

Case Study Edendale/Imbali Split Meter Pilot

Eskom Eastern Region Engineering

Title: *Case study of the Split metering Pilot at Edendale-Imbali*

**SARP CONVENTION PRESENTATION
CSIR Convention Centre
CITY OF TSHWANE
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Reasons for the Pilot study

An Initiative was triggered late 2003

Purpose - probe the high failure rate of overloaded transformers

Probe Result - root cause of failure was due to theft of electricity within the prepaid peri-urban community

Reasons for the Pilot study



28/08/2003

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Results of the initial Investigations

30 % of all peri-urban communities steal
of these 30 % the following applies

Bypassing accounts for **60%** of total theft

Illegal connections **5%** of total theft.

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Reasons for the Pilot study

Business Ethics

On the legal side

We are accountable for the products we install and sell – OHASA

Case Law - guidance not explicit, but implied logical deduction

“Design for the foreseeable misuse”... Theft !!

“the concept of a prudent child ... is a grotesque combination”.... How do we protect the innocent curiosity ?

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Reasons for the Pilot study

Eskom Distributors did not have a standard Split Meter solution as part of the LV Services design pack for new installations Still does not have one !

A pilot study was required to justify the business case and the technology specified

Edendale/Imbali within the Pietermaritzburg Field Services Area was chosen due to one of the largest revenue loss areas – R30 million PA

The area has a load base of 60 MVA with just over 45 thousand conventional and prepaid customers

Proposed Solution for the Pilot study

The technology solution chosen for the Eastern Region was the Split Meter (Din Rail option)



Fig 1 Power-Rail Energy Management Unit (EMU)



Fig 2 Customer Interface Unit (CIU)

Expected technology performance -

Reducing bypassing to **0%** and illegal to **3 to 5%** on implementing the Split meter Technology

Increase electrical **safety** within the Customer's home and along airdac [Forward to Implementation](#)

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Business Cost justification

Link to Business Case Costs

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Business Approval



MD Distribution

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Implementation Results

The project currently has 3100 customers installed with split meters for over a year

A sample of 609 customers was randomly audited

584 customers had purchased a total of R25347 prepaid electricity for the month of June 2008

The average purchase per house was R46 (90 kWh) credit per customer per month.

Extrapolated over the 3100 customers this is R1.5 million recovered for the year

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Implementation Results

No customer audited, **0 %** of the installations had any attempts to bypass or tamper within the house or airdac [Audit results](#)

25 customers, **4 %** connected themselves illegally by bridging over the meter in the pole box of the total random audit sample.

[Back to initial recommendations](#)

Of the 25 customers that were illegally connected, 25 customers were easily issued a tamper notice and 20 of the customers paid the tamper fee without any reservation ie 75 %.

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Risks and Challenges

RISKS	CHALLENGES
The power quotas dimensioning	Create capacity by reducing theft actively
The remaining 3 to 5 % margin for illegal connections or pole top bypassing	Community Stake holder Awareness and interaction Intensified tamper notification and penalties to perpetrators
Loss of core skills – Impact on the Universal access target of electrification and infill resulting in an upward trend in theft.	Install Split meters as a retrofit plan for surging theft pockets CCS Retention strategy Electrification Master Plan creativity
Potential for customers to steel energy from a paying customers credit	Customer Education – meter interrogation Community involvement
Illegal connections scourge spreads exponentially if not curbed quickly	Faster turn around on audits and disconnections

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Conclusion

The technology is plausible and has merits

The Eastern Region has currently chosen to expand the split meter technology into all green fields projects - new installations

The technology for protecting exposed lines needs attention. The technology for cheaper lighter weight non metal pole top boxes required research

The Technology is strongly supported and recommended for all prepaid supplies Distribution wide.

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