

An Introduction to Strategic Water Loss Reduction

Webinar 1: Understanding the Problem



When you know better you do better

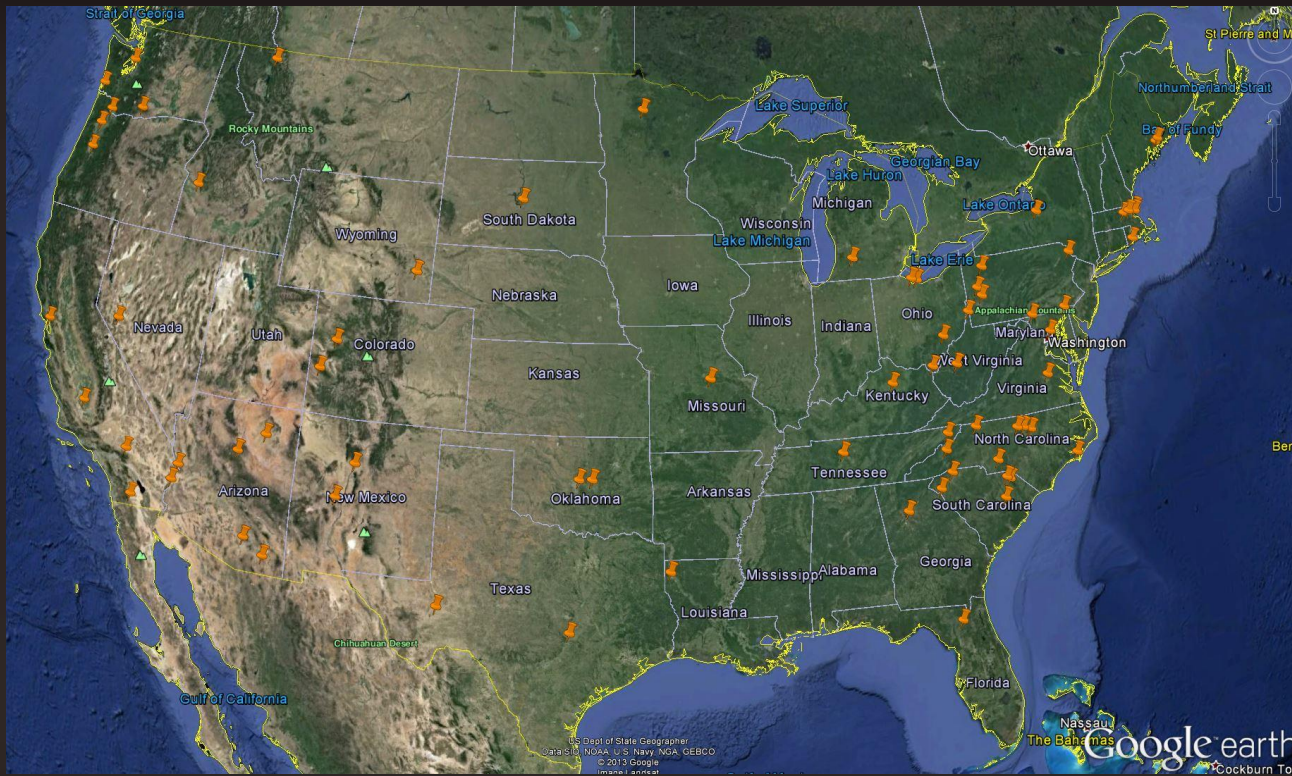
Maya Angelou

WELCOME TO THE EFCN WEBINAR SERIES



AN INTRODUCTION TO STRATEGIC WATER LOSS REDUCTION

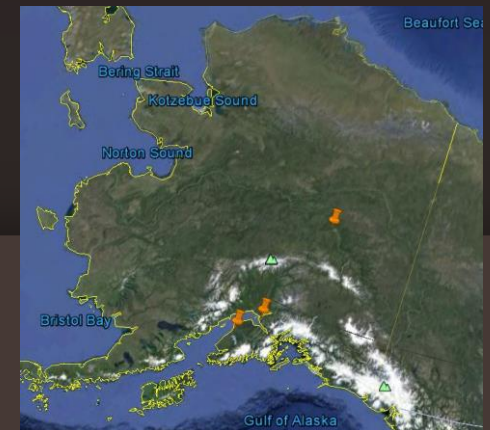
GEOGRAPHICAL DISTRIBUTION OF TODAY'S ATTENDEES



Mainland US



Hawaii



Alaska

WHY STRATEGIC WATER LOSS REDUCTION?

LIMITED WATER RESOURCES

NEED TO MAXIMIZE SYSTEM REVENUES

INCREASING COSTS OF PRODUCTION,
INCLUDING INCREASED ENERGY COSTS

WATER QUALITY IMPACTS

WHY STRATEGIC WATER LOSS REDUCTION?

**HELPS YOU DECIDE THE
NATURE OF THE PROBLEM
AND THE BEST WAY TO
SPEND YOUR LIMITED
DOLLARS TO ADDRESS IT**

INCR
IN

EM

TS

DOES THIS LOOK FAMILIAR??



**Water
Produced**

**Water
Sold**

**Water
Loss**

What does this number represent??



Water
Loss

- A. Amount of water lost from the system
- B. How inaccurate the customer meters are
- C. Nothing/Of No Value
- D. Non-Revenue Water
- E. Unaccounted For Water

THE VALUE REPRESENTS: NON-REVENUE WATER



Water Use for
City, Town, Muni
Purposes

Illegal Water
Use

Water Use by
Water Utility for
flushing or other
purposes

Lost Water

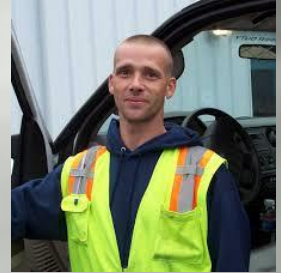
Inaccurate
Meters

Poor Data
Handling

WHY DOES IT MATTER WHAT THAT NUMBER REPRESENTS?



If we don't understand the nature of the problem, we may apply the wrong solution.



WE NEED TO THINK STRATEGICALLY



WATER LOSS AS A PROCESS

Establish
Nature of
the
Problem

Set Goals

CHOOSE
APPROPRIATE
STRATEGIES

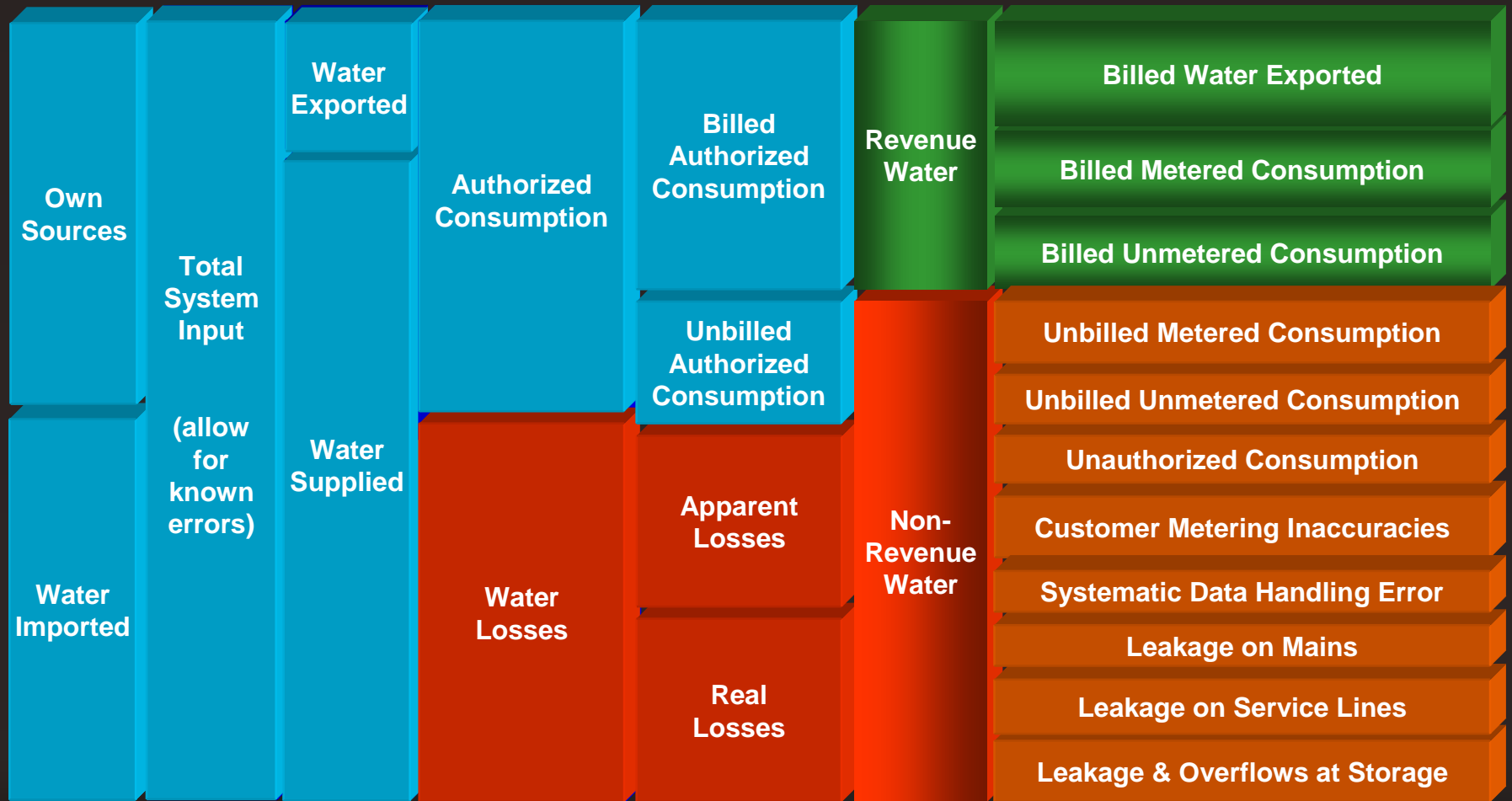
PRIORITIZE
STRATEGIES
FOR
IMPLEMEN-
TATION

Develop
Funding Plan
(Assess Potential for
Increased Revenue to
Fund Part of the
Program)



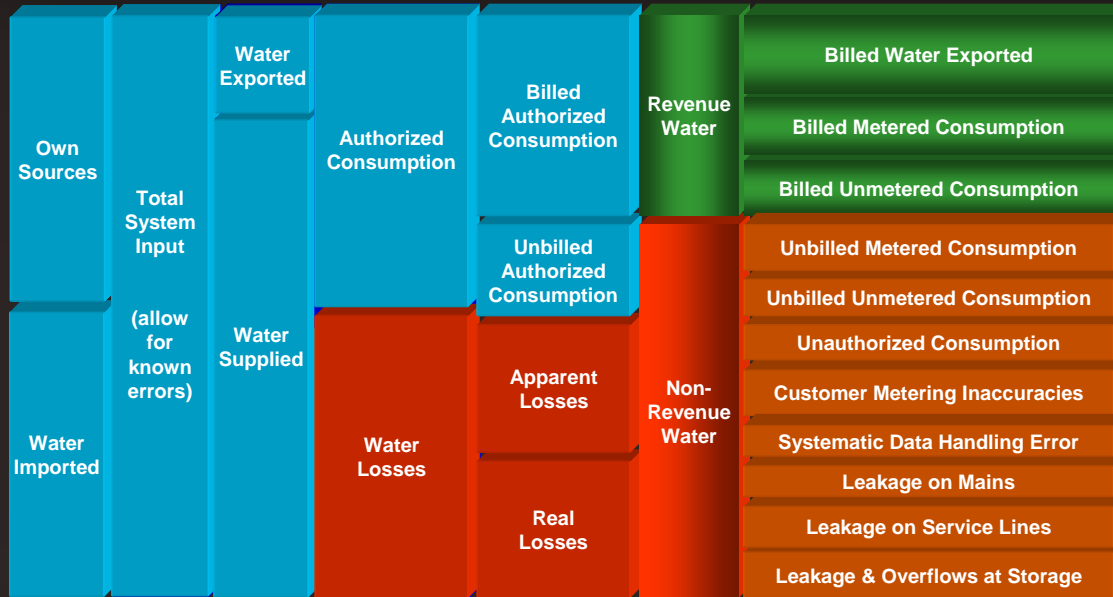


Establish
Nature of
the
Problem



**CONDUCT A WATER BALANCE OR WATER
AUDIT TO DETERMINE NATURE OF THE
PROBLEM**

LOOKS A LITTLE INTIMIDATING



Plus...
THERE ARE
GOOD
RESOURCES TO
HELP YOU

BUT, IF YOU GO THROUGH SYSTEMATICALLY, NOT SO BAD

ONE OF THE BEST IS AWWA'S WATER AUDIT TOOL

AWWA Water Loss Control Committee (WLCC) Free Water Audit Software v4.2

Copyright ©2010, American Water Works Association. All Rights Reserved. WAS v4.2

PURPOSE: This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

USE: The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons on the left below. Descriptions of each sheet are also given below.

THE FOLLOWING KEY APPLIES THROUGHOUT:

<input type="text"/>	Value can be entered by user
<input type="text"/>	Value calculated based on input data
<input type="text"/>	These cells contain recommended default values

Please begin by providing the following information, then proceed through each sheet in the workbook:

NAME OF CITY OR UTILITY: COUNTRY:

REPORTING YEAR: START DATE (MM/YYYY): END DATE (MM/YYYY):

NAME OF CONTACT PERSON: E-MAIL: TELEPHONE:
Ext.

PLEASE SELECT PREFERRED REPORTING UNITS FOR WATER VOLUME

Click to advance to sheet... Click here: for help about units and conversions

Instructions	The current sheet
Reporting Worksheet	Enter the required data on this worksheet to calculate the water balance
Water Balance	The values entered in the Reporting Worksheet are used to populate the water balance

AVAILABLE FOR FREE ON AWWA'S WEBSITE

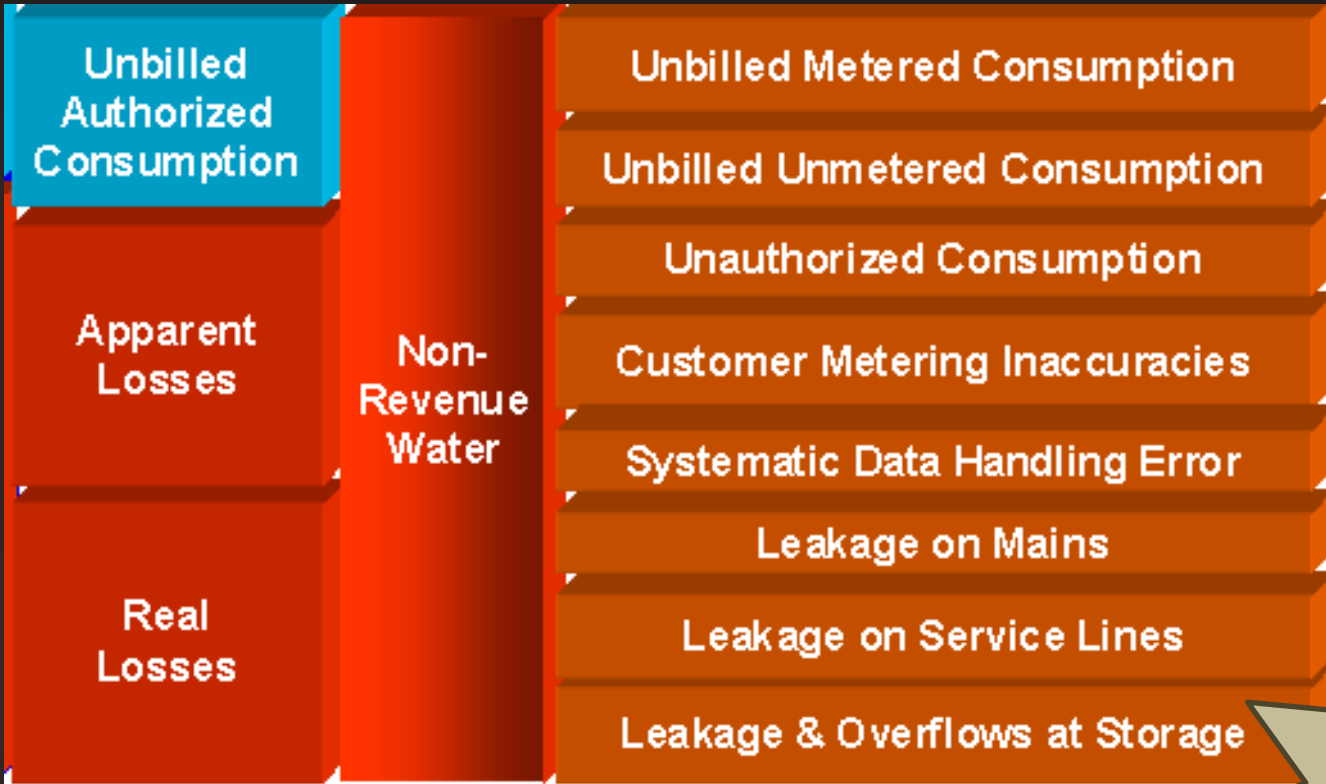
AN AUDIT HELPS YOU ACCOUNT FOR ALL WATER IN YOUR SYSTEM



ONLY WATER
FOR WHICH
YOU RECEIVE
REVENUE



AN AUDIT HELPS YOU ACCOUNT FOR ALL WATER IN YOUR SYSTEM



WATER YOU PRODUCE BUT RECEIVE NO REVENUE FOR

AN AUDIT HELPS YOU ACCOUNT FOR ALL WATER IN YOUR SYSTEM

Unbilled
Authorized
Consumption

Apparent
Losses

Real
Losses

Non-
Revenue
Water

Unbilled Metered Consumption

Unbilled Unmetered Consumption

Unauthorized Consumption

Customer Metering Inaccuracies

Systematic Data Handling Error

Leakage on Mains

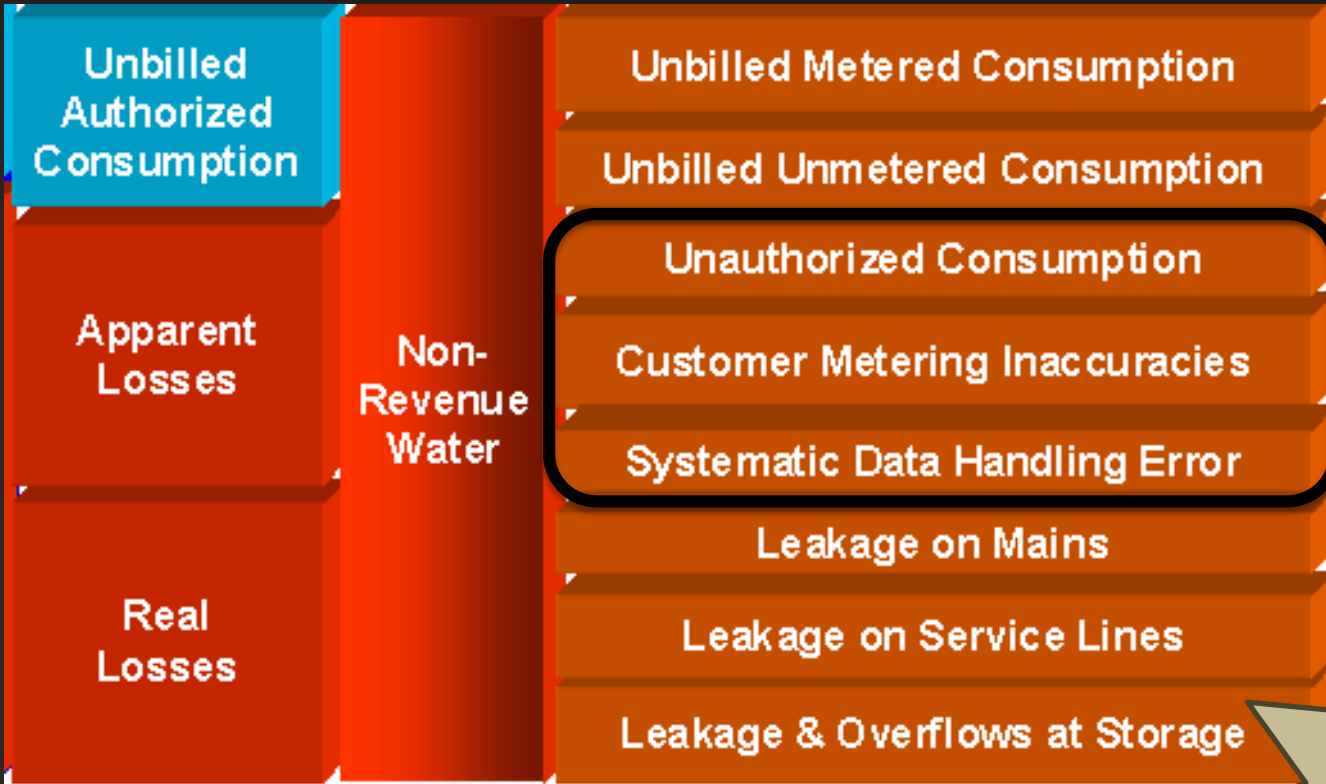
Leakage on Service Lines

Leakage & Overflows at Storage

Authorized
Use; Do
Not Bill

WATER YOU
PRODUCE BUT
RECEIVE NO
REVENUE FOR

AN AUDIT HELPS YOU ACCOUNT FOR ALL WATER IN YOUR SYSTEM



“Paper Losses”

WATER YOU PRODUCE BUT RECEIVE NO REVENUE FOR

AN AUDIT HELPS YOU ACCOUNT FOR ALL WATER IN YOUR SYSTEM

Unbilled
Authorized
Consumption

Apparent
Losses

Real
Losses

Non-
Revenue
Water

Unbilled Metered Consumption

Unbilled Unmetered Consumption

Unauthorized Consumption

Customer Metering Inaccuracies

Systematic Data Handling Error

Leakage on Mains

Leakage on Service Lines

Leakage & Overflows at Storage

WATER YOU
PRODUCE BUT
RECEIVE NO
REVENUE FOR

“Real”
Water
Loss

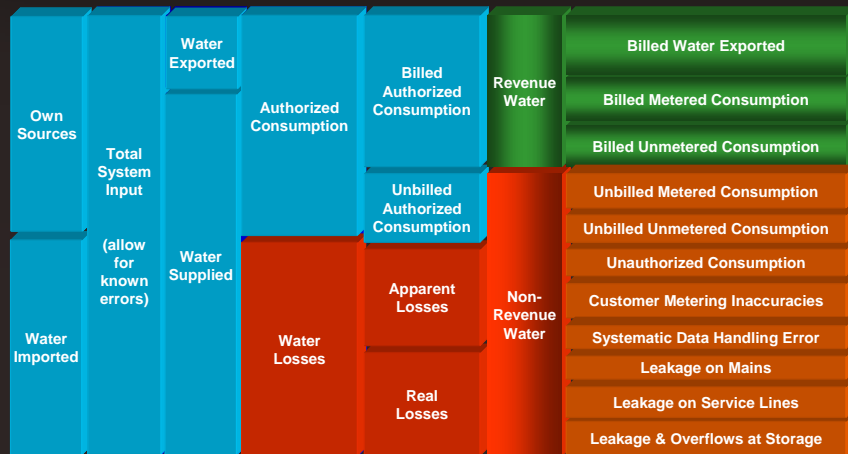
THE RESULTS OF THE AUDIT WILL TELL YOU THE NATURE OF THE PROBLEM



Asset ID	Asset Name	Asset Type	Asset Status	Asset Location	Asset Value	Asset Age	Asset Condition
101	101	101	101	101	101	101	101
102	102	102	102	102	102	102	102
103	103	103	103	103	103	103	103
104	104	104	104	104	104	104	104
105	105	105	105	105	105	105	105
106	106	106	106	106	106	106	106
107	107	107	107	107	107	107	107
108	108	108	108	108	108	108	108
109	109	109	109	109	109	109	109
110	110	110	110	110	110	110	110



Have you done a water audit?



Time for a Poll Question

- Yes, using the AWWA methodology
- Yes, using other methodology
- No, but we are planning on it
- No
- Not Applicable (Not a water system)

```
graph TD; A((Establish Nature of the Problem)) --> B((Set Goals));
```

Establish
Nature of
the
Problem

Set Goals

SET GOALS FOR YOUR WATER LOSS PROGRAM



Goals

1. _____
2. _____
3. _____

WHAT ARE YOU TRYING TO ACHIEVE?

USE SMART AS A GUIDE



Have you set goals related to water loss?

Goals



1. _____
2. _____
3. _____

Time for a Poll
Question

- A. Yes, we have goals and we measure how well we meet them
- B. Yes, we have goals, but we don't measure whether we meet them or not
- C. No, but we are working on it
- D. No
- E. Not Applicable (not a water system)

Establish
Nature of
the
Problem

Set Goals

CHOOSE APPROPRIATE
STRATEGIES

STRATEGIES RELATED TO AUTHORIZED UNBILLED CONSUMPTION



STRATEGIES RELATED TO “REAL” LOSSES



FOCUS OF
WEBINAR 2

Establish
Nature of
the
Problem



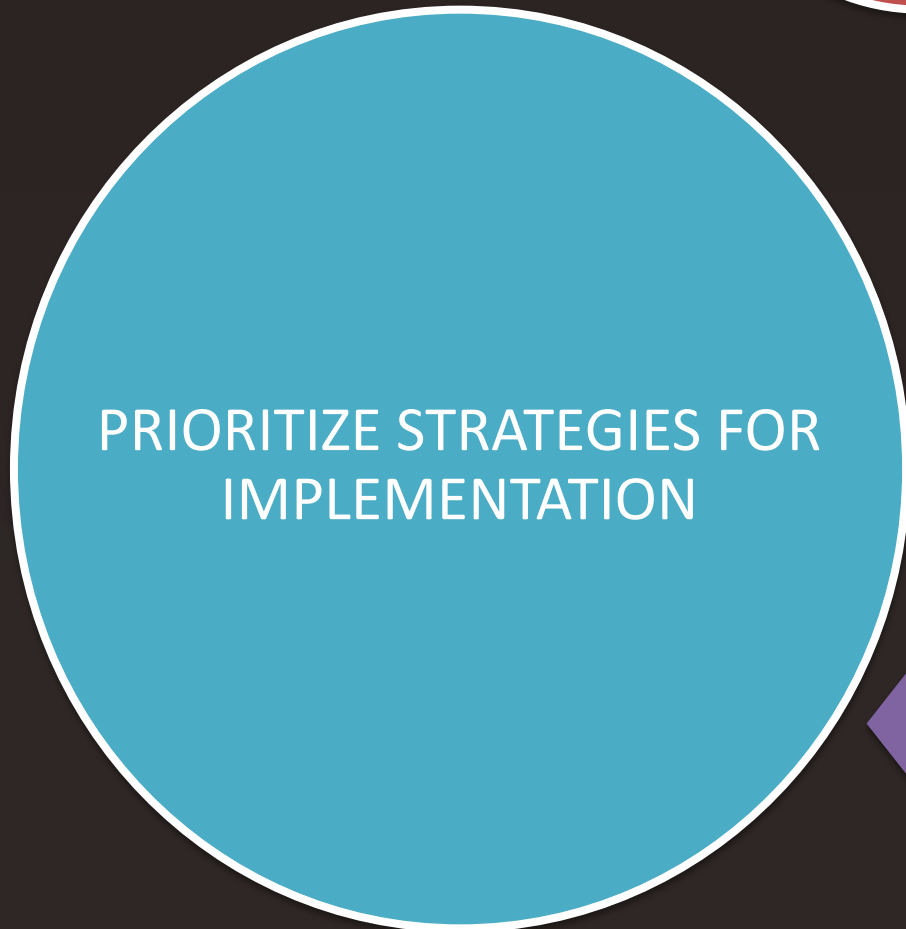
Set Goals



CHOOSE
APPROPRIATE
STRATEGIES



PRIORITIZE STRATEGIES FOR
IMPLEMENTATION



CONSIDERATIONS IN PRIORITIZING

SIZE OF THE
PROBLEM

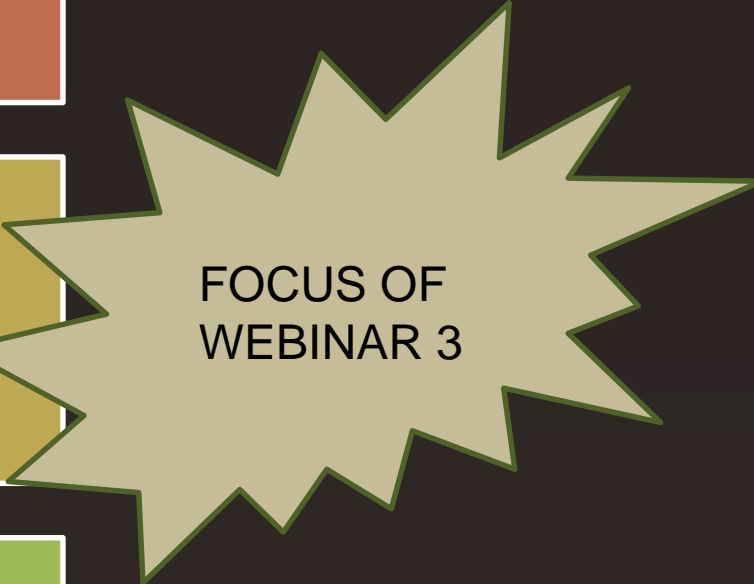
COST OF
ADDRESSING THE
PROBLEM

RESOURCES
NEEDED TO
ADDRESS THE
PROBLEM

CRITICALITY OF
ASSETS

POTENTIAL TO
GENERATE
REVENUE

HOW WELL IT
ADDRESSES THE
GOALS



FOCUS OF
WEBINAR 3



CONSIDERATIONS WITH FUNDING

WILL THE WATER SAVINGS OFFSET COSTS?

WILL REVENUE BE GENERATED TO PAY FOR ALL OR PART?

WILL SAVINGS FROM REDUCED CATASTROPHIC EVENTS BE USED?

CAN THE PROGRAM BE USED TO SAVE MONEY ON PIPE REPLACEMENT?

IS THERE A BUDGET FOR WATER LOSS REDUCTION?

IS THERE PUBLIC SUPPORT FOR A PROGRAM OF THIS TYPE?

TAKING IT TO YOUR FACILITY



**DEVELOP
YOUR
TEAM**

TAKING IT TO YOUR FACILITY

COMPLETE AWWA WATER AUDIT

AWWA Water Loss Control Committee (WLCC) Free Water Audit Software v4.2

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TAKING IT TO YOUR FACILITY

**SET SOME GOALS
FOR WHAT YOU
WOULD LIKE TO
ACHIEVE**



TAKING IT TO YOUR FACILITY

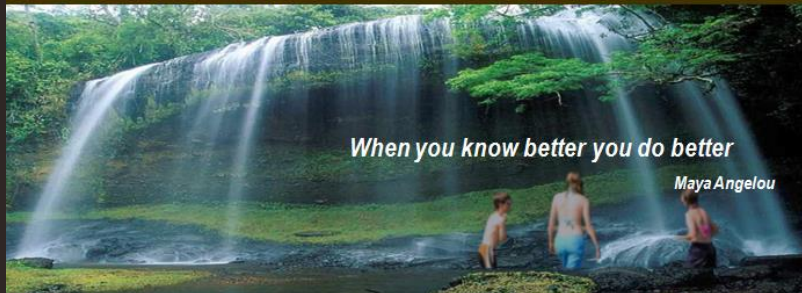
An Introduction to Strategic Water Loss Reduction

Webinar 2: Strategies to Address Water Losses



An Introduction to Strategic Water Loss Reduction

Webinar 3: Strategically Applying Water Loss Reduction Strategies



TUNE INTO
WEBINARS 2
AND 3 TO
LEARN MORE
ABOUT
OPTIONS FOR
ADDRESSING
REAL LOSSES

ASSISTANCE AVAILABLE

Would you be interested in assistance with...

- A. Asset Management
- B. Rates and Finance
- C. Water System Collaboration
- D. Multiple Funding
- E. Energy Efficiency

FOLLOW UP

We will contact attendees with:

- Answers to webinar questions**
- Access to resources for water loss**
- Other types of assistance**

UPCOMING WEBINARS

3/6/14 Asset Management Core Component 1 – The Current State of Assets (Rebroadcast)

3/7/14 Leadership Part II – Effective Messaging

3/12/14 Water System Partnerships & Regionalization – The Water Company Model

3/17/14 Water Loss Reduction – Part II

3/31/14 Water Loss Reduction – Part III

To register: efcnetwork.org/upcoming



**WE WANT TO THANK
EPA FOR PROVIDING
FUNDING FOR THIS
PROJECT**



Smart Management for
Small Water Systems

CONTACT US

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**Southwest
Environmental
Finance
Center**