21 – 24 May 2012
Expo Centre, Johannesburg

AFRICAN UTILITY WEEK

DELIVERING BEYOND TOMORROW

Eskom

spintelligent

CLARION EVENTS

EXPLORING KEY INSIGHTS INTO ESKOM'S AMI PROJECT AND TOU TARIFF IMPLEMENTATION

Kennedy Subramoney (Eskom – AMI Programme Manager) &
Lerato Legoete (Eskom – Senior Pricing Advisor)

www.african-utility-week.com

Presentation contents

AFRICAN UTILITY WEEK
DELIVERING BEYOND TOMORROW

- AMI project drivers
- Project and Solution Overview
- Implement Approach and KPI’s
- The Homeflex (time-of-use) Tariff
- Customer Selection & marketing approach
- Challenges
- Positive outcomes
- Q&A

The project drivers

- Comply with National regulation (773) - mandates the implementation of smart systems and time-of-use tariffs (TOU).
- Shift Residential Peak Load - Shift load from peak to off-peak periods using the TOU tariff.
- Promote Customer Behaviour Change - Incentivise the efficient use of electricity, promoting energy conscience lifestyle changes. Empower the customer !!!
- Improve Customer Service and Operational efficiencies – Reduce the need to estimations through automated meter readings. Reduce non-technical losses and meter reading costs.
- Provide Demand Response – Implement Load management and load limiting functionality as a possible alternative to load shedding during periods of system constraints.

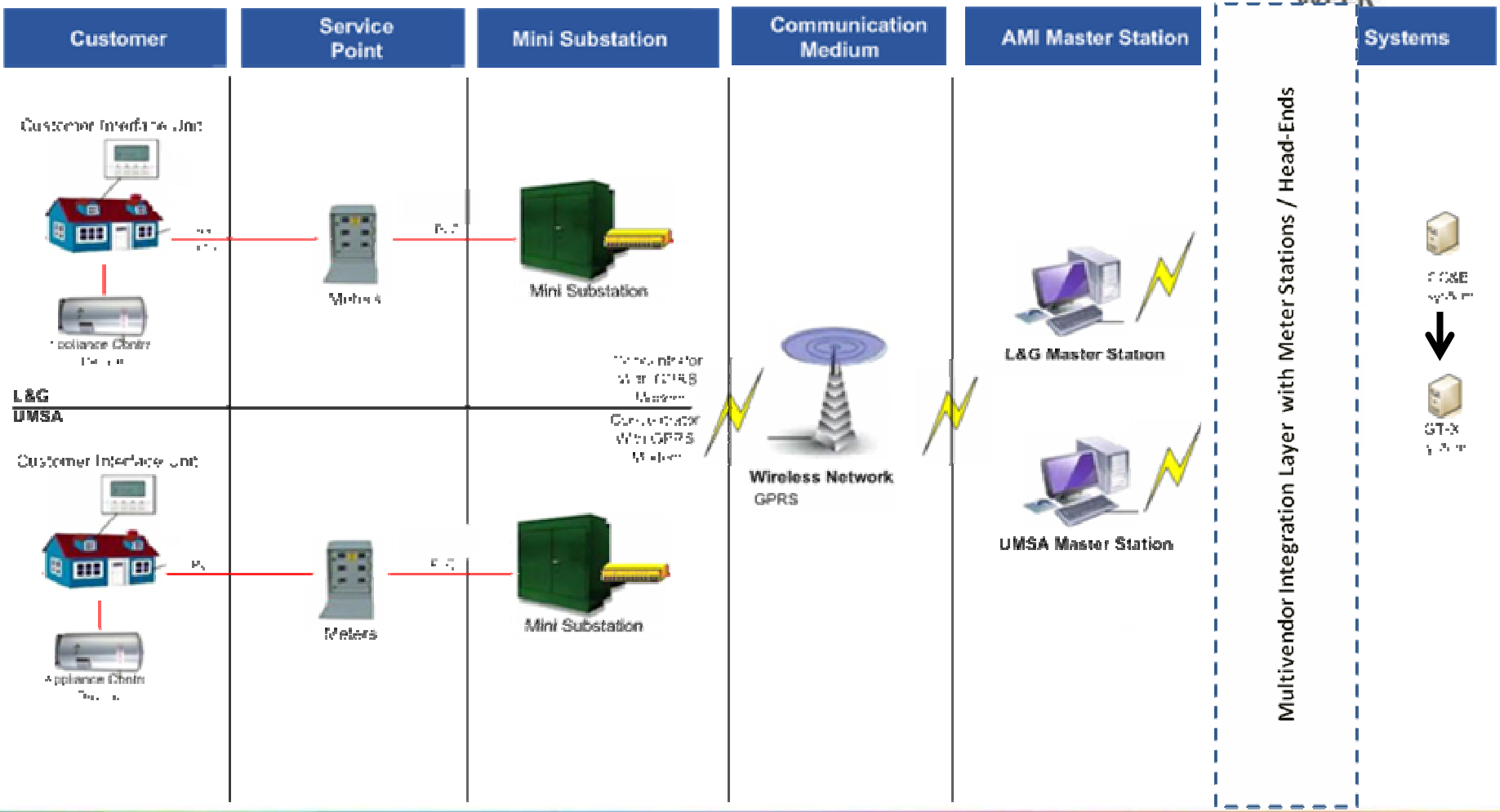
Project Scope

- Phase 1 – Pilot and Test
  - Install and test 10,000 AMI Meters), Customer Interface Units (CIUs) and Appliance Control Devices (ACDs).
  - Analyse the process and technology impacts to embed the changes into the business.
  - Integrate AMI head-ends with Eskom's billing system (CC&B)
  - Implement automated meter readings (AMR).
  - Pilot and test the residential time of use (TOU) tariff - Homeflex
  - Target conventionally metered customer's consuming 500 kWh and above per month.
  - Monitor and evaluate the solution.
  - Conduct lessons learnt in preparation for the next phase.

Phase 1 solution providers

- Landis and Gyr (L&G) and Unique Mbane South Africa (UMSA) - selected through an open tender process
  - Comply with, NRS 049 : 2008 - Advanced Metering Infrastructure (AMI) For Residential And Commercial Customers (A recommended utility specification for South Africa)
  - To supply and integrate the head-end systems
  - To operate the head-end systems until transfer
- Accenture – selected as system integrator and implementation partner
  - To design, build, test the end to end solution

Solution overview



UMSA solution

AFRICAN UTILITY WEEK
DELIVERING BEYOND TOMORROW

Appliance Control Device (ACD)

PLC

AMI Meter

PLC

Data Concentrator (DC)

Cellular Data (GPRS)

PLC

Customer Interface Unit (CIU)

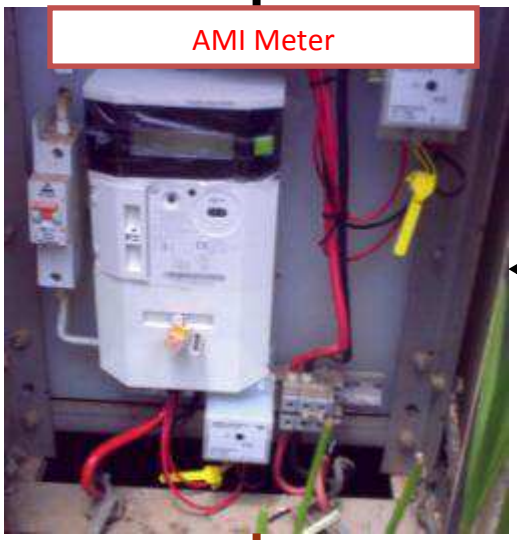
L&G solution

AFRICAN UTILITY WEEK
DELIVERING BEYOND TOMORROW

Appliance Control Device (ACD)

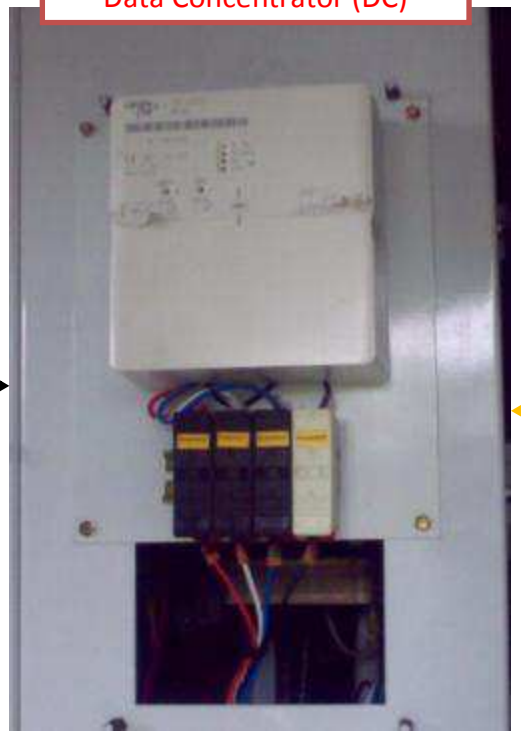
PLC

AMI Meter



PLC

Data Concentrator (DC)

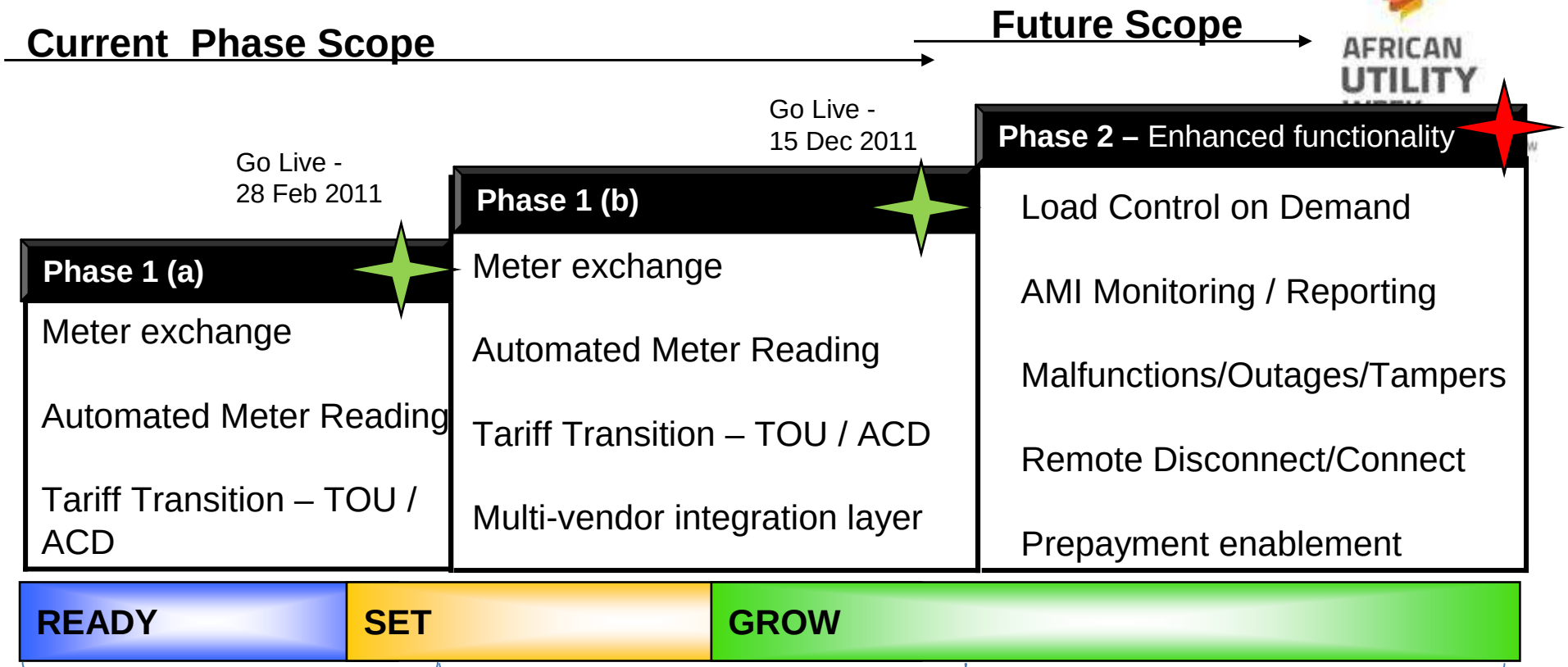


Cellular Data (GPRS)

Radio Frequency (RF)

Customer Interface Unit (CIU)

Presentation guidelines



- 1,000 meters
- Learn & refine processes - controlled deployment
- AMR – using existing Route Master flat file integration.

- Remaining 9,000 meters
- Focused TOU tariff marketing effort.
- Multi-vendor integration layer using CIM based web services.

- National roll-out 110,000 meters.
- Meter Data Management System (MDMS) and Gateway implementation

Implementation KPI's

Achievements	Phase 1 Target	Area Progress			Total to date
Data Concentrators installed	167	Central	Eastern	Western	117
		48	69	0	
Meters installed	10 000	2166	1062	0	3228
Meter Changes captured in Billing System	10 000	1562	1058	0	2620
Customer interface units installed	10 000	393	521	0	914
Appliance control devices installed	10 000	0	0	0	0

Achievements - Forums	Area Progress			Total Customer Forums	Total number of customers reached
Customer Forums (events)	Central	Eastern	Western**	24	156
	15	9	0		
Customer conversion to TOU tariff	2	13	0	N/A	15

Why residential time-of-use tariff (Homeflex)?

- The demand for electricity had increased in South Africa
- This demand for electricity is concentrated during peak periods, so time-of-use tariff is differentiated.
- Residential customers largely contribute to peak period demand
- Homeflex tariff is a time-of-use tariff suitable for medium to high usage residential customers in urban areas.
- The energy rate is priced depending on the time of the day the electricity is used and the tariff has fixed charges…

What is a time-of-use tariff?

- Time-of-use means that different prices are charged per unit of electricity for different times of the day.
- Think of your contract phone (peak & off-peak periods) or Telkom Callmore time which is after 7pm (cheaper i.e. off-peak)!

- The Homeflex energy rate is seasonally and time-of-day differentiated.

What are the seasons for Homeflex tariff?

AFRICAN UTILITY WEEK
DELIVERING BEYOND TOMORROW

- Seasons:
  - high demand = 3 months of winter (June, July, August) = more expensive
  - low demand = 9 months of summer (September to May) = cheaper

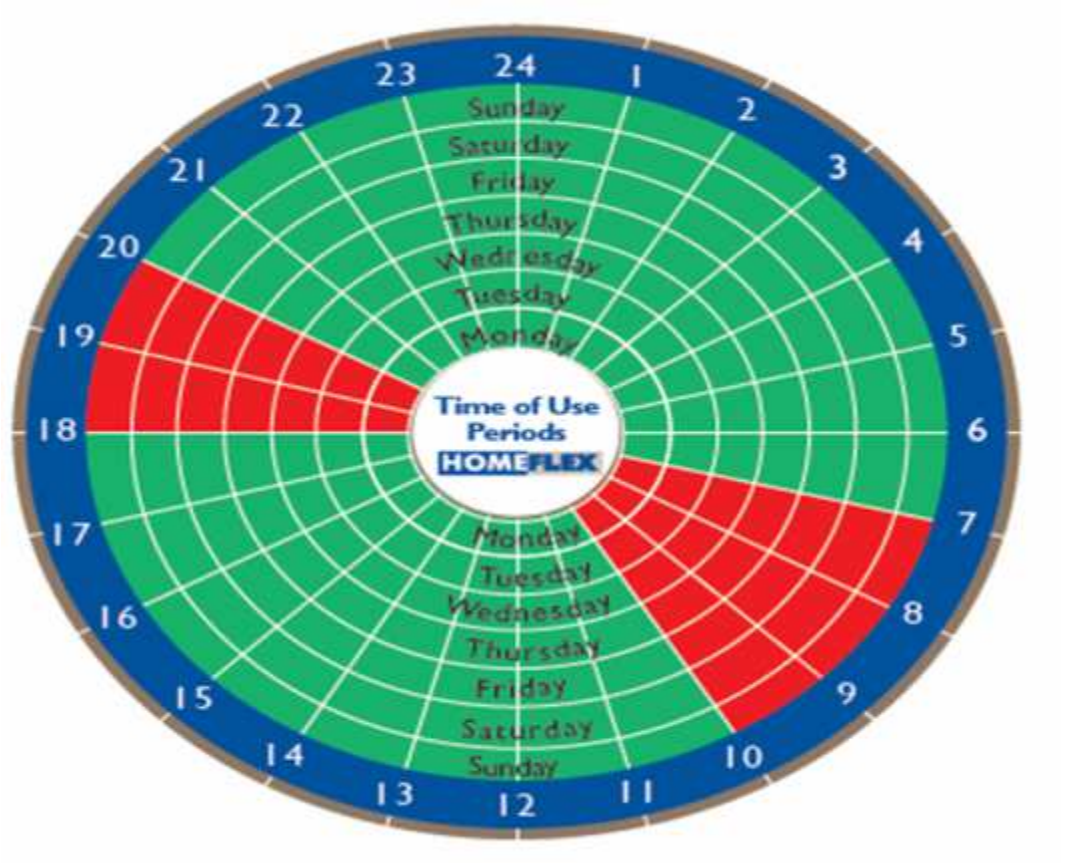
2011/12 Energy Charge	Summer September to May (Low Demand Season)	Winter June to August (High Demand Season)
Peak c/kWh	65.86	174.87
Off-Peak c/kWh	43.89	55.10

**** Rates used are for 2011/12 financial year, therefore indicative purposes only***

What are the time-of-use periods for Homeflex?

AFRICAN UTILITY WEEK
DELIVERING BEYOND TOMORROW

- Time (of day) periods, applicable 365 days a year:
  - Peak = 5 hours/day, expensive, manage geysers during this period
  - Off-peak = rest of the day, cheaper, bill savings



Selection criteria for customer participation

- Conventionally billed residential suburban customers and on the Inclining Block Homepower tariff
- Small Power Users (AMI does not support large power users and Prepaid customers in the current phase)
- Single phase customers meter technology installed
- Customers consuming on average 500 kWh per month or more
- Area has a high concentration of customers consuming above 500kWh's per month.
- Ideally, all customers on a feeder will be targeted if they meet the above criteria.

Customer interaction & marketing

- Customer interaction and marketing approach
  - Informing customers of the installation of the new meters (pre-campaign) via sms and Eskom newsletters (Connects)
  - Set up and conduct customer forums to explain the tariff to the customers. at the forums, you sell the tariff together with enabling technology – AMI.
  - Set up one-on-one appointments with qualifying customers to explain to them the tariff and how they can benefit on the tariff & AMI.
  - Get customers to sign the contracts

Customer interaction & marketing

Accomplishments

- Created an organisational appreciation for the challenges and complexity introduced by AMI.
- Current install base offers Eskom:
  - To understand the operational requirements
  - To test additional AMI functionality / use cases
- Eskom has realised the following benefits:
  - Reduction of non technical losses
  - Automated meter reading cost savings
  - Reduction in Field Costs (Remote disconnect/reconnect)
  - Developed AMI skills, knowledge and capacity

Way Forward

- Internalising the lessons learnt
- Completing some outstanding scope items – ACD implementations
- Refining and enhancing the functional, technical, interoperability and performance requirements
- Revise AMI implementation plans

Remember your power !!!

AFRICAN UTILITY WEEK
DELIVERING BEYOND TOMORROW

Thank You

kennedy.subramoney@eskom.co.za

erato.legoete@eskom.co.za

Acknowledgements:

- The Eskom AMI Project Team
- Accenture (Phase 1 – Implementation Partner)
- Landis & Gyr (L&G) and Unique Mbane South Africa (UMSA) – Phase 1 Meter Suppliers

If you're not using it, switch it off!