



SOUTHERN AFRICA REVENUE PROTECTION ASSOCIATION 18TH ANNUAL CONVENTION 2014

How effective are your revenue protection efforts:
Strategies to ensure this KPI hits the target

10 - 11 July 2014



KNYSNA
Municipality Munisipaliteit uMasipala



Revenue Protection Strategies in South Africa and surrounds

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Hosted by Knysna Municipality

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KNYSNA
Municipality Munisipaliteit uMasipala

Knysna

SARPA Conference 2014 location



Map of Africa



South Africa



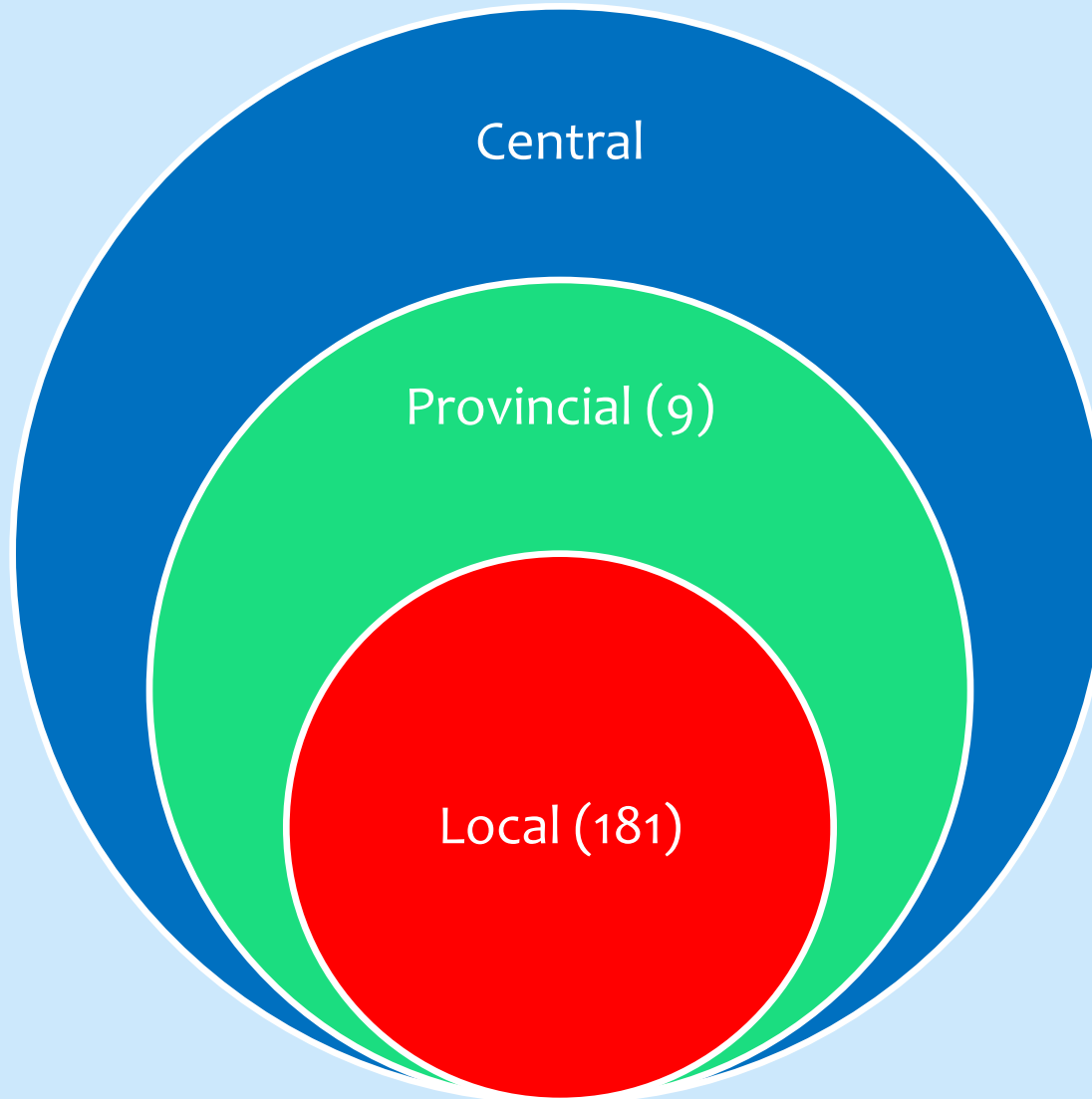
South Africa cities



Table Mountain... 7th Wonder

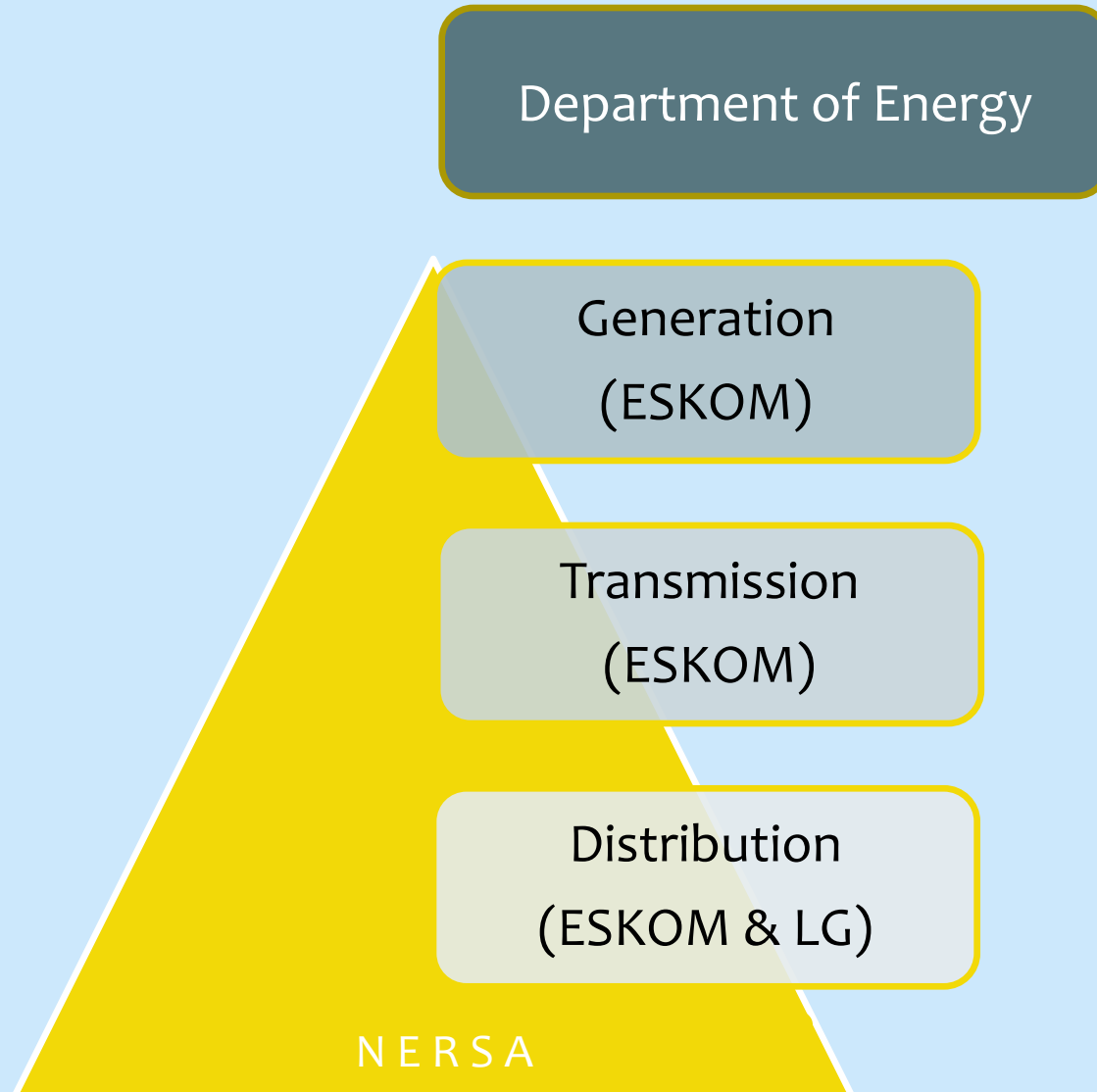


South African Government





SA Power Industry Structure





Problem statement

“High electricity losses cripple a utility’s ability to properly invest in its system and provide stable service” – Bob Gohn, Pike Research



Globally billions
are lost each year
due to electricity theft
and equipment failure

\$200 billion
.....
GLOBALLY p.a.

\$6 billion
.....
USA p.a.

\$605 million
.....
RSA p.a.





Electricity is the third most stolen commodity following credit card information and vehicles.

SARPA Mission



“Protecting revenue and assets accruing to or owned by utilities against loss, misappropriation and pilfering or willful malicious damage”

RP Challenges in SA



Tampering with service connection (incl meter)

- Affordability compounded by escalating tariff's - social
- Sense of entitlement
- Opportunism

Metering Problems

- Meters / peripheral metering infrastructure (e.g. CT's) not functioning
- Meter programming errors

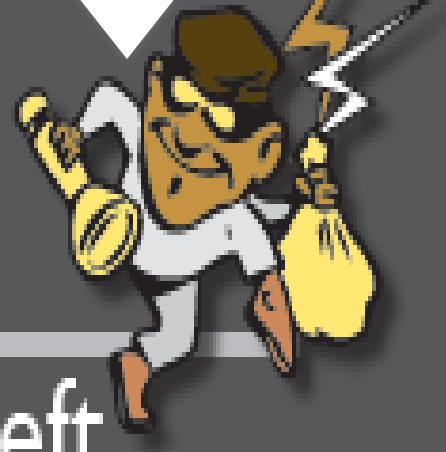
Technical Losses

- Normal energy dissipation in electricity distribution
- Overloaded networks
- Ageing networks

Copper /Cable Theft

- Opportunism
- Greed - Crime
- Social

Rand 7.5 billion



South Africa's electricity theft estimate per annum



Revenue and energy loss suffered due to electricity theft (Eskom, South Africa's power utility)



Typical SA Utility (ESKOM)

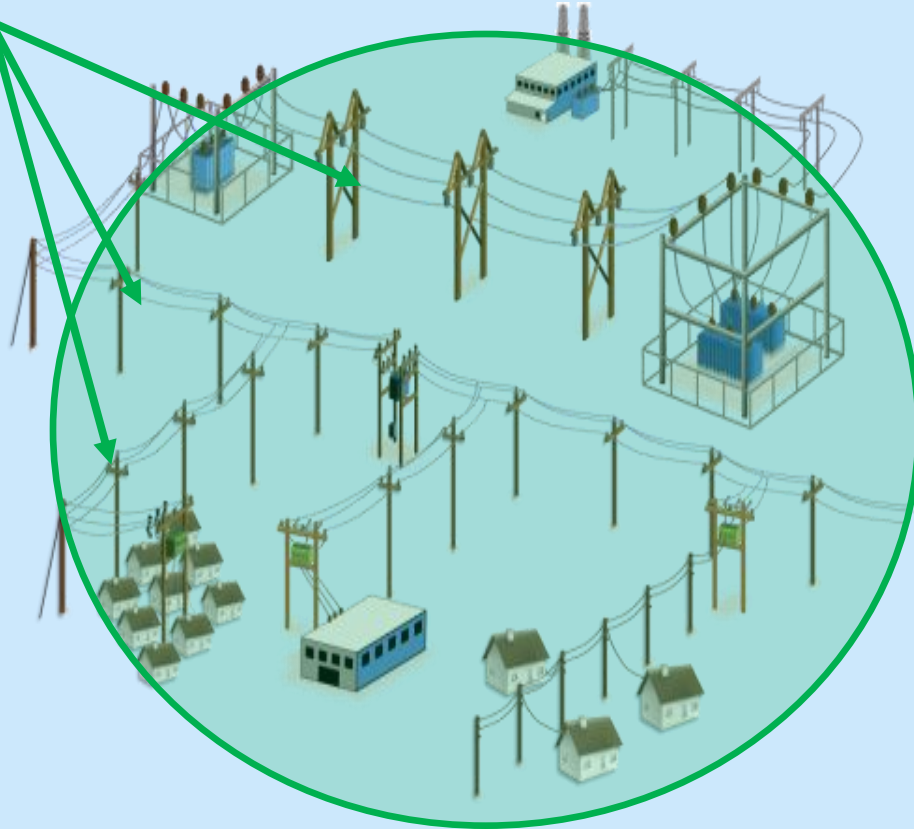
Distribution Total Losses =
7.12%

Technical
Losses =
4.49%

Non-technical
Losses = 2.63%

Non-
residential
losses = 1.72%

Residential
losses =
0.9%





NERSA regards 10% losses as acceptable!

Addressing losses



Tampering with service
connection
(incl meter)

- Affordability compounded by escalating tariff's - social
- Sense of entitlement
- Opportunism

- Converge to new technology
 - Split metering, AMI, etc.
- Free monthly allocation of energy
- Subsidized tariffs for poor
- Accelerate electrification
- Issue fines and disconnect
- Customer Education



Metering evolution

First Generation
Conventional meters

Fourth Generation
STS split prepaid
meters

Second Generation
Proprietary
prepaid meters

Fifth Generation
AMR metering

Third Generation
STS common base
prepaid meters

Sixth Generation
AMI metering

Next Gen PP
AMI metering



Securing services



Illegal connections



Illegal connections



Addressing losses



Metering Problems

- Meters / peripheral metering infrastructure (e.g. CT's) not functioning
- Meter programming errors

- License conditions requires mandatory audits
- Metering staff must be accredited
- Utilities typically outsource this
- Cost recovered for 3 years prior on discovery of loss

Addressing losses



Technical Losses

- Normal energy dissipation in electricity distribution
- Overloaded networks
- Ageing networks

- Power factor correction
- Invest in low loss infrastructure
- Tariffs includes reactive power charges
- Design networks optimally

Addressing losses



Copper /Cable Theft

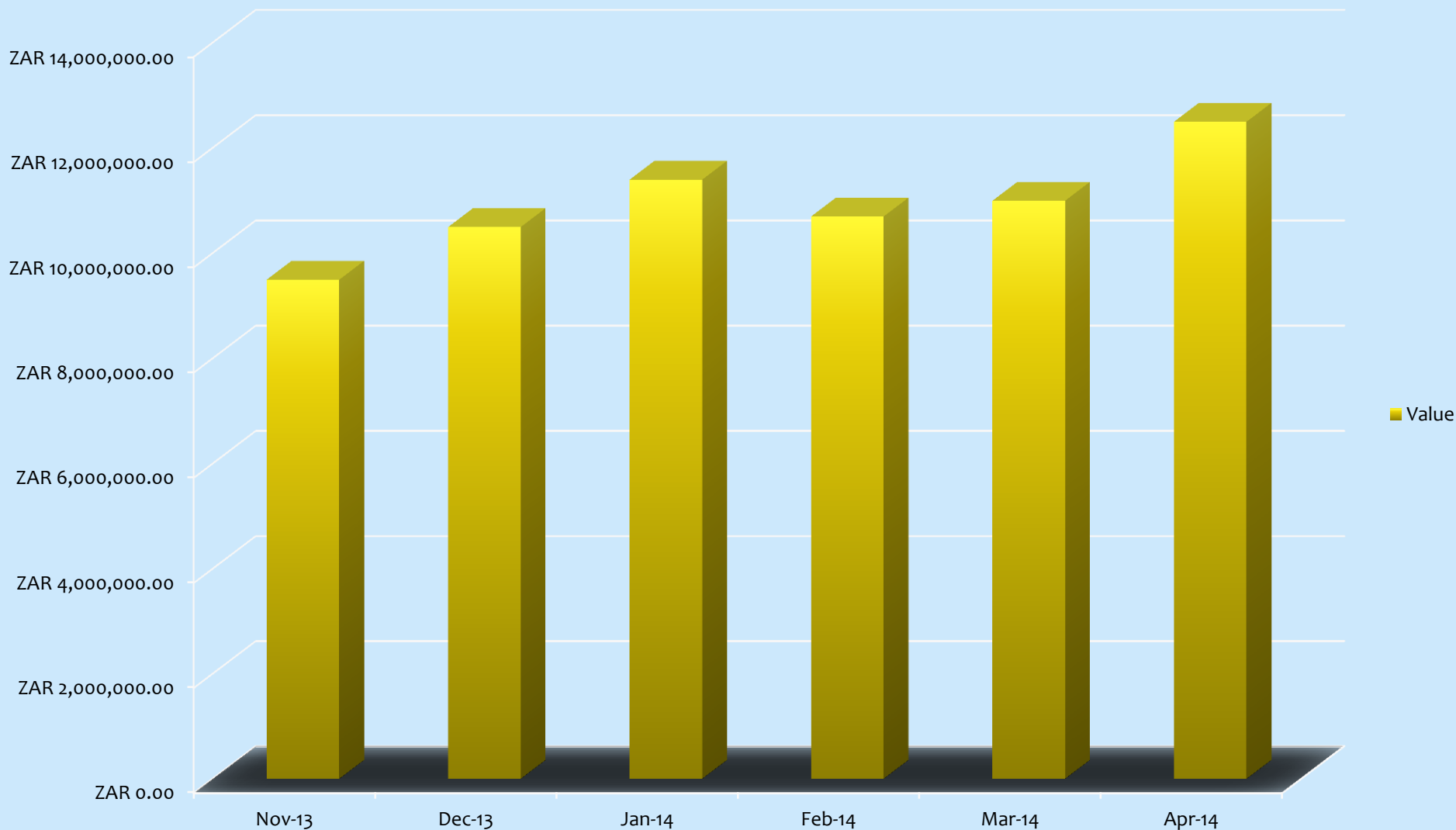
- Opportunism
- Greed - Crime
- Social

- Introduce technology
 - Cable guard
 - Motion detection
- Introduce legislation
 - Second hand goods act
 - Restriction on export
- Security and covert surveillance

Copper theft Barometer



Value



Cable/Copper Theft

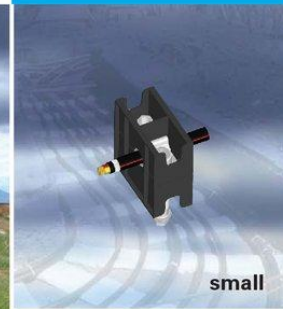
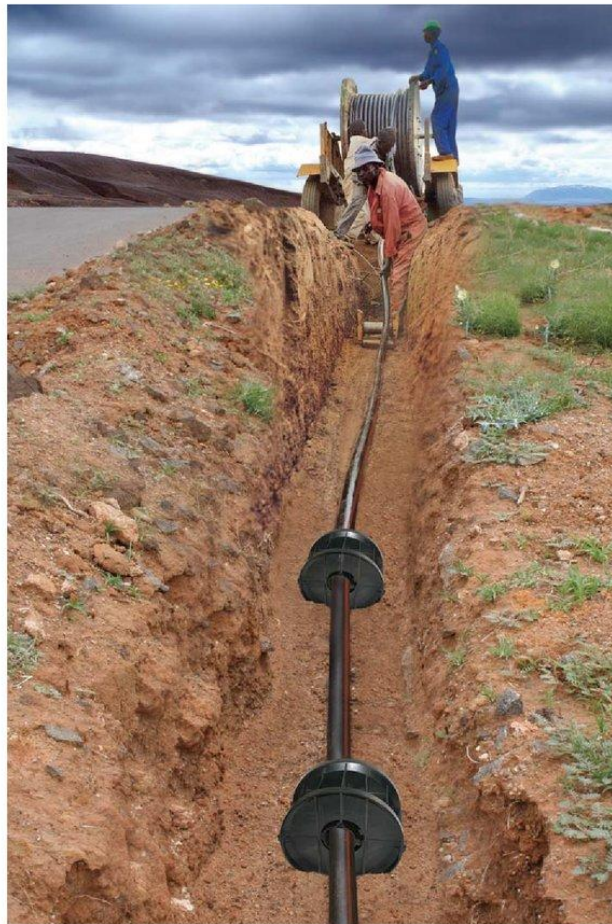


Cable/Copper Theft technology



CableGuard™

The cable theft protection system



Our environment



- Customers do NOT have a choice of metering...it is seen as a technology,
- We get access to property at ALL reasonable times, but at ANY TIME in emergencies,
- We remove service connections after 3rd tamper,
- Marijuana growth unheard of,
- Fraud as a form of loss not common,
- 30 days payment common



The case of UMEME, Uganda

- Experienced total losses of 38% in 2009 and reduced it to 24.3% by 2013
- 1% point = us\$ 3.5M
- Regulatory target for 2018 is 14% loss and 99% collection rate.
- Embarked on a vigorous RP strategy
- Introduced technology
 - Arial bundle conductor
 - Split prepayment meters



The case of UMEME, Uganda

- concentrated on HLF's which, as a group, attract 53.4% losses
- Their approach;
 - Retrofit all LV networks with ABC
 - Retrofit all residential units with split prepayment meters
 - Extend MV network, shorten LV spans and distribute load
 - Reinstall all meter installations for large power uses and monitor consumption



The case of UMEME, Uganda

- Results on one HLF (Natete feeder)
 - Losses before = 56%
 - Losses after = 19.1%
- Project duration = 12 months
- Project cost = US\$2.3
- Additional income = US\$1.52



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Thank you

