AGENDA

- Introduction & Itron

- Non-Revenue Water Focus

- Conservation Strategy

- Meter Replacement Strategy

- DMA Strategy

- Summary

ITRON
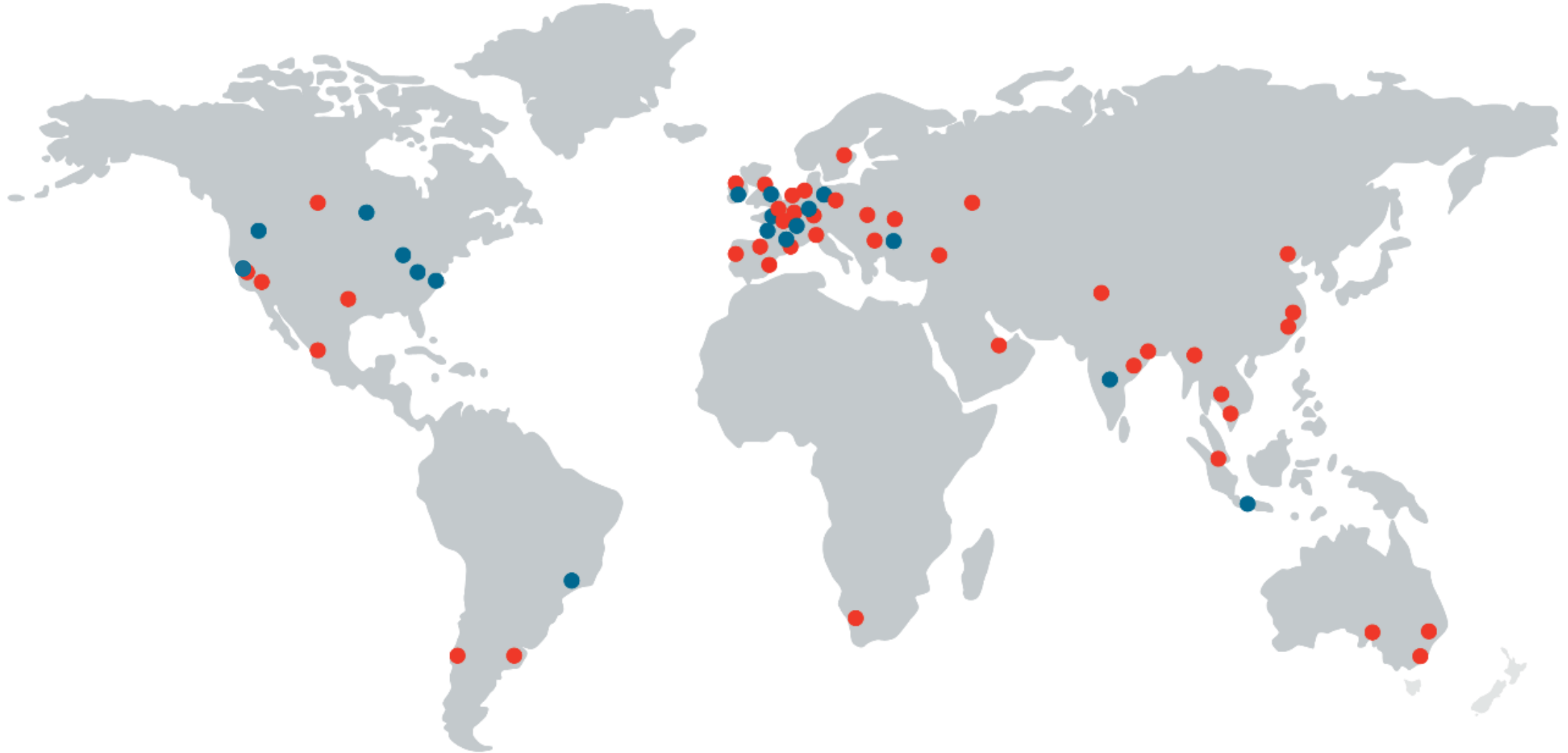
INTRODUCTION

Present Australian Team

» Wynand du Toit – Technical Sales Manager

» Lucille Peterson – Sales Manager

» Paul Arrastia – Account Manager

Australia

Adelaide

Sydney

A GLOBAL COMPANY

62 LOCATIONS | **18** MAJOR LOCATIONS

ITRON

8,000+
PARTNERS IN 100 COUNTRIES

$ 2.4 bn USD
2018 REVENUE USD

8,000+
EMPLOYEES

200m +
COMMUNICATION MODULES

NON-REVENUE WATER (NRW)

CLASSIFYING NRW

Water Balance - International Water association (IWA) water balance

System input Volume	Authorised consumption	Billed authorised consumption	Billed meters consumption (including water export)	Revenu $ water
			Billed Unmetered consumption	
		Unbilled authorised consumption	Unbilled metered consumption	**Non-revenue water (NRW)**
			Unbilled unmetered consumption	
	Water losses	Apparent Losses	Unauthorised consumption	
			Customer metering inaccuracies	
		Real Losses	Leakage on transmission and/or distribution mains	
			Leakage and overflows at utility's storage tanks	
			Leakage on service connections up to point of customers metering	

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WHY NRW?

35% represent…
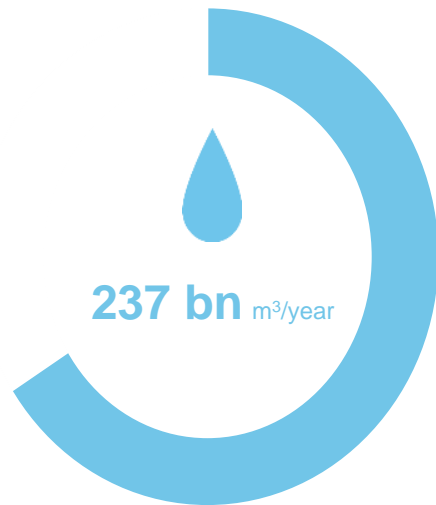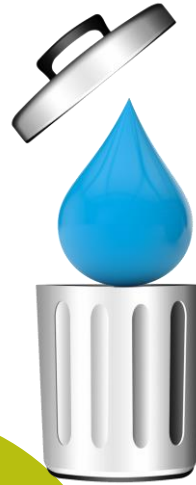
237 bn m³/year	**51 bn** USD/year	**4,000,000** gigawatt hours/year	**13.8** Million tons
83 bn m³/year	**18 bn** USD/year	**1,400,000** gigawatt hours/year	**CO2 released/year**
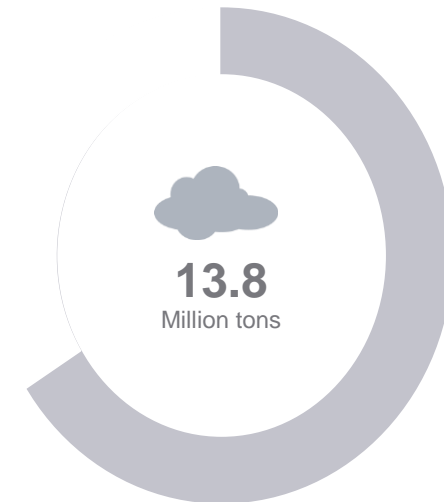
35% Non-Revenue Water (water never billed!)

Itrón

NRW MANAGEMENT & SOLUTIONS

NRW represents the source of our Water Efficiency

NRW Reduction Project management

Advanced AMR

Pressure management

Knowledge leverage

Night flow Analysis

Meters replacement program / policy

DMA Management

Leak detection

Data analytics

Network Monitoring

Database and data workflow improvement
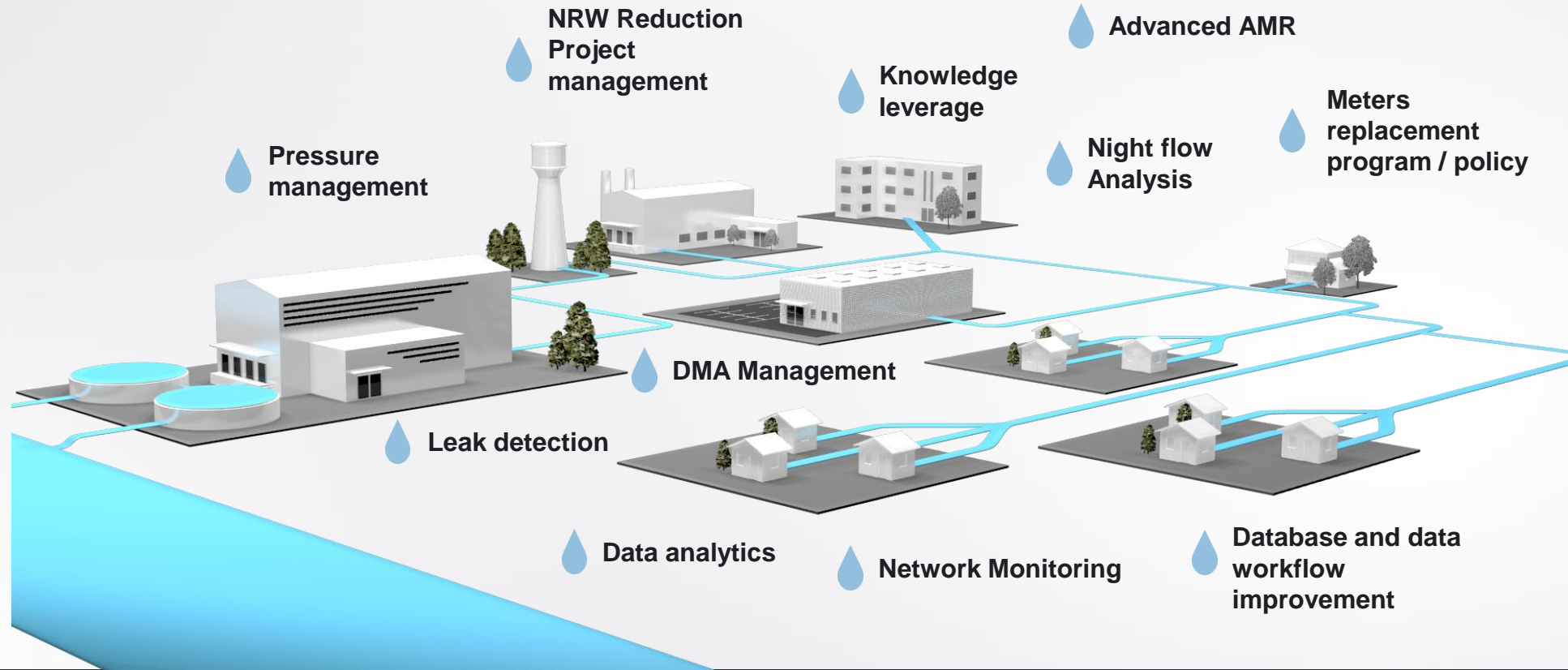
ACCURATE DATA

» **End to End Solutions**

- Metering devices
- NRW services
- Consultancy Services
- Networks
- Analytics Platforms

Financial Performance

Brand / Identity

Customer Relationships

Employee Development

Operational Excellence

Index	Instantaneous flow rate	Air in pipe	Backflow	Broken pipe	Flow repartition
Leakage	Battery alarm	Peak flow	Minimum Flow	Peak temperature	Alarm water temperature
Time synchronization	Volume below threshold	Volume above threshold	Over & under sized meter flags	Time of use	Logging intervals
Reversed meter	Meter stopped	Fraud	Custom Billing period	Alarm reconfiguration	Event log

ACCURATE DATA – WHY?

PROVIDE A SERVICE

» Reduce waste

» Reduce bill complaints

» Increase customer awareness & trust

» Increase effectiveness of conservation efforts/support

» Establishing clearly defined objectives/goals

» Enforcing/governing compliance

» Reduce non-revenue water

» Reduce potential damage to public/private property

» Increase ROI of technology and supply

» Prioritise repair efforts

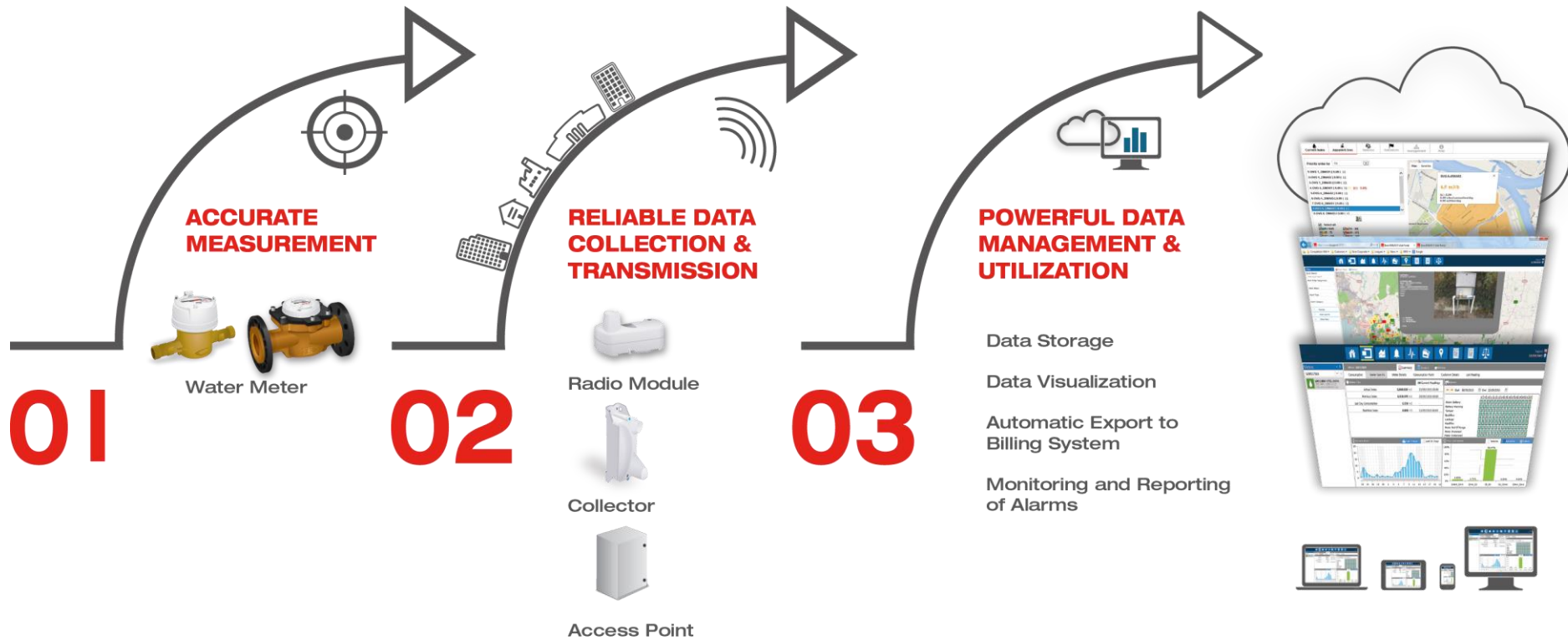» Increase accuracy of identified demand

CUSTOMER SERVICE

REVENUE PROTECTION

OPERATIONAL EFFICIENCY

ACCURATE DATA – HOW?

ACCURATE MEASUREMENT

01

Water Meter

RELIABLE DATA COLLECTION & TRANSMISSION

02

Radio Module

Collector

Access Point

POWERFUL DATA MANAGEMENT & UTILIZATION

03

Data Storage

Data Visualization

Automatic Export to Billing System

Monitoring and Reporting of Alarms

C&I Projects	Monitoring Tools	Mobile AMR	DMA Projects	Pressure Management	Customized Projects (ORB)
					Aging Meter park analysis Datalogging and Consumption profiling

CONSERVATION STRATEGY

CAIRNS REGIONAL COUNCIL

- 50ku Customers
- OpenWay Riva
- Great Barrier Reef Catchment

CRC - NETWORK

Cairns REGIONAL COUNCIL
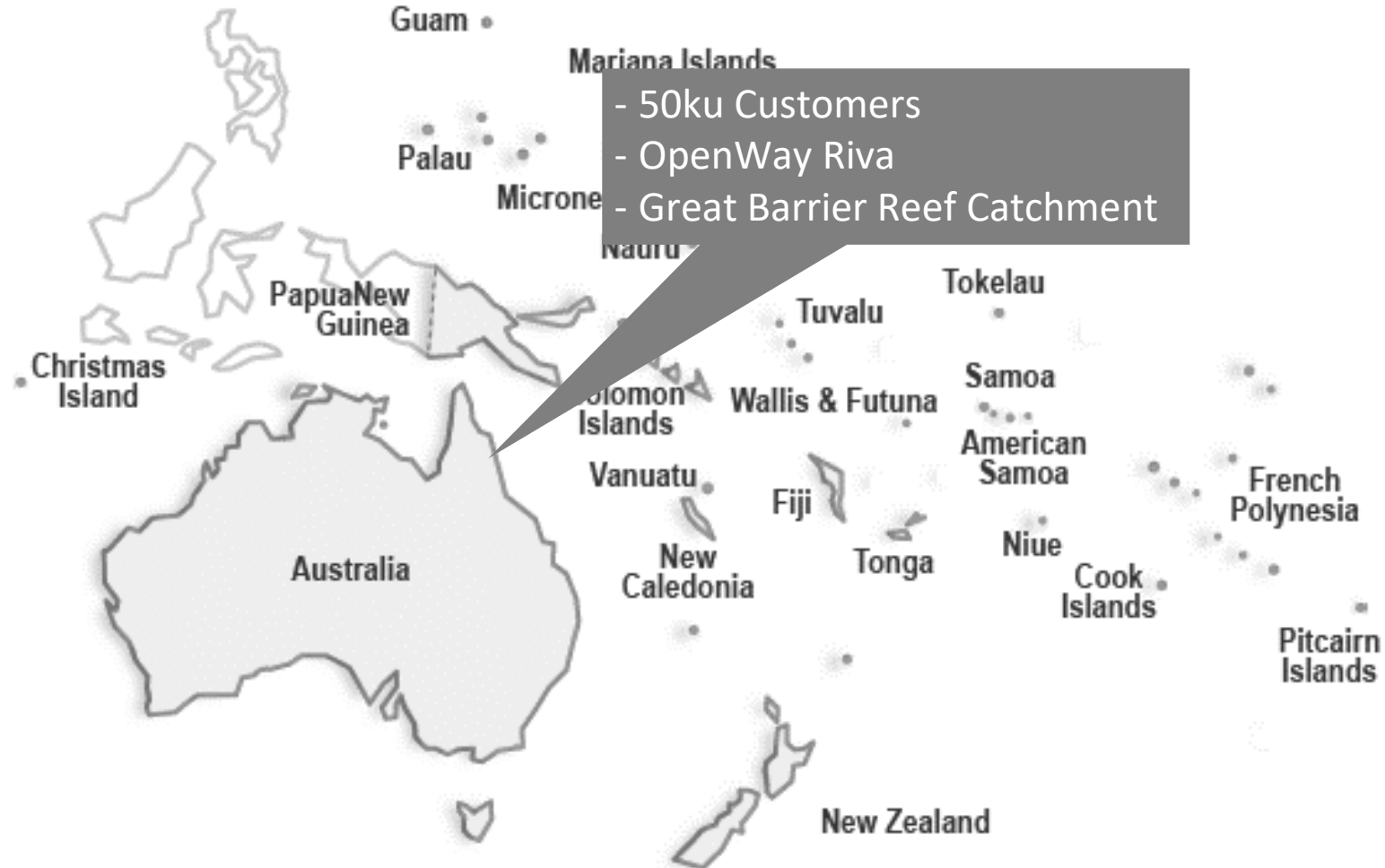
» CRC currently rolling out the OpenWay Riva network

» Capture multiple data sets every day

» Customer awareness & engagement of usage

» Leakage Detection

» Build a smart city environment with multiple applications

» Great Barrier Reef project

- Water quality

Smart utilities and smart cities applications running on one **unified interoperable multi-purpose network**.

Assured connectivity and network **reliability** with multiple, **adaptive communication** technologies: RF, Power Line Carrier, WiFi and cellular.

Open application ecosystem enables development of innovative new distribution system and smart cities applications.

Distributed intelligence optimizes data analysis, decisions and control from device level to back-office, enabling real-time problem solving.

Itron

CRC – GREAT BARRIER REEF

Purpose

» Improve water quality discharge to the local environment and the Great Barrier Reef

» Use new technology to monitor water through the Cairns urban catchment in real time

» Share data with the community to encourage caring for the environment that we share

» Partnering with JCU & Itron
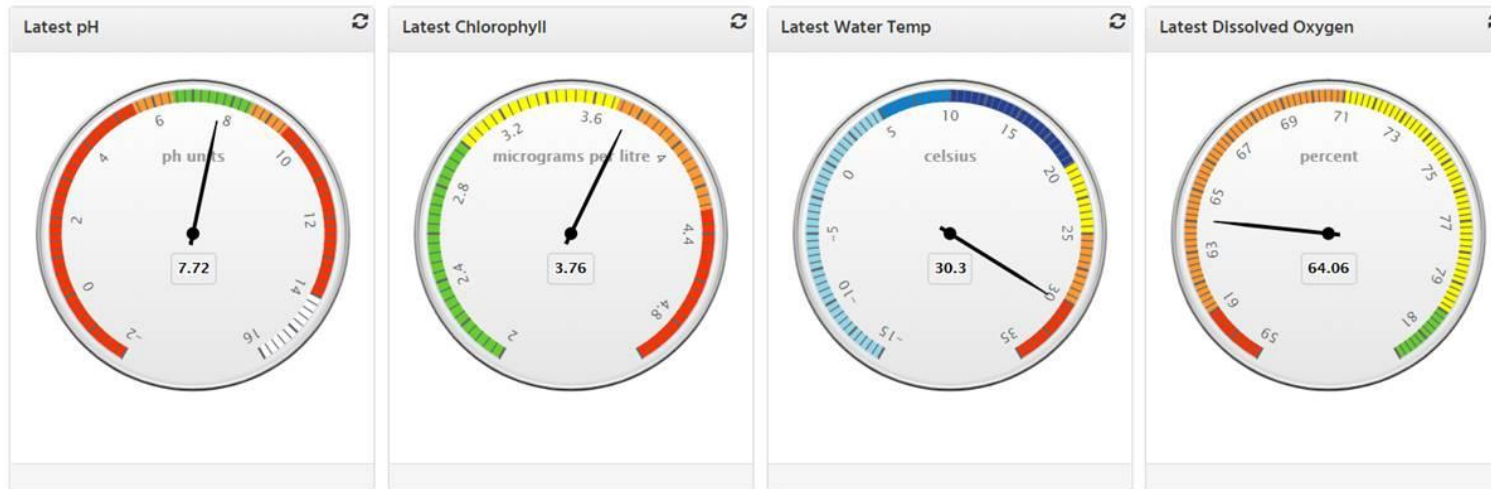
CRC – GREAT BARRIER REEF

Outcome

» Alerts for peaks in nutrients, sediments and other contaminants

» Monitoring tools

» Infrastructure improvements

» Predictive analytical tools (calibrated flood and WQ models)

» Data to validate effectiveness of Saltwater Creek dredging program

» Enable better awareness throughout community & in schools
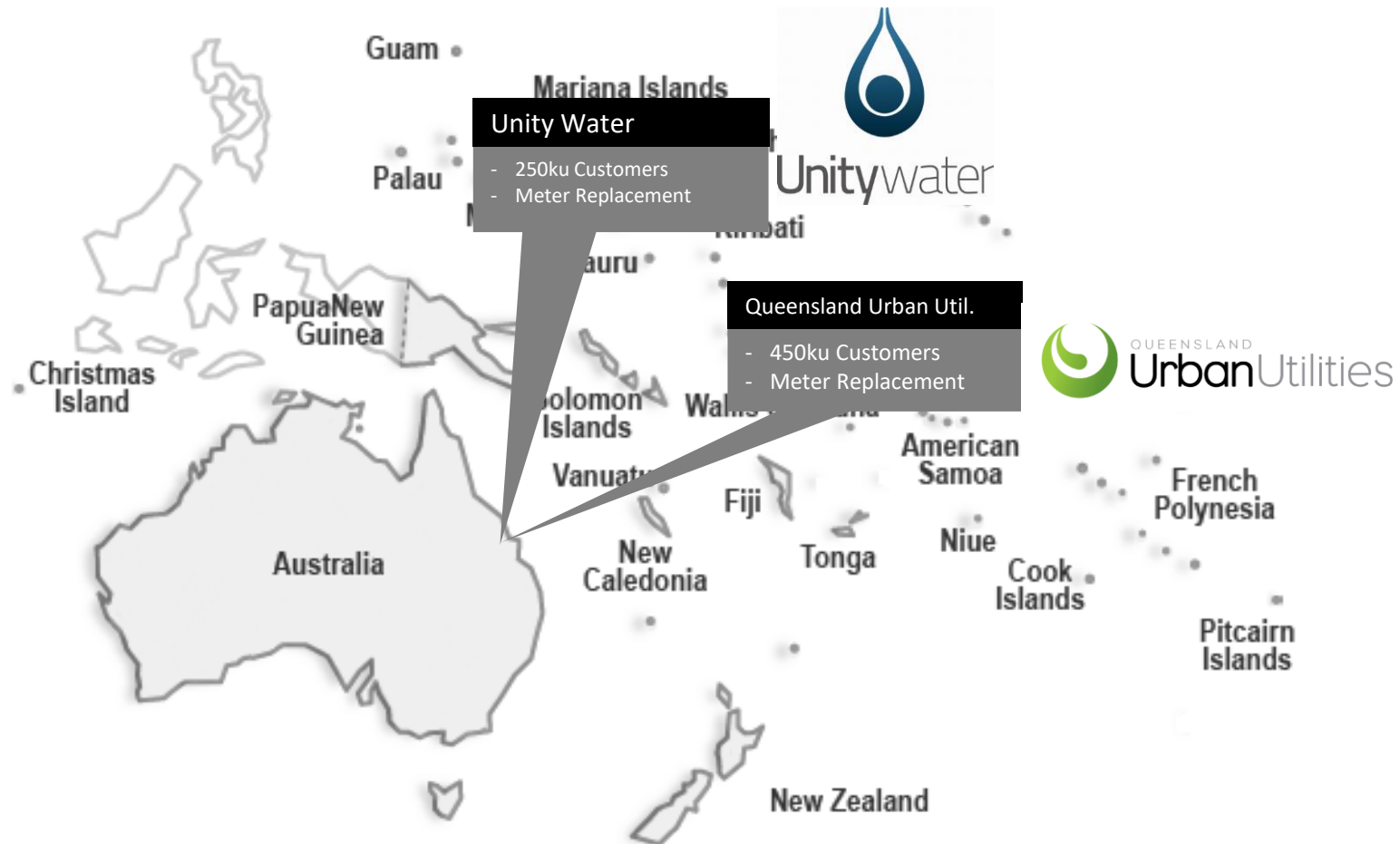
» Improve behavioural changes

Sensor

Sewer Pump Station Overflow

www.cairns.qld.gov.au/smartcatchments

METER REPLACEMENT STRATEGY

METER REPLACEMENT STRATEGY

Unity Water
- 250ku Customers
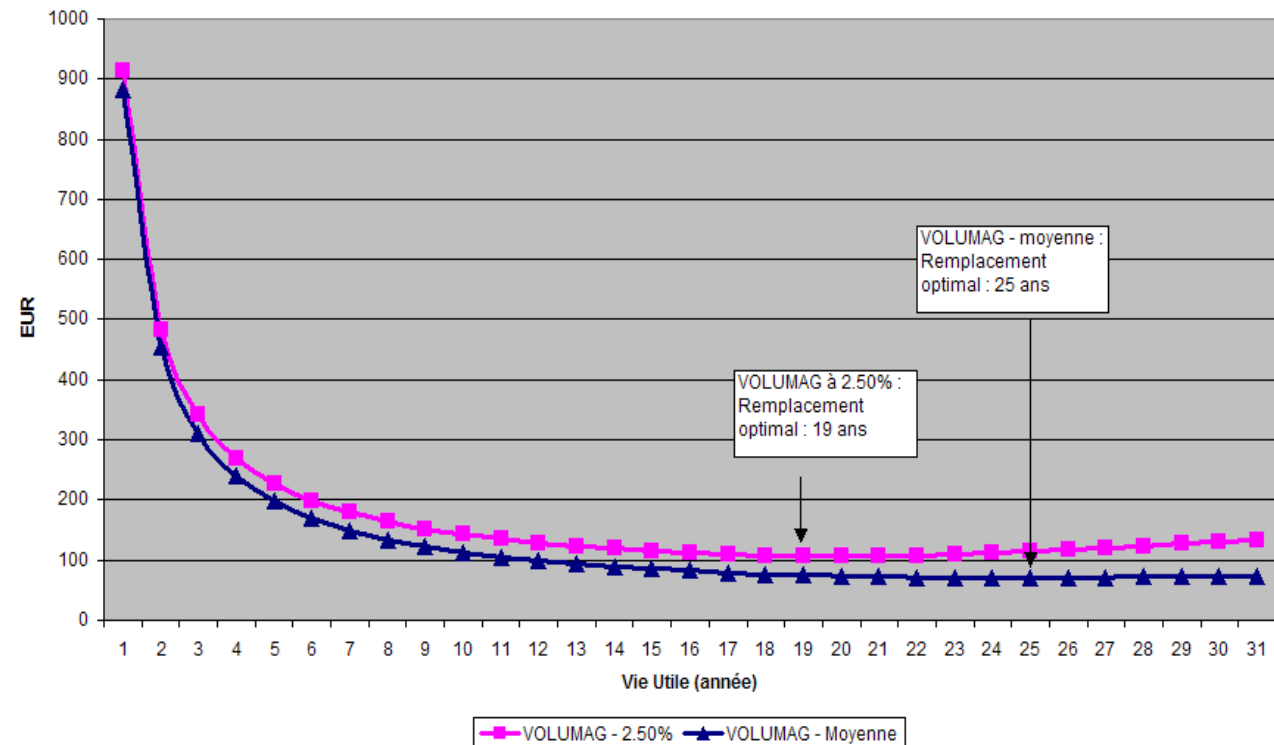- Meter Replacement

Queensland Urban Util.
- 450ku Customers
- Meter Replacement

METER REPLACEMENT STRATEGY

Project Objectives

» Avoid the need for major strategic metering decisions which represents financial, operational & brand risk for QUU and UW.

» QUU and UW to be able to make decisions on a per connection basis, and every decision to be justifiable based on data.

» Higher return on metering assets.

» Delivering fair and equitable billing to customers.

» Increase revenue by reducing apparent losses (NRW).

» Empower both QUU and UW with knowledge that didn't exist within the organisations before.

METER REPLACEMENT STRATEGY

Key Activities

» Review Queensland Urban Utilities and Unity Water's current meter replacement strategy.

» Analysis of the current metering asset/billing databases.

» Prepare specifications and provide guidance for any special investigative surveys and/or testing that might be required.

» Validation and analysis of data.

AGEING OF METERS - DETAIL OF THE LOSSES :
Ageing of meters: potential lost volumes (m3 / Month) : 134,628
Total volume without loss due to ageing (m3 / year) : 129,028,146
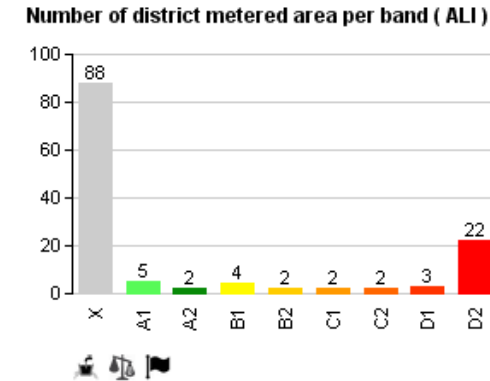Efficiency of the meters : 98.75%   [134,628 versus total = 10,752,346]

Analysis			Nb meters	Invoiced volume (m3 / year)	Lost volume (m3 / year)	Efficiency	
Global analysis			417,050	127,412,613	1,615,533	98.75%	Hide details
	Area						
	BALMORAL		12,334	7,903,211	121,980	98.48%	
	BELMONT		24,631	5,962,849	70,190	98.84%	
	BRISBANE		7,165	9,013,335	143,367	98.43%	
	COORPAROO		9,107	2,215,375	30,774	98.63%	
	ENOGERRA		20,446	4,104,388	41,730	98.99%	
	HAMILTON		4,726	1,963,100	37,931	98.10%	
	IPSWICH		63,602	16,445,719	176,979	98.94%	
	ITHACA		10,526	3,438,603	42,671	98.77%	
	KEDRON		49,860	11,259,763	116,851	98.97%	
	LOCKYER VALLEY		9,098	2,194,520	12,584	99.43%	
	METERED STANDPIPES		5	43,166	0	100.00%	
Analysis by area	MOGGILL		16,158	3,951,592	56,477	98.59%	Show details
	SANDGATE		7,964	1,461,591	15,159	98.97%	
	SCENIC RIM		6,484	1,228,328	19,005	98.48%	
	SHERWOOD		21,755	5,990,664	87,823	98.56%	
	SOMERSET		5,286	1,417,955	8,182	99.43%	
	SOUTH BRISBANE		7,820	4,552,569	70,358	98.48%	
	STEPHENS		16,434	3,929,343	35,807	99.10%	
	TARINGA		7,184	3,338,946	47,306	98.60%	
	TINGALPA		10,241	2,265,370	29,707	98.71%	
	TOOMBUL		12,750	7,051,769	101,734	98.58%	

Itron

METER REPLACEMENT STRATEGY
Key Activities

» Investigation, analysis and calculation of meter under-registration, over-registration and non-registration.

» Development/adaptation of apparent loss minimisation model.

» Application of the apparent loss minimisation model and analysis.

» Lifecycle assessment (financial & technical) of proposed options.

» Strategy formulation and reporting.

Apparent Loss (ALI)

Number of district metered area per band (ALI)

Current level of leakage

Potential recoverable volume :
650,152 (m3/month)

Potential recoverable money :
715167 AUD

Ageing of meters

Potential lost volumes by all the connections :
848,057 (m3 / month)

Efficiency of the meters :
92.5%
[848,057 versus total = 10,484,889] (m3 / month)

Quantity of meters that need replacement :
138,815 [138,815 versus total = 436,731]

Decreasing consumptions

Potential lost volumes by all the connections :
471,782 (m3 / month)

Sizing

Potential lost volumes by all the connections :
957,042 (m3 / month)

Zero consumption

Number and percentage of connections with uncommented zero consumptions :
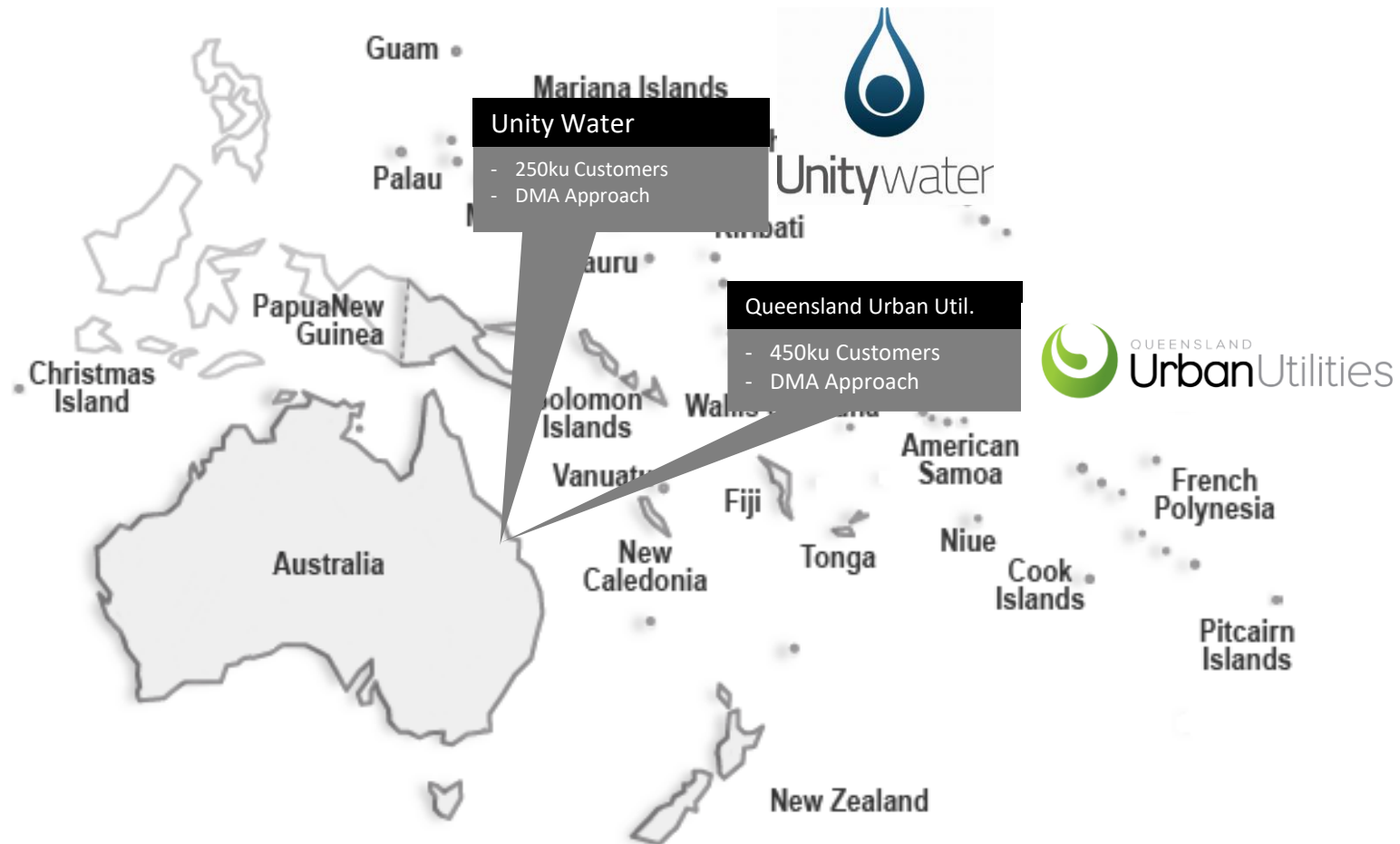10,595 [2.3%]

Itron

AS3565

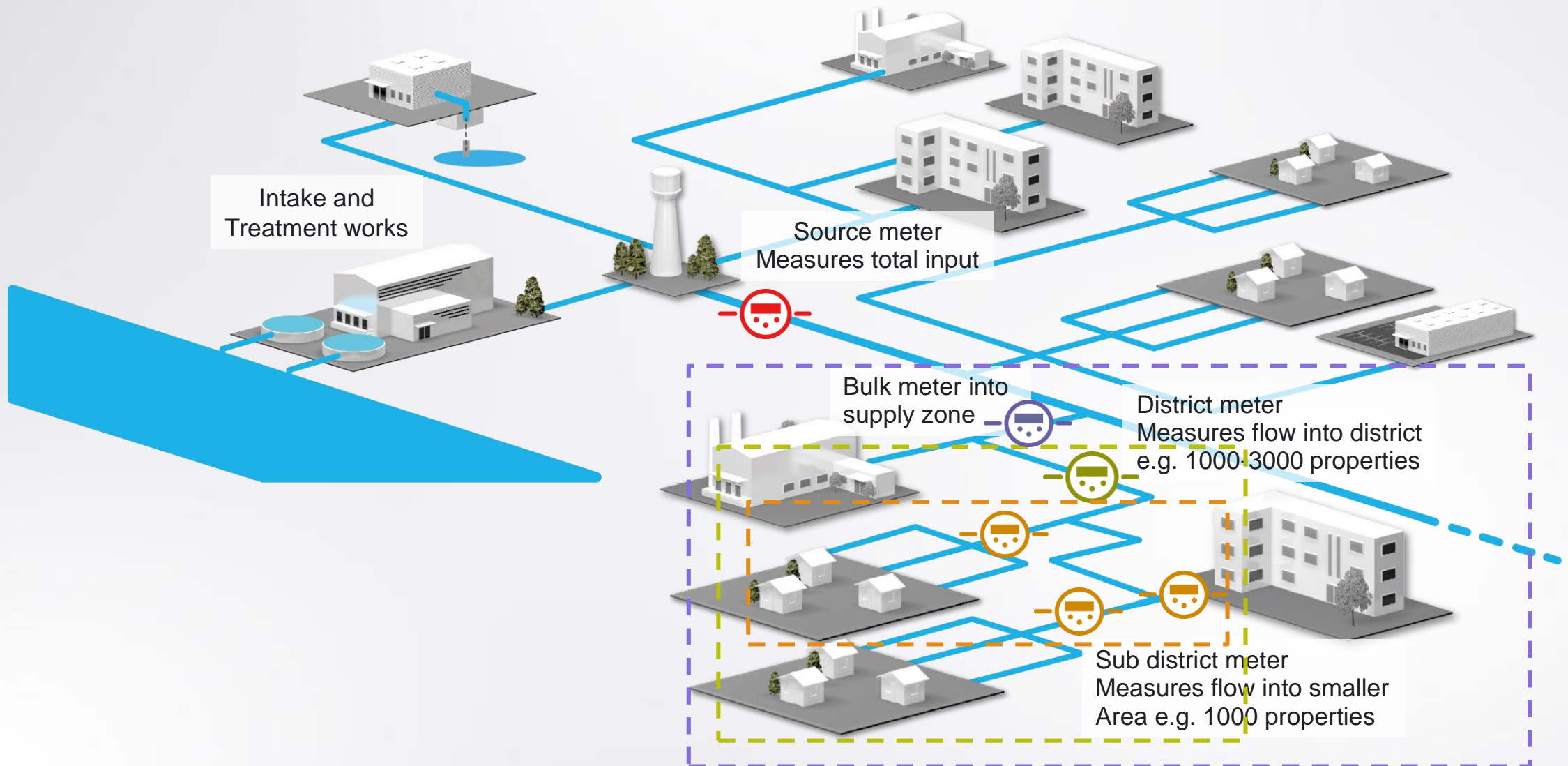Meter Accuracy Error vs In-field Consumption Pattern vs AS3565 Testing Flow Rates

DMA STRATEGY

DMA STRATEGY

Unity Water
- 250ku Customers
- DMA Approach

Queensland Urban Util.
- 450ku Customers
- DMA Approach

DEFINING THEIR DMA

Intake and Treatment works

Source meter
Measures total input

Bulk meter into supply zone

District meter
Measures flow into district
e.g. 1000-3000 properties

Sub district meter
Measures flow into smaller
Area e.g. 1000 properties
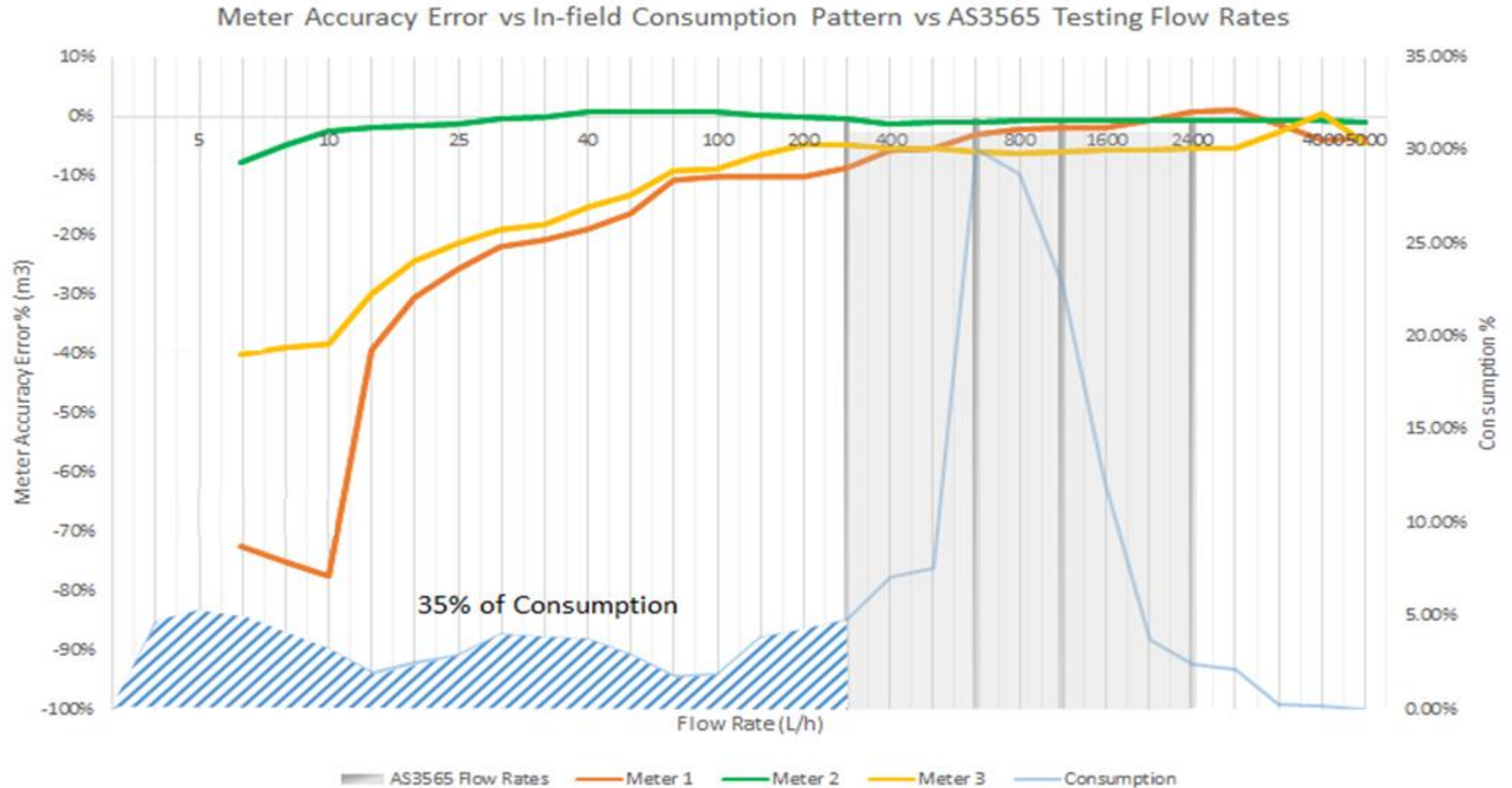
WHAT THE CUSTOMER DID NOT KNOW

Example

Production

7mM^3 produced

Water Network

Billing

4.5mM^3 Invoiced

30000 connections

10 meter readers

2 billing cycles

Revenue 14m$

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DMA PROJECT OUTPUTS

» Define accurate split between Apparent and Real Losses

» Evaluate network efficiency towards IWA standards (ILI, MNF...)

» Evaluate DMAs, Compare them & rank them

» Define consumption patterns & indicators (PCC…)

» Modeling customers types

» Define DMAs efficiency targets

Legend:
- REAL LOSS VOLUME/MONTH
- APP LOSS VOLUME/MONTH
- METERED CONSUMPTION
- LOSS %
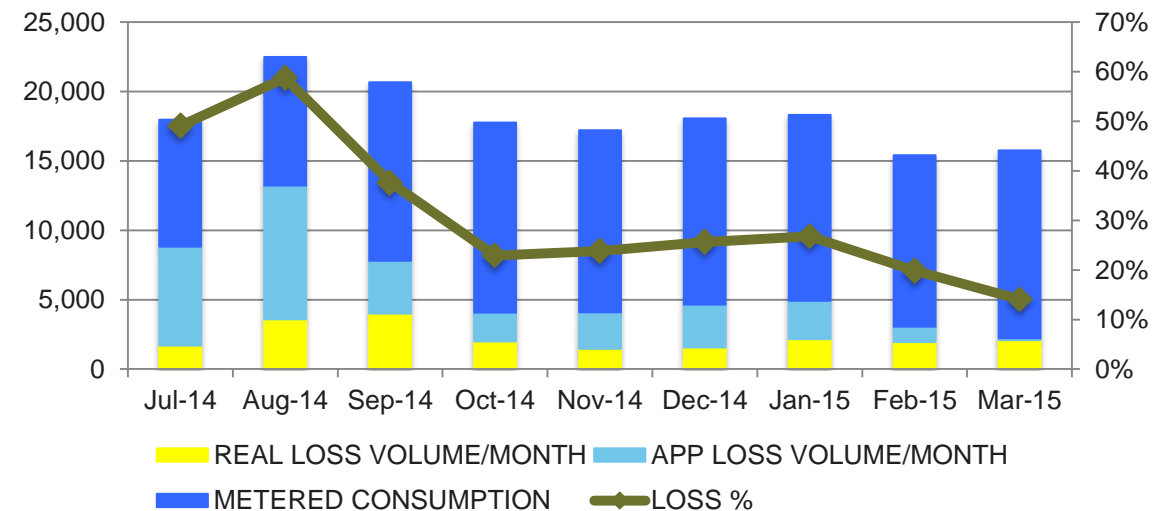
DMA RESULTS

» **Identify & manage** DMAs

- ▪ DMA Balance
  - • Metered Volume
  - • Real Losses
  - • Apparent Losses

Apparent loss actions

Decreasing consumptions

Potential lost volumes :

675,575 (m3 / month)

Sizing

Potential lost volumes :

1,016,789 (m3 / month)

Zero consumption

Number of connections with uncommented zero consumption :

15,205

Percentage of connections with uncommented zero consumption :

3.64%

Ageing of meters

Potential lost volumes :

134,628 (m3 / month)

Efficiency of the meters :

98.8%

[134,628 versus total = 10,752,346]

Itron
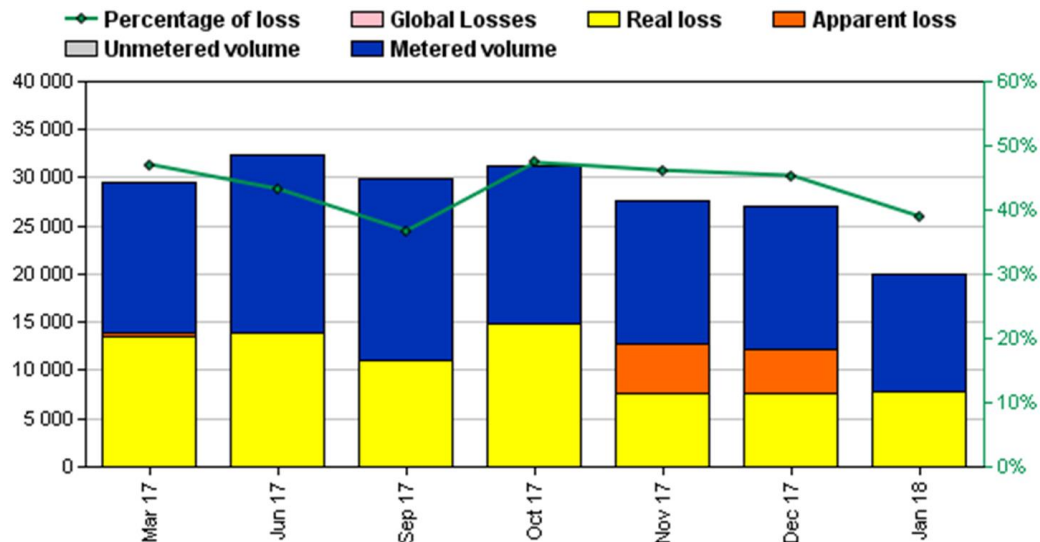
DMA RESULTS

Focus on high revenue consumers
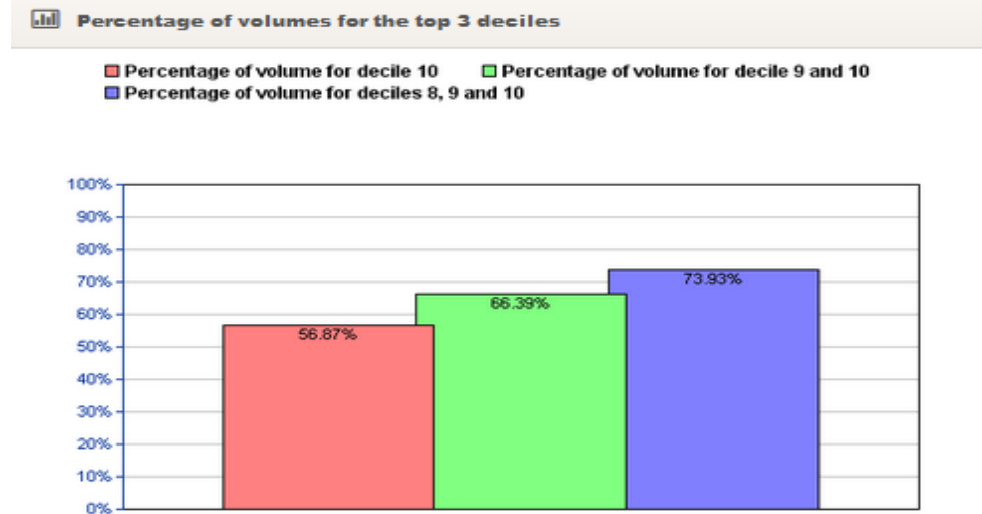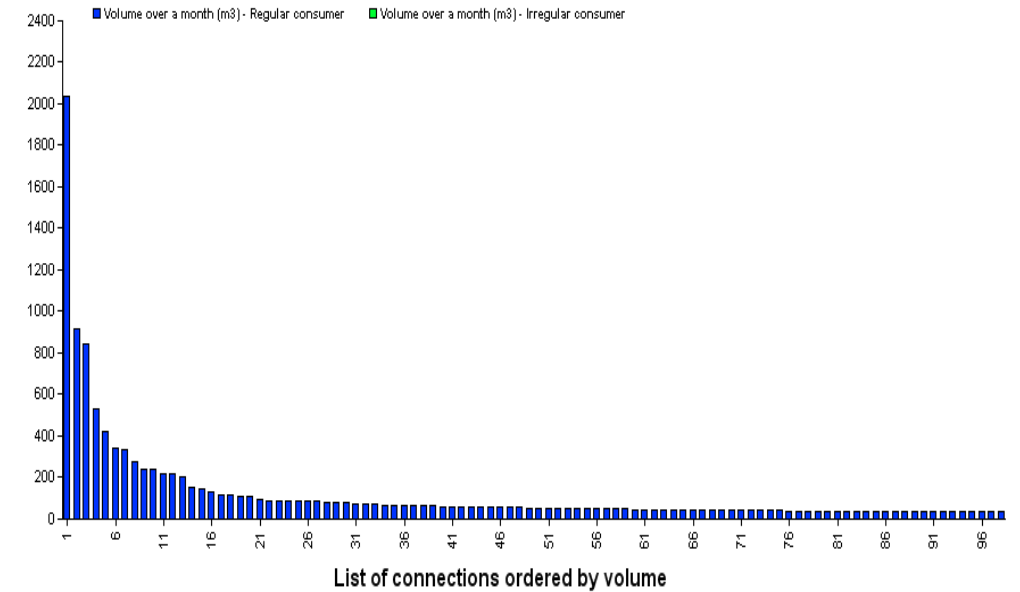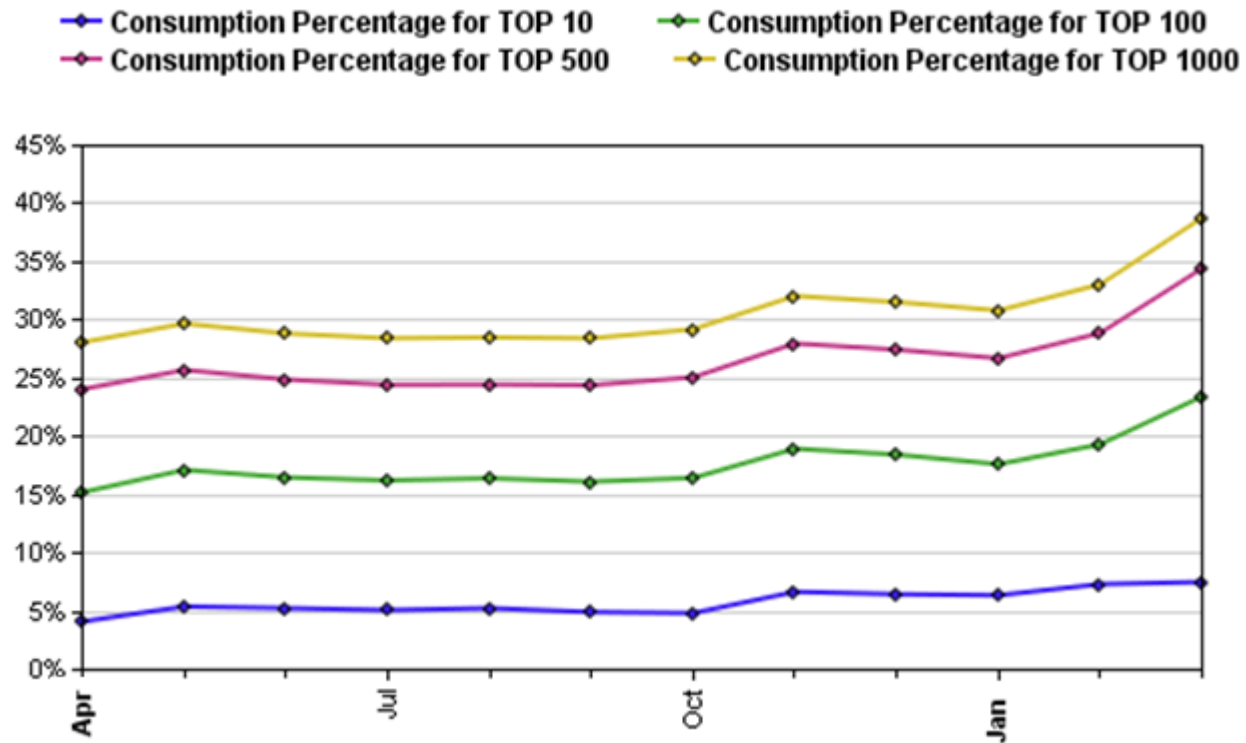
DMA RESULTS
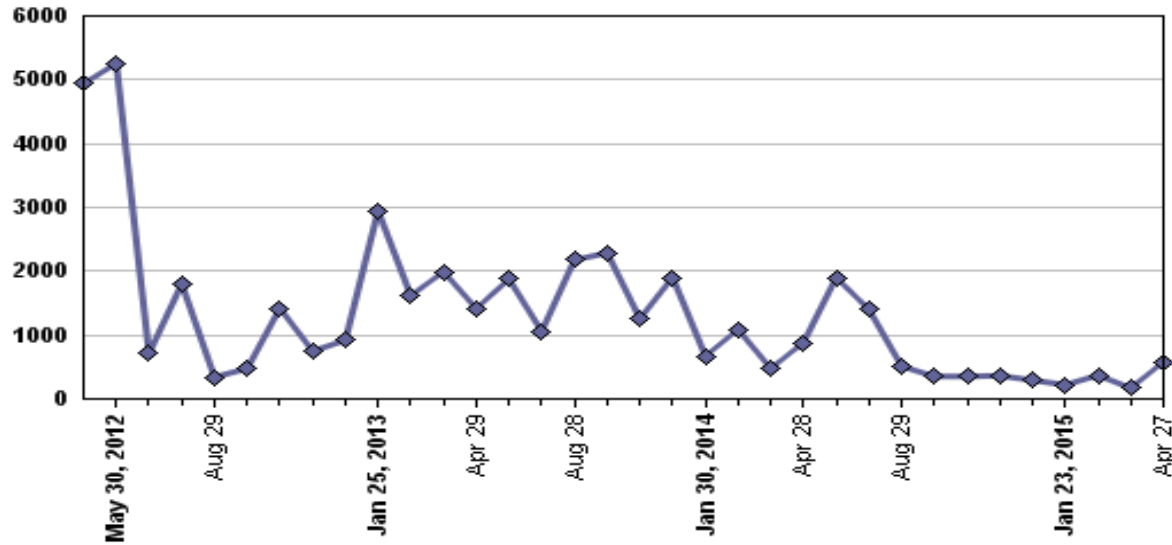
Meter Sizing

Meter Aging

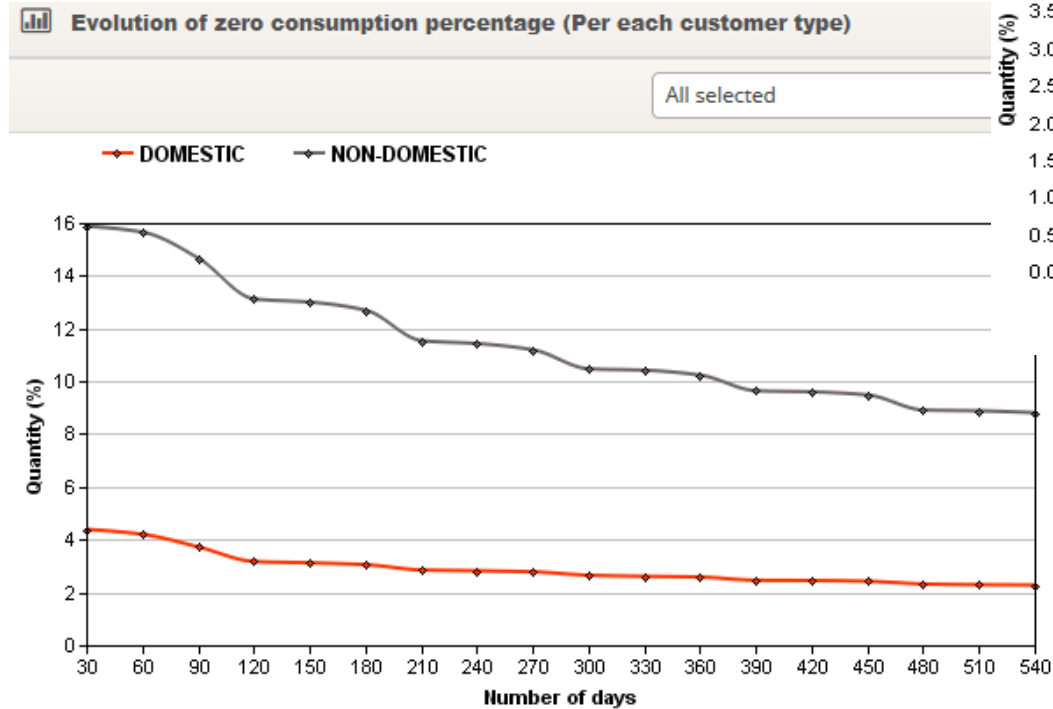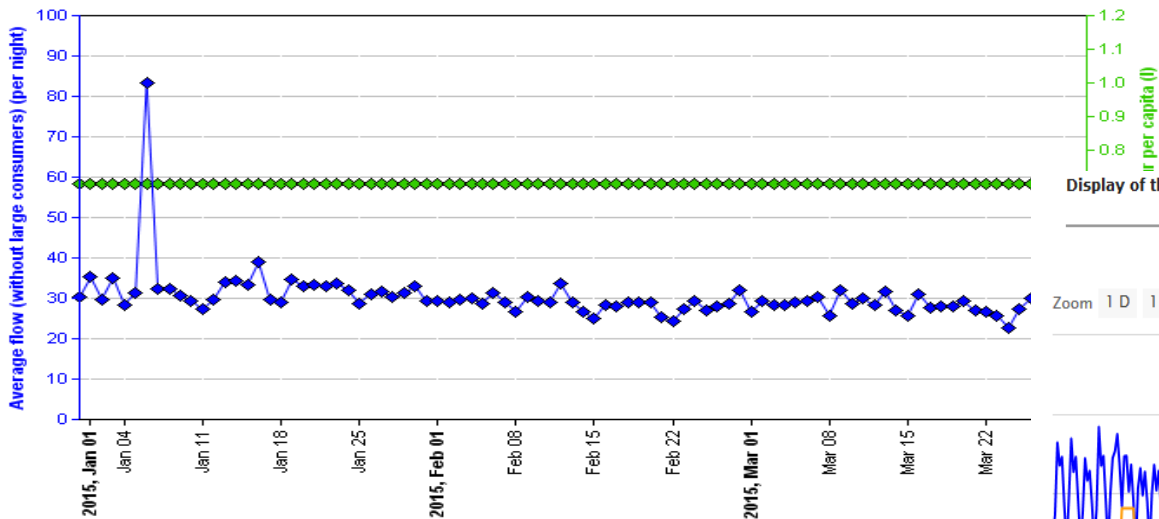| Customer name | INCITEC PIVOT LIMITED |
Potential problem	**UNDERSIZING**
Action	
Comment	
Reading date	04/27/2015

Validate Cancel

Itron
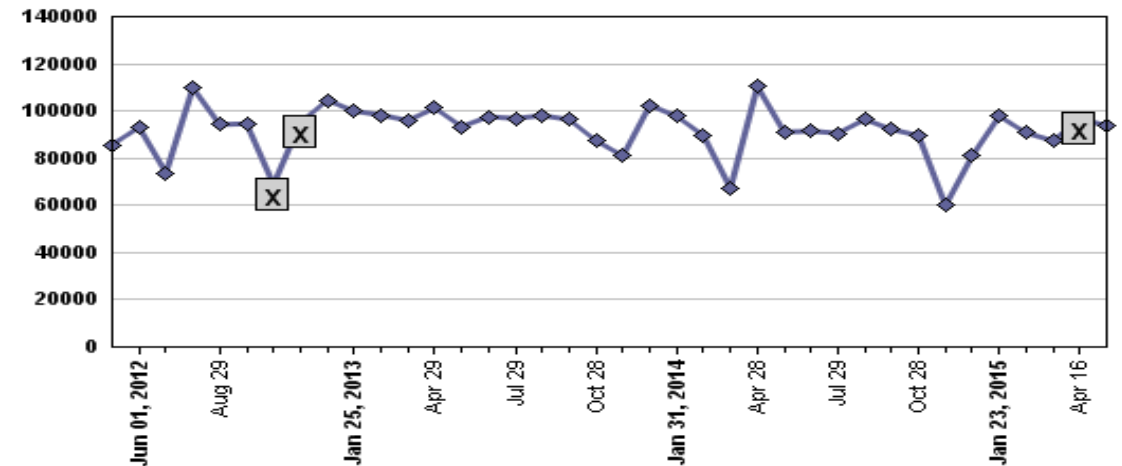
DMA RESULTS

Zero Consumption
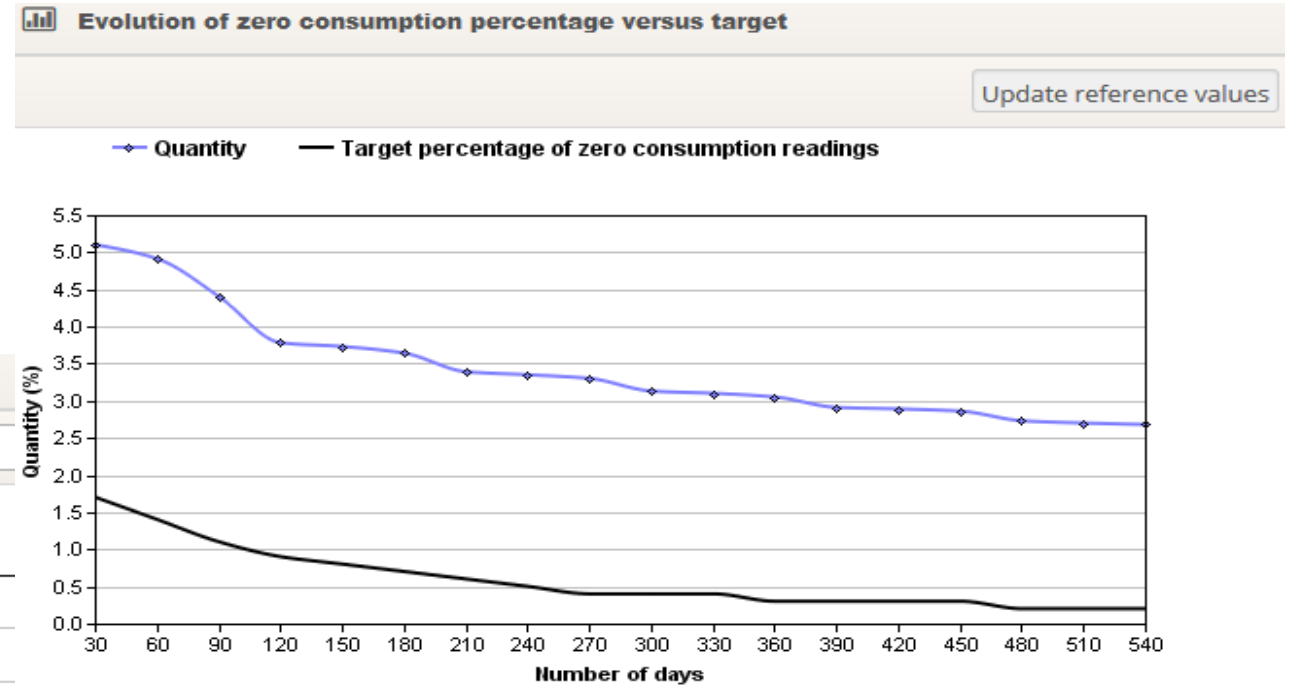
DMA RESULTS
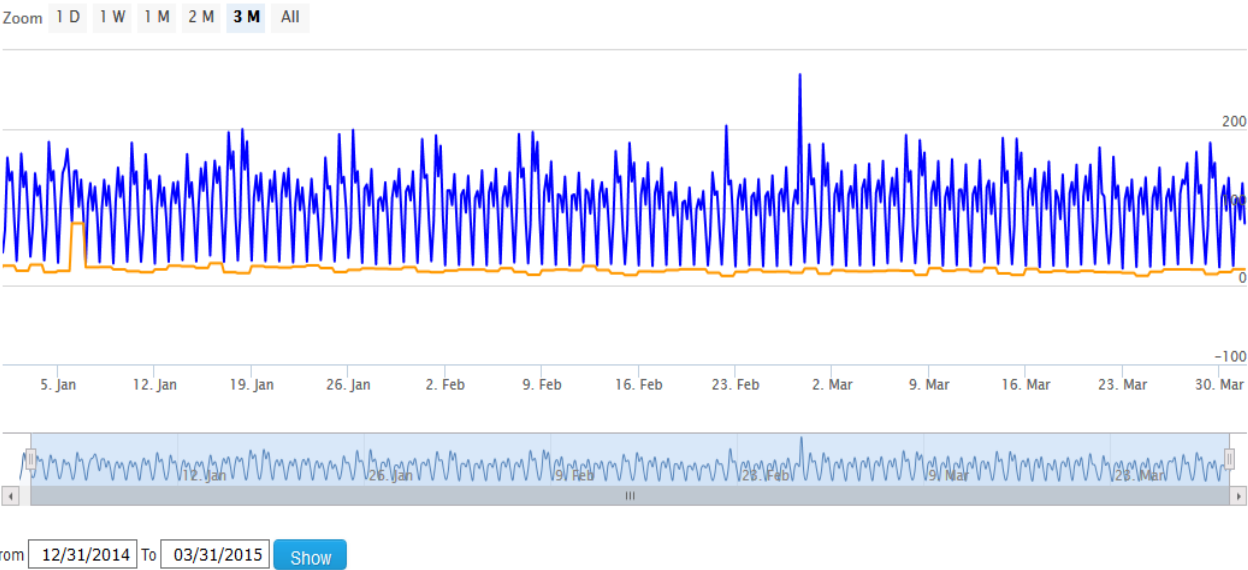

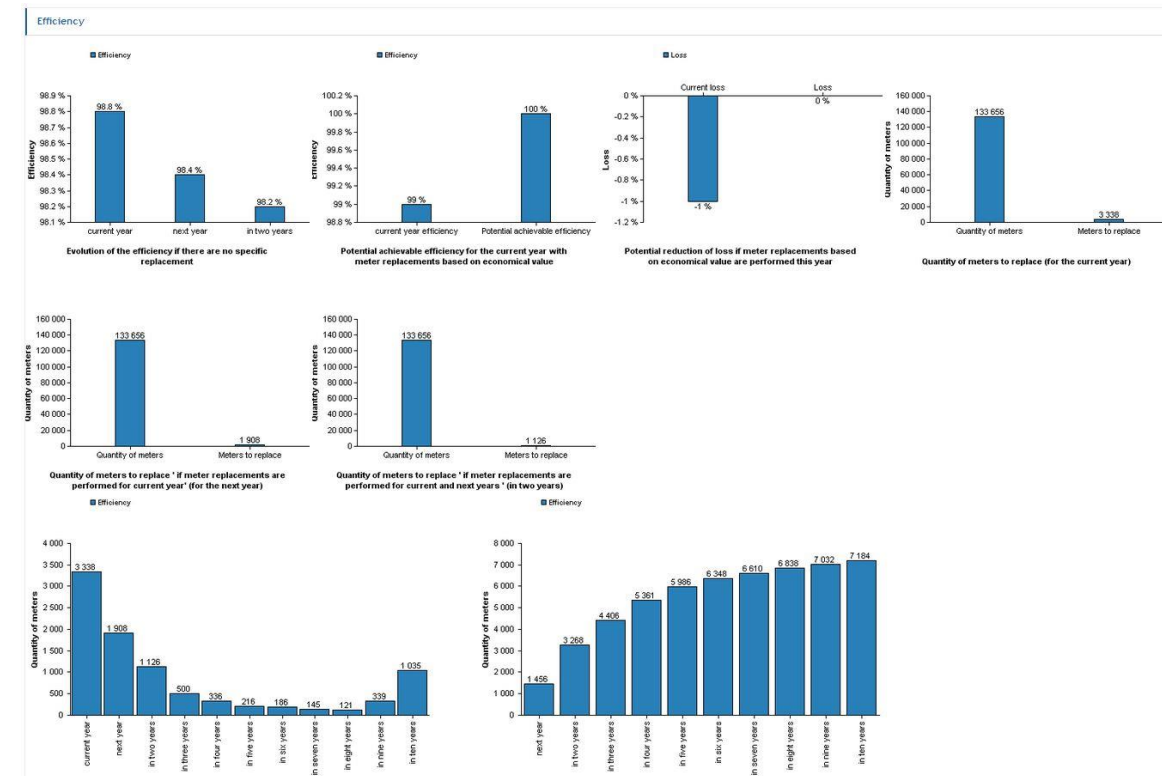Evolution of the average night flow versus the residential consumption

Leakage

Display of the inlet flow cleaned from the irregular customer with the leakage flow rate

Night Flow

NEXT STEPS

» Customer awareness & empowerment

» Expand to other DMAs

» Increase data capture rate & efficiency

» Pressure monitoring

» Pressure management

SUMMARY

OUTCOMES

» Reduce non-revenue water

» Establish conservation programs

» Improve network infrastructure

» Act on consumer & distribution leaks

» Increase data and meter accuracy

» Manage supply & demand

» Empower consumers and utilities within

» Revenue protection

Q & A

Thank You