Municipal Area

At present the Municipality electricity distribution area comprises of the following areas:

❖ Dendron/Mogwadi
❖ Morebeng

SECTION A: VENDING SYSTEM

1.   Background

The Municipality is currently uses an off-line vending system for the sale of pre-paid electricity and it comprise of 962 household using conversional & prepaid electricity meters at Morebeng and Mogwadi/Dendron office in which 181 households uses conversional electricity meters at Morebeng.

2.   Scope

2.1   Supply, installation and maintenance of a complete prepayment vending and management solution use on-line technology to vend tokens in a secure and efficient way in all the municipal areas.

3.   Applicable Standards

3.1   The following standards shall reference and apply as stipulated in the Specification:

❖ IEC 62055 > Electricity Payment Metering Systems
❖ STS Part 1,2 and 3> Standard Transfer Specification
❖ NRS 009-2-1:1998 > Electricity sales systems - Part 2: Functional and performance requirements - Section 1: System master stations
❖ NRS 009-2-2:1995 > Electricity sales systems - Part 2: Functional and performance requirements - Section 2: Credit dispensing units.
❖ NRS 009-6-10 (Online XMLVend 2.1)   the NRS Standard for on-line communication between Vending Servers and Vending Clients
❖ ISO 8583   > Financial transaction card originated messages — Interchange message specifications

4.   General

4.1   Service providers must be certified as **an ISO 9001** manufacturing company.

4.2   The system shall provide for the following types of payment:

❖ Cash
❖ Cheque
❖ Credit Card
❖ Debit Card
❖ Bank Transfer

4.3   The system shall provide for the Electricity Base Support Services Token (EBSST)

4.4 The system shall vend on-line to all installed, existing and commissioned prepayment meters in the municipal area of supply.

4.5 All system functions shall be accessed via a user-friendly graphics user interface.

4.6 The prepayment meters shall accept all codes generated by the system to a valid meter and shall not reject the code generated.

4.7 The system shall have the ability to collect arrears from the consumer by leveraging the prepayment transaction according to a unique formula for each consumer.

4.8 The system shall be able to collect municipal account payments at the vending points. The system shall be capable to interface with the Venus billing system.

4.9 The system shall be able to track the history/location of a meter from the time it is delivered to the municipalities' main store, through other local stores and points of connection until it is finally scrapped.

4.10 The system shall be capable of interfacing with the GIS and other   3rd party systems

4.11 The system shall be operational on a 24 X 7 X 365 basis.

5.   Mandatory Requirements

5.1   Reporting System

5.1.1   The vending solution shall include a dedicated reporting environment that runs on proven reporting software.

5.1.2   The Municipality must have access to a full set of standard management reports.

5.2   Online Customer Contract Management

5.2.1   The system shall have the ability to perform online customer contract management via any standard web browser.

5.2.2   The following functionality shall be available via the online Customer Contract Management web application:

❖   Creating new Customers
❖   Creating new Points of Connection
❖   Updating Customer details
❖   Updating Point of Connection details
❖   Link Customers, Points of Connection, Meters
❖   Perform Advanced Customer, Point of Connection and Meter data lookups

5.2.3   The system shall support multiple accounts (multiple POC's with a meter) to be associated with a single customer.

5.3   Online Engineering Operations

5.3.1   The system shall have the ability to generate engineering tokens (Replacements, Clear Tampers, Clear Credit, and Power Limit) online via any standard web browser.

5.4   Online Auxiliary Account Management

5.4.1   The system shall have the ability to manage customer specific auxiliary accounts online via any standard web browser. This functionality shall include the creation of auxiliary account categories and the definition of the account details such as account balance and collection type.

5.5   Online Asset Management

5.5.1   The system shall have the ability to receive bulk meters into a store location as well as the ability to move meters between locations online via any standard web browser.

5.6   Online System Configuration

5.6.1   The system shall have the ability for its system's parameters to be configured online via any standard web browser.

5.7   Online System Security

5.7.1   The system shall have the ability to define online users, user roles and user specific role processes online via any standard web browser.

6.   Support, Installation & Commissioning

6.1   Operating System

6.1.1   All system functions shall be accessed via a user-friendly Graphical User Interface.

6.2   Hardware

6.2.1   All workstation components of the system shall operate on a standard, readily available, PC-based machine with no special modifications required to any parts.

6.2.2   The server hardware shall include sufficient scalability and be housed in a secure datacenter environment The Service provider shall supply a standard STS security module solution.

6.3   Data Model

6.3.1   The underlying data model used by the system shall be tested to conform to the standard of a so-called third generation system. This means that the data model shall be capable of the following:

- ❖ The tariff shall not be connected to a Meter or a Consumer, but shall rest with the Point-of-Connection.
- ❖ The data model shall allow for the definition of hierarchical Nodes in order to simulate a distribution network.
- ❖ The data model shall allow for WGS-84 GPS coordinate definition with all locations.
- ❖ The data model shall accommodate, for enhanced management purposes, possible additional resources like water & gas.
- ❖ The data model shall accommodate meter reading for reading prepaid meters, and reconciling meter consumption with sales.

6.4 Integration and Interface Requirements

6.4.1 File based integration

6.4.1.1 The system shall be able to facilitate file-based integration via a purpose-built application. This application shall be able to extract or import data according to dynamically defined business rules. This application shall also be able to manage and track processed data, regenerated files and enable additional file layouts as required.

6.5 Electricity Prepayment Vending

6.5.1 Transactions

6.5.1.1 All transactions shall be atomic to such a nature that taxes, levies, standing charges, arrears and services are all created through individual rows in the database.

6.5.1.1 Any rounding errors of kWh beyond the first decimal shall be recorded in the database as separate transaction rows to ensure effective reconciliation.

6.5.1.2 System transaction reversals shall:

- ❖ be effected with full trace-ability of the reversal;
- ❖ shall be traceable to an operator;
- ❖ shall reverse an entire transaction batch consisting of taxes, levies, auxiliaries and resource amounts on the system and
- ❖ Have the option of being disabled or enabled for specific vendors.

6.5.2 Vending Operation

6.5.2.1 The system shall be capable of vending STS compliant prepayment credit and engineering tokens.

6.5.2.2 The system shall be certified by the STS association as being Vending, Engineering and Key Change Management compliant.

6.5.2.3 The system shall be capable of vending proprietary prepayment credit tokens.

6.5.2.4 Vendors shall have the ability to perform a consumer lookup through meter number, address, point-of-connection or name.

6.5.2.5 The system shall be capable of allowing transaction re-prints and reversals, without compromising the integrity of transactions and subject to appropriate security.

6.5.2.6 The vendor shall have the ability to look up the localized transaction history of a relevant consumer.

6.5.2.7 The system shall be capable of vending free electricity grants.

6.5.2.8 The system shall have the ability to calculate and display cash change to the Vendor.

6.5.2.9 The system shall allow for remote operator security management.

6.5.2.10 The system shall allow for vendor and cashier shifts to accommodate various levels of operators, thus improving security.

6.5.2.11 The system shall allow for the automated or manual sign-off of shifts.

6.5.2.12 Vendors shall have pre-defined, credit limits limiting the exposure at certain outlets. The option shall exist to update credit limits manually.

6.5.3 Tokens and receipts

6.5.3.1 The system shall give users the ability to easily define customized token/receipt templates through the use of any Rich Text Format editor.

6.5.4 Auxiliaries

6.5.4.1 A consumer's unique collection profile shall be automatically updated by the system based on historic payments made.

6.5.5 Tariffs

6.5.5.1 A separate tariff spreadsheet shall be used for defining tariff and debt calculations.

6.5.5.2 The Municipality shall have the ability to customize the tariff spreadsheet at will.

6.5.5.3 The tariff system shall accommodate an unlimited number of tariff, debt and charges rules and calculations.

6.5.5.4   The system shall accommodate step tariffs, with an unlimited number of kWh base steps.

6.5.5.5   Unique tax and fixed charges profiles shall be definable for each tariff block.

6.5.5.6   Tax and fixed charge blocks independent from step tariff blocks shall be definable according to monthly monetary value transacted, or kWh bought.

6.5.5.7   The system shall have automated activation dates for tariff changes.

6.5.6   Online Vending

6.5.6.1 Online vending on a PC Point of Sale shall take place through a thin client.

6.5.6.2 All messages shall be via the self-defining, open-standard XML protocol.

6.5.6.3 The system shall support the latest version of the NRS009-6-10 XMLVend specification.

6.5.6.4 The online transaction processing infrastructure shall have unlimited scalability with hot-swappable redundancy.

6.6   Engineering

6.6.1   Meter Life Cycle Tracking

6.6.1.1 In order to facilitate meter life cycle tracking, the system shall accommodate at least the following location types:

❖   Inventory Store
❖   Resource Consuming Location

6.6.1.1 Again in order to track meter life cycle, the system shall further allow for the following modes of operation:

❖   Received
❖   Installed
❖   Removed

6.7   Standard Reports

6.7.1   The following complex reports shall come standard with the vending system:

❖   Management Summary

- ❖ Transaction Summary
- ❖ Free Basic Electricity
- ❖ Zero Low Purchase

6.8   System Management

6.8.1   Communication

6.8.1.1 The system shall be configurable to operate fully online

6.8.1.2   The system shall use a TCP/IP communication layer supporting GPRS, LAN/WAN, telephone dial-up, BGAN and VSAT communication.

6.8.1.3 The complete database shall be automatically mirrored to a disaster recovery machine on a regular basis.

6.8.2   Security

6.8.2.1 Database security governing low- and high-level database access shall be via a proven technology and applied at both database and application level.

6.8.2.2 The system shall allow for the addition of an unlimited number of named operators.

6.8.2.3 Security shall be adjustable to allow for individualized access to any field within the database.

6.8.2.4 The system shall allow for smart card based SSL security to be implemented for on-line PoS.

6.9   Reporting and Information

6.9.9.1 The database shall be accessible via standard SQL-based report writing tools like Cognos Impromptu or Crystal Reports.

6.10   Geographical Information System

6.10.1   It is envisaged that a Geographical Information System will be linked/incorporated into the prepayment database in the future. The proposal should describe how the solution would cater for such GIS integration.

6.10.2   Certain data elements in the prepayment metering system must be able to store GPS coordinates as attributes. These include the location of a meter as well as the point of connection of a meter.

6.11   Vending Gateway with Transaction

6.11.1   The system should include as an additional option the capability to direct transaction requests from vending clients to different services databases.

6.11.2   The transaction switch should include a billing system where different commissions for different services as well as vendors could be calculated.

6.11.3   The transaction switch should include vendor credit limits that will only allow a vendor to sell services if a positive credit is maintained.

6.11.4   The transactions switch should either include, as an option, or be able to integrate to an electronic fund transfer (EFT) switch to facilitate credit card payments.

6.11.5   The EFT option should include a secure web site for selling services.

6.11.6   The transaction switch should allow for mobile points of sale (PoS) to connect to it. This will be achieved by allowing various suppliers of mobile technology to integrate to the transaction switch.

6.11.7   The transaction switch will allow SMS (GSM) based messages to transact with the switch.

6.11.8   In addition to conventional payment methods, the system should support a voucher payment mechanism in the on-line mode of operation.

6.11.9   Where the system generates its own vouchers, customizable vouchers should be printed with unique voucher numbers.

6.11.10 The system should be able to reserve and expire vouchers as and when it is redeemed for resources.

7   Vending Channels

7.1   The following vending channels shall be implemented:

❖   Mobile POS
❖   Mobile Phone
❖   Vouchers

8   Online Retail and Vending Administration

8.1   The system shall have the ability to manage retailer accounts online.

8.2   This includes adding, removing and editing retailers, operators, terminals, available networks and accepted payment methods.

8.3   It shall also allow transferring and adjusting retailer funds and accepting retailer deposits.

8.4   The system shall have the ability to add, remove and edit vouchers online.

8.5   The system shall have an online facility for reconciling between client records, EFT records and service provider records.

9   System Hardware

9.1   Envisaged hardware layout:

❖ Master Database Server – 1
❖ Management Server - 1
❖ Online Point of Sale Terminals - 3

9.2   Severs can be combined, depending on Software requirements

9.3   The service provider shall provide and install all the necessary hardware needed to operate the vending system and shall maintain and upgrade the hardware during the contract period. Ownership of all PC based hardware will revert to the end of the initial contract period or in the event of a contract breach. There will be no cost implication.

9.4   All client access components of the system shall operate on a standard, readily available, PC-based machine with no special modifications required to any parts. Brand-name system will be the preferred option. The PC's will be utilized for additional purposes e.g. receipting, emails.

9.5   POS (Point of Sale) terminals can be PC based or other POS terminals that comply with the hardware and software requirements. These terminals shall be submitted for approval by the.

9.6   Encryption cards and security modules shall be centralized in the hosted master server to ensure the security of the system.

9.7   All servers shall have the necessary redundancy. The necessary backup facilities will also be provided. The service provider shall provide an offsite backup server for disaster recovery purposes.

10   System Software

10.1   The service provider shall provide and install the necessary software and operating systems needed to operate the vending system and shall maintain and upgrade the software during the contract period.

10.2   All workstations to be provided with the latest Microsoft Office package.

10.3   Ownership of all PC based software will revert to the Municipality at the end of the initial contract period or in the event of contract breach. There will be no cost imposition.

10.4   The service provider shall be responsible for the migration from the current system to the new system.

10.5   The service provider shall be responsible for all licensing and upgrade cost during the contract period.

10.6   The service provider shall be responsible for the exporting/transferring of all data in a specified format in the event that there should change to new software at the end of the contract period.

10.7   Should migration be necessary on the onset or during commissioning of the system, all cost is for the service provider.

10.8   The service provider shall provide training on all elements of the system for all the different user groups and vendors.

10.9   The service provider shall provide on-site support and a 24 x 7 x 365 comprehensive support service and help desk for the contract period.

11   Arrears Recovery

11.1   There shall be a direct interface with the billing system so that arrears collected can be posted directly to the relevant account either in 'Real Time' or via batch entry at a user selectable delay on the Venus system.

11.2   The details of all arrear amounts collected and service accounts paid for the current transaction shall be individually listed on the transaction receipt handed to the customer at the point of sale.

11.3   Data should be imported directly from Venus into the service providers system where data will be managed to block and unblock consumers.

12   Data Ownership

12.1   All the information on consumers and related info in the databases will remain the property of the municipality at all times and will not be disclosed as a whole or in part to any third party without the express permission of the municipality.

12.2   Any data archived and warehoused on behalf of the municipality shall be accessible at any time to the municipality or its appointed auditor.

13   System Costs

13.1   The method of payment will be a monthly fee based on the number of active prepayment meters on the system, depending on some sort of service level agreement.

13.2   A service level agreement will be entered into by the municipality and the service provider for a period of 3 years and shall clearly stipulate amongst the following:

❖   Hardware and software upgrade and ownership conditions
❖   Communication up- and downtimes and reliability
❖   Level of support and response times
❖   Training
❖   Performance levels and penalties
❖   Data ownership additions
❖   Exit and termination conditions

❖ Insurance of Hardware, software and communications

13.3 The service provider shall list the following components and give a detail specification thereof in order to enable a fair comparison of tenders offered:

❖ Hardware
❖ Software
❖ Communication
❖ Support
❖ Training

SECTION B: VENDOR MANAGEMENT

1. Scope

The service provider must completely manage contracted 3rd party vendors on behalf of the municipality.

2. Vendor Management

The service provider shall be responsible for the following:

2.1 Setting up guidelines for appointing and contracting with existing and prospective vendors and compiling of agreement/contracts.

2.2 Advertising and information meetings with prospective and existing vendors.

2.3 Appointment of vendors and signing of contracts. The will determine the quantity of vendors per location as required.

2.4 Providing all the necessary hardware, software and communications equipment needed for the vendor to operate.

2.5 Providing training as and when necessary for the vendor or his appointed operators in order to operate the equipment and relevant software.

2.6 Providing the necessary consumables, e.g. Paper, printer carriage, etc.

2.7 Providing the routine and necessary maintenance, repair and servicing as is required to maintain the equipment.

2.8 Collection of all revenue from vendors as per agreement

2.9 Insurance against revenue loss.

2.10 Providing the necessary security measures for collecting the revenue if required.

2.11 To reconcile the revenue received from the vendors on a daily basis and provide the necessary credit to the vendor to continue vending.

2.12 Payment of any commissions owed to vendors.

2.13   Payment of revenue received (Prepaid & Auxiliary separately) directly in the municipalities account at predetermined times together with a reconciliation of said revenue.

2.14   Providing daily, weekly and monthly reports as required by the.

2.15   Provide audit reports if required.

2.16   Vendor's commission payable to the successful service provider will be included in the monthly fee of price per meter.

2.17   All existing handhelds terminals that are not compatible with the proposed vending and management system must be replaced on the cost of the successful service provider.

3.   Support Services

The service provider shall be responsible for the following:

3.1   Providing the necessary admin and support staff to administer the vendors. The staff will be on-site and situated in Molemole municipality (Mogwadi Office).

3.2   Provide the office space to house the staff.

3.3   Provide a 24 x 7 x 365 support service for vendors.

3.4   The Service provider may subcontract this service to a third party.

SECTION C: REMOVAL AND INSTALLATION OF METERS

1, Scope

The service provider must also remove conversional meters and install pre-paid meters at Soekmekaar.

2. Installation

The service provider must provide only labour, tools and equipments to complete the above-mentioned activity(ies), whereas the municipality will provide the materials required to complete the work.