

# Case Study Edendale/Imbali Split Meter Pilot

## Eskom Eastern Region Engineering

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

**SARPA CONVENTION PRESENTATION  
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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**

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# Reasons for the Pilot study



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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 ?**

# 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)

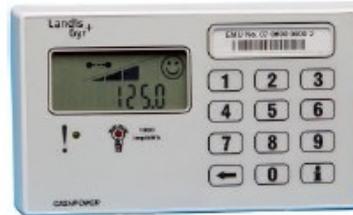


Fig 2 Customer Interface Unit (CIU)

## 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.**

**END**

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