

## TENDER DOCUMENT

### INVITATION AND INSTRUCTIONS TO TENDER

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TENDER NO: 55 OF 2020/2021

Supply and Delivery of Single Phase and Three Phase Split Smart  
Prepayment Energy Meters and Data Concentrators

MARCH 2021



<b>SECTION 1                      INVITATION FOR TENDER</b>
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1. The Eswatini Electricity Company has made funds available towards the cost of supplying and delivering smart energy meters and data concentrators which will be used to conduct a **smart metering pilot project**. The tender to supply smart energy meters will **be awarded to 3 different suppliers**; therefore, **only the unit prices** of the energy meters (with compatible Customer Interface Unit) and data concentrators is required. The discount associated with purchasing certain number of meters and data concentrators must be provided.
2. The Tender Document covers the supply of the following:
  - 2.1. Smart Energy Meters:**
    - **DIN Rail single phase split prepayment smart energy meters with compatible Customer Interface Unit (CIU).**
    - **Three phase split prepayment smart energy meters with compatible CIUs.**
  - 2.2. Data concentrators (DC)**
3. The Eswatini Electricity Company now invites sealed Tenders from those Tenderers suitably qualified and experienced contractors to present proposals for the supply and delivery of the material specified in the tender document.
4. The tender bid should have the following documents:
  - List of similar projects completed in the last 3 years.
  - Three reference letters from previous and / or current clients
  - A Certified copy of an official statement of the Directors, alternative directors, managers and auditors of the company (for ESWATINI firms: Form 'J').
  - A Certified copy of an official statement of the annual summary of shares, capital and shares (for ESWATINI firms: Form 'C').
  - Certified copy of Valid/ current Trading License.
  - Original Tax Compliance Certificate.
  - Certified copy of VAT Registration Certificate
  - Police Clearance for Directors (Shareholders)
  - Certified copy of Labour Compliance Certificate
  - Latest audited financial statements.
  - Duly completed and signed Bid Submission Form. In the case of a Joint Venture submitting a bid, all the joint venture partners should sign the Bid Submission Form.
  - A signed Letter of Tender in the format provided in this document.



- A signed Declaration of Eligibility in the format provided in this document.
- A signed commitment form.
- A signed bid submission form

**NB: These documents must be enclosed in the “TECHNICAL” bid submission envelope. A tender which does not contain the documents listed above shall be deemed to be non-responsive and eliminated from further evaluation.**

5. The closing date for the Tender is the **27<sup>th</sup> of April 2021** at 12h00 at the Eswatini Electricity Company Head Office.
6. Tenders will be opened immediately after 12 noon on the **27<sup>th</sup> of April 2021** at EEC Headquarters, Eluvatsini House, Mhlambanyatsi Road, Mbabane.
7. One Original and two complete copies shall be submitted.

<b>SECTION 2</b>	<b>INSTRUCTIONS TO TENDER</b>
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## **2.1 Introduction**

### **2.1.1 Source of Funds**

The Eswatini Electricity Company has made funds available towards the cost of supplying and delivering smart energy meters and data concentrators as specified in the Scope of the Tender and intends to apply the funds to eligible payments under the Contract for which this Invitation to Tender is issued.

### **2.1.2 Employer**

The Eswatini Electricity Company, hereinafter referred to as “the Employer”, is a vertically integrated parastatal company responsible for the generation, transmission, and distribution of electric power throughout Eswatini. The Employer’s address is:

Eswatini Electricity Company  
P.O. Box 258  
Mbabane  
H100  
Eswatini

Eluvatsini House  
Mhlambanyatsi Road  
Mbabane  
Eswatini

Telephone: +268 409 4000

Facsimile: +268 409 4001

### **2.1.3 Engineer**

The Engineer appointed by the Employer for the purpose of the project is:

The Eswatini Electricity Company’s **Metering Engineer**.

Address is the same as above.



Telephone: +268 2518 3270

#### 2.1.4 Commercial Services Manager

The Commercial Services Manager appointed by the Employer for the purpose of facilitating the procurement process is:

The Eswatini Electricity Company's Commercial Services Manager  
Address is the same as above.  
Telephone: +268 2409 4200  
Email: [busisiwe.masangane@eec.co.sz](mailto:busisiwe.masangane@eec.co.sz)

#### 2.1.5 Scope of Tender

Eligible Tenderers are invited to submit Tenders for the Project. The Project covers the work described, but not limited to the following:

- Supply and delivery of **smart energy meters**:
  - DIN Rail single phase split smart prepayment energy meters with compatible CIUs.
  - Three phase split smart prepayment energy meters with compatible CIUs.
- Supply and deliver **data concentrators**.
- Provide technical support during the installation and commissioning of the smart energy meters and data concentrators on site.
- Provide support during the configuration of either smart energy meters or data concentrators to a smart meter management system to be identified by EEC, should the need arise.
- Conduct training for a minimum of 20 personnel (Metering, IT and Distribution).

**Important - The following is available under section 4 of this document:**

- **Detailed specification of the smart energy meters and data concentrators.**
- **Desired form of communication between:**
  - **The energy meter and data concentrator**
  - **The data concentrator and EEC smart meter management system**

#### 2.1.6 Eligible Tenderers

The invitation to tender is open to **suitably qualified, capable, and extensively experienced** contractors who have relevant experience in smart energy meters and associated systems.



### **2.1.7 Cost of Tendering**

The Tenderer shall bear all costs associated with preparation and submission of its Tender, and the Employer will in no case be responsible or liable for those costs, regardless of the outcome of the tendering process.

## **2.2 Tender Documents**

### **2.2.1 Contents of the Tender Document**

2.2.1.1 The facilities required, tendering procedures and technical requirements are prescribed in the Tender Documents.

2.2.1.2 The Tenderer is expected to examine all instructions, forms, terms, specifications and other information in the Tender Documents. Failure to furnish all information required by the Tender Documents or submission of a Tender that is not substantially responsive to the Tender Documents in every respect will be at the Tenderer's risk and may result in disqualification of its Tender.

### **2.2.2 Modifications**

Tenderers shall not make any modifications to the Tender Document. Should a Tenderer notice any clause or item which he considers necessary to be changed, he shall notify the Commercial Services Manager in writing, and the Commercial Services Manager will in turn reply in writing.

### **2.2.3 Checking of Tender Documents**

On receipt of the Tender Documents, the Tenderer must prior to submitting his Tender, check all the Tender Documents and should any difference or discrepancy between or in the Specification be detected by the Tenderer, he shall seek in writing a decision also in writing of the Commercial Services Manager on the true intent and meaning of the Tender documents as the Employer cannot be held liable for the additional cost that may be caused as a result thereof.

### **2.2.4 Clarification of Tender Document**

A prospective Tender requiring any clarification of the Tender Documents may notify the Commercial Services Manager in writing. The Commercial Services Manager will respond in writing to any request for clarification of the Tender Documents, which it receives no later than one week prior to the deadline for submission of Tenders prescribed by the Employer. Written copies of the Commercial Services Manager's response (including an explanation of the query but without identifying the source of the inquiry) will be sent to all prospective Tenderers who have received the Tender Document.



## **2.2.5 Amendment of Tender Document**

- 2.2.5.1 At any time prior to the deadline for submission of Tenders, the Employer may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Tenderer, modify the Tender Documents by amendment. If this modification occurs later than one week before the deadline for the submission Tenders, the Employer has the right of extending the deadline for the submission in order to give other Tenderers the necessary time for considering the modifications in the preparation of their Tenders.
- 2.2.5.2 The amendment will be notified in writing or by cable (hereinafter, term cable is deemed to include Electronic Data Interchange (EDI), telex or facsimile) to all prospective Tenderers, which have received the Tender Document and will be binding to them.

## **2.2.6 Documents Confidential**

Tenderers shall treat the details of the Tender Documents as confidential, whether they submit a Tender or not.

## **2.3 Preparation of Tenders**

### **2.3.1 Language of Tender**

The Tender prepared by the Tenderer and all correspondences and documents relating to the Tender exchanged by the Tenderer, the Commercial Services Manager and the Employer, shall be written in the English language, provided that any printed literature furnished by the Tenderer may be written in another language on condition that it is accompanied by an English translation in which case, for purposes of interpretation of the Tender, the English translation shall govern.

### **2.3.2 Documents Comprising the Tender**

The Tender submitted by the Tenderer shall comprise the following documents:

- 2.3.3.1.1 Letter of Tender duly completed and signed by the Tenderer, together with all attachments identified below:
- 1 Attachment 1: Price Schedule
  - 2 Attachment 2: Eligibility and Conformity of supplier.
  - 3 Attachment 3: Schedule for expected delivery of material after receipt of purchase order, the delivery schedule must be less than 8 weeks from date of receiving the Purchase Order.
  - 4 Attachment 4: Detailed designs of din rail smart prepayment energy meters with CIUs and Data Concentrators.



### 2.3.3 Tender Prices

- 2.3.3.1 Tenders shall quote for the facilities on a “single responsibility” basis such that the total Tender Price covers all the Contractor’s obligations mentioned in or to be reasonably inferred from the Tender Documents in respect to the procurement and delivery of the equipment. Items against which no price is entered by the Tenderer will not be paid for by the Employer when executed and shall be deemed to be covered by the prices for other items.
- 2.3.3.2 Tenderers shall give a breakdown of the prices in the manner and detail called for in the Price Schedules. Changes to the descriptions contained in the Price Schedules are not allowed and any changes will not be considered.
- 2.3.3.3 Equipment to be supplied from abroad shall be quoted on **CIP** to site basis. The term CIP is described in the current edition of Incoterms.
- 2.3.3.4 Prices quoted by the Tender shall be **FIXED** for the duration of the Contract and will not be subject to the adjustments for change in cost. A Tender submitted with an adjustable price quotation will be treated as non-responsive and rejected.
- 2.3.3.5 Applicable rates of exchange as determined by the Central Bank of Eswatini on the date of the Tender closure will be applicable for the duration of the Contract. Tenderers will be responsible for acquiring forward cover against the exchange rates fluctuations. **NO** adjustments for the changes in cost will be accepted for the duration of the Contract. The Contractor shall submit proof of forward cover on the relevant portions of the Contract within 28 days after award of Contract.
- 2.3.3.6 All taxes, levies and custom duties etc, as applicable to the Works and determined 28 (twenty-eight) days prior to Tender submission, shall be deemed included in the Tender Prices. If there are or may be exemptions from levies, customs duties, tax, etc applicable to any aspect of the works, the Tenderer must make his own arrangements thereof, as the tender price shall be regarded as comprehensive.
- 2.3.3.7 The Tenderer, if registered in Eswatini, is liable for income tax or other national or local taxes applicable in the country in connection with the execution of the Contract. The Tenderer, if not registered in Eswatini, is liable to but not limited to, **15 (fifteen) percent Withholding Tax** in line with the Income Tax Order on non-resident Contractors/Suppliers.

### 2.3.4 Tender Currencies

- 2.3.4.1 Tender prices shall be quoted in Emalangeni (SZL) or South African Rand (ZAR).
- 2.3.4.2 The point of payment will be Eswatini.





### 2.3.5 Period of Validity

- 2.3.7.1 The Tender shall remain valid for **120 days** (one hundred and twenty) days after the Tender closing date. A Tender valid for a shorter period shall be rejected by the Employer as being non-responsive.
- 2.3.7.2 In exceptional circumstances or in the case the project is implemented in phases resulting in exceedance of the validity period, the Employer may solicit the Tenderer's consent to an extension of the Tender validity period. The request and responses thereto shall be made in writing or by cable.

### 2.3.6 Format and Signing of Tender

- 2.3.8.1 The Tender shall prepare one original and two complete copies of the Tender and clearly marking each one respectively as "Original Tender", "Copy No. 1" and "Copy No. 2." In the Event of any discrepancy between them, the original shall govern.
- 2.3.8.2 The original and all copies of the Tender, each consisting of the documents listed above shall be typed or written in indelible ink and shall be signed by the Tenderer or person or persons duly authorised to bind the Tenderer to the Contract. All pages of the Tender except for un-amended printed literature shall be initialled by the person or persons signing the Tender.
- 2.3.8.3 The Tender shall contain not alterations, omissions or additions, unless such corrections are initialled by the person or persons signing the Tender.

## 2.4 Submission of Tenders

### 2.4.1 Sealing and Marking

- 2.4.1.1 The Tenderer shall Seal the Original and each Copy of the Tender in separate envelopes, duly marking the envelopes as "Original Tender", "Copy No.1" and "Copy No.2." The envelopes shall then be sealed in an outer envelope.
- 2.4.1.2 In the original and each copy of the Tender, the Technical and Financial Proposals shall be in **separate envelopes, each clearly marked "TECHNICAL" and "FINANCIAL"**.
- 2.4.1.3 Bidders must ensure that the mandatory documentation is included in the TECHNICAL proposal.
- 2.4.1.4 The inner and outer envelopes shall:
- 2.4.1.4.1 Be addressed to the Employer at the address given, and
- 2.4.1.4.2 Bear the Tender Number and the statement "DO NOT OPEN BEFORE" and the closing date for Tendering, excluding any notice allowing identification of the Tenderer.





- 2.4.1.5 If the outer envelope is not sealed and marked as requested, then the Employer will assume no responsibility for the Tender's misplacement or premature opening. If the outer envelope discloses the identity of the Tenderer, the Employer will not guarantee the anonymity of the Tender submission, but this disclosure will not constitute grounds for Tender rejection.

#### **2.4.2 Deadline for Submission of Tenders**

- 2.4.2.1 Tenders must be received by the Employer at the address no later than the time and date stated in the Invitation for Tender.
- 2.4.2.2 The Employer may, at its discretion, extend this deadline for submission of Tenders by amending the Tender Documents in which case all rights and obligations of the Employer and Tenderers will thereafter be subject to the deadline as extended.

#### **2.4.3 Late Tenders**

Any Tender received after by the Employer after the Tender submission deadline prescribed by the Employer will be rejected and returned unopened to the Tenderer.

#### **2.4.4 Modification and Withdrawal from Tenders**

- 2.4.4.1 The Tenderer may modify or withdraw its Tender after submission, provided that written notice of the modification or withdrawal is received by the Employer prior to the deadline prescribed for Tender submission.
- 2.4.4.2 The Tenderer's modifications shall be prepared, sealed, marked, and dispatched as follows:
- 2.4.4.2.1 The Tender shall provide an original and the number of copies specified of any modifications to its Tender, clearly identified as such, in two inner envelopes duly marked "Tender Modification – Original" and "Tender Modification – Copies." The inner envelopes shall be sealed in an outer envelope, which shall be duly marked "Tender Modifications."
- 2.4.4.2.2 Other provisions concerning the marking and dispatch of Tender modifications shall be in accordance with ITT sub-clause 4.1.
- 2.4.4.3 A Tenderer wishing to withdraw its Tender shall notify the Employer in writing prior to the deadline prescribed for Tender submission.
- 2.4.4.4 The notice of withdrawal shall:
- 2.4.4.4.1 Be addressed to the Employer at the address specified, and
- 2.4.4.4.2 Bear the Tender Number and the words "Tender Withdrawal Notice." Tender withdrawal notices received after the Tender submission deadline will be ignored, and the submitted Tender will be deemed to be a validly submitted Tender.



- 2.4.4.5 No Tender may be withdrawn in the interval between the Tender submission deadline and the expiry of the Tender validity period specified.

## **2.5 Tender Opening and Evaluation**

### **2.5.1 Opening of Tender by Employer**

- 2.5.1.1 Envelopes marked “Withdrawal” shall be opened first and the name of the Tenderer shall be read out. Tenders for which an acceptable notice of withdrawal has been submitted pursuant shall not be opened.
- 2.5.1.2 Subsequently, all envelopes marked “Modification” shall be opened and the submissions therein read out in appropriate detail.
- 2.5.1.3 No Tender shall be rejected at Tender opening except for late Tenders.
- 2.5.1.4 The Employer shall prepare minutes of the Tender opening, including the information disclosed to those present.
- 2.5.1.5 Tenders not opened and read out at the Tender opening shall not be considered further for evaluation, irrespective of the circumstances.

### **2.5.2 Clarification of Tenders**

- 2.5.2.1 During the Tender evaluation, the Employer may, at its discretion, ask the Tenderer for clarification of its Tender.
- 2.5.2.2 The request for clarification and the response shall be in writing and no change in the price or substance of the Tender shall be sought, offered or permitted.

### **2.5.3 Preliminary Examination of Tenders**

- 2.5.3.1 The Employer will examine the Tenders to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the Tenders are generally in order.
- 2.5.3.2 Arithmetic errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price, which is obtained by multiplying the unit price and quantity, or between subtotals and the total price, the unit or subtotal price shall prevail, and the total price shall be corrected. If there is a discrepancy between words and figures the amount in words will prevail. If the Tenderer does not accept the correction of errors its Tender will be rejected.
- 2.5.3.3 Prior to the detailed evaluation, the Employer will determine whether each Tender is of acceptable quality, is complete and substantially responsive to the Tender Documents. For purposes of this determination, a substantially responsive Tender is one that conforms to all terms, conditions and



specifications of the bidding documents without material deviations and objections, conditionalities or reservations. A material deviation, objection, conditionality or reservation is one (i) that affects in any substantial way the scope, quality or performance of the contract; (ii) that limits in any substantial way, inconsistent with the Tender Documents, the Employer's rights or successful Tenderer's obligations under the contract; or (iii) whose rectification would unfairly affect the competitive position of other Tenderers who are presenting substantially responsive.

- 2.5.3.4 If a Tender is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by the Tenderer by correction of the non-conformity. The Employer's determination of a Tender's responsiveness is based on the contents of the Tender itself without recourse to extrinsic evidence.

#### **2.5.4 Evaluation Criteria**

- 2.5.4.1 The evaluation will be separated into two parts. First will be the technical evaluation after which the financial evaluation will be done for those suppliers that surpass the minimum accepted score for technical proposals.

The weights to be used for the evaluation are as follows:

- Technical – 70%
- Financial – 30%



*Technical Evaluation*

Technical	Description	Maximum Points %
<b>Statutory requirements</b>	Requested documents available	Mandatory
<b>Approach and Methodology</b>	Understanding of the project and scope of work (100% filled in schedule)	20
	Conformance to specification	10
	Detailed work plan with timeframes for the overall project	20
<b>Maximum Points</b>		<b>50</b>
<b>Relevant Experience of Service Provider</b>	Experience in the manufacture of smart energy meters and data concentrators	30
	Quality certification by a recognised body (ISO etc)	20
<b>Maximum Points</b>		<b>50</b>
<b>Total Score for Technical Proposal</b>		<b>100</b>
Minimum Acceptable Score for Technical Proposal		70

*Financial Evaluation*

The financial evaluation of the bids will follow the following process:

- The evaluation team will review the financial bids and determine the evaluation price for each proposal.
- The lowest priced proposal shall be given a financial score of 100 and the other proposals shall be given a financial score which is inversely proportional to the lowest evaluated price.

### *Final Evaluation*

- The weighted technical and financial scores shall be added together to give a total score for each proposal.
- Proposal with highest score shall be recommended for award.

## **2.5.5 Contacting the Employer**

- 2.5.5.1 From the time of the tender opening to the time of Contract award, if any Tenderer wishes to contact the employer on any matter related to its Tender, it should do so in writing. Queries are to be forwarded to the procurement office through [busisiwe.masangane@eec.co.sz](mailto:busisiwe.masangane@eec.co.sz).
- 2.5.5.2 Any effort by a Tenderer to influence the Employer in the Employer's Tender evaluation, Tender comparison or Contract award decisions shall result in rejection of the Tenderer's Tender.

## **2.6 Award of Contract**

### **2.6.1 Intention to award**

- 2.6.1.1 Following the contract award decision, EEC shall prepare a notice of intention to award, which notice shall be sent directly to all tenderers who submitted tenders. **All bidders are required to provide contact email addresses, through which they will be notified of the intention to award on the day that the Intention is sent to the Eswatini Public Procurement Authority (ESPPRA).**

### **2.6.2 Award Criteria**

- 2.6.2.1 The Employer may award the contract to the Tenderer whose Tender has been determined to be substantially responsive and provided that the Tenderer is determined to be qualified to perform the Contract satisfactorily. The Employer is not bound to accept the lowest tender price or any at all and no reasons will be given for non-acceptance of Tender.

### **2.6.3 Employer's Right to Accept Any Tender and to reject any or All Tenders**

The Employer reserves the right to accept or reject any Tender, and to annul the Tendering process and reject all Tenders at any time prior to award of Contract, without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer or Tenderers of the grounds for the Employer's action.

### **2.6.4 Signing the Contract Agreement**

- 2.6.4.1 The Employer will send the Tenderer the Contract Agreement provided in the Tender Documents, incorporating all agreements between parties.



- 2.6.4.2 Within 28 (twenty-eight) days of receipt of the Contract Agreement, the successful Tenderer shall sign and date the Contract Agreement and return it to the Employer.

## **2.6.5 Warranty**

- 2.6.5.1 The Supplier warrants that the instruments supplied are new, unused, of the most recent or current models and that incorporate all recent improvements in design materials unless provided otherwise in the Contract. The Supplier further warrants that all instruments 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 Procuring Entity's specifications) or from any act or omission of the Supplier that may develop under normal use of the supplied instruments in the conditions prevailing in Swaziland.
- 2.6.5.2 This warranty shall remain valid for **5 years** after the instruments, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in this document.
- 2.6.5.3 The Procuring Entity shall promptly notify the Supplier in writing of any claims arising under this warranty.
- 2.6.5.4 Upon receipt of such notice, the supplier shall, within the period specified and with all reasonable speed, repair or replace the defective instruments or parts thereof, without costs to the Procuring Entity.
- 2.6.5.5 If the Supplier, having been notified, fails to remedy the defect(s) within the period specified in the Contract, the Procuring Entity 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 Procuring Entity may have against the Supplier under Contract.

## **2.6.6 Terms and conditions of the contract agreement**

- 2.6.6.1 The duration of the contract shall be **5 years** and might be reviewed depending on the performance of the product (meters and data concentrators) and conformance of contractor to the 5-year contract.
- 2.6.6.2 Content of the contract will include but not limited to the warranty clauses in section 2.6.5. and 2.6.6.
- 2.6.6.3 The contractor will be expected to take back and dispose any instruments (meters & data concentrators) after the warranty contract has expired.
- 2.6.6.4 The instruments 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 in the Contract.



**SECTION 3 FORMS AND SCHEDULES**

**1. Letter of Tender**

NAME OF CONTRACT: **Supply and Delivery of Smart Energy Meters and Data Concentrators**

**TENDER NO: 55 OF 2020/2021**

TO: **Eswatini Electricity Company  
P. O. Box 258  
Mbabane, H100  
Eswatini**

We have examined the Conditions of Contract, Employer's Requirements, Schedules the attached Appendix and Addenda Nos. \_\_\_\_\_ for the above-named Works. We have examined, understood and checked these documents and have ascertained that they contain no errors or defects. We accordingly offer to supply the required equipment, in conformity with this Tender which includes all these documents and the enclosed Proposal, for the lump sum of

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We accept your suggestions for the appointment of the DAB as set out in the Particular Conditions of Contract.

We agree to abide by this Tender until \_\_\_\_\_ and it shall remain binding upon us and may be accepted at any time before that date. We acknowledge that the Appendix forms part of this Letter of Tender.

If this offer is accepted, we will deliver the equipment as per the schedule attached.

Unless and until a formal Agreement is prepared and executed this Letter of Tender, together with your written acceptance thereof, shall constitute a binding contract between us.

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

Signature \_\_\_\_\_ in the capacity of \_\_\_\_\_  
duly authorised to sign tenders on behalf of \_\_\_\_\_

Address: \_\_\_\_\_

Date: \_\_\_\_\_





## 2. Declaration of Eligibility

All Tenderers must meet the following criteria, to be eligible to participate in public procurement.

Tenderers must provide a signed declaration on their company letterhead in the following format. If the tender is being presented by a joint venture or consortium all members must sign the declaration.

Dear Sirs,

Re Tender Reference .....

In accordance with the eligibility requirements of the Procurement Regulations and the tender documents we hereby declare that: -

- (a) We, including any joint venture partners or consortium partners are a legal entity and have the legal capacity to enter into the contract.
- (b) We further declare that we are not insolvent, in receivership, bankrupt or being wound up, our affairs are not being administered by a court or a judicial officer, our business activities have not been suspended and we are not the subject of legal proceedings for any of the foregoing.
- (c) We declare that we have fulfilled our obligations to pay taxes and social security contributions.
- (d) We have not, and our directors or officers have not, been convicted of any criminal offence related to our/their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter into a contract within a period of five years preceding the commencement of the procurement proceedings; and
- (e) We do not have a conflict of interest in relation to the procurement requirement.

Signed .....

Date.....



### 3. Bid Submission Form

The Tender Committee  
ESWATINI Electricity Company  
P.O. Box 258  
Mbabane

Dear Sir / Madam

Re: TENDER NO: 55 of 2020/2021 – **Supply and Delivery of Smart Energy Meters and Data Concentrators**

Having examined the Invitation to Bid documents, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply “**Supply and Delivery of Smart Energy Meters and Data Concentrators**” in conformity with the said “Invitation to Bid” documents as follows:

- i. In accordance with the Schedule of Prices attached herewith and made part of this Bid and which are inclusive of all taxes.
- ii. We undertake, if our Bid is accepted, to deliver the goods in accordance with the delivery schedule in the Schedule of Requirements.
- iii. We agree to abide by this Bid for a period of one hundred and twenty (120) days from the date fixed for Bid opening and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal Contract is prepared and executed, this Bid, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us.

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

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

In the capacity of: \_\_\_\_\_ Date: \_\_\_\_\_  
(Designation)

Duly authorized to sign bid for and on behalf of:

\_\_\_\_\_  
(Name of Bidding Company)

Company Stamp/Seal:



ESWATINI ELECTRICITY COMPANY  
TENDER NO: 55 OF 2020/2021  
SUPPLY AND DELIVERY OF SMART ENERGY METERS AND DATA CONCENTRATORS

**4. Commitment Form**

I (name \_\_\_\_\_ of \_\_\_\_\_ tenderer \_\_\_\_\_ in  
full),.....

hereby agree to deliver all goods and services without altering the tendered price I  
quoted during tender submission date.

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Capacity of: \_\_\_\_\_ Date: \_\_\_\_\_  
(Designation)

Duly authorized to sign bid for and on behalf of:

\_\_\_\_\_  
(Name of Bidding Company)

Company Stamp/Seal:



## SECTION 4 TECHNICAL SPECIFICATIONS

The technical specification of the Smart Energy Meters, Customer Interface Unit and Data Concentrators is presented below, and also, crucial information pertaining to proper functionality of the entire system is outlined.

### 1. DIN Rail Single Phase Split Prepayment Smart Energy Meters

No:	Description	Technical Requirements
1.1	Type of meter	Single phase two wire DIN Rail smart Prepaid Energy Meter, 50 Hz, 5(80) Amps, 230V.
1.2	Accuracy class	- Active energy Class 1.0 (IEC 62053-21) - Reactive energy Class 2.0 (IEC 62053-21)
1.3	Basic Current (I <sub>b</sub> ) & Rated Maximum current (I <sub>max</sub> )	I <sub>b</sub> = 5A; I <sub>max</sub> = 80Amps
1.4	Operating voltage	230V AC
1.5	Encryption	20 Digit STS encryption in compliance with IEC 62055 - 51 and 62055 - 41
1.6	Operating Frequency	50 Hz (47.5 to 52.5Hz)
1.7	Certified product life Span	A minimum of 15 years
1.8	Operating temperature	-20 to +60 degrees Celsius
1.9	Storage temperature	-20 to +75 degrees Celsius
1.10	Resistance to heat and fire	The terminal block, terminal cover and Meter case shall ensure safety against spread of fire. Fire retardant material must be used.
1.11	Protection against penetration of dust and water.	Degree of protection: IP54 according to IEC60529
1.12	Resistance against Climatic influence	Meter must comply with the IEC 62052-11
1.13	Electromagnetic Compatibility (EMC)	Requirements shall be as per IEC 62052-11/ IEC 61000-4
1.14	Connection Diagram	The connection diagram for the system shall be provided on terminal cover.
1.15	Self-Diagnostic features	The meter shall perform self-diagnostic check and register errors of: i) Real Time Clock error (preferred option) ii) Non-Volatile Memory Error



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		iii) Control error iv) Communication error
1.16	Main Relay/Contactor	<ul style="list-style-type: none"> <li>- IEC62055-31 compliant (fault currents)</li> <li>- The main relay shall be rated for 80Amp</li> <li>- Fitted with an internal main Load/Disconnection Switch (contactor) suitable for interrupting the full rated current</li> <li>- The Meter shall provide positive indication of the state of the contactor position.</li> <li>- 30 I<sub>max</sub> short circuit current</li> <li>- Relay shall not be affected by surges</li> </ul>
1.17	Credit Token Record	Meter should have provision to show within its memory registers, record of a minimum fifty (50) previously used recharge tokens, with the following data: date and time stamp (preferred option), amount topped up, units credited, token ID and the 20-digit recharge code.
1.18	Communication	The meter should have provision for communication with the CIU (Customer Interface Unit). Modes of communication are specified in section 4 below.
1.19	Tamper Features & Indication	<p>A tamper sensor that detects opening of the meter terminal cover shall be fitted. The meter shall be able to detect or activate tamper mode in the event that the meter terminal cover is opened with the power ON or OFF.</p> <p>The meters shall be provided with indication on LCD for tampering event in case any of the tamper cases occur, and it shall be possible in memory to get date, time and count of such event.</p> <p>Meter should have the following features as a minimum:</p> <ul style="list-style-type: none"> <li>- Hardware and software protection for programming.</li> <li>- Reverse current - Auto correction, energy registration &amp; indication</li> <li>- Meter cover opening detector (Indicator on LCD)</li> <li>- External magnet field detector (Indicator on LCD)</li> <li>- Measurement and registration of under/over-voltage</li> <li>- Terminal cover opening detector with Power on or OFF (Indicator on LCD).</li> <li>- Missing Neutral</li> <li>- Local reading/parameterization attempt through communication port</li> <li>- Live - Neutral current differential detection (Mandatory)</li> </ul>
1.20	Optical Infrared Communications Port	The prepaid meter shall have an optical port to allow for downloading and configuration of meter locally by use of a computer or similar device. Provision of Ferromagnetic Ring on the Infrared Port and test ports.



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1.21	Diagnostic Software	Meter should come with a troubleshooting diagnostic software as a standard accessory and optical heads & the software parameters should be standard. Diagnostic software shall be issued free with unlimited license.
1.22	Quadrants	It must be a 4-quadrant meter (bidirectional) with separate registers for import and export.
1.23	Time of Use	The meter must support time of use tariffs but must be set to operate in prepayment mode with STS currency token transfer option.
1.24	Over and Under-Voltage Detection	When the supply voltage is removed from the prepayment meter or drops below 70 % of the rated voltage, the meter may disconnect the load, provided that the meter will be able to automatically reconnect the load when the supply voltage is restored to more than 70% of the rated voltage.  When supply voltage exceeds 130% of nominal voltage, the meter shall disconnect supply. There should be provision to adjust or disable Over and under Voltage settings through optical interface even with mains supply off.
1.25	Network Configuration	Single phase, two wire connection (Live and neutral)
1.26	Energy meter dimensions	The dimensions of the energy meter shall be less than the following dimensions: <ul style="list-style-type: none"> <li>▪ Height – 160 mm</li> <li>▪ Width – 70 mm</li> <li>▪ Depth – 120 mm</li> </ul>
1.27	Remaining credit	The meter must update the CIU regularly in terms of the remaining credit at intervals that are less than a minute.
1.28	Meter Interrogation	The meter must have means of being interrogated in an event the meter is faulty.

## 2. Three Phase Split Prepayment Smart Energy Meters

No:	Description	Technical Requirements
2.1	Type of meter	Three phase four wire split prepayment smart meter, <b>400 Volts, 5(100) Amps, 50Hz</b>
2.2	Accuracy class	- Active energy Class 1.0 (IEC 62053-21) - Reactive energy Class 2.0 (IEC 62053-21)
2.3	Basic Current (I <sub>b</sub> ) & Rated Maximum current (I <sub>max</sub> )	I <sub>b</sub> = 5A; I <sub>max</sub> = 100 Amps
2.4	Operating voltage	<b>Voltage shall be 400V.</b>



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2.5	Encryption	20 Digit STS encryption in compliance with IEC 62055 - 51 and 62055 -41
2.6	Operating Frequency	50 Hz + 5% (47.5 to 52.5Hz)
2.7	Certified product life Span	A minimum of 15 years
2.8	Operating temperature	-20 to +60 degrees Celsius
2.9	Storage temperature	-20 to +75 degrees Celsius
2.10	Resistance to heat and fire	The terminal block, terminal cover and Meter case shall ensure safety against spread of fire. Fire retardant material must be used.
2.11	Protection against penetration of dust and water.	Degree of protection: IP54 according to IEC60529
2.12	Resistance against Climatic influence	Meter shall be in compliance with IEC 62052-11
2.13	Electromagnetic Compatibility (EMC)	Requirements shall be as per IEC 62052-11/ IEC 61000-4
2.14	Connection Diagram	The connection diagram for the system shall be provided on terminal cover.
2.15	Self-Diagnostic features	The meter shall perform self-diagnostic check and register errors of: i) Real Time Clock error (preferred option) ii) Non-Volatile Memory Error iii) Control error iv) Communication error
2.16	Main Relay/Contactor	IEC 62055-31 compliant (fault currents) - The main relay shall be rated for <b>100 Amps</b> - 30 I <sub>max</sub> short circuit current - Fitted with an internal main Load/Disconnection Switch (contactor) suitable for interrupting the full rated current - The Meter shall provide positive indication of the state of the contactor position. - Relay should not be affected by surges
2.17	Credit Token Record	Meter should have provision to show within its memory registers, record of a minimum fifty (50) previously used recharge tokens, with the following data: date and time stamp (preferred option), amount topped up, units credited, token ID and the 20-digit recharge code,
2.18	Communication	The meter should have provision for communication with the CIU (Customer Interface Unit). Modes of communication are specified in section 4 below.
2.19	Tamper Features &	A tamper sensor that detects opening of the meter terminal





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	Indication	<p>cover shall be fitted. The meter shall be able to detect or activate tamper mode in case the meter terminal cover is opened with the power ON or OFF.</p> <p>The meters shall be provided with indication on LCD for tampering event in case any of the tamper cases occur, and it shall be possible in memory to get date, time and count of such event.</p> <p>Meter should have the following features as a minimum:</p> <ul style="list-style-type: none"> <li>- Hardware and software protection for programming.</li> <li>- Reverse current - Auto correction, energy registration &amp; indication</li> <li>- Meter cover opening detector (Indicator on LCD)</li> <li>- External magnet field detector (Indicator on LCD)</li> <li>- Measurement and registration of under/over-voltage</li> <li>- Terminal cover opening detector with Power on or OFF (Indicator on LCD).</li> <li>- Missing Neutral</li> <li>- Local reading/parameterization attempt through communication port</li> <li>- Live - Neutral current differential detection (Mandatory)</li> </ul>
2.20	Optical Infrared Communications Port	The prepaid meter shall have an optical port (or other) to allow for downloading and configuration of meter locally by use of a computer or similar device. Provision of Ferromagnetic Ring on the Infrared Port and test ports.
2.21	Diagnostic Software	Meter should come with a troubleshooting diagnostic software as a standard accessory and optical heads & the software parameters should be standard. Diagnostic software shall be issued free with unlimited license.
2.22	Quadrants	It must be a 4-quadrant meter (bidirectional) with separate registers for import and export.
2.23	Time of Use	The meter must support time of use tariffs but must be set to operate in prepayment mode with STS currency token transfer option.
2.24	Over and Under-Voltage Detection	<p>When the supply voltage is removed from the prepayment meter or drops below 70% of the rated voltage, the meter may disconnect the load, provided that the meter shall automatically reconnect the load when the supply voltage is restored to more than 70% of the rated voltage.</p> <p>When supply voltage exceeds 130% of nominal voltage, the meter shall disconnect supply. There should be provision to adjust or disable Over and under Voltage settings through optical interface even with mains supply</p>



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		off.
2.25	Network Configuration	Three phase, four wire connection (Live wire x 3 and neutral).
2.26	Energy meter dimensions	The dimensions of the energy meter shall be less than the following dimensions: <ul style="list-style-type: none"> <li>▪ Height – 200 mm</li> <li>▪ Width – 190 mm</li> <li>▪ Depth – 85 mm</li> </ul>
2.27	Remaining credit	The meter must update the CIU regularly in terms of the remaining credit at intervals that are less than a minute.
2.28	Meter Interrogation	The meter must have means of being interrogated in an event the meter is faulty.

### 3. Customer Interface Unit (CIU) Requirements

No:	Description	Technical Requirements
3.1	Protection class	Accuracy class is 2 and must be well insulated
3.2	Operating Frequency	50 Hz + 5% (47.5 to 52.5Hz)
3.3	Voltage Supply	The voltage supply shall be 230V AC with an option of 2 X AA 1.5 volts batteries.
3.4	Operating temperature	-20 to +60 degrees Celsius
3.5	Storage temperature	-20 to +75 degrees Celsius
3.6	Protection against penetration of dust and water.	IP54 according to IEC60529
3.7	CIU general information and functionality	<p>To this end, the CIU should be highly interactive, informative, and easy to use under all conditions. It should also serve to inform the consumer of potentially inconvenient situations.</p> <p>The CIU shall be surface mountable and able to be plugged into a standard mains socket-outlet. It shall be suitable for indoor use.</p> <p>Where the CIU employs a replaceable battery, the user manual shall provide the consumer with information concerning battery replacement. The form of display lighting used may be permanent, light-sensitive (i.e. activated in darkness), or (preferably)</p>



		<p>activated through button activity.</p> <p>It shall be designed in such a manner that it can inhibit adverse interference on communication ability resulting from the distribution network power quality inconsistencies.</p> <p>The CIU battery tray/compartiment should be a bottom drop out design and should not be detachable. It shall be possible to replace the batteries without un-mounting the CIU from the wall.</p> <p>The CIU must have a communication status indication LED which makes it easy to distinguish between the following status:</p> <ul style="list-style-type: none"> <li>▪ Unable to communicate</li> <li>▪ Active communication</li> <li>▪ Communication link healthy</li> </ul>
3.8	CIU dimensions	<p>The dimensions of the energy meter shall be less than the following dimensions:</p> <ul style="list-style-type: none"> <li>▪ Height – 150 mm</li> <li>▪ Width – 130 mm</li> <li>▪ Depth – 55 mm</li> </ul>

#### 4. Data Concentrator

No:	Description	Technical Requirements
4.1	Protection class	Accuracy class is 2 and must be well insulated
4.2	Operating Frequency	50 Hz + 5% (47.5 to 52.5Hz)
4.3	Voltage Supply	The voltage supply shall be 230V AC with an option of 2 X AA 1.5 volts batteries.
4.4	Operating temperature	-20 to +60 degrees Celsius
4.5	Storage temperature	-20 to +75 degrees Celsius
4.6	Protection against penetration of dust and water.	IP54 according to IEC60529
4.7	DC dimensions	<p>The dimensions of the DC shall be less than the following dimensions:</p> <ul style="list-style-type: none"> <li>▪ Height – 190 mm</li> </ul>



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		<ul style="list-style-type: none"> <li>▪ Width – 170 mm</li> <li>▪ Depth – 75 mm</li> </ul>
4.8	DC general information and functionality	The DC shall have provision to insert a simcard, since the means of communication to the smart metering system is via GSM network
		An antenna suitable for the DC for efficient communication shall be recommended
		The DC shall have at least 2 ethernet ports or LAN connections
		It must be able to backup information for at least 5 days in case it experiences a sustained power interruption
		The DC shall be surface mountable and able to be plugged into a standard mains socket-outlet.
		Where the DC employs a replaceable battery, the user manual shall provide the consumer with information concerning battery replacement. The form of display lighting used may be permanent, light-sensitive (i.e., activated in darkness), or (preferably) activated through button activity.
		It shall be designed in such a manner that it can inhibit adverse interference on communication ability resulting from the distribution network power quality inconsistencies.
		The DC battery tray/compartament should be a bottom drop out design and should not be detachable. It shall be possible to replace the batteries without un-mounting the DC.
		<p>The DC must have a communication status indication LED which makes it easy to distinguish between the following status:</p> <ul style="list-style-type: none"> <li>▪ Unable to communicate</li> <li>▪ Active communication</li> </ul> <p>Communication link healthy</p>



## 5. General information

### 5.1. Mode of communication

- Communication between the meter and CIU must be **PLC** and the PLC communication must work efficiently for distances **not less than 200m**.
- Communication between meter and data concentrator must be **PLC** and the PLC communication must work efficiently for distances **not less than 200m**. The DC must have the capability to communicate with meters further from it through other meters (by forming a mesh network).
- Communication between data concentrator and smart meter management system - The data concentrator shall communicate with the smart meter management system via the GSM network; however, it shall have provision to communicate via the fibre network (preferably an ethernet port).
- The smart energy meters must be future proof to be integrated to interoperable smart metering systems and shall be based on the latest **G3 PLC communication protocols in line with the IEC 62056-8-5 international standard (DLMS/COSEM – OFDM G3 PLC) and be IDIS (Interoperable Device Interface Specification)** compliant to facilitate interoperability between DC and smart meters from different Suppliers.
- All the meters shall constitute both **PLC and GPRS** models to cater for remote installations that are not in clustered setups.
- Interoperability of the smart meters with Data Concentrators (DCs) from different Suppliers based on the G3 PLC communication protocol with OFDM frequency modulation technique and IDIS.
- The DCs must be able to communicate or be compatible with **any system**.

### 5.2. Coding of meters

- Meters should be coded to the Supply Group Code (SGC) for EEC (901055)
- Meters shall be delivered preloaded with 30 kWh units.

### 5.3. Reason for Load Disconnection

Prepaid meter shall provide unique indications if the load has been disconnected due to the following conditions:

- No credit available
- Power consumption exceeded the set limit.



- Detection of an electrical fault condition
- Main contactor switched off remotely.
- Over/Under Voltage
- Meter not commissioned.
- Meter on Tamper

It should be possible to remotely:

- Disconnect and connect the meter.
- Change the customer from prepayment to credit and vice versa.

## **5.4. Token Acceptance and Decryption**

It shall be possible to transfer information to the prepayment meter through the Standard Transfer Specification (STS) tokens as specified in the STS documents. The meter shall be capable of accepting both non meter specific and meter specific tokens.

### **5.4.1. Meter Token Identifiers**

Prepaid meters shall have a table to store the token identifiers of used tokens. The token identifier is related to the date and time of the transaction and is calculated as specified in the STS specification. It shall not be possible for this identifier table to contain entries that indicate a date and time before the existence of the meter, or a date and time earlier than the repair date of a repaired meter, when it leaves the factory. This means that the tables in new and repaired meters shall be filled with identifiers that indicate a recent date and time. For example: the date and time of manufacture or repair.

### **5.4.2. Meter key duplicity**

The prepaid meter shall only have one active key at any stage of its operation. Dual keys shall not be used.

### **5.4.3. Engineering Tokens**

There are a group of tokens used to configure the meter and perform additional special operations. Some tokens will only be accepted by a specific meter (known as “Meter Specific” tokens) and may only be used once while others work in all meters (“Non-Meter Specific” tokens) and are reusable.

### **5.4.4. Meter Credit Token record**

The meter shall have provision to show within its memory registers, a record of 20 previously used tokens, with the following data:

- Data and time stamp
- Amount topped up
- Units credited
- Tokens ID
- The 20-digit recharge code



### **5.5. Tariff**

Should support the following tariff modes:

- Flat rate
- TOU (Time of Use)

