



SAFHE 2026

SOUTHERN AFRICAN
HEALTHCARE CONFERENCE

SYNERGY
IN ACTION:

SHAPING THE FUTURE OF
HEALTHCARE TOGETHER



9 – 10 JUNE 2026



CTICC 2 CAPE TOWN

M&V: Data Credibility Within Energy and Operational Risk

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Be Positive

It starts with
understanding what the
information should mean

A friend of mine told me this...

He visited his neighbour.

She was recently widowed.

The husband had such a wonderful, positive attitude right to the end.

Johnny needed blood. They didn't know the type.

She decided to spend his last moments with him.

He told her to be positive!

Measurement & Verification Background

The central challenge of M&V: How do we know what would have happened?

M&V is not just monitoring, metering or validation. It applies / employs all these aspects to provide a credible reference point known as the baseline.

Phenomenon in existence as early as 1980's. World-wide adoption increased through 2010's.

Developed to reliably quantify energy savings achieved. It became the standard requirement for most energy performance contracting projects/programmes.

Constantly evolving with improved tools and toys such as M&V 2.0 – mega data and small interval assessments and becoming part of Energy Management ISO range.

At its core, measurement and verification (M&V) is a process that includes a wide range of measurement, verification, and analysis techniques for quantifying the results of resource efficiency and resource management activities.

Basic M&V Process

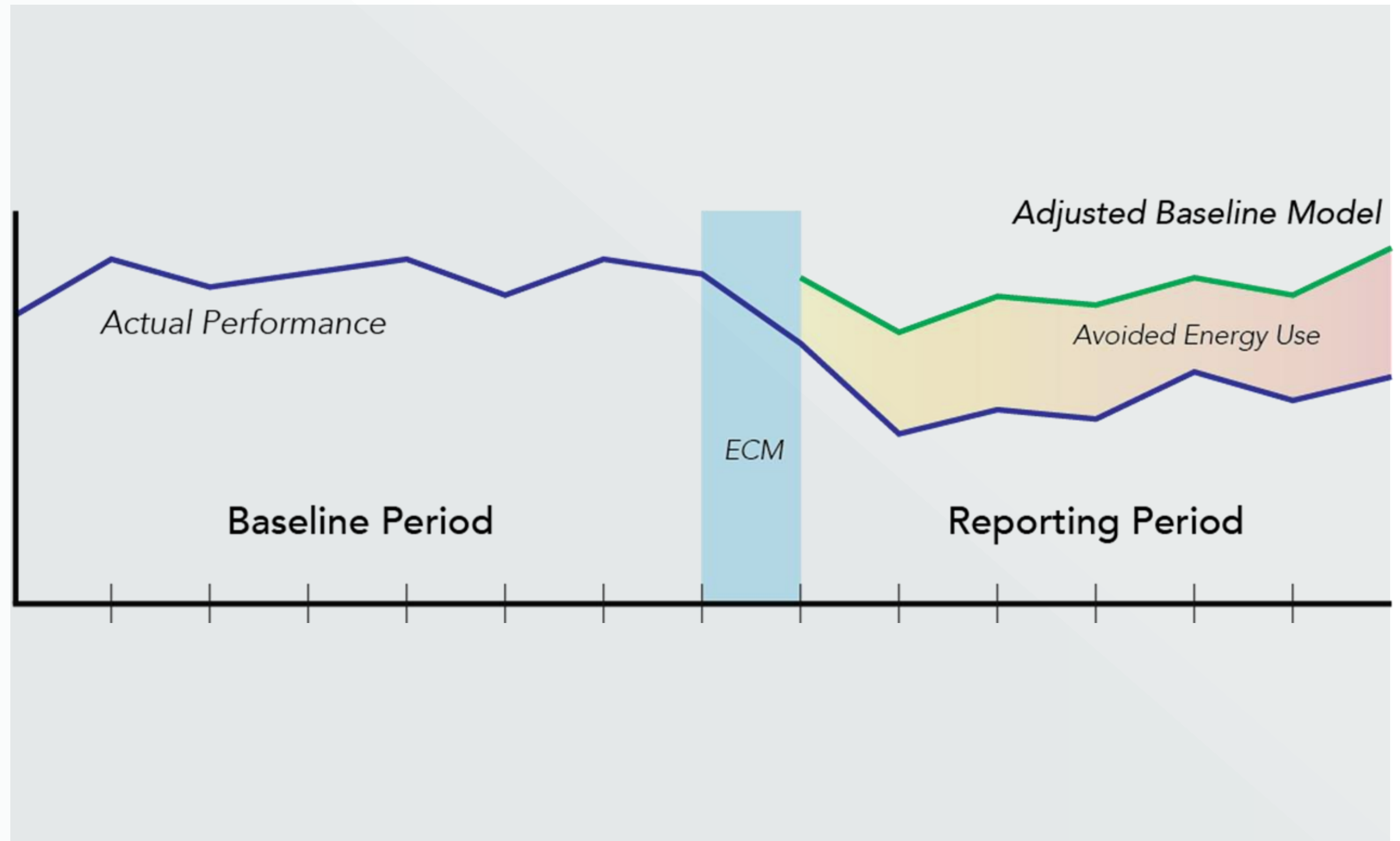
Adjusted Baseline Model

-

Actual Performance

=

“Savings” (Avoided Energy Use)





M&V in South Africa

South Africa started in early 2000's with the big utility projects being M&V'ed since 2003. Over 800 projects implemented and evaluated.

Tax incentive M&V started in 2013 with over 500 projects evaluated, over R25-billion in tax rebate, over 30TWh proven to be reduced and over 30Mt of CO2 proven to be reduced.

SA is the only known country that has M&V practitioners accredited for proficiency at the same level as a medical lab or pressure vessel inspector.

Other countries require M&V professionals to be registered with central system while proving their competency.



M&V Purpose and Applications

What are the true impacts achieved?
Are these impacts sustained?

Applicable to

- Energy.
- Water.
- Transport.
- Carbon and other emissions.

Used for

- Overall efficiency improvement assessment – relates to sustainability.
- Actual project and supplier performance quantification and related remuneration.
- Scope 1 and scope 2 emission impact verifications and quantification.

Credible Data is the Foundation of Everything

Credible means more than just calibration. It means complete traceability from source to archive.

How sure are you the data in your workpiece is correct within acceptable margins?

Foundation of any change evaluation is based against a credible reference point.

How sure are you the relevant reference is correct, applicable for use and applicable to you?

kWh per bed, kWh per Ton cooling, kWh per m², kWh = $250.285 \times T^2 + 7431.977 \times T + 163\,616.251$

When data is wrong, corrupt or not trustworthy, the whole process and any results thereafter are **USELESS.**

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M&V Unlocks Value, Mitigates Risk

What is the chance that something will happen?

Murphy happens. Hanta virus started its own cruise liner.

Assurance:

Being sure, understanding changes and effects, preparedness for Murphy.

Having something in place that informs you when to relax and when to start swimming.

Ensuring the data supporting calculations, results, estimates or planning is credible and usable and applicable.

A simple flowmeter conversion factor fault may show 10 times more water being used than is actually the case.

Leads to an overdesign of the water heating system.



Real Life Value and Risk Mitigation

Stopped performance contract before project committed

Initial assessments showed the estimated savings were wrong and project developer would have lost

Provided feasibility insights before commitment to performance contracting:

Parties' commitment to project was with improved piece of mind.

Influenced commitment target relative to more realistic performance

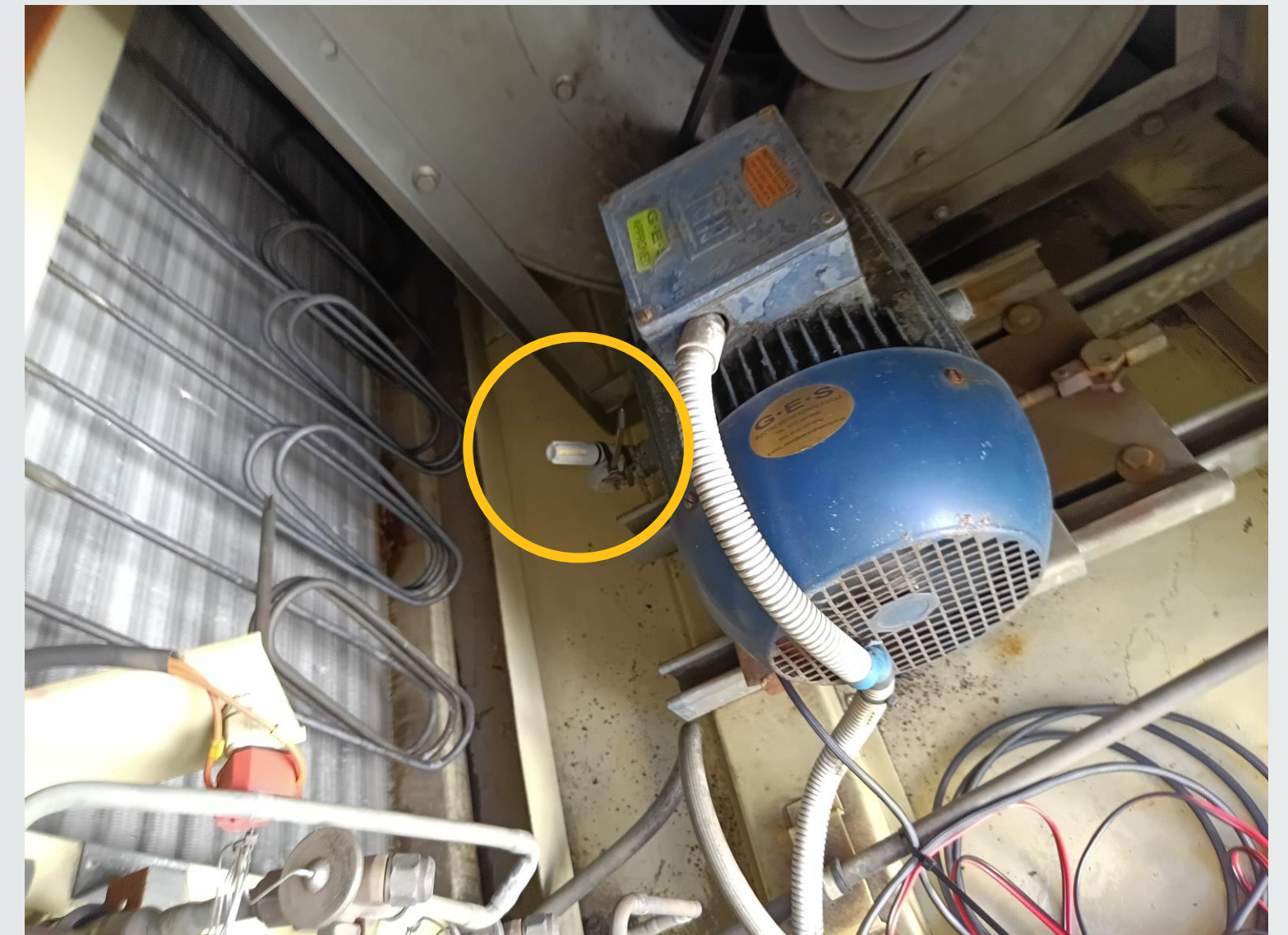
Initial assessments showed that the committed target was too optimistic.

Continued use of M&V has shown continuous **improvement** in project success, increased **surety** from financial institutions and **less arguments** over performance and related remunerations.

On-Site Findings

Wrong placement of sensor.

Affecting true performance of system, giving false information of poor performance



On-Site Findings

Setting not the actual operation.

Giving false information of what the system is set to.

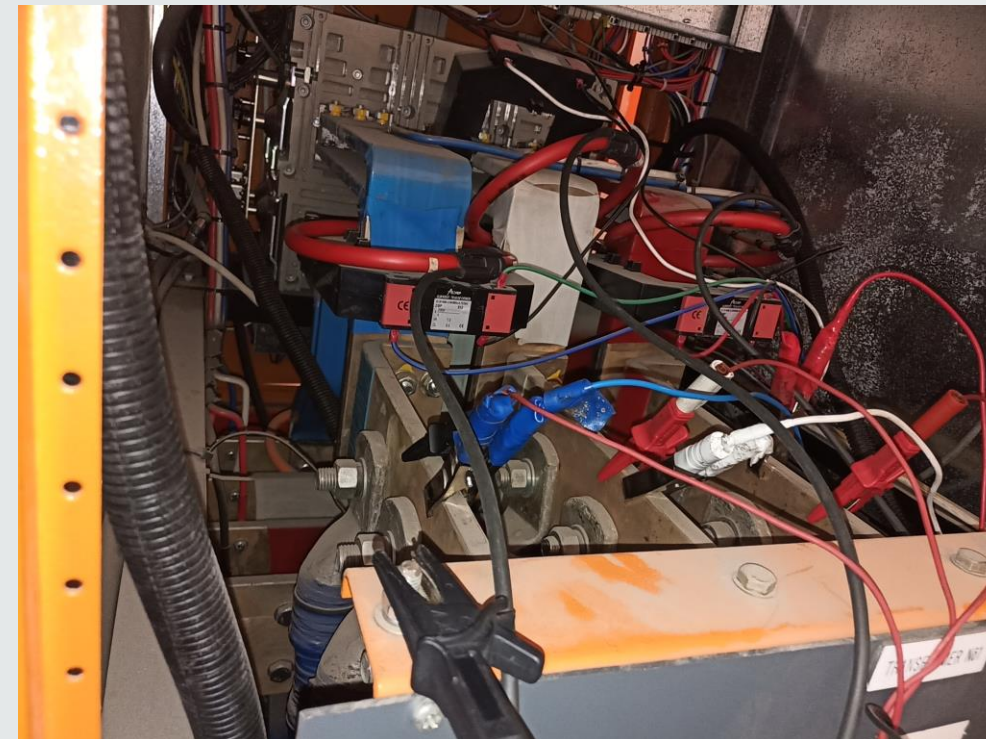


On-Site Findings

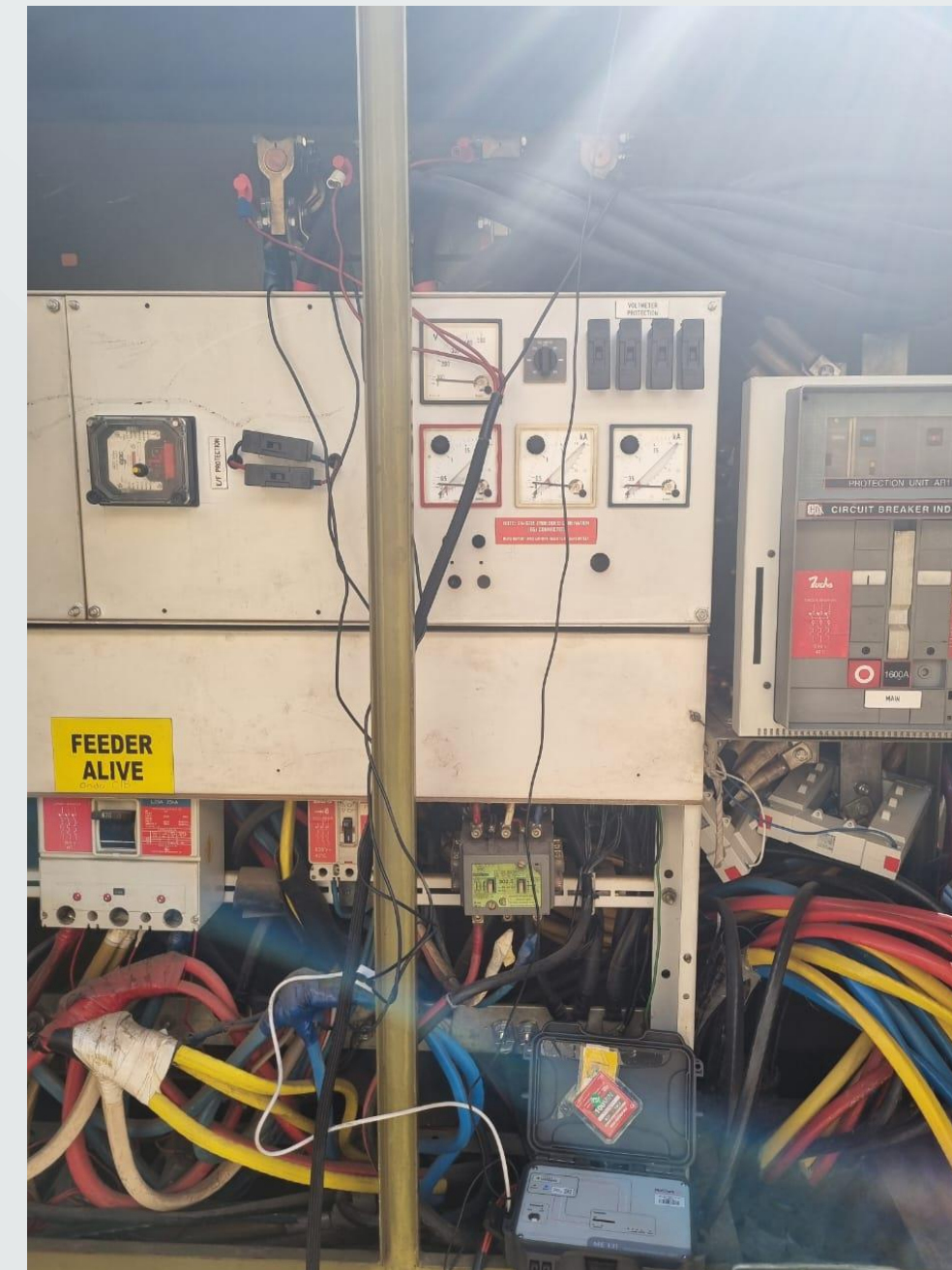
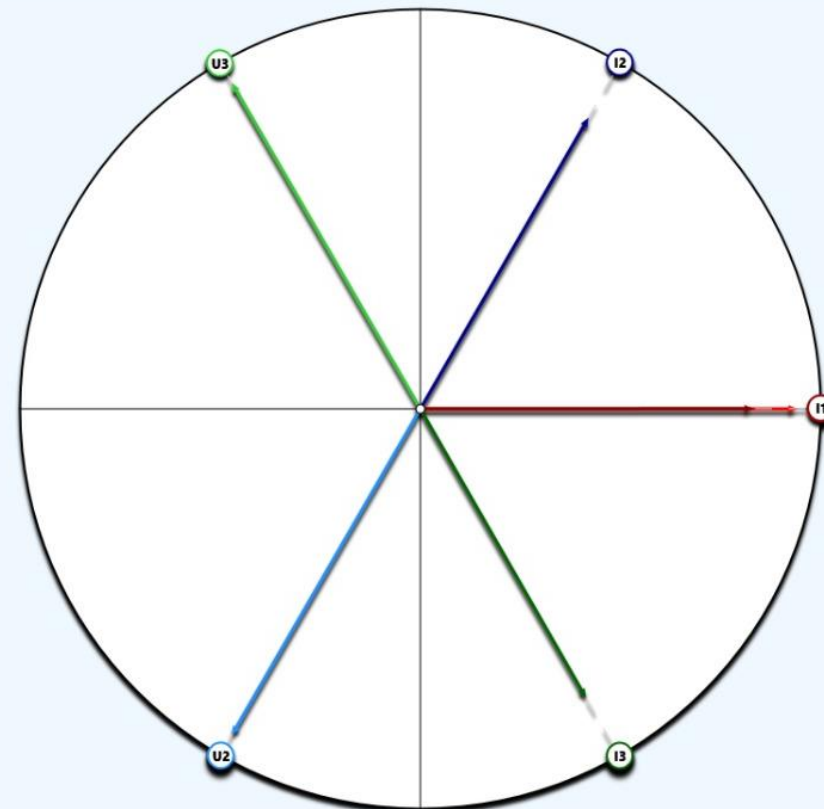
Calibrated electrical meter incorrectly installed.

One reversed CT or cross wired CT can lead to only 1/3 of the true reading.

Are the correct wires measured?



I)	P= (kW)	Q= (kvar)	Q= (kvar)
29.544	0.011	0.000	
0.000	0.000	0.027	
0.000	0.000	0.135	



On-Site Findings

Seemingly good thermal insulation is not really that good.

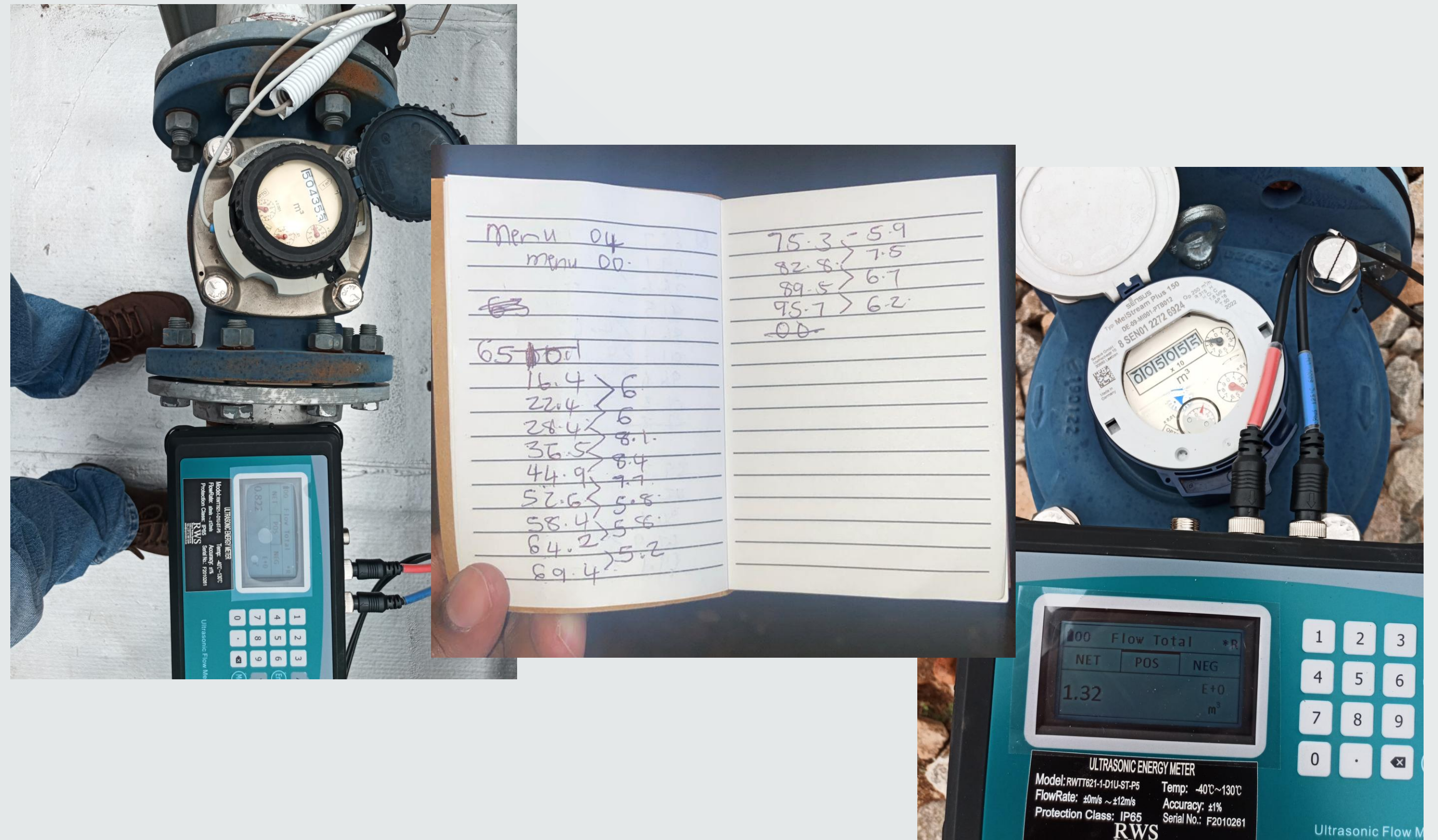
Cooling the outside as well as the zone.



On-Site Findings

Flowmeters are often not double-checked.

A simple leave in the water after a pipe repair, can affect the meter reading.



Best Application

If you inspect too late, the fix is expensive.

Incorporate soon enough to cover the full extend of the works where and when feedback matters the most and alterations are cheapest.

Near beginning of project development.

Sanity check on samples & representation.

Sanity check on data gathered & assumptions.

Sanity check on calculations & estimations.

Before implementation.

More detailed data gathering.

Integrated information feedback from implementers.

Planned metering vs installation periods.

During and after implementation.

Sanity check of installation numbers and quality.

Sanity check on data gathered.

Sanity check on sustainment of installation.

Sanity check on sustainment of operations.

Normal
M&V
Process:
Grudge
purchase,
Once-off

Value-add
M&V
Process:
Assurance,
Quality,
Success



Data, Data Systems, Integration, Summaries, AI

Data is all around us in most devices in use

Data from individual devices give feedback and controllability.

Data from collection services provide integration capability and auto optimisation.

Systems out there can give valuable summaries of what seems to happen.

AI is getting more and more exposure to data and systems.

What are the reliability, credibility, security and applicability of using this data and related feedback?



Start Actively Applying Verification

Repeated Impartial validation and verification of events, data, operations, information and results yields the best sustainability of TRUST and lowers RISK.

In Energy Management it ensures applicability, capability and credibility with sustainability.

In Energy Business it ensures cost effectiveness, reduces wasted costs, improves success rate.

In Energy Training it ensures suitable capability, applicable improvement, reduced risk of failure.

In General, its application reduces stress on outcomes, improves security of client's investment and prevent death / injury to profession, project, business.



Where Are YOU Lacking Credibility?

Are you sure your data system is credible?

Are you sure the calculations are applicable?

Are you sure the numbers are correct?

Are you sure your biltong is safe from the rascal?

What we love to hear and challenge:

“We are sure our plant is energy efficient and runs optimal”

We have time and again proven otherwise. Challenge Accepted.

What other examples are there that you think you/others are sure off?



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Thank you / Q&A / Lunch

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