FEBRUARY 2017

FATHOM™

THERE IS STRENGTH IN NUMBERS

FIXING NON-REVENUE WATER THE SMART WATER WAY

GRAHAM SYMMONDS, CKO

FATHOM VALUE PROPOSITION

- Meters & Measurement
- AMR / AMI & Sensors
- Data Hosting & Data Management
- Analytics
- Billing
- Customer Service
- Telephony, IVR & Remittance Management e-Bill, Text Bill & 7 Ways to Pay
- Customer Web Tools & Mobile Applications

Turn-key AMI/CIS Delivery (Project Delivery)

FATHOM Smart Grid for Water

- Risk Transfer
- Speed of Delivery

Managed Services (Meter to Customer)

FATHOM CIS & Utility Billing

- Increased Revenue
- Increased Customer Service
- Improved Execution
- Simple

Mission Critical Software at the Meter/Customer Interface

FATHOM MDM & User Portals

- Big Data Management Solution
- Customer Self Service
- Non-Revenue Water Management
- Revenue Assurance

UTILITY-TO-UTILITY SOLUTIONS

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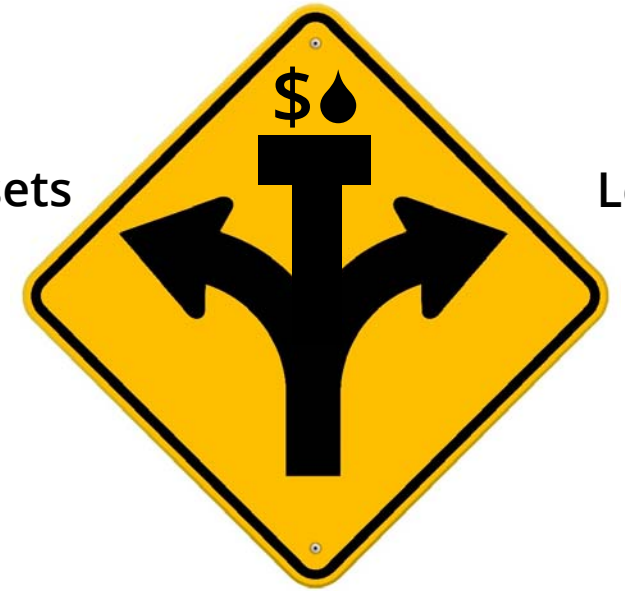
DIVERGENCE: LOSING WATER & REVENUE

Physical Assets



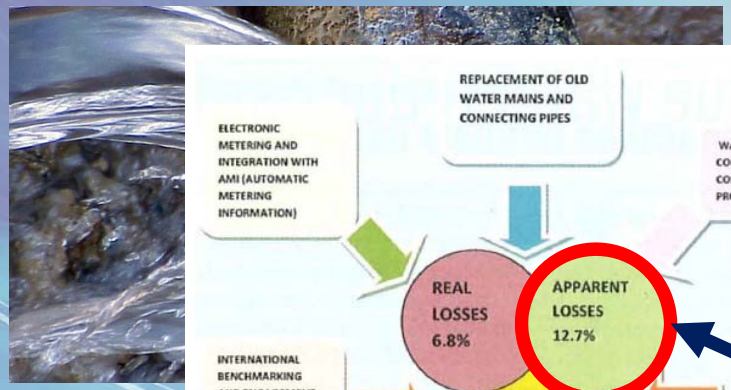
Logical Assets

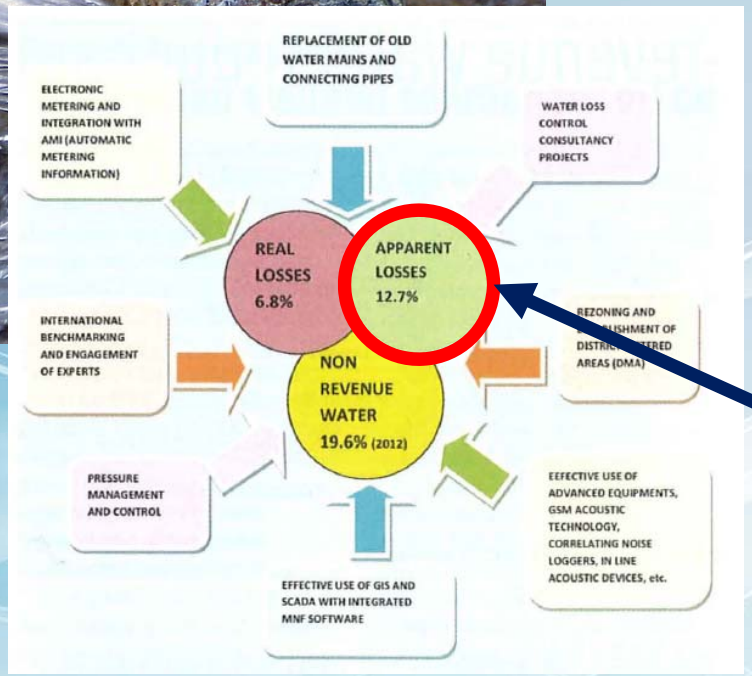
Utility data systems do not locate water or revenue in space-time

DATA ERRORS

- Water theft from bypassed meters
- Unauthorized connections
- Meter degradation and inaccuracy due to meter age or physical damage
- Meter degradation due to water quality or particulate precipitation
- Meter programming errors
- Meter losses, including meters missing from the billing inventory
- Meter installation errors
- Improperly sized or specified meters
- Data transcription errors, including meters not correctly mapped to customer information
- Incorrect billing codes in the billing platform
- Human errors, including meter reading mistakes or estimates

ARE YOU LEAKING DATA?

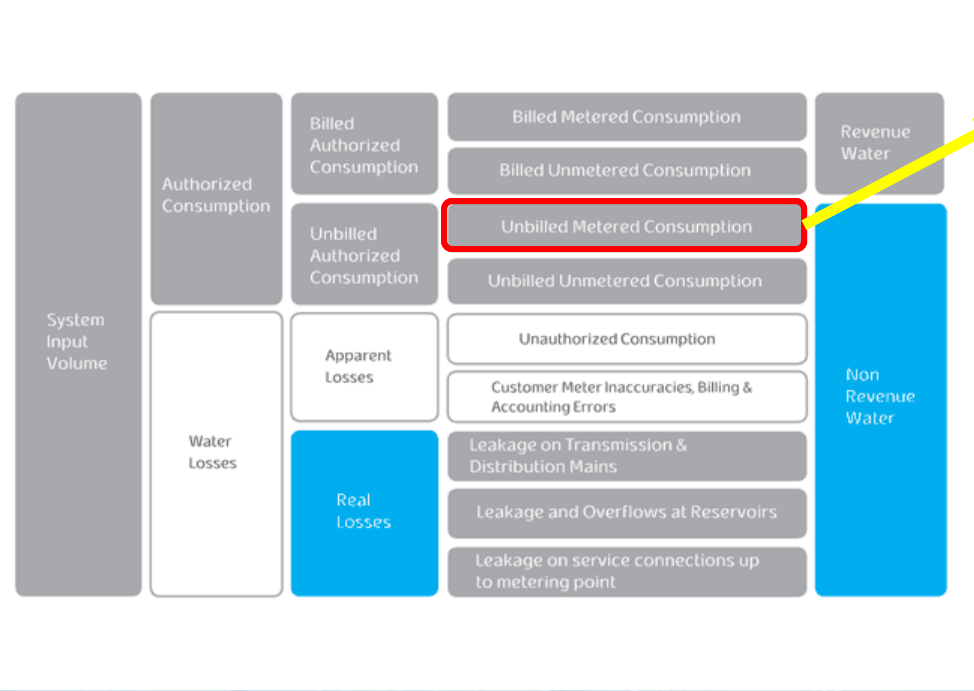




Apparent Losses = 2 x Real Losses

Source: Mattar, R., “Kahramaa’s vision for non-revenue water reduction”, Water Utility 21, April 2013

ELIMINATING NON-REVENUE DATA

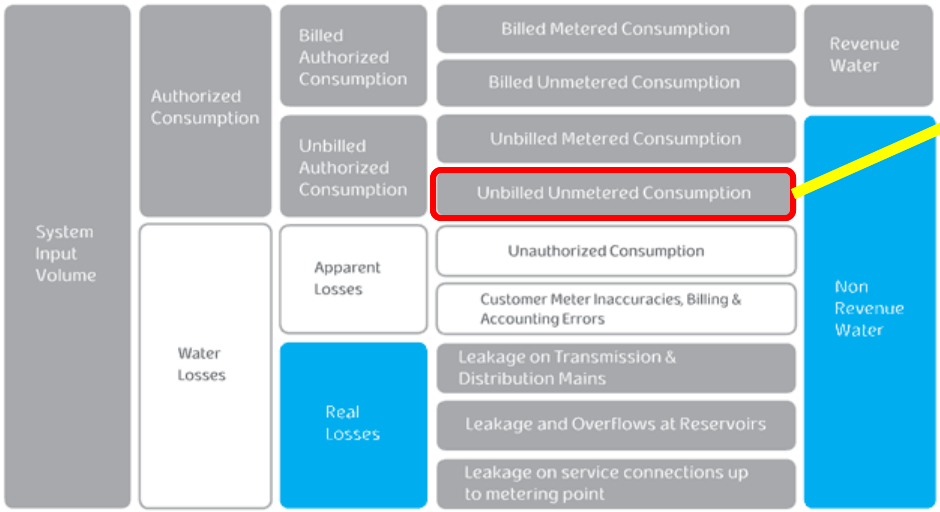


Geo-located meters ensure all meters are billed all the time.

GIS-enabled audit technologies ensure all meters are in the billing platform.

Highly granular meter data can be used to ensure accuracy of meter readings.

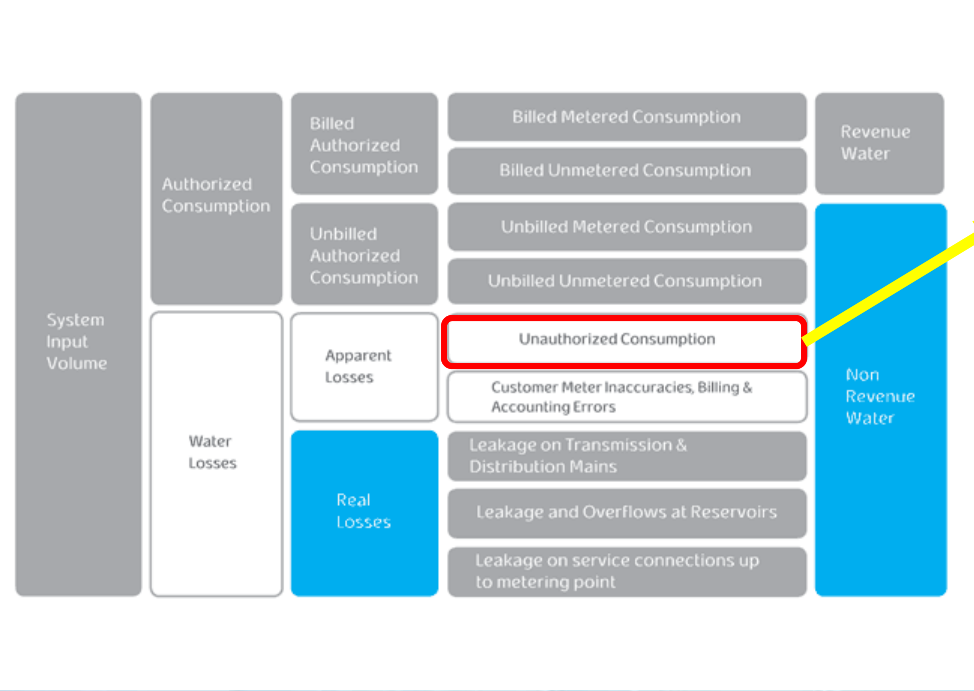
ELIMINATING NON-REVENUE DATA



Real-time pumped-vs-billed analysis ensures highly accurate understanding of non-metered use.

Combined with real-time hydraulic models unmetered use can be pinpointed.

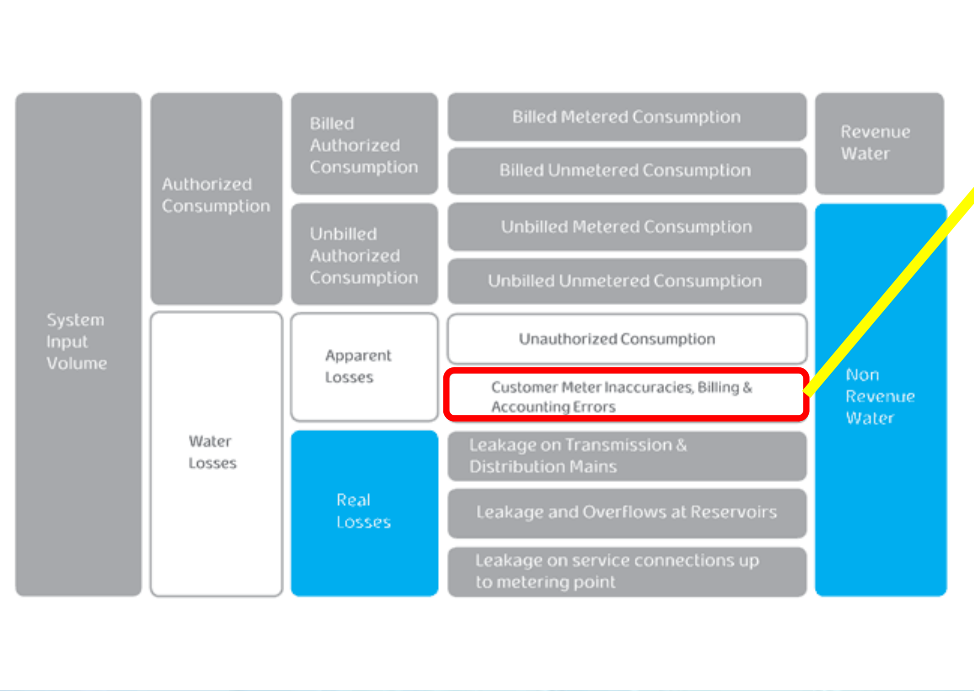
ELIMINATING NON-REVENUE DATA



Combining GIS + CIS + AMI data finds water theft by disconnected customers.

Using virtual DMAs utilities can find an eliminate unauthorized use from hydrants.

ELIMINATING NON-REVENUE DATA



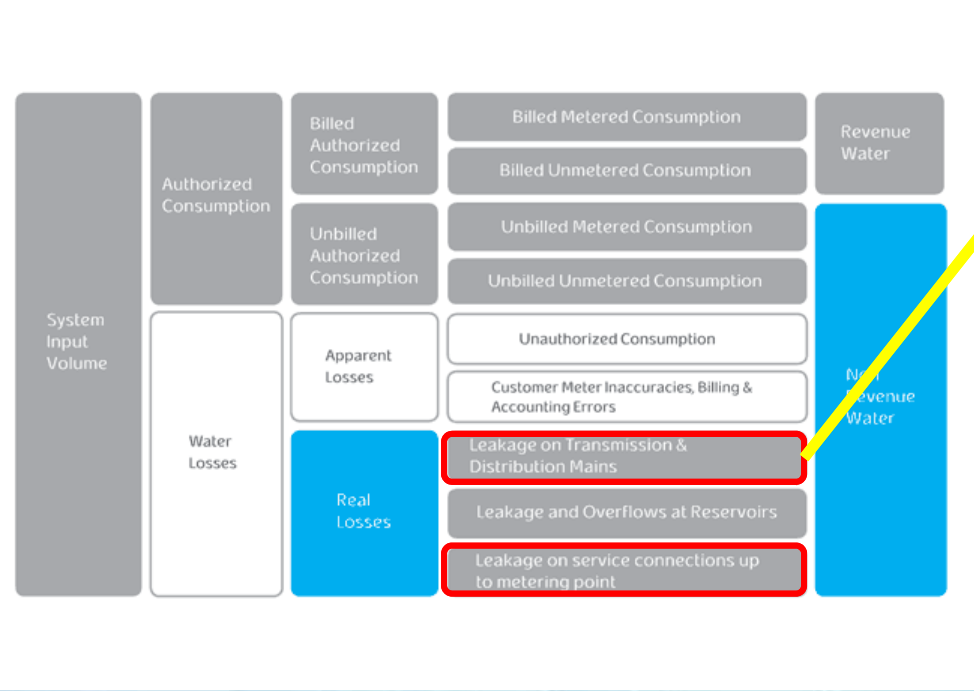
GIS-based Field and Paper Audits find data voids.

Validating infrastructure vs relying on old data eliminates errors.

GIS-enabled best practices and Data Validation tools built into systems maintain the integrity of the data.

Real-time Meter Accuracy

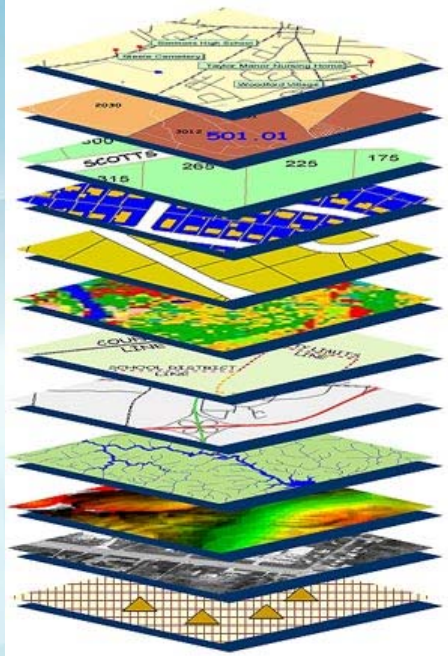
ELIMINATING NON-REVENUE DATA



Real-time demand data + hydraulic modeling + geospatial location finds real leakage.

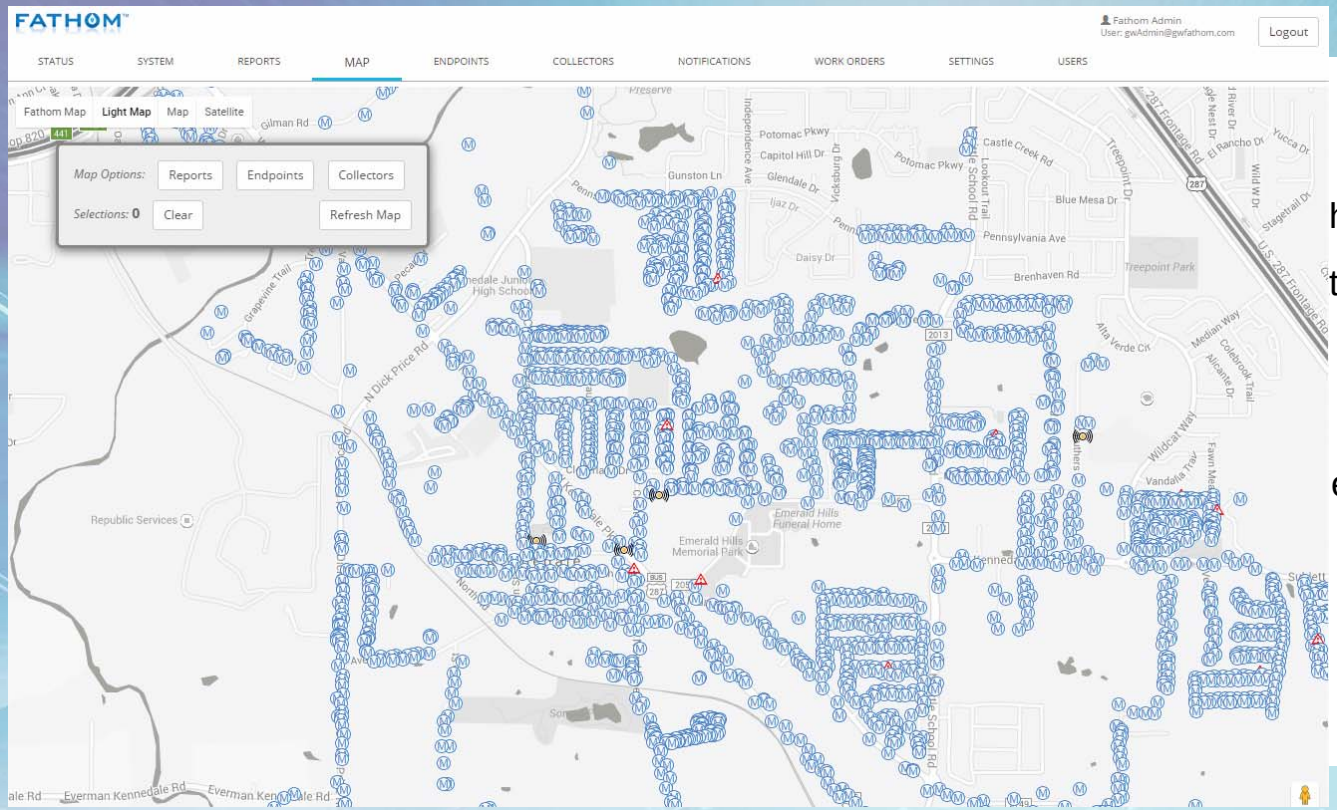
This “first-principles” approach validates flows and can identify pre-existing leaks which can be hidden in baseline acoustic or analytics methods.

USING DATA TO CAPTURE REVENUE



- Tax Parcel Data
- Aerial Photographs
- Infrastructure Data
- Asset Data
- Census Data
- Customer Engagement
- Geospatial Data
- Meter Data
- CIS Data

USING DATA TO CAPTURE REVENUE



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UTILITY-TO-UTILITY SOLUTIONS

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METER ACCURACY

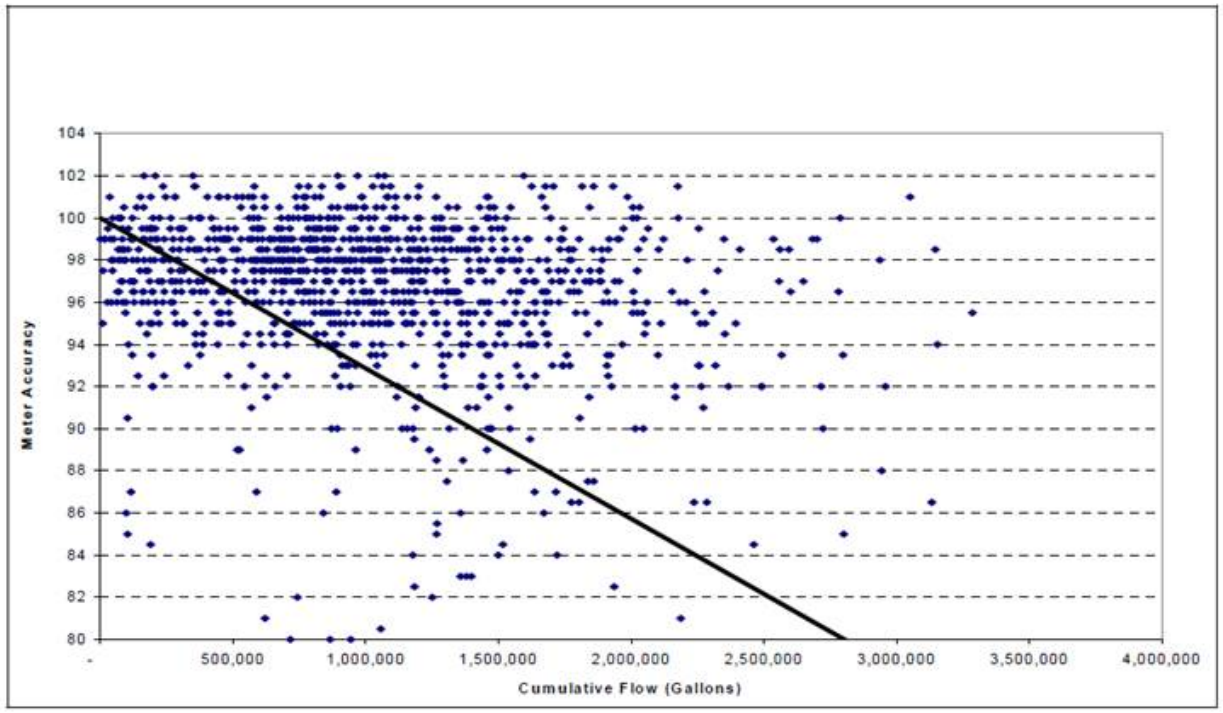
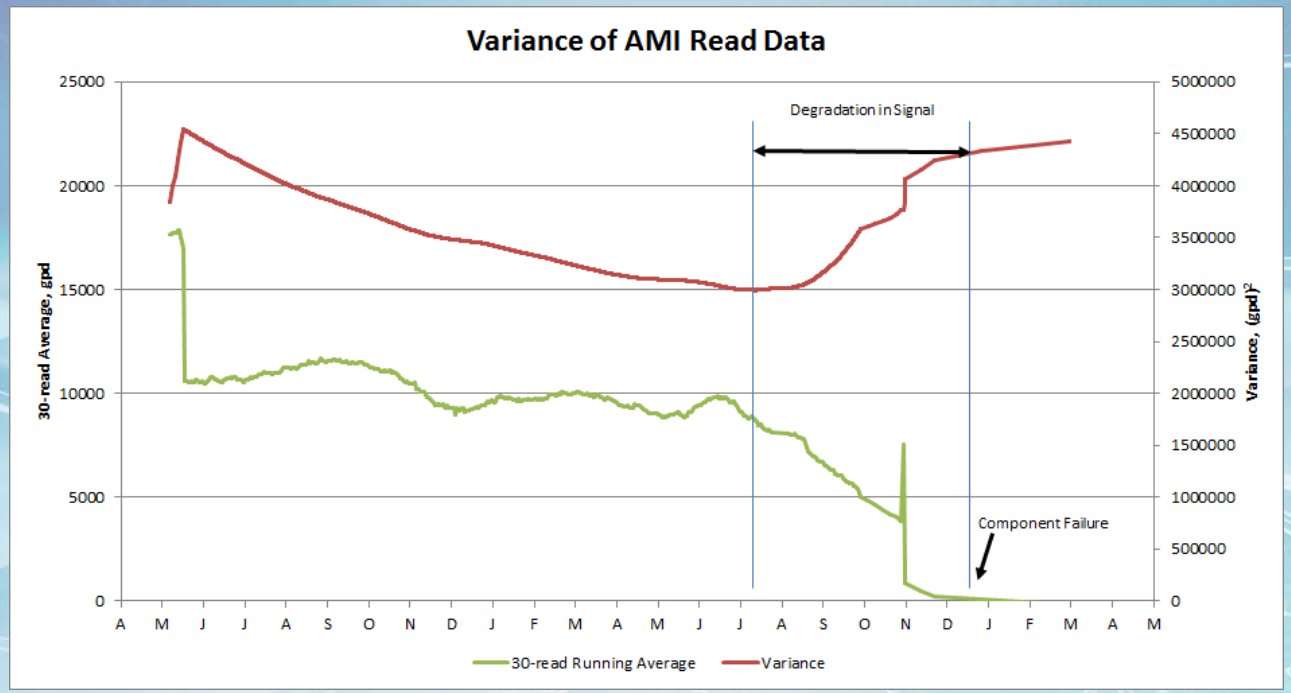


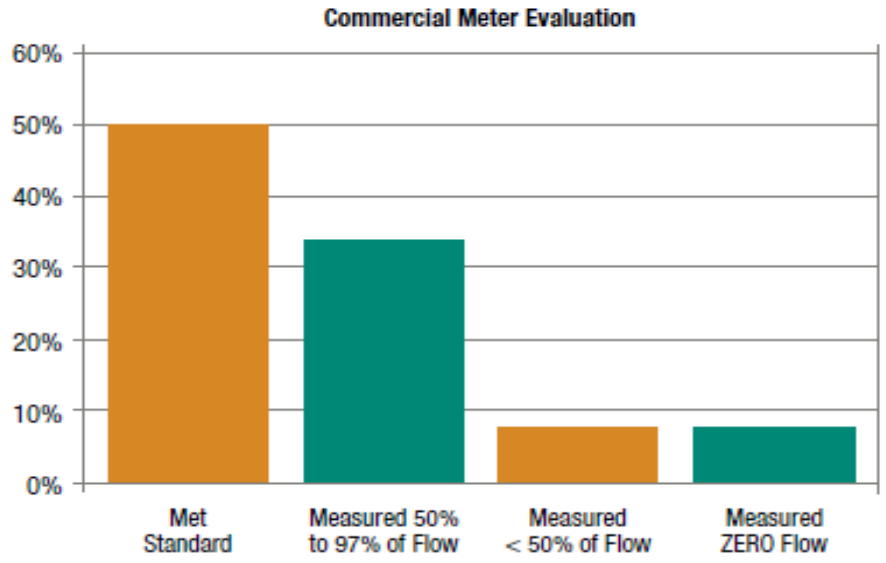
Figure 2: Meter Accuracy versus Cumulative Flow for Low Flow Tests -Ten Year Service (5/8" x 3/4" Positive Displacement Residential Water Meter)

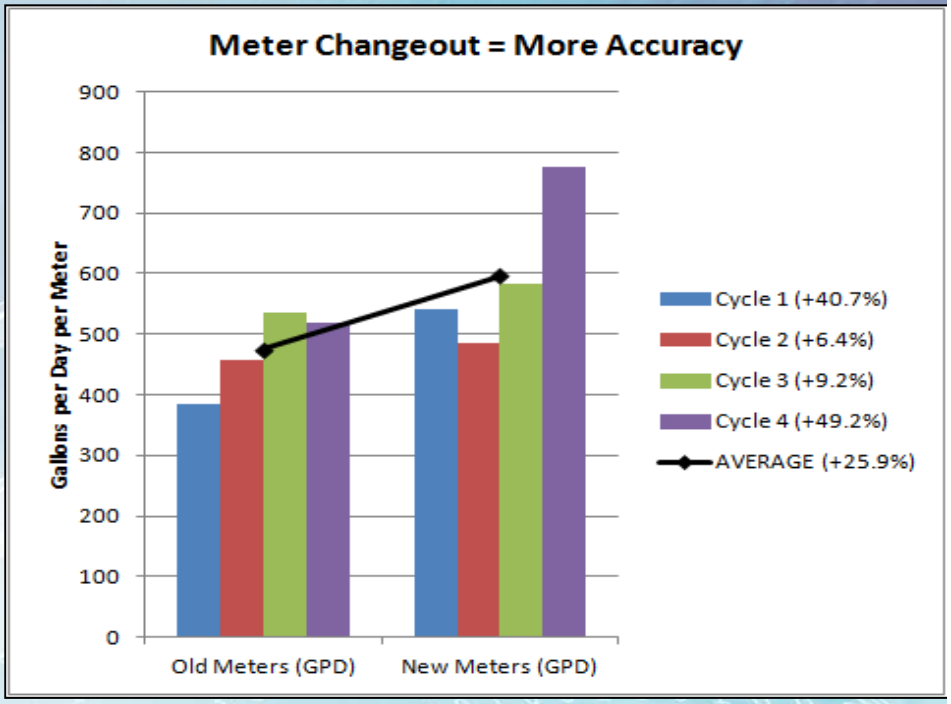
REAL-TIME METER ACCURACY & PERFORMANCE



METER DEGRADATION

Figure 1: Results of commercial meter audit in Global Water – Santa Cruz Water Company

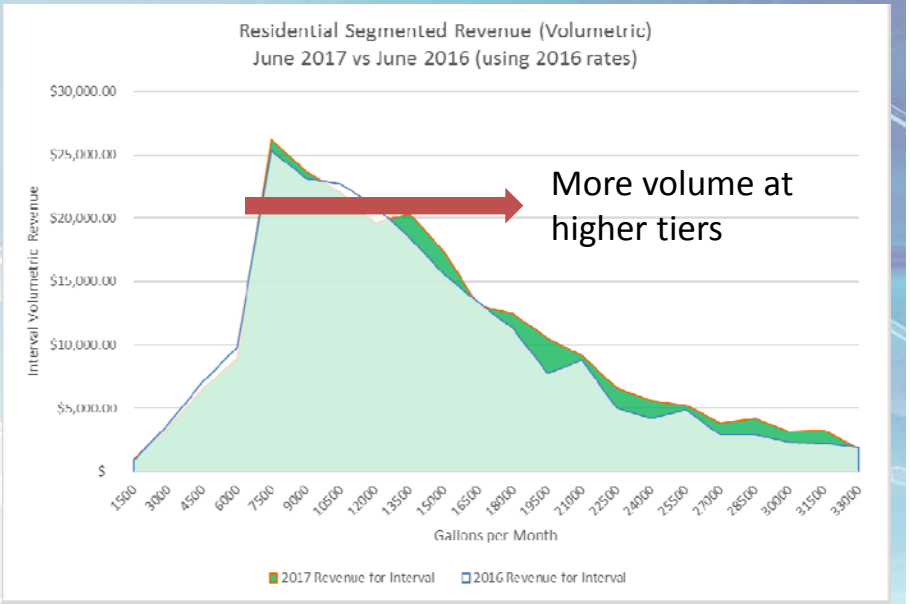




MULTIPLYING EFFECT OF RATES

New Meters:

- 8.7% increase in volumetric revenue = More Revenue
- 6.3% increase in measured flow = NRW reduction



CONSUMPTION ANALYSIS

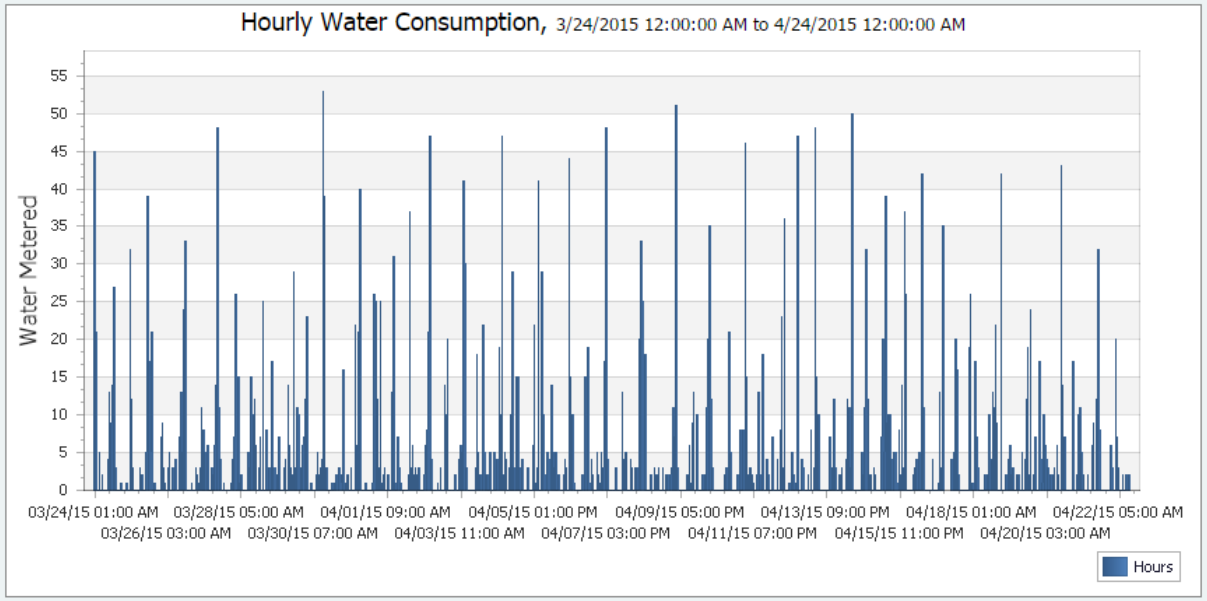
Consumption | Transmission | Maintenance

MTU 47400905, Port 1, Meter Serial 94264150

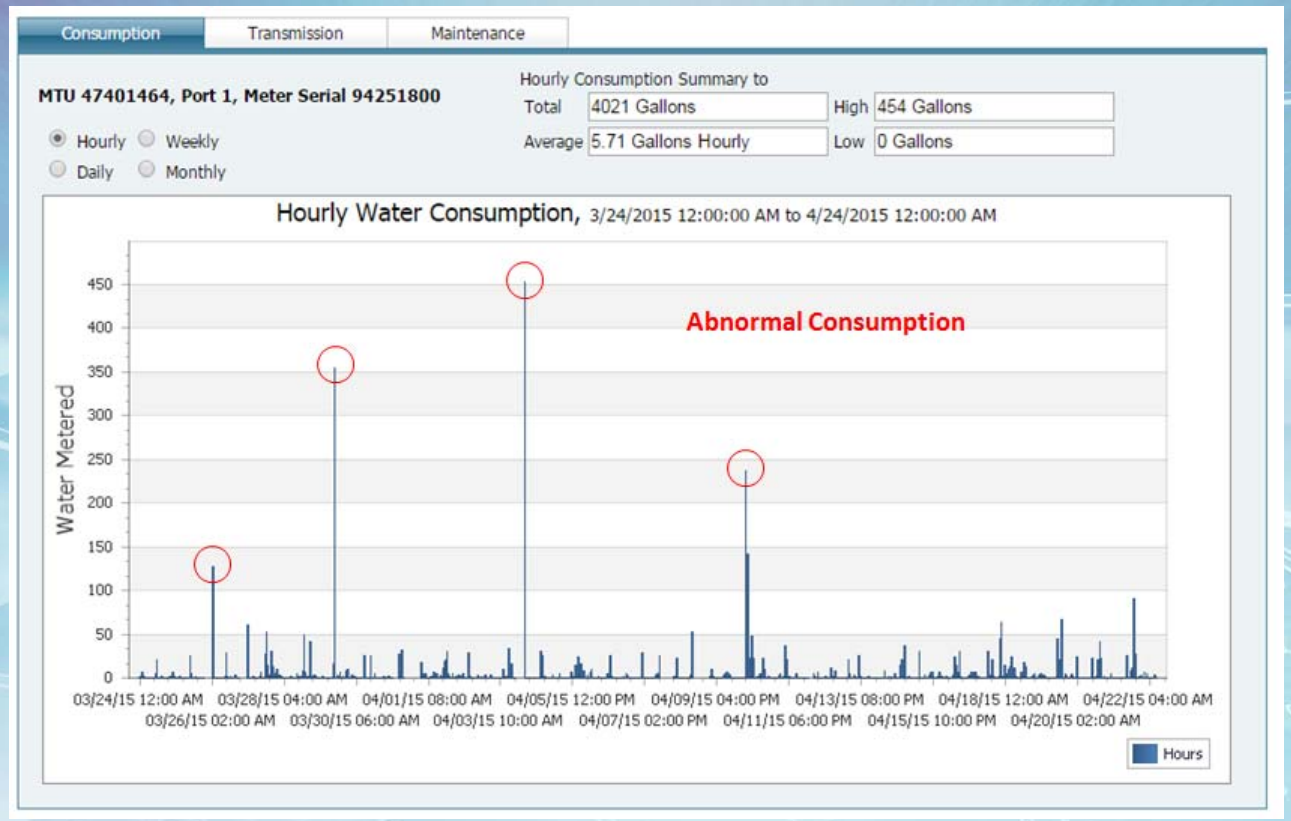
Hourly Consumption Summary to

Total	4030 Gallons	High	53 Gallons
Average	5.71 Gallons Hourly	Low	0 Gallons

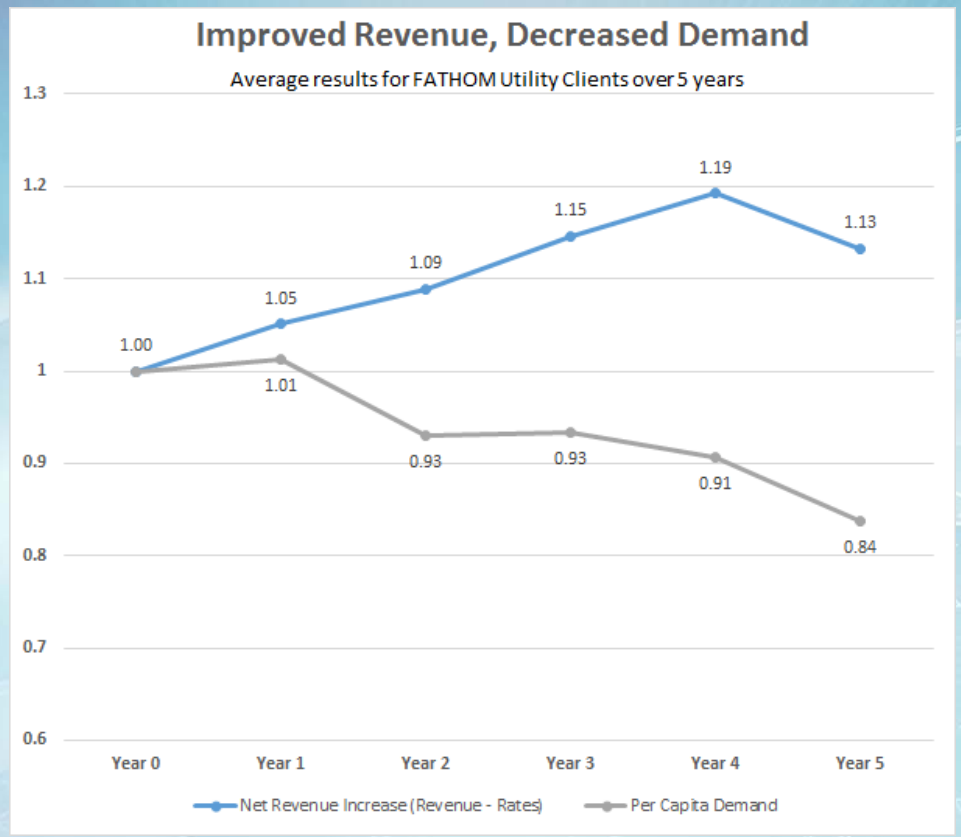
(•) Hourly ( ) Weekly
( ) Daily ( ) Monthly



ABNORMAL CONDITIONS



KEEPING IT CLEAN



FIX YOUR DATA FIRST

Britain's first water sniffing dog hired to pinpoint leaks and broken pipes

share

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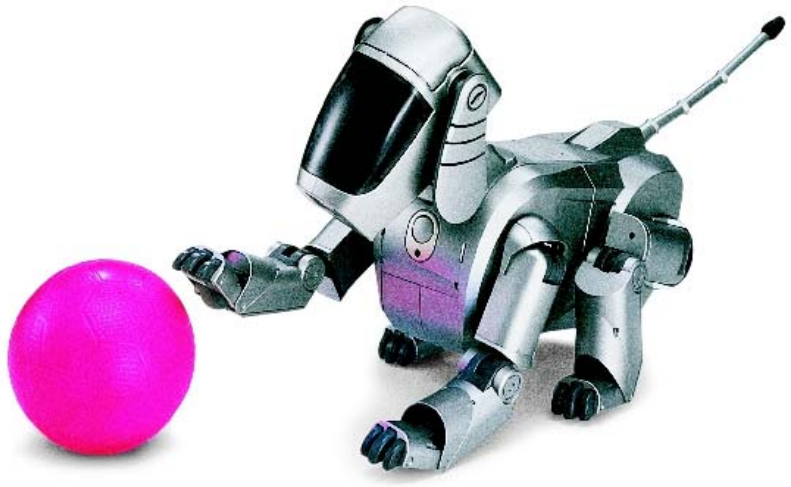
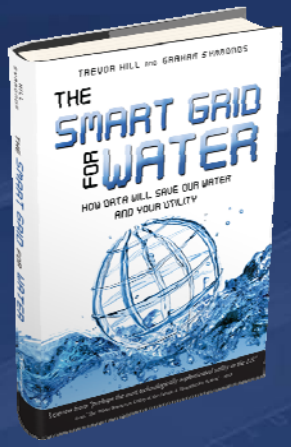
Snipe the dog sniffs different jars filled with water CREDIT: AARON CHOWN/PA WIRE



FIX YOUR DATA FIRST

Use Data to Find Revenue to Fund Infrastructure Repair and Replacement



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