1. **QUESTIONS RECEIVED FROM THE TED eTENDERING WEBSITE**

**Clarification No. 1**

**Subject**

Capacitor Bank Quantities

**Category**

Technical requirements and specifications

**Questions**

1. The nature of this lot is a bit complex to quote considering that sizing and quantities are to be provided once power factor survey of the specific SME is done.
2. Can we probably quote the smallest size with a controller and size can be adjusted as per survey results obtained with the end user? Or can we quote for 61KVAR x 7000 customers which will give us 430MVAR? And each of these to come with a controller. This at least will achieve both customer number and MVAR. Is the power factor survey cost supposed to be offered in this lot as well?
3. How are the customers (location) spread if the survey is included in this offering? Are we looking at customer across Zambia or two locations? The location spread indication at least will give us an idea how to price logistics. Even pricing cost of logistics for installation and confirmation surveys we will need this information too.

**Answer**

1. Not all the 7,000 customers require compensation.
2. The power factor correction equipment designed should be a functional one complete with controller and correctly sized steps.
3. The power factor correction equipment should be sized and designed according to the number of customers requiring compensation whose information is as outlined below:

|  |  |  |
| --- | --- | --- |
| **POWER DEMAND** | **NUMBER OF CUSTOMERS** | **ASSUMED AVERAGE POWER FCATOR** |
| 16 to 40kVA | 4,668 | 0.5 lagging |
| 41 to 50kVA | 1,456 | 0.5 lagging |
| 51 to 65kVA | 379 | 0.5 lagging |
| 66 to 99kVA | 497 | 0.5 lagging |

**The spread of the customers across the country in percentage are as follows per Province:**

|  |  |  |
| --- | --- | --- |
| **S/No.** | **PROVINCE** | **PERCENTAGE BASED ON 7,000 CUSTOMERS** |
| 1 | LUSAKA | **52.2%** |
| 2 | COPPERBELT | **17.0%** |
| 3 | CENTRAL | **9.2%** |
| 4 | SOUTHERN | **9.0%** |
| 5 | WESTERN | **0.8%** |
| 6 | EASTERN | **8.4%** |
| 7 | LUAPULA | **0.4%** |
| 8 | MUCHINGA | **0.6%** |
| 9 | NORTHERN | **1.1%** |
| 10 | NORTH WESTERN | **1.3%** |

**Clarification No. 2**

**Subject**

Drawing for Soft Starter and Drives

**Category**

Technical requirements and specifications

**Questions**

Lot 2:

1. 18KW and 15KW pump soft starters - complete with over voltage, under voltage, earth relay etc protection. Does this mean the items should come with a panel complete with earth fault protection?
2. Will the protection that comes standard on the soft-starter and drives be enough. It might not include earth fault protection in case of soft starters.

**Answers**

1. YES. it should come complete.
2. YES. It will be enough and must be all inclusive

**Clarification No. 3**

**Subject**

Provision of samples

**Category**

Technical requirements and specifications

**Question**

1. Under Lot 3. item G, power quality data logger complete with management system, the provision of a sample here will mean the item has been supplied owing to the fact the item required is only one.

**Answer**

1. NO need for a sample here as it is a software-based power quality management system where the 204 power quality meters or recorders shall be managed

**Clarification No. 4**

**Subject**

technical specifications

**Category**

Technical requirements and specifications

**Questions**

1. Lot 1 Item c page 26: reference is made to "Markings on Meter" lot items are LED tubes yet this refers to meter.
2. Kindly clarify Lot 2 Items a and b: Kindly advise are these Portable Power Quality Meters or Power Quality.
3. The specification seems to lean to meters Lot 2 Item no. d page 37: Spec is listed as "10Hz-1KHz velocity" shouldn't this be 10mm/s - 1,000mm/s, then "10 Hz-1kHz displacement" we believe this should be 10micro-meters - 1,000micro meters
4. How many input channels - Should units be capable of route programming - is Desktop interface software and database a requirement or information should be resident on the analyser - minimum internal memory for the analyser?
5. Lot 2 Item No. e page 38: Advise the voltage level Advise Communication protocol the VFDs should be supplied with.
6. Advise application as VFD are built in use.

**Answers**

1. This should read Marking on LED tube not meter
2. These are all portable quality meters to be used on voltages levels from 330kV down to 0.4kV. They should both be used as CT operated or whole current Analysers
3. Inputs as minimum 4 as maximum
4. Vibration velocity: 0,01 ... 200 mm/s
5. Vibration acceleration: 0,1 ...  200 m/s²
6. Vibration displacement: 2 ... 2000 μm
7. Frequency range: 10 ... 1000 Hz
8. Accuracy: ± 5% + 2 digits accuracy
9. Display: OLED 0,91”

The table shows additional specification for Vibration Analyser

|  |  |
| --- | --- |
| Protection class IP | Sensor ІР 54 |
| Power supply | Li-pole battery, 3.7 V; 370 mAh |
| Battery life | of the sensor depending on the intensity of the work 4 - 8 hours |
| Interface | USB, type C, Bluetooth LE 5. |
| Operating time | approx. 8 hours |
| Charging time | 1,5 hours |
| Environmental conditions | -10 ... +55° C, <85 % r.h. |
| Overall dimensions (with magnetic attachment) | 30 х 28 х 90 mm |

1. YES. Desktop interface software a must and database required. Minimum Internal memory should be 32GB.
2. Application voltage is 400 volts nominal with communication RS 232.
3. Water pumping system.

**Clarification No. 5**

**Subject**

submission deadline

**Category**

Submission deadline

**Question**

1. Can the submission deadline be extended owing to the fact that so many technical questions have not been answered?

**Answer**

1. Kindly refer to Document c4b Instructions to Tenderers item 2 – Timetable which indicates the timelines for requesting clarifications and for the Contracting Authority to respond to the clarifications. Submission deadline cannot be moved.

**Clarification No. 6**

**Subject**

REQUEST FOR CLARIFICATION 3

**Category**

Other documents to be submitted

**Questions**

**LOT 1**

1. Kindly confirm both total power rating for both 4 and 5 foot is **18W**? Or 5 foot should have slightly higher rating than 4 foot?

**LOT 2**

1. Are the single-phase power analysers portable too like the three phase ones?
2. What voltage level shall they be used at?
3. Where will these power analysers be used?

**Answer**

LOT 1

1. The 5-foot tubes should have power rating range between 20 to 22W, 2250lm, 80% (Ra) and 0.95 power factor. The 4 foot should be 18W, 1,800lm, 80% (Ra) and 0.95 or better power factor.

LOT 2

1. YES. They are portable.
2. From 330kV (330,000 volts) down to 0.4kV (400 volts).
3. On Utility’s electrical power systems.

**Clarification No. 7**

**Subject**

REQUEST FOR CLARIFICATIONS 2

**Category**

Other documents to be submitted

**Questions**

**LOT 4**

You mention of designing, manufacture, install and commissioning of rightly sized power factor correction equipment on selected 7,000 SMEs with consumption between 16 to 99KVA.

1. Does it mean this is a turnkey project?
2. Does it mean it will involve connecting the power factor correction equipment to your customers requiring the power factor equipment?
3. And who shall provide the list of customers needing this equipment?
4. How many of each size of power factor equipment shall be required?
5. Will the power factor correction equipment be supplied at once or it shall be supplied when it is required?
6. Should we price for complete power factor correction panels or just the components.
7. Are we required to submit list and qualification of personnel to install these panels? if so what are the minimum qualifications needed for such personnel.

**Answers**

1. YES. It will involve designing, manufacturing, installation and commissioning a functional Power Factor Correction (PFC) equipment according to customer’s energy efficiency utilization of the power being delivered by the Utility Company (ZESCO LTD)
2. YES. A working PFC should be commissioned. Turnkey project.
3. The Utility ZESCO Ltd shall provide the list of customers
4. The target is customers whose apparent power consumption is between 16 and 99kVA. Therefore, the size of PFC shall be based on how efficient the customer being targeted is at that particular period of time.
5. When it is required after establishing the needs of each customer.
6. Price for complete functioning PFC with individual prices for the components used
7. YES. From Engineer to Technician or Artisan.

**Clarification No. 8**

**Subject**

REQUEST FOR CLARIFICATION 1

**Category**

Other documents to be submitted

**Questions**

General

1. The tender Guarantee should be from the bank only or we can also get from the insurance company? We feel at tender stage, the guarantee from the insurance company should be sufficient. Kindly guide.

2. If we submit the tender as a joint venture, what are the key requirements each JV partner must meet? For example, should all parties to the JV meet the financial criteria or experience or legal status etc.

3. Should the prices we will be quoting for include customs duty and other relevant taxes

4. We don’t seem to understand the documents containing

a. Legal entity (NATURAL)

b. Legal entity (PRIVATE/PUBLIC LAW BODY WITH LEGAL FORM)

c. Legal entity (PUBLIC LAW BODY)

What are these forms all about? Kindly guide us.

**Answers**

1. The tender guarantee may also be provided by an insurance company while ensuring that the guarantee is presented in the form prescribed in the annex to the tender dossier.
2. Please refer to Point 1) Economic and financial capacity, under Section 16 - Selection criteria, in the “Additional information about the contract notice”.

* For the average turnover, the individual members’ turnover will be aggregated to arrive at the average turnover.
* For the current ratio, each individual member of the consortium or joint venture must fulfil the current ratio criteria, separately.

1. Please refer to Section 12 - Taxes and other charges, of the “Instructions to tenderers”, as well as the “Tax and customs arrangements”, in the tender dossier. The project is exempt from all taxes, duties or other charges including Value Added Tax or equivalent. Therefore, the prices should exclude customs duty and all other relevant taxes.
2. The Legal Entity document, is a form to be completed with details of the legal entity or tenderer. In case of a consortium or joint venture, it will be the details of the leader to be filled in the form. The details contained in this form are to be used in the contract for the successful tenderer/s. Only one of the three forms should be completed, depending on whether the candidate submitting a tender is a natural person, private/public law body with legal form or a public law body.

**Clarification No. 9**

**Subject**

Lot 1 - Technical Specifications - LED Chips

**Category**

Technical requirements and specifications

**Question**

1. Current Specification requirements = 200 This number of LED Chips is excessive and likely based on a very old specification since the lumen per watt efficiencies of modern tubes is very high requiring less LED chips in a typical 4ft LED tube. The number of LED Chips required in a 4ft LED Tube can vary greatly depending on the quality, brightness, size and make of the LED chips that ensure a uniform light output through the frosted polycarbonate lens. Critically, LED Chips should retain enough space between them to avoid unnecessary heat build-up which if too close together can degrade the chip’s serviceable lifespan. 200 LED Chips per 4ft is excessive and unnecessary and will more then likely result in a less bright LED tube that would be dangerously susceptible to overheating. RECOMMENDATION: Remove Specification Requirement. As long as Bidders comply to the lumen requirements, the brightness is assured and the number of LED Chips becomes irrelevant.

**Answer**

1. Bidders should both be compliant with requirement of 200 LED chips for 18W 4-foot tubes and 1800lm or better. The 5-foot LED tube should have 2,250lm or better and 80% Colour Rendering Index (Ra) and power factor =>0.95 or better

**Clarification No. 10**

**Subject**

Lot 1 - Technical Specifications - Material and colour of LED Lamp Housing

**Category**

Technical requirements and specifications

**Question**

1. Current requirements = Information to be supplied with Bid. This requirement cannot be left open ended. The material of the housing plays a critical role in both the quality of a LED tube and its serviceable lifespan. Metals like aluminium are ideal in manufacturing high power, quality LED tubes due to their excellent robustness and heat dissipation properties. Glass tubes however are not manufactured anywhere in the world except China, and would have to be imported as fully assembled units from China which violates the Country of Origin requirement for this tender. We would like to recommend the following: - In order to satisfy the tender’s 5-year warranty / 50,000-hour lifespan requirements, update Specification Requirement to = Aluminium Heat Sinc with plastic extrusion tube.

**Answer**

1. The material should be Aluminium Heat Sink with plastic extrusion tube

**Clarification No. 11**

**Subject**

Lot 1 - Technical Clarifications - Wiring (Single or Double Sided)

**Category**

Technical requirements and specifications

**Question**

1. Current requirements = Double Sided SABS Standards recommend that LED tubes be powered from one end. The legal requirements for installation require that both LED tube and the retrofitted fluorescent fitting be clearly marked where the L/N end is. When the powered end of the LED Tube is installed in a retrofitted fluorescent fitting there is thus no danger of electrocution occurring at the other end of the led tube. The problem with the current specification requirement is that although the installation costs of retrofitting existing fluorescent fittings to operate double sided LED tubes is easier, the result is that it is more dangerous for maintenance crews to install and maintain overtime. We recommend updating the specification to Single Sided in order to maximize safety of operators and installation crews.

**Answer**

1. The Wiring should be Double sided and not single sided

**Clarification No. 12**

**Subject**

Lot 1 - Technical Clarifications - Lumens

**Category**

Technical requirements and specifications

**Question**

1. Current Specification requirements = >1000lm. The baseline lumen requirement of >1,000lm is unacceptably low and refers to a substandard product. Current entry level LED tubes on the market are between 90-100lm/w so an 18W LED tube should provide 1620-1800lm at an absolute minimum. To provide a better equivalent replacement for a 36W Fluorescent tube, the efficiency of an 18W LED lamp should be at least 130lm/w. We would like to recommend the following: Update Specification Requirement to = >2,340 lm OR require a minimum 130lm/w efficiency. A base line of 130lm/w efficiency (or 2,340 lm) would ensure that any LED Tubes submitted for consideration are at least bright enough to adequately replace the existing 36W fluorescent lamps.

**Answer**

1. The 4-foot 18W LED tube should have = >1800lm while for 5 foot should be =>2250lm with power rating of 20W to guarantee equivalent of 36W and 58W respectively. The colour rendering index should be =>80% with power factor of =>0.95

**Clarification No. 13**

**Subject**

Lot 1 - Technical Clarification - Power Factor

**Category**

Technical requirements and specifications

**Question**

1. One of the Technical parameters for the LED tubes requires the bidder to give the Power Factor. We believe this requirement cannot be left open ended. Leaving this unclarified will result in leaving the tender process open to substandard products being offered with poor power factors that would subsequently defeat the aim of this project, which was to reduce power consumption in Zambia. If the power factor rating is low, then it results in the reactive power to be high. If the reactive power is high, then power utilities will have to supply more current to do the same 18W of work per tube. The cheapest solution would be to supply a tube with 0.5 Power Factor, but the energy savings would be close to zero and will require the power utility to supply an equivalent of 36W for every 18W 0.5PF tube in operation. We would like to recommend updating the requirement to 0.9 PF or higher in order to guarantee an energy efficiency.

**Answer**

1. The power factor should be 0.95 or better although 0.92 is stipulated by the Zambian Distribution grid code of 2016

**Clarification No. 14**

**Subject**

**Category**

Technical requirements and specifications

**Question**

further technical details required

No question posed on this entry

**Clarification No. 15**

**Subject**

Delivery Period - Lot 1

**Category**

Contract terms and conditions

**Question**

1. The delivery period for Lot 1 is stipulated as 120 days from contract signing, but after consulting with top LED lighting manufacturers in Europe and Africa, they have all expressed their inability to complete the full quantity of LED tubes within the stipulated time. In the LED lighting industry, stocks of components are planned sometimes up to 1 or 2 years in advance. Due to the high quantity of LED tubes required in the tender and the short time allowed for manufacturing and delivery, manufacturers will not have enough time to acquire the necessary components within the stipulated time. In addition to the above, there's an additional challenge in moving the LEDs to Zambia. According to our initial estimates, 25 Super-Link trucks will be required to transport the full quantities of LED tubes on Lot 1. This cannot be done in one go as it will create a massive bottle neck in customs and at the reception warehouse in Lusaka. Therefore, a plan that allows staggered weekly deliveries.

**Answer**

1. The delivery doesn’t have be at once but can be staggered such as weekly, bi weekly or monthly but it has to be within 120 days (4 months). Delivery of 800,000 pieces of LED tubes is manageable within this period

**Clarification No. 16**

**Subject**

Technical Requirements - Lot 1

**Category**

Technical requirements and specifications

**Question**

1. With Regards to Lot 1 Item a, b and c: The technical parameters require "the number of LEDs" to be more than 200pcs. After consulting with the top manufacturers in South Africa, this seems to be a mistake. Please reconfirm the number of LEDs required on a LED Tube.

**Answer**

1. YES. The number of pieces has to be 200 or more. This was achieved and doable with 30,000 LED tubes procured in 2014 by ZESCO to use in its offices and substations across the country.

**Clarification No. 17**

**Subject**

Technical Clarification - Lot 1

**Category**

Technical requirements and specifications

**Question**

1. For Lot 1 Item a, b and c: Technical Requirements ask for "Double Sided" in the parameters. Please confirm exactly what is meant by this.

**Answer**

1. YES. They have to be double ended. Double sided means a Double ended. A [double-ended LED tube](https://www.orilis.com/collections/led-t8-double-ended-replacement-tubes) is a tube that has the live and neutral pins on the opposite side of each tube. Fluorescent tubes are typically double-ended as well, making retrofit applications easier to complete with double-ended LED tubes.

**Clarification No. 18**

**Subject**

Clarification on the submission of request to participate and tender for FED/2019/040-803

**Category**

Submission deadline

**Question**

1. We are interested in participating in the tender for Supply, Delivery, Installation, Commissioning and Testing of Energy Efficiency Equipment to the Zambia Energy Efficiency and Sustainable Transformation Programme (ZEEST) - FED/2019/040-803. We have an enquiry regarding the submission of the request to participate and the tender documents. We noticed that the deadline for both the request to participate and the tender submission is the same, i.e. 13/03/2024. We would like to know whether we need to submit the request to participate together with the completed tender documents, or we can submit them separately. We kindly request you to guide us on this matter and provide us with the necessary instructions and clarifications. We appreciate your cooperation and assistance.

**Answer**

1. The “request to participate” in the tender dossier, should be read as referring to the “submission of tenders” which is 13/03/2024. Please refer to Section IV.2.2 of the “Additional information about the contract notice”.

**Clarification No. 19**

**Subject**

Request for missing documents

**Category**

Other documents to be submitted

**Question**

1. Good morning, we have downloaded the procurement documents from your website. However, the following documents are not available: 1) Instructions to Tenderers 2) Draft Contract To enable tenderers to prepare their tender, we kindly ask you to make the a.m. missing documents available at the earliest opportunity. Thank you in advance, best regards.

Answer: Kindly use the link provided on the TED eTendering website or the National Authorising Office of the EDF website with link provided below:

<https://www.nao.gov.zm/2024/01/supply-delivery-unloading-installation-commissioning-testing-and-user-training-of-energy-efficiency-equipment-to-the-zambia-energy-efficiency-and-sustainable-transformation-programme-zeest/>

**Clarification No. 20**

**Subject**

**Category**

**Question**

1. The document titled c4c Draft contract isn't opening could you kindly reupload it

Answer: Answer: Kindly use the link provided on the TED eTendering website or the National Authorising Office of the EDF website with link provided below:

<https://www.nao.gov.zm/2024/01/supply-delivery-unloading-installation-commissioning-testing-and-user-training-of-energy-efficiency-equipment-to-the-zambia-energy-efficiency-and-sustainable-transformation-programme-zeest/>

**Clarification No. 21**

**Subject**

Files not downloadable - ERROR 404

**Category**

Other documents to be submitted

**Question**

1. The "Instructions to Tenderers" and "Draft Contract" cannot be downloaded as it is giving a 404 Error when trying to download. Can you please re-submit these two documents for our perusal.

Answer: Kindly use the link provided on the TED eTendering website or the National Authorising Office of the EDF website with link provided below:

<https://www.nao.gov.zm/2024/01/supply-delivery-unloading-installation-commissioning-testing-and-user-training-of-energy-efficiency-equipment-to-the-zambia-energy-efficiency-and-sustainable-transformation-programme-zeest/>

1. **QUESTIONS RECEIVED VIA EMAIL** [Tenders.ZEEST@nao.gov.zm](mailto:Tenders.ZEEST@nao.gov.zm)

**The responses are in blue**

**Email Submission No. 1**

**Questions and Answers**

We are interested bidders and wanted to seek clarifications on the following:

1. Power Quality Data Loggers Management System.

Answer: This is a Power QualityManagement System (PQMS) where the power quality recorders or meters shall be managed

  Please provide the maximum load expected in the lines.

Answer: The maximum is 2000A at 400 volts either using direct or Current Transformer (C.T) operated

* Kindly advise the application of the power data loggers.

Answer: These will be used to measure energy, active, apparent and reactive power and all power quality parameters such as harmonics, flicker, voltage regulation, voltage unbalance, frequency

* Please confirm whether Panel mount data loggers will be suitable for your application.

Answer: The 204 power quality recorders or data loggers shall all be panel mounted and to be managed through the power quality management system. The System will be housed in a central server at Zesco but should have remote connectivity capabilities.

1. Thermal Camera for Condition Monitoring.

          What is the actual process to be monitor and the temperature range.

Our products are usually used to monitor very high temperature industrial processes. Answer: YES. It shall be used for all high temperature industrial processes. It will also be used to pick up hot spots and loose connections on overhead transmission and distribution lines up to 330 kV

Please let me know if we need to provide a test report for each of the compliance items according to the requirements of this bid?

Answer: YES

1. 11kV and 33kV metering units.

It shows we need to submit bid with the sample, but it is very big and expensive can we submit sample once you have concluded on the evaluation process.

Answer: YES, A sample and the drawings are mandatory.

11kV CT PT unit is a good seller, we have indoor type and outdoor type, oil type and cast resin type, so which type do you prefer to based on your specific enquiries. Answer: It is specified in the tender document itself on the insulating materials for bushings on page 120

Regarding the type test report requested in your documents, unfortunately, for the Type Test, due to the customized nature of our products, the Type Test (with CNAS international accreditation can could only be arranged and provided after the production of each unit, please kindly confirm is it acceptable for your tender. Answer: YES, this is acceptable without type test.

Additionally, regarding the technical requirements for the 11KV metering unit in 'Lot No. 3 11KV Metering Units,' could you kindly confirm if there are any missing pages? I could only find one page, which differs from the 33KV documents (10 pages**).**

Answer: Please find **b**elow omitted pages for ease of reference.

| (1) Item No. | **(2) Technical Specifications** | **3. Specification offered** | **4.  Notes, Remarks Ref to Documentation** | **5. Evaluation committees notes** |
| --- | --- | --- | --- | --- |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Rated Short Circuit Current withstand (kA for 3 sec) | 31.5 |  |  |  |
| **Lot 3, Item No. c): -11Kv Metering units (Qty: 32)** | VT ratio (kV) | 11/0.11 |  |  |  |
| Rated voltage factor | 1.2 continuous |  |  |  |
| Number of CTs per phase | 1 |  |  |  |
| CT ratio (A) | 500/200/100/5 |  |  |  |
| Instrument security factor | 5 |  |  |  |
| 11/0.11kV METERING UNIT 500/200/100/5A | | | | |
| The secondary Neutral to be earthed and primary neutral to float. (Yes/No) | Yes |  |  |  |
| Minimum Output for VT and CT (Burden)(VA) | 10 |  |  |  |
| Accuracy class | Class 0.5 |  |  |  |
| A minimum of ten spares sets of three (3) fuses for each metering Unit shall be provided on delivery(Yes/No). | Yes |  |  |  |
| Operating Ambient temperature (oC) | -1 to 40 |  |  |  |
| Altitude(m) | 1400 |  |  |  |
| Humidity(%) | 85 |  |  |  |
| Markings (std) | BS 3938 |  |  |  |
| Previous type test certificate/results to be provided with bid (Yes/No) | Yes |  |  |  |
| Drawings showing general/dimensions to be provided with bid(Yes/No) | Yes |  |  |  |
| Quality assurance certificate to be provided with bid | Yes |  |  |  |
| **Lot 3, Item No. c): -11Kv Metering units (Qty: 32)** | Routine test results to be provided on delivery(Yes/No) | Yes |  |  |  |
| Applicable standard(s) | BS 3941, BS 3938 and IEC 60044 |  |  |  |
| **Factory Certificates** |  | | | |
| Quality Assurance Certificate, Quality Management Systems, Environmental Management etc (Lot) | Bidder shall provide together with bid latest ISO and other relevant certifications of their Manufacturing facility for example (more can be provided for ZESCO Limited confidence): |  |  |  |
|        ISO 9001/year…. |  |  |  |
|        ISO 14001/year… |  |  |  |
| Quality Control | 1.     The bidder shall submit with the bid Quality assurance plans for meter and other accessories, indicating the various stages of materials inspections during manufacturing, the tests and checks to be carried out on the project, components during manufacturing and bought out items and fully assembled component and equipment after finishing. |  |  |  |
| 2.     As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. |  |  |  |
| 3.     Quality assurance is critical; therefore, bidder shall demonstrate product quality management at the following stages of manufacturing: |  |  |  |
| **Lot 3, Item No. c): -11Kv Metering units (Qty: 32)** | Tender Sample | 1.     Bidders shall submit together with bid a sample meter assembled an IP66 as samples in this tender. |  |  |  |
| 2.     ZESCO Limited may send a team of Engineers after 10 days of the opening of tender to the bidder’s manufacturing facility. |  |  |  |
| 3.     Sample meters shall be tested and examined for various acceptance tests and conformance with desired specifications. Tests may be done at ZESCO’s choice of certified laboratory. |  |  |  |
| **NB**: **Samples of the bidder's offer must be handed over to Procurement office together with bid, failure to submit will be treated as non-responsive**. |  |  |  |
| **Drawings** |  |  |  |  |
| Drawings showing meter dimensions(lot) | Following drawings & Documents shall be prepared based on the above specifications and statutory requirements and shall be submitted with the bid: |  |  |  |
| a.      General arrangement drawing of the meter |  |  |  |
| Factory Acceptance Test | **Bidder shall provide for three ZESCO Engineers to witness Factory Acceptance Tests (FAT) at his own manufacturing site before dispatch of units** |  |  |  |
| **Lot 3, Item No. c): -11Kv Metering units (Qty: 32)** | Oversee and Support User Trainings. | **Bidder shall provide effective and timely overseas training for ZESCO personnel from relevant department on the project.** |  |  |  |
|  |
| (This shall reinforce team’s knowledge and ownership of the would be newly deployed Product) |  |  |  |  |
| Local trainings at ZESCO, Zambia. (lot) | Bidder shall coordinate the timings and delivery of on-site trainings during and throughout project execution. |  |  |  |
| **Markings on Metering Unit** |  |  |  |  |
| Name plate and Marking; | 1.     Unit name plate details shall be laser printed, clearly visible and effectively secured against any tamper. |  |  |  |
| Markings, | 2.     Indelibly and distinctly marked with all essential particulars as per relevant standards along with the following. |  |  |  |
|  | a. Manufacturer's name |  |  |  |
|  | b.     Type designation |  |  |  |
|  | c.      Number of phases and wires |  |  |  |
|  | d.     Serial number |  |  |  |
|  | e.      Month and Year of manufacture |  |  |  |
|  | f.      Unit of measurement |  |  |  |
|  | g.     Reference voltage, frequency |  |  |  |
|  | h.     Rated basic and maximum Current |  |  |  |
|  | j.       Class index of meter |  |  |  |
| **Lot 3, Item No. b**): - **Smart meter backbone system (Qty x 1)** |  | k.     "Property of ZESCO” |  |  |  |
|  | l.       Rated frequency |  |  |  |
|  | m.   Sign of double square |  |  |  |
|  | n.     Country of manufacture. |  |  |  |
|  | o.     However, the following shall be printed in bar code on the meter nameplate. |  |  |  |
|  |        SPMS Meter Article Code No. (to be provide by ZESCO) |  |  |  |
|  |        Metering Unit Serial Number. |  |  |  |
|  |        Property of ZESCO |  |  |  |
| Packing | 1.   Packing and transportation shall be as per relevant standard. |  |  |  |
| 2.   Routine test report of the individual metering unit shall be kept inside each cardboard carton of the metering unit. |  |  |  |
| Pre-dispatch inspection | 1Metering Unit project material & equipment shall be subject to inspection by ZESCO Limited or a duly authorized representative. Inspection may be made at any stage of manufacturing. |  |  |  |
| **Lot 3, Item No. c): -11Kv Metering units (Qty: 32)** | 2.     Bidder shall grant free access to the places of manufacturing to ZESCO Limited or its representatives at all times when the work is in progress. Inspection by ZESCO Limited or its authorized representatives shall not relieve the bidder of their obligation of furnishing project materials in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by ZESCO Limited. |  |  |  |
| Inspection after goods receipt at Ministry of Energy Stores | For the delivered goods, Ministry of Energy Stores & ZESCO technical team will inspect at the receipt point for acceptance and shall be liable for rejection if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Project Manager- Snr Manager METERING. |  |  |  |

We request you to confirm us Rated Voltage (KV), PT Ratio, Accuracy Class and Burden.

Answer: The Rated Voltage (KV), PT Ratio, Accuracy Class and Burden are exactly like the ones appearing on the 33kV specifications besides just the Voltage level of 11kV

1. Pump Soft Starters

Do you require the pump soft start with RS485 only without the DLMS or it has to be customized?

Answer: The Soft start should be with the Direct on-line starters i.e. DLMS

For the water meter, this is big size that didn’t have the PE body material, should it be Iron and can you confirm the detail of water meter.

Answer: For water meters, the body material is Iron.

1. Vibration Analysers

            Do you need vibration table equipment? Answer: Portable hand held

To recommend a suitable testing machine for you, please provide some information~

1. What is the size of the sample you tested here?

Answer: The size that is required is for testing pump set vibrations

1. Do you have additional testing requirements?

Answer: NO

**Email Submission No. 2**

**Questions and Answers**

We are in interested in bidding for these LOTs under this tender and therefore, we seek the following clarifications or information:

1. **LOT 4**

**You mention of designing, manufacture, install and commissioning of rightly sized power factor correction equipment on selected 7,000 SMEs with consumption between 16 to 99KVA.**

1. Does it mean this is a turnkey project?

Answer: YES. It will involve designing, manufacturing, installation and commissioning a functional Power Factor Correction (PFC) equipment according to customer’s energy efficiency utilization of the power being delivered by the Utility Company (ZESCO LTD)

1. Does it mean it will involve connecting the power factor correction equipment to your customers requiring the power factor equipment?

Answer: YES. A working PFC should be commissioned. Turnkey project.

1. And who shall provide the list of customers needing this equipment?

Answer: The Utility ZESCO Ltd shall provide the list of customers

1. How many of each size of power factor equipment shall be required?

Answer: The target is customers whose apparent power consumption is between 16 and 99kVA. Therefore, the size of PFC shall be based on how efficient the customer being targeted is at that particular period of time.

1. Will the power factor correction equipment be supplied at once or it shall be supplied when it is required?

Answer: When it is required after establishing the needs of each customer.

1. **LOT 3**

**Under item (f) Power quality clamp meters (Qty:204)**

1. The specifications are not very clear, kindly confirm whether these are clamp on power quality meters or recorders; their usage and the voltage levels, and where they shall be used. Are they portable or permanently mounted?

Answer: These are power quality recorders or meters used to monitor and measure all power quality parameters on an electrical power system. They are permanent panel mounted. The voltage levels range from 330kV to 0.4kV. They shall be used on ZESCO electrical power system or network from Generation through to Transmission to Distribution. The technical specifications are on pages 129 to 139 on the tender document.

**(g) Power quality data logger complete with management system (Qty:1)**

1. What does this management system comprise of and what shall it manage? Answer: It shall manage the power quality recorders according to power quality standard ZS 387 and other International applicable power quality standards.
2. Is it to supply the system only or it will require installation as well?

Answer: It will both supplying and installation of a functional Power Quality Management System (PQMS)

1. What is the size of the management system? How many data loggers does it require to accommodate?

Answer: It should be able to accommodate at least a minimum of 250 power quality recorders on the Utility electrical power system.

**(c) 11kV and 33kV Metering units**

1. The 11kV metering unit specifications seems incomplete in comparison to the 33kV units? Do we bid accordingly to specifications as provided?

Answer: YES. They are incomplete. The specifications are similar to the 33kV on pages 120 to 126. The difference is the just the rated voltage level which should be 11kV.

1. Shall it be mandatory to provide sample of Unit together with bid or drawing only shall suffice?

Answer: YES. It is mandatory to provide both sample and drawing

1. **LOT 1**
2. **5 Ft tubular LED lamps (Qty:5,000) and 4 Ft tubular LED lamps (785,000)**
3. Kindly confirm both total power rating for both 4 and 5 foot is **18W**? Or 5 foot should have slightly higher rating than 4 foot?

Answer: The 5-foot tubes should have power rating range between 20 to 22W and not 18W which is for the 4-foot tubes

1. **LOT 2**
2. Are the single-phase power analyzers portable too like the three phase ones? What voltage level shall they be used at?

Answer: YES. They are portable.

1. Where will these power analyzers be used?

Answer: On Utility’s electrical power systems. That is from 330kV (330,000 volts) down to 0.4kV (400 volts).