

MAKING REVENUE PROTECTION UNITS A
SELF-FUNDING VALUABLE SOURCE OF REVENUE

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Southern Africa Revenue
Protection Association



CITY OF CAPE TOWN
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MITIGATING STRATEGIES TO ADDRESS NON-TECHNICAL LOSSES AND INFRASTRUCTURE DAMAGE WITHIN ELECTRICAL SUPPLY NETWORKS



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Technologies ∞ Partners ∞ People

Agenda



- ▣ Introduction
- ▣ Problem statement
- ▣ Background Overview
- ▣ Copper demand drivers
- ▣ Current strategy review
- ▣ Economic benefit of current strategy
- ▣ Conviction Rates
- ▣ New Proposed Strategy
- ▣ Case Study
- ▣ Conclusion

Introduction



- ▣ Non-Technical losses are defined as losses associated with external factors and not system parameters.
- ▣ **It is estimated that the losses suffered by the South African economy is anything up to R20 billion rand per year.**
- ▣ The problem is pervasive and has no boundaries.
- ▣ **The problem also presents life hazards**
- ▣ Utilities are highly dependable on revenue generated by the sale of electricity.
- ▣ **Renewable energies are likely to impact on this revenue.**
- ▣ Management of the infrastructure should now be a real concern.
- ▣ **A proactive approach therefore should now be adopted to deal with the problem.**

What is the problem?

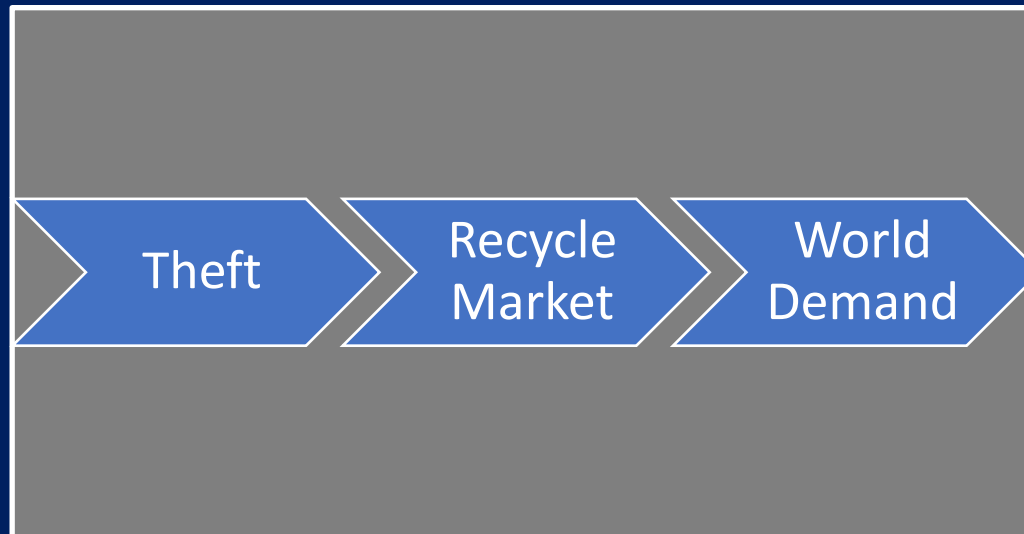


Infrastructure damage as a result of theft and vandalism

Background-Overview



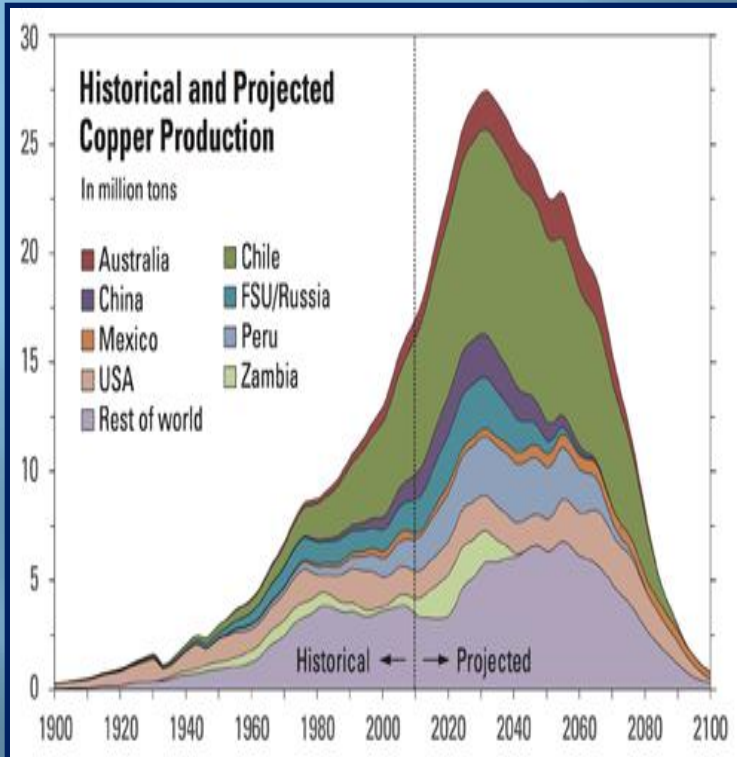
- ▣ Base metal demand requirements are driven by overall market demand and the shortage of mine production.
- ▣ **Demand is ever increasing.**
- ▣ Value chain for copper demand.



The theft problem is fuelled by two issues:

Socio economic problem
Crime Syndicate operations

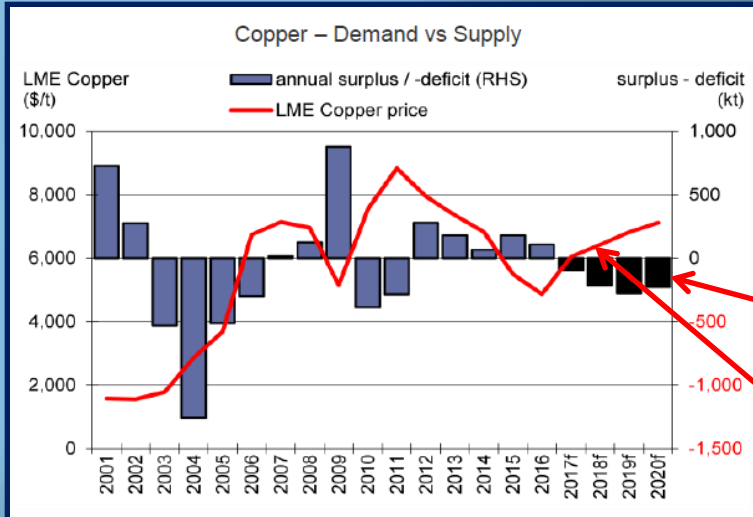
Background-Overview



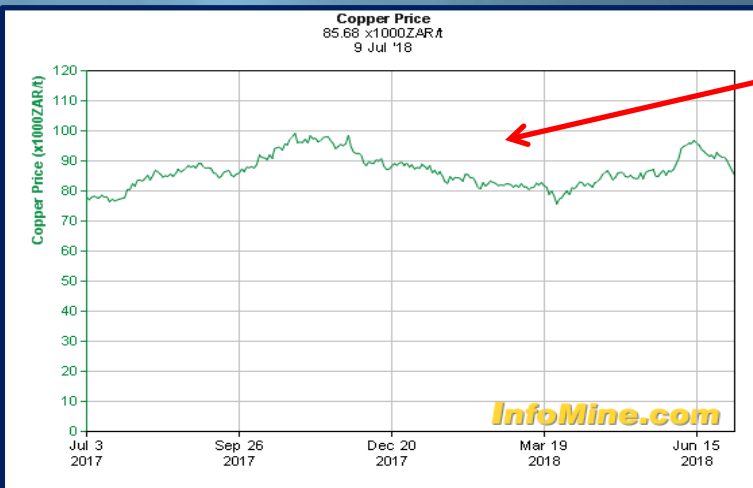
Source: D Batker & R Schmidt

- We will focus on copper as the primary base metal.
- **Copper demand doubled from 1980-2015.**
- Estimated peak to summit in 2030
- **Copper production up to 2100 based on copper reserves.**
- If mines cannot produce enough the market **WILL** be serviced by the recycling industry.

Background-Overview



Source: City Research



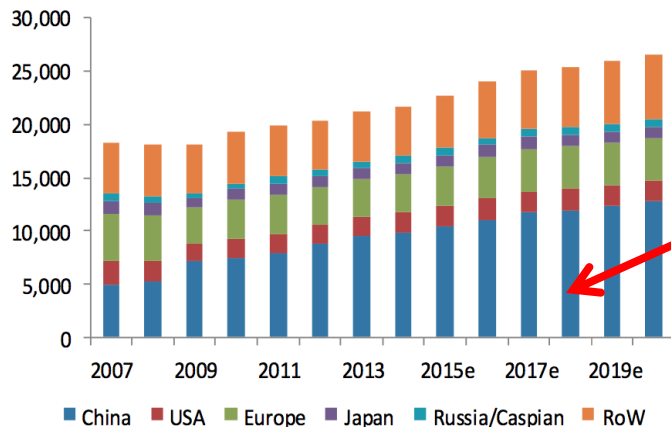
Source: Infomine.com

- Copper Demand Vs Supply 20 February 2017.
- Note 2017-2019 the decline in supply.
- Note the LME price increase 2017-2019.
- Note the current copper price trend.
- This creates lucrative market for the recycling industry.

Background-Overview

Copper Demand by Region

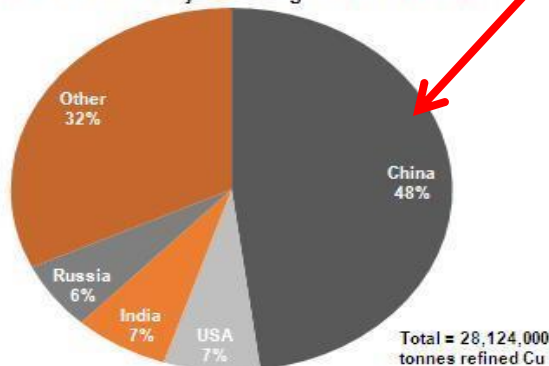
(Global refined demand, MT/year)



Source: Morgan Stanley

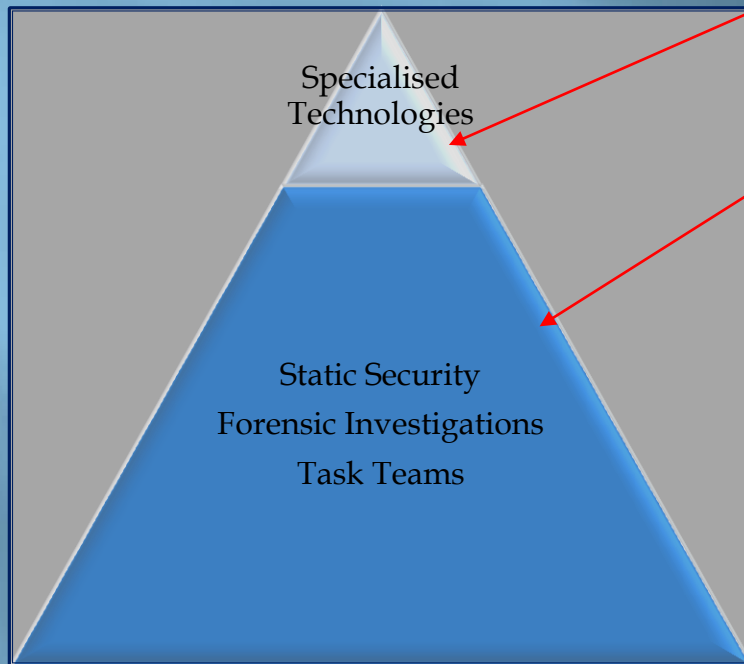
- Copper demand worldwide
- **Note increased usage in China**
- By 2022 China is earmarked to use 48% of the worlds copper

Chart 13. 2022 Projected Regional Cu Demand



Source: seekingalpha.com

Current strategy - Review



- ▣ 15% spent on specialised technologies.
- ▣ 85% of budgets spent on generic and investigative services.
- ▣ This strategy is suppose to address the recycling industry and mitigate losses in utilities, which has not yielded the desired results to date.
- ▣ Very expensive strategy.
- ▣ Limited return on investment.

Economic impact of current strategy



Case 1 – Transnet incident cost (2008-2009)

Actual replacement cost = R239m

Actual Recorded incidents = 6917

Cost per incident = R239m/6917

≈ R 51 000 per incident

Source “SA now leading exporter of (cable) copper”

Case 2 – Average actual cost to the economy (2010-2011)

Actual cost to the economy = R5bn

Actual Incidents reported = 72533 (2010)

Cost per incident = R5bn/72533

≈ R 70 000.00 per incident

Source: AMEU NEWS, March 2018 Volume 94

85 arrests @ R70K = R5.95M loss per month (R71.4m p/year)

Source: AMEU NEWS, March 2018 Volume 94

*It should be noted that the above is **not considered as a saving** as the incident and damage has already occurred and losses suffered by the entity, and should also be noted that this initiative only addresses 1.4% of the total loss of R5bn*

Conviction Rates (NPA 2016/2017)

ANNUAL REPORT NATIONAL DIRECTOR OF PUBLIC PROSECUTIONS 2016/2017



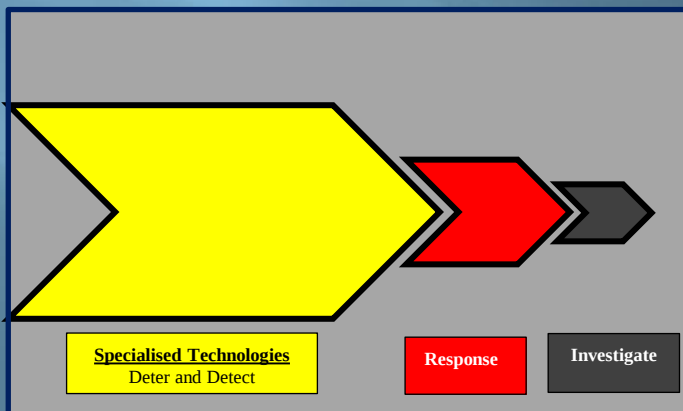
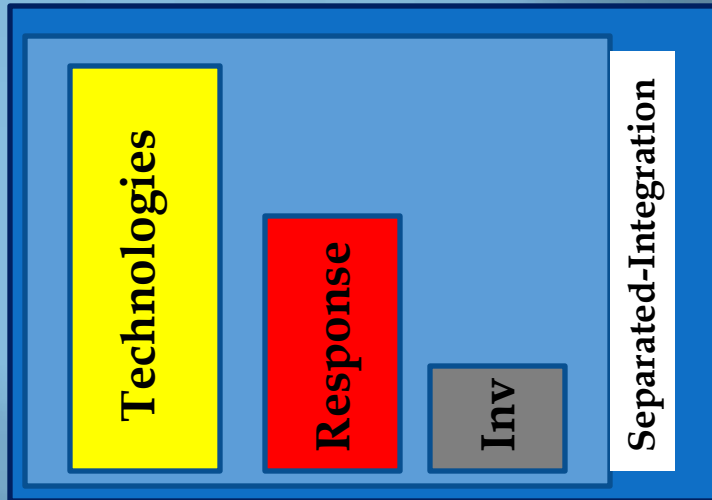
- ▣ Cable theft categorised under serious crimes
- ▣ Conviction rate for 2016/2017 = 91.8%
- ▣ Annual Benchmark for 2016/2017 = 74% (111)
- ▣ According to NPA target surpassed

However:

- ▣ Only 234 (91.8%) convictions out of thousands of incidents recorded
- ▣ SAPS will only prioritise this when NPA targets are not reached OR when all incidents are reported correctly

New proposed strategy

(Technology – First point of departure)



Strategy Value Chain

- ▣ Technology First, then complimentary services.
- ▣ **Separated-Integrated Strategy.**
- ▣ Individual service providers for specific tasks.
- ▣ **More assets are to be protected pro-actively within the total allocated security budget.**
- ▣ Rapid *re-active* response to the point of incident.
- ▣ **Accountability by the service provider for its respective contractual tasks and obligations.**
- ▣ Audit trail processes of the complete strategy value chain.
- ▣ **Suggested that technologies be deployed under SLA.**

Proposed Technology Strategy (Technology – First point of departure)



Service Level Agreement Strategy (SLA)

Benefits associated with SLA strategy:

- ▣ Continuous development of new technologies.
- ▣ **System upgrade during contract periods, free of charge.**
- ▣ Guaranteed continuous system operation and up-time.
- ▣ **Continuous maintenance and audits.**
- ▣ System fault management.
- ▣ **Accountability by the supplier.**
- ▣ Penalty enforcements by the customer.
- ▣ **A wider range of assets are protected.**
- ▣ Budgetary compliance in terms of the various public and municipal financial management acts.
- ▣ **Financial accounting benefits due to rental of systems.**
- ▣ Not having redundant security products left in-situ.
- ▣ **Much more affordable than current strategies deployed.**
- ▣ Provides for a better return on investment.

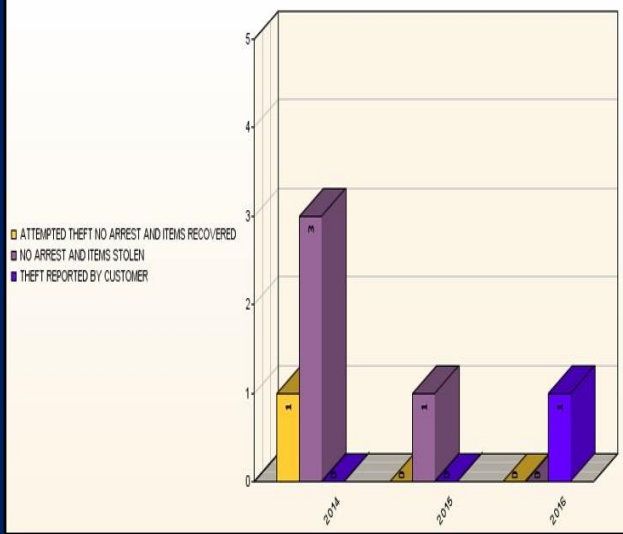
EtheKwini Metro Case Study

(Justification for the use of technologies)



- ❑ 160 systems installed within distribution substations.
- ❑ **Contract duration was for 3 years.**
- ❑ No Investigation and Task teams responding to incidents.
- ❑ **Average loss per incident recorded at R240K per incident prior to installation (as per EtheKwini Metro statistics)**

POSITIVES INCIDENTS PER ANNUM FROM JANUARY 2014 TO JUNE 2016



Recorded Results:

Prior to deployment loss	: R76.8m
Post 3 year deployment loss	: R 1.4m (6 @ R240k)
Contract value over 3 years	: R 10m (3 years)
NET SAVING TO ENTITY	: R 65.4m
Loss Reduction ratio	: 98.1%
Return on investment ratio	: 85.16%

"The economic benefits of using GSM Pepper Gas Alarm systems in electrical distribution substations: An eThekweni Municipality Case Study", SARPA 2016

Conclusion



- ❑ Theft and damage to infrastructure is driven by market demand facilitated through unscrupulous elements within the recycle industry.
- ❑ **Current strategies are not yielding the required return on investment as losses are high and contract values to deal with this problem supersedes R150m a year.**
- ❑ Technology should be the first point of departure in the overall strategy as;
 - More assets are protected within the overall security budget.
 - Assistance to response teams.
 - Supplier accountability.
 - Customer audit compliance management.
 - Offers a higher rate on the return on investment.
 - Less losses occur.
 - Compliance with the financial management acts as budgets spent are quantifiable.

Acknowledgement



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