5) R
		FOB Value (SA Currency)	Balance (SA Currency)					
15	e-House as specified in 12.0 of technical specification			2	each			
16	e-House stand (trailer) as specified in 12.0 of technical specification			2	each			
17	Delivery of e-House with complete switchboard and accessories (in a trailer)			2	each			
18	Spares							
	a) SCADA Gateway			1	each			
	b) HMI			1	each			
	c) Substation ethernet L3 switch			1	each			
	d) 16 U Communication/ Termination Panel without accessories			1	each			
	e) 19" 48 V DC Rack Mountable Power Supply Chassis			1	each			
	f) 48 V DC Power Supply Module			1	each			
	g) 48 Fibre Rack Mountable 19" Fibre Optic Termination Shelf			1	each			
	h) 19" Patch Cord Channel			1	each			
	i) Arc detection sensor			1	each			
	j) Main transformer protection relay			2	each			
k) Spring wound motor			1	each				
TOTAL FOR SUPPLY AND DELIVERY (carried forward to the Tender Form)								

SECTION 9: OFFICIAL TENDER FORM

Part A: OFFER BY TENDERER - In response to **Tender Number : 29836-5E** 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.

TENDERED PRICE EXCLUSIVE OF VAT	VAT AMOUNT	TENDERED 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:

SECTION 10: ADDITIONAL RETURNABLE SCHEDULES**SCHEDULE B: TECHNICAL RETURNABLE SCHEDULE****SCHEDULE B1: GUARANTEES AND PARTICULARS OF EQUIPMENT**

This schedule shall be completed, signed and returned with bid documents of which it forms part.

No	Technical Details	eThekwini Electricity Requirement	Bidder's Offer
1.0	SWITCHGEAR GENERAL REQUIREMENTS		
1.1	Name of manufacturer		
1.2	Place of manufacture		
1.3	Manufacturer reference number		
1.4	Percentage Locally Manufactured		%
1.5	Guarantee of period for which spares will be available ex-stock South Africa	3 years	years
1.6	Loss of service continuity	LSC2	
	Ratings of panels		
1.7	Busbar current rating	2 000 A	A
1.8	Incomer current rating	2 000 A	A
1.9	Feeder current rating	630 A	A
1.10	Bus-Section current rating	2 000 A	A
1.11	Rated voltage	12 kV	kV
1.12	Rated 1 minute power frequency withstand voltage	28 kV	kV
1.13	Rated 1 minute power frequency withstand voltage across isolating distances	32 kV	kV
1.14	Rated lightning impulse withstand voltage to earth, between poles and across opening switching devices	75 kV	kV
1.15	Rated lightning impulse withstand voltage across isolating distances	85 kV	kV
1.16	Frequency	50 Hz	Hz
1.17	Short time withstand current for minimum of 3 seconds	25 kA	kA
1.18	Rated peak withstand current	50 kA	kA
1.19	Arc classification in terms of IEC 62271-200?	AFLR, 25 kA for 1 second	
1.20	Arc classification	IAC AFLR	
1.21	Arc sensor provided in cable compartment?	Yes	*Yes/No
1.22	Arc sensors provided in busbar and circuit breaker compartments? <u>Note:</u> Preference shall be given to tenderer who can provide this along with type tested documentation.		
1.23	Maximum Relative humidity	95%	
1.24	Secondary insulation	SF ₆ , or screened solid or Combination	
1.25	Number of spare auxiliary contacts required on each circuit-breaker "a" contacts, "b" contacts	"a"-5 "b"-5	
1.26	Type of trip indication required on switchgear	Mechanical indication	

No	Technical Details	eThekwini Electricity Requirement	Bidder's Offer
Overall dimensions of each panel (H x W x D)			
1.27	Incomer	H x W x D	mm x mm x mm
1.28	Feeder	H x W x D	mm x mm x mm
1.29	Bus-Section	H x W x D	mm x mm x mm
Weight of each panel			
1.30	Incomer		kg
1.31	Feeder		kg
1.32	Bus-Section		kg
Type tests			
1.33	Type test certificate summary supplied, including test authority	Yes	*Yes/No
1.34	Name of test authority		
1.35	Is the testing authority accredited with ILAC (International Laboratory Accreditation Cooperation)	Yes	*Yes/No
2.0 CIRCUIT BREAKER			
2.1	Circuit breaker model name and number		
2.2	Circuit breaker DC number and name plates	Yes	
2.3	Type of circuit breaker	Fixed	
2.4	Arc interrupting medium	Vacuum	
2.5	Rated breaking capacity	25 kA	kA
2.6	Type of closing mechanism	Motor wound spring	
2.7	Type of opening mechanism	Spring	
2.8	Equipment dc voltage	110 V	V
2.9	Rated supply voltage a) Minimum where mechanism will positively close breaker	85 %	%
2.10	b) Maximum where mechanism will positively close breaker	110 %	%
2.11	c) Minimum where mechanism will trip breaker	70 %	%
2.12	d) Maximum where mechanism will trip breaker	110 %	%
2.13	Circuit breaker mechanism - Mechanical endurance	M2	
2.14	Circuit breaker mechanism - Electrical endurance	E2	
2.15	Opening time a) No load		ms
	b) Rated breaking current		ms
2.16	Making time, arc durations a) 10% rated breaking current		ms
	b) 100% rated breaking current		ms
2.17	Number of breaks per pole		
2.18	Type of contacts - Main		
2.19	Type of contacts - Arcing		
2.20	Type of arc control device		
2.21	Power required at normal voltage a) Close breaker		W
	b) Trip breaker		W
3.0 DISCONNECTOR AND EARTH SWITCH			
3.1	Disconnecter and earth switch combination model name and number		
3.2	Short time withstand current for 3 s	25 kA	kA

No	Technical Details	eThekwini Electricity Requirement	Bidder's Offer
3.3	<u>Rated supply voltage</u> a) Minimum where mechanism will positively close disconnecter	85 %	%
3.4	b) Maximum where mechanism will positively open disconnecter	110 %	%
3.5	Disconnecter mechanism - Mechanical endurance	M1	
3.6	On-load busbar transfer capability Rated transfer current to be 80 % of rated normal current	Yes	*Yes/No
3.7	Earthing switch - Electrical endurance	E2	
3.8	Circuit earthing facilities integral to the switch panel	Yes	*Yes/No
3.9	Busbar earthing facilities	Yes	*Yes/No
4.0	CABLE TERMINATION COMPARTMENT		
4.1	Specification to which cable termination compartment complies	NRS 012	
4.2	Cable compartment suitable for terminations in air	Yes	*Yes/No
4.3	Cable compartment to be naturally ventilated for air circulation	Yes	*Yes/No
4.4	2 000 A cable incomer bushing to accommodate size 3 plug	Yes	*Yes/No
4.5	630 A cable feeder bushing to be Type "C"	Yes	*Yes/No
4.6	CTs do not impede access to the cable termination?	Yes	*Yes/No
4.7	Incomer cable entering each panel	Six single core XLPE 630 mm ²	
4.8	Feeder cable entering each panel	One 3-core PILC/XLPE cable between 95 and 300 mm ²	
4.9	Cable entry point	Vertically from bottom	
5.0	CABLE TESTING FACILITIES		
5.1	Cable Test Facility to comply with clause 5.4 of section 5 and full supporting information to be supplied with bid documents	Yes	*Yes/No
6.0	SWITCHES, LAMPS, PUSH BUTTONS AND TERMINALS		
6.1	a) Control switches manufacturer		
	b) Control switches type designation	Spring return pistol grip	
6.2	a) Selector switches manufacturer		
	b) Selector switches type designation		
6.3	a) Lamp manufacturer		
	b) Lamp type designation		
	c) Supply voltage	Same as dc	V
	d) Lamp voltage	Same as dc	V
6.4	a) Push button manufacturer		
	b) Push button type designation		
6.5	a) Terminal manufacturer		
	b) Terminal type designation for CTs	Spring loaded	
7.0	CURRENT TRANSFORMERS GENERAL		
7.1	Specification to which CTs complies	SANS IEC 61869-2	
7.2	Type of CTs	Encapsulated	
7.3	Encapsulation material		
7.4	Detailed CT rating plate in accordance with schedule A: 3. Current transformers	Yes	*Yes/No

No	Technical Details	eThekwini Electricity Requirement	Bidder's Offer
8.0	CURRENT TRANSFORMERS - FEEDERS		
8.1	<u>Cable Differential Protection (Core 1)</u>		
	a) Number of CTs	3	
	b) Class	PX	
	c) Ratio	500/1	
	d) Knee point voltage	250 V	V
	e) Secondary resistance	1,6 Ω	Ω
8.2	<u>Overcurrent, Earth Fault, and Sensitive Earth Fault (Core 2)</u>		
	a) Number of CTs	3	
	b) Class	5P20	
	c) Ratio	500/1	
	d) Burden	10 VA	VA
	f) Excitation current at V_k	50 mA	mA
8.3	<u>Spare/Bus-zone (Core 3)</u>		
	a) Number of CTs	3	
	b) Class	PX	
	c) Ratio	2000/5	
	d) Knee point voltage	350 V	V
	e) Secondary resistance	2.0 Ω	Ω
9.0	CURRENT TRANSFORMERS - INCOMERS		
	<u>Transformer Differential Protection (Core 1)</u>		
	a) Number of CTs	3	
	b) Class	PX	
	c) Ratio	1 800/1	
	d) Knee-point voltage (V_k)	250 V	V
9.1	<u>Restricted Earth Fault (Core 2)</u>		
	a) Number of CTs	3	
	b) Class	PX	
	c) Ratio	1 800/5	
	d) Knee-point voltage (V_k)	300 V	V
	e) Secondary resistance	0,8 Ω	Ω
9.2	<u>Directional Overcurrent, Overcurrent and Earth Fault (Core 3)</u>		
	a) Number of CTs	3	
	b) Class	5P20	
	c) Ratio	1 800/1	
	d) Burden	10 VA	VA
	f) Excitation current at V_k	50 mA	mA
9.3	<u>Spare/Bus-zone (Core 4)</u>		
	a) Number of CTs	3	
	b) Class	PX	
	c) Ratio	2000/5	
	d) Knee-point voltage (V_k)	350 V	V
	e) Secondary resistance	2.0 Ω	Ω
9.4	VOLTAGE TRANSFORMER REQUIREMENTS		
	10.1	Specification to which VT complies	SANS IEC 61869-3
	10.2	Name of VT manufacturer	
	10.3	Type of voltage transformers offered	Withdrawable/fixed
	10.4	Number of phases	3 phases
	10.5	VT ratios	11 kV/110 V
10.6	VT class requirements	0,5 according to SANS IEC 61869-3	
10.7	VT burden	100 VA per phase	VA

No	Technical Details	eThekwini Electricity Requirement	Bidder's Offer
10.8	VT factor	1,2 continuous 1,9 for 30 seconds	
10.9	VT connection	star/star	
10.10	Location of VT fuses	Suitably accessible	
10.11	Location and type of VT test blocks	With the VT	
10.12	HV VT fuses required (for withdrawable VTs)	Yes	*Yes/No
10.13	Method of connecting busbar/cable VT primaries to be indicated	To be connected to the circuit side	
11.0	BUSBAR PROTECTION		
11.1	What type of busbar protection is being offered?	High impedance bus-zone or arc flash detection	
11.2	Ability to be monitored	Yes	*Yes/No
12.0	PROTECTION IEDS		
	TRP Main - Transformer differential, HV & LV REF relay		
12.1	IED make and model		
12.2	Specification to which the IED complies	IEC 61850	
12.3	Does the IED have an LCD mimic?	Yes	*Yes/No
12.4	Type of Ethernet communication port provided	100BaseFx	
12.5	Does the IED have a standard IRIG-B external time synchronising input?		
12.6	List which of the following functions will be performed by this relay: 2 Stage Standby Earth fault protection	Yes	*Yes/No
12.7	HV Restricted Earth fault protection	Yes	*Yes/No
12.8	LV Restricted Earth fault protection	Yes	*Yes/No
12.9	Transformer Biased Differential protection	Yes	*Yes/No
12.10	Transformer Trips and alarms	Yes	*Yes/No
12.11	11 kV (and 132 kV if applicable) Trip Circuit Supervision	Yes	*Yes/No
12.12	HV Master trip	Yes	*Yes/No
12.13	LV Master trip	Yes	*Yes/No
12.14	Number of CT inputs	3 x HV Diff, 3 x LV Diff, 1 x HV REF, 1 x LV REF, 1 x SBEF (If applicable)	
12.15	Number of Binary Logic Inputs	Min as per Scheme Drawings	
12.16	Number of Output Contacts	Min as per Scheme Drawings	
12.17	Number of programmable LEDs	Min as per Scheme Drawings	
12.18	Do the protection setting characteristics of the IED comply with the specification?	Yes	*Yes/No
12.19	Does the IED have an LCD mimic?	As per Clause 7.2.8 of the specification	*Yes/No
12.20	Can the logic functionality depicted in the logic schematic drawings be implemented in the IED?	Yes	*Yes/No
12.21	Is the Protection Engineering function implemented over Ethernet?	Yes	*Yes/No
12.22	Are PICS for this IED submitted with the tender?	Yes	*Yes/No
12.23	Are MICS for this IED submitted with the tender?	Yes	

No	Technical Details	eThekwini Electricity Requirement	Bidder's Offer
12.24	Is a brochure for this IED submitted with the tender?	Yes	*Yes/No
12.25	Type of coating to ensure long term stability in humid and corrosive environments	Conformal coating	
TRP Backup – OC/EF and DOC relay			
12.26	Relay make and model		
12.27	Specification to which the relay complies	IEC 61850	
12.28	Does the IED have an LCD mimic?	As per Clause 7.2.8 in the specification	*Yes/No
12.29	Type of Ethernet communication port provided	100BaseFx	
12.30	Does the relay have a standard IRIG-B external time synchronising input?		
12.31	List which of the following functions will be performed by this relay: OC/EF protection	Yes	
12.32	DOC protection	Yes	
12.33	Number of CT inputs		
12.34	Number of Binary Logic Inputs	Min as per Scheme Drawings	
12.35	Number of Output Contacts	Min as per Scheme Drawings	
12.36	Number of programmable LEDs	Min as per Scheme Drawings	
12.37	Are PICS for this IED submitted with the tender?	Yes	*Yes/No
12.38	Are MICS for this IED submitted with the tender?	Yes	
12.39	Is a brochure for this IED submitted with the tender?	Yes	
12.40	Type of coating to ensure long term stability in humid and corrosive environments	Conformal coating	
Voltage regulation IED			
12.41	IED Make and Model		
12.42	Specification to which the IED complies	IEC 61850	
12.43	Does the IED have an LCD mimic?	Yes	*Yes/No
12.44	Type of Ethernet Communication Port provided	100BaseFx	
12.45	Does the IED have a standard IRIG-B external time synchronising input?		
12.46	Number of CT Inputs		
12.47	Number of VT Inputs		
12.48	Number of Binary Logic Inputs	Min as per Scheme Drawings	
12.49	Number of Output Contacts	Min as per Scheme Drawings	
12.50	Number of programmable LEDs	Min as per Scheme Drawings	
12.51	Can the Voltage Regulation functionality specified be implemented in the IED?	Yes	*Yes/No
12.52	Can the IED display a mimic to indicate transformer and busbar arrangement?	Yes	*Yes/No
12.53	Does the IED display voltage and tap position as default?	Yes	*Yes/No

No	Technical Details	eThekwini Electricity Requirement	Bidder's Offer
12.54	Can the logic functionality depicted in the logic schematic drawings be implemented in the IED?	Yes	*Yes/No
12.55	Is the IED Engineering function implemented over Ethernet?	Yes	*Yes/No
12.53	Are PICS for this IED submitted with the tender?	Yes	*Yes/No
12.54	Are MICS for this IED submitted with the tender?	Yes	*Yes/No
12.55	Is a brochure for this IED submitted with the tender?	Yes	*Yes/No
12.56	Type of coating to ensure long term stability in humid and corrosive environments	Conformal coating	
11 kV General Control Scheme IED on Bus-Section			
12.57	Scheme Processor IED name and model		
12.58	Specification to which the IED complies	IEC 61850	
12.59	Type of Ethernet Communication Port provided on IEC 61850 IED	100BaseFx	
12.60	Does the IEC 61850 IED have a standard IRIG-B external time synchronising input?		
12.61	Number of High Impedance Inputs		
12.62	Are the High Impedance Inputs current (with resistors) or voltage inputs		
12.63	Number of Binary Logic Inputs	Min as per Scheme Drawings	
12.64	Number of Output Contacts	Min as per Scheme Drawings	
12.65	Number of programmable LEDs	Min as per Scheme Drawings	
12.66	Do the protection setting characteristics of the IED comply with the specification?	Yes	*Yes/No
12.67	Can the logic functionality depicted in the logic schematic drawings be implemented in the IED?	Yes	*Yes/No
12.68	Is the Protection Engineering function implemented over Ethernet?	Yes	*Yes/No
12.69	Are PICS for this IED submitted with the tender?	Yes	
12.70	Are MICS for this IED submitted with the tender?	Yes	
12.71	Is a brochure for this IED submitted with the tender?	Yes	*Yes/No
12.72	Type of coating to ensure long term stability in humid and corrosive environments	Conformal coating	
11 kV Feeder – OC/EF, SEF, Arc and TCS IED			
12.73	IED Make and Model		
12.74	Specification to which the IED complies	IEC 61850	
12.75	Type of Ethernet Communication Port provided	100BaseFx	
12.76	Does the IED have a standard IRIG-B external time synchronising input?		
12.77	Number of CT Inputs	3 × O/C, 1 × E/F, 1 × SEF (where specified)	
12.78	Number of Binary Logic Inputs	Min as per Scheme Drawings	

No	Technical Details	eThekwini Electricity Requirement	Bidder's Offer
12.79	Number of Output Contacts	Min as per Scheme Drawings	
12.80	Number of programmable LEDs	Min as per Scheme Drawings	
12.81	Do the protection setting ranges of the IED comply with the specification?	Yes	*Yes/No
12.82	Is a Sensitive Earth Fault function incorporated in the IED?	Yes	*Yes/No
12.83	Is a Breaker Fail function incorporated in the IED?		*Yes/No
12.84	Is an Auto Re-closing function incorporated in the IED?		*Yes/No
12.85	Is a Trip Circuit Supervision function incorporated in the IED?	Yes	*Yes/No
12.86	Does the IED have an LCD mimic?	Yes	*Yes/No
12.87	Can the logic functionality depicted in the logic schematic drawings be implemented in the IED?	Yes	*Yes/No
12.88	Is the Protection Engineering function implemented over Ethernet?	Yes	*Yes/No
12.89	Are PICS for this IED submitted with the tender?	Yes	
12.90	Are MICS for this IED submitted with the tender?	Yes	
12.91	Is a brochure for this IED submitted with the tender?	Yes	*Yes/No
12.92	Type of coating to ensure long term stability in humid and corrosive environments	Conformal coating	
11 kV Feeder – Cable Differential IED			
12.93	IED Make and Model		
12.94	Specification to which the IED complies	IEC 61850	
12.95	Type of Ethernet Communication Port provided	100BaseFx	
12.96	Does the IED have a standard IRIG-B external time synchronising input?		
12.97	Number of CT Inputs	3 × Phase, 1 × E/F	
12.98	Number of Binary Logic Inputs	Min as per Scheme Drawings	
12.99	Number of Output Contacts	Min as per Scheme Drawings	
13.0	Number of programmable LEDs	Min as per Scheme Drawings	
13.1	Do the protection setting ranges of the IED comply with the specification?	Yes	*Yes/No
13.2	Is a Sensitive Earth Fault function incorporated in the IED?		
13.3	Is a Breaker Fail function incorporated in the IED?		
13.4	Is an Auto Re-closing function incorporated in the IED?		
13.5	Is a Trip Circuit Supervision function incorporated in the IED?		
13.6	Can the logic functionality depicted in the logic schematic drawings be implemented in the IED?	Yes	*Yes/No
13.7	Is the Protection Engineering function implemented over Ethernet?	Yes	*Yes/No

No	Technical Details	eThekwini Electricity Requirement	Bidder's Offer
13.8	Are PICS for this IED submitted with the tender?	Yes	*Yes/No
13.9	Are MICS for this IED submitted with the tender?	Yes	*Yes/No
13.10	Is a brochure for this IED submitted with the tender?	Yes	*Yes/No
13.11	Type of coating to ensure long term stability in humid and corrosive environments	Conformal coating	
14.0	SCADA GATEWAY		
14.1	Make and model of SCADA Gateway		
14.2	Does the SCADA Gateway comply with IEC 61850 client and server?		
14.3	Are PICS for the SCADA Gateway submitted with the tender?	Yes	*Yes/No
14.3	Are MICS for the SCADA Gateway submitted with the tender?	Yes	*Yes/No
14.4	Are brochures for all hardware and software items comprising the SCADA Gateway submitted with the tender?	Yes	*Yes/No
14.5	Does the SCADA Gateway have the following connections to the front-end processor? One console port and One 100BaseT Ethernet RJ45 protocol communication port	Yes Yes	*Yes/No *Yes/No
	Does the SCADA Gateway have the following connection to substation ethernet network for communication with the protection and control IEDs? 100BaseT Ethernet RJ45 port (IEC 61850)	 Yes	 *Yes/No
	14.6	Does the SCADA Gateway have sufficient DNP3.0 points for current and future implementations?	As per scheme drawings
14.7	Additional number of discrete binary inputs, discrete binary outputs and discrete analogue inputs as per Clause 6.1.21 of Technical Specification?	16, 12 and 8	
14.8	Electrical supply for SCADA Gateway	110 Vdc	
14.9	SCADA Gateway to be housed in the Communication Panel?	Yes	
14.10	Does the SCADA gateway have HMI functionalities and a minimum 19" full HD flat touch screen display of industrial grade as per Clause 6.1.30	Yes	
14.11	Type of coating to ensure long term stability in humid and corrosive environments	Conformal coating	
15.0	COMMUNICATIONS NETWORK		
15.1	Make and model of Ethernet switches		
15.2	Connectivity	Layer 3	
15.3	Number of Ethernet switches offered		

No	Technical Details	eThekwini Electricity Requirement	Bidder's Offer
15.4	Total number of 100BaseFX, ST connector ports Used		
15.5	Total number of 100BaseFX, LC connector ports		
15.6	Total number of 100BaseT, UTP connector ports		
15.7	Does the Substation Communication Cabling comply with Clause 6.3 of the Technical Specification?	Yes	*Yes/No
15.8	Make and model of GPS clock		
15.9	Electrical supply for GPS clock	110 Vdc	
15.10	Are brochures for all hardware and software items comprising the Communications network submitted with the tender?	Yes	*Yes/No
15.11	Type of coating to ensure long term stability in humid and corrosive environments	Conformal coating	
16.0	MODEM		
16.1	Does the Modem Comply to Section 6.5 of the Technical Specifications ?	Yes	*Yes/No
17.0	SECURITY ON THE GATEWAYS AND IEDs		
17.1	Aligned with NERC-CIP (substantiate separately)	Yes	*Yes/No
17.2	HTTPS support on Web Browser	Yes	*Yes/No
17.3	Syslog Redirection support on Gateways (optional IED)	Yes	*Yes/No
17.4	User-level access	Yes	*Yes/No
17.5	Radius authentication support	Yes	*Yes/No
17.6	Tracking and logging of services and activities	Yes	*Yes/No
17.7	Password protection (at least 20 alphanumeric digits)	Yes	*Yes/No
17.8	TLS VPN Support on Gateways	Yes	*Yes/No
17.9	SSH support on Gateways (substantiate an alternative where necessary)	Yes	*Yes/No
17.10	MAC based security	Yes	*Yes/No
17.11	Firewall support on Gateways	Yes	*Yes/No
18.0	BATTERY AND CHARGER		
	General		
18.1	Specification to which battery and charger complies	SANS 1652	
18.2	Is the battery charger suitable for the use of 12 feeder board in e-House?	Yes	*Yes/No
18.3	Are all markings and labels in accordance with SANS 1652?	Yes	*Yes/No
	Ac supply details to charger		
18.4	Nominal voltage and variation limits	230 ± 10% V	V
18.5	Nominal frequency and variation limits	50 ± 2,5 Hz	V
18.6	Type of switch socket outlet and plug	16 A, red, three pin, UPS type	
	Dc tripping supply from batteries		
18.7	Nominal voltage	110 V	V
18.8	Device used to isolate positive and negative inputs	Fuse-link and holder	

No	Technical Details	eThekweni Electricity Requirement	Bidder's Offer
Duty requirements			
18.9	Is the unit capable of meeting the duty requirements specified in section 9.4 of the technical specification?	Yes	*Yes/No
Enclosure			
18.10	Corrosion protection of steel enclosure	Galvanised plus two coats of grey enamel paint	
18.11	Sealing of upper compartment that houses charger	Fully sealed	
18.12	Is charger mounted on removable tray?	Yes	*Yes/No
18.13	Sealing of lower compartment that houses batteries	Ventilated	
18.14	Security facility for front access door	Swivel latch to accept lead seal/wire	
18.15	Are all instruments, switches and LEDs visible with front access door closed?	Yes	*Yes/No
Cells and batteries			
18.16	Type of cells	Vented nickel cadmium low maintenance	
18.17	Number of cells		
18.18	Minimum capacity of battery		Ah
18.19	Expected service life of battery at the float charge voltage stated in Item 18.20		
Charger unit			
18.20	Float charge voltage per cell		V
18.21	Expected topping up period at the float charge voltage		months
18.22	Maximum boost charge voltage per cell		
18.23	Maximum (limited) charging current		A
18.24	Location of "ON/OFF" switch, "BATTERY TEST" push-button and "BOOST/FLOAT" push-button	Inside enclosure, accessible when door is opened	
18.25	Location of "ALARM SWITCH" switch	On front face of enclosure	
18.26	Isolation of 4 output circuits	Fuses and links or double pole MCBs	
Instrumentation			
18.27	To indicate charging current	Industrial grade ammeter	
18.28	To indicate battery condition	Voltmeter	
18.29	To indicate when charger is "ON"	Red lamp or LED	
Auto battery test			
18.30	Is the auto battery test facility in accordance with clause 9.9 of technical specification?	Yes	*Yes/No
Auxiliaries/Alarms			
18.31	Is a 30 s delayed "AC SUPPLY FAIL" alarm IED and associated red LED fitted?	Yes	*Yes/No
18.32	Is a "LOW DC VOLTAGE" alarm IED and associated red LED fitted?	Yes	*Yes/No
18.33	Is a "BATTERY TEST FAIL" alarm IED and associated red LED fitted?	Yes	*Yes/No
19.0 E-HOUSE AND STAND			
19.1	Minimum protection level of IP54	Yes	*Yes/No
19.2	Construction type	Welded or bolted	
19.3	Approved fire rating certificate provided?	Yes	*Yes/No

No	Technical Details	eThekwini Electricity Requirement	Bidder's Offer
19.4	e-House a) Maximum length x width x height	L x 3 300 x 3 500 mm	x x mm
	b) Total weight with all equipment installed		kg
19.5	Painting procedure provided and complies with C5-M corrosion protection?	Yes	*Yes/No
19.6	E-house material	3CR12	
19.7	External wall thickness	≥ 3 mm	
19.8	Interior wall thickness	≥ 1.6 mm	
19.9	Insulation material thickness	≥ 45 mm	
19.10	Type of insulation material		
19.11	Fire rating	≥ 60 minutes	
19.12	Both crane and hydraulic off-loading points provided?	Yes	*Yes/No
19.13	Dual pitch safari roof made of 3CR12 provided which is detachable?	Yes	*Yes/No
19.14	Arc duct to vent internal arc outwards?	Yes	*Yes/No
19.15	Support structure material?	3CR12	

BIDDING COMPANY: _____

NAME: _____

SIGNED: _____

CAPACITY OF SIGNATORY: _____

DATE: _____

YYYY - MM - DD

SCHEDULE B2: MANUFACTURING, TESTING, AND INSPECTION REQUIREMENTS

This schedule shall be completed, signed, and returned with the tender documents of which it forms part.

1. REQUIREMENTS

Item No	Description	Manufacturer	Place of Manufacture	Place of Testing	Place of Inspection
1	11 kV Switchgear				
2	e-House and trailer				
3	Voltage Transformers				
4	Current Transformers				
5	HMI				
6	132/11 kV Transformer Differential Protection IEDs				
7	132/11 kV O/C and E/F Protection IEDs				
8	11 kV Feeder Differential Protection IEDs				
9	11 kV O/C and E/F Protection IEDs				
10	11 kV General Control Scheme on Bus-Section				
11	132/11 kV Transformer schemes				
12	11 kV Feeder schemes				
13	11 kV Bus Sections Schemes				
14	Voltage Regulation IEDs				
15	SCADA Gateway				
16	Ethernet Switch				
17	Battery and charger				
18	Arc sensors				

BIDDING COMPANY: _____

NAME: _____

SIGNED: _____

CAPACITY OF SIGNATORY: _____

DATE: _____

YYYY - MM - DD

SCHEDULE B3: DETAILS OF DRAWINGS ISSUED AND REQUIRED**1. Drawings Issued with this Specification**

The purpose of the schematic drawings issued with this enquiry is to clarify the requirements detailed in this specification. The issue of these does not absolve the Tenderer from the normal responsibilities of providing a satisfactory scheme or submitting drawings of systems proposed for each order for approval by the Engineer. The schematic drawings are based on the general double busbar fixed pattern switchgear located at eThekweni's majors. Similar conceptual drawings have to be produced for the proposed **single busbar** fixed pattern switchgear that will be used in the e-houses.

The drawings listed below show the basic circuit schematic requirements.

Reference	Description
TD1	Typical 132 kV & 11 kV Schematic
TD33.1	AC & DC Schematic for 11 kV Feeder
TD34.1	Protection & Control Logic for 11 kV Feeder
TD35 Rev 1	DC Schematic for 11 kV Bus Coupler and Bus-Sections
TD36 Rev 1	Protection & Control Logic for 11 kV Bus Coupler and Bus-Sections
TD9.1	DC Schematic of fixed pattern Bus Coupler and Bus-Section with protection and remote control to be supplied by others
TD13	Terminal Allocation: Interposing IEDs
TD39 Rev 1	Proposed Communication Network Arrangement
TD74.1	132 kV Substation with Combined 132 kV Feeders and Transformer Feeders: AC & DC Schematic for 132/11 kV Transformer (Fixed Pattern)
TD75.1	132 kV Substation with Combined 132 kV Feeders and Transformer Feeders: Protection & Control Logic for 132/11 kV Transformer (Fixed Pattern)
PE/137/S/6	Single line diagram 11 kV fixed pattern single busbar switchgear housed in an e-House

2. Drawings Required with Tender

The following typical tender drawings and descriptive data shall be included with the tender.

- 2.1 Dimensioned outline drawings of the various panels.
- 2.2 Full technical specifications and literature of the switchgear offered.
- 2.3 Dimensioned outline drawings of the e-House and the trailer.
- 2.4 Dimensioned drawings of the busbar in the busbar chambers.
- 2.5 Dimensioned drawings of each cable compartment.
- 2.6 Proposed layout for a 10 feeder board.
- 2.7 Proposed layout for the control room.

3. Working Drawings

All drawings issued by the Tenderer shall illustrate schematics or diagrams on a suitably sized individual page. Multi-page drawings are not acceptable. Transformer circuit breaker and IED panel drawings shall be combined into one drawing. Final as-commissioned drawings shall also be submitted by the Tenderer in paper format and in electronic format on a USB memory stick in AutoCad 2024 ".dwg" format. The as-commissioned drawings shall be signed by the professionally registered Contractor's representative.

BIDDING COMPANY: _____

NAME: _____

SIGNED: _____

CAPACITY OF SIGNATORY: _____

DATE: _____

YYYY - MM - DD

SCHEDULE B4: TESTING REQUIRED**1. SWITCHGEAR****1.1 Routine and Type tests**

The tests shall be arranged to represent the working conditions as closely as possible.

All tests shall comply with the requirements of the latest issues of the IEC/SANS Publication which applies to the series of tests.

TEST DESCRIPTION	SPECIFICATION	ROUTINE	TYPE
Insulation resistance	SANS 62271-200	✓	✓
Temperature rise	SANS 62271-200		✓
Short circuit withstand capability	SANS 62271-200		✓
Making and breaking capacity	SANS 62271-200		✓
Mechanical operation	SANS 62271-200	✓	✓
Dielectric (Short time withstand)	SANS 62271-200	✓	✓
Dielectric (Impulse test)	SANS 62271-200		✓
Verification of IP coding	SANS 62271-200	✓	
Tests on non-metallic partitions and shutters	SANS 62271-200		✓
Tightness test (if applicable)	SANS 62271-200	✓	
Internal arcing	SANS 62271-200		✓
Electromagnetic compatibility	SANS 62271-200		✓
Partial discharge	SANS 62271-200		✓
Artificial pollution	SANS 62271-200		✓
Auxiliary and control circuits	IEC 62271-1	✓	
Visual checks	IEC 62271-1	✓	

All the test results shall be submitted with the tender document.

1.2 Factory acceptance testingVisual Checks

- All equipment correctly labelled.
- General arrangement of the switchgear
- Cable entry
- Either cable test probes or a capacitive voltage detection system

Mechanical checks

- All panels bolted together and bolted to floor.
- Mechanical operation, interlocks, and indication of circuit breaker
- Mechanical operation, interlocks, and indication of disconnecting circuit breaker
- Mechanical interlocks for accessing cable compartment

Electrical tests

- Supply voltage to all IEDs
- Operation and non-operation of circuit breaker from all points of operation in all permutations of mode selection (Local/Remote/Supervisory)
- Non-operation of Trip Circuit Supervision for all circuit breaker permutations
- Operation of Trip Circuit Supervision for break in trip circuit for all circuit breaker service position permutations
- Operation of anti-pumping feature
- Operation of spring charge mechanisms and indication

- g) Operation and non-operation of tripping circuits with and without trip fuse and link
- h) Continuity test on busbars
- i) Wiring of current transformer circuits, including single point earthing
- j) Primary injection of current transformers
- k) Mag curve test of current transformers
- l) Secondary injecting of IEDs via CT test blocks, including pick-up and operation times of overcurrent and earth fault elements at 2,3 and 4 times setting, pick-up and operation of sensitive earth fault element (if applicable) and stability and operation of bus-zone protection
- m) VT circuits, including only white phase earthed, neutral earth link removed and HV/LV fuses continuous
- n) LED/Flag indication on panels and IEDs
- o) Sequential switching feature
- p) Contact resistance of busbars and circuit breakers
- q) Ac pressure test of switchgear
- r) Arc flash scheme functionality and stability for both light and current conditions

2. PROTECTION AND CONTROL EQUIPMENT

2.1 Routine and Type tests

Type Test certificates for all the IEDs shall be carried out in accordance with IEC 60255 and submitted with the tender.

Routine tests for IEDs shall be performed in accordance with IEC 60255.

The costs of these routine and type tests shall be included in the cost of the IEDs.

2.2 Factory acceptance testing

Factory testing of all equipment supplied on this contract is required.

The factory test environment shall be achieved as follows:

- a) Connecting all equipment to the various communication networks;
- b) Providing monitoring of all output contacts from IEDs;
- c) Providing a means of monitoring the SCADA Gateway database; and
- d) Any other necessary equipment to carry out the tests below.

Tests shall be carried out to:

- a) Simulate all input conditions from primary plant and verify correct indication on the IED and SCADA Gateway as applicable.
- b) Simulate all output commands from the IED and SCADA Gateway as applicable and verify correct operation of output contacts of the IEDs.
- c) Secondary inject all protection elements and verify correct measurement and protection operation indication on the IED and SCADA Gateway as applicable and correct output contact operation.
- d) Any other tests that may be relevant.

The costs of these factory tests shall be included in the cost of the equipment.

SCADA Gateway

- a) Indication of all permutations of status of all equipment
- b) Indication of all measured values by secondary injection
- c) Indication of all alarms from all equipment
- d) Operation and non-operation of circuit breakers and tap changers from supervisory in all permutations of mode selection (Local/Remote/ Supervisory)
- e) Indication of event records from all equipment and all IEDs
- f) Any other tests that may be relevant.

BIDDING COMPANY: _____

NAME: _____ SIGNED: _____

CAPACITY OF SIGNATORY: _____ DATE: _____ YYYY - MM - DD

SCHEDULE B5: SPARES AVAILABILITY

Please provide and attach detailed list of spares availability for each component being supplied under this contract. This will include the anticipated end of production of product as well as spares availability after this date.

BIDDING COMPANY: _____
NAME: _____ SIGNED: _____
CAPACITY OF SIGNATORY: _____ DATE: _____ YYYY - MM - DD

SCHEDULE B6: DISCLOSURE BY IED MANUFACTURERS

This schedule shall be completed and signed by the Manufacturer; and returned with the bid documents of which it forms part.

- The manufacturer shall disclose the information below for all the software offered in this bid. Should the bid be accepted, the Manufacturer shall send any technical bulletins published thereafter, directly to eThekweni Electricity to the following email address: vusimuzi.msweli@durban.gov.za. Alternatively, the technical bulletins can be posted to:

eThekweni Electricity
 1 Jelf Taylor Crescent
 Durban
 Republic of South Africa
 4001
Attention: Senior Manager: Protection & Test

Software Name	Software Version	Date Released

Attach additional pages if more space is required.

BIDDING COMPANY: _____
 NAME: _____ SIGNED: _____
 CAPACITY OF SIGNATORY: _____ DATE: _____ YYYY - MM - DD

SCHEDULE C2: HEALTH, SAFETY, AND ENVIRONMENTAL ISSUES

This Schedule shall be completed, signed and returned with the bid documents of which it forms part.

Tenderers shall state in clear and explicit terms all necessary information pertaining to the products offered.

Ref.	Issues	Items as per Schedule A
1	List of all materials used in the product	
2	(a) Does product pose any health risks to persons handling the product?	*Yes/No
	(b) If YES, state the type of protective gear required to handle the product (eg. leather gloves, masks, etc.)	
3	(a) How should the product be stored	
	(b) What is its shelf life?	
4	(a) Are any toxic by-products produced (gaseous, solid or liquid) in the event of the product being exposed to fire or heated?	*Yes/No
	(b) If YES, specify the temperatures at which these toxic by-products are produced	
5	What percentage of the product can be recycled?	
6	State any other pertinent and relevant information relating to health, safety, and environmental issues	

Note: If the space provided is insufficient, tenderers shall include other relevant information in their covering letter.

BIDDING COMPANY: _____
NAME: _____ SIGNED: _____
CAPACITY OF SIGNATORY: _____ DATE: _____ YYYY - MM - DD

**SCHEDULE C3: CONTRACTOR ACKNOWLEDGEMENT OF RESPONSIBILITY IN TERMS OF THE
OCCUPATIONAL HEALTH AND SAFETY ACT**

This schedule shall be completed, signed and returned with the bid documents of which it forms part.

Written agreement between ETHEKWINI Municipality (the employer) and

_____ (the mandatory)

insert company name here

as provided for in terms of Section 37 (2) of the Occupational Health and Safety Act No.85 of 1993 as amended by Act 181 of 1993.

I hereby declare that I, _____, am authorised to represent the “mandatory” and acknowledge that the “mandatory” is an employer in its own right with all duties and responsibilities as prescribed in the Occupational Health and Safety Act no. 85 of 1993.

I agree to ensure that all work performed or machinery and plant used by the “mandatory” on any ETHEKWINI Municipality premises shall be in accordance with the provisions of the said Act.

Furthermore, I agree the “mandatory” shall comply with all ETHEKWINI Municipality site rules and safety, health, and environmental requirements as may be communicated or stipulated by ETHEKWINI Municipality prior to and during the course of any Contract awarded to the “mandatory” by ETHEKWINI Municipality.

Furthermore, I undertake to ensure that ETHEKWINI Municipality is timeously informed should the “mandatory”, for whatever reason, be unable to perform in terms of this agreement.

Signed this _____ dd _____ day of _____ MM _____ 20 _____

On behalf of the “mandatory”

(print) _____

(sign) _____

On behalf of the “employer”

(print) _____

(sign) _____

SCHEDULE C4: FUNCTIONALITY AND PROMPTS FOR JUDGEMENT

Functionality is to be used as a threshold for the evaluation of responsive tenders. The minimum number of evaluation points for functionality, and the calculation thereof, are according to the provisions below. Tender offers that fail to score the minimum number of points for quality will be rejected as non-responsive.

The value of W2 is [100]. The functionality criteria and maximum score in respect of each of the criteria are as follows:

FUNCTIONALITY and Prompts for Judgement	MAXIMUM SCORE
STAGE 1	
1. Key Personnel - Expertise and Experience	50
<p>The following personnel will be required:</p> <p>Project manager with relevant built environment qualification or recognition of prior learning, recognised by relevant statutory body (5 pts)</p> <p>Protection Engineer with BSc, BEng or BTech qualification and professionally registered with ECSA (10 pts)</p> <p>SCADA Engineer with BSc, BEng or BTech qualification and professionally registered with ECSA (10 pts)</p> <p>Commissioning Engineer with BSc, BEng or BTech qualification and professionally registered with ECSA (10 pts)</p> <p>Quality Control and Safety Personnel (5 pts)</p> <p>Do the key personnel have relevant and sufficient experience and expertise (5 years' relevant experience or more; indicated through attachment of a proven track record of similar projects)?</p> <ul style="list-style-type: none"> ○ Nil – No submission (score 0%) ○ Poor (score 40%) – Personnel has limited experience in projects of similar nature (less than 5 years' relevant experience) and/or is not registered with ECSA where required. ○ Satisfactory (score 70%) – Personnel has relevant experience in projects of similar nature (5 - 8 years relevant experience) and is registered with ECSA where required. ○ Good (score 90%) – Personnel has good experience in projects of similar nature (between 9 – 10 years relevant experience) and is registered with ECSA where required. ○ Very good (score 100%) – Personnel has extensive experience in projects of similar nature (Greater than 10 years relevant experience) and is registered with ECSA where required. 	
2. Company/Service Provider - Experience	20
<p>Does the service provider have sufficient experience and expertise (number of years' experience indicated through attachment of a proven track record of executing projects related to mobile substations which includes medium voltage switchgear)?</p> <ul style="list-style-type: none"> ○ Nil – No submission (score 0%) ○ Poor (score 40%) – The team has limited experience in projects of similar nature (less than 3 Projects of a similar nature) ○ Satisfactory (score 70%) – The tenderer has relevant experience in projects of similar nature (3 to 5 Projects of a similar nature) ○ Good (score 90%) – The tenderer has good experience in projects of similar nature (between 6 – 8 projects of a similar nature). ○ Very good (score 100%) – The tenderer has extensive experience in projects of similar nature (9 or more projects of a similar nature). 	
3. Delivery dates	20
<p>Is the service provider able to meet the required delivery dates? (Expected delivery dates of 36 weeks with all equipment on-site and as-commissioned documentation submitted)</p> <ul style="list-style-type: none"> ○ Nil – No submission (score 0%) ○ Poor (score 40%) – Delivery dates of more than 40 weeks ○ Satisfactory (score 70%) – Delivery dates of 38 to 40 weeks ○ Good (score 90%) – Delivery dates of 36 to 37 weeks ○ Very good (score 100%) – The tenderer can deliver equipment within a 35-week period 	
4. Quality control	10
Statement for this specific project to indicate testing requirements, process monitoring and finishing works for all programmed activities (to include testing of switchgear, protection, SCADA, Communication systems, battery charger,	

and any other ancillary equipment being supplied. Process monitoring of installation and testing procedures and finishing works as per technical specification). This also includes the e-House and trailer design specification.	
<ul style="list-style-type: none"> o Nil – No submission (score 0%) o Poor (score 40%) – Generic quality control statement included, not specific to the project o Satisfactory (score 70%) – Quality control statement includes basic testing requirements for all required equipment o Good (score 90%) – Quality control statement includes testing requirements for all equipment as well as detailed process monitoring o Very good (score 100%) – Quality control statement includes testing requirements for all equipment, detailed process monitoring and finishing works as detailed in the technical specification 	
TOTAL	100
STAGE 2	
Price: overall budget of the project	80/90
Preference Point System and Specific Goals	20/10
GRAND TOTAL	100

The minimum number of evaluation points for Functionality is **65**. Only those tenderers who achieve the minimum number of Functionality evaluation points (or greater) will be eligible to have their tenders further evaluated.

The functionality evaluation stage 2 depends on the preference point system applied and for this tender it is unclear (at the time of advertising) which of the two preference point systems applies. Either the 80/20 or 90/10 preference point system will apply, determined by the price offered by the lowest acceptable tender.

SCHEDULE C4.1: KEY PERSONNEL – EXPERIENCE AND EXPERTISE

Refer to Schedule B4 for Functionality Points evaluation prompts.

The Tenderer shall list below the personnel which he intends to utilize on the Works, including key personnel (Project Manager, Engineering staff, and Site Supervisor) which may have to be brought in from outside if not available locally. Relevant certificates confirming qualifications shall be submitted with the tender.

Category of Employee	Qualification/Formal Training/ Registration (minimum)	Relevant Experience (minimum; post qualification)	Number Of Persons	
			Key Personnel, Part of The Contractor's Organisation	Key Personnel to be Sourced Outside South Africa if not Available
Project Manager	Grade 12. Relevant built environment qualification or recognition of prior learning, recognised by relevant statutory body.	Five years in similar projects as a Project Manager		
Protection Engineering	Three or four year tertiary qualification recognized by ECSA. Professionally registered with ECSA.	Five years relevant experience.		
SCADA Engineering	Three or four year tertiary qualification recognized by ECSA. Professionally registered with ECSA.	Five years relevant experience.		
Commissioning Engineer	Three or four year tertiary qualification recognized by ECSA. Professionally registered with ECSA.	Five years relevant experience.		
Quality Control and Safety Personnel	Grade 12. Relevant built environment qualification or recognition of prior learning, recognised by relevant statutory body	Five years relevant experience.		
Others:.....				

Note: CVs of key personnel may be requested during the contract period.

The experience of assigned staff member in relation to the Scope of Work will be evaluated from three different points of view:

- 1) General experience (total duration of professional activity), level of education and training and positions held of each discipline specific team leader.
- 2) The education, training, skills and experience of the Assigned Staff in the specific sector, field, subject, etc. which is directly linked to the scope of work.
- 3) The key staff members' expert knowledge of issues which the tenderer considers pertinent to the project e.g., local conditions, affected communities, legislation, techniques etc.

A CV of the Project Manager and Engineering resources of not more than 2 pages should be attached to this schedule:

Each CV should be structured under the following headings:

- a) Personal particulars (names, date and place of birth, place (s) of tertiary education and dates associated therewith)
- b) Qualifications (Copies of certificates of degrees, diplomas, grades of membership of professional societies and professional registrations)
- c) Overview of skills and postgraduate/diploma experience (year, organization and position) and;
- d) Name of current employer and position in enterprise (state clearly the roles and responsibilities of the candidate)
- e) Overview of postgraduate / diploma experience (year, organization and position)
- g) Outline of recent assignments/experience that has a bearing on the scope of work

BIDDING COMPANY: _____
 NAME: _____ SIGNED: _____
 CAPACITY OF SIGNATORY: _____ DATE: _____ YYYY - MM - DD

SCHEDULE C4.3: DELIVERY DATES

Refer to Schedule B4 for Delivery Periods evaluation prompts.

This schedule shall be completed, signed and returned with the bid documents of which it forms part.

REQUIREMENTS

		Weeks
1.1	Date of order	0
1.2	Receipt of outstanding information and drawings for approval	8
1.3	Submission of all "as-commissioned" information from time of order	34
1.4	Delivery of equipment to site, fully commissioned from time of order	36
1.5	Can the required dates specified above be met?	YES/NO*

* Delete whichever is not applicable.

BIDDER'S GUARANTEES

The following periods are to be given in weeks from date of each official order, whether or not it is possible to meet the required periods. Bids will be adjudicated according to this information.

		Weeks
2.1	Date of order	0
2.2	Receipt of outstanding information and drawings for approval	
2.4	Submission of all "as-commissioned" information from time of order	
2.3	Delivery of equipment to site, fully commissioned from time of order	

BIDDING COMPANY: _____
 NAME: _____ SIGNED: _____
 CAPACITY OF SIGNATORY: _____ DATE: _____ YYYY - MM - DD

SCHEDULE C4.4: QUALITY CONTROL

Refer to Schedule B4 for Quality Points evaluation prompts.

The quality control statement must discuss what tests and control measures are to be employed on the e-House and the enclosed contents to attain the specified results and is to cover the program associated activities.

The Tenderer must attach his / her Quality Control information to this page.

BIDDING COMPANY: _____
NAME: _____ SIGNED: _____
CAPACITY OF SIGNATORY: _____ DATE: _____ YYYY - MM - DD

SCHEDULE C5: BIDDER'S QUESTIONNAIRE

This schedule shall be completed, signed and returned with the bid documents of which it forms part.

***Bidder to complete Questionnaire by deleting that which is not applicable**

Ref No.	Question	eThekwini Electricity's Requirement	Bidder's Response
1	Is Technical Schedule (Schedule B1) completed?	Yes	*Yes/No
2	Is Health, Safety and Environmental Issues Schedule (Schedule C2) completed?	Yes	*Yes/No
3	Is Delivery Schedule (Schedule C4.3) completed?	Yes	*Yes/No
4.1	Is Contractual Specification understood?	Yes	*Yes/No
4.2	Are there any deviations from the Contractual Specification? If yes , specify all deviations in Schedule C1 .		*Yes/No
5.1	Is Technical Specification understood?	Yes	*Yes/No
5.2	Are there any deviations from the Technical Specification? If yes , specify all deviations in Schedule C1 .		*Yes/No
6	Is Acceptance of Undertaking in Terms of Occupational Health and Safety Act completed in Schedule C3 ?	Yes	*Yes/No
7	Is Declaration of Municipal Charges Schedule completed?	Yes	*Yes/No
8	Is Declaration of Interest (MBD4) Schedule completed?	Yes	*Yes/No
9	Is Declaration for Procurement Above R10 Million (MBD5) schedule completed?	Yes	*Yes/No
10	Is Preference Points Claim Form (MBD6.1) completed?	Yes	*Yes/No
11	Are all relevant technical schedules completed and required documentation included with the bid?	Yes	*Yes/No
12	Is Declaration of Bidder's Past Supply Chain Management Practices (MBD8) completed?	Yes	*Yes/No
13	Is Certificate of Independent Bid Determination (MBD9) completed?	Yes	*Yes/No
14	Is Municipality's Target Procurement Document completed?	Yes	*Yes/No
15	Has a valid SARS Tax Clearance Certificate submitted?	Yes	*Yes/No
16	Bid Prices:		
16.1	Are the bid prices subject to Contract Price Adjustments (CPA)? If Yes, submit details to calculate Contract Price Adjustments.		*Yes/No
16.2	Are the bid prices subject to Exchange Rate Variations? If Yes, complete Rate of Exchange Questionnaire.		*Yes/No
17	Is Bid Form complete with all required information given?	Yes	*Yes/No
18	Three year audited financial statement included with bid?	Yes	*Yes/No

BIDDING COMPANY: _____

NAME: _____ SIGNED: _____

CAPACITY OF SIGNATORY: _____ DATE: _____ YYYY - MM - DD

SCHEDULE C6: SURETY FORM PROFORMA

The Tenderer is required to submit with his tender a letter of intent from an approved insurer/banker undertaking to provide the Surety/Performance Bond in the format given below.

Contract No. _____		
SURETY BOND-Proforma		
<p>..... (hereinafter referred to as the Surety) hereby binds itself as Surety for and co-principal debtor with (hereinafter referred to as the Contractor) unto the ETHEKWINI MUNICIPALITY (hereinafter referred to as the Council) for the due and complete performance by the Contractor of all the Contractor's obligations and liabilities under Contract.....with the terms of which the Surety agrees that the Surety is acquainted, including any obligations or liabilities undertaken by the Contractor as a variations of, or in substitution for, any obligations or liabilities under the said contract. The suretyship shall be on the following conditions:-</p> <ol style="list-style-type: none"> 1. The Surety shall remain bound notwithstanding any relaxation, indulgence or any extension of time granted to the Contractor, whether in accordance with the said Contract or otherwise, notwithstanding that any such relaxation, indulgence or extension might operate or has operated to the prejudice of the Surety. 2. The Surety shall remain bound in terms of this agreement notwithstanding that the Council may release any securities held by it for the fulfilment of the obligation of the Contractor or may release any other surety or sureties liable in respect of all or any obligations in respect of which the Surety is liable. 3. Unless the Surety has discharged its obligations hereunder in full and there is no obligation or liability whatsoever of any nature outstanding which the Surety is or may be liable to perform, the Council shall have the sole right to the exclusion of any right which the Surety might otherwise have, to claim and to be regarded as a Creditor in the event of the insolvency, liquidation or judicial management of the Contractor. 4. The Council may settle or comprise any claim which it might have against the Contractor arising of the Contractor's liabilities or obligations under the said Contract or any variation thereof or substitution therefor, and in the event of any such settlement or compromise the Surety shall be liable to carry out any obligation or liability of the Contractor in terms of any such settlement or compromise. 5. The Surety hereby renounces all benefits which would otherwise be available to the Surety and in the particular, but without affecting the generality of the foregoing, the <u>beneficia ordinis seu excussionis. Divisionis. novae constitutionis. de doubus vel puribus reis debendi. non causa debiti. non numeratae pecuniae. erroris calculi</u> and the benefit of revision of account. 6. Notwithstanding anything herein contained, the total liability of the Surety to the Council arising from this bond shall not exceed the sum of _____ together with such further sums for interest and costs as may in law be claimed from the Surety. 7. Upon the issue of a certificate signed by the City Treasurer or either of his authorised deputies as to the amount due, owing and payable by the Contractor to the Council, the Surety shall be obliged forthwith to pay such a sum as is mentioned in the said certificate, to the City Treasurer. Such payment shall be subject to adjustment as between the Surety and the Council as and when final details of the Council's damages arising from the said Contract are ascertained. <p>SIGNED by the said _____ at _____ on this the ___ day of _____</p> <p>AS WITNESSES: 1. _____ 2. _____</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>_____ Signature of Surety</p> </td> <td style="width: 50%; border: none;"> <p>Postal Address of Surety: PO Box _____</p> </td> </tr> </table>	<p>_____ Signature of Surety</p>	<p>Postal Address of Surety: PO Box _____</p>
<p>_____ Signature of Surety</p>	<p>Postal Address of Surety: PO Box _____</p>	

BIDDING COMPANY: _____

NAME: _____ SIGNED: _____

CAPACITY OF SIGNATORY: _____ DATE: _____ YYYY - MM - DD