Smart Management for Small Water Systems

Water Conservation Finance

May 15, 2018 | Santa Fe, NM

www.efcnetwork.org

EFCN environmental finance center network

NADO National Association of Development Organizations

GFOA Government Finance Officers Association

This program is made possible under a cooperative agreement with the U.S. EPA.

CEU Certificates

If you need a CEU certificate, you will need to confirm the following on the roster today before you leave:

- Is your name spelled correctly?
- Did you provide an email address UNIQUE TO YOU? A unique email address is required to receive your certificate.
- Did you mark the checkbox that you need a certificate?

Within 30 days of the training, you will receive an email with instructions to print your certificate. Emails from EFCN may be blocked or go to your Junk mail. To avoid this issue, add *wwwhipps@syr.edu* to your email Contacts or check your Junk mail frequently.

EFCN will apply to the water operator state licensing agency for CEU preapproval when applicable. You may be awarded CEUs by your agency. It is your responsibility to confirm with the agency that training meets relevancy criteria established for your license type as some agencies may not apply CEUs to your license if the training topic is not relevant to your position.

EFCN follows the IACET Standard of CEU calculation.
0.1 CEU = 1 Contact Hour or 1 Professional Development Hour

Questions? Please contact *wwwhipps@syr.edu*

About the Environmental Finance Center Network (EFCN)

The Environmental Finance Center Network (EFCN) is a university-based organization creating innovative solutions to the difficult how-to-pay issues of environmental protection and improvement. The EFCN works with the public and private sectors to promote sustainable environmental solutions while bolstering efforts to manage costs.

The Smart Management for Small Water Systems Program

This program is offered free of charge to all who are interested. The Program Team will conduct activities in every state, territory, and the Navajo Nation. All small drinking water systems are eligible to receive free training and technical assistance.

What We Offer

Individualized technical assistance, workshops, small group support, webinars, eLearning, online tools & resources, blogs

The Small Systems Program Team

- Environmental Finance Center at The University of North Carolina at Chapel Hill
- Southwest Environmental Finance Center at the University of New Mexico
- Syracuse University Environmental Finance Center
- Environmental Finance Center at Wichita State University
- EFC West
- Environmental Finance Center at the University of Maryland
- New England Environmental Finance Center at the University of Southern Maine
- Great Lakes Environmental Infrastructure Center
- Government Finance Officers Association (GFOA)
- National Association of Development Organizations (NADO)

UNC Environmental Finance Center

Southwest Environmental Finance Center

Environmental Finance Center, Syracuse University

Wichita State University, Hugo Wall School of Public Affairs, Environmental Finance Center

EFCWest, Environmental Finance Center West

University of Maryland Environmental Finance Center

New England Environmental Finance Center

Government Finance Officers Association

NADO, National Association of Development Organizations

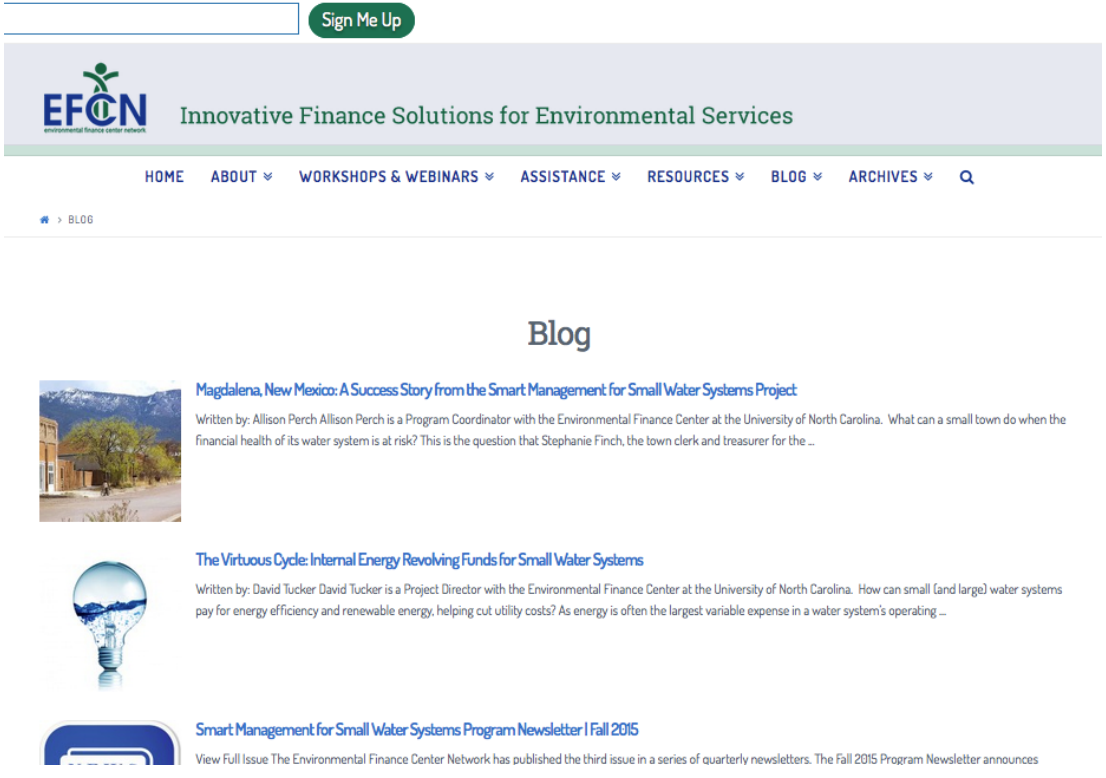
Areas of Expertise

- Asset Management
- Rate Setting and Fiscal Planning
- Communication and Decision-Making Strategies
- Water Loss Control
- Controlling Energy Costs
- Accessing Infrastructure Financing Programs
- Workforce Development
- Water Conservation Finance and Management
- Collaborating with Other Water Systems
- Resiliency Planning
- Managing Drought

Small Systems Blog

Learn more about water finance and management through our Small Systems Blog! Blog posts feature lessons learned from our training and technical assistance, descriptions of available tools, and small systems “success stories.”

efcnetwork.org/small_systems_blog/



Who we are …

UNC ENVIRONMENTAL FINANCE CENTER

SOUTHWEST ENVIRONMENTAL FINANCE CENTER

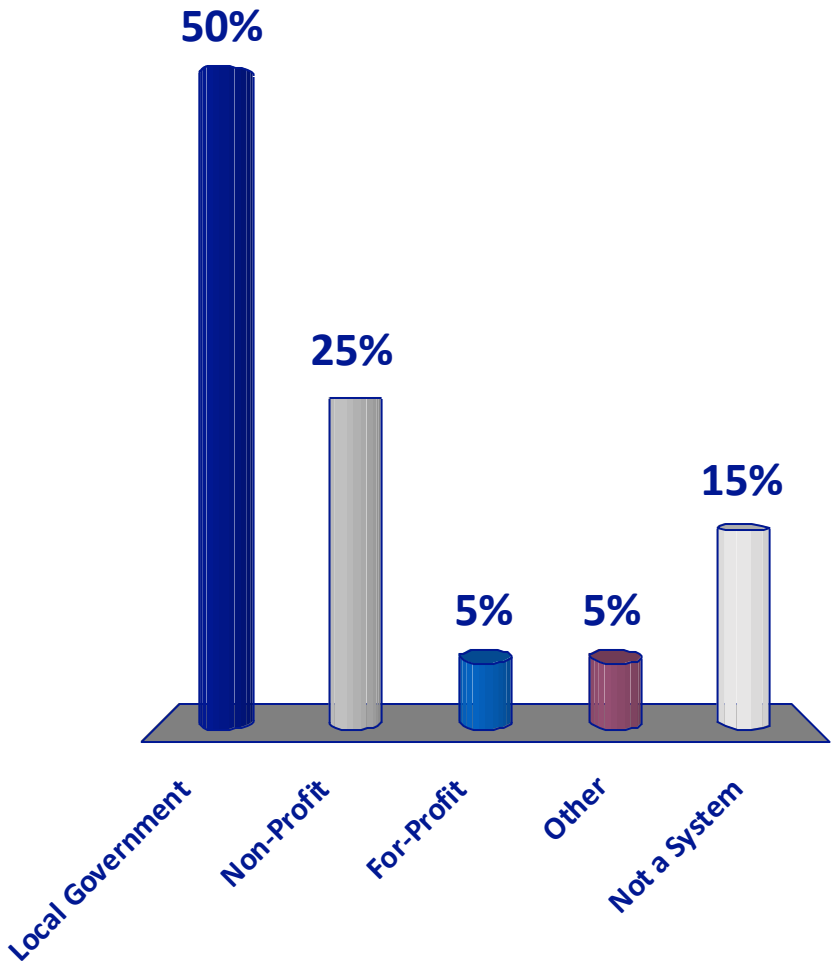
UNC SCHOOL OF GOVERNMENT

SCHOOL OF ENGINEERING

A few questions for you before we continue...

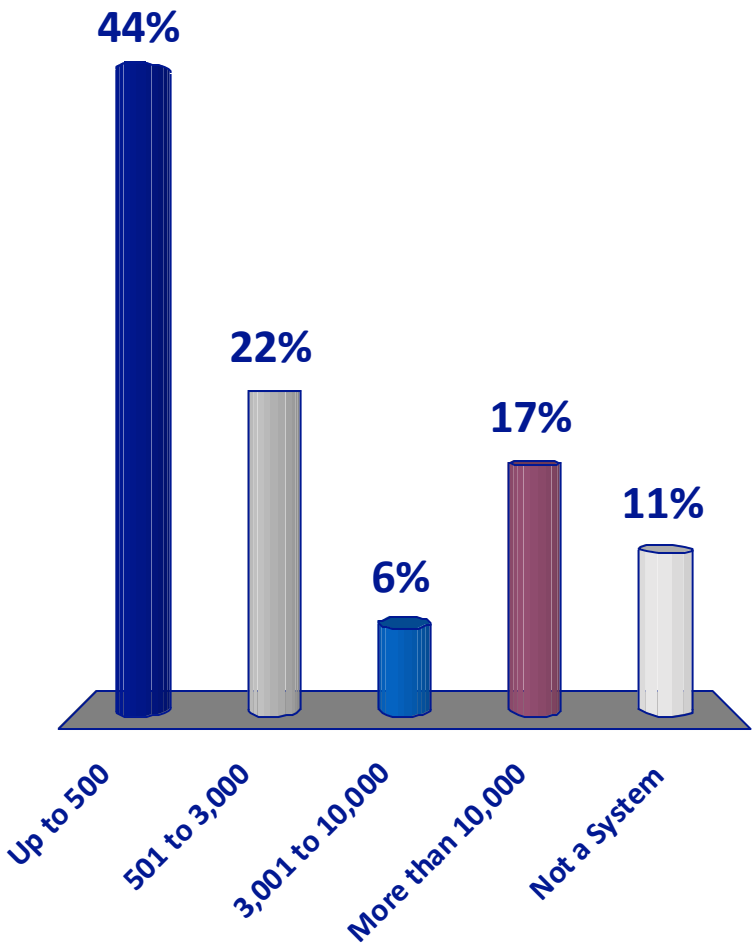
What type of system are you?

A. Local Government
B. Non-Profit
C. For-Profit
D. Other
E. Not a System



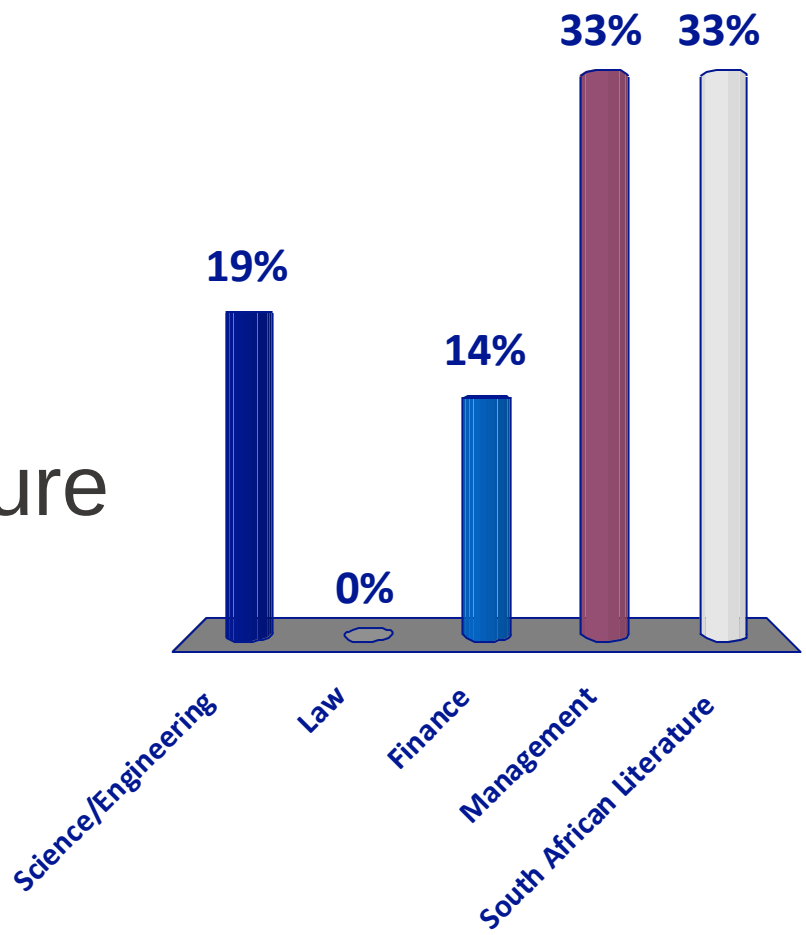
How many people do you serve?

A. Up to 500
B. 501 to 3,000
C. 3,001 to 10,000
D. More than 10,000
E. Not a System



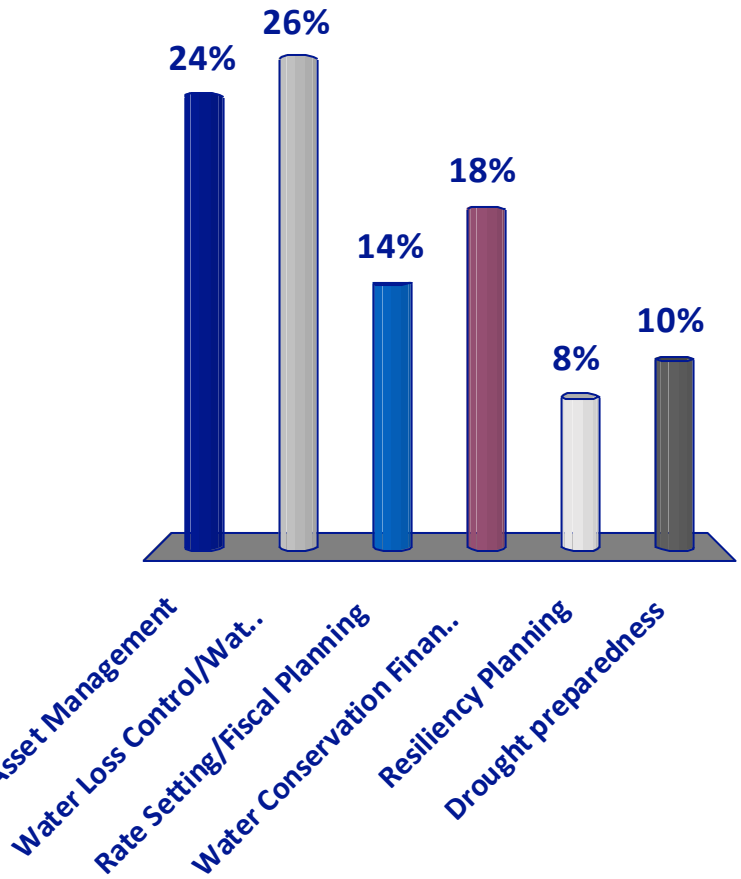
What is your background?

A. Science/Engineering
B. Law
C. Finance
D. Management
E. South African Literature



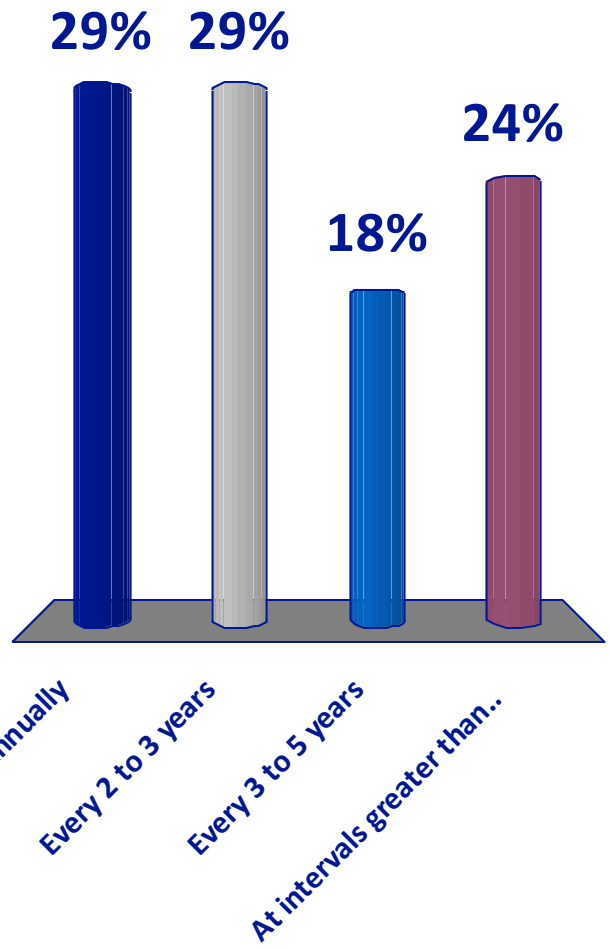
Have you attended training on...

A. Asset Management
B. Water Loss Control/Water Auditing
C. Rate Setting/Fiscal Planning
D. Water Conservation Finance and Management
E. Resiliency Planning
F. Drought preparedness



How often does your system review its rate structure & schedule?

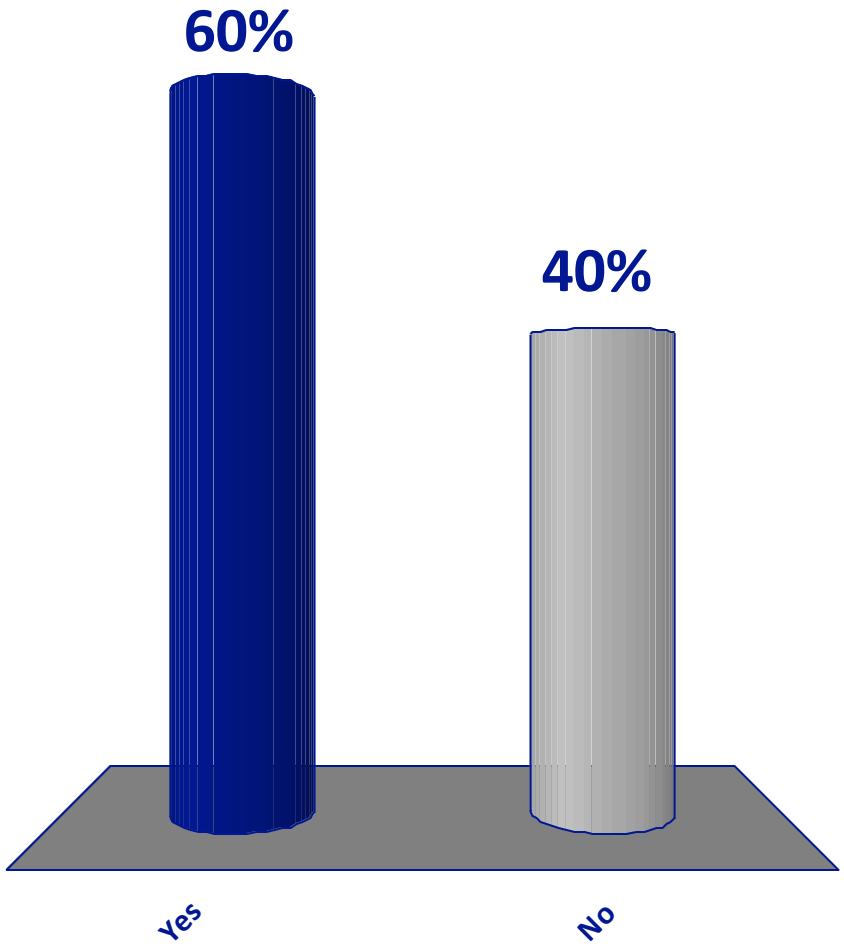
A. Annually
B. Every 2 to 3 years
C. Every 3 to 5 years
D. At intervals greater than 5 years



Does your system have an asset management program?

A. Yes

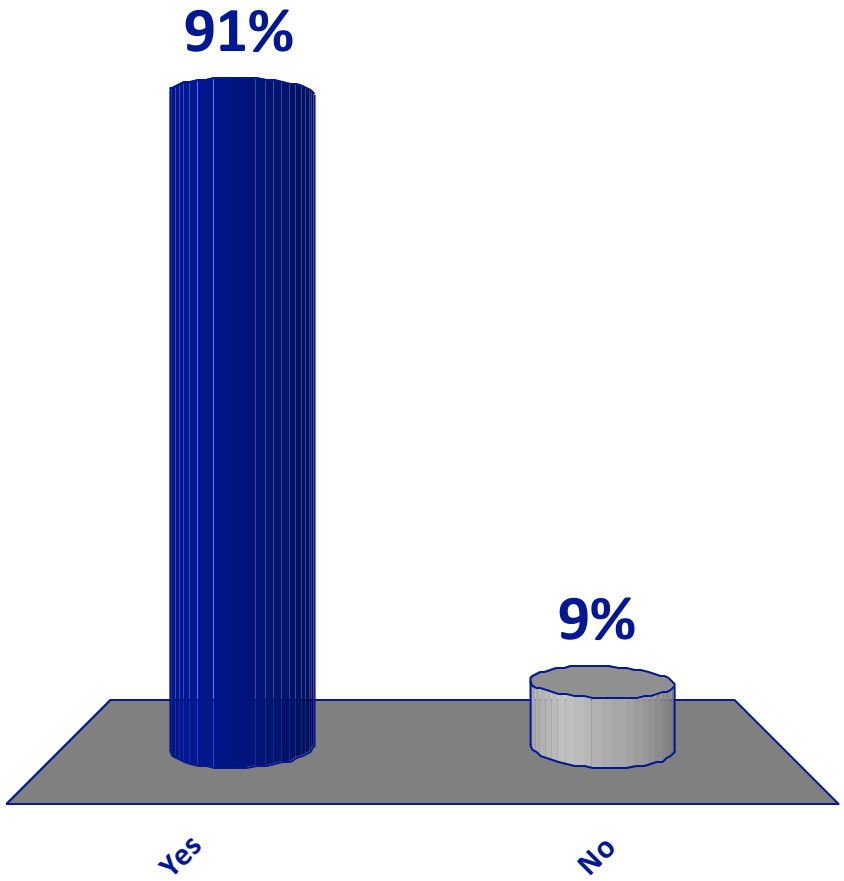
B. No



Have you started any asset management activities?

A. Yes

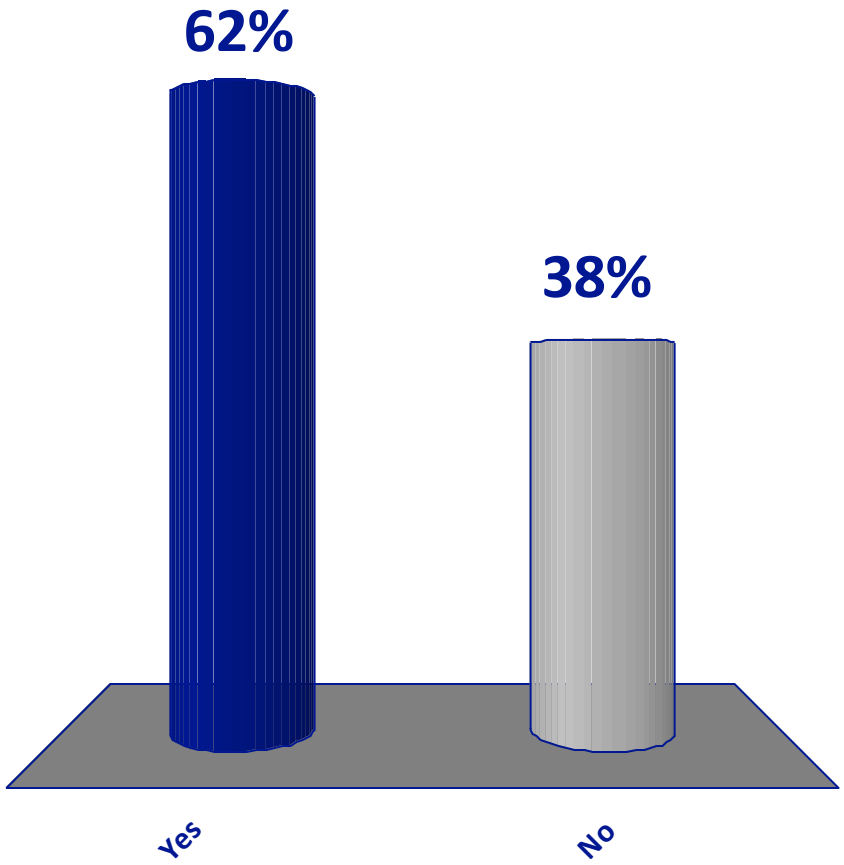
B. No



Does your system have an asset management plan?

A. Yes

B. No



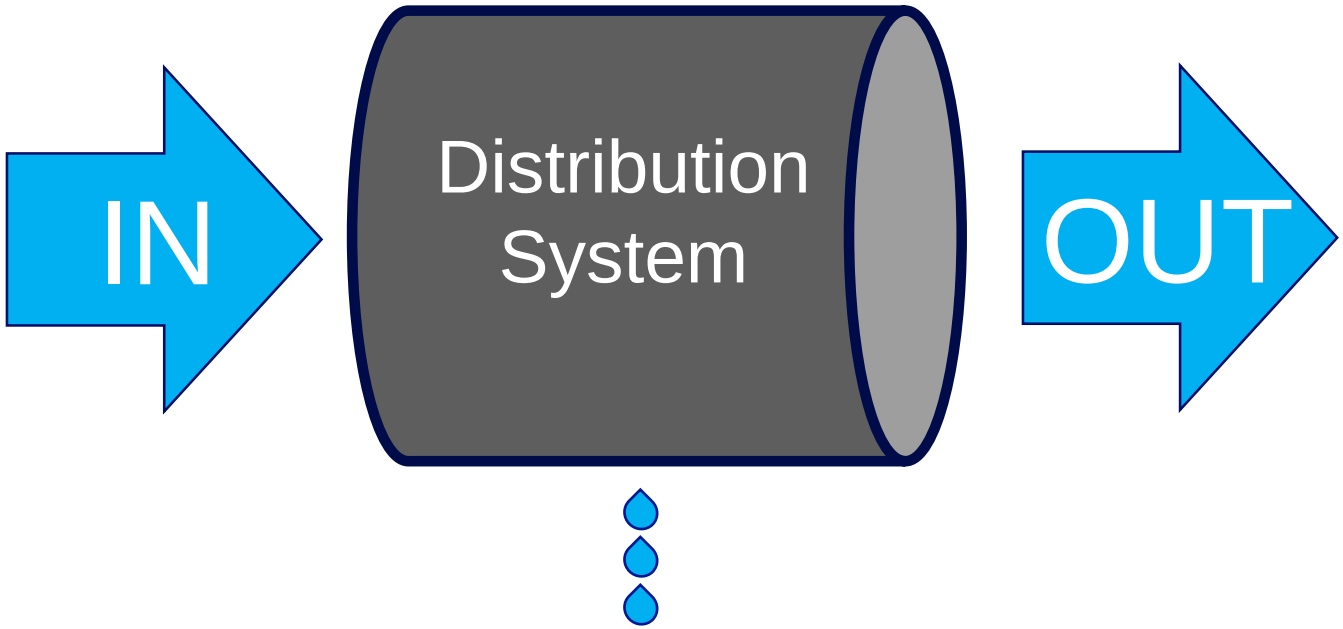
Funding Programs

A few words from your (potential) sponsors...

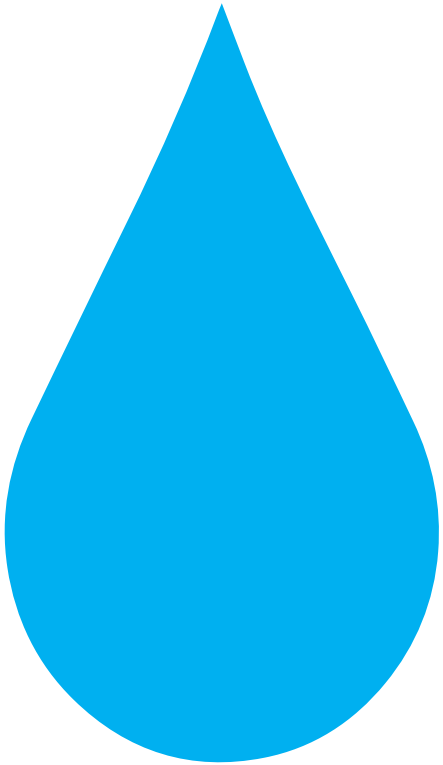
Background Basics

The things we know, or don’t know…

What goes in, Comes out… *Somewhere*



Either you're getting paid



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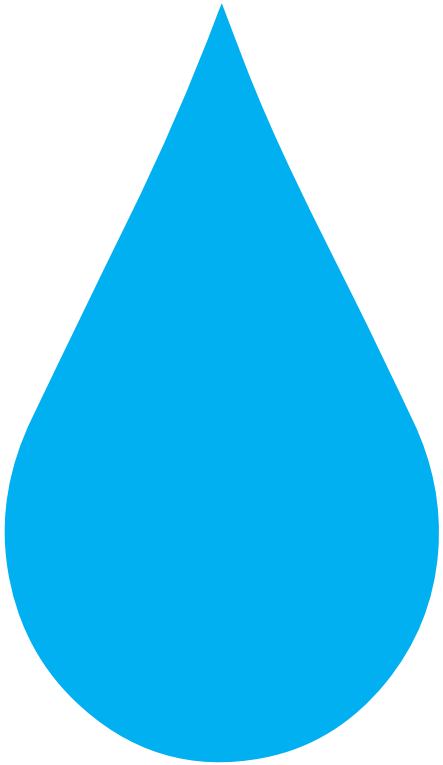
Or you're not



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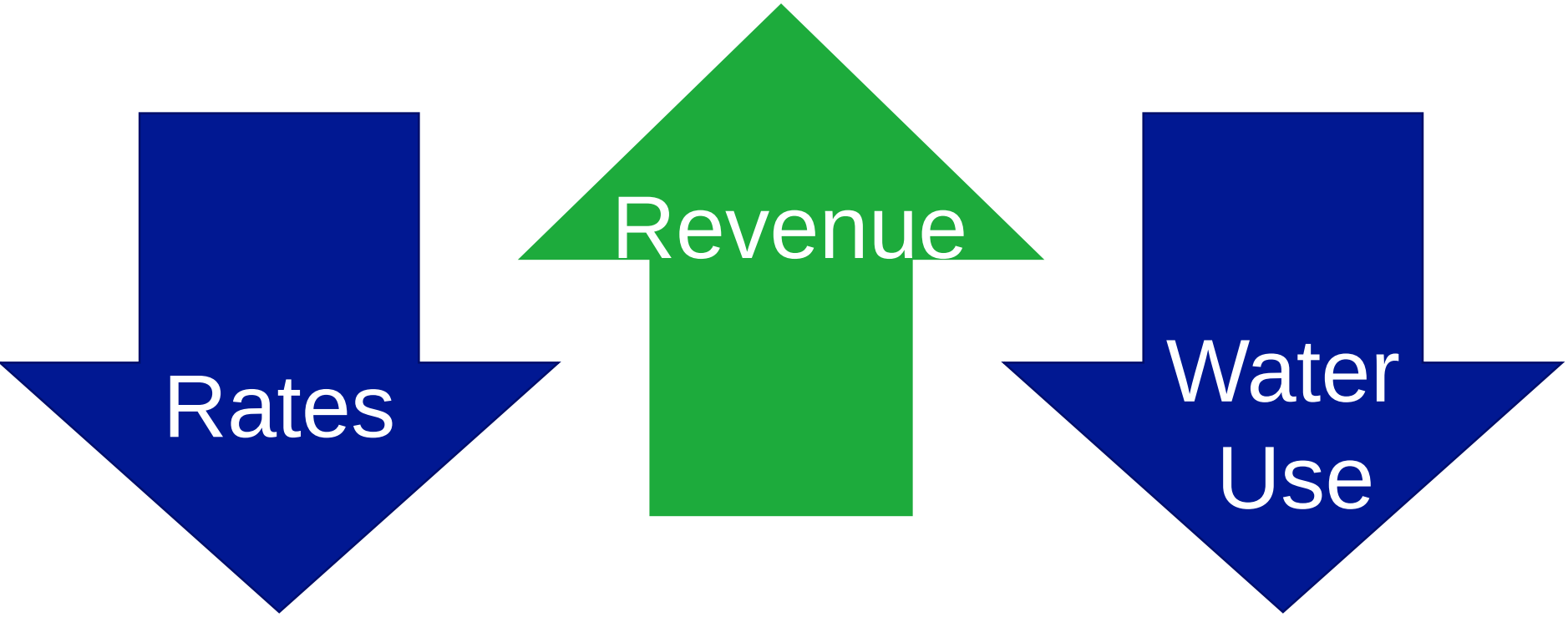
Competing Priorities



But are they <u>really</u> competing priorities?

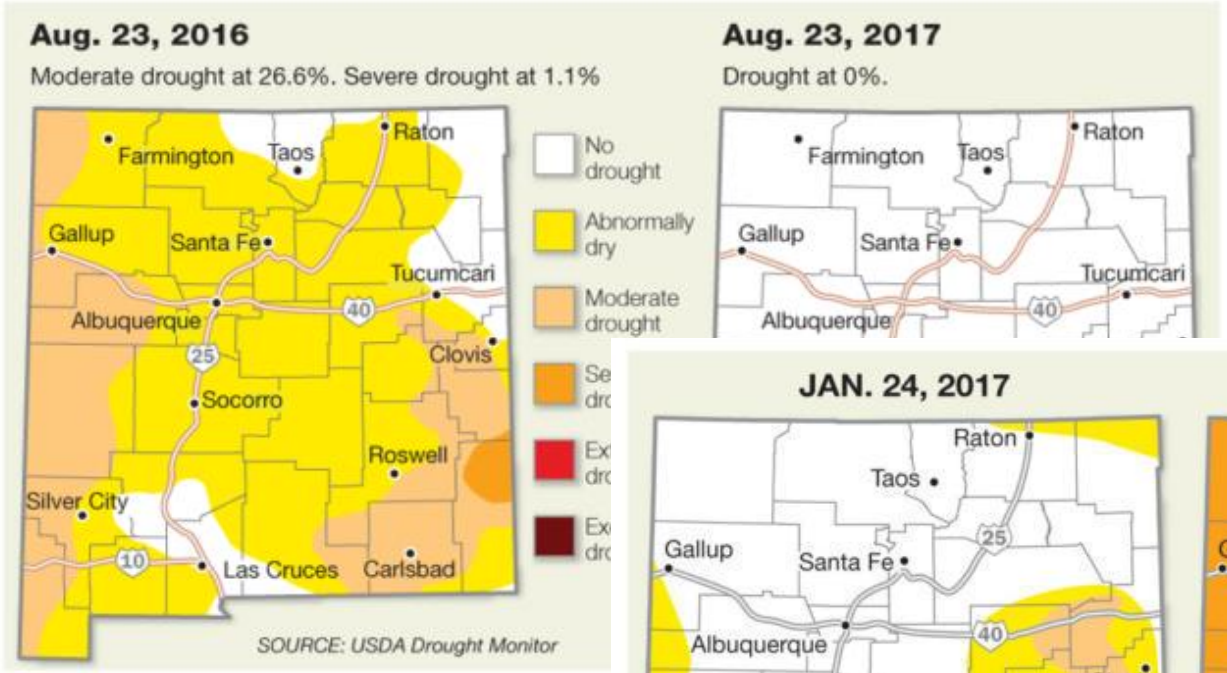
Or put more accurately…

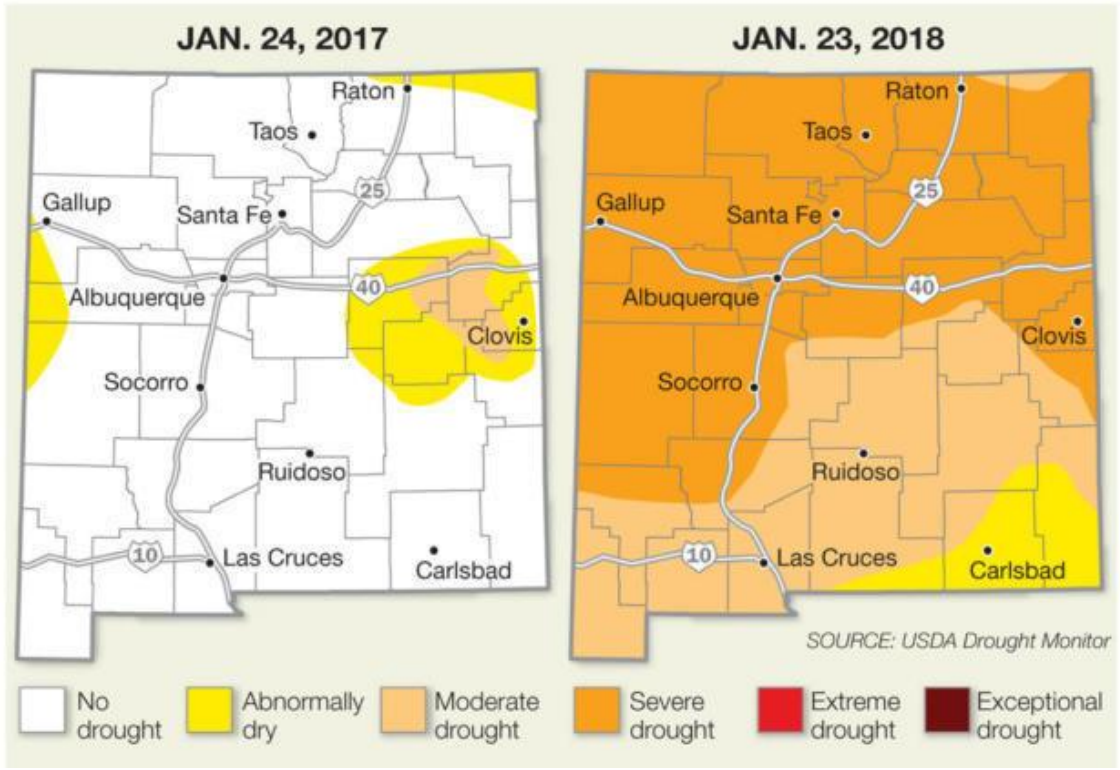
Do they have to be?

What will impact usage?

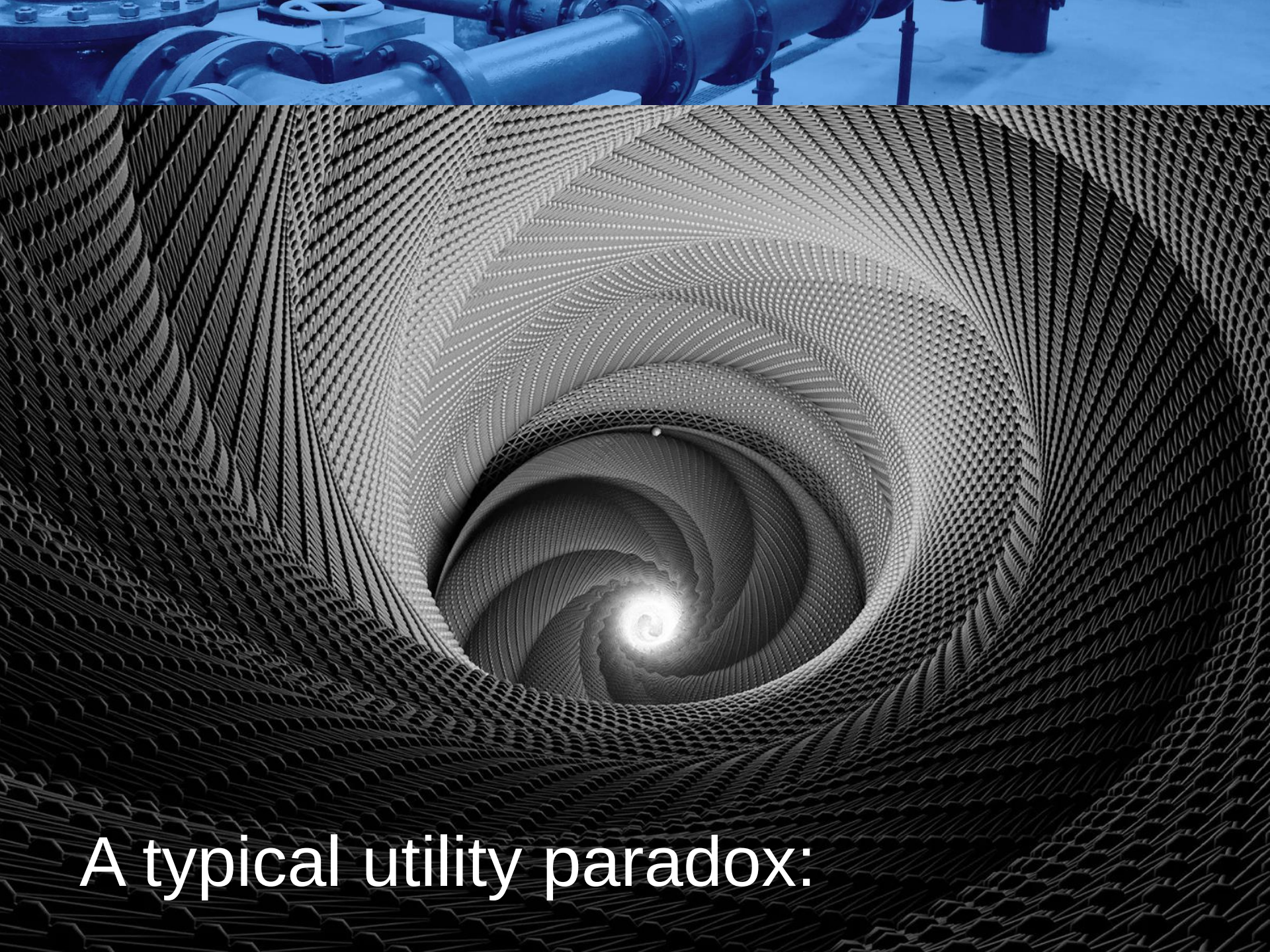
What will impact usage?


I
THE ECONOMY.
Downtown Heliport
BROOKLYN BATTERY TUNNEL
TRUCK ROUTE
LOCAL


Aug. 23, 2016
Moderate drought at 26.6%. Severe drought at 1.1%
Farmington
Taos
Raton
Gallup
Santa Fe
Tucumcari
Albuquerque
40
25
Clovis
Socorro
Roswell
Silver City
10
Las Cruces
Carlsbad
No drought
Abnormally dry
Moderate drought
SOURCE: USDA Drought Monitor
Aug. 23, 2017
Drought at 0%.
Farmington
Taos
Raton
Gallup
Santa Fe
Tucumcari
Albuquerque
40


JAN. 24, 2017
Raton
Taos
Gallup
Santa Fe
25
Albuquerque
40
Clovis
Socorro
Ruidoso
10
Las Cruces
Carlsbad
JAN. 23, 2018
Raton
Taos
Gallup
Santa Fe
25
Albuquerque
40
Clovis
Socorro
Ruidoso
10
Las Cruces
Carlsbad
SOURCE: USDA Drought Monitor
No drought
Abnormally dry
Moderate drought
Severe drought
Extreme drought
Exceptional drought

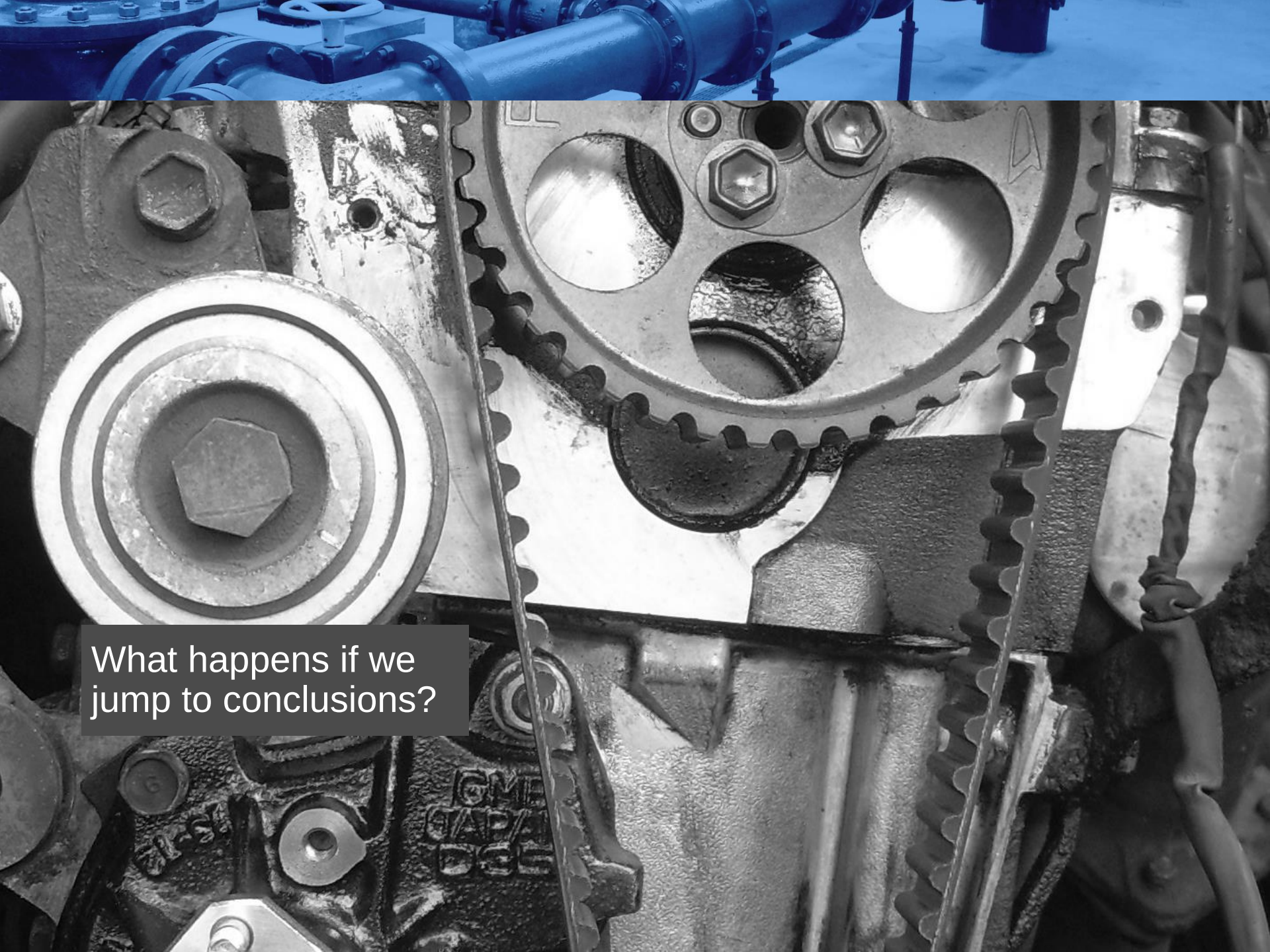
These last three point to:

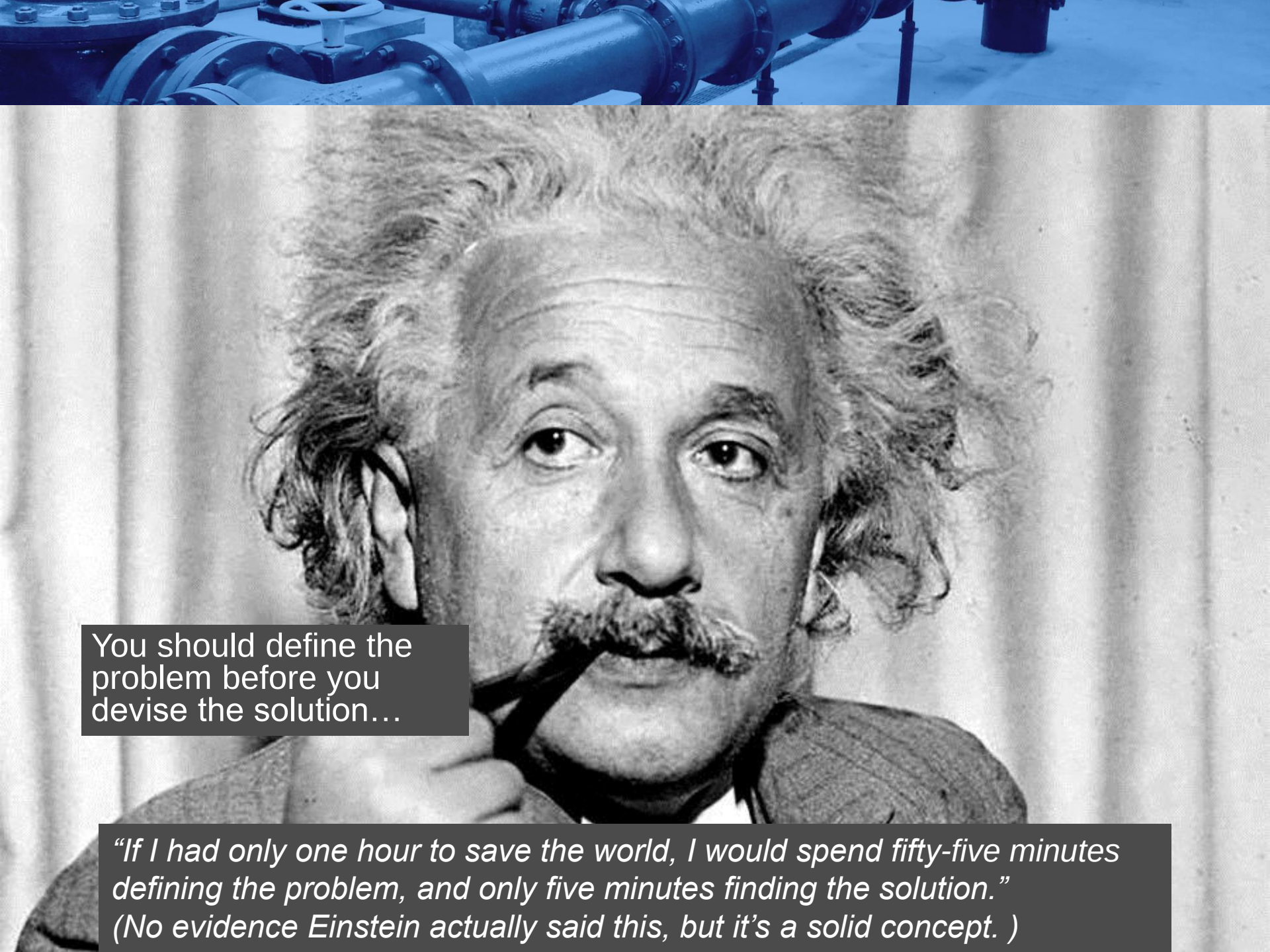


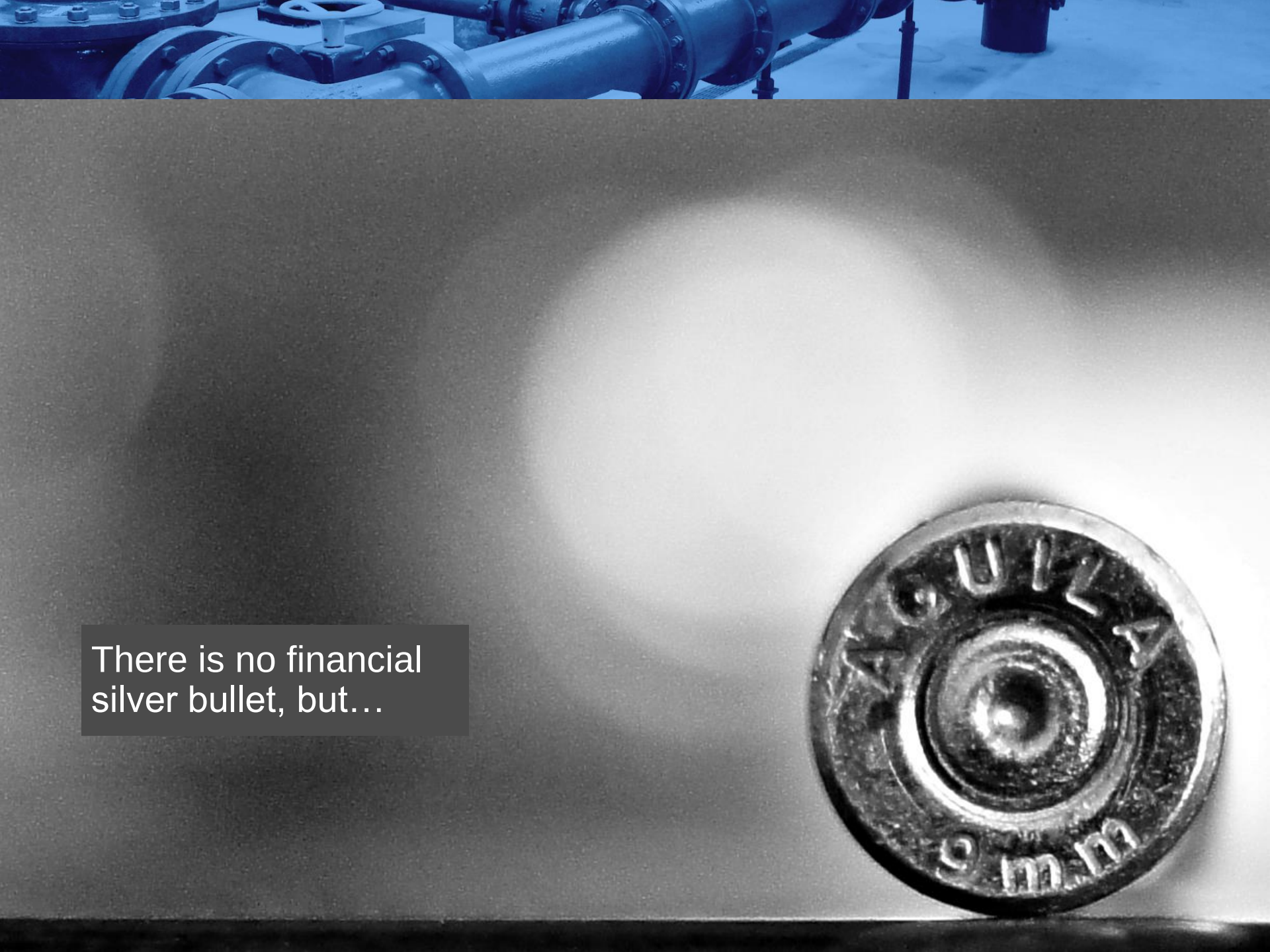
A typical utility paradox:

A BLUE & GREEN PROBLEM


DINOCAR
Imagine your car isn’t running well …


What happens if we jump to conclusions?


You should define the problem before you devise the solution…
“If I had only one hour to save the world, I would spend fifty-five minutes defining the problem, and only five minutes finding the solution.”
(No evidence Einstein actually said this, but it’s a solid concept.)


There is no financial
silver bullet, but…
AGUILA
9 m.m.


PAST
PRESENT
FUTURE

ENTER: AWWA WATER AUDIT SOFTWARE!

AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0

Click to access definition | Click to add a comment

Water Audit Report for: Northern San Leandro Combined Water Sewer Storm Utility District (0007900)

Reporting Year: 2013 (1/2013 - 12/2013)

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED				Master Meter Error Adjustments Pcnt:	Value:	
Volume from own sources:	5	1,000.000	MG/Yr	1	100.000	MG/Yr
Water imported:			MG/Yr			MG/Yr
Water exported:	1	100.000	MG/Yr	9	25.000	MG/Yr
WATER SUPPLIED:		**825.000**	MG/Yr			

Enter negative % or value for under-registration

Enter positive % or value for over-registration

AUTHORIZED CONSUMPTION				Pcnt:	Value:	
Billed metered:	8	700.000	MG/Yr			
Billed unmetered:	9	50.000	MG/Yr			
Unbilled metered:			MG/Yr			
Unbilled unmetered:		10.313	MG/Yr	1.25%		MG/Yr
AUTHORIZED CONSUMPTION:		**760.313**	MG/Yr			

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

Click here: for help using option buttons below

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption)				Pcnt:	Value:	
		64.688	MG/Yr			
Apparent Losses						
Unauthorized consumption:	10	3.000	MG/Yr		3.000	MG/Yr
Customer metering inaccuracies:	5	7.071	MG/Yr	1.00%		MG/Yr
Systematic data handling errors:	4	5.000	MG/Yr		5.000	MG/Yr
Apparent Losses:		**15.071**	MG/Yr			
Real Losses (Current Annual Real Losses or CARL)						
Real Losses = Water Losses - Apparent Losses:		**49.617**	MG/Yr			
WATER LOSSES:		**64.688**	MG/Yr			

Unauthorized consumption volume entered is greater than the recommended default value

NON-REVENUE WATER			
NON-REVENUE WATER:		**75.000**	MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

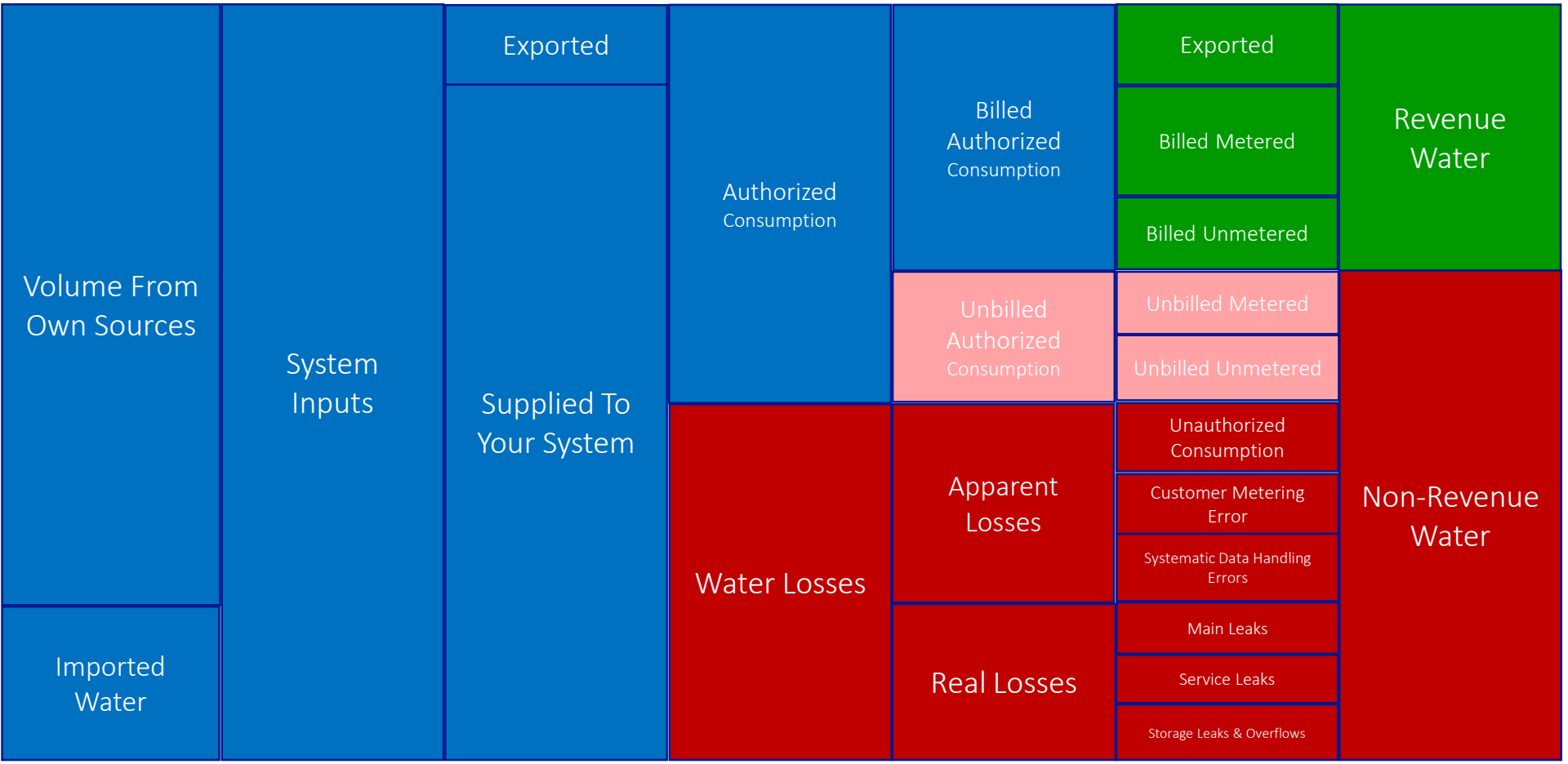
SYSTEM DATA				
Length of mains:	7	100.0	miles	
Number of active AND inactive service connections:	6	1,000		
Service connection density:		10	conn./mile main	
Are customer meters typically located at the curbstop or property line?		Yes		
Average length of customer service line:				(length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure:	6	60.0	psi	

COST DATA				
Total annual cost of operating water system:	5	$1,000,000	$/Year	
Customer retail unit cost (applied to Apparent Losses):	7	$3.50	$/1000 gallons (US)	
Variable production cost (applied to Real Losses):	7	$3,000.00	$/Million gallons	☐ Use Customer Retail Unit Cost to value real losses

Categorizing all inputs and outputs…



Water Auditing is part of your…


How can you increase revenue?

Some Low-hanging Fruit

Data Handling Errors ..

Missing accounts …

Utility Control Panel

Customers | Service Locations

Add New | View | Delete | View Inactive | Activity | **Notes** | Addt Meters | Audit Trail | **Order** Name | Filter | Columns | Labels

Account	Name	Active	Balance	Service No.	Street No	Service Address	Status	Group	Owner	Route	Stop
1987	218 E Steuben LLC	☑		25000.00	218	STEUBEN E			☑	1	80
2092	Alpine Veterinary	☑		31500.00	208	LINCOLN W			☑	1	860
1878	Aplin, Betty	☑		19000.00	409	ASH N			☑	1	2580
2078	Auto Suds Car Wash Center	☑		30805.00	10	TAYLORS WAY			☑	1	730
1606	Avila, Guadalupe	☑		1600.00	110	ELM N			☑	1	2920
1586	Avila, Ramon	☑		500.00	408	STEUBEN E			☑	1	3190
2036	BNSF Railway Co.	☑		28400.00	313	DEPOT W			☑	1	380
1797	Baker, Dan	☑	42.50	13700.10	314	HUMBOLDT E			☐	1	1300
1765	Barajas, Jose Luis C	☑	77.75	11300.10	113	WALNUT N			☑	1	2480
1725	Barnes, Roy	☑		8600.00	120	HUMBOLDT W			☑	1	1180
1883	Barrier, Mike	☑	81.15	19200.60	408	OAK N			☑	1	3350
1942	Baumgarden, Harvey L	☑	66.50	22100.10	532	LINCOLN W			☑	1	2350
2315	Baumgarden, Harvey L	☑	22.25	22100.00	534	LINCOLN W			☑	1	
1870	Beeks, Gary & Teresa	☑		18300.00	201	JEFFERSON W			☐	1	1990
2056	Bell Design	☑		29800.10	1000	STEUBEN E			☑	1	530
2042	Beneventi's Pizza	☑		28900.10	201	STEUBEN W			☑	1	430

Account Info

Dba Wyers, Haskell, Davies & Dunr
PO Box`
Your Town/City, OR 99999

Phone 1 (555) -55-55
Phone 2 (555) -55-55
Fax (555) -55-55
Alt Name
E Mail

Water

Class: 2 3/4 INCH
Units: 1
Other:
Winter Usage:

Sewer

Class: 2 COMMERCIAL INSID
Units: 1
Other:
EWU:

Garbage

Class: 99
Xtra: 1 Ex Con:
Other:
Pickup: Garb Acct:

Electric

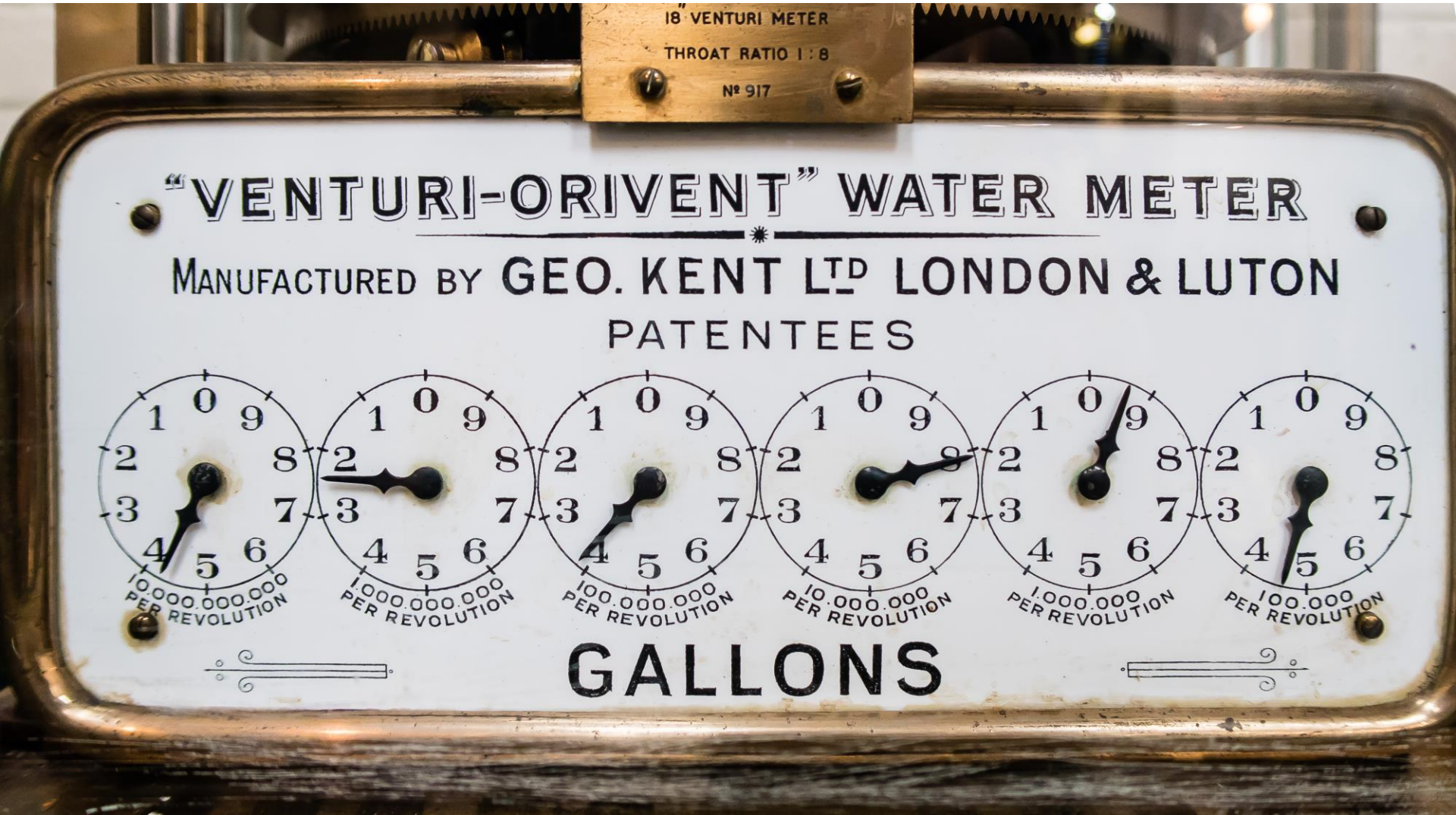
Class:
Units:
Other:

Settings

☐ Paperless
☐ Dormant
☐ Use Alternate
☐ In Collections ☐ Cass Certified
Began
Ended
Deposit: 0.00
Print Class

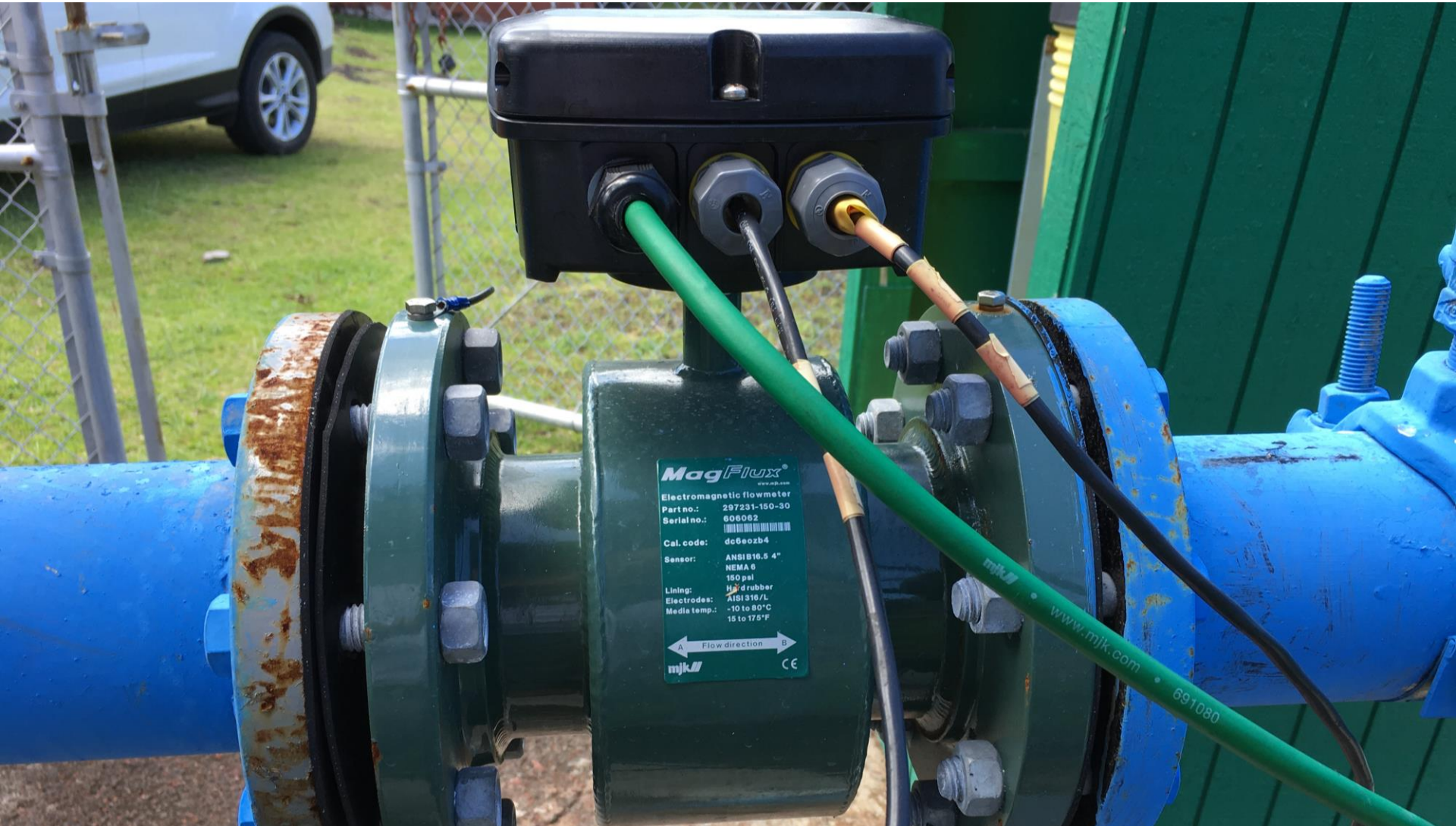
☐ Count Records

Meter under reads …

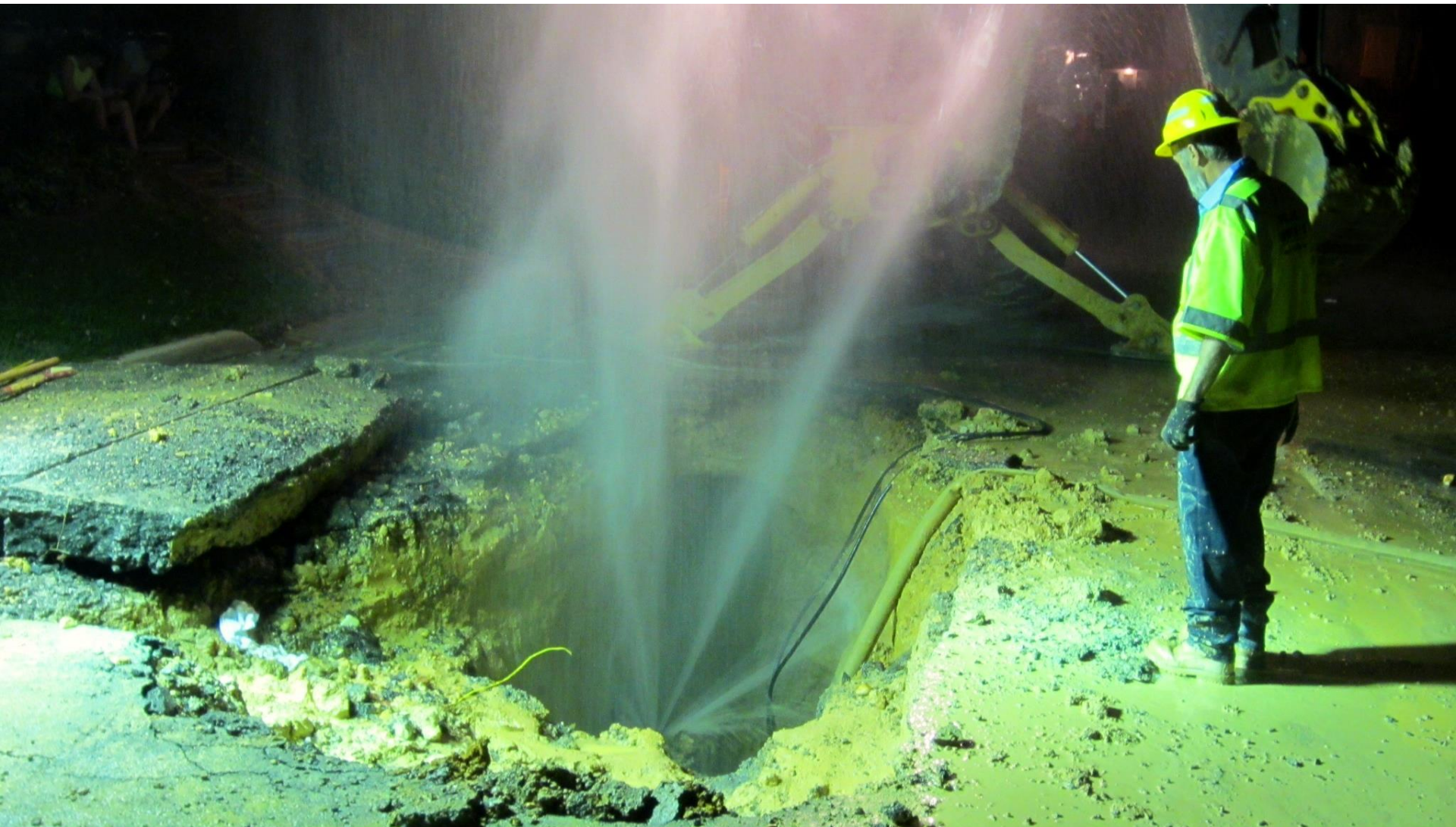


Re-assessing free water

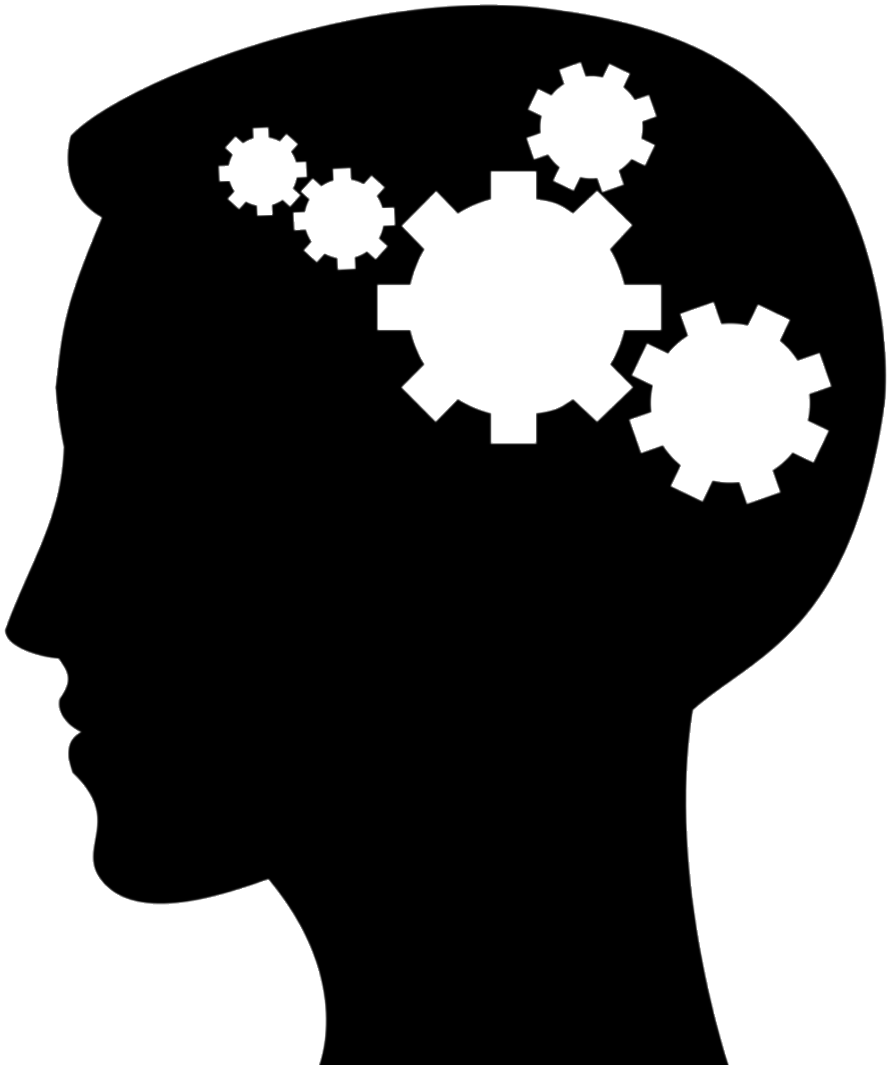
Faulty equipment = faulty data…



Repair times …



But, that might not be enough, so



…your system's condition

capacity…

short, medium and long term…


CUSTOMER

framework
metrics
measurement
definition
finance
resources
key
individual
important
directional
process
team
amount
organization
sales
goal
teamwork
achievement
potencial
success
validation
customer satisfaction
performance
strategic
leading
marketing
consumption
balanced
scorecard
management
future
productivity
validation

Asset Management

ASSETS

What assets do you manage, where are they, what condition are they in, what is their useful life, how much are they worth, and what is their energy use?

CRITICALITY

What is the overall business risk based on probability and consequence of asset failure? Is there redundancy to reduce risk?

FUNDING

Do you have funding sources to provide the capital you need for O&M, capital replacement and energy efficiency improvement?

SERVICE LEVEL

What level of service do you want to provide for your customers? How will you measure performance?

LIFE CYCLE

Is there a strategic plan for operating and maintaining system assets? Is a process, based on risk, in place to determine when to repair, rehabilitate or replace assets? Are you considering energy efficiency?

Funding:

You need adequate financing to sustainably operate the utility.

You must include financing for operating, maintaining, repairing, rehabilitating, and replacing utility assets.

Level of Service:

Determining what you want your assets to do sets the overall policies, goals, and procedures for the organization; and communicating that to your customers.

Water is like IT….

Are your defined goals SMART?

SPECIFIC

MEASURABLE

ATTAINABLE

REALISTIC

TIME BOUND

Life Cycle Costing:

Knowing what O&M activities should be done on which assets.

Knowing what is essential for sustainable operations.

Given limited financial resources, knowing the most appropriate assets to repair, rehab or replace.

Asset Management

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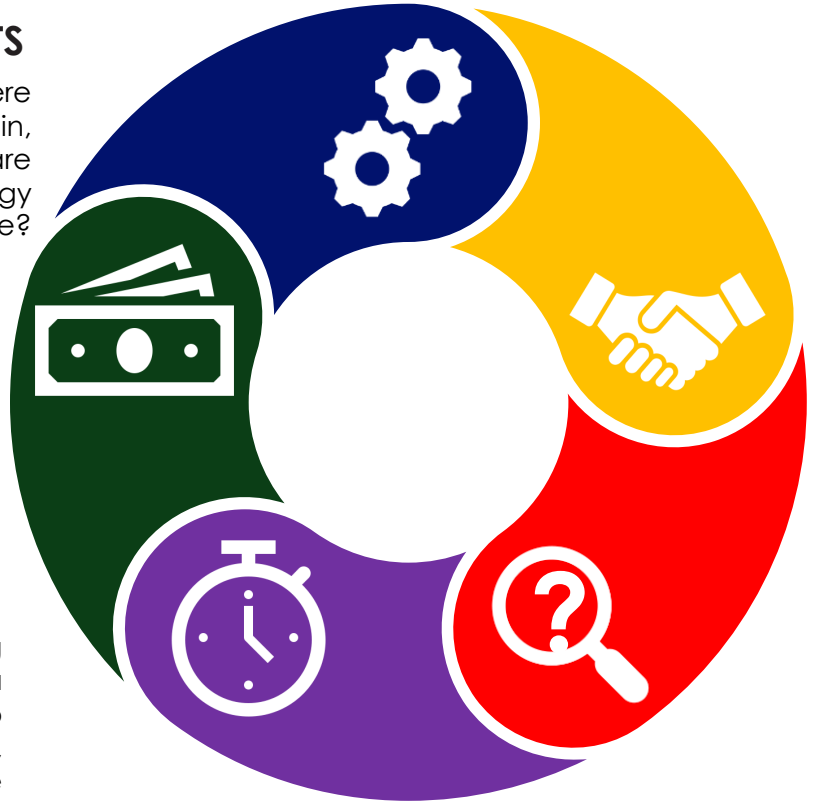

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