

Listening to Your System

Improving System Efficiency

Presented by:

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Listening to Your System

Water utilities are the largest single user of electricity in the US.

5 – 10 billion kilowatts annually are expended on water that is non-revenue.

Listening to Your System

- Steps to improve your water system health
- Water audits
- District metering
- Acoustic leak detection
- Results

Listening to Your System

- Personal health
 - Review of past
 - Physician asks questions
 - Physician listens to your systems
 - Improve health and well being
- System health
 - Utility must look at the outside
 - Review records and infrastructure
 - Look for misapplications
 - Listen for leaks
 - Improve system health, reduce non-revenue water

Listening to Your System

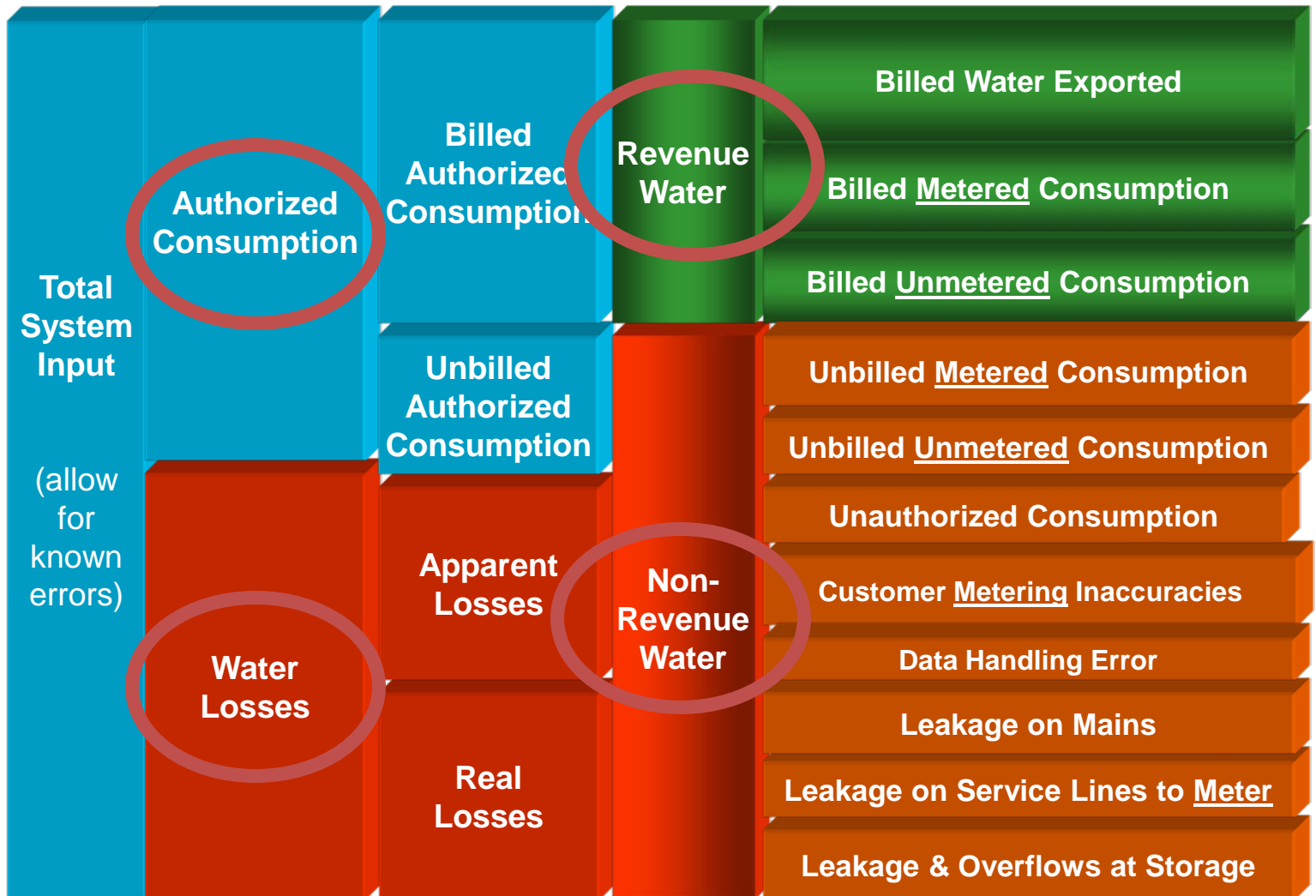
Water Audit

- AWWA/IWA M36 Manual
 - Limit unnecessary or wasteful source water withdrawals
 - Optimize revenue and promote equity among ratepayers
 - Minimize system disruptions, optimize supply efficiency, generate reliable data
- Balance sources of water with revenue and non-revenue water

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-Water Audit-

Checkbook Analogy-Water In/Water Out



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Water Audit

- Water audit identifies the amount of non-revenue water
- Then steps to reduce the amount of non-revenue water:
 - Meter replacement programs
 - District metering program
 - Leak identification and remediation program

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Meter Sizing & Replacement

- Meters are mechanical and tend to slow down over time through usage.
- AWWA recommended test intervals
 - Residential – every 10 years
 - C & I – every 1 – 4 years depending on size
- Proper sizing and selection of meters
 - Different meter sizes – 5/8" – 54", use the correct size
 - Different meter types for different expected flows
 - Positive displacement, turbine, compound, magnetic flow

Listening to Your System District Metering

Distribution system is broken down into small areas that can be metered individually and then compared with the billed consumption of customers.

Data.



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District Metering

- Monitor flows at different times
- When supply flow is lowest – leakage rates are at their highest proportion
- Leaks don't fix themselves – they only get worse
- Data, Hydraulic Models

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Acoustic Leak Detection

- Thank you for the opportunity to speak and introduce Badger Meter, Inc.