



Revenue Losses

How big is the problem?

SARPA convention

11 – 12 July 2013

Presented by:
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How big is the problem?

- Often have a situation of you don't know what you don't know
- 3 years ago studies by RED's work team revealed that some municipalities had a loss of >40% on purchase of electricity
- The Star reported on 13 June 2013 that 7 of 9 municipalities in Gauteng lost R1,3bn in electricity used but not billed and paid for in the 1st 3 months of 2013!
 - City Power – R1,076bn = 29.33%
 - Ekurhuleni – R120m = 9.39%
 - Midvaal – R4.6m = 13.15%
 - Emfuleni – R39m = 14.37%
 - Randfontein – R3m = 8%
 - Westonaria – R1,7m = 14.2%
 - Tshwane – R96m = 13.31%

- This equates to a loss of >R5bn for 2013 in Gauteng alone
- Total estimated losses vary dependant on who is reporting/ estimating them and can be influenced by many factors but I estimate that these losses annually in the industry between R8bn and R12bn if not higher
- The Star also reported water losses for the Gauteng municipalities of 37% or nearly R3bn/ annum

- **Meter failures**
- **Meter tampers and manipulation**
- **Meter bypass**
- **No meters**
- **Incorrect meter constants (i.e. billed at 1 s/be 40)**
- **Unbilled customers**
- **Unknown customers**
- **Advances on terminated supplies**
- **Pending starts**
- **Incorrect meter dial billing (5/6)**
- **New meters not loaded to account**
- **New meters not updated**
- **Inadequate/ incomplete verification/ commissioning**
- **Customer maintenance – CT's shorted**
- **Cable theft – not corrected timeously**

- **Structured Meter audits**
 - **Test meter functionality**
 - **Assess “meter installation state”**
 - **Meter assessment**
 - **Meter seals**
 - **Disc alignment**
 - **Wiring**
 - **Drag marks**
 - **Etc..**
- **Trend analysis**
- **Remote Metering**
 - **Event logs**
 - **Load per phase**
- **Reports – information**
- **Informants**

- **Effective Energy feeder balancing to ID hotspots**
- **Lock all meter boxes – restrict access**
- **Utilise “tamper proof” meters – internals cannot be accessed from outside**
- **Consequence of action**
- **Penalties and Fines**
- **Recovery of unbilled Revenue**
- **Criminal process**
- **Identification of tamper syndicates and appropriate strategies to deal with them**
- **Pro-active meter management – culture shift**
- **Meter LPU error Exception reports – current and voltage (LPU dial in to ID phases out)**
- **LPU trend and graphical analysis**
- **Customer profile analysis**
- **Low consumption reports**

- **No consumption reports**
- **Continuous Meter read analysis**
- **Comparison of actual demand profile to NMD**
- **Hi-Tech meter seals**
- **More comprehensive meter read process and actioning of exceptions**
- **Implementation of meter read and billing quality review process**
- **Reduction in process delays (log all problems ID and track fix and recovery – escalation)**
- **Phased meter replacement strategy**
- **The RIGHT people to do the job**

- **Chain of Evidence is critical**
- **Gathering of evidence**
- **Documenting state as found including test certificates**
- **Documenting fix and post fix tests (don't change evidence)**
- **Photographs**
- **Account and trend analysis**
- **Complete pack**
- **Meter test certificates**
- **Affidavits**
- **Understand process delays and impact of criminal cases**

- **Consistent application dependant on nature of non-function**
- **Standard processes for calculation**
- **Templates**
- **Customer interaction critical – know the facts**
- **Customer liability**
- **Prescription**
- **Negotiated settlements**

- Identification of audit areas
- Contractor training and audits
 - Loading data onto the trimble (hand held device) or Kocos
 - Contractor audit and meter change
- Download of data and verification of data – non-function
- Setting up of the control sheet
- Notification to customer – 1st letter
- Tracking fieldwork and progress of each installation and initial customer notification
- No customer and no records
- Lost revenue calculation
- Notification to customer – 2nd customer letter, once calculation is finalised
- Customer interaction and possible review of the calculation
- Billing – 28 day period
- Closing off the file
- Post billing is a credit management function

- The installations where potential measurement faults and tampering has occurred are identified and examined to enable the measurement of potential lost revenue.
- The calculation is done based on the evidence on hand.
- The following documentation is compiled into a pack and used in order to establish a date at which revenue was beginning to be lost as well as the reason for the loss:
 - Checklist
 - Audit datastring/audit slip
 - MMF
 - Account information
 - Historical meter reads and new meter reads analysis (trend)
 - Premise tree
 - Photos

- When analysing the read history, the possibility of a meter cycle must be taken into account and updated to the trend data if necessary
- The customer sign-on date must also be noted and taken into account when determining the calculation start date
- Prescription must also be taken into account. The broad principles of prescription as applied to revenue recovery calculations are as follows:
 - Billable period is limited to 3 years from date of identification, if fault is identified or Entity did not take reasonable care. The date of identification is the audit date (provided the meter change date is within a reasonable period thereafter).
 - Billable period if tamper identified has no limit.

- Always conduct the discussion from a position of strength – have all the facts
 - Meter audit record
 - Meter change form
 - Meter test sheet
 - Calculation detail and trend analysis
 - Agreement
- Explain the background and detail of calculation to the customer
- Explain legal liability
- Listen to customers point of view and evaluate if it is reasonable and if the calculation must be changed
- Discuss terms of payment
- Keep minutes of discussions and agreements

- There are certain signs that indicate that an installation has been tampered with:
 - The seals are broken.
 - Dials not advancing
 - The PT links have been opened.
 - The meter disk has been dropped onto the magnets.
 - No or non standard seals on cover.
 - Physical damage to meter including drilling of holes on meter cover.
 - Marks on the upper or lower side of disk.
 - Scratch marks on the PT links.
 - Meter by-passed.
 - Line and load jumpers swopped around.
 - Connection direct off circuit breaker.
 - Secondary cable.
 - Neutral disengaged.

- **PT links opened**
- **Intermittent PT link tamperers**
- **Phase wires cut**
- **Magnets impeding meter function**
- **Resistors**
- **Disc raised on magnets**
- **Disc dropped on magnets**
- **Holes drilled in meters**
- **Dial cogs disengaged**
- **CT's changed – ratios**
- **CT wiring reversed**
- **Cables connected before CT's**
- **Line and Load cable swopped**
- **Metering circuit breakers “tripped”**

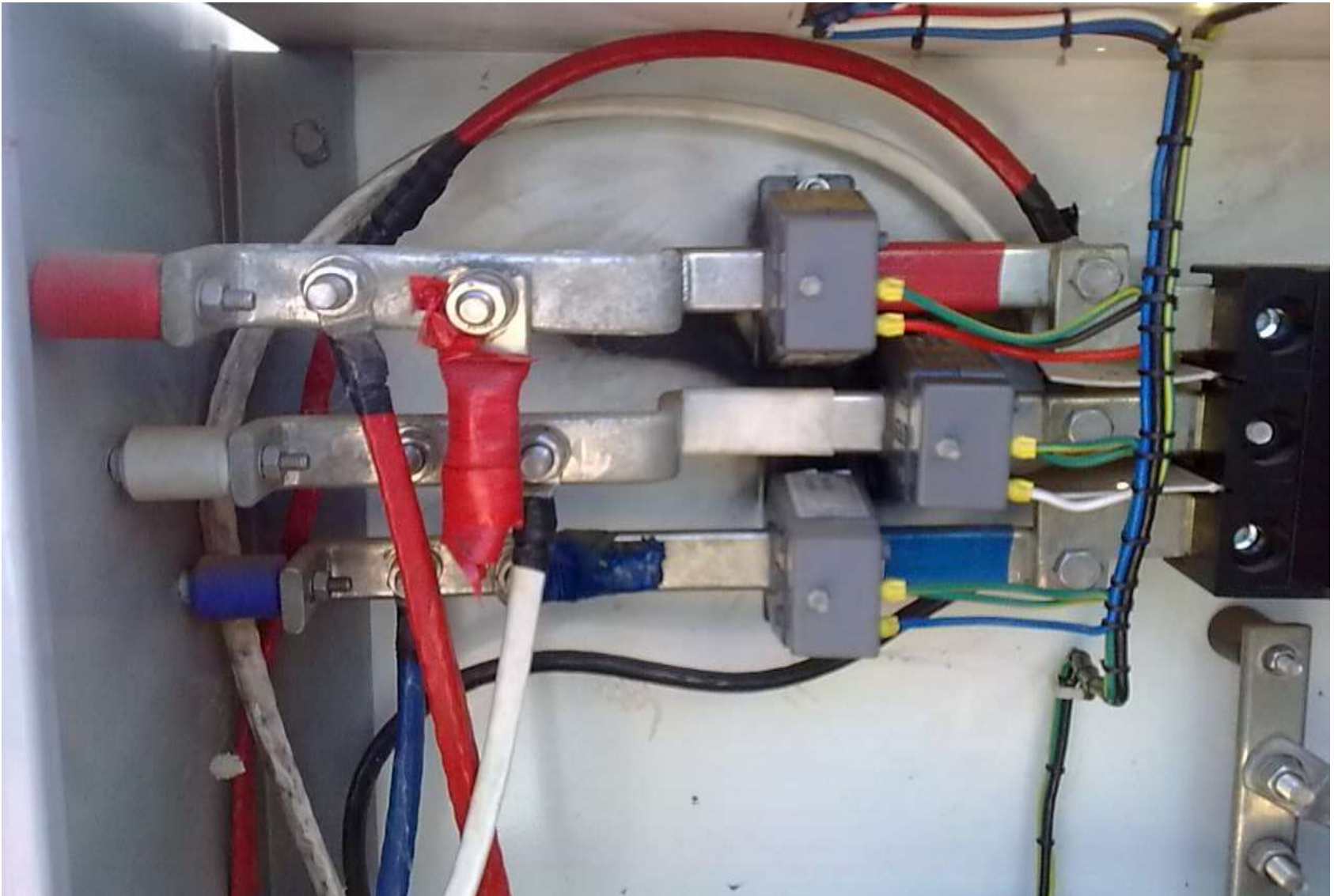
Meter tamperers



Red and white CT's reversed



Red CT reversed

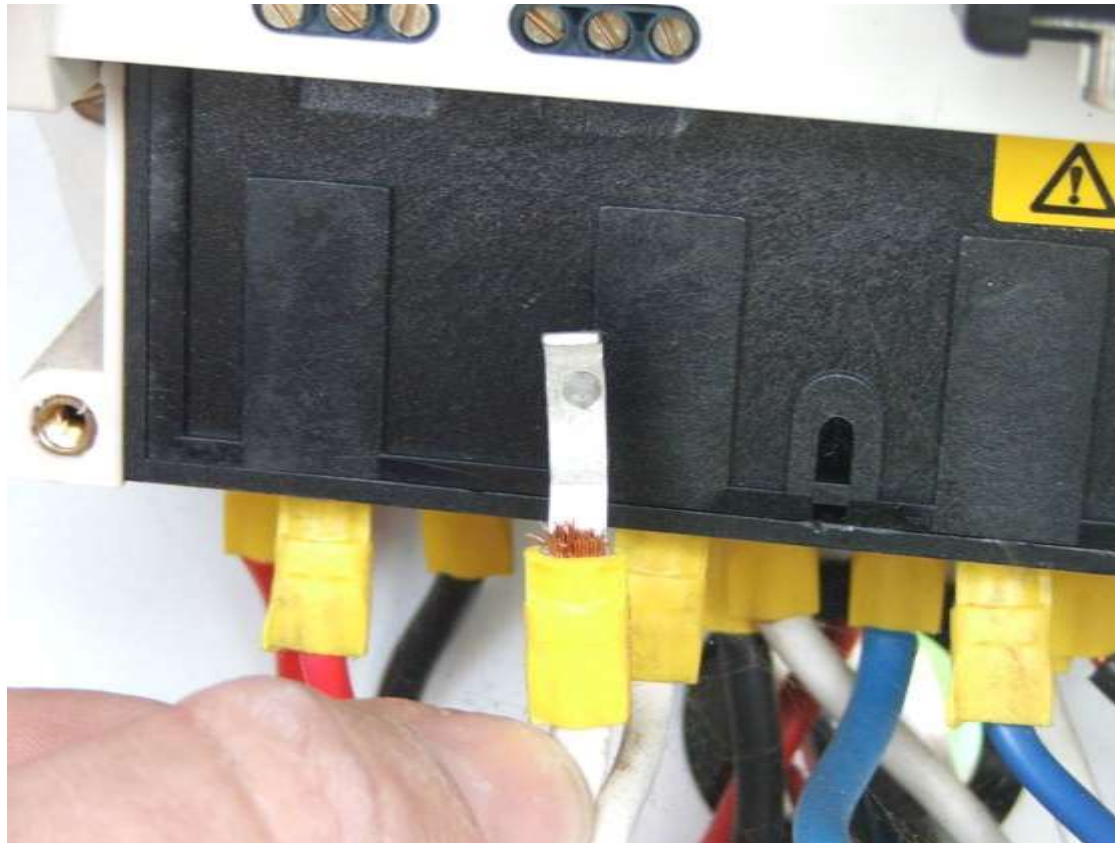


Cables connected before CT not measured



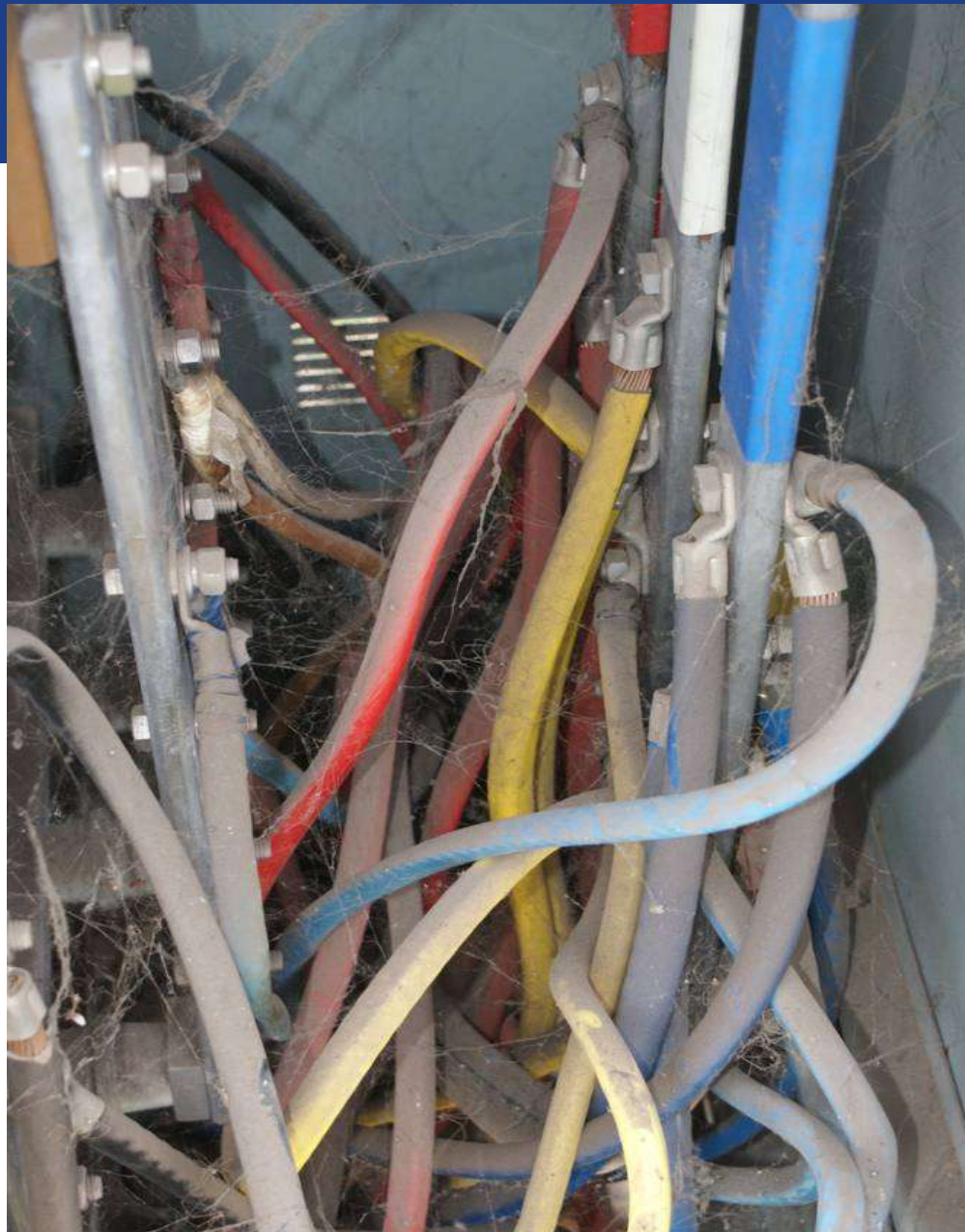
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Metering circuit breaker switched off



White phase current wire disconnected

Meter tamperers

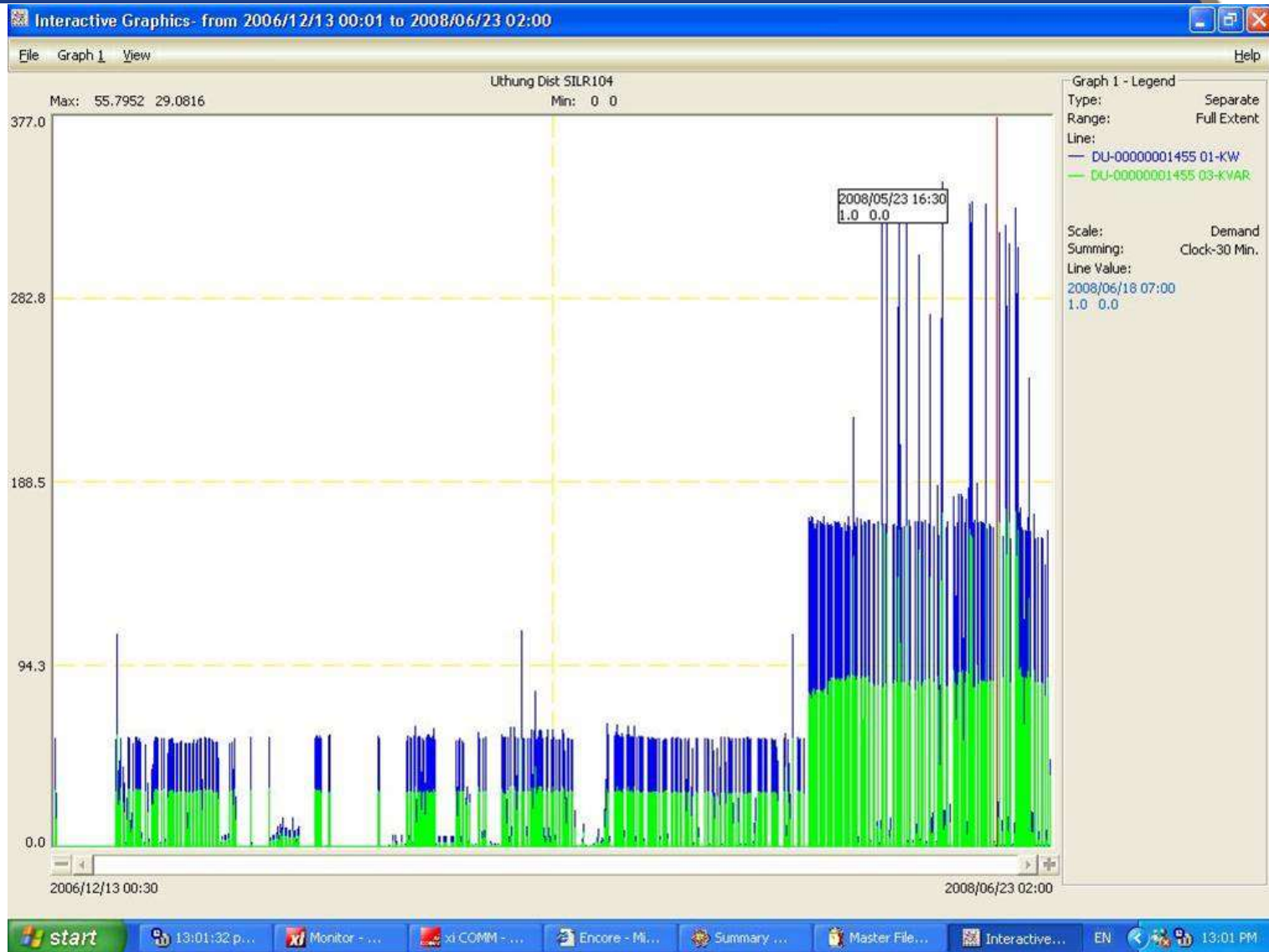


Cables connected before CT

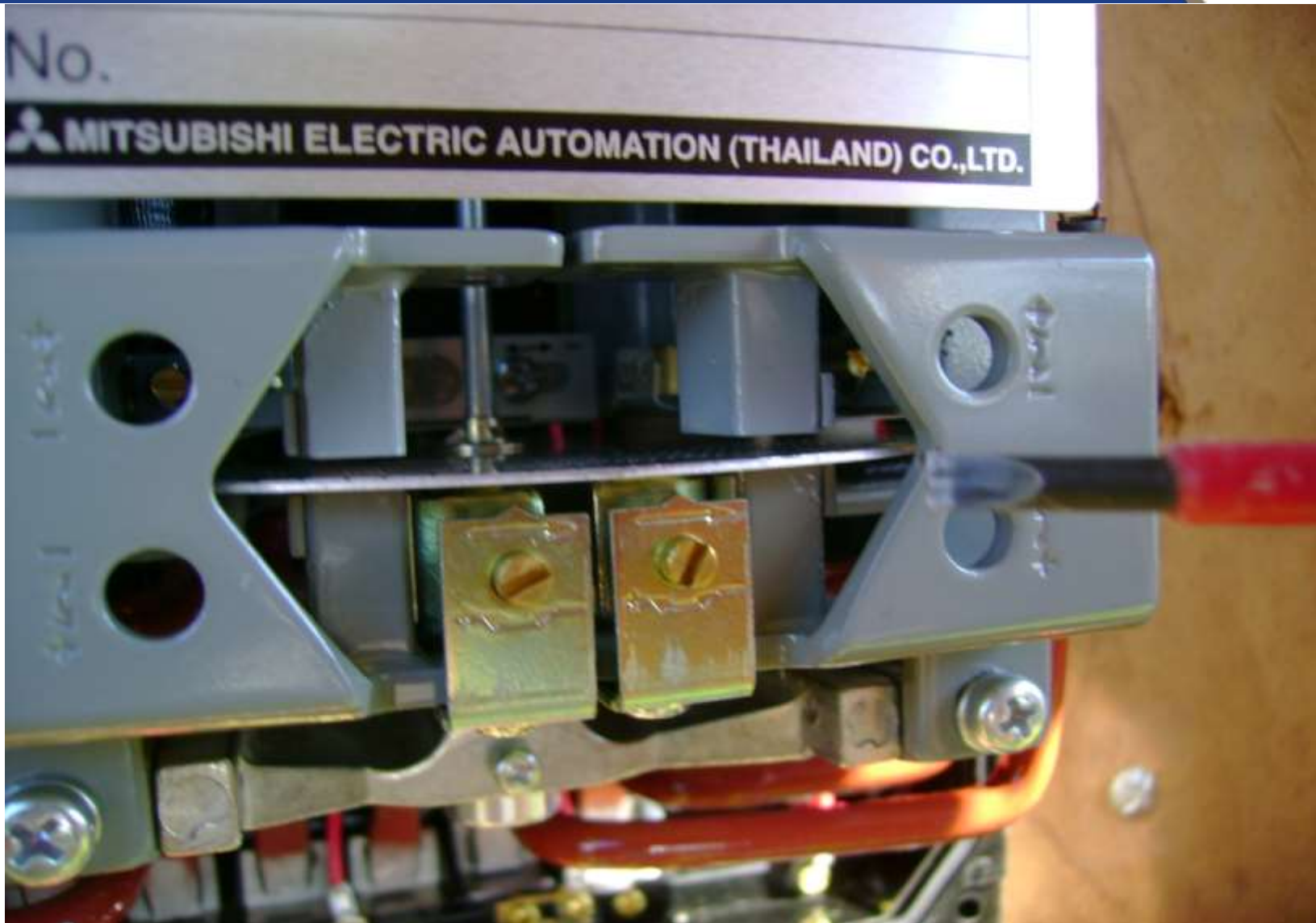


CT tamper

Meter tampers



Meter tamperers

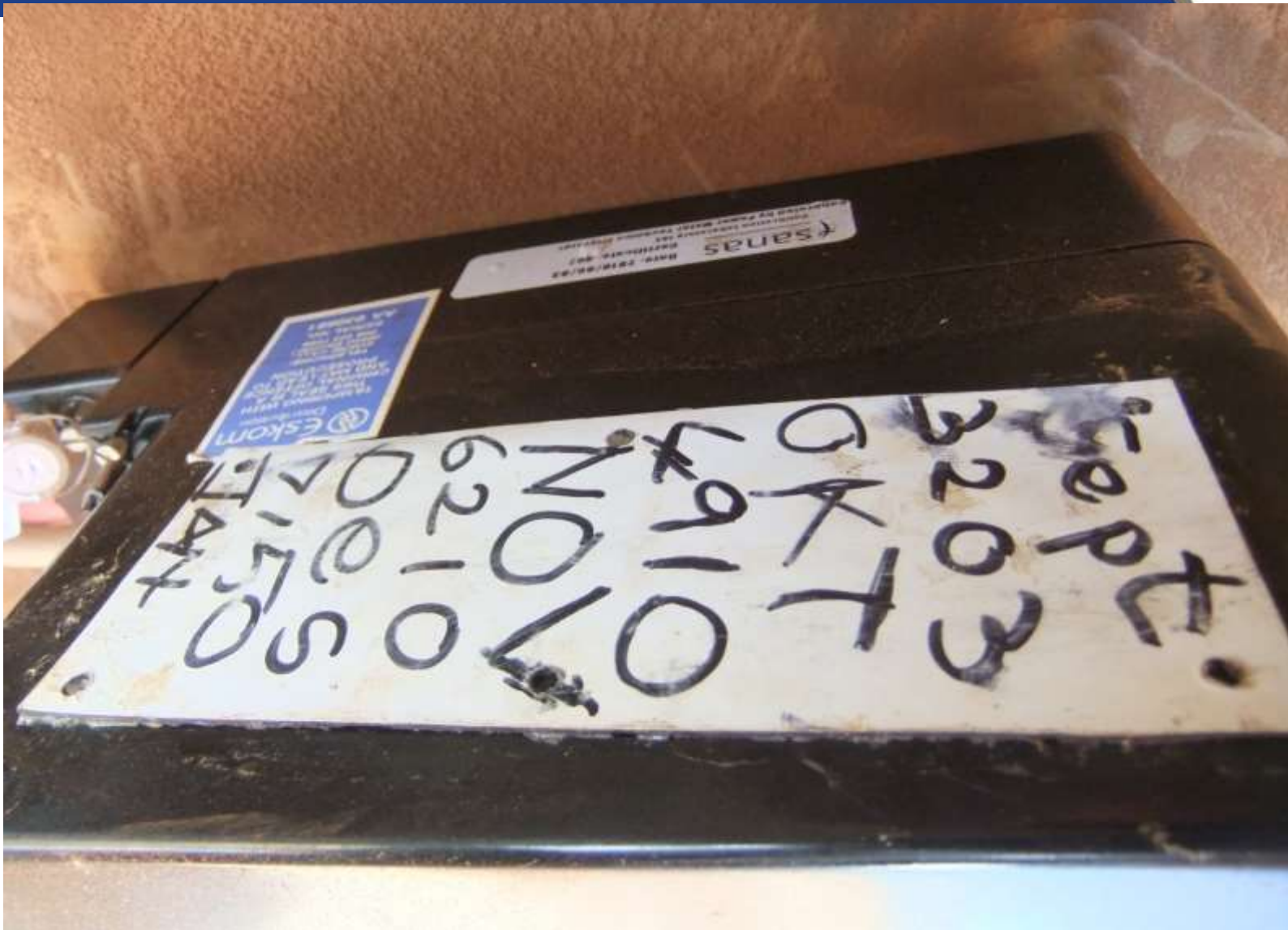


Disc dropped



CT's shorted

Meter tamperers



Tamper disguise

Meter tampers



Behind the covers



Hole drilled in side of meter



Tamper disguise

Meter tamperers



Tamper disguise

Meter tamperers



Holes drilled



PT link open

Meter tampers



PT link missing



“clean” seals



Meter bypass



Serious drag marks on disc

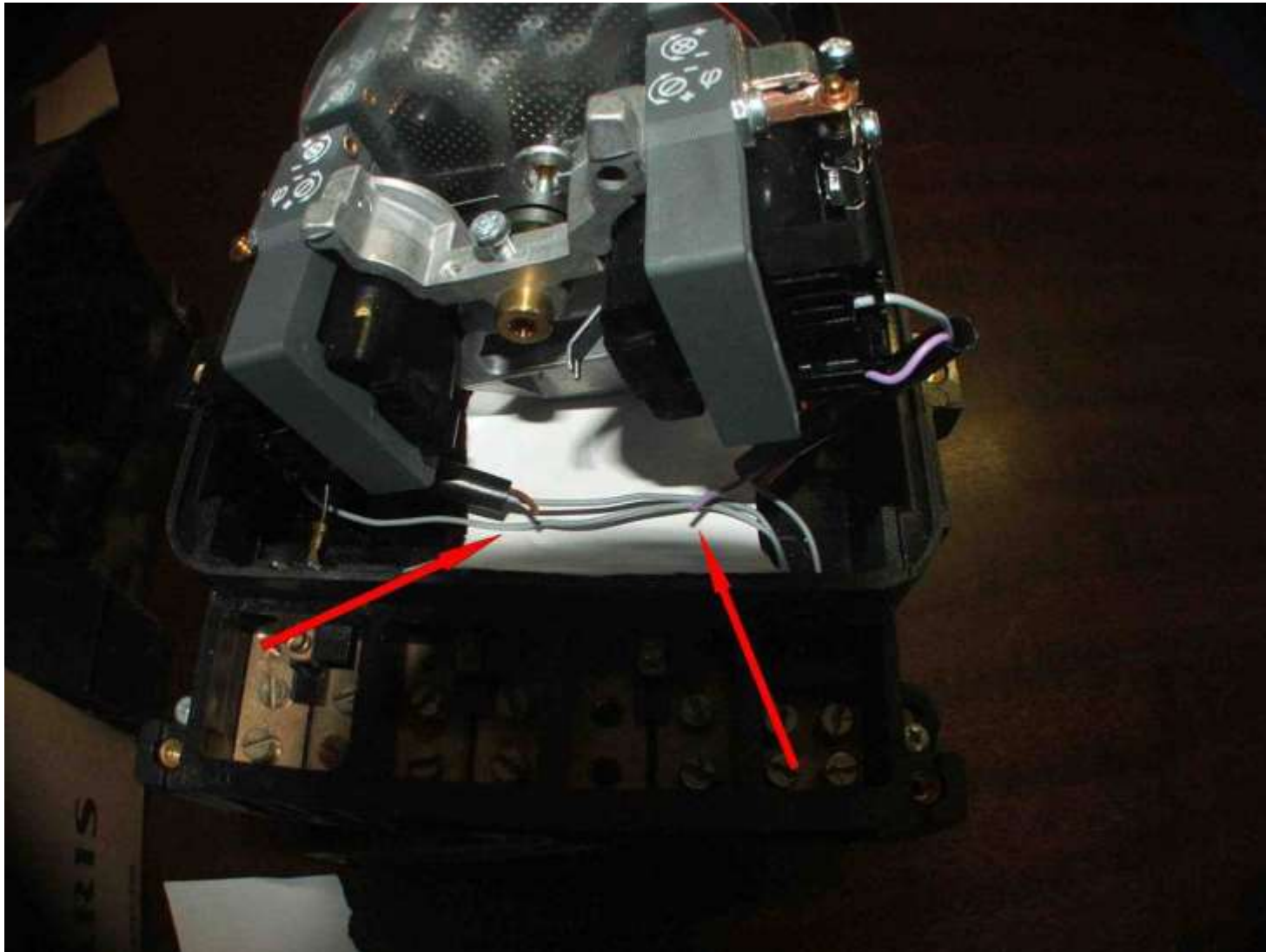




Bridge between line and load



No Meter



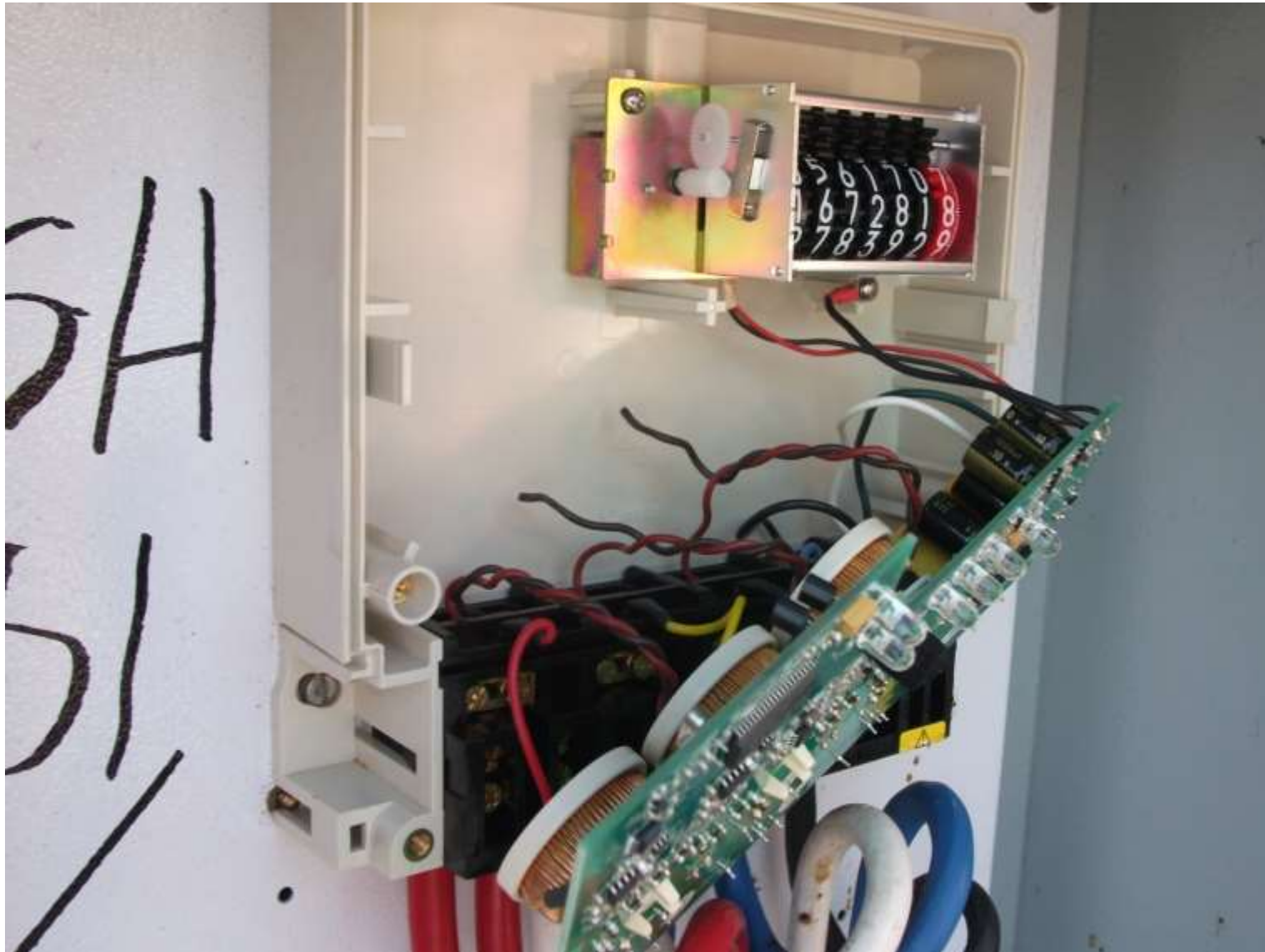
Phase wires cut

Meter tamperers



Phase wires cut

Meter tamperers



Phase wires cut

Meter tamper



CT's changed

Meter tamper – “T” off



Illegal connection

Default Energy Test Report

Location Information:

Customer Number:	LH37*9
Meter Number:	596274

Test Detail:

Pulses:	3
Meter Constant:	300
Test Variable:	i/kWh
Error:	-87.12
Meter Serial:	CT20556

Remarks

NONE

Tested by:

Name:	GGR
Date:	2013/05/15 03:11:02 PM
Signature:	

Checked by:

Name:	
Date:	
Signature:	

Medium

Provincial conservation group CapeNature had acquired five farms covering an area of 12 800ha to create a new reserve called Grand Canyon, it was reported yesterday.

The land was bought by the World Wide Fund for Nature SA.

all the way to Baviaans without changing its spots," CapeNature ecologist Annelise Schutte-Vlok said.

"That is quite a distance. What's so great about this new land is that it links protected areas, because in conservation connectivity is crucial." - Sapa

Transport and Allied Workers' Union (Satawu) said.

"The strike is a result of a wage negotiation deadlock," Satawu spokesman Vincent Masoga said yesterday.

"We have demanded an 18% wage increase and the far apart."

The Bombela Concession company said the strike would affect the Gautrain bus service.

"Bus passengers are therefore requested to make alternative travel arrangements to spokesman Errol Braithwaite said.

"Train services will not be affected."

He said the strike could also create increased demand on the Gautrain's parking facilities. - Sapa

Seven charged as electricity theft rockets

REPORT CONTINUES FROM: P1

Electricity boxes and connectors, identified as belonging to the municipality.

The investigation was launched after the electricity department noticed huge discrepancies in power usage patterns at homes and businesses.

Detective Constable Trevor Shaw said: "To date, we have confiscated about 80 of these devices that were fitted in prepaid meters."

"We found them fitted in homes, farms, bars, retail stores and even national chain stores."

"Most of the [people who bought them] appear to be middle-to upper-class and include government officials, farmers, lawyers, policemen, doctors and a magistrate."

Many of them would give evidence. In a few cases, people had been conned into buying the device, unaware it was illegal.

Police had established those involved had charged about R1 000 a household and R4 500 per business. On average, they made about R20 000 a day. Police

ward in return for immunity from prosecution.

Janse van Rensburg said anyone caught using the device faced a R2 000 fine under the municipal by-laws for tampering with an electricity meter and possible prosecution if they installed the device knowing it was illegal.

Electricity department head Neilson described the theft of electricity as a "massive problem" and said measures to curb such thefts were under way.

But he admitted: "The municipality simply does not have the resources to deal with such large scale theft."

"We try but it is just such a huge problem."

"New measures are being investigated and will hopefully soon be implemented."

Neilson stressed that the rise in electricity theft was a factor in increasing tariffs.

While a certain amount was allocated to this "is nowhere near the millions we are now losing".

Neilson added that due to the increase in demand and price of electricity, criminals had changed their tactics and methods in stealing power.

"It was always a problem but on this scale, it is a huge problem," he said.

In a landmark ruling two years ago, the South Gauteng High Court found two men guilty of 78 285 counts of theft and two counts of racketeering.

Andile Mgodi and Martin Ndobele stole R8.9-million worth of electricity.

They were given a combined sentence of 411 years in jail.

They were charged under the Organised Crime Act.

TREVOR SHAW

RIGHT AND WRONG: A standard electricity box is pictured left and one where an illegal device has been put in is on the right

spokesman Captain Sandra Janse van Rensburg said men had posed as contractors from the electricity department.

"They would target homes that they knew were having problems with electricity spikes and, from there, they would work on referrals from the client."

In the guise of municipal contractors, the men would allegedly offer to help householders and business owners sort out the spike in electricity and at the same time reduce their usage.

In essence, they bypass the meter resulting in the reading being drastically reduced," Janse van Rensburg said.

Police are now appealing to anyone who unknowingly bought such devices to come for-

MAP KEY

Sunny Cloudy Thunder Rain Partly cloudy

PE FLIGHTS

DEPARTURES

FLIGHT 08:00 08:30 09:00 09:30 10:00 10:30 11:00 11:30 12:00 12:30 13:00 13:30 14:00 14:30 15:00 15:30 16:00 16:30 17:00 17:30 18:00 18:30 19:00 19:30 20:00 20:30 21:00 21:30 22:00 22:30 23:00 23:30 00:00 00:30 01:00 01:30 02:00 02:30 03:00 03:30 04:00 04:30 05:00 05:30 06:00 06:30 07:00 07:30 08:00 08:30 09:00 09:30 10:00 10:30 11:00 11:30 12:00 12:30 13:00 13:30 14:00 14:30 15:00 15:30 16:00 16:30 17:00 17:30 18:00 18:30 19:00 19:30 20:00 20:30 21:00 21:30 22:00 22:30 23:00 23:30 00:00 00:30 01:00 01:30 02:00 02:30 03:00 03:30 04:00 04:30 05:00 05:30 06:00 06:30 07:00 07:30 08:00 08:30 09:00 09:30 10:00 10:30 11:00 11:30 12:00 12:30 13:00 13:30 14:00 14:30 15:00 15:30 16:00 16:30 17:00 17:30 18:00 18:30 19:00 19:30 20:00 20:30 21:00 21:30 22:00 22:30 23:00 23:30 00:00 00:30 01:00 01:30 02:00 02:30 03:00 03:30 04:00 04:30 05:00 05:30 06:00 06:30 07:00 07:30 08:00 08:30 09:00 09:30 10:00 10:30 11:00 11:30 12:00 12:30 13:00 13:30 14:00 14:30 15:00 15:30 16:00 16:30 17:00 17:30 18:00 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