



LPU METER
MAINTENANCE PROJECT
Request for Quotation for Field
Teams

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1. GENERAL

1.1 Scope

City Power (Johannesburg) is in the process of addressing metering maintenance and management issues. The current metering strategy for City Power is to roll out smart meters to each and every one of its customers (Large Power Users, Business, Domestic and pre-paid) so as to ensure accurate data and consistent read performance.

There are an estimated 12000 LPU's on City Power's books, all of whom need to be audited and verified in terms of correct physical installation, correct client address/details and correct client billing.

The normalisation phase is a once off process while the meter maintenance phase is continuous. At the end of a successful metering normalisation phase, the meter maintenance phase will have an estimated 12,000 meters with successful SAP meter read status to maintain.

This Specification defines the minimum requirements for the meter audit project at City Power. In no way does this Specification supersede the referenced codes and standards except the requirements herein are more specific.

The *Bidder* complies with the provisions of this specification and is responsible to supply auditing services which fully complies with the specified service conditions.

Deviations to the specification are brought, in writing, to the attention of the Purchaser for approval.

A detailed scope of work is attached in Appendix A.

1.2 Referenced Specifications, Standards and Codes

NUMBER	REV	DESCRIPTION
IEC 164-1	Latest issue	Plug and socket outlets, conventional 16A 250VAC
IEC 164-2	Latest issue	Plug and socket outlets, conventional 16A 250VAC
IEC 60947-1/2/3	2006	Low Voltage Switchgear and Control gear
IEC 61439- 1/2	2006	Low Voltage Switchgear and Control gear Assemblies
IEC 60044-1	2003 IDT, Ed. 1.2	Instrument transformers Part 1: Current transformers
IEC 60050-441	1984 Ed 1	International electro technical vocabulary Chapter 441: Switchgear, control gear and fuses
ET201:	2005	Code of Practice for the design, selection and erection of low voltage switchgear assemblies.
ET204:	1995	Code of Practice for control systems involving programmable electronic products and systems.
ET101	:2008	National Rules for Electrical installations
IEC61000		Electromagnetic Compatibility (EMC)

National Specification List

TITLE	NUMBER	REVISION NUMBER AND DATE
Occupational, Health and Safety Act 85 of 1993	OHS ACT	Latest
The wiring of premises Part 1-Low Voltage Installations	SANS10142-1	Latest
The classification of hazardous locations and the selection of apparatus for use in such locations	SANS 10108	Latest
Regulatory requirements for explosion protected apparatus	APR 0108	Latest

If in the opinion of *Bidder*, there are any conflicts between the relevant standards and codes with this specification, the *Bidder* notifies the *Purchaser* in writing to clarify these contradictions.

1.3 Service Conditions

Contractors are expected to complete at least 5 sites per day per resource as a minimum. Any shortfall needs to be made up in the Contractors own time. This contract is for a duration of two months with a possible extension.

1.4 Site Conditions

- The environmental conditions are as follows:
- Ambient air temperature relevant for installation 5°C up to +25 C
- Design temperature +25°C
- Climate Highveld
- Site altitude 1400
- Location Greater Johannesburg Area , Gauteng, RSA

1.5 Scope of Supply

Please refer to appendix A.

2. SPECIAL REQUIREMENTS

Provide the proposal, number of resources available on a full time basis and certification of resources to Claudio.Pierini@aurecgroup.com

3. DRAWINGS AND DOCUMENTATION, IDENTIFICATION SYSTEM

3.1 Order Documentation

The *Bidder* provides the following information, 5-fold for approval within two weeks of contract award:

- Quality Control Plan
- Detailed Schedule

3.2 Final documentation

The *Bidder* provides the *Purchaser* with completed check sheets, audit reports and verification documents for all relevant power meters.

4. GUARANTEES

Not applicable.

5. MATERIAL AND EQUIPMENT

5.1 General Requirements

See Appendix A.

6. SAFETY, RISK MANAGEMENT AND QUALITY ASSURANCE

6.1 Quality Plan:

Bidder submits 5 (five) copies of his final QCP to Purchaser's QA /QC DEPARTMENT for review, approval and establishment of hold and witness points within 2 (two) weeks after contract award.

6.2 Bidder's QA/QC Responsibilities:

Unless otherwise specified, directed or approved, all material and workmanship comply with the appropriate specifications and codes, and bear the official mark of such specifications and codes.

The *Bidder* conducts a continuous programme of auditing quality control for all work performed on the site. All relevant inspections and tests are adequately documented and signed off by *Purchaser's* QA Department.

The *Bidder* complies with any quality assurance procedures required by the *Purchaser*. *Purchaser's* QA Department will monitor the *Bidder's* adherence to quality requirements independently. Any rejections by them based on design, specifications, codes and the like will be binding.

6.3 Quality Audits:

Purchaser reserves the right to perform quality audits at any time during the execution of the work.

6.4 Bidder's Scope

The *Bidder* provides additional information and data that he deems necessary to be included in the contract as part of the Scope.

7. COMPULSORY EXAMINATION

Successful *bidder* shall be required to write a compulsory examination. Employees who fail this test will automatically be prohibited to conduct the audit work on site.



APPENDIX A:

TERMS OF REFERENCE: CITY POWER LPU METER MAINTENANCE CONTRACTOR SCOPE OF WORK

1. BACKGROUND

City Power is in the process of addressing metering maintenance and management issues. The current metering strategy for City Power is to roll out smart meters to each and every one of its customers (Large Power Users, Business, Domestic and pre-paid) so as to ensure accurate data and consistent read performance.

There are an estimated 12000 LPU's on City Power's books, all of whom need to be audited and verified in terms correct physical installation, correct client address/details, correct meter communication and correct client billing.

The normalisation phase is a once off process while the meter maintenance phase is continuous.

At the end of a successful metering normalisation phase, the meter maintenance phase will have an estimated 12,000 meters with successful SAP meter read status to maintain.

2. SCOPE OF WORK

In order to achieve the above, the following scope of works is envisaged:


1. Optimised routes to each site will be determined by Aurecon and issued to each team on a weekly basis.
2. The contractor's resources are expected to complete at least 5 sites per day per resource (artisan or junior artisan) as a minimum. A total of 105 sites per month are required. Any shortfall needs to be made up in the contractor's own time. The monthly fee is based on the artisan/junior artisan visiting 5 sites per day as a minimum. This translates to 105 sites per month per individual resource. If less than 105 sites have been visited and normalised per resource, a pro rata monthly fee will be payable comparing the actual sites visited and normalised to the target of 105 sites per month. The contractor must include a detailed schedule of sites visited and normalised per resource in their fee invoice. If the site is not normalised in the first site visit and rework is necessary, the contractor will revisit the site at their own cost. Resource overtime to reach the target of 105 sites per month is for the contractor's cost. The Client will pay Aurecon per site if the scope of work has been completed and quality assured to the satisfaction of City Power. Aurecon will not be held liable for payment to the contractor if those sites visited by the contractor have not been approved and accepted by City Power.

3. NORMALISATION PROCESS.

This includes the following:-

3.1 Normalised Site

- 3.1.1 Completed site audit form;
- 3.1.2 Clear legible photos are taken of the site (building), location of meter at site address, metering installation, meter number, CT and VT as accessible wiring problems, terminals exposed and of the completed site audit form;

- 
- 3.1.3 Verification of meter communicating through modem (each meter communicates remotely to the IEE system) and testing of communication system (typically a ping test to the meter IP address);
 - 3.1.4 Inspection of metering installation and correction of incorrectly installed equipment and minor site repairs as indicated below;
 - 3.1.4.1 Meter reprogramming if needed;
 - 3.1.4.2 Fuse replacement;
 - 3.1.4.3 LV CT replacement;
 - 3.1.4.4 Re-Wiring (wiring phases not correct - correct wiring colours should be used);
 - 3.1.4.5 Modem replacement;
 - 3.1.4.6 Meter replacement;
 - 3.1.4.7 Sim replacement;
 - 3.1.4.8 Seals placement and recorded;
 - 3.1.4.9 Test blocks shorted/any bypassing/tamper removed and corrected;
 - 3.1.5 Verification that meter is configured correctly (CT/VT ratios, phase rotation);
 - 3.1.6 Download of meter configuration file, billing value registers, data readout, phasor diagram (Toolbox);
 - 3.1.7 Where a minor repair is done onsite, the meter must be downloaded before and after the repair to show the impact of the repair (Phasor Diagram and related instantaneous measurements) and maintenance actions recorded and material used;
 - 3.1.8 Completion of check sheet per site which is returned to the field office on a daily basis;
 - 3.1.9 Capturing of site conditions (before and after) of each meter installation by the taking of photographs (this via the Android that Aurecon will issue);
 - 3.1.10 Uploading of site information to the meter management database on a daily basis.
 - 3.1.10.1 Photos;
 - 3.1.10.2 Scanned forms;
 - 3.1.10.3 Downloaded meter data;

3.2 General

- 3.2.1 If site photos or the audit form is not submitted the site is deemed to not have been visited;
- 3.2.2 Where no access is possible, sufficient proof must be delivered (i.e. photo of locked premises);
- 3.2.3 The sub-contractor is to take responsibility for all material issued and account for material used at specific sites. All equipment (i.e. meters, modems, sims, etc.) removed from site must be returned to Aurecon and the site detail from where it was removed recorded;

The contractor will provide the following - a vehicle, petrol, insurances (public liability, and workman compensation), camera, GPS, CoJ approved PPE, tools, measuring equipment such as multi-meter suitable for metering project, laptop, 3G modem, ORHVS certification (HV Awareness, Supervision, Equipotential Earthing). Refer to the equipment list in Table 1 below.

Normal working hours are considered from Monday to Friday 07h00 to 16h00. Overtime is considered to be from 16h00 on working days, Saturday and Sundays, and public holidays.

Free Issue Items are specialized equipment such as Android mobile devices with specialized software, City Power APN SIM card and 3G modems. Substation keys and client access cards will be issued.

In addition, the contractor must provide certificates for Workman's Compensation, Public Liability (R1m) and Contractor's all Risk cover (commensurate with the number of field teams).

The contractor shall be required to write a compulsory examination. Employees who fail this test will automatically be prohibited to conduct the audit work on site.

Equipment List

Table 1

EQUIPMENT LIST:
ORHVS
Vehicles including fuel
Key's - Orange and Black
CoJ approved PPE
Toolbox:
Multimeter
Tongtester
Small Electrical Tools
Loose wire, Ferrules, Lugs
Long key
Torch
Ladder plastic
Calculator
Cell phone
Digital Camera
Laptop, 3G Card for Data
L + G x 1 thrio S/W + License
Optical Cable GPS device

4. Rate per site normalised

The contractor must provide a rate per normalised site (excl Vat) as per the scope of works above including all equipment and travelling costs as outlined in the equipment list above. Bids close on the 5th May 12h00 and submissions must be emailed to Claudio.Pierini@aurecongroup.com