Smart Management for
Small Water Systems

Setting the Right Rates for Your Water System

Pineville, LA
May 9, 2019

UNC ENVIRONMENTAL FINANCE CENTER

EFCN environmental finance center network

NADO RESEARCH FOUNDATION
NATIONAL ASSOCIATION OF DEVELOPMENT ORGANIZATIONS

Government Finance Officers Association

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

Workshop Objectives

- Understand common rate setting objectives for water systems
- Learn how to structure rates to meet those objectives
- Provide forum for sharing finance and management perspectives, ideas, and experiences

Housekeeping and Introductions

Water Operator CEUs

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 provide your water system operator number?

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 *Smallsystem@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 *Smallsystem@syr.edu*

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919-962-2785
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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 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

EFC West, Environmental Finance Center West

University of Maryland Environmental Finance Center

New England Environmental Finance Center

Great Lakes Environmental Infrastructure Center, Environmental Finance Center for EPA Region 5

Government Finance Officers Association

NADO Research Foundation

Areas of Expertise

- Asset Management
- Rate Setting and Fiscal Planning
- Leadership Through Decision-making and Communication
- Water Loss Reduction
- Energy Management Planning
- Accessing Infrastructure Financing Programs
- Workforce Development
- Water Conservation Finance and Management
- Collaborating with Other Water Systems
- Resiliency Planning
- Managing Drought

This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement A18-0408-001 to the University of North Carolina at Chapel Hill. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document.

UNC | SCHOOL OF GOVERNMENT

Environmental Finance Center

Supporting fair, effective, and financially sustainable delivery of environmental programs through:

- Applied Research
- Program Design and Evaluation
- Teaching and Outreach
- Advising
- Policy Analysis

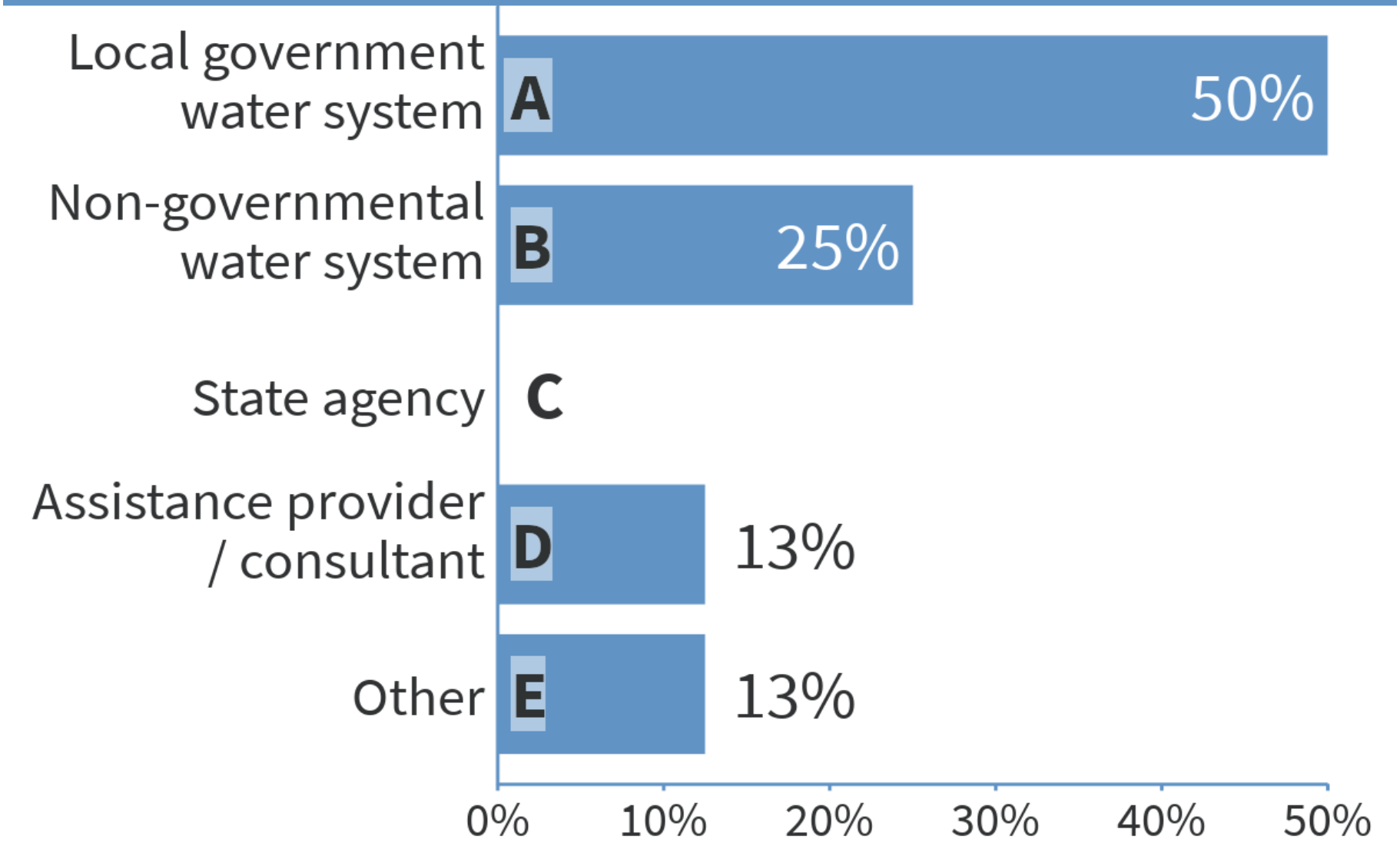
How you pay for it matters

Environmentalfinance.org

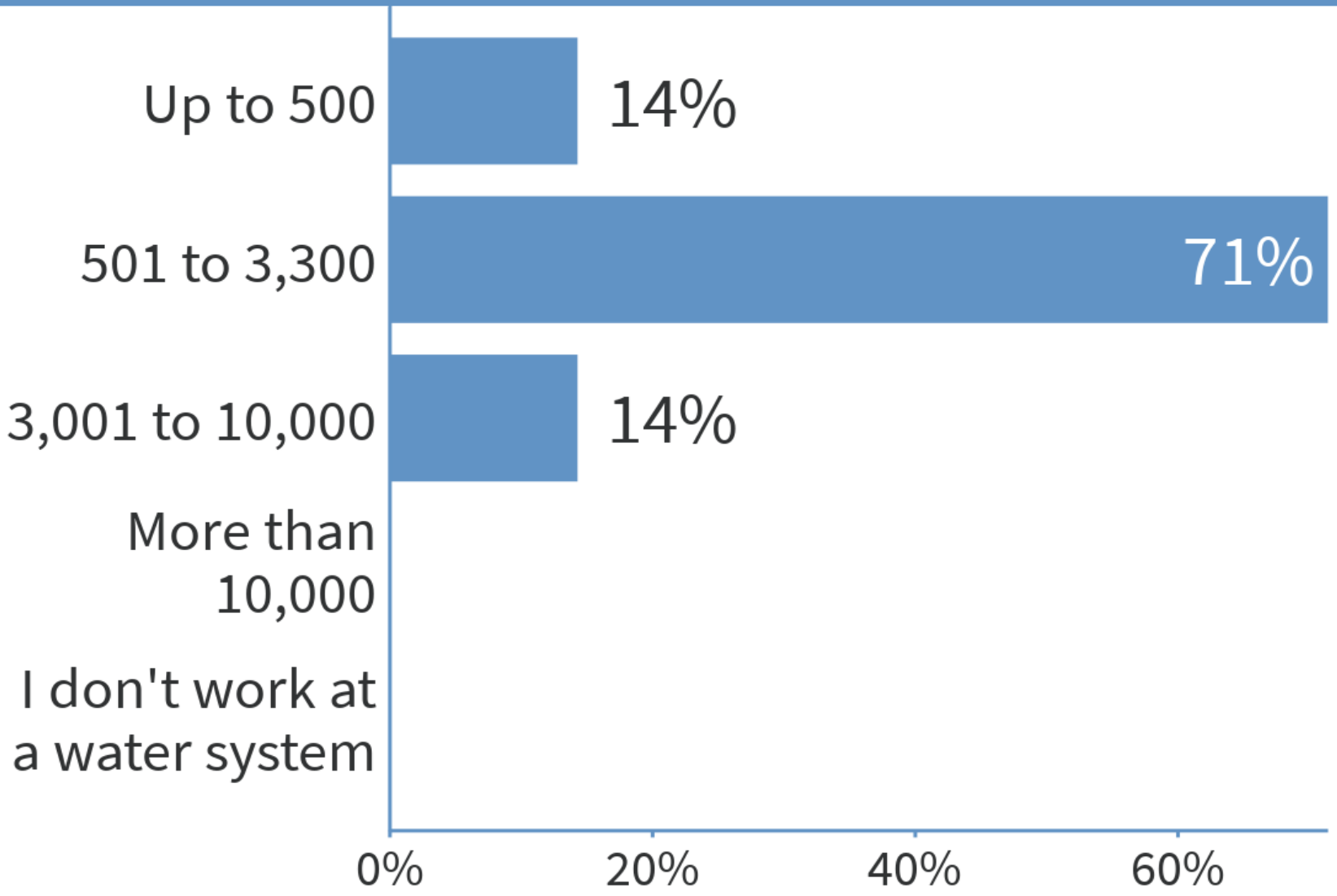
Quick Introductions

1. Name, organization, title?
2. Details on your water system
3. What are you most proud of at your water system?
4. What is your biggest issue?

What organization do you work for?



How many people do you serve?



Agenda

- A little about infrastructure funding programs
- Rate setting objectives
- Calculating costs for your water system
- Setting rates that cover the full cost of operations
- Achieving other rate objectives

Funding Programs

Funding programs in LA

Louisiana Water and Wastewater Funding Sources

Compiled by the Environmental Finance Center Network, May 2019

Organization	Program *(key words)*	Gov. Entity	Non-Profit	For-Profit	Purpose or Use of Funds	How to Apply	Website	Contact
Louisiana Department of Health	Drinking Water Revolving Loan Fund (DWRLF) *(water)*	✓			This program provides low-interest loans for construction of eligible water system projects to upgrade treatment facilities to meet current and future regulatory requirements designed to protect public health and to rehabilitate and/or replace aging infrastructure. Green Project Reserve funds have to be used toward projects that address green infrastructure, water and/or energy conservation and efficiency, or other environmentally innovative activities. Principal forgiveness granted to recipients when it is available.	Applications are accepted at any time by submitting appropriate application forms to the program staff. Applications and guidelines can be accessed on website.	http://dhh.louisiana.gov/index.cfm/page/431/n/285	Joel.Mckenzie joel.mckenzie@la.gov 225-342-7499 P.O. Box 4489 Baton Rouge, Louisiana 70821
Louisiana Department of Environmental Quality	Clean Water State Revolving Fund (CWSRF) *(sewer)*	✓			Louisiana's Clean Water State Revolving Fund loan program offers low-interest loans to communities for construction or upgrade of wastewater treatment works and other water quality improvement projects.	To apply, a pre-application and Louisiana Water/Wastewater Joint Funding Committee Intent to File Application must be completed prior to submitting a CWSRF application. Forms can be accessed on website.	http://deq.louisiana.gov/page/clean-water-state-revolving-fund	Sierra Trabeau sierra.trabeau@la.gov 225-219-3871 P.O. Box 4314 Baton Rouge, Louisiana 70821
U.S. Environmental Protection Agency	Water Infrastructure Finance and Innovation (water, wastewater)	✓	✓	✓	The Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) established the WIFIA program, a federal credit program administered by EPA for eligible water and wastewater infrastructure projects. The WIFIA program offers loans with low, fixed interest rates and flexible financial terms. The minimum project size for small communities, population of 25,000 or less, is $5 million.	The WIFIA application process is two phases. Prospective borrowers must submit a letter of interest for their project to the WIFIA program by the announced annual deadline. For each selected projects, the prospective borrower may submit an application, negotiate loan terms, and close its loan. Please check the WIFIA website for more information about program deadlines.	https://www.epa.gov/wifia	Karen Fligger wifia@epa.gov 202-564-2992 1200 Pennsylvania Avenue, Northwest Mailcode 4201T Washington, District of Columbia 20460
USDA Rural Development	Waste and Water Disposal Direct Loans and Grants *(water, sewer)*	✓	✓		The purpose of this program is to develop water and waste disposal systems in rural areas with populations less than 10,000. Fixed, low interest rates. Repayment - up to 40 years. Grants may be available.	Applications are accepted on a rolling basis. Paper applications are accepted, or applicants can register for and use RD Apply. Information is available here: http://www.rd.usda.gov/programs-services/rd-apply	http://www.rd.usda.gov/programs-services/water-waste-disposal-loan-grant-program/la	Jared Hicks jared.hicks@usda.gov 318-473-7920 3727 Government Street Alexandria, Louisiana 71302
	Water and Waste Disposal Guaranteed Loan Program *(water, sewer)*	✓	✓		The purpose of this program is to provide a loan guarantee for the construction or improvement of water and waste disposal projects serving the financially needed communities of rural areas. This is achieved through bolstering existing private credit structure through the guarantee of quality loans. Guarantees up to 90% available to eligible lenders.		http://www.rd.usda.gov/programs-services/water-waste-disposal-loan-guarantees/la	

Infrastructure Funding Programs

LA Dept. of Envr. Quality

RCAP
Rural Community Assistance Partnership

SBA

40 Years
CDBG
Building Better Neighborhood

CoBANK

LA Dept. of Health

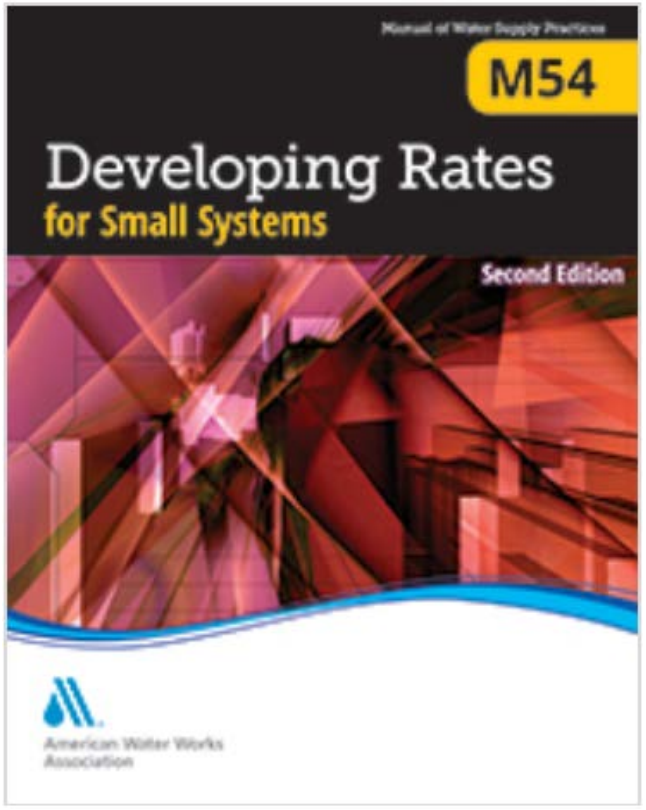
USDA

EDA
U.S. ECONOMIC DEVELOPMENT ADMINISTRATION

NRWA

Delta Regional Authority

“Accredited Rate Study” for Delta Regional Authority Funding



M54 Manual by AWWA

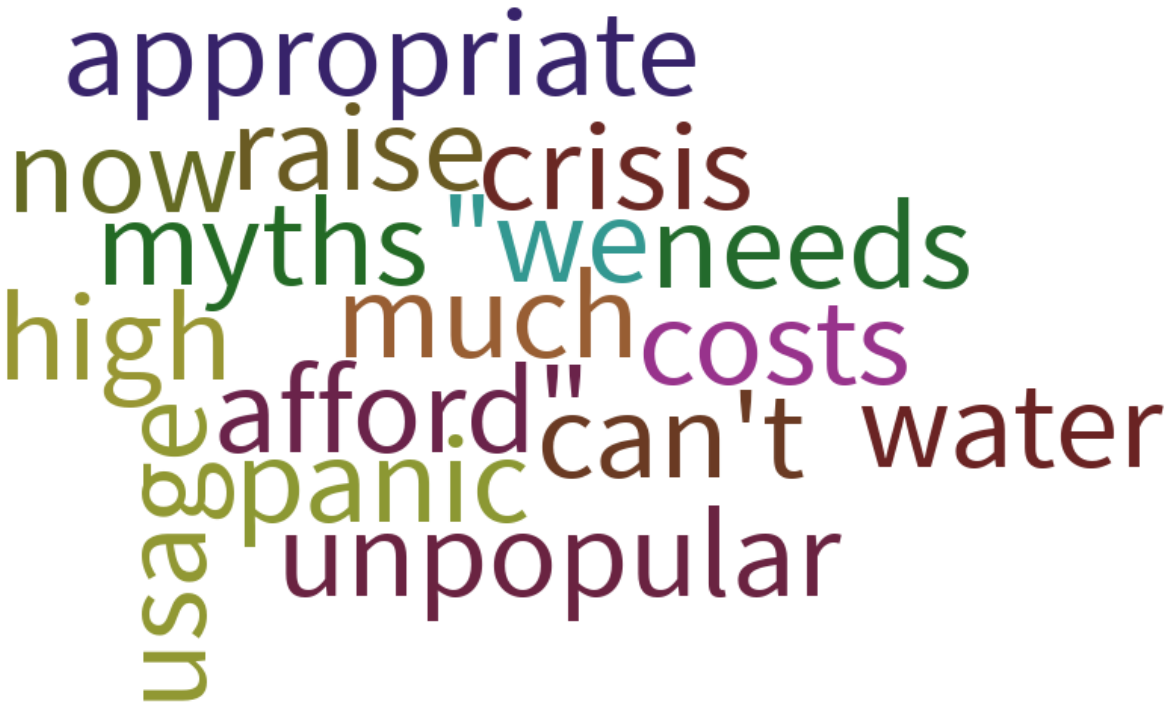
1. Determine customer accounts and usage data
2. Project costs, and revenue needs and reserve targets
3. Consider alternative plans for revenue adjustments
4. Decide on appropriate rate structure design
5. Price out rates

Rate Setting Objectives

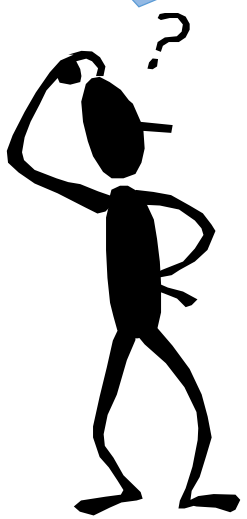
Session Objectives

- Introduce “right” rates
- Understand common types of rate setting objectives
- Learn how to match rate structure elements with rate setting objectives

What single word comes to mind when you hear 'water rates'?



Are our rates right?



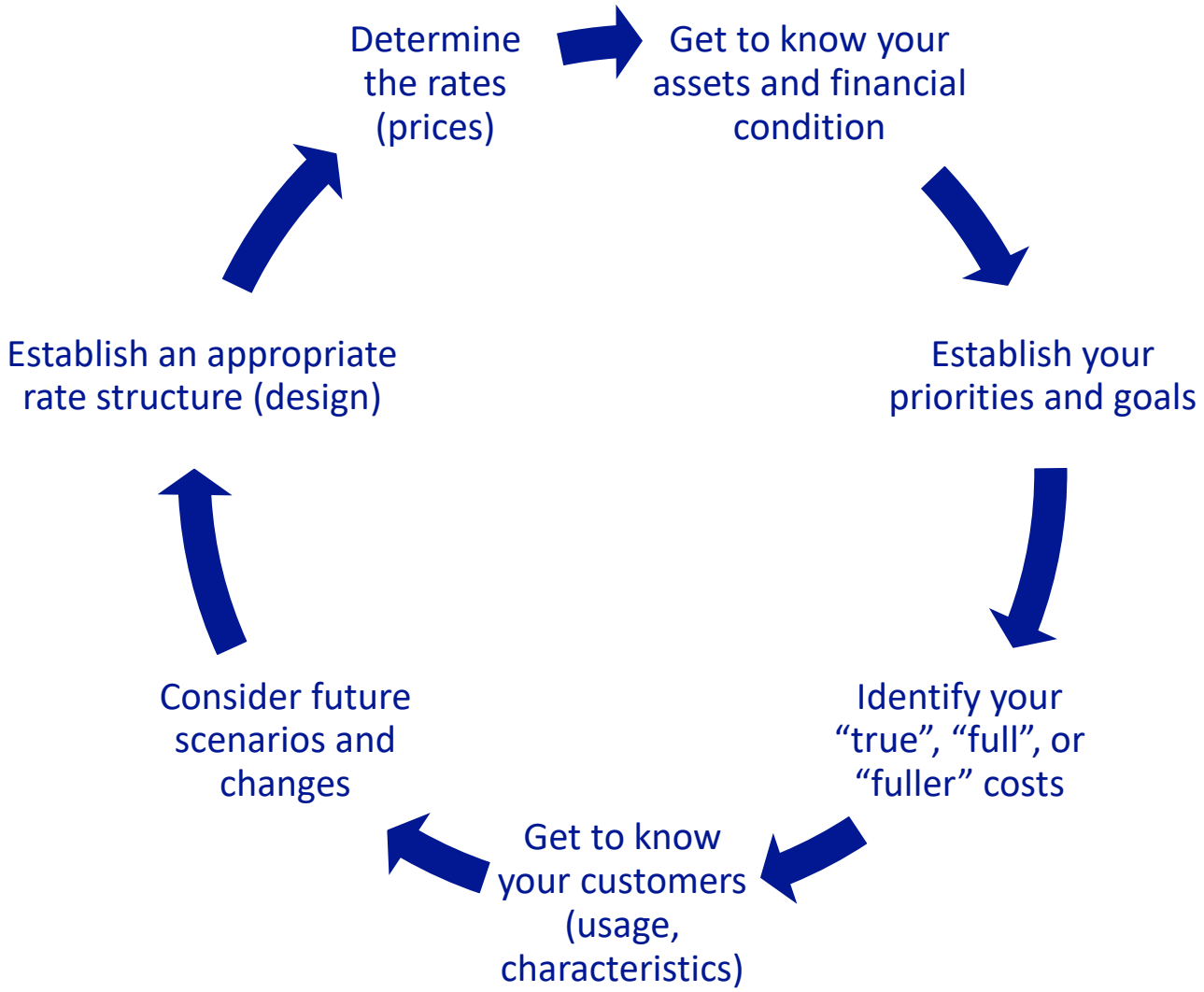
It depends...

EFCN
environmental finance center network

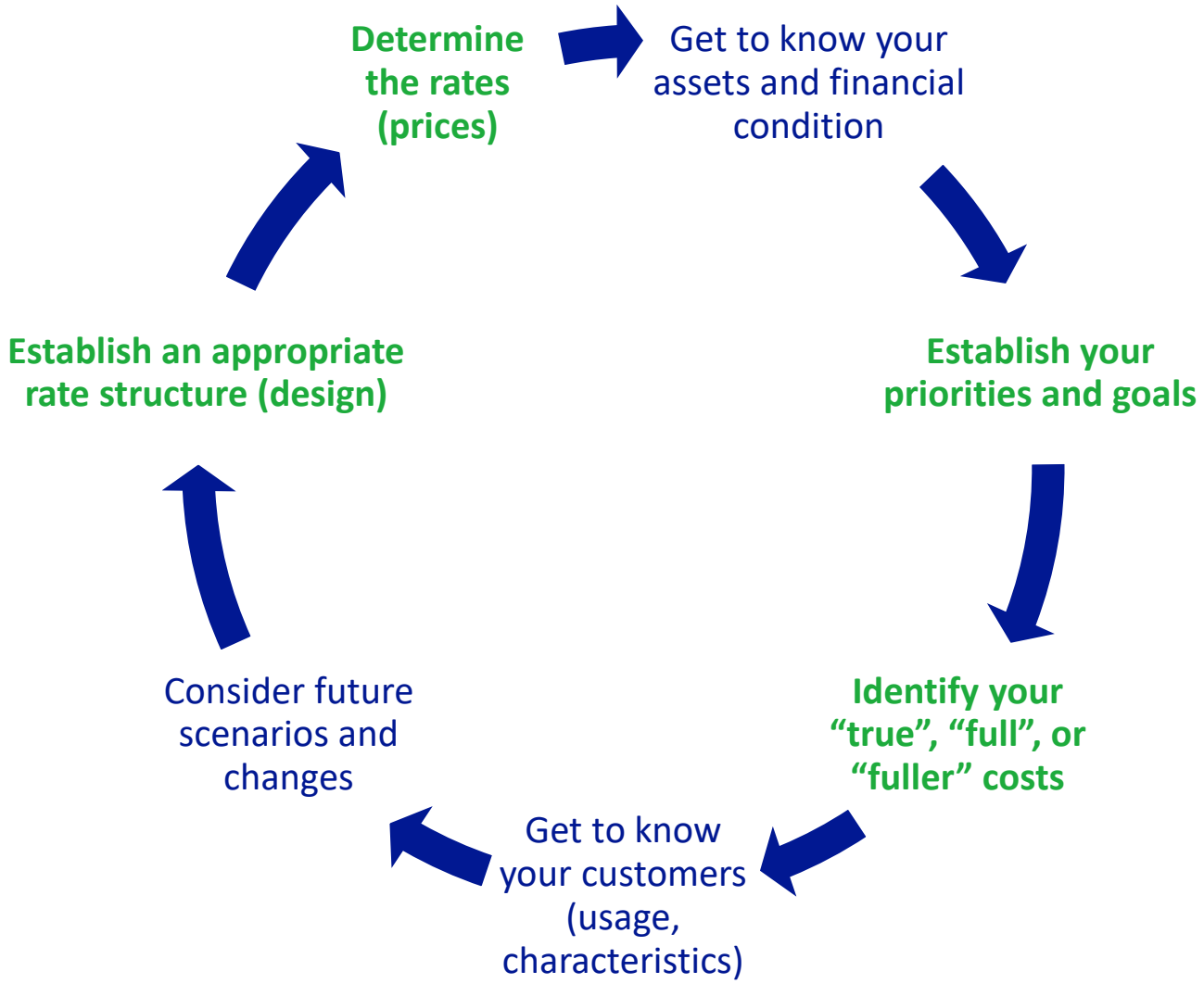
Rates that are “right” can:

- ✓ Provide adequate funds to support public health
- ✓ Provide adequate funds to support environmental protection
- ✓ Support local and state policies and objectives
- ✓ Communicate in a certain way with customers
- ✓ Allocate costs in an intentional and fair way

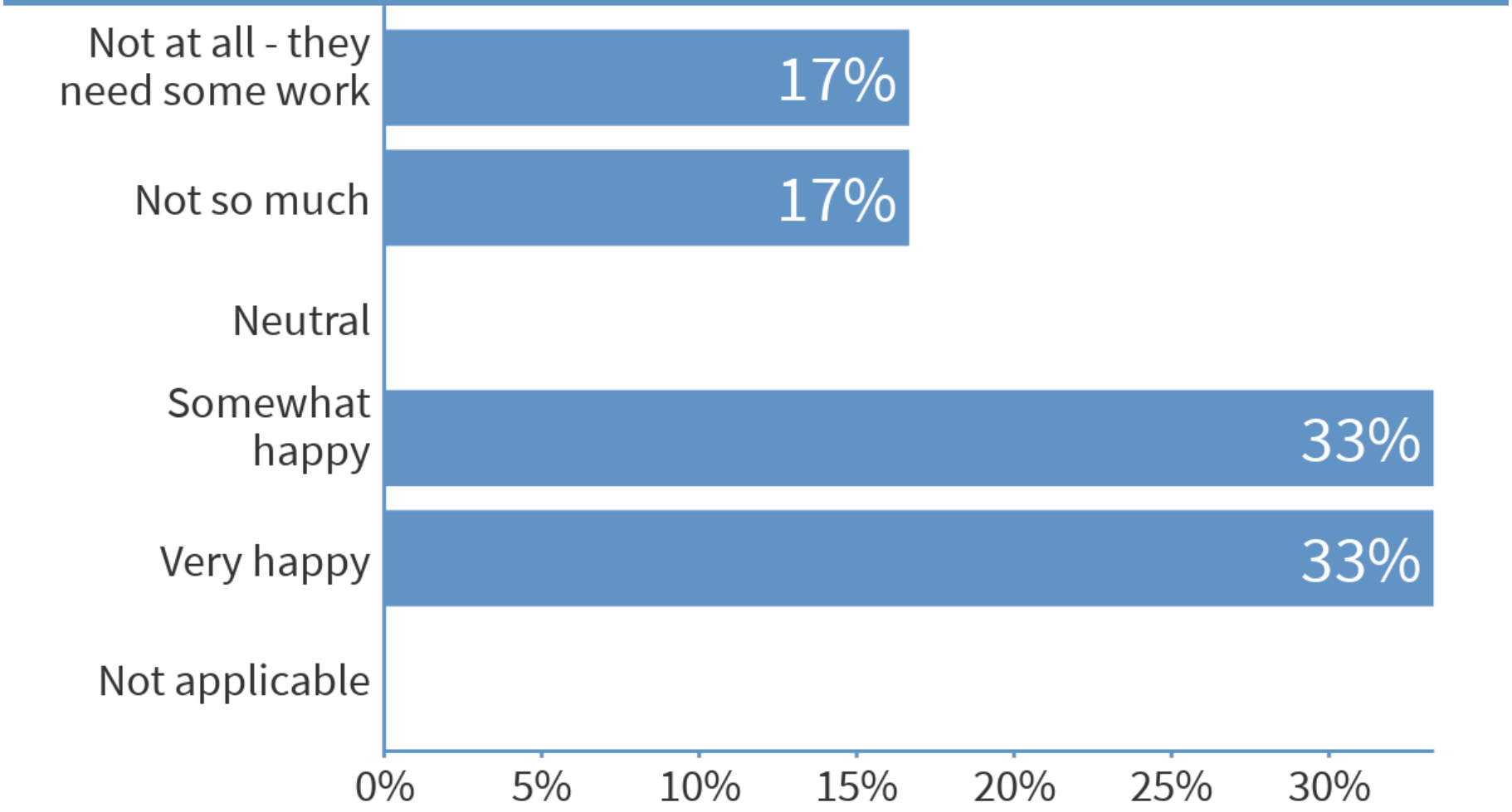
Path Towards Financial Sustainability



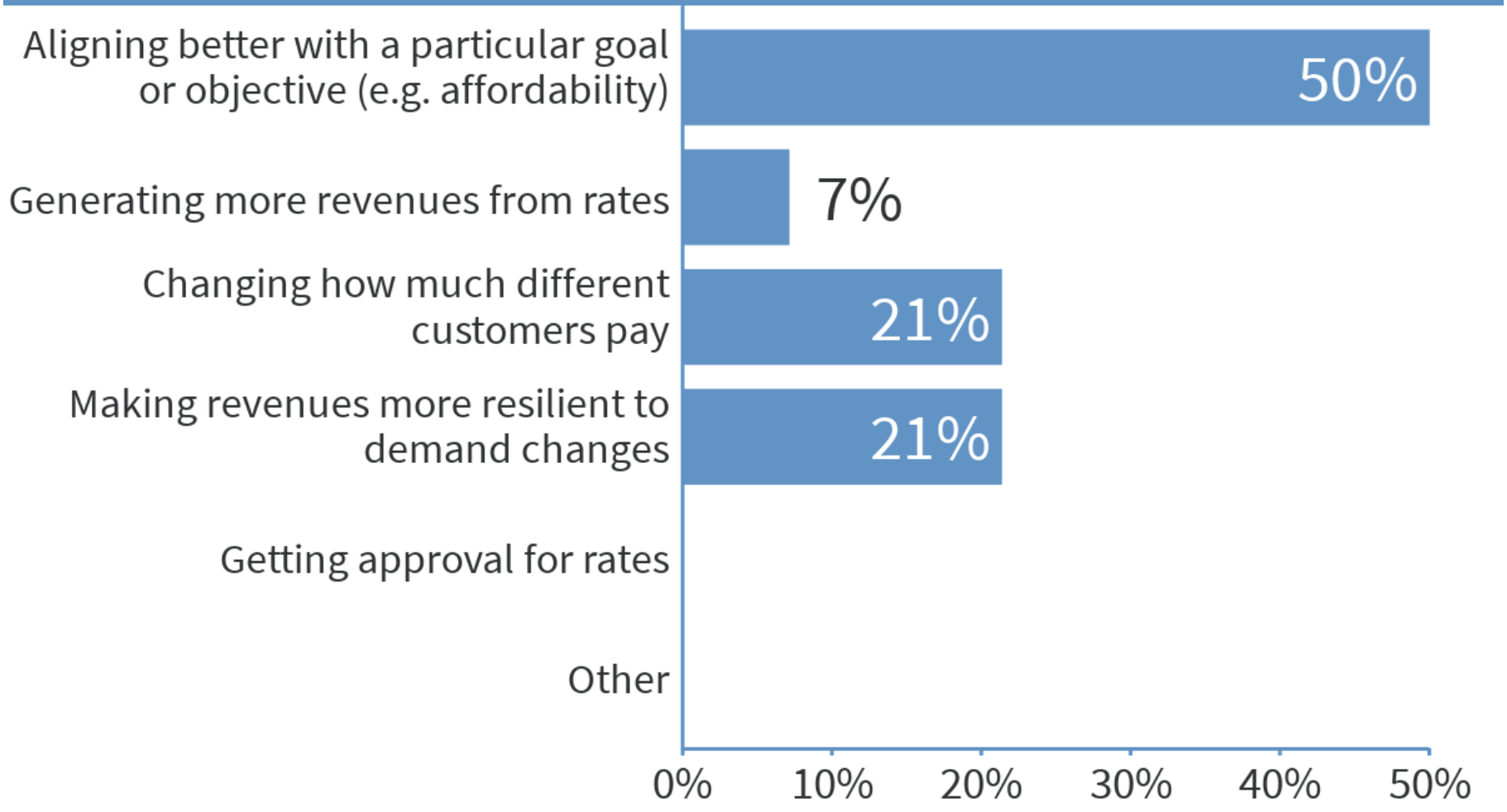
Today we will cover



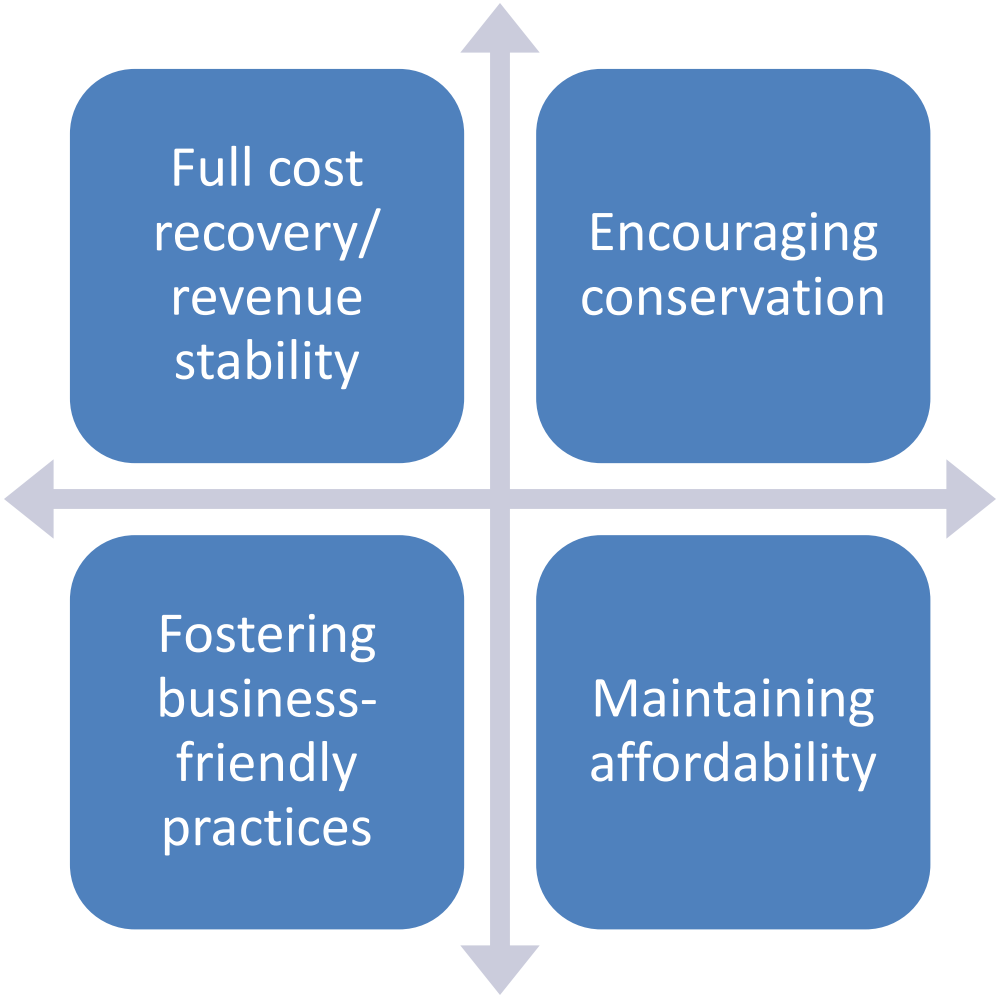
How happy are you with your water rates today?

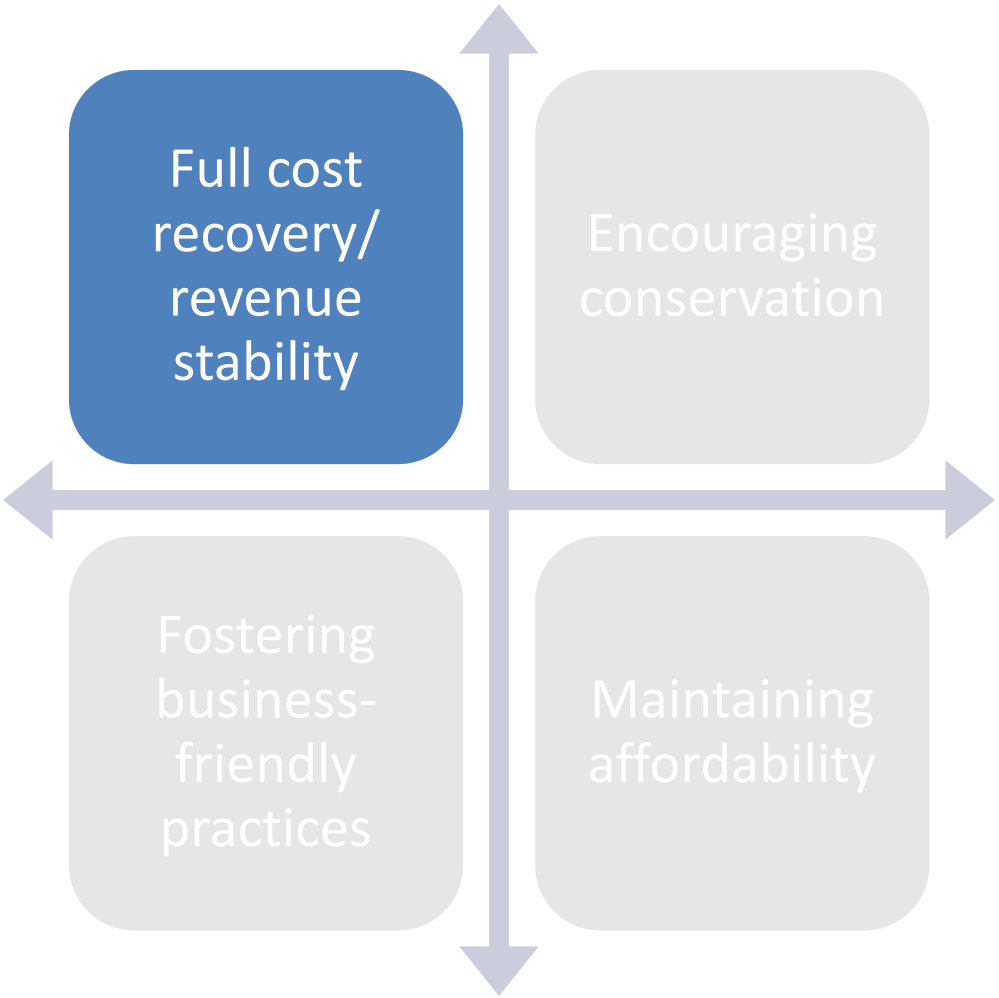


Areas of rate-setting that you want to work on (select up to 3)

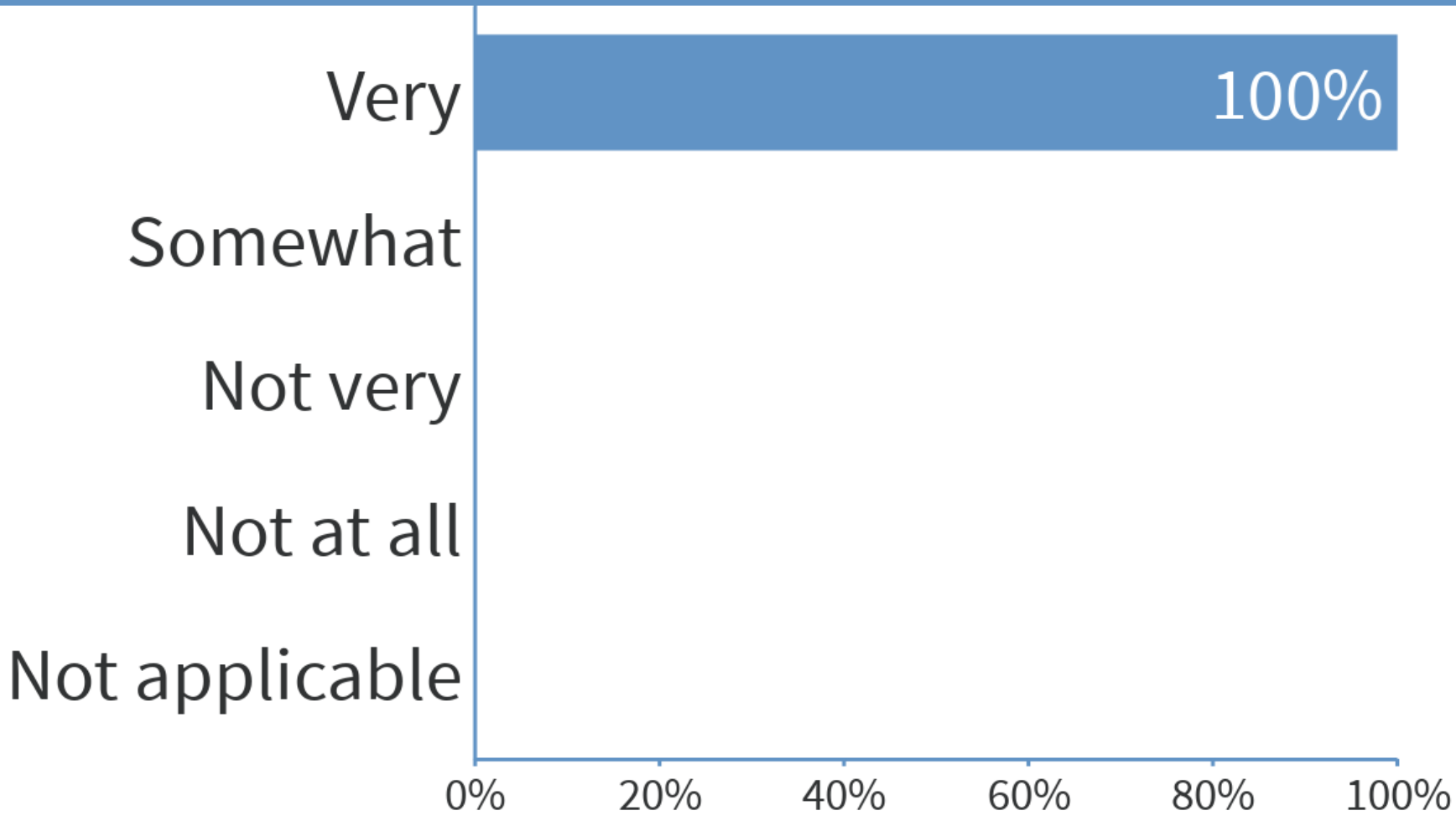


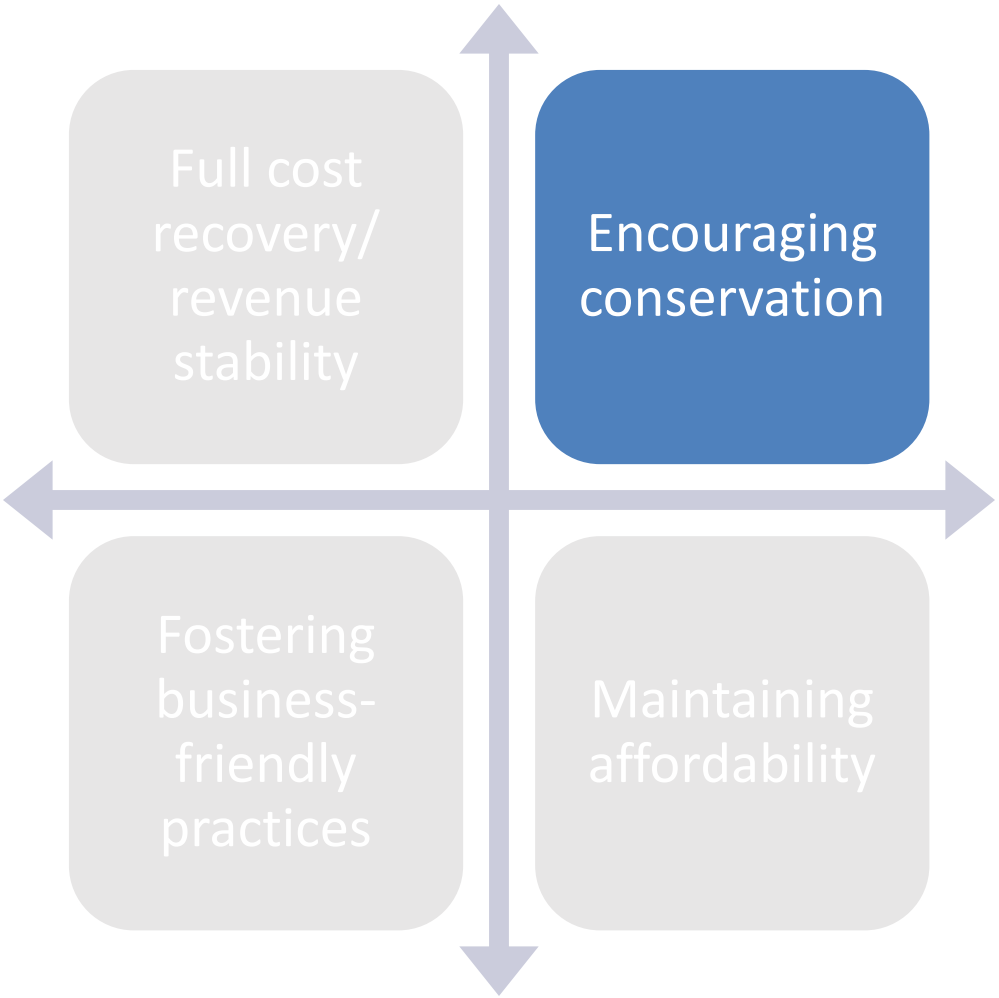
Examples of water system objectives




Full cost recovery/ revenue stability
Encouraging conservation
Fostering business-friendly practices
Maintaining affordability

How important is full cost recovery to your system?




Full cost recovery/ revenue stability
Encouraging conservation
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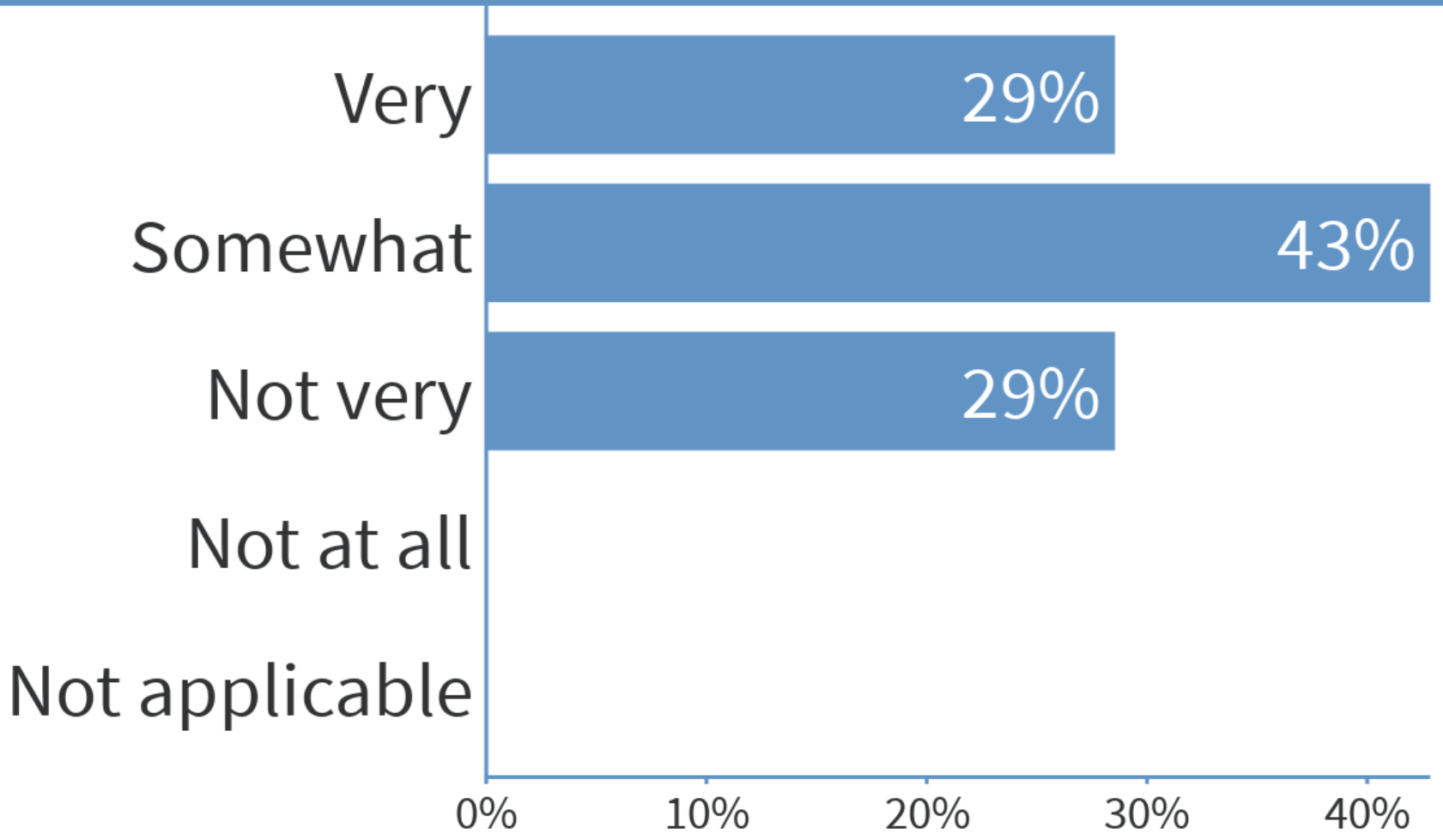
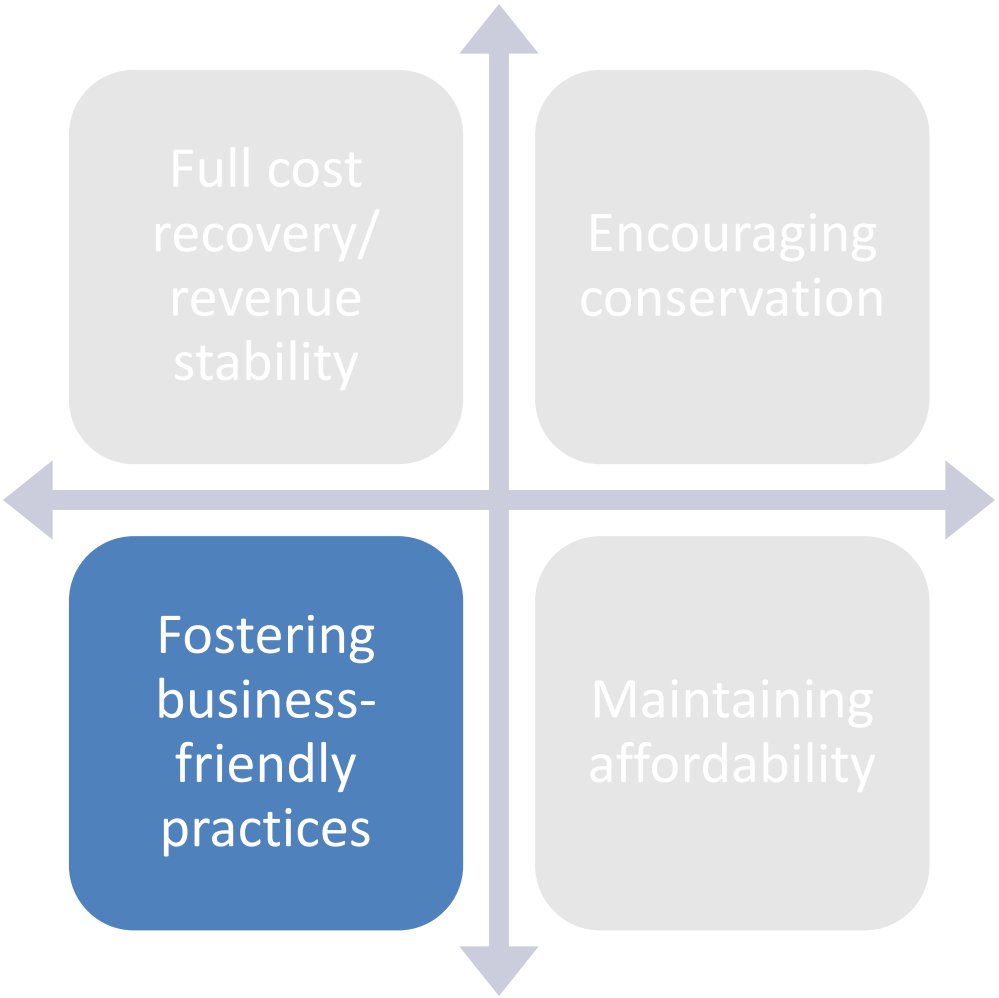
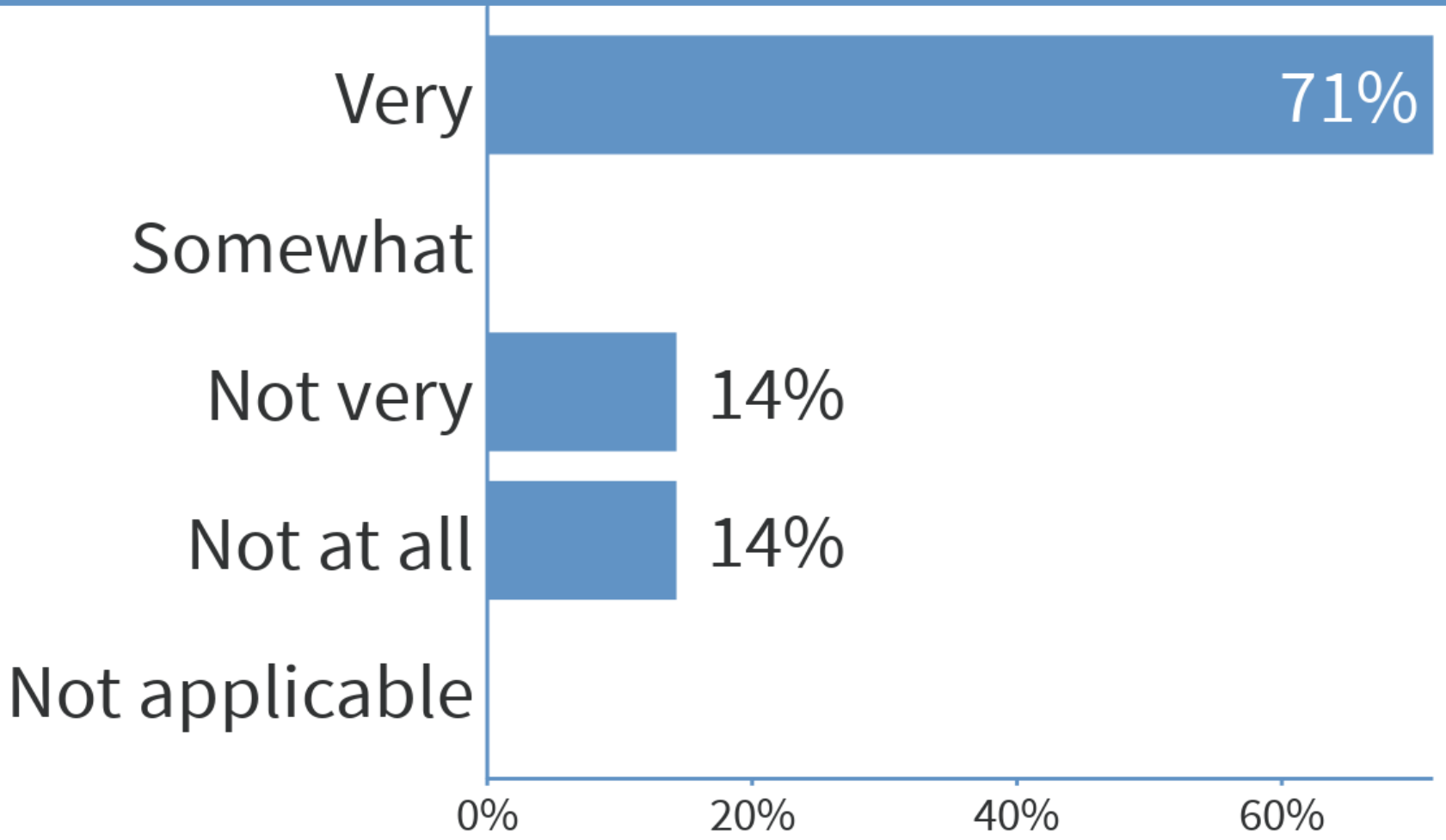
Maintaining affordability

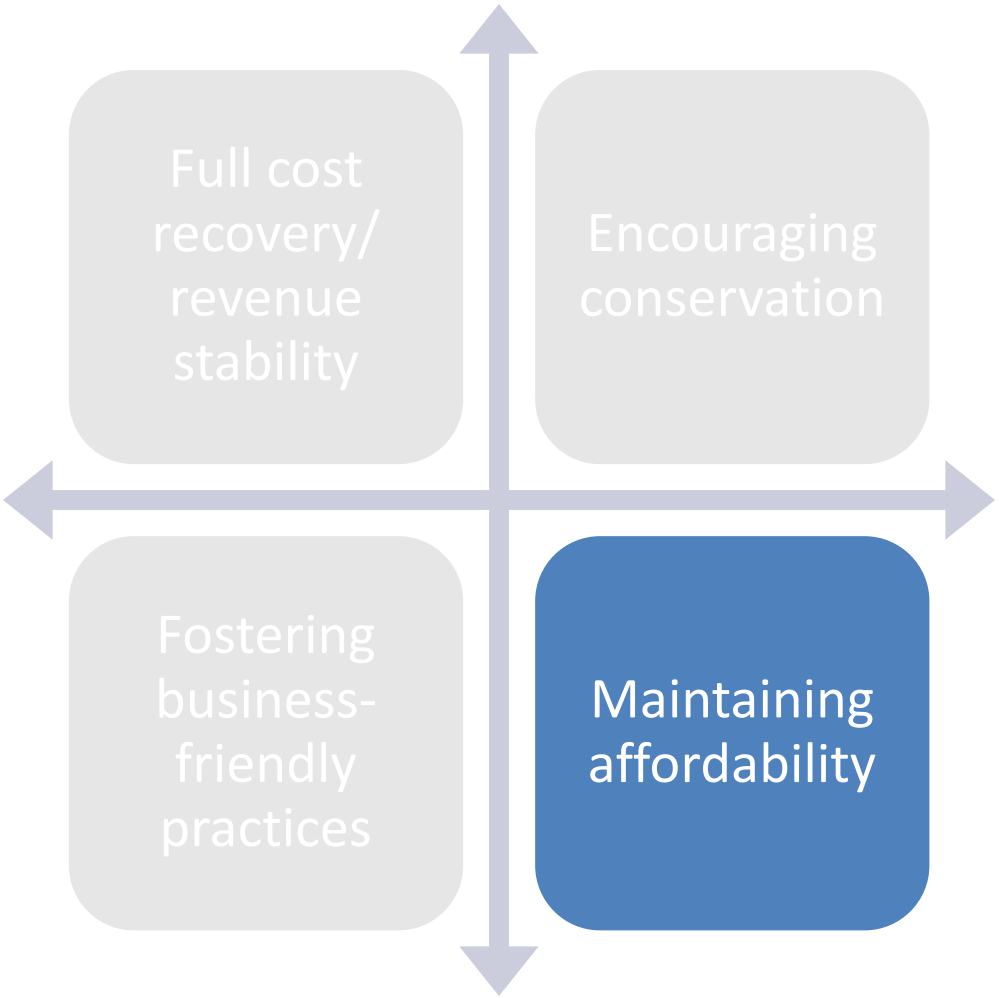
How important is encouraging conservation to your system?




Full cost recovery/ revenue stability
Encouraging conservation
Fostering business-friendly practices
Maintaining affordability

How important is fostering business-friendly practices to your system?




Full cost recovery/ revenue stability
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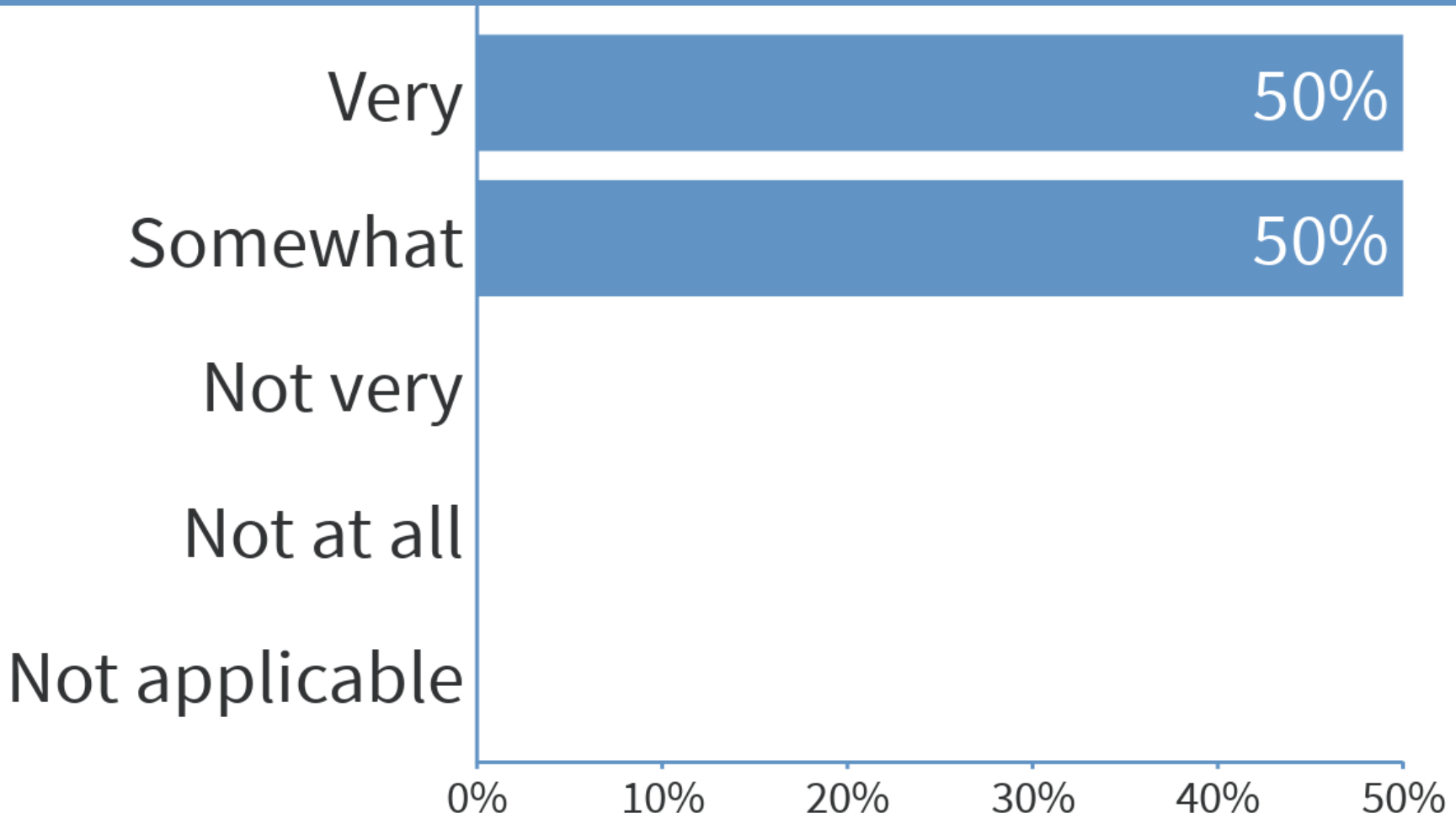
Fostering business-friendly practices
Maintaining affordability

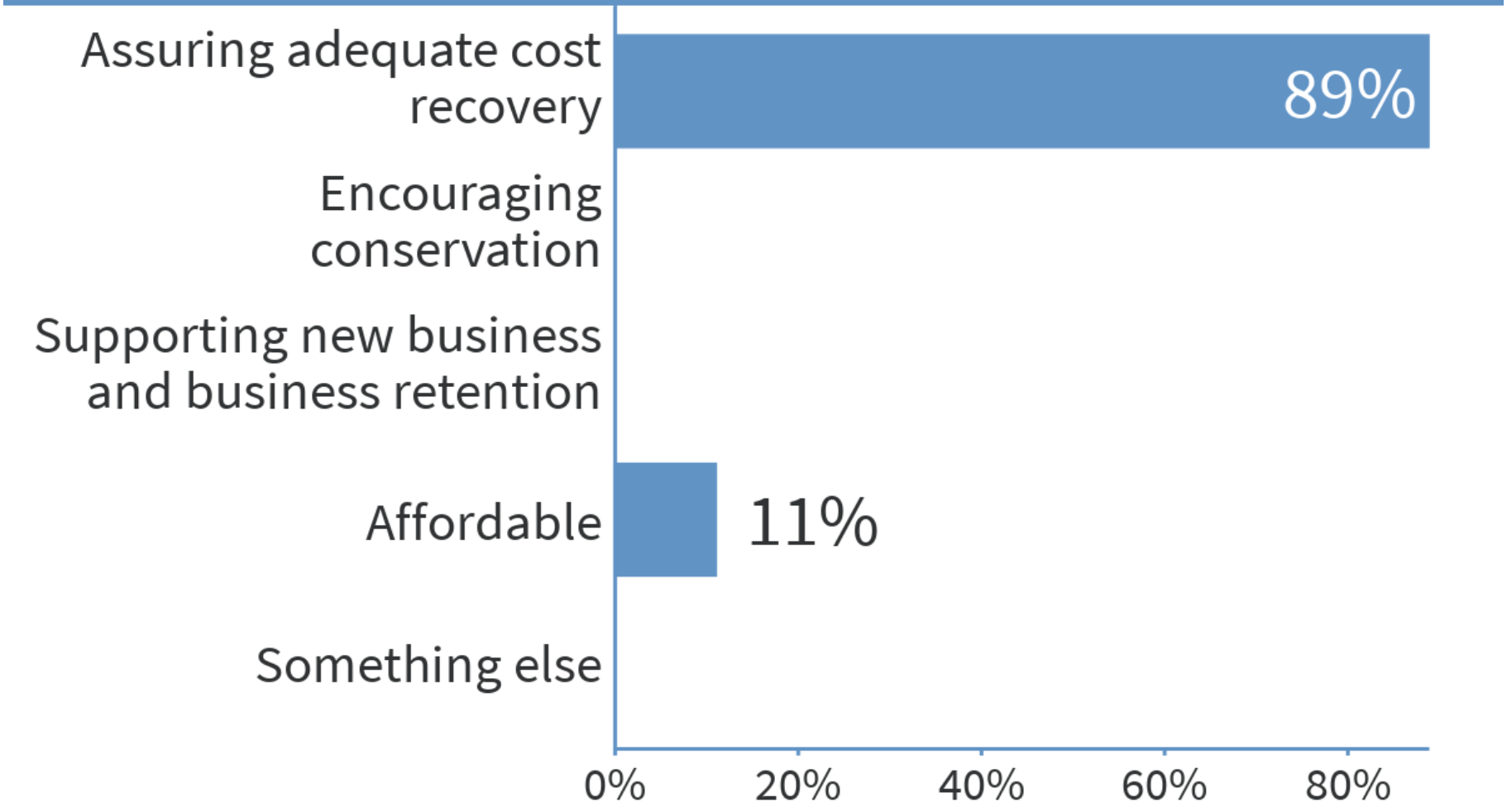
How important is maintaining affordability to your system?



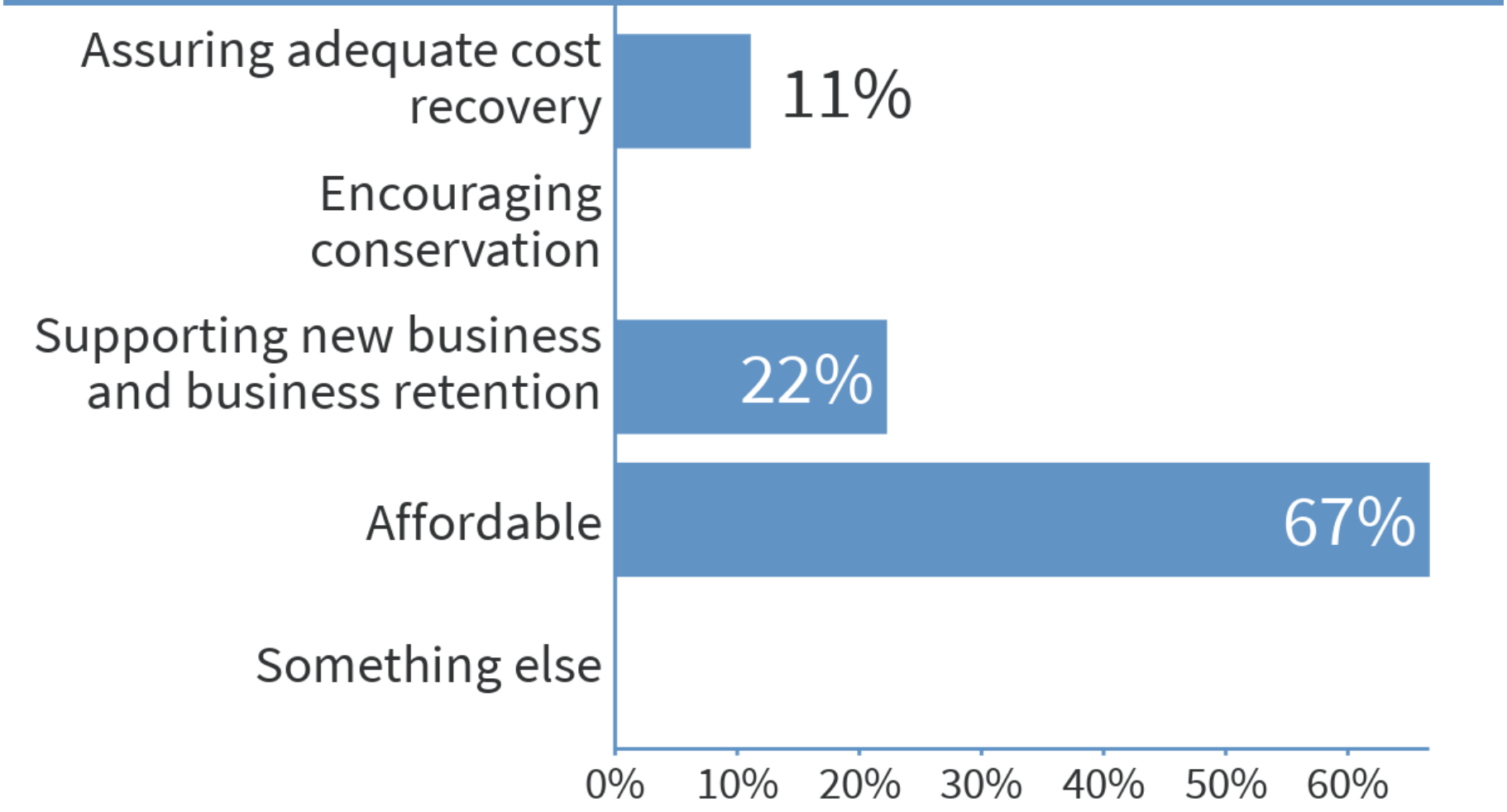
What are some other objectives?

- Keep it simple
- Charge seasonal customers fairly
- Maintain steady cash flow
- ?
- ?

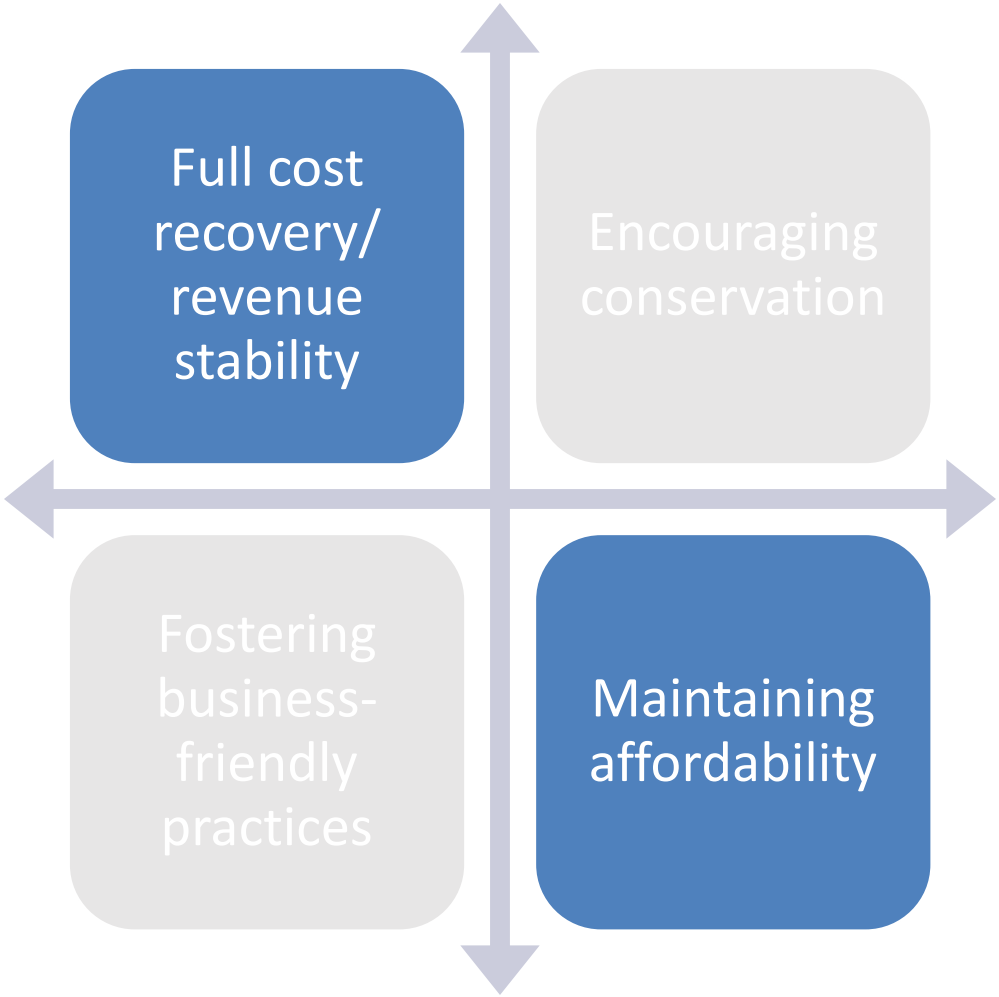
Which of these objectives is most important to you today?



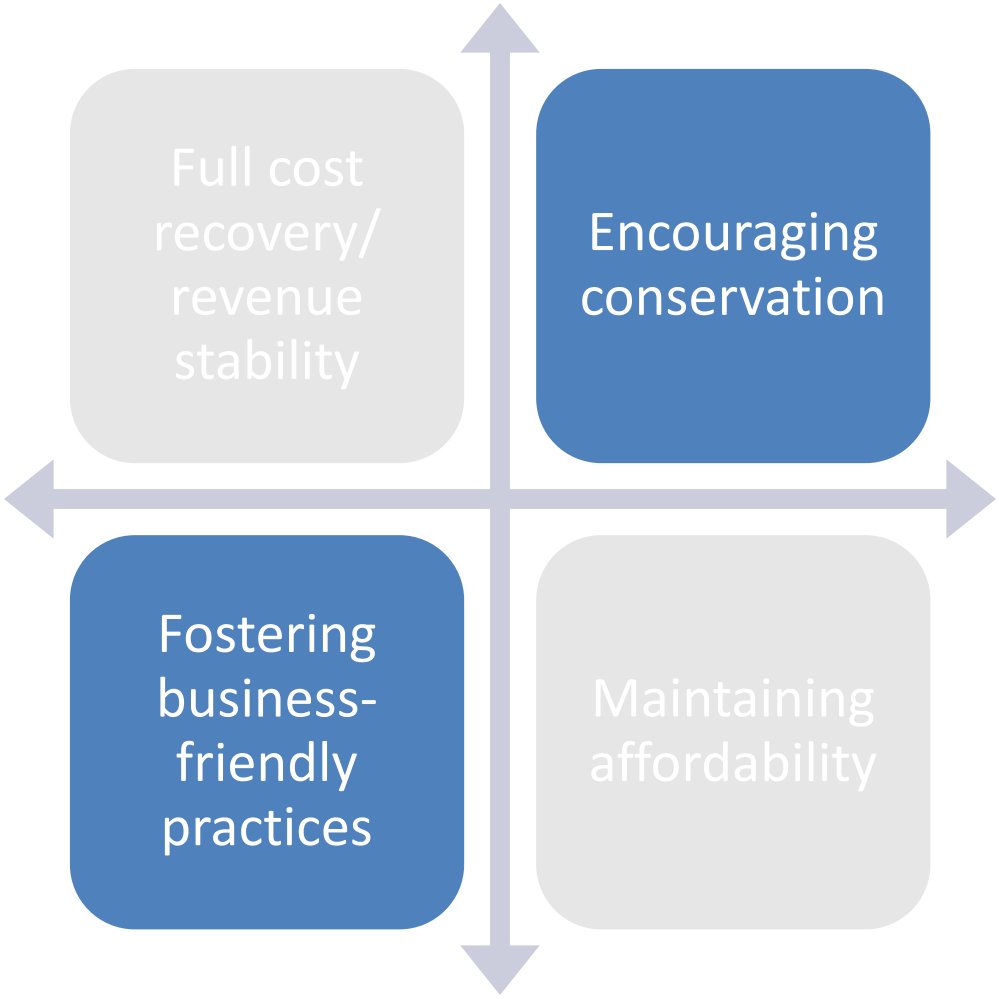
Which of these objectives is the second most important to you today?



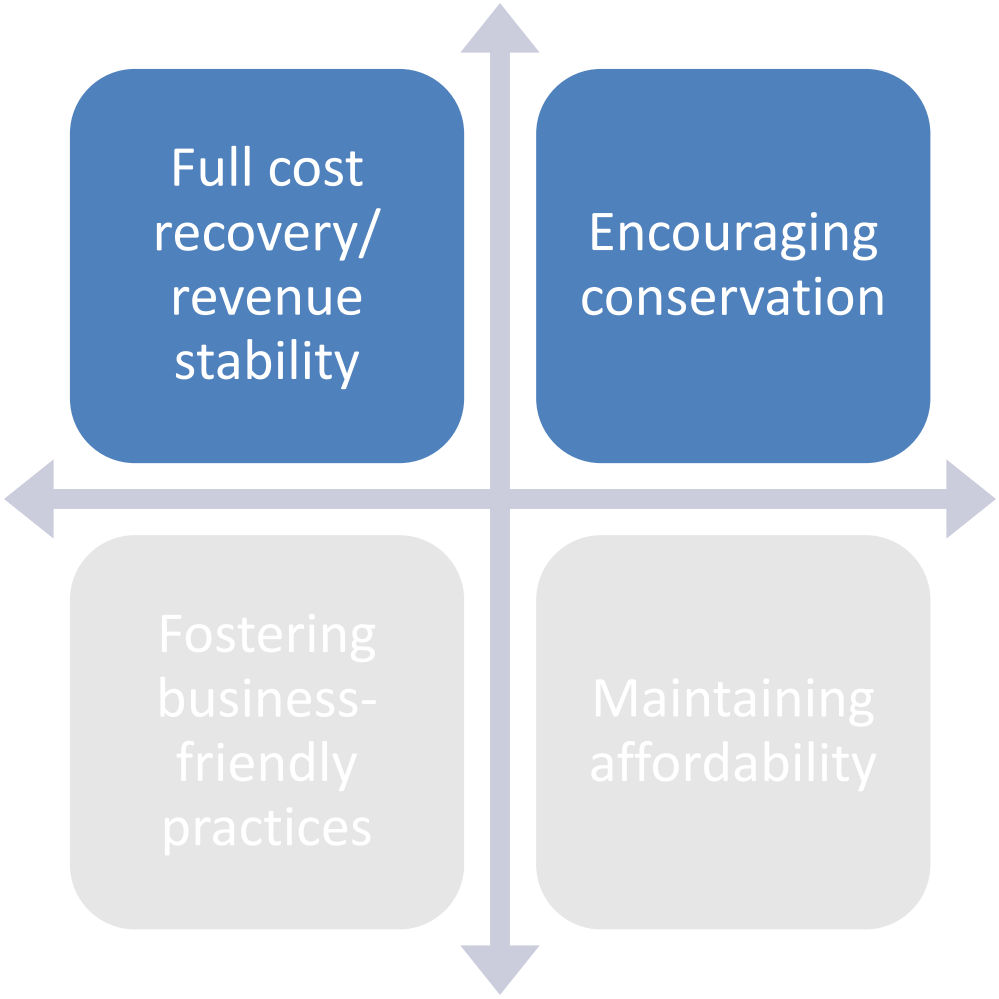
Competing Objectives



Competing Objectives



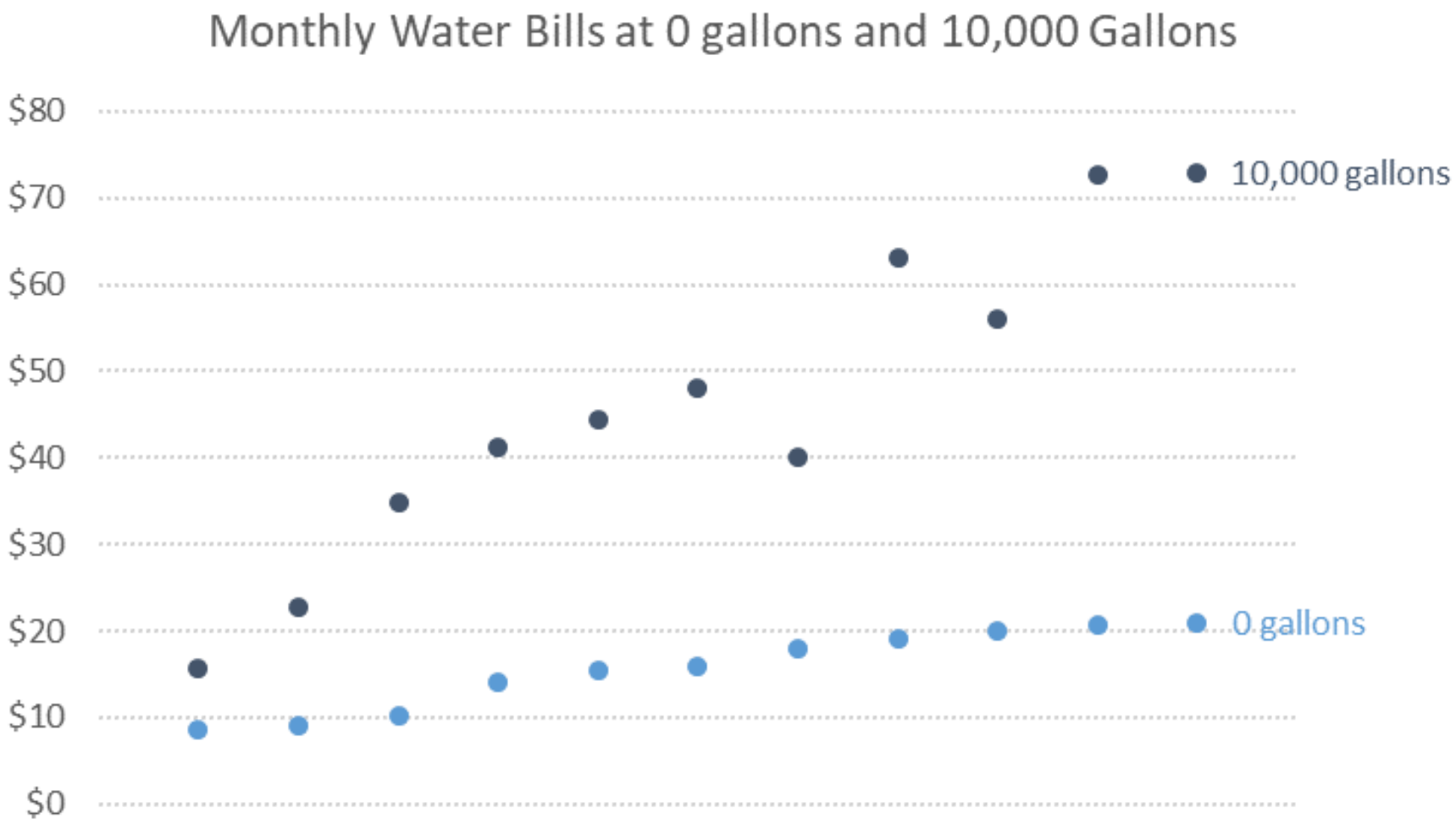
Competing Objectives



Rate structures in the room today

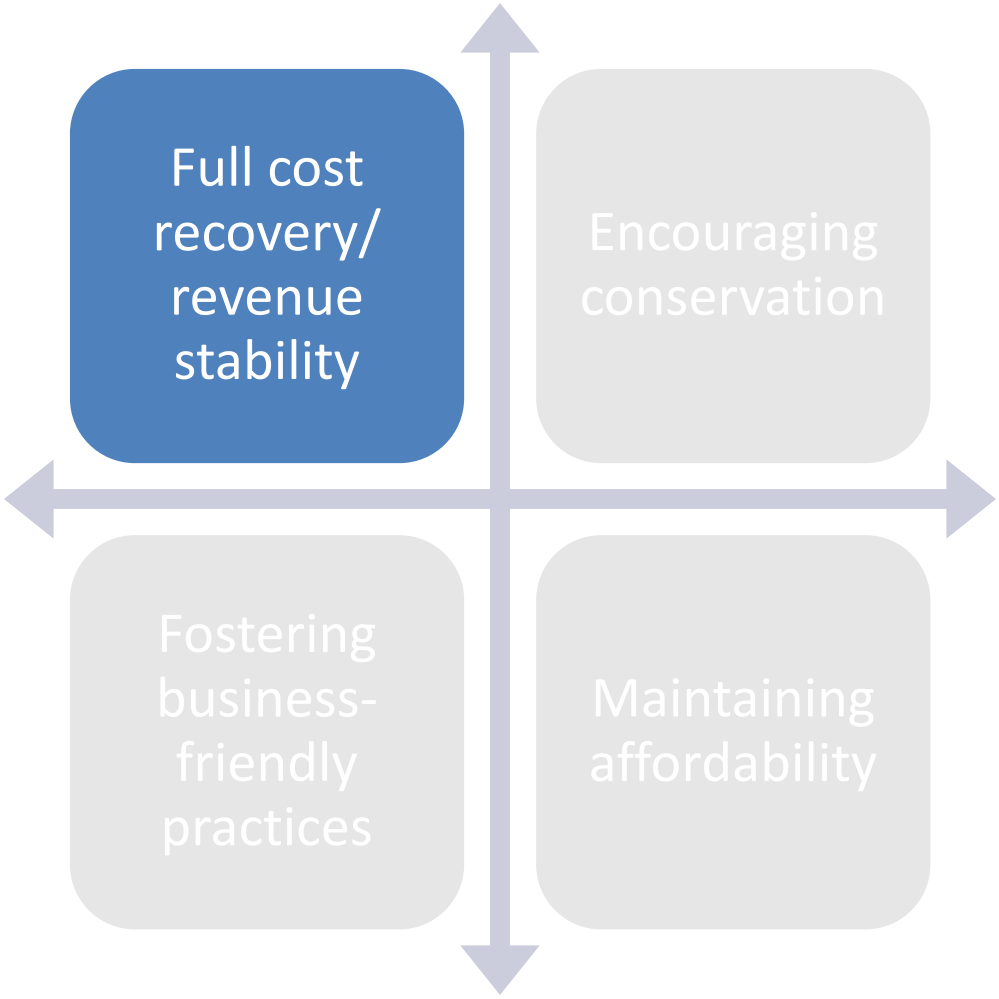
- Base charges: $8.52 - $21.00
- Consumption allowances: 2,000 – 3,000 gallons
- Volumetric rates above consumption allowance: 1 increasing block, 2 decreasing blocks, all others uniform
- Separate rate structures: for commercial, surcharge areas, service areas, industrial, outside
- Res. water bill for 3,000 gallons: $9.00 - $27.50

Rates in the room today



Understanding the Costs of Water Service

Water System Objectives



Session Objectives

- Understand different types of costs for water systems
- Learn which costs change based on the volume of water produced vs. those that do not change
- Examine a water system budget

What are different ways of categorizing costs?

Types of Budgetary Costs

Operating Costs

Capital Costs

Debt Service

Fixed Cost vs. Variable Cost

Some costs for a water system are generally stable (fixed) regardless of the volume of water treated. Others vary based on the amount of water treated.

Exercise:

Costs of water systems

Let’s make a list!

Annual Budget

- All of these costs become part of the annual budget for our water system
- That budget can be helpful as we figure out what to charge for water service, so it is important that the budget be both accurate and complete
- A budget is only a starting point – some budgets particularly operating budgets may be missing important costs

EPA
United States
Environmental Protection
Agency

Setting Small Drinking Water System Rates for a Sustainable Future

One of the Simple Tools for Effective Performance (STEP) Guide Series

https://www.epa.gov/dwcapacity/resources-setting-small-system-water-rates

Exercise:

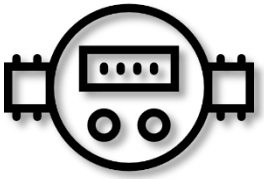
Budgeting for the full cost of water service


Greetings from
Irvindale
USA

Irvindale, USA Exercise

Small town with a water and wastewater system

Population: 1,100



Service Connections: 450

MHI: $24,432

Irvindale, USA Exercise

- Identify examples of fixed costs and examples of variable costs
- Is there anything missing in the budget?
- Does anything surprise you?

Irvindale Budget Expenses

		Account	Budget
19		30-810-01 W/S PROF. SERVICES	$500.00
20		30-810-02 TOWN MANAGER SALARY	$28,499.99
21		30-810-03 W/S EMPLOYEE SALARY	$57,200.00
22		30-810-04 CLERK SALARY	$37,251.88
23		30-810-05 FICA EXPENSE	$8,703.00
24		30-810-06 W/S EMPLOYMENT TAX	$975.00
25	??	30-810-07 W/S OVERTIME	$4,500.00
26		30-810-08 MERIT BONUS	$3,000.00
27		30-810-09 HOLIDAY/EMPLOYEE APREC	$1,200.00
28		30-810-10 POSTAGE	$2,700.00
29		30-810-11 Office Supplies/Repairs	$4,700.00
30		30-810-12 PHONE	$3,400.00
31		30-810-13 W/S UTILITES	$30,000.00
32		30-810-14 TRAINING	$2,400.00
33		30-810-15 Employee Screening	$105.00
34		30-810-16 MAINT/REPAIR:SYST-EQUIP	$30,000.00
35		30-810-17 Mayor Salary	$1,800.00
36		30-810-18 Board Salary	$10,500.00
37		30-810-20 W/S UNIFORMS	$2,000.00
38		30-810-30 GAS AND OIL FOR VEHICLES	$4,500.00
39		30-810-31 TIRES FOR VEHICLES	$600.00
40		30-810-32 REPAIRS TO VEHICLES	$1,000.00
41		30-810-33 SUPPLIES & MATERIALS	$3,000.00
42		30-810-34 CHEMICALS AND SALT	$20,000.00
43		30-810-45 CONTRACTED SERVICES	$36,500.00
44		30-810-46 STATE PERMITS	$1,700.00
45		30-810-48 DUES/SUBSCRIPTIONS	$1,500.00
46		30-810-50 DEPRECIATION	$0.00
47		30-810-54 INSURANCE	$13,608.00
48		30-810-55 HOSPITAL INSURANCE	$22,443.00
49		30-810-57 MISC EXPENSE	$500.00
50		30-810-60 W/S - LGERS	$9,272.00
51		30-810-70 WATER STUDY EXPENSES	$24,000.00
52		30-810-74 Online Payments SVC	$1,600.00
53		30-810-75 ARRA LOAN PRINCIPAL	$8,875.00
54		30-810-76 PURCHASE WATER BILL	$2,400.00
55		30-810-79 Banking Fees	$500.00
56		30-810-89 CAPITAL OUTLAY NEW EQUIP	$0.00
57		30-810-90 TRANSFER TO OTHER FUND	$0.00
58		30-810-95 FINES AND PENALTIES	$1,500.00
			$382,932.87

Which costs vary based on volume of water treated or delivered?

Irvindale Budget Expenses

What's missing?

	Account	Budget
19	30-810-01 W/S PROF. SERVICES	$500.00
20	30-810-02 TOWN MANAGER SALARY	$28,499.99
21	30-810-03 W/S EMPLOYEE SALARY	$57,200.00
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23	30-810-05 FICA EXPENSE	$8,703.00
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40	30-810-32 REPAIRS TO VEHICLES	$1,000.00
41	30-810-33 SUPPLIES & MATERIALS	$3,000.00
42	30-810-34 CHEMICALS AND SALT	$20,000.00
43	30-810-45 CONTRACTED SERVICES	$36,500.00
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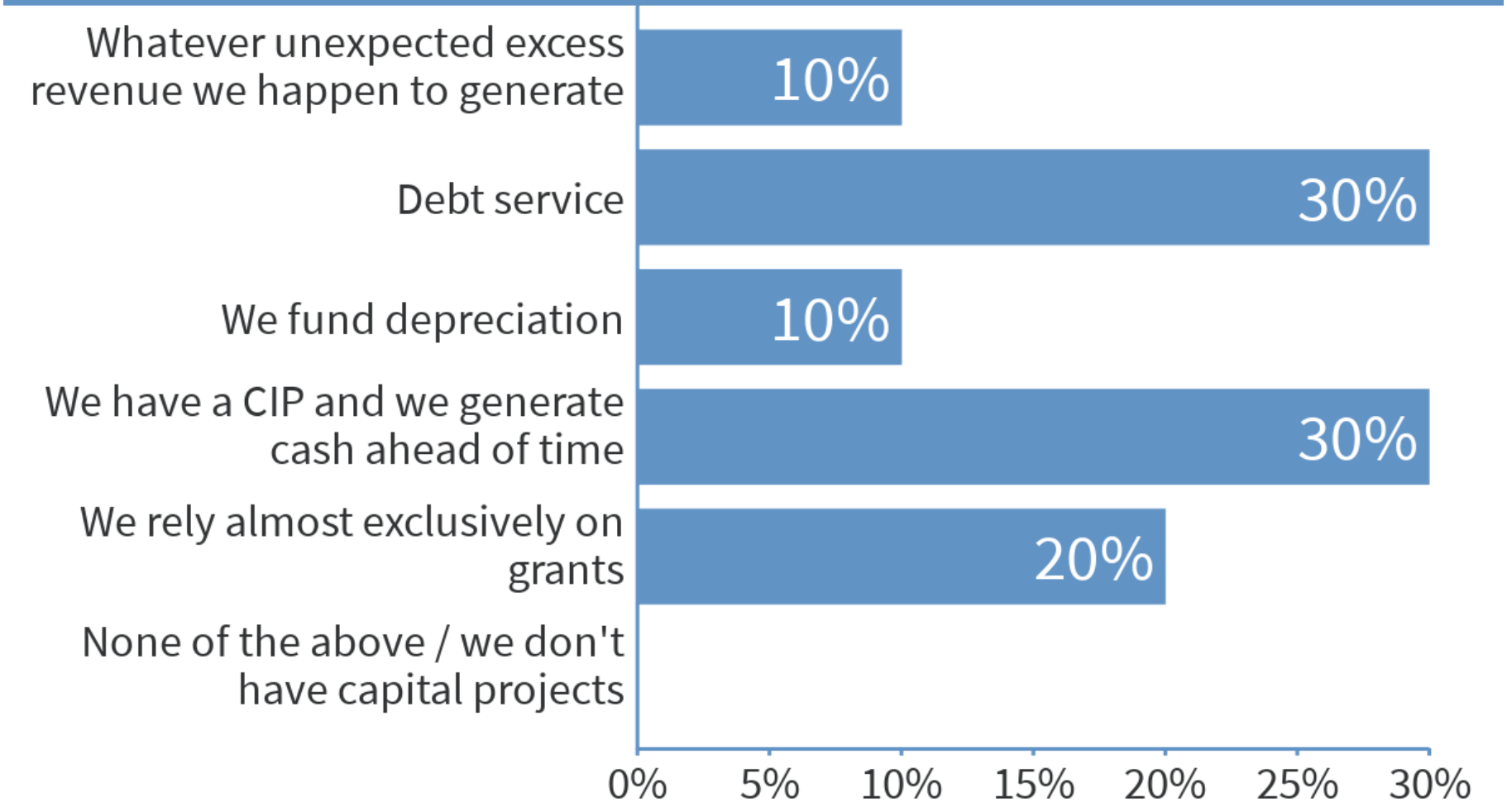
46	30-810-50 DEPRECIATION	$0.00
47	30-810-54 INSURANCE	$13,608.00
48	30-810-55 HOSPITAL INSURANCE	$22,443.00
49	30-810-57 MISC EXPENSE	$500.00
50	30-810-60 W/S - LGERS	$9,272.00
51	30-810-70 WATER STUDY EXPENSES	$24,000.00
52	30-810-74 Online Payments SVC	$1,600.00
53	30-810-75 ARRA LOAN PRINCIPAL	$8,875.00
54	30-810-76 PURCHASE WATER BILL	$2,400.00
55	30-810-79 Banking Fees	$500.00
56	30-810-89 CAPITAL OUTLAY NEW EQUIP	$0.00
57	30-810-90 TRANSFER TO OTHER FUND	$0.00
58	30-810-95 FINES AND PENALTIES	$1,500.00
		$382,932.87

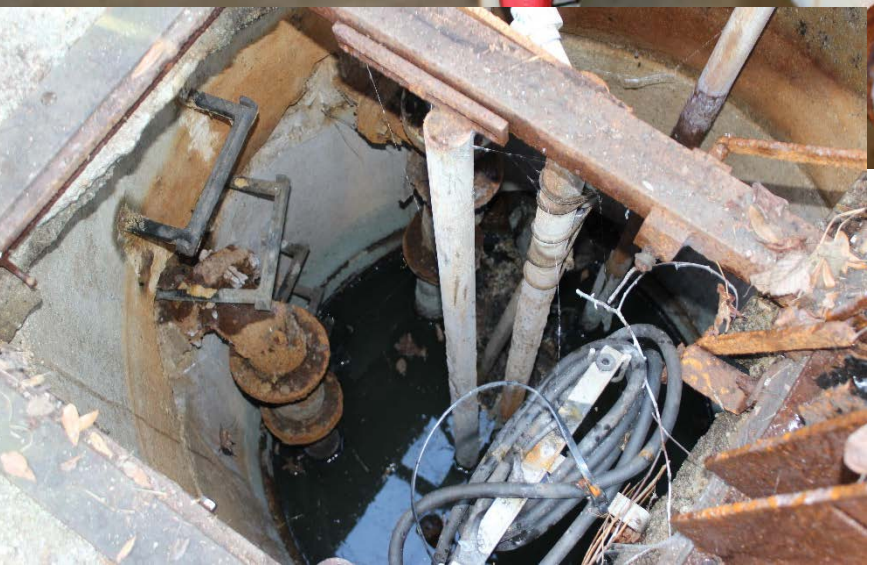
Costs that may be overlooked

- Indirect costs of running the system (shared management costs, shared facility costs, etc.)
- Capital-related costs (debt service, **depreciation**, sinking fund transfers, pay as you go capital expenditures)
- Retirement/pension

How does your system fund capital projects? (Select all that apply)



What not including money for capital looks like



Understanding how costs change

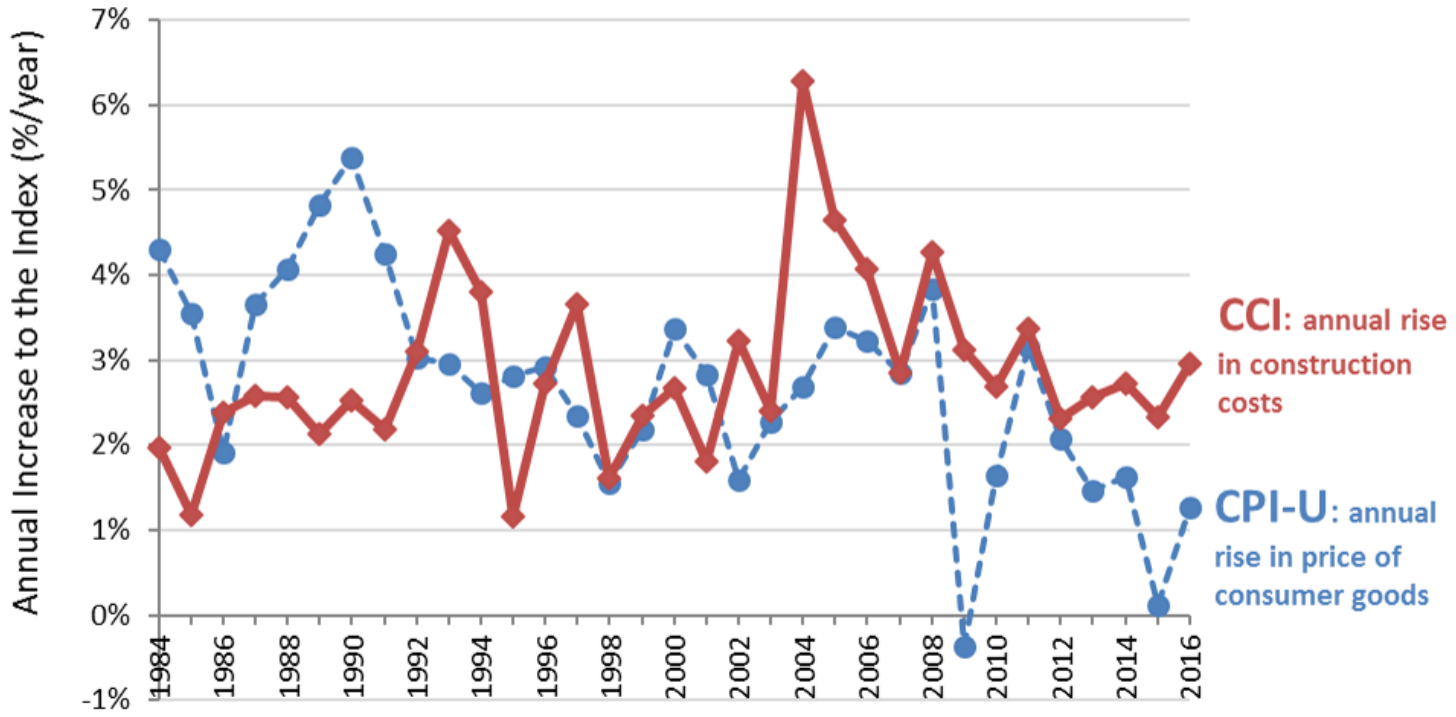
Measures of Inflation

- **Consumer Price Index (CPI)**—measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services

- **Construction Cost Index (CCI)**—average prices for labor and key construction materials from 20 cities across the United States

The Construction Cost Index (CCI) has been rising faster than the Consumer Price Index-Urban (CPI-U) in recent years

Construction costs (CCI) rose on average of 2.6%/year in the last five years, while consumer goods (CPI-U) only rose an average of 1.3%/year in the same period

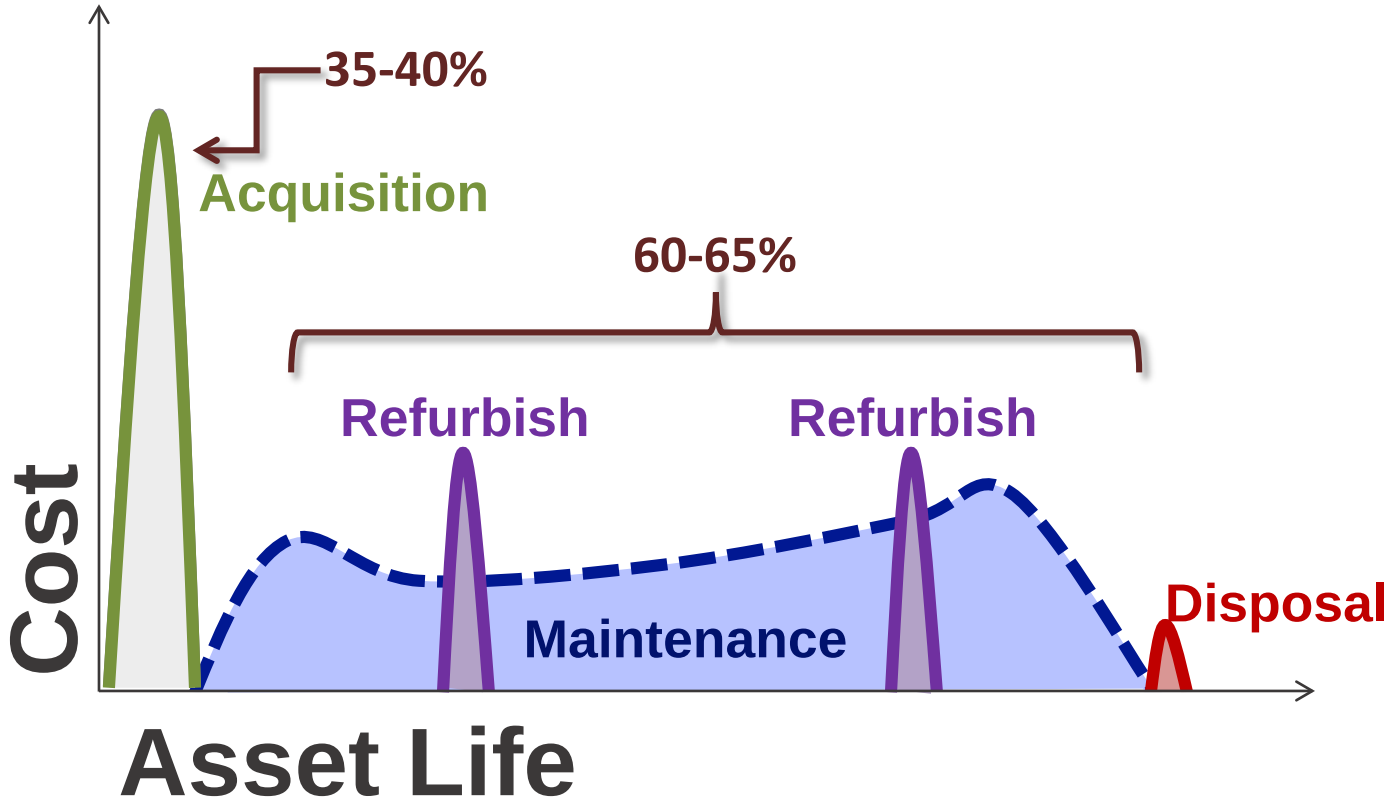


Data graphed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Data Sources: Bureau of Labor Statistics (CPI-U), Engineering News-Record ENR.com (CCI), InflationData.com (CPI-U), USDA Natural Resources Conservation Services (spreadsheet containing CCI and CPI-U).

Source: *Environmental Finance* blog post available at http://efc.web.unc.edu/2012/09/26/using-an-index-to-help-project-capital-costs-into-the-future/

Life-cycle costing

Purchase Price ≠ Total Price



Source: Adapted from Steve Allbee, USEPA

Understanding your Customers

Getting to Know your Customers

- Residential vs. non residential
- Incomes and economic status of customers
- Use of water (irrigation, industrial production, tourism)
- Seasonality patterns
- Economic future of large users
- Population and usage trends

Customers

4,000 gallons/month
(all indoor)

15,000 gallons/month
(4,000 indoor;
11,000 summer irrigation)

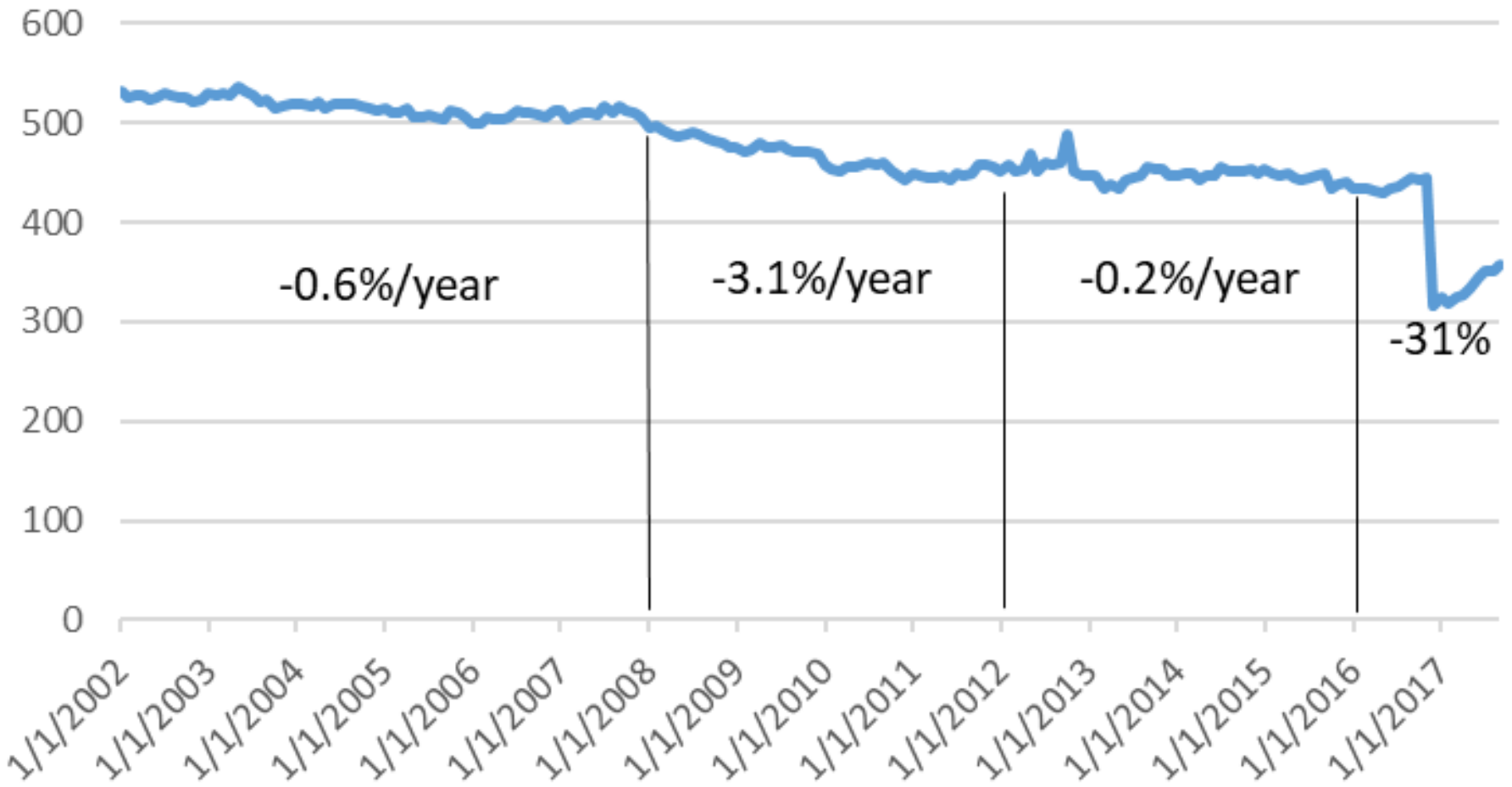
15,000 gallons/month
(all indoor)

34,000 gallons/month
(all indoor)

Customer water usage

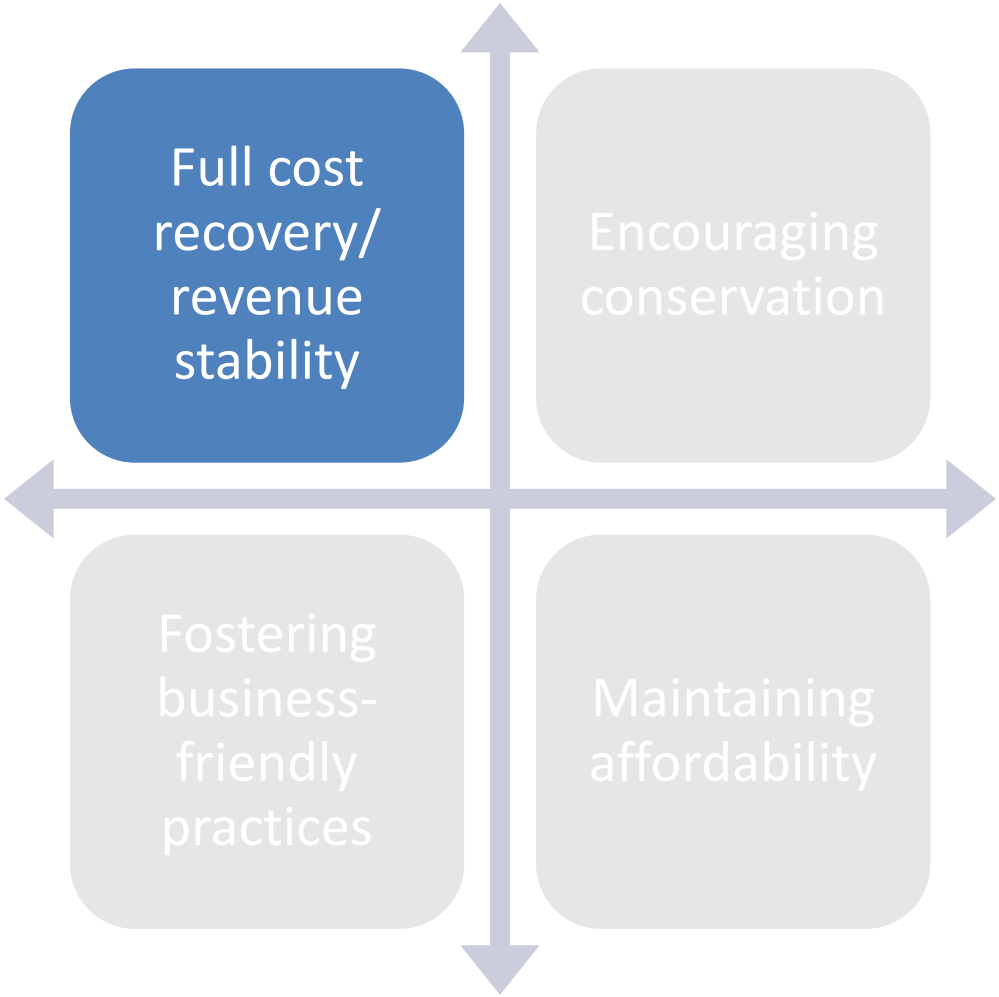
Monthly Usage Per Account	Count
0	563
1-999	1155
1,000-1,999	1755
2,000-2,999	1714
3,000-3,999	1238
4,000-4,999	748
5,000-5,999	444
6,000-6,999	328
7,000-7,999	179
8,000-8,999	144
9,000-9,999	89
10,000-10,999	56
11,000-11,999	38
12,000-12,999	27
13,000-13,999	9
14,000-14,999	16
15,000+	136

Beware population declines



Pricing Water to Achieve Cost Recovery

Water System Objectives



Session Objectives

- Be able to use different approaches to calculate base charges and volumetric charges
- Evaluate the impact of different pricing structures on different customers
- Identify factors that can impact your pricing assumptions

Full(er) Cost Pricing

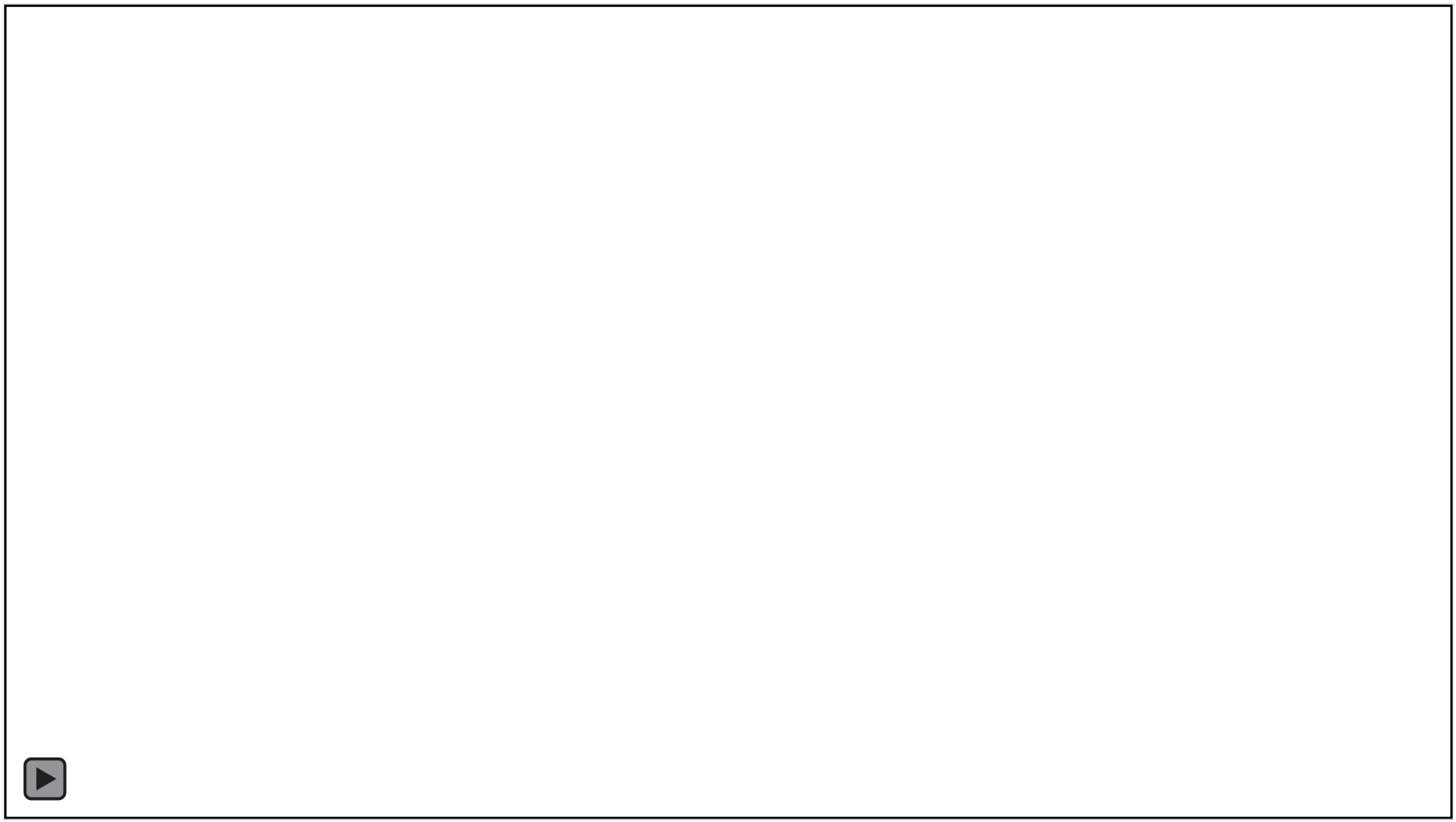
- The goal of full(er) cost pricing is to have the charges for water cover the entire cost of running the water system today and into the future.

- Of course, there are many ways in which you can get to the right dollar figure. Some of it comes down to your rate setting philosophy.

Small System Rate Setting Decisions

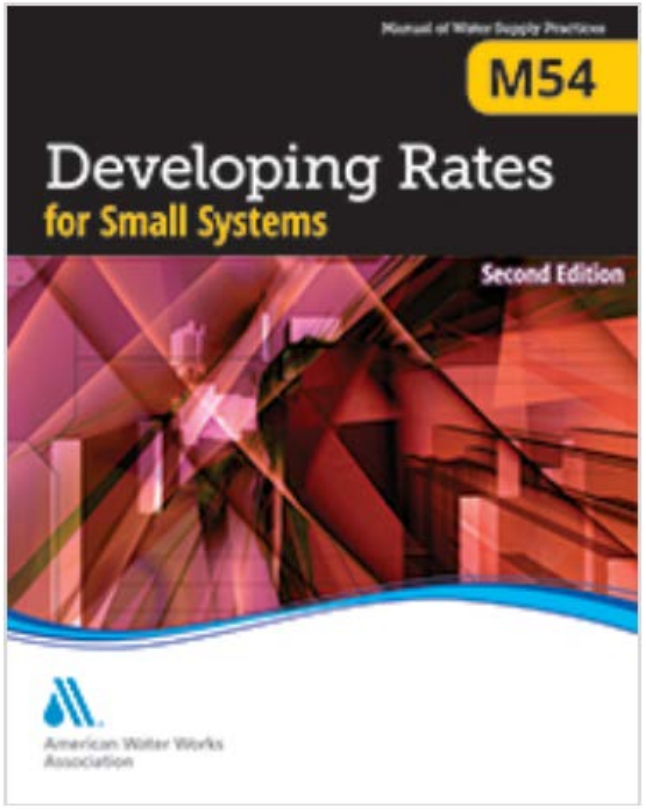
- **Decision on how much of the costs to cover through rates**
- **Revenue to be generated by base charges**
- **Revenue to be generated by volumetric charges**
- Revenue to be generated by different customer classes
- Establishing different prices for water for larger users
- Decision to implement more complex rate structures

Understanding Water Revenues



https://www.youtube.com/watch?v=0jf83mE0Lyk

Rate Study Technique to Determine Rates for Different Customers



M54 Manual by AWWA

1. Determine customer accounts and usage data
2. Project costs, and revenue needs and reserve targets
3. Consider alternative plans for revenue adjustments
4. Decide on appropriate rate structure design
5. Price out rate (by class if applicable)

By customer class if desired

Rate structures in the room today

- Base charges: $8.52 - $21.00
- Consumption allowances: 2,000 – 3,000 gallons
- Volumetric rates above consumption allowance: 1 increasing block, 2 decreasing blocks, all others uniform
- Separate rate structures: for commercial, surcharge areas, service areas, industrial, outside
- Res. water bill for 3,000 gallons: $9.00 - $27.50

A Few Rate Setting Philosophies

- Customers should pay for having access
- Customers should pay for what they use
- Customers should pay fixed charges to cover the system’s fixed costs, and variable charges to cover the system’s variable costs
- Some mix of the above ideas

Rate Setting Philosophies

Jeff Hughes

The Science of Setting Water and Sewer Rates

- *An increase in mergers and acquisitions*
- *Almost $8 billion in assets and more than $1 billion in annual revenues*[1]
- *Changing regulations, affecting the bottom line*
- *A backlog in capital investment needs*
- *Interruptions in supplies that hurt revenues*
- *Loss of major customers*
- *Innovative pricing and customer-relations strategies*
- *Sagging revenues*

typically fall on governing boards that were chosen not as business or technical experts but as representatives of their constituents on a broad range of matters.

The drought of 2002 brought two types of water stories to the headlines: (1) the struggles of many communities to maintain their water supplies and (2) the financial difficulties of many communities due to decreased sales. The response to the first type of circumstance was immediate and significant: an executive order requiring conservation, and statewide initiatives to examine current supplies. The response to the second type of circumstance has been less obvious and less pronounced.

Table 1). These numbers are impressive. However, the projected numbers are staggering. According to a study by the North Carolina Rural Economic Development Center, the state will need more than $11 billion in investments to meet its capital needs for water and sewer infrastructure over the next twenty years.[2]

In North Carolina, as throughout the country, numerous water and sewer enterprises owned by local governments benefited from the federal government's ambitious construction grants program of the 1970s (for the patterns of federal wastewater funding from 1970 to 2000, see Figure 1). Many local government officials fondly remember those days of

Rate Setting Philosophies

Jeff Hughes

The Painful Art of Setting Water and Sewer Rates

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Exercise

Let’s figure out some rates for Irvindale that cover costs of providing water service.

For simplicity, let’s assume the budgeted rate revenues take into all the actual costs (even though we know they don’t).

How much revenue to generate from rates?

	Account	Budget
1	30-329-00 W/S INTEREST EARNED DEPOS	$0.00
2	30-334-00 CONTRIBUTIONS/DONATIONS	$0.00
3	30-335-00 W/S MISC. REVENUE	$700.00
4	30-336-00 FUND BALANCE APPROPRIATED	$9,187.87
7	30-345-01 SALES TAX REFUND	$0.00
9	30-371-01 W/S CHARGES	$344,445.00
10	30-371-02 W/S ADJUSTMENTS	$0.00
11	30-373-00 TAP CONNECTIONS	$1,500.00
13	30-373-02 SERVICE CHARGES/CUT OFFS	$12,500.00
14	30-373-04 IMPACT FEES	$1,000.00
15	30-373-05 CAPITAL CONTRIBUTIONS	$0.00
16	30-374-00 Online W/S Payment Fee	$1,600.00
17	30-375-80 Contributed Capital - G.R.S.P.	$0.00
18	30-375-81 Contributed Capital Fund	$0.00
19	30-377-00 RBEG - Pump Station	$0.00
20	30-378-00 I&I Study Grant - Commerce	$12,000.00
22	30-385-00 SALE OF ASSETS	$0.00
23	30-386-00 TRANSFER FROM OTHER FUND	$0.00
		$382,932.87

For the Exercise

Total Revenue Target:

$382,932

Revenues to be collected from rates:

$344,445

Payment for Access

- Taken to its limit, everyone in the water system pays the same amount for access to the system, regardless of how much water they use

Payment for Access

We charge a flat rate of $ 15.00 monthly

P.O - Box 133
Jacksonville

We are a small town we do not have sewage

Jacksonville, GA

Payment for Access

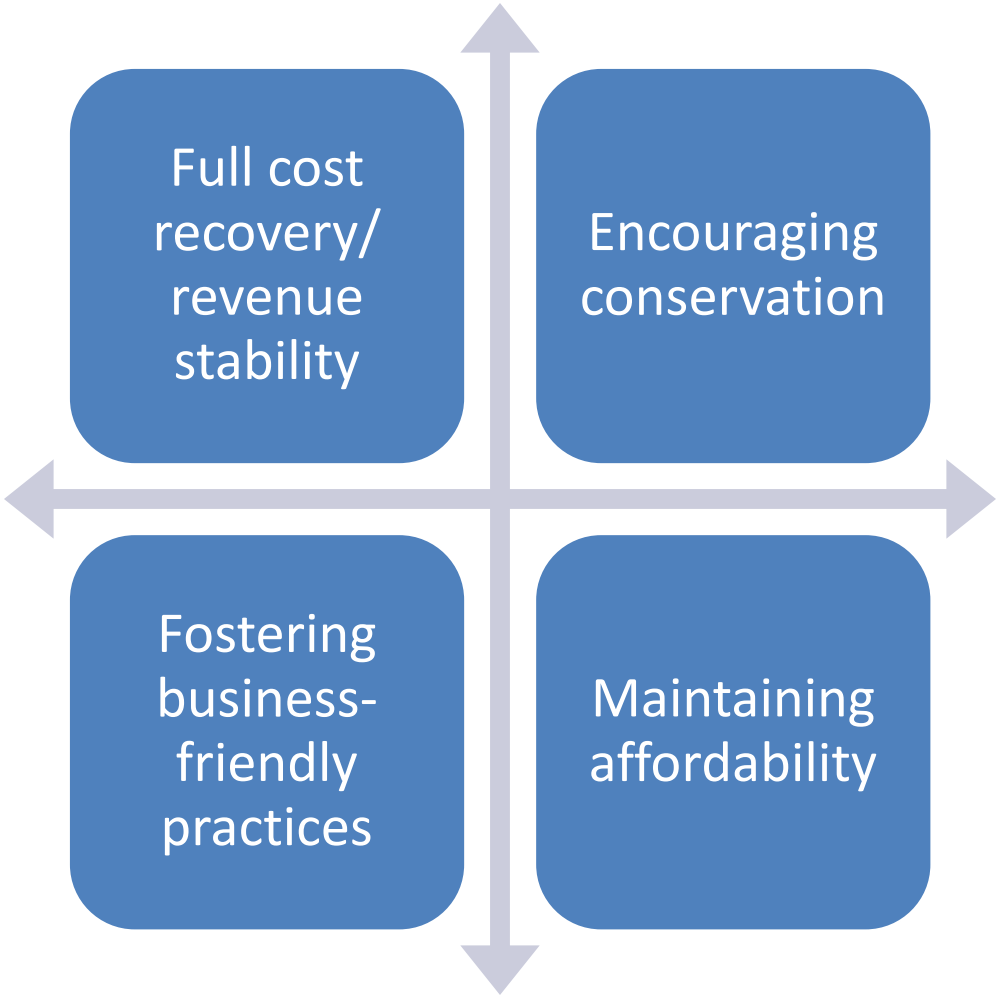
- What information do we need to make this calculation?

- Total revenue needed from rates
- Total number of accounts

Payment for Access

$$\frac{\text{\$344,445}\ \text{Total Needed Revenue}}{\text{450}\ \text{Total Accounts}} = \frac{\text{\$765.43}\ \text{Total Annual Bill}}{12} = \text{\$63.79}\ \text{Monthly Bill}$$

Which Water System Objectives?



Payment solely based on volume

- In its pure form, everyone in the water system pays for the volume of water received and only for the volume of water received

Payment solely based on volume

WATER & SEWER RATES

In Town	
Water	$ 7.72 per 1000 gallons
Sewer	$ 10.73 per 1000 gallons
Out of Town	
Water	$ 15.44 per 1000 gallons
Sewer	$ 21.46 per 1000 gallons

Troutman, NC

Payment solely based on volume

- What information do we need to make this calculation?

- Total revenue needed from rates
- Total gallons sold

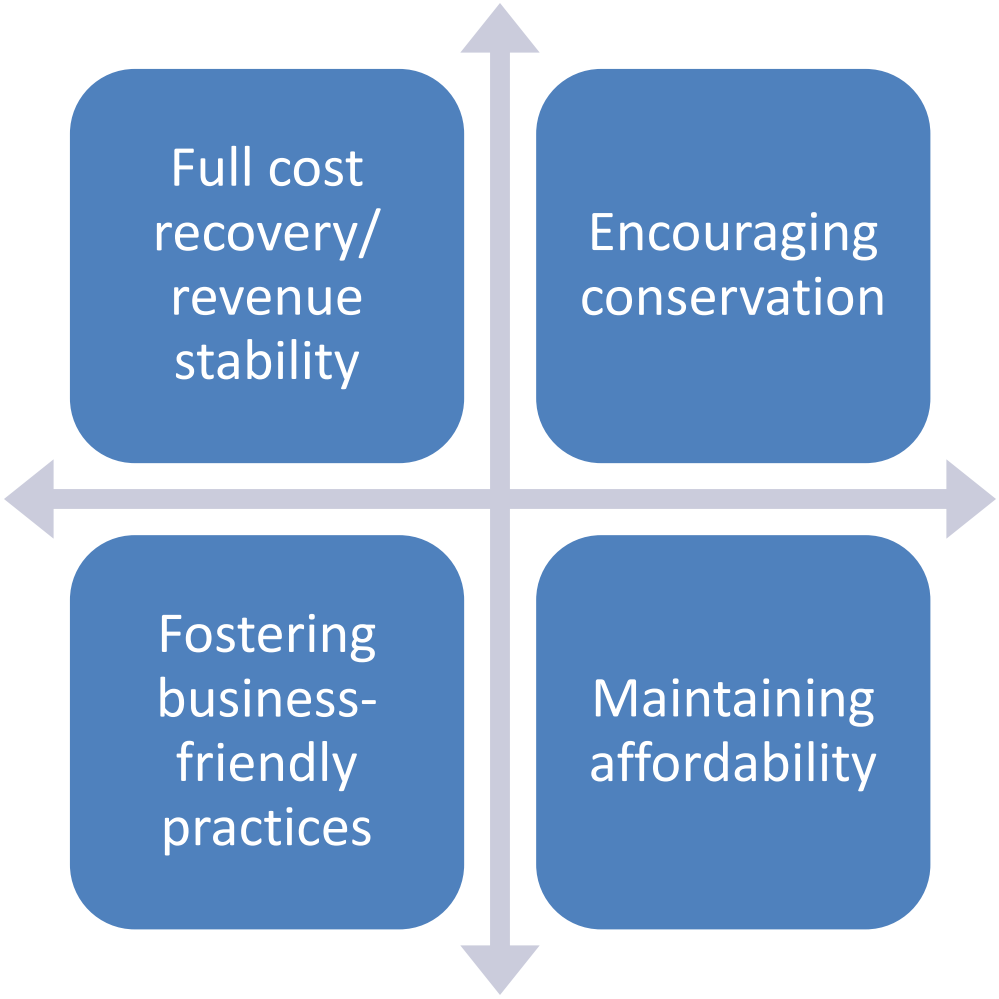
Payment solely based on volume

$$\frac{\$344,445}{32,877,590} \times 1{,}000 = \$10.48$$

Total Needed Revenue / *Total Gallons Sold*

Price per 1,000 Gallons

Which Water System Objectives?



Base Charge for Fixed Costs; Volumetric Charge for Variable Costs

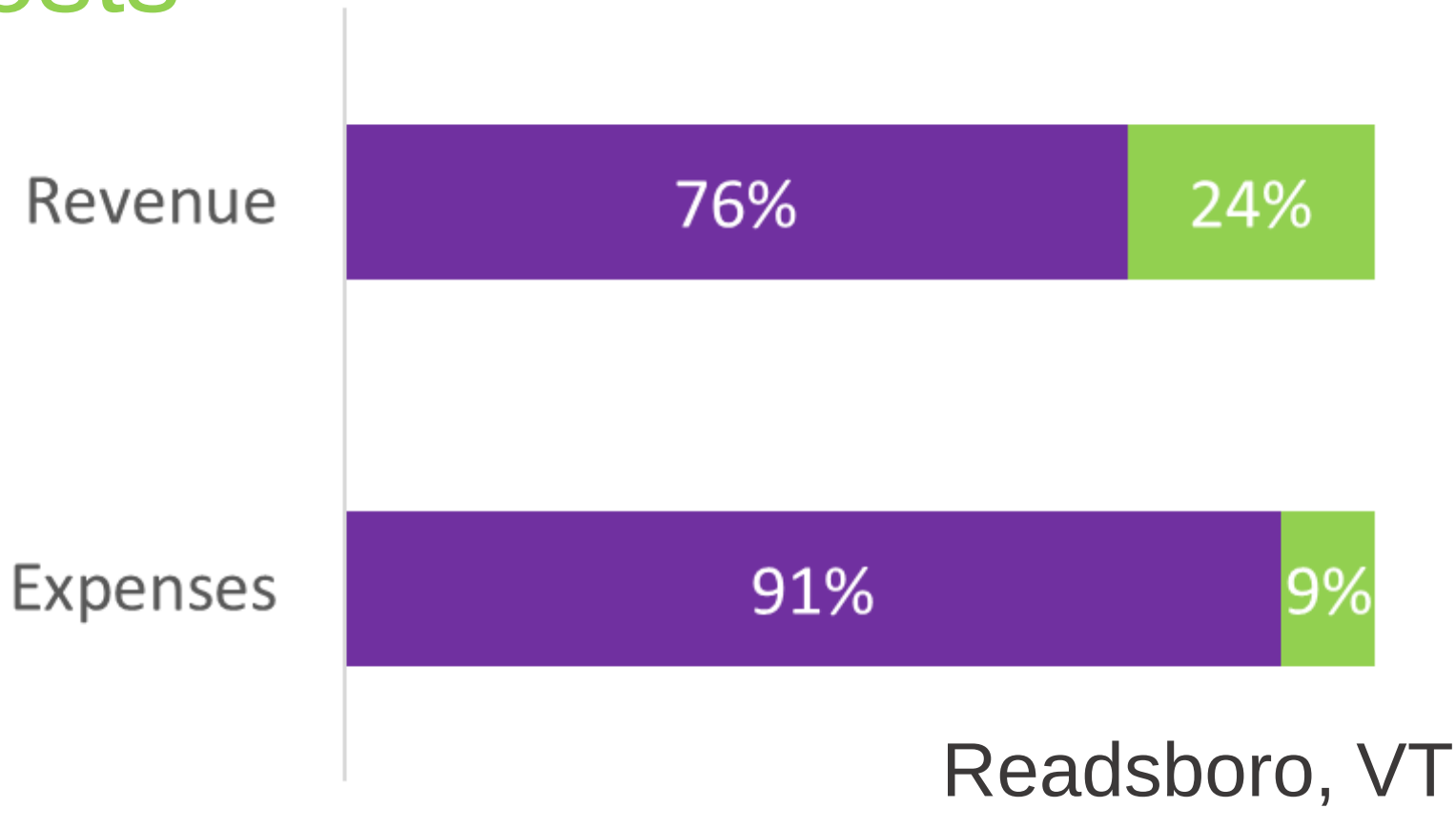
- In its pure form, all of the fixed costs of the water system would be covered by the base charge, and all of the variable costs would be covered by the volumetric rate

Base Charge for Fixed Costs; Volumetric Charge for Variable Costs

Base Chrg	Lower Bound	Rate
38.00	0	0.000000
	4	9.500000

Readsboro, VT

Base Charge for Fixed Costs; Volumetric Charge for Variable Costs



Readsboro, VT

Base Charge for Fixed Costs; Volumetric Charge for Variable Costs

- What information do we need to make this calculation?

- Total revenue needed to cover fixed costs
- Total accounts
- Total revenue needed to cover variable costs
- Total gallons sold

For the Exercise

Revenues from Rates:

$344,445

Everything else

W/S Utilities
Chemicals & Salt
Purchase Water Bill

$292,045

Fixed Cost

$52,400

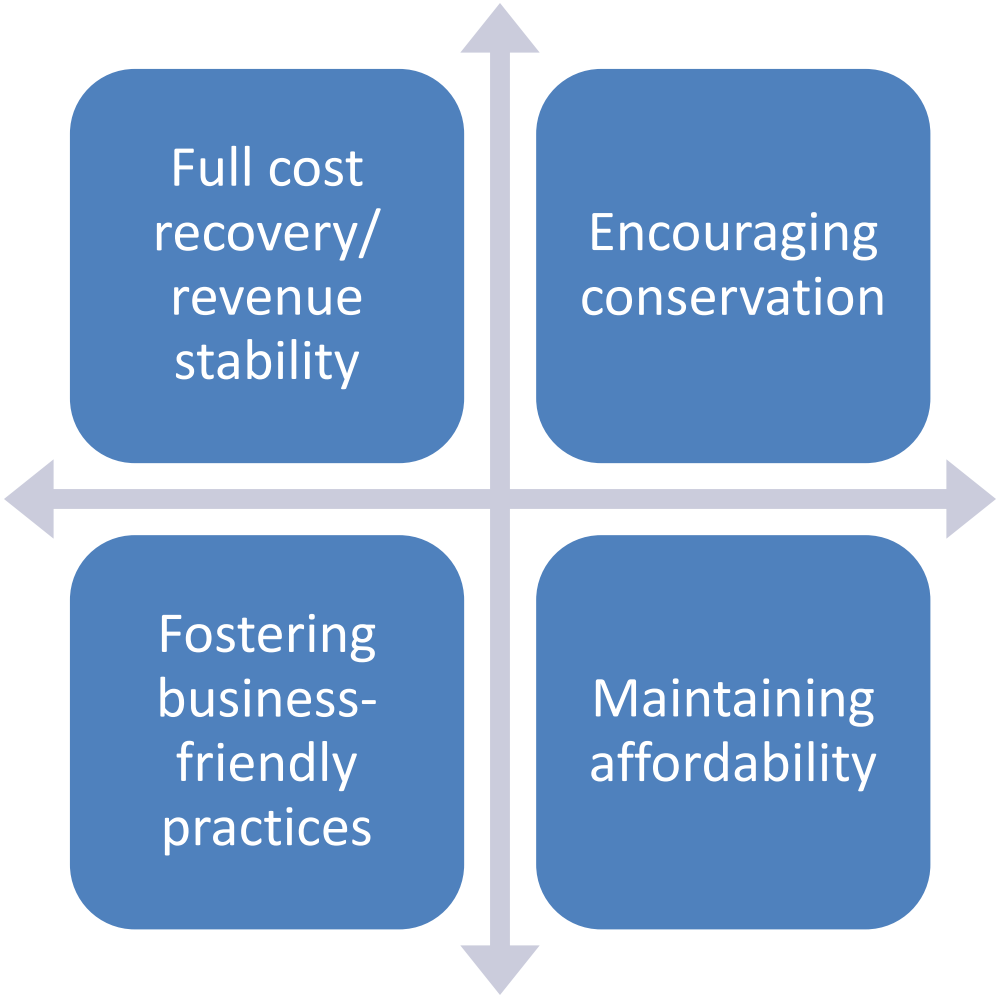
Variable Cost

Base Charge for Fixed Costs; Volumetric Charge for Variable Costs

$$\frac{\text{\$292,045 — Fixed Annual Costs}}{\text{450 — Total Accounts}} = \frac{\text{\$648.99 — Total Annual Bill}}{12} = \text{\$54.08 — Monthly Base Bill}$$

$$\frac{\text{\$52,400 — Variable Annual Costs}}{\text{32,877,590 — Total Gallons Sold}} \times 1{,}000 = \text{\$1.59 — Price per 1,000 Gallons}$$

Which Water System Objectives?



Common Approaches to Setting Base Charges -- Base Charge Set at:

- All “fixed” costs
- Debt costs
- Customer service costs
- Capped at a “reasonable” amount

- After the base charge is determined, calculate volumetric rate to generate the remainder of the revenue requirement

$25 Base Charge; Rest from Volumetric Rates

WATER & SEWER RATES AND FEE SCHEDULE EFFE

	IN TOWN
WATER MINIMUM (1000 GALLONS)	$25.00
SEWER MINIMUM (1000 GALLONS)	$25.00
DISPOSAL FEE	$ 5.00
ADDITIONAL WATER PER 1000 GALLONS	$ 6.15

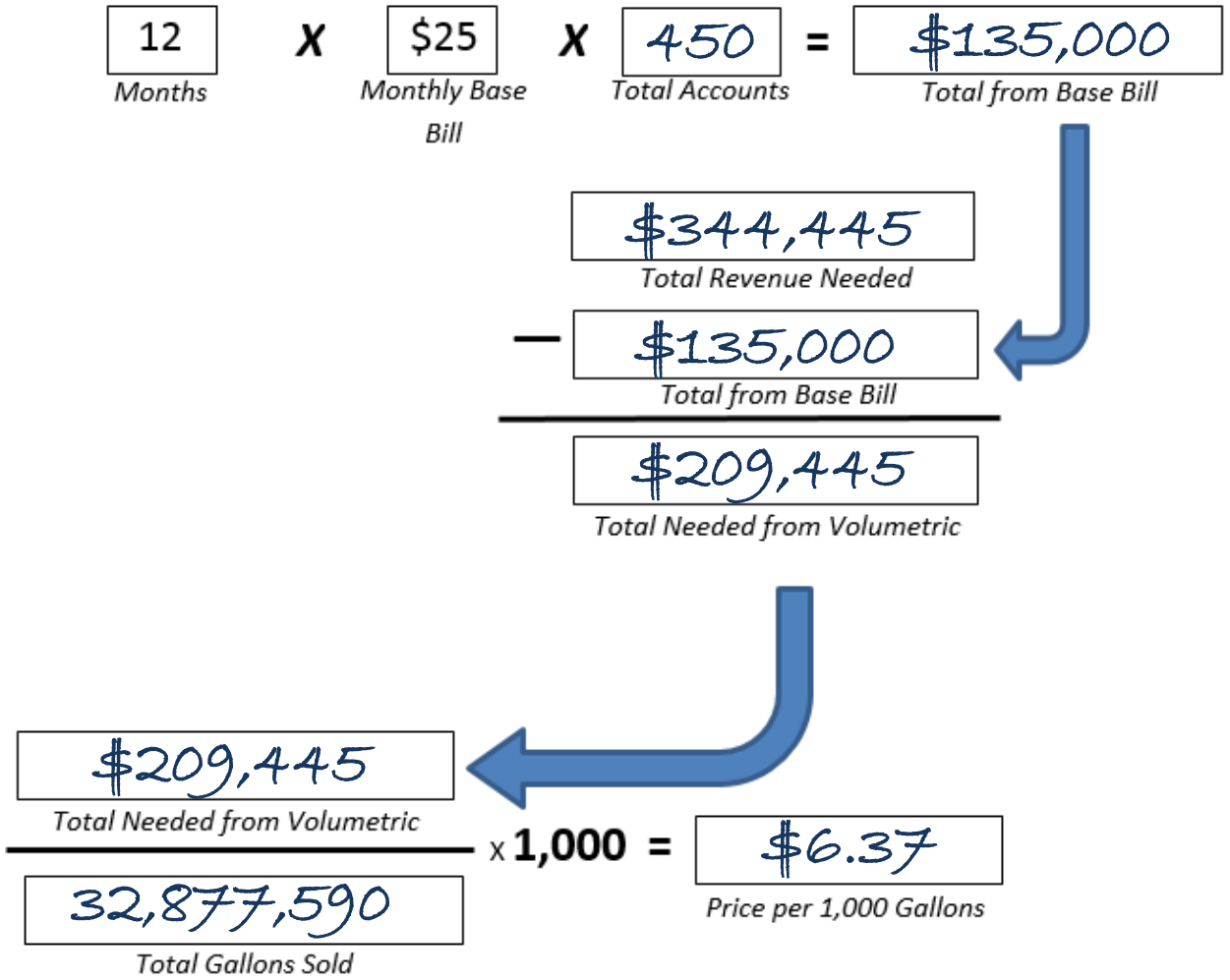
Denton, NC

$25 Base Charge; Rest from Volumetric Rates

- What information do we need to make this calculation?

- Total Accounts
- Total Revenue Needed
- Total Gallons

$25 Base Charge; Rest from Volumetric Rates



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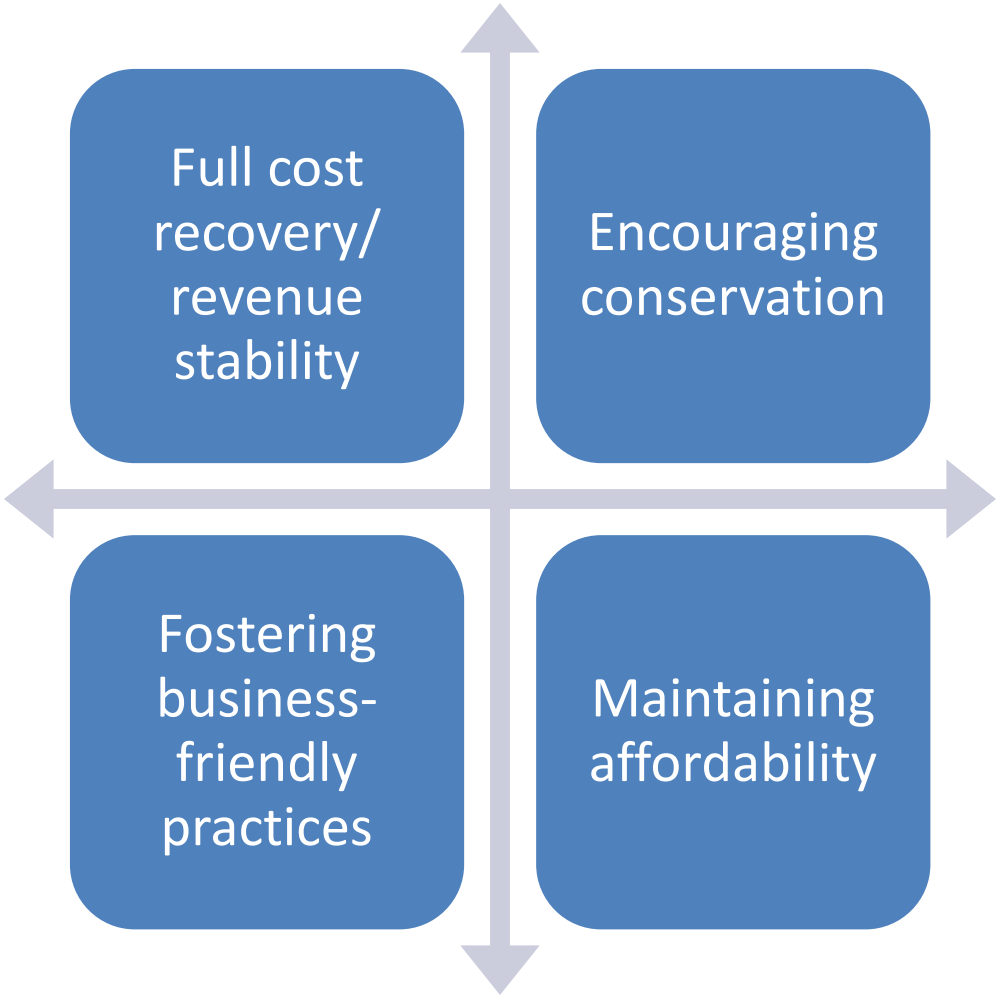


How This Impacts Customers

- All four rate structures get us to the same total revenue

- But how does each approach impact different types of customers?

How This Impacts Customers

1,000 gallons/month

4,000 gallons/month

12,000 gallons/month

34,000 gallons/month

Exercise

How much will water service cost per month for different customers under each rate structure?

Payment for Access

$63.79	$63.79	$63.79	$63.79

Payment for Volume of Product Received

$10.48	$41.92	$125.76	$356.32

Base Charge for Fixed Costs; Volumetric Charge for Variable Costs

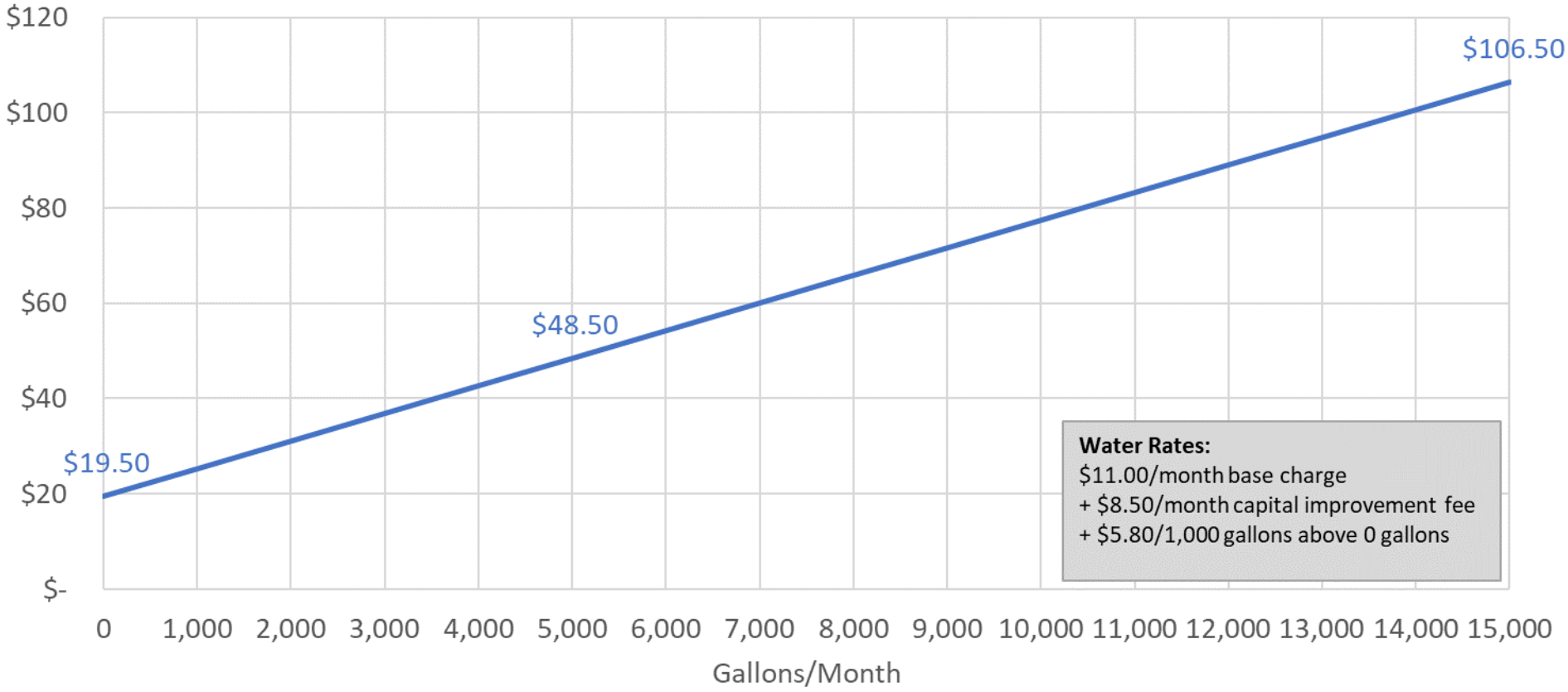
$55.67	$60.44	$73.16	$108.14

$25 Base Charge; Volumetric Charge for Rest

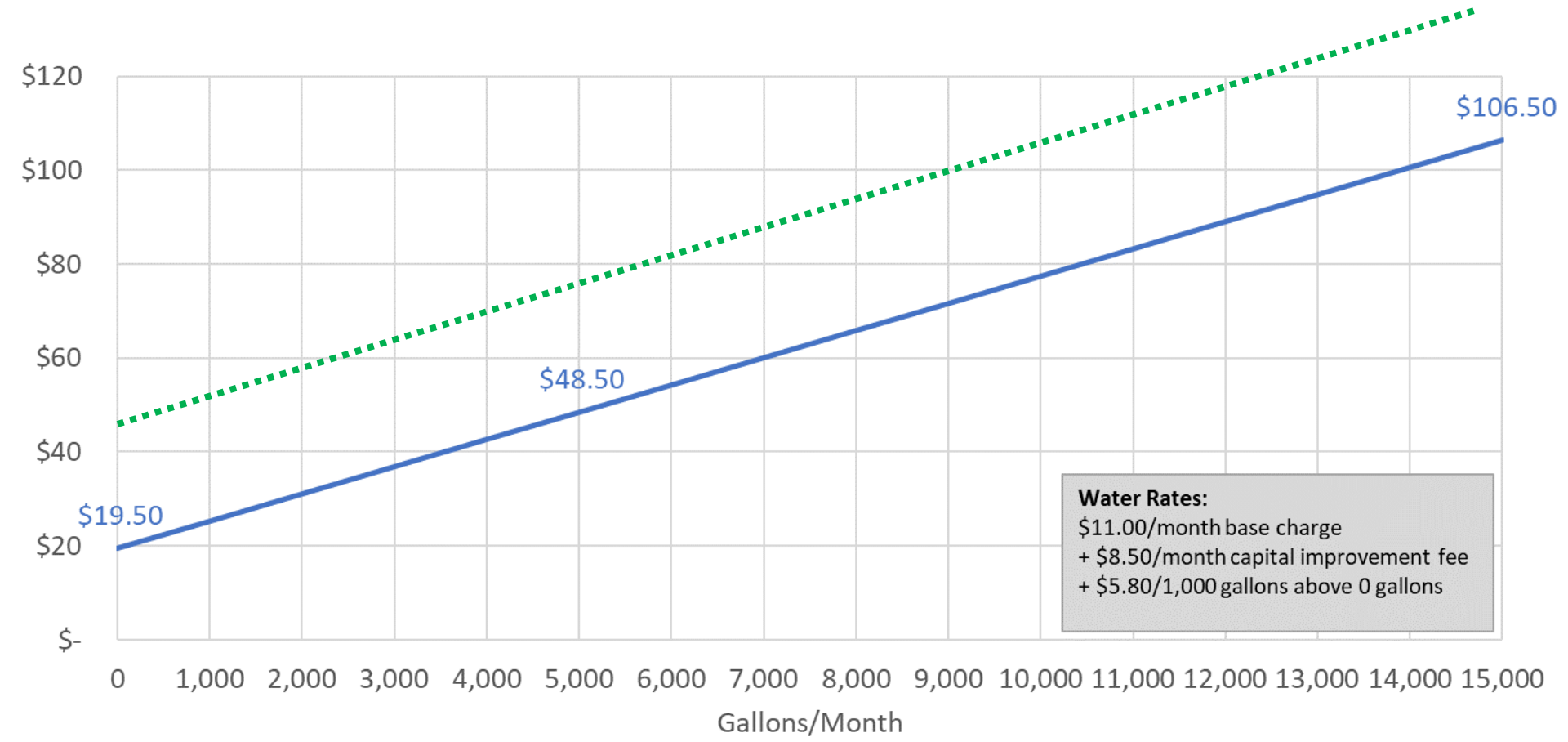
$31.37	$50.48	$101.44	$241.58

	 1,000 gallons/month	 4,000 gallons/month	 12,000 gallons/month	 34,000 gallons/month
Payment for Access (Fixed Monthly Bill)	$63.79	$63.79	$63.79	$63.79
Payment for Volume of Product Received	$10.48	$41.92	$125.76	$356.32
Base Charge for Fixed Costs; Volumetric Charge for Variable Costs	$55.67	$60.44	$73.16	$108.14
$25 Base Charge; Volumetric Charge for Rest	$31.37	$50.48	$101.44	$241.58

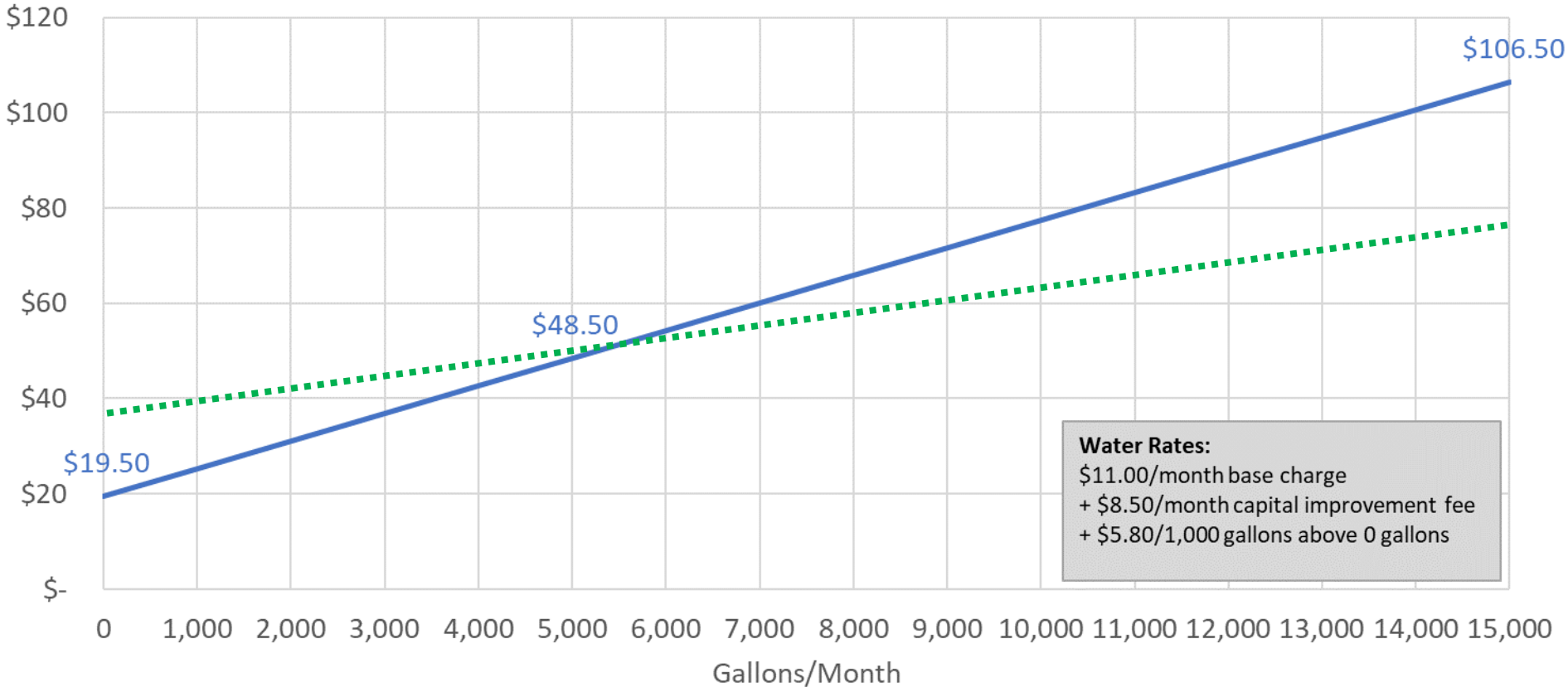
Example of a Uniform Water Rate Structure



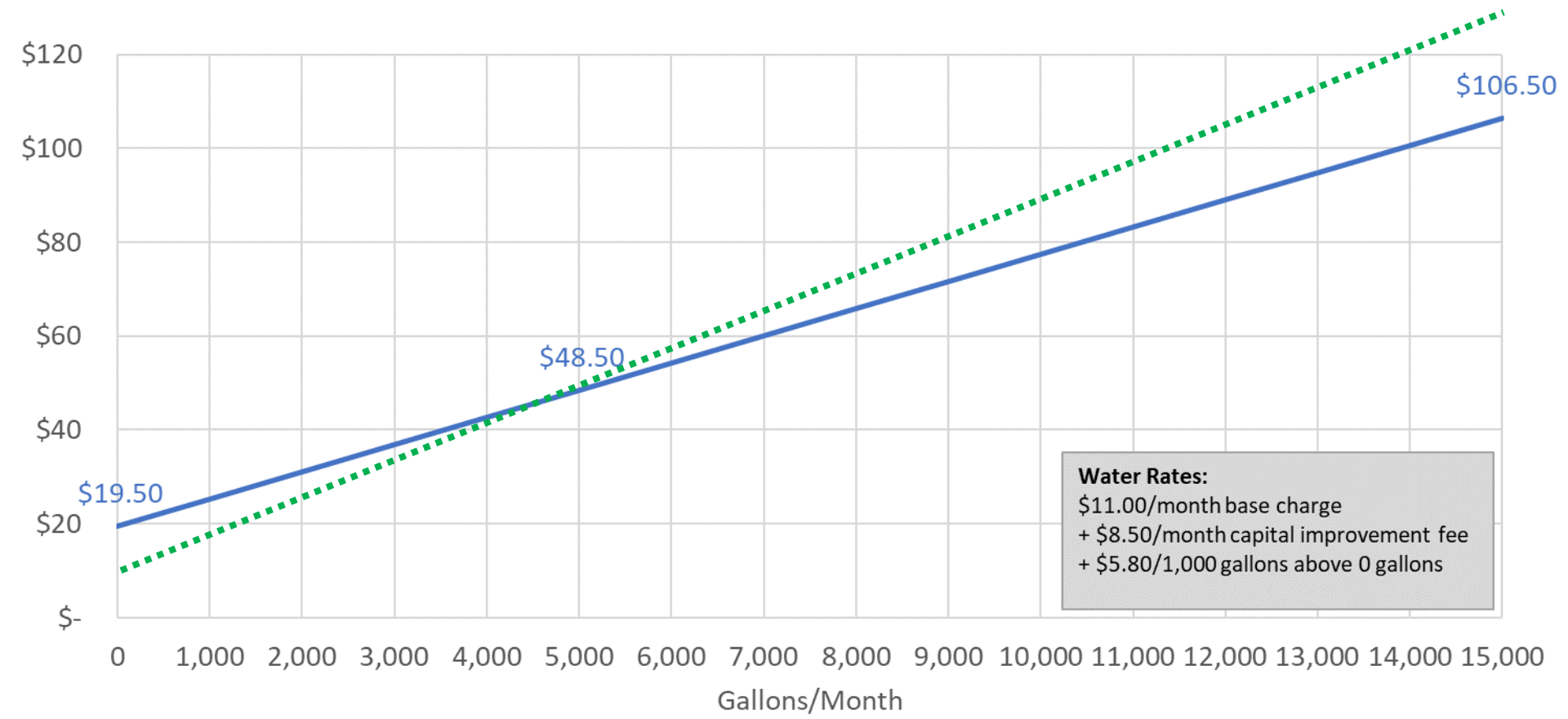
Moving towards a rate structure that generates more revenue for capital



Moving toward a more revenue stable rate structure



Moving toward a more conservation-oriented rate structure

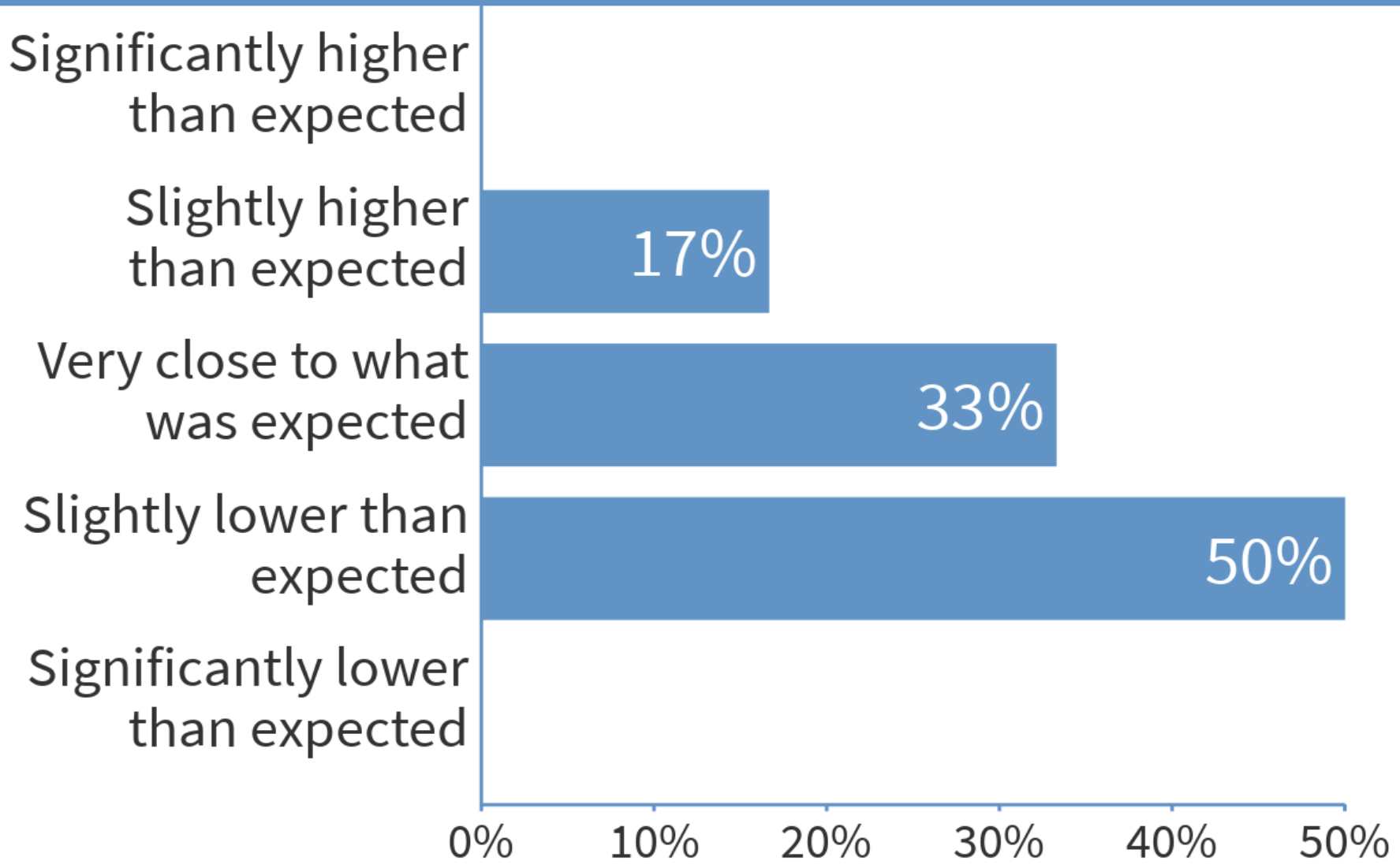


The rates we calculated are based on Irvindale's budget for exactly $344,445.

Will they generate $344,445 next year?

Most probably not

Your revenues last year were…



What causes variation?

Rate Changes

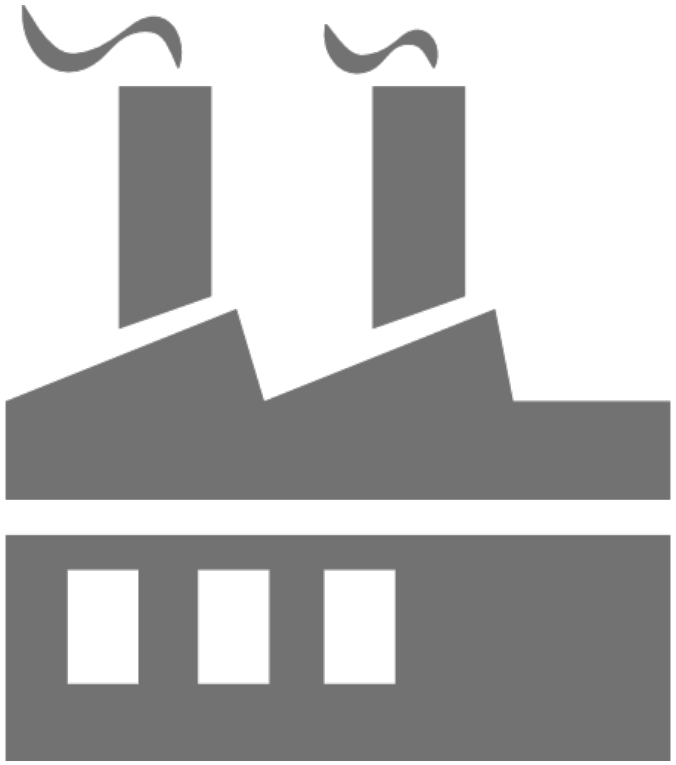
As rates go up, usage goes down

As a rule of thumb, typically usage goes down 3-4% for every 10% increase in rates

Population Change

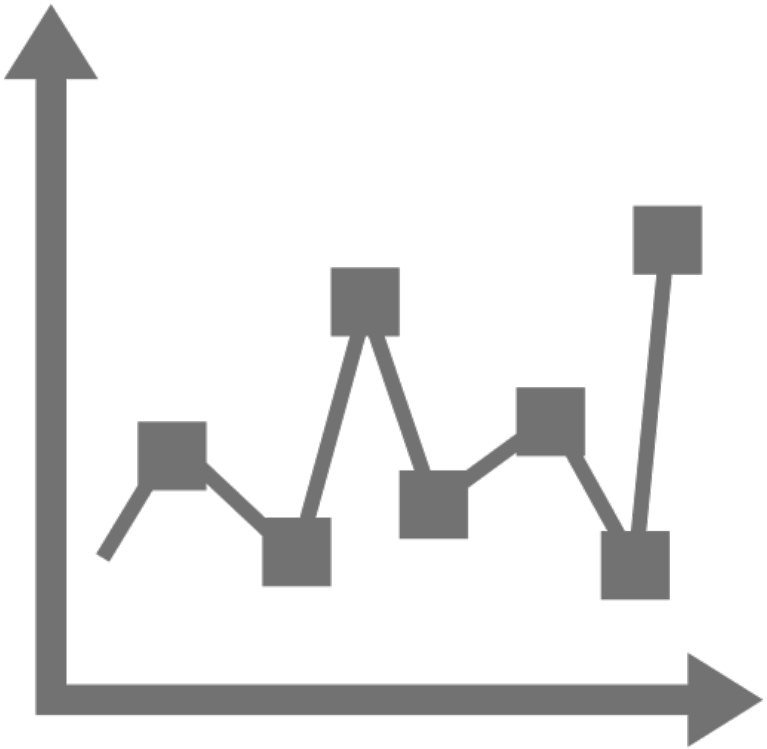
Customers could be coming into your system or leaving your system

Loss of a Big Customer



Some customers use significantly more water than others. Losing a single big user can have a disproportionate impact on revenues

Economic Conditions



Economic downturns can cause customers to cut back on water use. Conversely, periods of economic growth can lead to higher water consumption

Changes in Collection Rates

Even if the number of customers doesn’t change, how often they are paying you may be changing

Weather

Rainy conditions or dry/drought conditions can impact how much water customers use for outside irrigation

Water Use Restrictions

Whether due to water supply shortages or drought conditions, restricting water use will obviously impact revenues

Technology

Fixtures use less water today than in the past, and overall per capita water demand is decreasing across the country

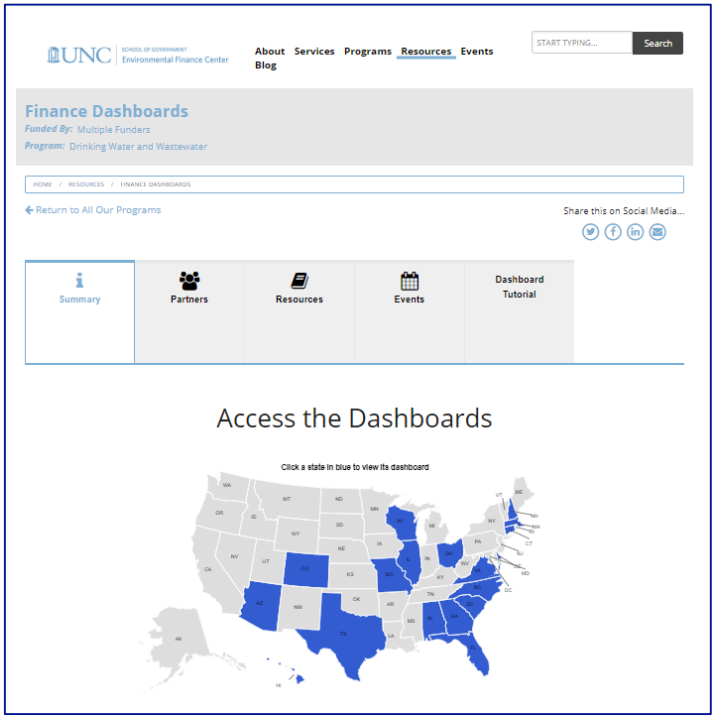
What to do?

- Multiple forecasts based on different assumptions

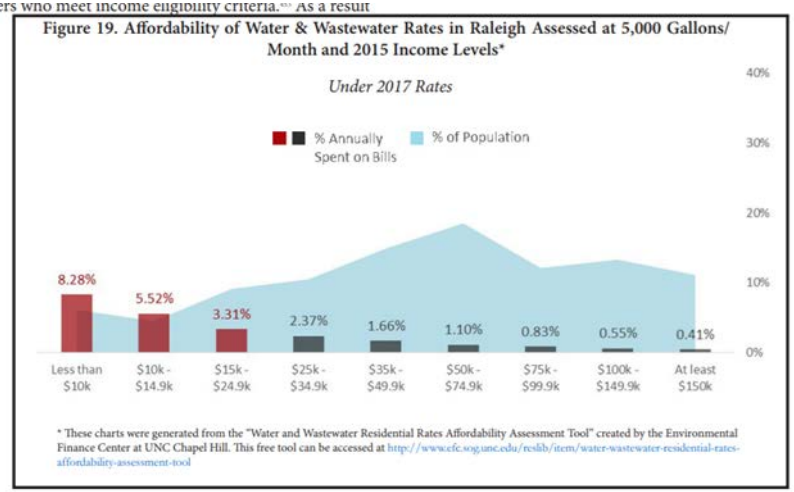
- Ideally, be conservative
- Don’t forget that average use will go down when rates go up
- Use tools to stress test projections
- Give board options

Rates analysis and tools environmentalfinance.org

- State level rates surveys and analysis
- Utility rates affordability assessment tools
- Survey results and presentations



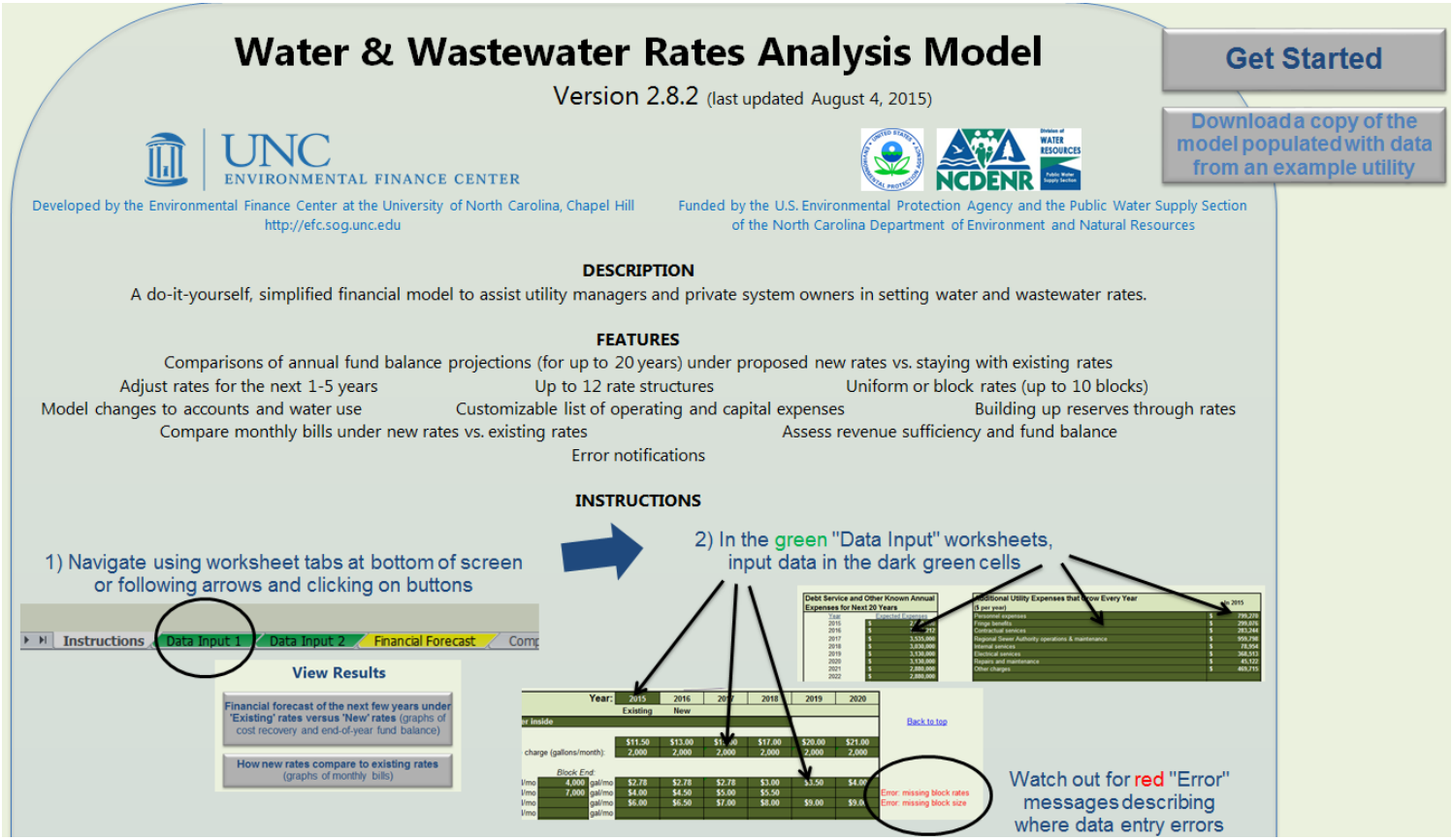
ers who meet income eligibility criteria."[83] As a result



Water and Wastewater Rates Analysis Model

http://efc.sog.unc.edu or http://efcnetwork.org

Find the most up-to-date version in Resources / Tools



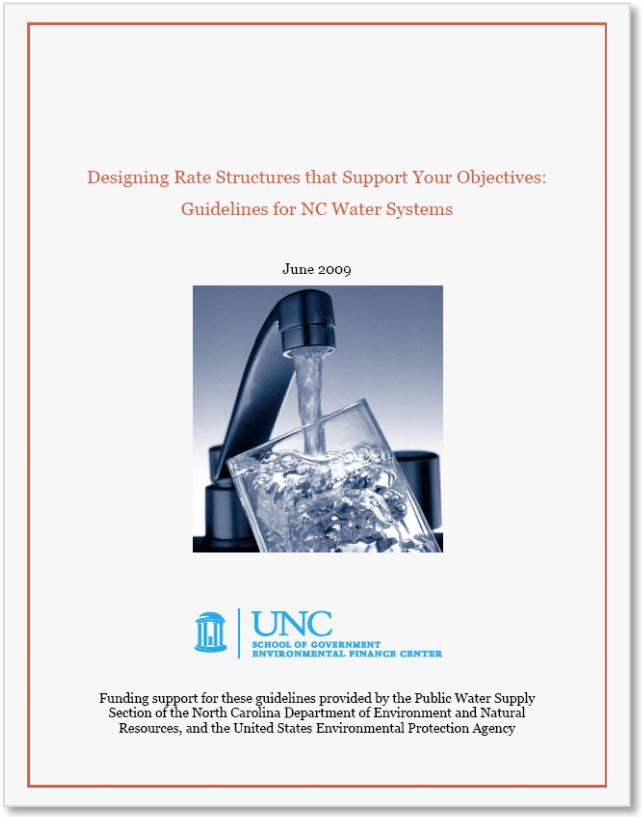
Created by the Environmental Finance Center at the University of North Carolina, Chapel Hill

Funded by the U.S. E.P.A. and the N.C. Department of Environmental Quality

Designing Rate Structures That Support Your Objectives

Free guide written for system managers

Available at: http://efc.sog.unc.edu/



Guidebooks on setting rates/financial planning

http://www.awwa.org

EPA United States Environmental Protection Agency

Setting Small Drinking Water System Rates for a Sustainable Future

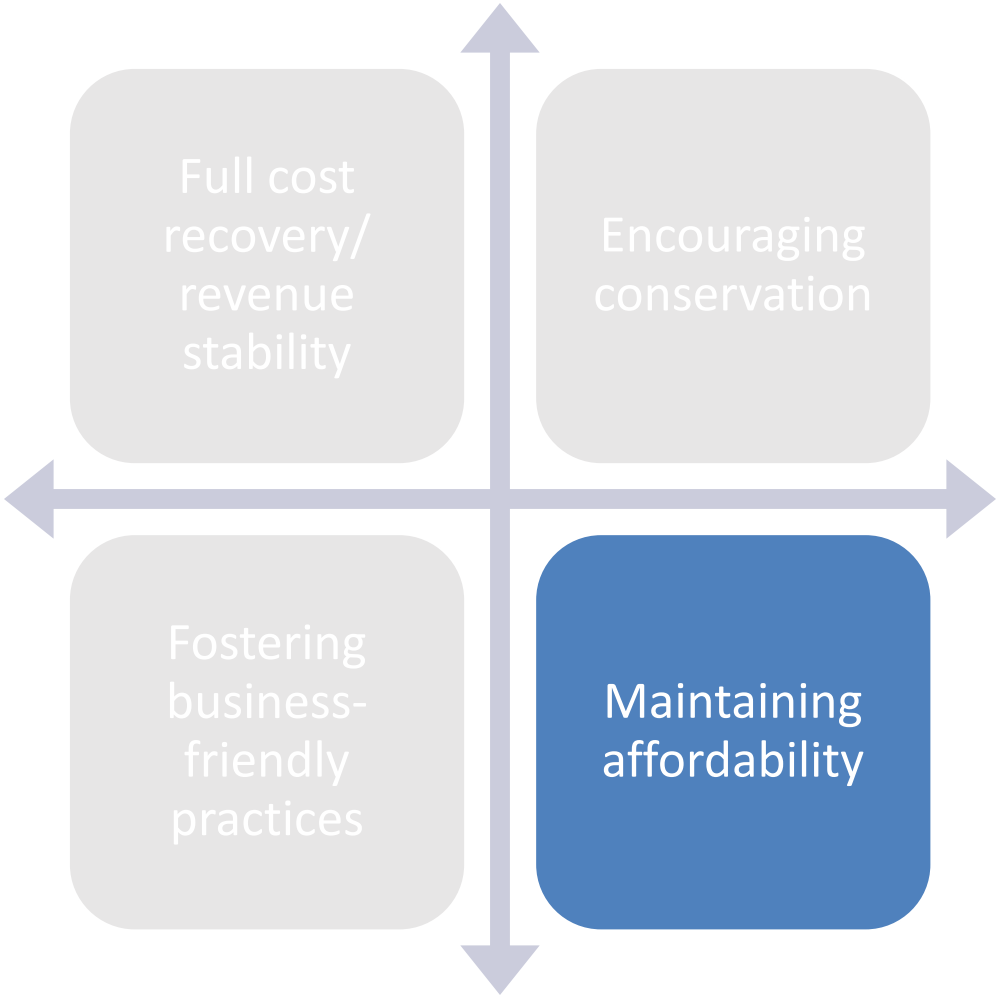
One of the Simple Tools for Effective Performance (STEP) Guide Series

http://www.epa.gov/safewater/smallsystems

http://www.epa.gov/ogwdw/smallsystems/pdfs/guide_smallsystems_final_ratesetting_guide.pdf

Meeting Affordability Objectives

Maintaining Affordability

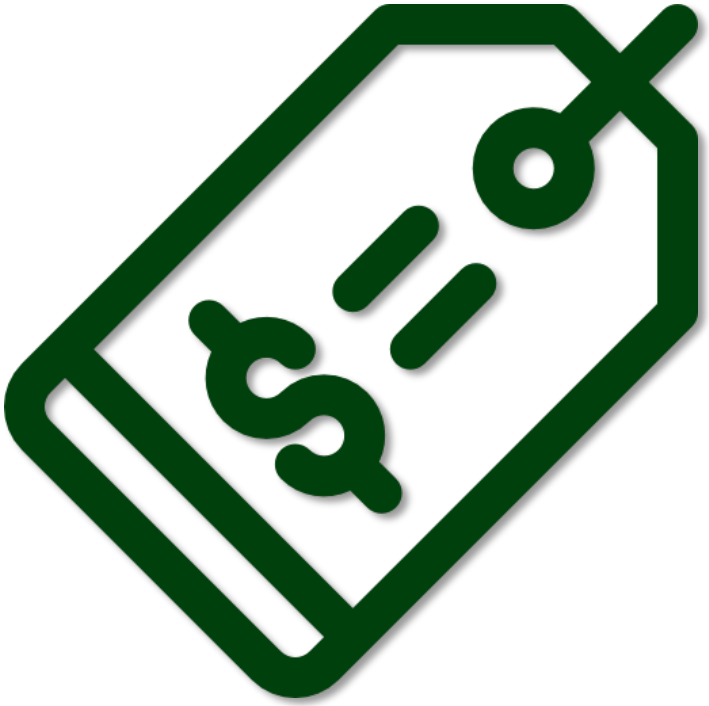


System Approach: Cost Reductions

- Reduce immediate capital costs (grants, loans, etc.)
- Reduce costs of service provision (water audit, asset management, energy management, consolidation or contracting services, etc.)
- Reduce amount of water purchased or treated

Caution: Do not allow these approaches to prevent you from spending what you need to ensure safe drinking water service in the short and long-term.

Customer Approaches



Pricing signals through your rates

Non-price strategies

Affordability is Best Assessed Locally

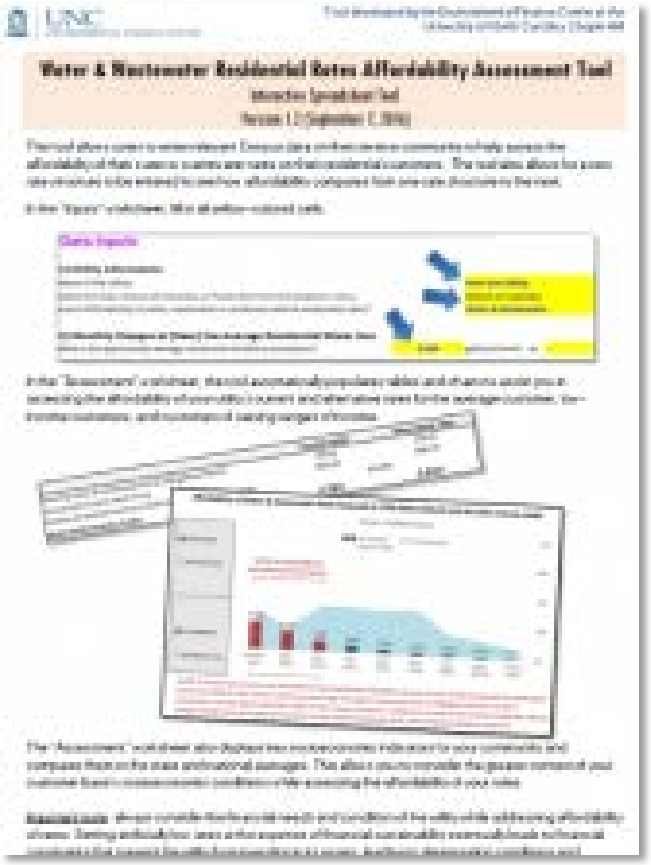
- There is no nationally-accepted standard (yet) for affordability of water and wastewater service.

- You know your own community the best. Your board should set the threshold for affordability.

Water and Wastewater Residential Rates Affordability Assessment Tool

Go to
http://efc.sog.unc.edu

and search for
“Affordability Assessment Tool”



Ability vs. Willingness to Pay

- There is a difference between someone who has a legitimate financial issue and someone who doesn't have the best priorities in life

- In other words, some people have an ability to pay problem. Others simply have a *willingness* to pay problem

Why Care About Affordability?

- Altruistic reasons
- Business reasons
- External pressure

What does your system do to maintain affordability?

Non-Price Strategies

Non-Price Strategies to Help Customers with their Bills

- Communication about rates
- Extensions
- Adjustments or waivers
- Options for payments
- Help customers reduce water use
- Customer Assistance Programs

Extensions

Payment Extension Policy

Customers who are unable to pay their bill on time may request an extension. A Payment Extension is provided to temporarily extend the due date of the bill for those situations when a qualifying customer is in need. Only the account holder may request this service, and it must be requested prior to the scheduled cut-off day. Payment extensions can only be made on active accounts.

Customers will be allowed two extensions of five days each per 12 month period. Extensions will not be allowed on an account that has less than three billing cycles, if a final read is scheduled, or if the Town is aware the customer is moving. Customers must provide a reasonable cause or undue hardship requiring the extension. Based on the customer's payment history and the amount due, the Town may not be able to grant as extension in all situations.

This extension does not prevent the payment from being considered late, which will lead to additional charges on the account. Even if a payment extension has been granted, a second notice will be mailed. If payment is not received by the extension date, the payment extension will default and the account will be disconnected.

In addition, all accounts terminated for non-payment twice within six months may be reviewed to ensure the deposit on hand is sufficient. If there is a gap between the deposit on hand and three months' average billing for that account, the deposit may be increased to the required level.

Payment Plans

ILLINOIS AMERICAN WATER

Search...

Water Quality | Water Information | About Us | News & Community

CUSTOMER ASSISTANCE PROGRAM

Sometimes customers face circumstances that stretch their financial resources. Illinois American Water is here to assist. Our customer service representatives will work with you on a plan to pay the balance of your bill over time. You may also be qualified to receive assistance through our H2O Help to Others Program™.

Payment Arrangements

If you cannot pay your bill by the due date, please contact our customer service center immediately, before the due date. Our customer service representatives are available seven days a week at 800-422-2782. They will work with you on a plan to pay the balance of your bill over time.

Arrearage Forgiveness

HOW OFTEN WILL AN EXEMPTION BE GRANTED?

Residential owner can quality for a "***once in a lifetime***" exemption. The exemption applies to the individual owner and not the property address or billing number. For example, if an individual owns multiple rental properties, that owner must choose against which property, including his own home, the exemption will apply. Single family homeowners, without rental properties, using Borough Authority water could only apply the exemption against their domicile.

HOW MUCH OF MY BILL WILL BE FORGIVEN?

The program provides **ONLY LIMITED FORGIVENESS** of one's Water bill. Pursuant to the guidelines established by the Authority, **ONLY THAT PORTION** of the bill which is **THREE (3) OVER THE AVERAGE CONSUMPTION WILL BE CONSIDERED FOR EXEMPTION.** Average consumption is derived from an owner's last four (4) quarters of actual consumption.

Shippensburg, PA

Bill Discounts

City of Moberly!
Application

Water/Sewer Discount

EFFECTIVE DATE:_____
RENEW BY: _____

Thank you for applying to the City of Moberly Water/Sewer Discount program. The eligibility requirements for this program are:

- Water/Sewer utilities must be in your name or spouse's name
- Minimum 65 years of age **OR** permanently and totally disabled
- Provide documentation of age (drivers license or other government issued ID)
- Provide documentation of disability, if applicable (Social Security Administration certification)
- Provide documentation of income (Federal form 1040, 1040A, 1040EZ, Social Security Earning Statement, bank statements)
- Meet current income guidelines adopted by the City of Moberly

YOU MUST REAPPLY EACH YEAR TO CONTINUE RECEIVING THE DISCOUNT. IF APPROVED, THE CITY OF MOBERLY WILL DISCOUNT 25% (MAXIMUM $10.00) FROM YOUR MONTHLY WATER/SEWER BILL FOR ONE YEAR.

CUSTOMER INFORMATION

Account #: _____ **Date:** _____

Name: _____ **Daytime Phone #:** _____

Address:

Bill Discounts

If approved, eligible residents will:

- Have late fees and door hanger fees waived (as applicable);
- Receive a credit applied to their utility bill based on the table below;
- Be provided with water conservation educational materials.

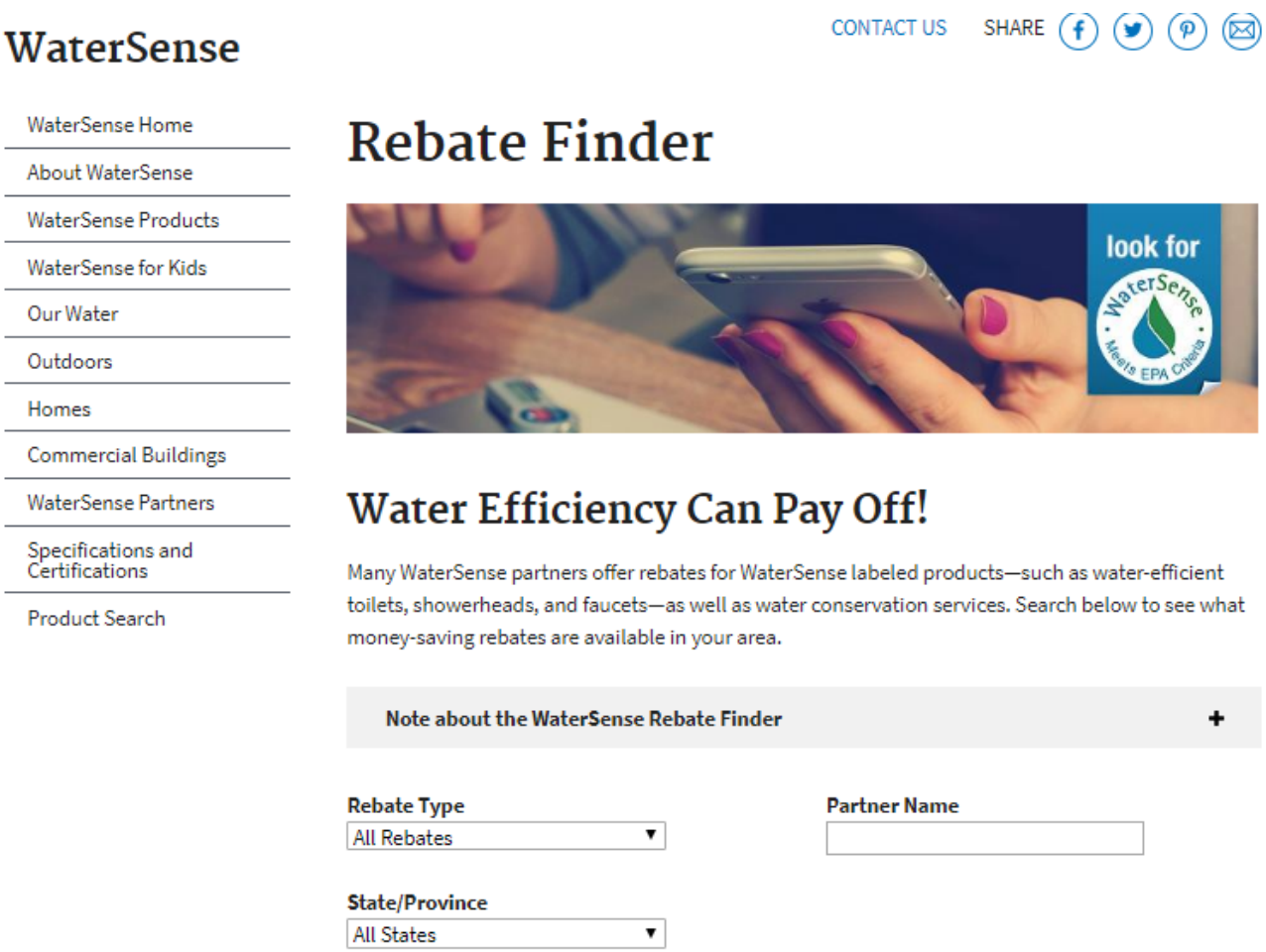
UAP Credit Guideline Table

Family Size	Monthly Income	Potential Credit
1	$1,792	$25
2	$2,344	$50
3	$2,895	$75
4	$3,446	$90
5	$3,998	$100
6 or more	$4,549	$125

Astoria, OR

Levelized Billing

Help Customers Save Water and Money



- Rebates to replace toilets, washing machines, dishwashers, irrigation hardware, etc.
- Consultation/ water audit
- Turf buyback

https://www.epa.gov/watersense/rebate-finder

Mammoth Community Water Dist.

Mammoth Community Water District
WATER IS OUR FUTURE

☐ **High Efficiency WaterSense® Labeled Toilets (HET):** Eligible toilets must be WaterSense labeled and use 1.28 gallons per flush (GPF) or have a high/low flush option (dual flush). Rebates are up to $200 per toilet for the first two toilets in a unit, additional toilets are eligible for a rebate up to $100. WaterSense toilets can be found online at: http://www.epa.gov.WaterSense/products/toilets.html

☐ **High Efficiency Clothes Washer (HECW):** Eligible washers must have a water factor (WF) of 4.5 or less. Rebate is up to $400. Commercial clothes washers are eligible for up to $600, special terms apply, call MCWD for more information. HECW water factors can be found online at the Consortium for Energy Efficiency website product list: http://www.cee1.org New machine installations require permit from Town of Mammoth Lakes.

MCWD Rebates

Save water and money with MCWD's rebate program. We are currently offering rebates on toilets, clothes washers and pressure reducing valves for irrigation systems. Replacing old appliances and fixtures with new water efficient ones is an easy way to incorporate water savings in your daily life. For more information call Kris McDaniel at 760-934-2596 ext. 223, or by clicking here to send Kris McDaniel an email.

PDF Rebate Downloads
Indoor Residential Rebate Click Here
Outdoor PRV Rebate Click Here

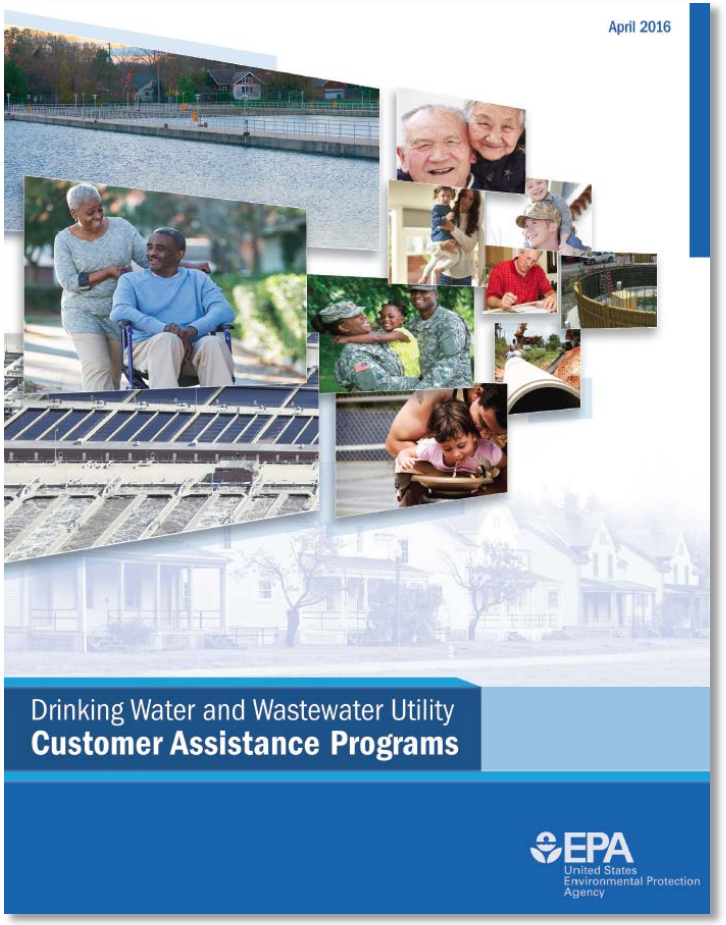
(W-9 Form - for Rebate(s) exceeding $599.99)

Product List Links

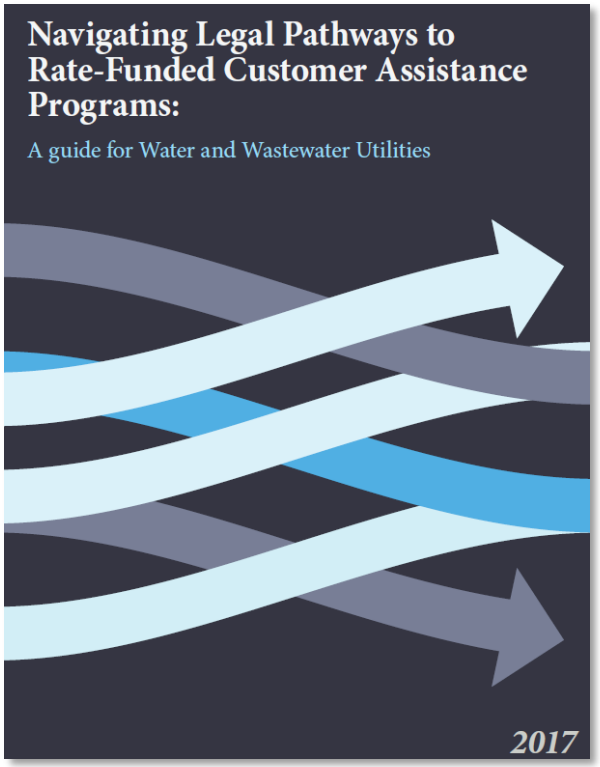
Compendium: Customer Assistance Programs (CAPs)

EPA developed compendium with examples of different types of water and wastewater CAPs across the U.S.

http://ow.ly/4nvSyO



Navigating Legal Pathways to Rate-Funded Customer Assistance Programs



Alabama

Commission-regulated utilities

Noncommission-regulated utilities

Water and wastewater utilities in Alabama fall under several rate setting regulatory systems.

Commission-Regulated Utilities

The Alabama Public Service Commission (APSC) regulates private water and wastewater companies in Alabama.[21] Under Ala. Code § 37-1-34, the APSC does not have the authority to regulate government-owned utilities. Furthermore, per Ala. Code § 37-4-2.1, utilities serving less than 1,000 customers and purchasing water from a noncommission-regulated utility[22] can choose to be exempt from APSC regulation and instead fall under that utility's municipal authority.

Ala. Code § 37-1-81 states that commission-regulated utilities need to file rate schedules with the APSC before changing rates. In addition, Ala. Code § 37-1-80 states that commission-regulated utilities must charge "reasonable and just" rates. Alabama follows the "rate base theory" when determining what is just and reasonable, with the rate base (to determine the fair rate of return) being "the valuation placed on the utility property."[23] Ala. Code § 37-1-124 considers rates set by the APSC to be *prima facie* just and reasonable.[24] Furthermore, when the APSC finds rates to be unjust and unreasonable, Ala. Code § 37-1-97 gives it the power to adjust them to be just and reasonable.

Thus, commission-regulated utilities would likely need specific approval, in the form of an APSC order, to charge rates to be used to fund a low-income customer assistance program (CAP).

Noncommission-Regulated Utilities

Municipalities, including cities and towns, have the right to operate and maintain rates for water utilities.[25] They are not subject to APSC regulation and thus can set their own water and wastewater rates.[26] For wastewater rates, under Ala. Code § 11-50-121, "all such charges shall be uniform for the same type, class, and amount of use or service by or from the sewer system." This code also lists factors that can be used to set rates, but does not mention socio-economic factors.[27]

State Population (2016): 4,863,300

Median Annual Household Income (2015): $43,623

Poverty Rate (2015): 18.8%

Typical Annual Household Water and Wastewater Expenditures (2016): $775

Alabama has 516 community water systems (CWS), of which 17 are privately-owned and 406 serve populations of 10,000 or fewer people. Alabama has 291 publicly owned treatment works facilities (POTWs), of which 204 treat 1 MGD or less. 58,937 people are served by privately-owned CWS; 5,548,854 are served by government-owned CWS; and 2,420,993 are served by POTWs.

Estimated Long-Term Water and Wastewater Infrastructure Needs: $11.0 billion

Sources: U.S. Census Bureau 2016 Population Estimate & 2011-2015 American Community Survey 5-Year Estimates, 2016 EFC Rates Survey, U.S. Environmental Protection Agency's 2016 Safe Drinking Water Information System, 2011 Drinking Water Infrastructure Needs Survey & 2012 Clean Watersheds Needs Survey. See Appendix I for more details.

Based on the limits laid out above, noncommission-regulated water utilities appear to have very broad rate-setting authority that could be used to implement low-income CAPs funded by rate revenues. On the other hand, because of the aforementioned specific statutory limitation, wastewater utilities might face legal challenges if using rate revenues to fund low-income CAPs, but such programs would face fewer obstacles than programs using income-indexed rates or discounts.

https://efc.sog.unc.edu/pathways-to-rate-funded-customer-assistance

Customer Assistance Programs

Applying for and Receiving Assistance from TAP

Service Authority customers seeking assistance from ACTS and SERVE in order to pay their water and sewer bills must meet the following minimum criteria:

- The applicant must be a residential customer with a documented impending disconnection of service.
- The applicant must be the Service Authority account holder.
- The applicant must meet any additional criteria required by ACTS or SERVE policies.

TAP has the following payment restrictions:

- The maximum assistance that can be provided for any one account at any given time is $150.
- TAP funds may not be used towards peak charges, penalties, late fees, or other charges.
- TAP funds may only be used to pay towards a specific Service Authority account not more than two

Prince William County, VA

Some Elements of Designing a CAP

- Deciding **who** gets assistance
- Deciding what **types** of assistance to provide
- Planning for program outreach and monitoring
- Determining how much the CAP will cost
- **Devising a plan to fund the CAP**

Who Gets Assistance?
Common Practices in Eligibility Verification

- Partnering with another organization that focuses on low-income
- Proof of eligibility in related programs, such as:
  - LIHEAP (Low Income Home Energy Assistance Program)
  - AFDC (Aid to Families with Dependent Children)
  - SSI (Supplemental Social Security Income)
  - Medicaid
  - SNAP (Supplemental Nutrition Assistance Program)
  - Local property tax assistance; and
  - Other utilities (electric, natural gas, telephone, offer discount programs based on income)

Pricing Strategies

Pricing Strategies

- Low base charge and/or first block rates
- Consumption allowance included if have a high base charge
- Separate rate structure for residential / non-residential customers
- Irrigation water rates
- Alternative price models (individualized base charges)

Caution! Don’t undercharge all services. Cannot charge lower rates for senior citizens/low-income customers, etc.

Low Base Charge

WATER RATES		
Residential Inside-Monthly Minimum-1st 3,000 Gallons	$	6.73
		(1.98 per 1000 gallon)
Apartment Inside-Monthly Minimum-1st 3,000 Gallons	$	6.73
		(1.98 per 1000 gallon)
Commercial Inside-Monthly Minimum-1st 3,000 Gallons	$	16.79
		(1.98 per 1000 gallon)

Wilkesboro, NC

Increasing Block with Low 1st Block

Base Water Rates (residential *effective 4/1/2015*)

Line Size	Inside City Limits	Outside City Limits
5/8 – 3/4 inch line	$ 15.50	$ 25.20
1 inch line	$ 15.50	$ 25.20

Volume Rate (residential *effective 4/1/2015*)

1st 2,000 gallons	$ 2.50 per 1,000 gal.	$ 3.00 per 1,000 gal.
2,001 – 6,999 gallons	$ 7.20 per 1,000 gal.	$ 8.00 per 1,000 gal.
7,000 + gallons	$ 9.00 per 1,000 gal.	$ 9.00 per 1,000 gal.

Winder, GA

Increasing Block with Low 1st Block

May 2016					
Description	**Usage**	**Water**		**Sewer**	
		Base Rate	**Tier Rate**	**Base Rate**	**Tier Rate**
Residential					
5/8” meter		$10.05		$10.73	
Tier 1	1k-3k		$2.37		$2.56
Tier 2	4k-7k		$5.68		$6.02
Tier 3	8k-20k		$7.03		$6.02
Tier 4	>20k		$8.44		$6.02

Clayton County, GA

Rates for Special Classes of Customers

2017 QUARTERLY RATES

WATER	**$39.57**	**0 – 5,000 Gallons**
	$ 6.60	**Per T/Gallons 5,000 +**

2017 SENIOR RATES

Water	**$ 35.61**	**0 – 5,000 Gallons**
	$ 5.94	**Per T/Gallons 5,000 +**

Plymouth Village Water and Sewer, NH

Volumetric Rates Based on Income

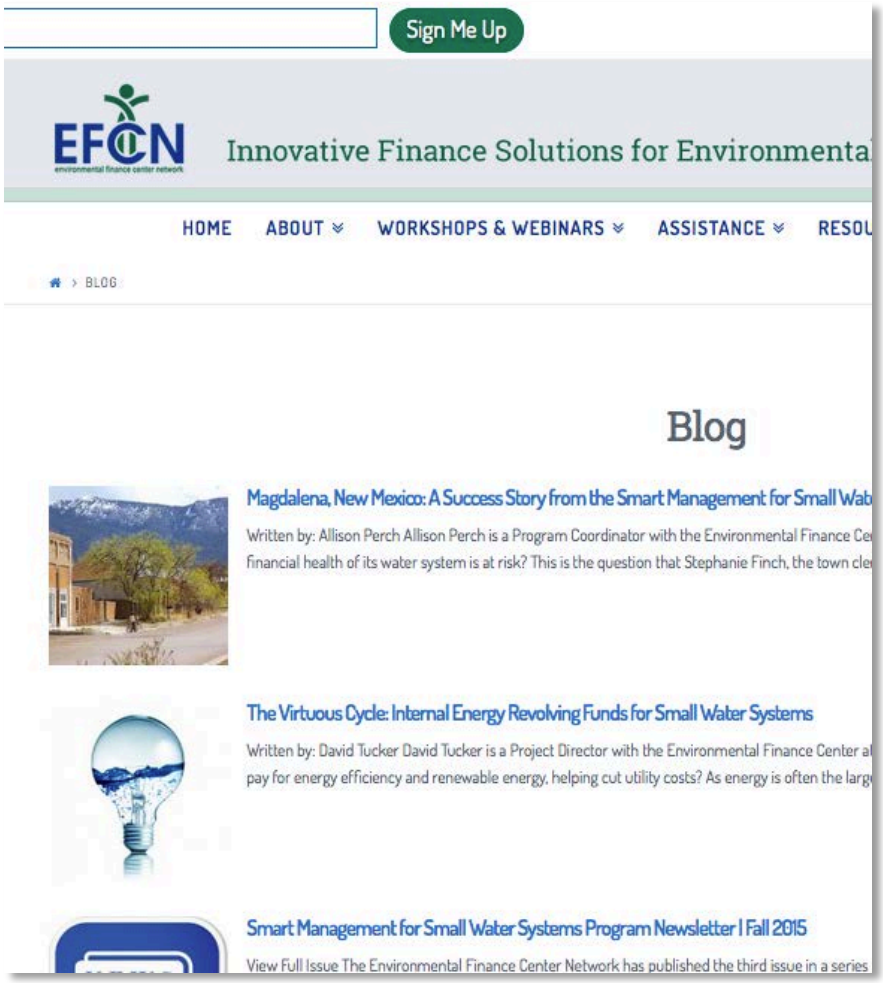
Combined Water & Sewer		Quantity Charges CCF / Mo. 1st 300 cf	Over 300 cf
RESIDENTIAL			
WATER			
	2017 10.00%		
2017	Regular Residential	1.47	2.46
2017	Low Income Residential	1.33	2.21
	(90 % of Regular Residential)		

Great Falls, MT

Closing

http://efcnetwork.org/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.”



Thank you and don’t be a stranger!

- Please fill out an evaluation form
- Contact us anytime for direct assistance on any finance and management topic

http://efcnetwork.org

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