SECURING SERVICES INCOME IN A SOUTH AFRICAN CITY



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- Large income meters
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- Energy savings (using the power station analogy)
- Interesting revenue loss cases



BACKGROUND

- Securing revenue from services provided is increasingly problematic for municipal service providers
- Factors adding to the difficult situation are:
 - the economic downturn, which leads to job losses
 - job losses mean municipal accounts are not paid
 - the steep increase in electricity tariffs, which means that municipal accounts are even less likely to be paid in full
 - More pressure, such as fuel prices, consumer goods becoming very expensive, etc
- Municipal service providers, more than ever, need to ensure that all processes supporting revenue collection, are fully functional



KEY PRINCIPLES FOR SUSTAINABLE REVENUE INCOME

- 1. Provide a Good Service
- 2. Understand the Revenue Value Chain
- 3. Create Policy Where Needed
- 4. Policy on a Metering Strategy
- 5. Automate Revenue Processes
- 6. Create a Dedicated Revenue Unit
- 7. Effective Credit Control
- 8. Strategic Interventions
- 9. Measure Performance



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descriping factors in good house

1. PROVIDE A GOOD SERVICE

0.04

ELECTRICITY TARIFFS - FOR NORMAL RESIDENTIAL & SMALL BUSINESS CUSTOMERS

WAT NOT INCLUDED

- All tariffs listed below or to be calculated in terms of this schedule of tariffs, exclude VAT. TARIFF A - LIFELINE
- or 4 600 watt;
- This faint is available for single-phase 230 V connections with a capacity of up to 20 A \sim 4 sing \sim 4 or a ocu wan. This tant is only available for prepayment metering customers; and This same is only available for prepayment metering Columners, and This same will suit low consumption residential and micro business customers.
- The following charges will be payable:
- A.1.
- 42
- A unit charge, per KWh consumed for the meter readings taken in the months of A unit charge, per KWh purchased in the months of September to May: A.3
- A unit charge, per have purchased in one monors or depremuer to may. An additional charge, per kivh, in the case of repayment for an electricity. A.4.
- An additional charge, per kWh, in the case of repayment for an <u>electricity</u> <u>connection only</u> for low cost housing (period 05 years from connection date): An additional charge, per kWh, in the case of repayment of an electricity case of the second second second second second second second second date): uane;, An additional charge, per KWh, in the case of repayment for <u>both an electricity</u> <u>connection and a readyboard</u> for low cost housing (period – 05 years from connection date); A.5.
- Note 1: A prepayment token of 100kWn per metering point per month may be provided to residential

- customers. Nota 2: Prepayment systems will be adjusted on 01 June of each year for winter prices and will revert back Note 2: Prepayment systems will be adjusted on 01 June of each year for winter prices and will revert back to summer prices on 01 September: Note 3: A Contention to low cost housing may be supplied at no up-front cost, upon successful application. An available instruction to be backed for each discrimination of the instructed names. The cities of these
- Note 3: A connection to low cost nousing may be supplied at no up-mont cost, upon successful approximation. An additional charge will be levied on each electricity unit sold for the indicated periods. The size of these

Focuson

Electricity

in and around the house

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- Δ5
- An additional consumption charge, per kWh, in the case of repayment for <u>both an</u> <u>electricity connection and a readyboarg</u> for low cost housing (period = 05 years from connection data): Note 1: If the electricity is used for residential purposes the amount of electricity consumed shall
- Note 1: If the electricity is used for residential purposes the amount of electricity consumed shall be reduced by '100 kWM per metering point per month before the above charge is calculated. If the consumption for a specific month is less than 100 kWh per metering point the consumption charge will be amount an environment electricity dispenser, a token of 100 kWh per metering point per month main he remuted to the mittenment electricity dispenser, a token of 100 kWh per metering point per month token the restrict of the mittenment electricity dispenser. 8.1 c may be promoted to the usatumer. Nota 2: prepayment systems will be adjusted on 01 June of each year for winter prices and will revert back



58,5 c

52,8 c

4.4 c

3.7 c

8,1 c

- This tarm is available for single-phase 230 V and multi-phase 400/230 V connections with a capacity
- or up to 150 upper phase or 100 x vx. This tarm is not available for medium and high voltage oustomers; and
- rmo variar la cha aramane na menurum ano ngiri vunaye custumen, ano This tanti will suit medium to high consumption residential and small business customers. The following charges will be payable:
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Your life is valuable, your community needs you, enlighten others about

HIV and AID



Ekurhuleni **Electricity & Energy**

Electroleci, the errort, creative and developmental of

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reliable and economical, your electricity future in good hands.



BY ENSURING THE POWER IS <u>ON</u> RELIABLY



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Apr 2008 12:30:00

Apr 2008 12:30:00

Measurements Store: POServe

-

THROUGH GOOD PLANNING...

Benoni - 20 Year Substation loading



AND IMPROVED OPERATIONS...

Average hours to Restore Forced Faults 2007 vs 2008 vs 2009 per CCC



AND MAINTENANCE...

Trend:- Number of Unplanned Interruptions May 2004 till May 2009



CUMULATIVE NUMBER OF UNPLANNED INTERRUPTIONS PER CCC: JAN - MAY

EDENVALE KEMPTON. SPRINGS 8." BORSBIRG BRAKPAN GERMISTON BENONI ALBERTON TEMBISA

AND BY AVOIDING...





2. ANALYZE THE REVENUE VALUE CHAIN

- Metering Infrastructure if the physical meter is no good, the readings will be no good...
- Meter Readings workforce to acquire readings, more advanced metering for large customers, prepayment
- Supportive Processes tariffs, billing, no meters "lost", exception list + reaction, estimations, sub-systems integrated
- Accurate Bill Delivered
- Manage Queries and Errors quick response, leading to a sustainably accurate bill
- Receive Full Payment completes revenue circle, credit control
- Confirm Performance measure performance, read



CREATE POLICY ALSO A METERING POLICY

- Create Policies to deal with indigence, credit control, deposits, etc
- Create a meter policy to deal with customer segments...



Figure 2: Category B: Established Domestic Areas with Payment Levels Exceeding 50%

5. AUTOMATE PROCESSES



DEDICATED REVENUE UNIT CREDIT CONTROL

- Combine the efforts of Finance, Water and Electricity on revenue matters
- Focus efforts where most revenue is lost, without...
 - neglecting smaller problems
- Cut electricity supply for non-payment
 - be consistent in applying credit control
 - quick resolution of cases where meter readings, etc are used as reasons for postponing payment and/or electricity cuts
 - ensure the policy does not allow customers to use the City as a "bank"



MAKE STRATEGIC CHANGES MEASURE PERFORMANCE

- Change processes that are not working well
- Question existing practices
- Are you confident that your tariff structures and levels recover costs?
- Measure performance in terms of at least:
 - Losses of units (water and electricity)
 - Payment level
 - Be careful of billed income vs payment level (it is possible that not all units delivered to own customers, are billed)
 - The payment level may be skewed due to arrears being recovered

BILLING RATE vs PAYMENT LEVEL

- Payment levels are sometimes quoted at fairly high percentages, e.g. 95%
- It is assumed that this implies a 100% billing rate...
- Unfortunately, it could happen that only 90% of the customer base is billed
- Monthly income received inevitably contains arrears payments, which distort the income picture



BILLING RATE vs PAYMENT LEVEL

• 100% BILLING RATE

PAYMENT LEVEL

95%
PAYMENT
RECEIVED

TRUE BILLING LEVEL

 ACTUAL BILLING RATE SHOULD BE...

WATER AND ELECTRICITY METER MANAGEMENT

- An important building block in securing City income was the appointment of consultants to manage meters and readings
- The function is outsourced to cope with the almost one million readings to be managed every month
- Penalties to meter readers enforced by WEMMC's
 - this has lead to strong increases in accuracy
 - error codes such as "inaccessible meter" confirmed by WEMMC and penalties applied when false info given
- Dedicated outsourced personnel only dealing with meters and meter data create advantage
- Focus on improvement of revenue on all matters related to meters

LARGE INCOME METERS

- The City derives almost 50% of electricity income from demand meters, for the past financial year this equated to R2, 2 billion
- Reading of these meters is managed by meteringonline and published on the internet, with updates every 30 minutes
- Electronic integration with billing system was a fairly complicated project, now works smoothly
 - First billing run by meteringonline 3 days after month end
 - Second run with resolved communication errors after 5 days
 - Third run with unresolved metering errors after 7 days (estimations "suggested" for CT and VT errors, etc.)
- Meter errors are dealt with by means of maintenance system
- Metering process is now reliable steps to ensure payment now receive priority



REVENUE LOSS ON INACCESSIBLE METERS

- Residential middle and higher end are the 2nd largest source of electrical income to the City
- About 15% of our residential and small business credit meters cannot be read regularly, creating income risk
- Problem addressed by moving meters, changing to prepayment



ELECTRICITY METERS

	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09
METERS	75006	74110	71335	70097	69300	69463	69531	67746	67217	65879	66838	65728
READINGS	57626	55435	55935	55514	56128	56934	56707	55342	54588	52610	52774	51562
NOT READ [R]	20.38%	22.29%	17.97%	17.59%	15.18%	14.93%	16.62%	14.67%	15.37%	16.60%	17.71%	18.31%
NOT READ [F]	18.93%	20.94%	16.62%	17.00%	14.33%	14.15%	16.43%	13.91%	14.64%	14.39%	17.18%	16.03%

TEMBISA PAYMENT LEVELS

- Tembisa has a history linked to service protests and boycotts -38 000 customer connections
- The electrical reticulation was normalized by the use of protective structures and an automated meter reading system (later changed to prepayment mode)
- Prepayment tokens are auto-delivered to a customer by means of a communications network
- Electricity payment levels are 100%
- There are <u>no</u> illegal connections and <u>no</u> energy theft
- Electricity purchases are used to also encourage payment for other services such as water, solid waste and rates



PROTECTIVE STRUCTURE WITH SPLIT PREPAYMENT METERS



KWA THEMA EXT 4 – ELECTRICITY UNITS SOLD

NUMBER OF CUSTOMERS = 600



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KWA THEMA EXT 4 – FREE BASIC ELECTRICITY AND "NO TRANSACTION FOR 3 MONTHS"

NUMBER OF CUSTOMERS = 600



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KWA THEMA EXT 2 – ELECTRICITY UNITS SOLD

NUMBER OF CUSTOMERS = 2 531



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FLAWLESS? ALMOST, BUT NOT YET...

- The next slide shows a negative trend following installation of structures and split meters, indicating tampering may have increased after an initial successful intervention
 - Note: not all customers buy electricity, some live on the 100 free units... The past few months saw many businesses close down, with associated job losses. Ext 2 is much less affluent than the Ext 4 example earlier
- No-one has access to these structures apart from our own staff, so tampering comes from in-house sources
- To resolve this last small percentage, we need to install communication to each box, controlling access fully



KWA THEMA EXT 2 – FREE BASIC ELECTRICITY AND "NO TRANSACTIONS FOR 3 MONTHS"







ENERGY SAVINGS RELATED TO THE "POWER STATION" ANALOGY (1)

- The article written by Chris Yelland regarding electricity theft and non-payment created food for thought
- Ekurhuleni has been steadily eliminating this very problem, starting with Tembisa about 15 years back (38 000 customers)
- Since then the recipe changed to conventional, split prepayment meters and the design of the protective structures has advanced significantly
- We have approximately 70 000 meters under protective structures at this stage and as budget allows, more are added every year
- The average consumption per month over a base of 160 000 prepayment customers is between 250 and 300 units per month
- Uncontrolled consumption easily run into many thousands of units per month per connection...



ENERGY SAVINGS RELATED TO THE "POWER STATION" ANALOGY (2)

- In brief, the article by EE Publishers stated, assumed and derived:
 - Eskom has losses due to theft and non-payment of 6 105 GWh for the financial year ending March 2007
 - that the municipal losses are similar, proportionally then 6 829 GWh
 - that total national figure is 12 934 GWh
 - that the average annual demand is 1 476 MW
 - with a peak demand of 3 690 MW
- In the case of Ekurhuleni, using the same recipe as above:
 - controlling consumption and ensuring payment as per the previous slide
 - if we assume a (conservative) previous 1 000 units per month per customer
 - which is now controlled to **300** units per month
 - there is a **700** units per month, or **8 400** units per annum saving
 - a total of **70 000** meters will then save **588 million** units per annum
 - at an average demand of 67 MW
 - and a peak demand of 168 MW (5% of the derived national problem of 3 691 MW)
 - A total of 700 000 meters may then save 1 678 MW

INTERESTING REVENUE LOSS CASES

- Meyersig, Alberton upmarket area, 431 stands in a secure area, only 48% of electricity connections known to the City
 - developer connected new stands, no notice to City
- Kempton Park 38 demand meters found, only kWh units are read and charged, no demand charged
 - that is, units sold at about 20c each, bought from Eskom at about 26c each
- Wadeville faulty large water meter replaced after 2 years of interim readings, billing system reverses all interim readings upon receiving the new reading.
 - customer is erroneously refunded almost a million Rand
- Solid Waste services are not linked to "workflow". New connections are not billed.



SECURING SERVICES INCOME IN A CITY IS A COMPLICATED AND CONTINUOUS PROCESS, WHICH RELIES ON A PROACTIVE APPROACH

Stephen Covey, renowned for developing a principled approach for solving personal and professional problems, defines "proactivity" as more than merely taking initiative.

Proactivity dictates that our behaviour becomes a function of our decisions, as opposed to a function of our conditions.



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Thank you