



the dr&pw
Department
Roads and Public Works
NORTHERN CAPE PROVINCE
REPUBLIC OF SOUTH AFRICA



Executive Management Presentation:

Integrated Green Solutions “Revenue Protection / & Energy Efficiency” Project Proposal/s

Northern Cape Provincial Government

Department: Provincial Treasury / CFO Forum

Thursday, June 14 2018 @ 10:00am

Upington



Competitiveness of Municipalities

- Key Assumptions

- Customer accounts using a manual post-paid principle are problematic and difficult to manage
- Utilities, in general experience severe financial constraints
- Lack of sustainable electricity supply
- Network constrain problems
- Perceived lack of proper integrated financial management and internal control systems
- Implementing energy efficient interventions are costly
- <4% growth during 1994 – 2007 and still continuing is not sufficient
- >35% of the South African population is unemployed with >63% youth unemployment

Competitiveness of Municipalities

- Key Assumptions

Cont.

- 17 million / $> \frac{1}{3}$ of the South African population depend on social grants
- Communities, in general demand more sustainable services
- Activities such as meter tampering and illegal connections are problematic and continue to pose a serious danger to communities
- Infrastructure in general was all inherited and is on average old and a 12 Hour continuous operation
- Predominantly inefficient commercial and residential incandescent, T8 and T12 fluorescent tubes and mercury vapour and high pressure sodium public lighting technologies are used
- The energy industry have more Electrical Contractors (EC) and/or Energy Efficient Contractors (EEC) then Energy Services Companies (ESCO)

Proposed Solution/s

An Integrated Energy Management Approach with specific emphasis on **youth employment** that fast track the cash flow cycle to **Day 1!**

All at **ZERO CAPEX** (own funding):-

- Develop / align current municipal **Energy Management Plan** to ISO 50001
- Retrofitting and/or replacement of inefficient conventional systems with smart **Energy Efficient** technologies, control systems and/or Solar Powered solutions (Total energy efficient solutions)
- **Revenue Protection** through automated metering intelligence (AMI) evolution moving from manual meter reading to automatic reading (AMR) through superior smart metering to a smart grid / AMI
- **Local Manufacturing** of energy efficient and solar PV technologies



Proposed Additional Solution/s



- Generation of Alternative Energy through the establishment of **Solar (PV) Power Generation Park/s**
- Electrification of **Integrated Human Settlements** through Solar Powered Technologies (Off Grid)
- Implementation of **Shared Water Savings Contract (SWSC)** project/s



Innovative Energy Savings Performance Contract (ESPC)

- NC Munics have access to the latest Smart energy efficient technologies and Meters at **ZERO-CAPEX**
(standardized throughout the municipal area)
- Energy Savings Performance Contract (ESPC):
 - Repayments will be done by actual ZAR Savings delivered over a 5-year term
 - Pending project economics:-
 - Monthly pre-determined recurring chargers; OR
 - 50% of the savings achieved are to be paid to the ESCO
- **ZERO** upfront contribution
- A **FREE / NO COST** all inclusive Preventative Maintenance Plan over the 5-year ESPC term

Innovative Energy Savings Performance Contract (ESPC)

Existing Technology				New Technology			Existing v/s New
Description	Lamp Output (W)	Oper. Hours per Day	kWh/Day	Description	Lamp Output (W)	kWh/Day	Savings kWh/Day
Streetlights_HPS_70W	75	12	0.90	BRIDGELUX_Smart_LED_20W	20	0.240	0.66
Streetlights_MV_70W_Post_Top	75	12	0.90	BRIDGELUX_Smart_LED_20W	20	0.240	0.66
Streetlights_HPS_100W	100	12	1.20	BRIDGELUX_Smart_LED_30W	30	0.360	0.84
Streetlights_MV_125W	138	12	1.66	BRIDGELUX_Smart_LED_30W	30	0.360	1.30
Streetlights_HPS_150W	173	12	2.08	BRIDGELUX_Smart_LED_40W	40	0.48	1.60
Streetlights_HPS_250W	275	12	3.30	BRIDGELUX_Smart_LED_60W	60	0.720	2.58
Streetlights_HPS_400W	440	12	5.28	BRIDGELUX_Smart_LED_80W	80	0.96	4.32
							

Innovative Energy Savings Performance Contract (ESPC) Cont.

○ Replacement Costing:

SAVINGS INFORMATION SMART LED STREETLIGHT REPLACING HIGH PRESSURE SODIUM STREETLIGHT		
LAMP TYPE	SMART LED 60W	HPS 250W
Wattage (Lamp Output)	60W	275W
Lamp Life	>50 000 Hours	<8 000 Hours
No of Lamps	1	6
Hours Burned	>50 000 Hours	>50 000 Hours
Total Electricity consumed over Lifespan	60	1650
Electricity Cost @ R1.30/kWh	R78.00	R2 145.00
Lamp Cost	R4 081.50	R4 500.00 (750.00 x 6)
Total Overall Costs	R4 159.50	R6 645.00
Overall Saving		R2 485.50

Innovative Energy Savings Performance Contract (ESPC) Cont.

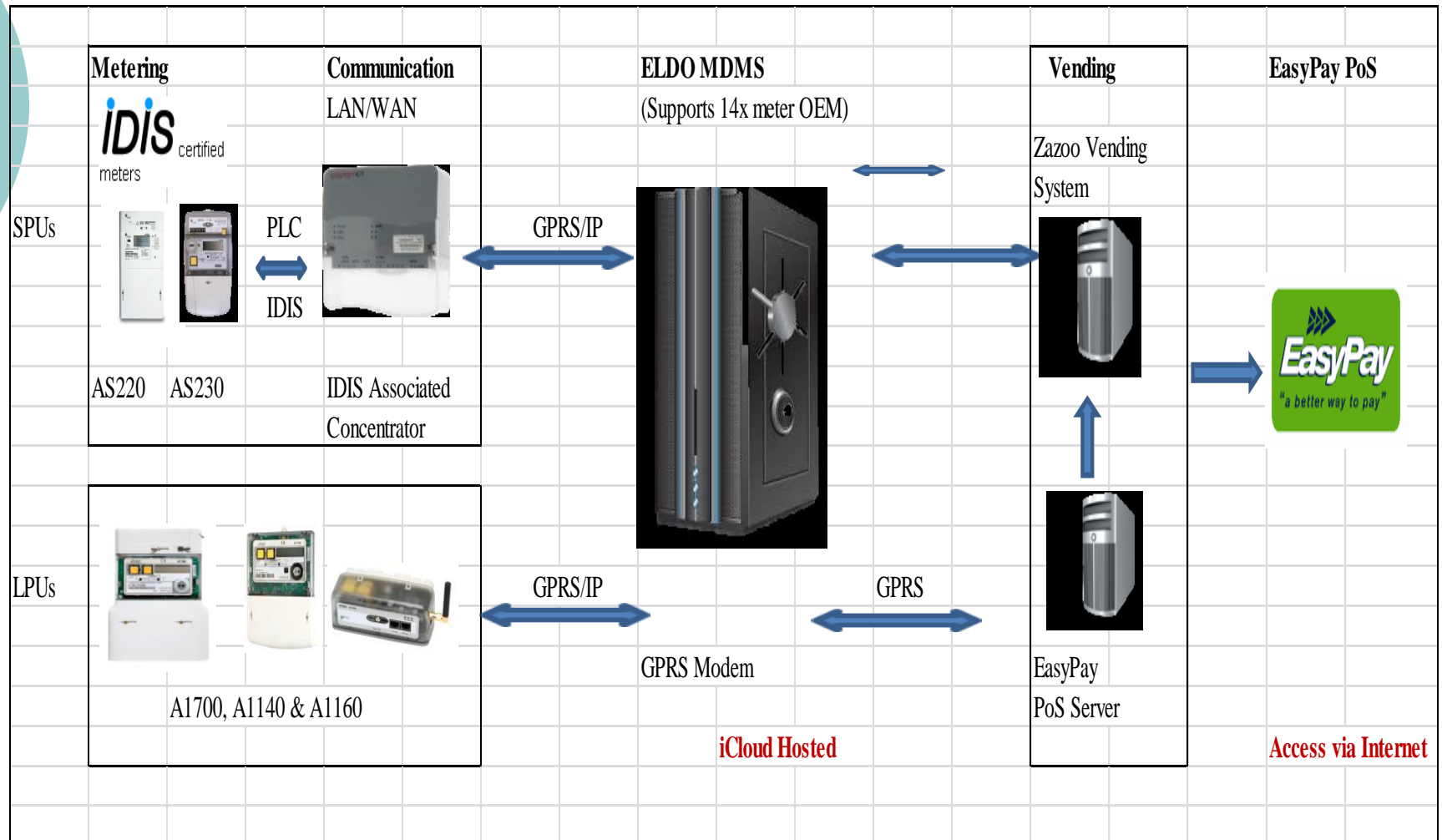
- Innovative Energy Savings Performance Contract (ESPC) Finance Model for Smart LED Technologies
- ESPC Savings of >70% from Day 1 over the ESPC term and beyond
- Unlocked further Benefits such as:
 - Assess and advice on the most suitable technology solution
 - Financed out of real energy savings
 - Immediate energy savings without expending any Capital Expenditure on the Project.
 - Installation of new and leading energy efficiency technologies
 - M3 Holdings manage the entire implementation
 - Public lighting asset ownership is transferred to ELM upon expiry of the 60 month ESPC term
 - Expected lifespan of >10 years
 - Independent Certified Measurement & Verification (CMVP)

Innovative Energy Savings Performance Contract (ESPC) Cont.

- Given numerous Benefits, the solution include:-
 - State-of-the-art products / technologies
 - GSM / GPS or Wi-Fi compatibility
 - Monitoring & Reporting
 - Project Management & Installation*
 - Crushing & Disposal*
 - Insurance cover
 - lamps & lumens excl. pole
 - public indemnity
 - warehouse & in-transit
 - M & V
 - Data base (up-to-date asset register) and Quality Assurance*
 - Maintenance and replacement*

NB: *Local talent will be employed. Training to be provided

Revenue Protection: Introduction



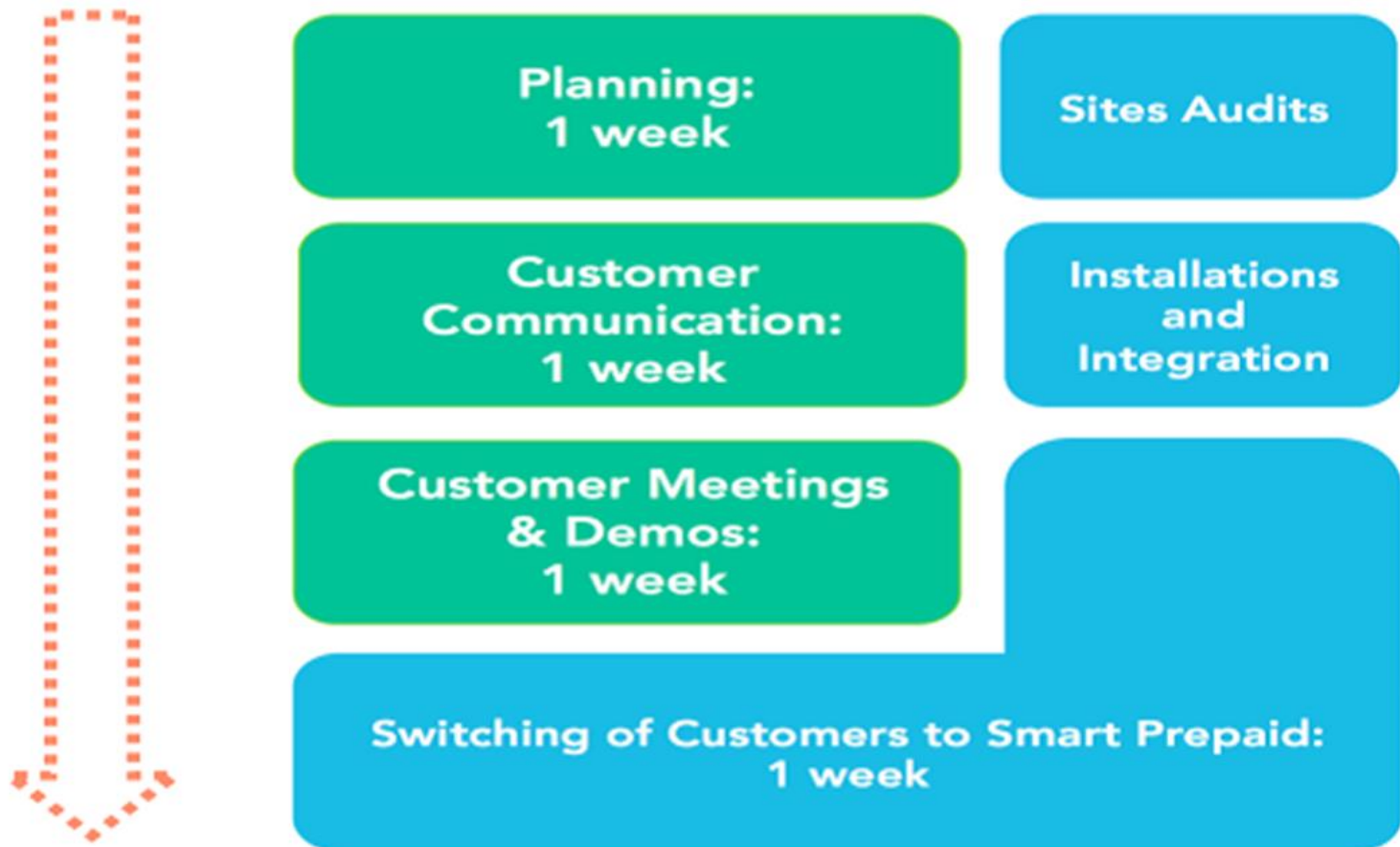
- Revenue Protection

In line with the objectives of Circular No: 89 as set out in the Municipal Finance Management Act (MFMA)

- Offer **ZERO CAPEX** Revenue Protection Service for
 - Small / Large Power Users immediately
- Revenue Protection System Demonstration Workshop
- Seamlessly integrates between billing systems and leading meters
- Integrate software and metering management solutions
- Setup and deployed in the NC Munics within a short time frame
- Wholly financed on the back of a 3-year Service Level Agreement (SLA) without any financial guarantees required (Off Balance Sheet item)
- Recoup initial capital outlay and recurring support services through a recommended service fee of 18% of sold and secured electricity and water sales

Revenue Protection

- System Deployment



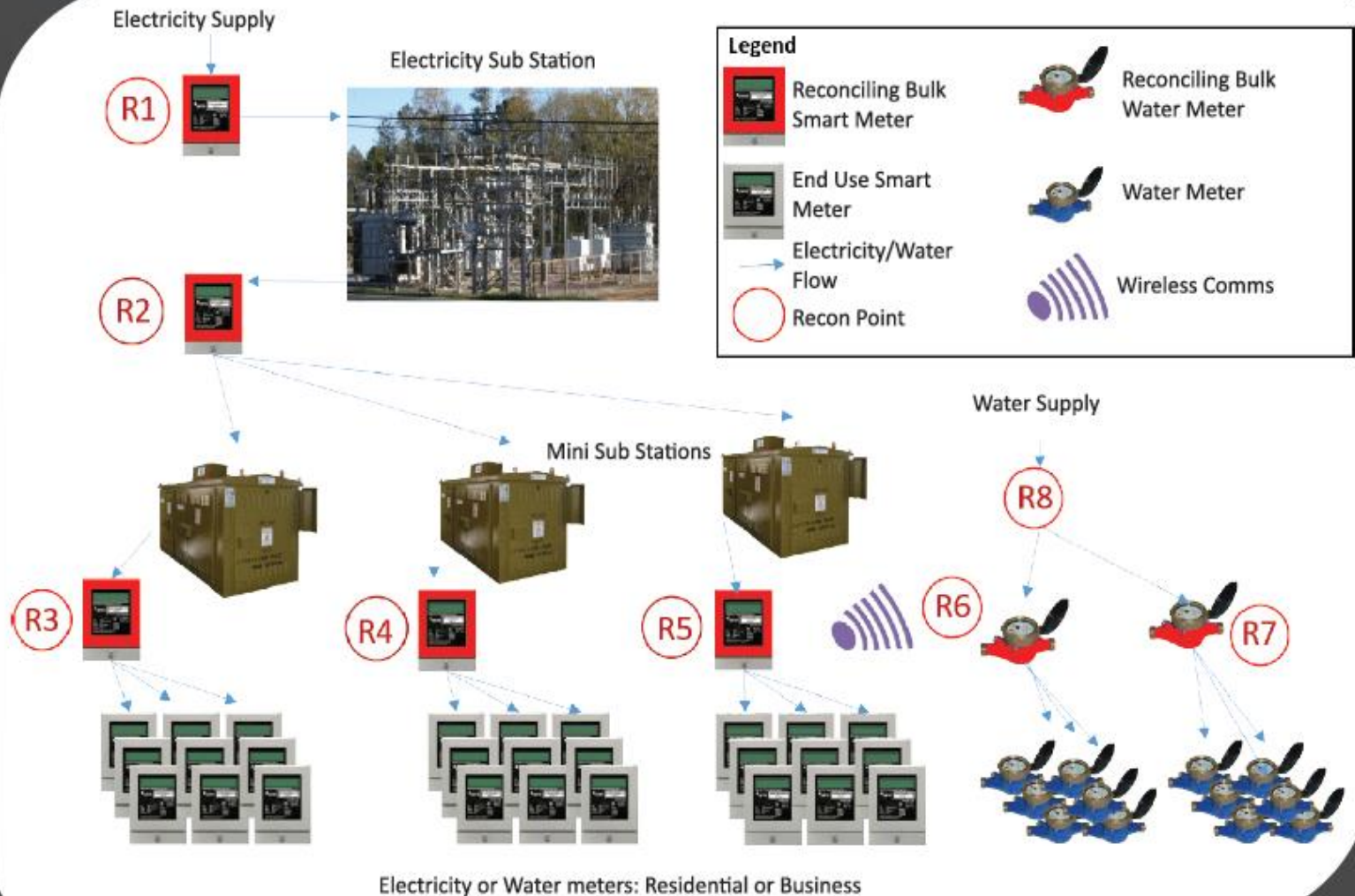
Revenue Protection

- Utility Consumption



Revenue Protection

- Electricity & Water Meter Diagram



Proposed Project Execution Plan

- Appointment / Contracting
- 1st Phase Roll-out Plan
 - Project Branding
 - Public Participation and effective Communication
 - Develop Social Investment Plan
 - Develop / align an ISO 50001 Energy Management Plan
 - Energy and Meter Audits in Pilot / Priority Areas
- 2nd Phase Roll-out Plan
 - Installation of SPU / LPU Smart Meters
 - Revenue Enhancement Systems Deployment
 - Convert all SPU / LPU's from Post-Paid Billing to Pre-Paid
 - Retrofitting of Conventional Technologies with Smart LED Systems in Pilot / Priority Areas
- Refer to Slide No: 5

Proposed Project Execution Plan

Cont.

- 3rd Phase Roll-out Plan
 - Local Manufacturing of energy efficient and solar PV technologies
 - Energy and Meter Audits and implementation of EE and RP to all other NC Areas including Traffic Lights and all other Immovable Facilities
 - Implementation of Shared Water Savings Contracts (SWSC) project/s
- 4th Phase Roll-out Plan (In Addition)
 - Engineering, Procurement & Construction of the Solar PV Plant/s
 - Engage Dept. of Human Settlements to create an integrated HE close to the Solar PV Park powered by Solar energy



“A Smart “Green” City”

- **What does it actually mean?**

“A new way of sustaining the development of the municipal area/s”.

Thank you!!!!



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