

REVENUE PROTECTION

IN A SMART GRID ENVIRONMENT

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REVENUE PROTECTION DEFINED

SARPA

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

IURPA

Reducing revenue loss in the utility industry

UKRPA

The prevention, detection and recovery of losses caused by interference with electricity supplies

SMART GRID DEFINED

Merging of the traditional electricity grid with the latest communication, computing, monitoring and power electronic technologies to create a system that is;

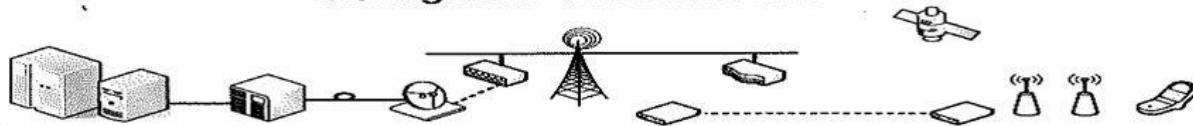
- Self healing
- Adaptive
- Interactive
- Optimized
- Distributed
- Integrated
- Secure

SMART GRID MERGER

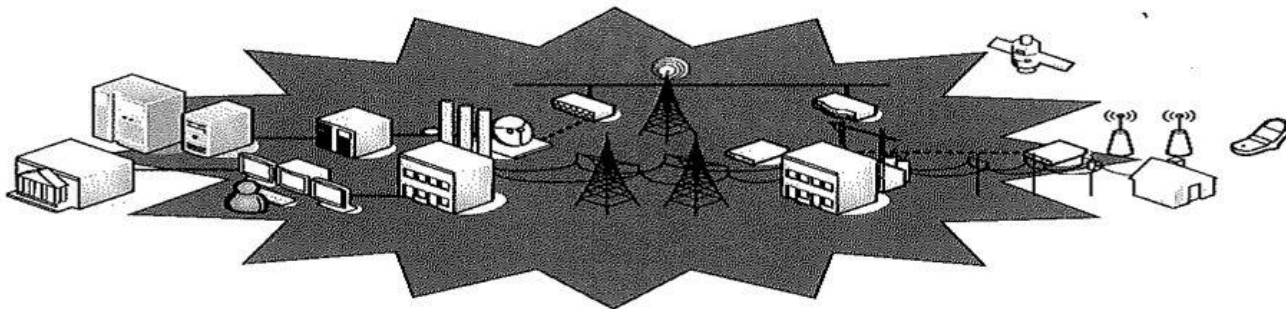
Merging Two Infrastructures



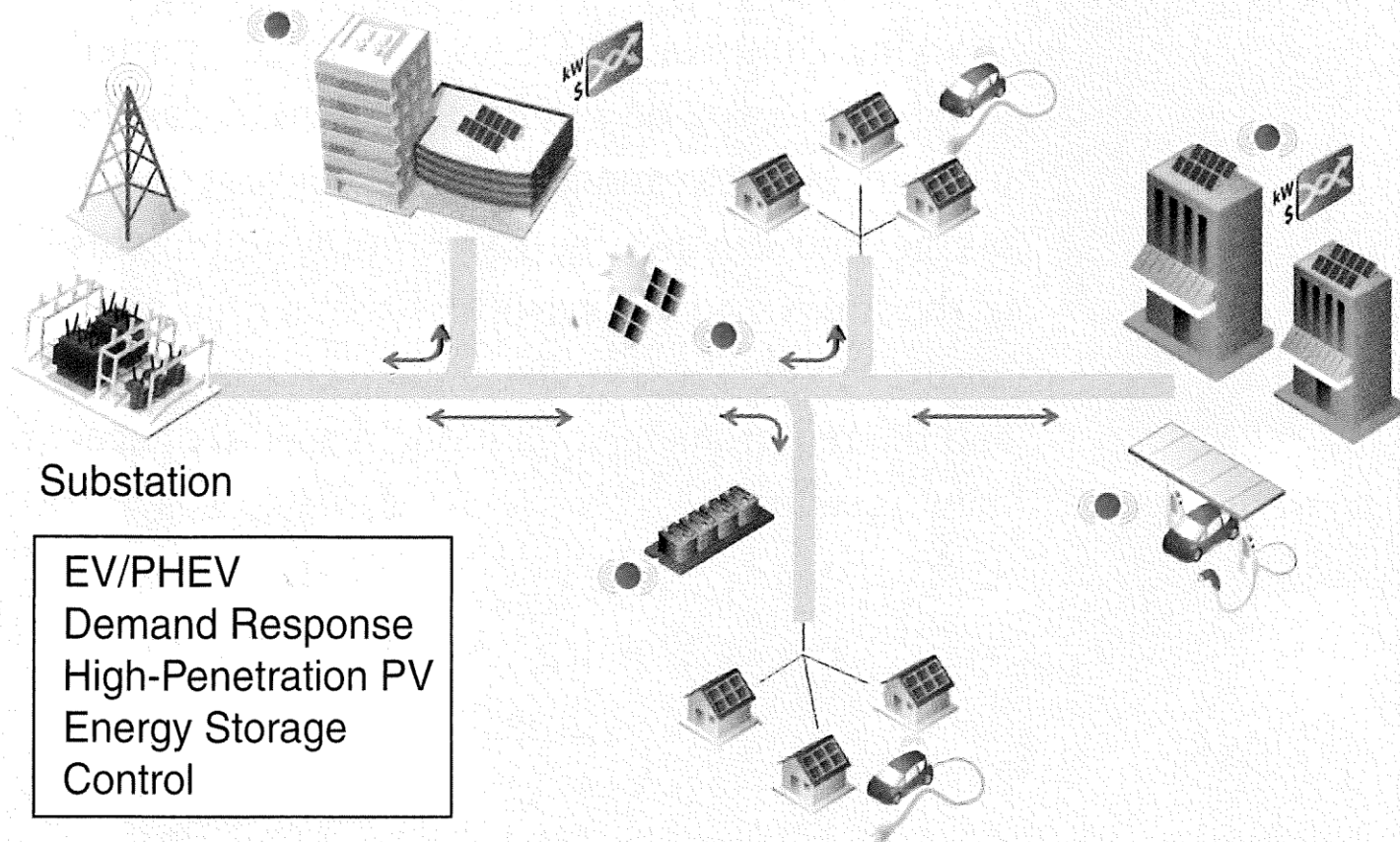
"Intelligence" Infrastructure



The Smart Grid



SMART GRID



HISTORY OF RP STRATEGIES

....IN THE BEGINNING

- RP actions for conventional meters
 - Calibrate it,
 - Seal it,
 - Visit it (meter readers)
- In house initially
- Later to kiosk (outside)

1985
...CHAMPS!

Don & Rudi

HISTORY OF RP STRATEGIES

....A LITTLE LATER

•RP actions for prepayment meters

- Calibrate it,
- Seal it,
- Forget it!

•Back into house



HISTORY OF RP STRATEGIES

....MUCH LATER

- Rather not!
- Calibrate it,
- Seal it,
- Box it,
- Forget it!
- Back to kiosk



HISTORY OF RP STRATEGIES

....OTHER STRATEGIES

- Low consumption reports
- Meter auditing/inspections
- Energy balancing
- Info POD
- On-line- / Super vending

HISTORY OF RP STRATEGIES

....MUCH LATER

•RP actions for Automated Meter Reading (AMR)

- Calibrate it,
 - Configure it,
 - Seal it,
 - Box it,
 - Ping it!
-
- For regular and accurate billing
 - Mostly commercial & Industrial
 - One way communication

THE LAW

...GN 773

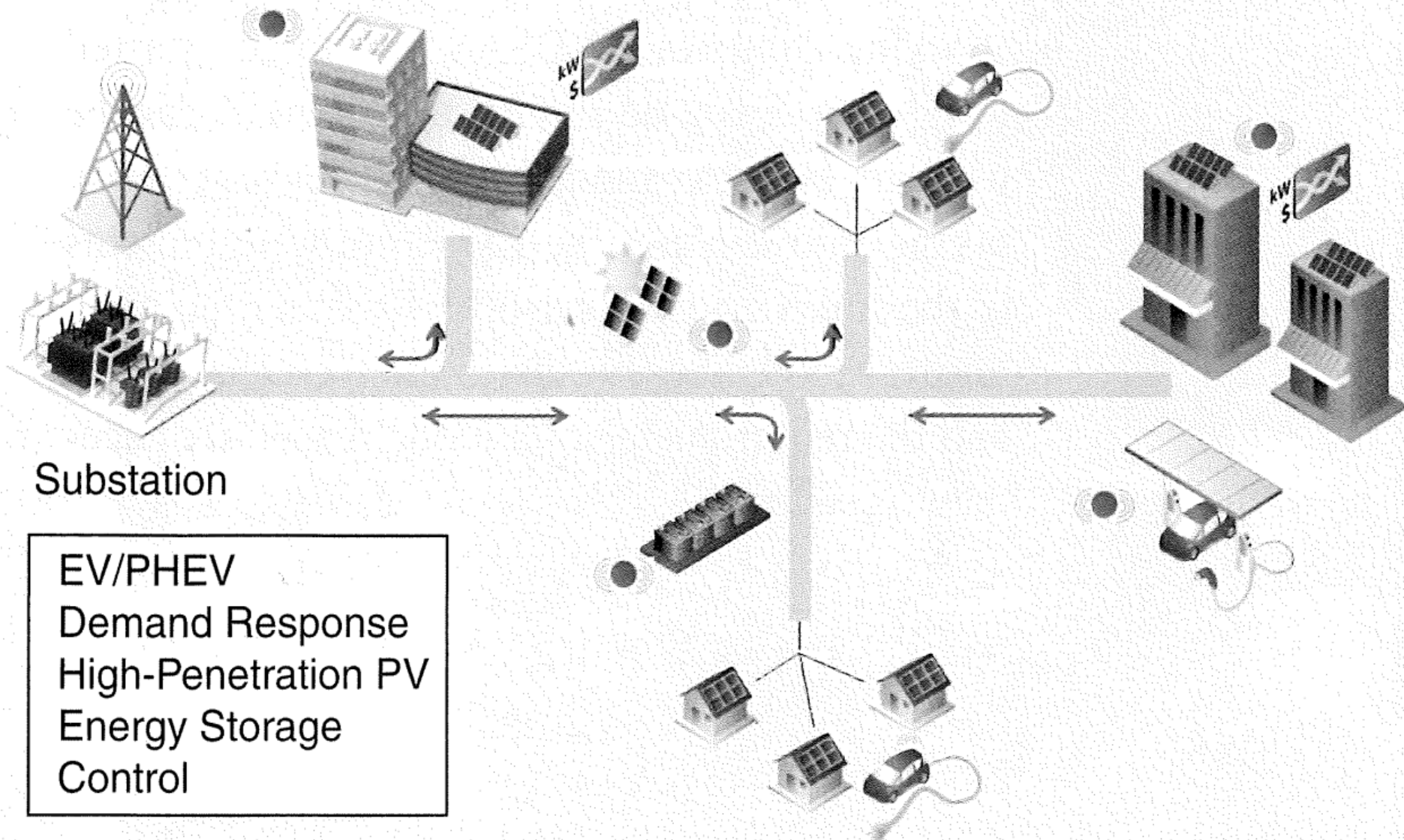
- Regulation published under ERA
 - Customers using > 1000 units/month
 - TOU
 - Remote disconnect
 - Appliance control
 - Two way comms
- South African Smart Grid Initiative (SASGI)
 - To ensure a consistent, reliable and sustainable

LESSONS LEARNED

- Meter to be properly secured outside of residence
 - Easy municipal access
 - Out of vulnerable zone
- Meter to be read remotely
 - Regular and accurate reading
- Energy balancing meters to be employed
- Meter Data Management Systems to be employed
- Regular meter audits / inspections necessary
- Two way comms needed
 - Remote disconnect
 - Tamper reporting

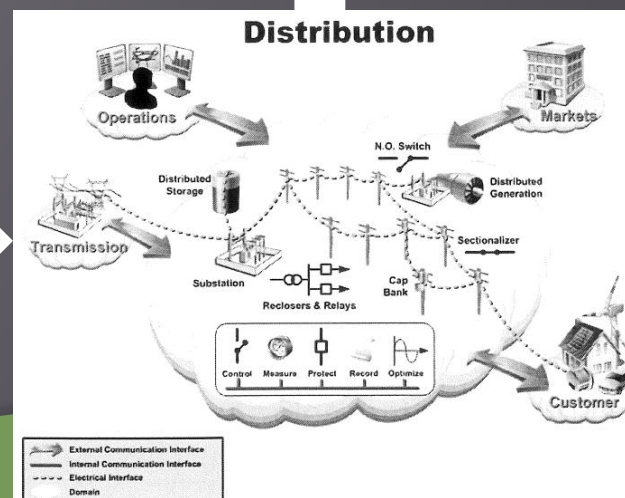
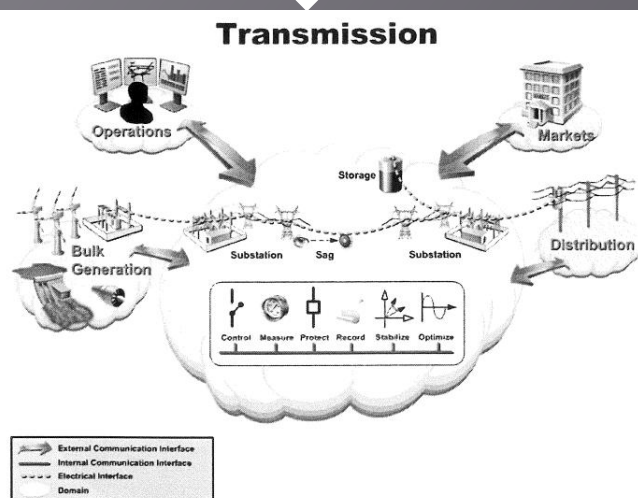
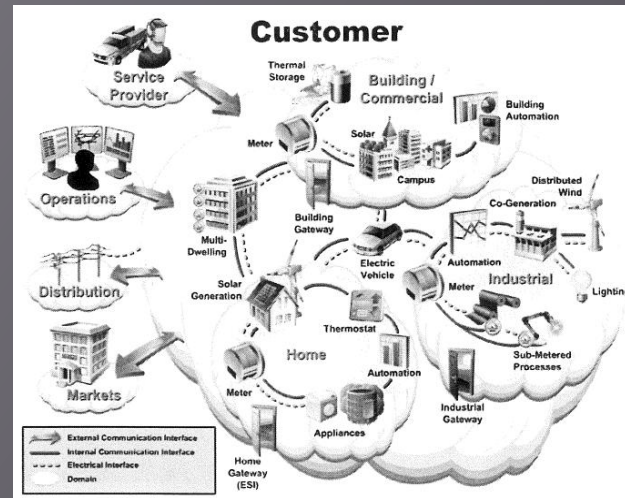
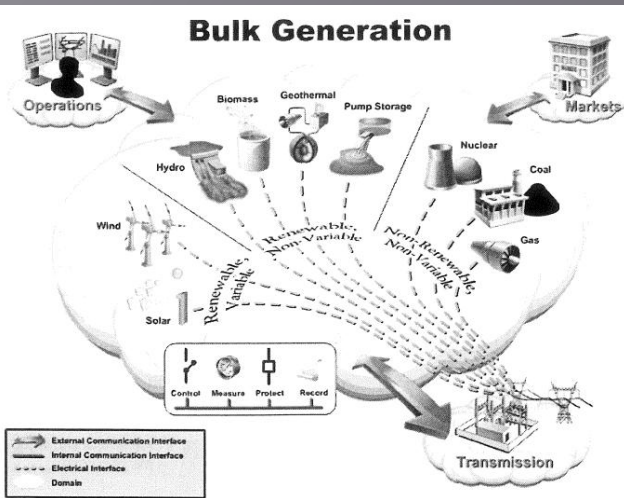
THE NEXT FRONTIER

....SMART GRID EMPLOYING AMI



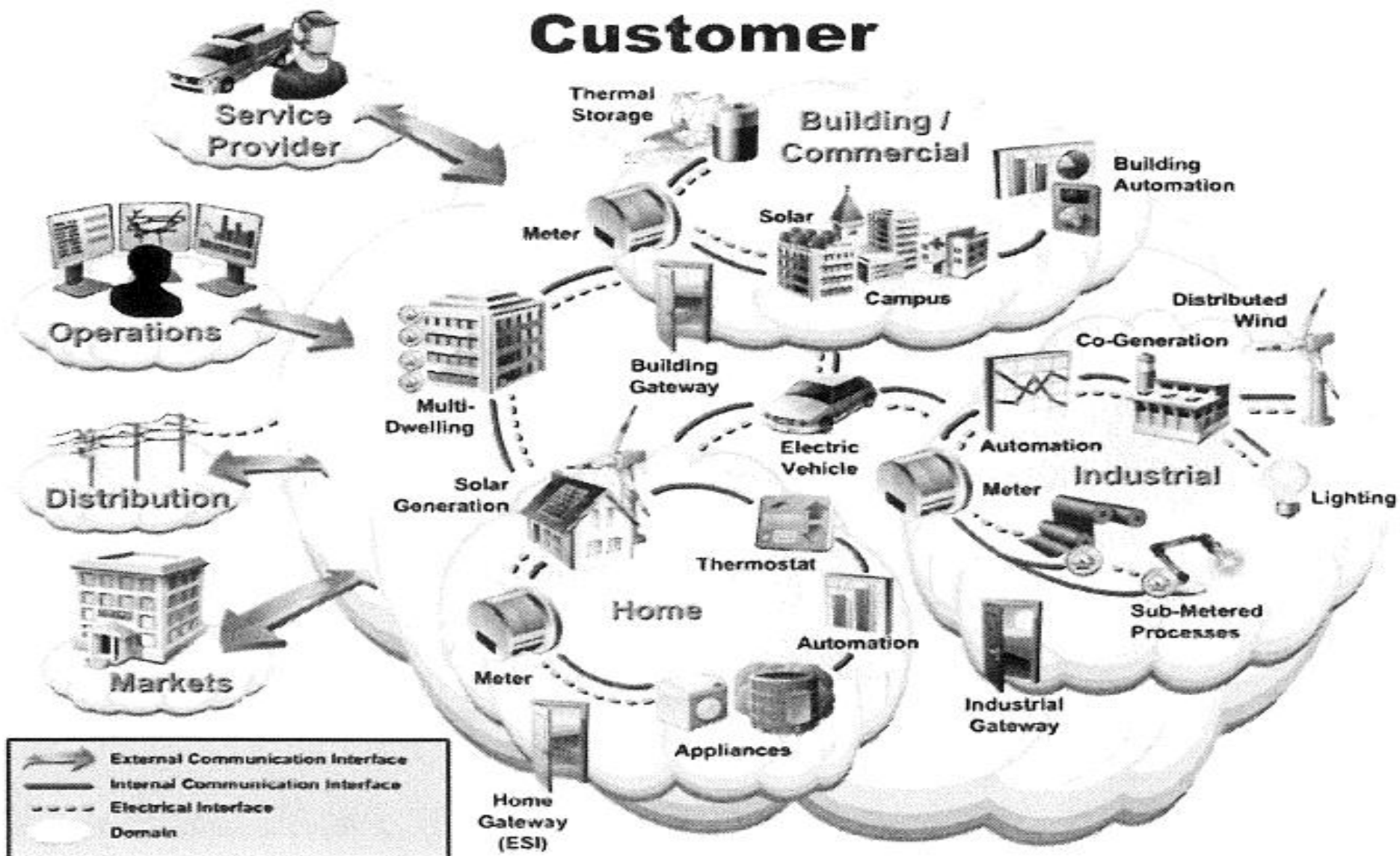
THE NEXT FRONTIER

....SMART GRID (INTERFACE MODEL)

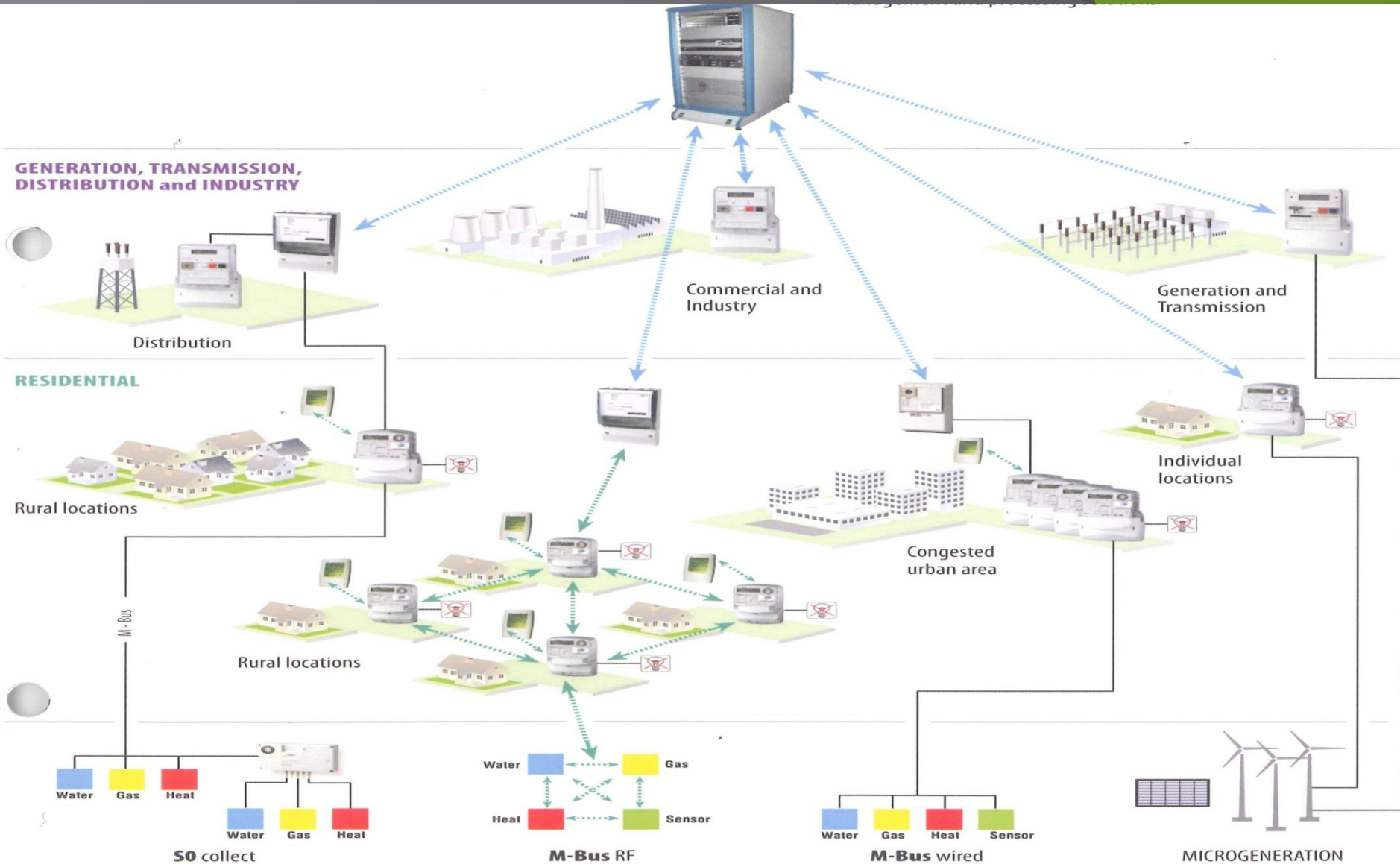


THE NEXT FRONTIER

....SMART GRID (CUSTOMER INTERFACE)



ADVANCED METERING INFRASTRUCTURE



RP STRATEGY

....FOR SMART METERS

•RP actions for Smart Meters

- Calibrate it,
- Configure it,
- Seal it,
- Box it,
- Talk to it!

Two way comms brought the necessary relief!

LETS UNPACK THE ACTIONS

- Calibrate it,
 - Manufacturers certificates!
- Configure it,
 - Fraud?
- Seal it,
 - Still a need?
- Box it,
 - Back into house?
- Talk to it!

IS THERE OTHER ISSUES?

- The introduction of wide scale embedded generation on the municipality's income?
- Wide scale introduction of TOU will have an impact on revenue,
- Cyber security was flagged as an issue in the US, CSWG formed
- False data injection is an issue,
- Internal controls

South African Smart Grid Initiative (SASGI)

- To ensure a consistent and sustainable roll out of Smart Grid and related infrastructure
- Representation from all stakeholders in the industry

CONCLUSIONS

- Many of the strategies employed previously is still relevant in a smart grid environment,
- Two way comms would cut down and perhaps focus the efforts of audit teams,
- Embedded generation and TOU tariffs will also reduce the purchases of municipalities,
- We need to jack up internal controls!

THANK YOU