



Best Practices in Utility Rate Setting



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November 17, 2020

About FCS Group



- **Utility rate and fee consulting**
- **Utility management consulting**
- **Financial planning and analysis**
- **Economic services**



Why Are Rate Studies Important?

Your Utility Is A Business

- Revenues need to cover utility costs
- Quantifies policies, priorities, and initiatives
- Tells the “true” cost of providing service

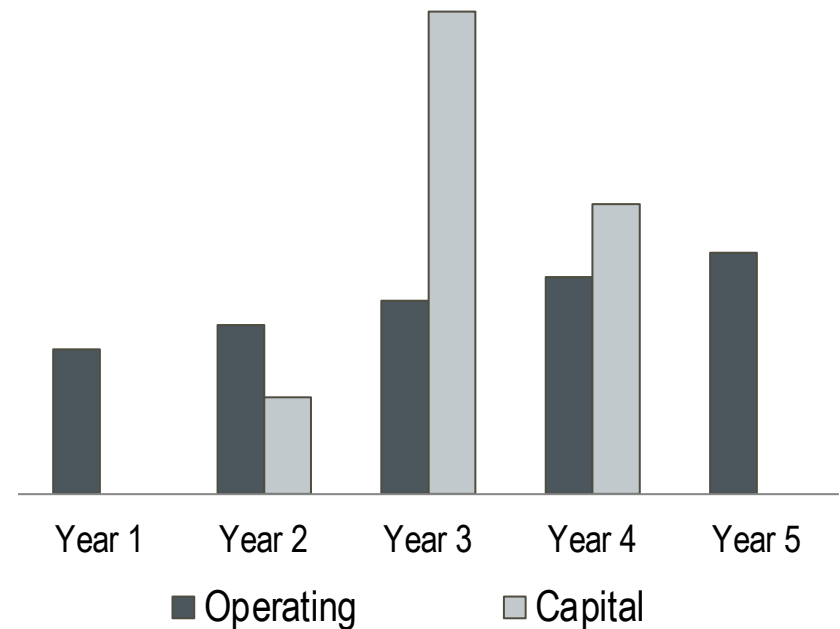
Public Accountability

- Public meetings



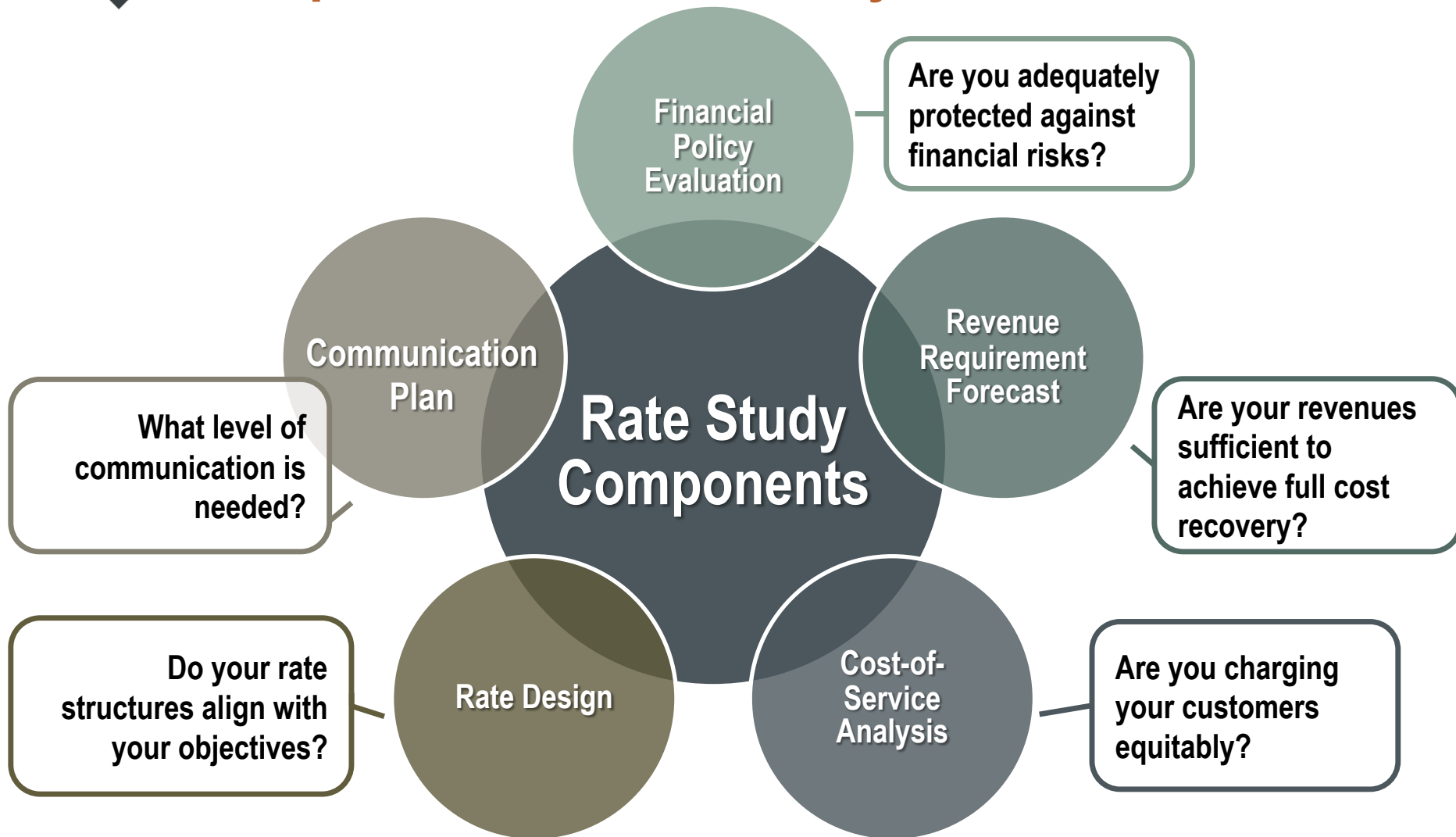
Introduction to Utility Rate Making

- **Utility rates are set to recover the cost of providing service**
- **Operating costs (regular / ongoing)**
 - » Employee salaries and benefits
 - » Routine inspections & maintenance
 - » Professional services
 - » Utilities / power
- **Capital costs (periodic)**
 - » Infrastructure replacement
 - » Facility expansions and upgrades





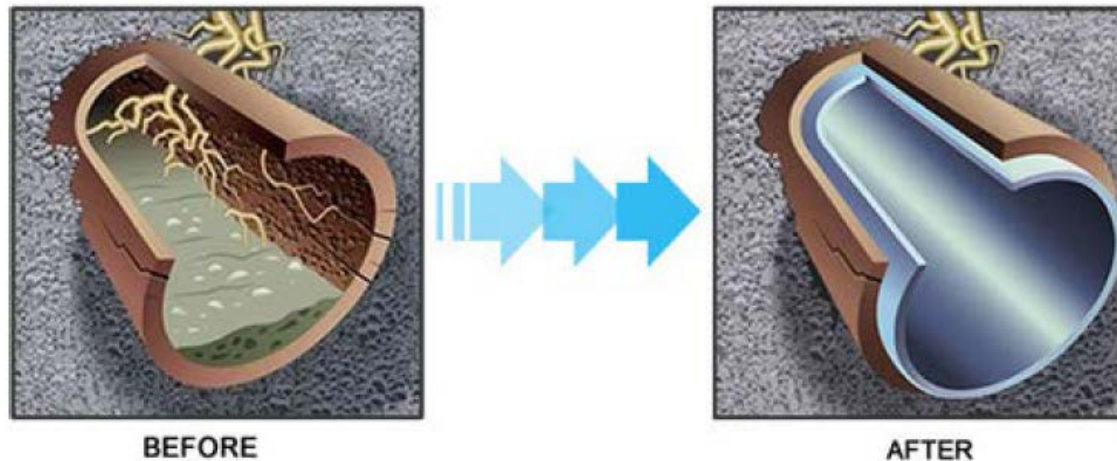
Comprehensive Rate Study: Start to Finish





Utilities Are Capital Intensive

- **Utilities must build, maintain, and replace infrastructure**
- **Long lived assets require long-term management**
 - » Operational management: Condition assessments & maintenance
 - » Financial management: Saving money for repair and replacement



Source: T.Webber Plumbing



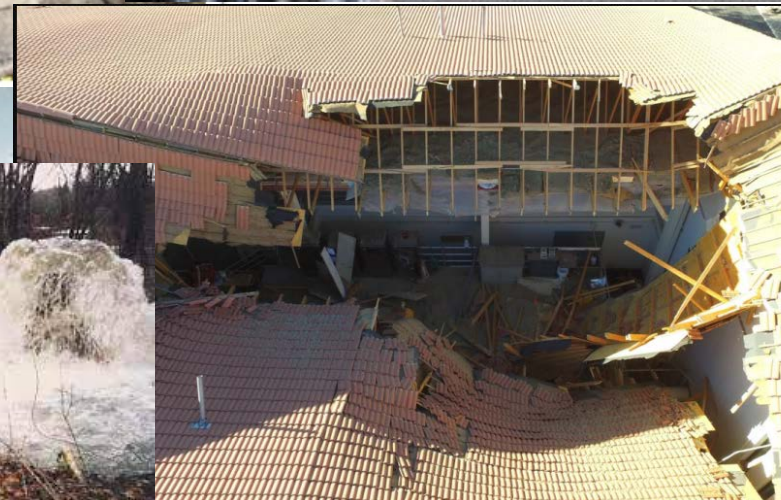
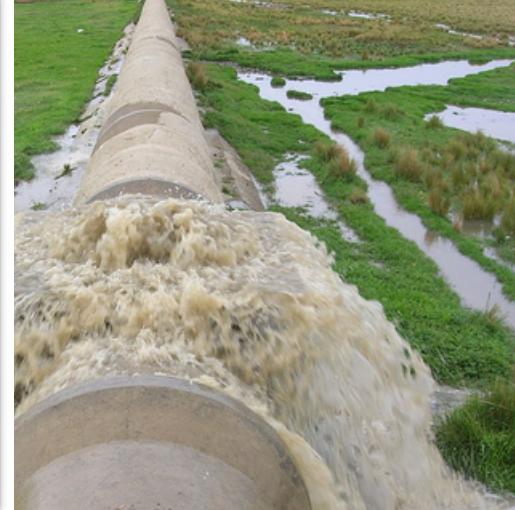
State and Federal Funding & Financing

Federal Sources

- **USDA Rural Development**
 - » Numerous programs
 - » < 10,000 populations
- **WIFIA**
 - » Direct loan from EPA
 - » Interest at US Treasury rates
- **Bureau of Reclamation**
 - » WaterSmart grants
 - » Title XVI Reclamation Prgm.

State Sources

- **State Revolving Funds**
 - » Low-interest loans
 - » Water quality grants
- **Co. Water Conservation Board**
 - » Low-interest loans



System R&R – Consistently #1 Issue

American Water Works Association (AWWA) State of the Water Industry Report 2019



Table 3. Top 10 issues facing the water industry as ranked by all participants, 2015–2019

Rank	2015	2016	2017	2018	2019
1	Renewal and replacement of aging water and wastewater infrastructure	Renewal and replacement of aging water and wastewater infrastructure	Renewal and replacement of aging water and wastewater infrastructure	Renewal and replacement of aging water and wastewater infrastructure	Renewal and replacement of aging water and wastewater infrastructure
2	Financing for capital improvements	Financing for capital improvements	Financing for capital improvements	Financing for capital improvements	Financing for capital improvements
3	Long-term water supply availability	Public understanding of the value of water systems and services	Long-term water supply availability	Public understanding of the value of water systems and services	Long-term water supply availability
4	Public understanding of the value of water systems and services	Long-term water supply availability	Public understanding of the value of water systems and services	Long-term water supply availability	Public understanding of the value of water systems and services
5	Public understanding of the value of water resources	Public understanding of the value of water resources	Public understanding of the value of water resources	Public understanding of the value of water resources	Watershed/source water protection

Need for Replacement Funding Planning

- Strain on existing revenue sources
- Operating costs increasing
- Additional regulatory burdens
- Little to no revenue “left over” after O&M & debt service
- Reserves being drawn down for operating deficit





Proactive Capital Funding Plan Needed

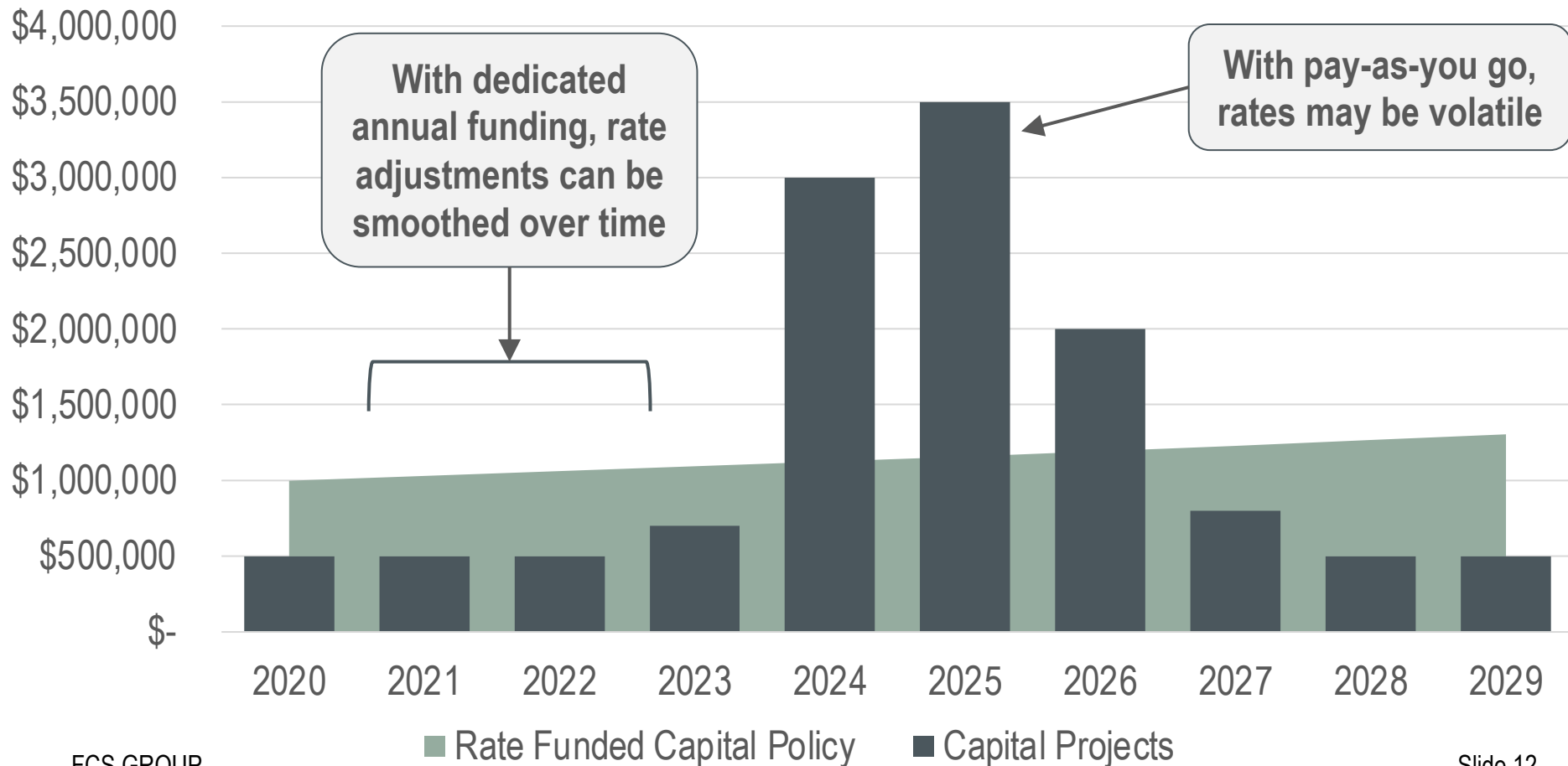
- **Rate Funded Capital Policy – what is it?**
 - » An annual cash contribution from current rate revenue
 - » Pays for same-year repair & replacement projects... or
 - » Saved for future capital projects
- **Policy Targets – how much do we need?**
 - » Original or replacement cost annual depreciation
 - » Average annual repair & replacement projects
 - » Asset management plan

Build 'Rate Funded Capital' into annual revenue needs



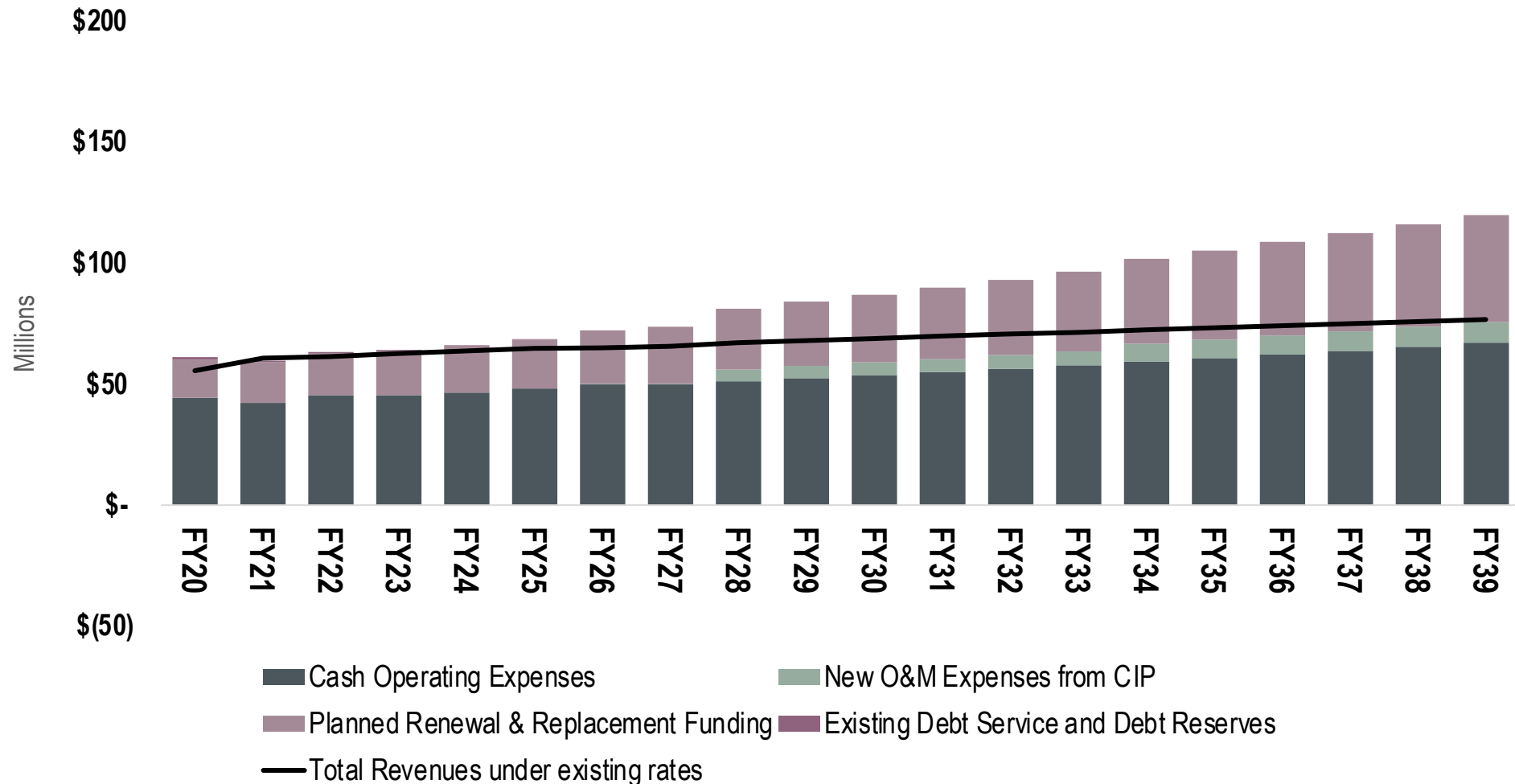
Rate Funded Capital Example

- Annual capital spending may not be uniform
- May need to supplement with reserves, connection charges, and debt





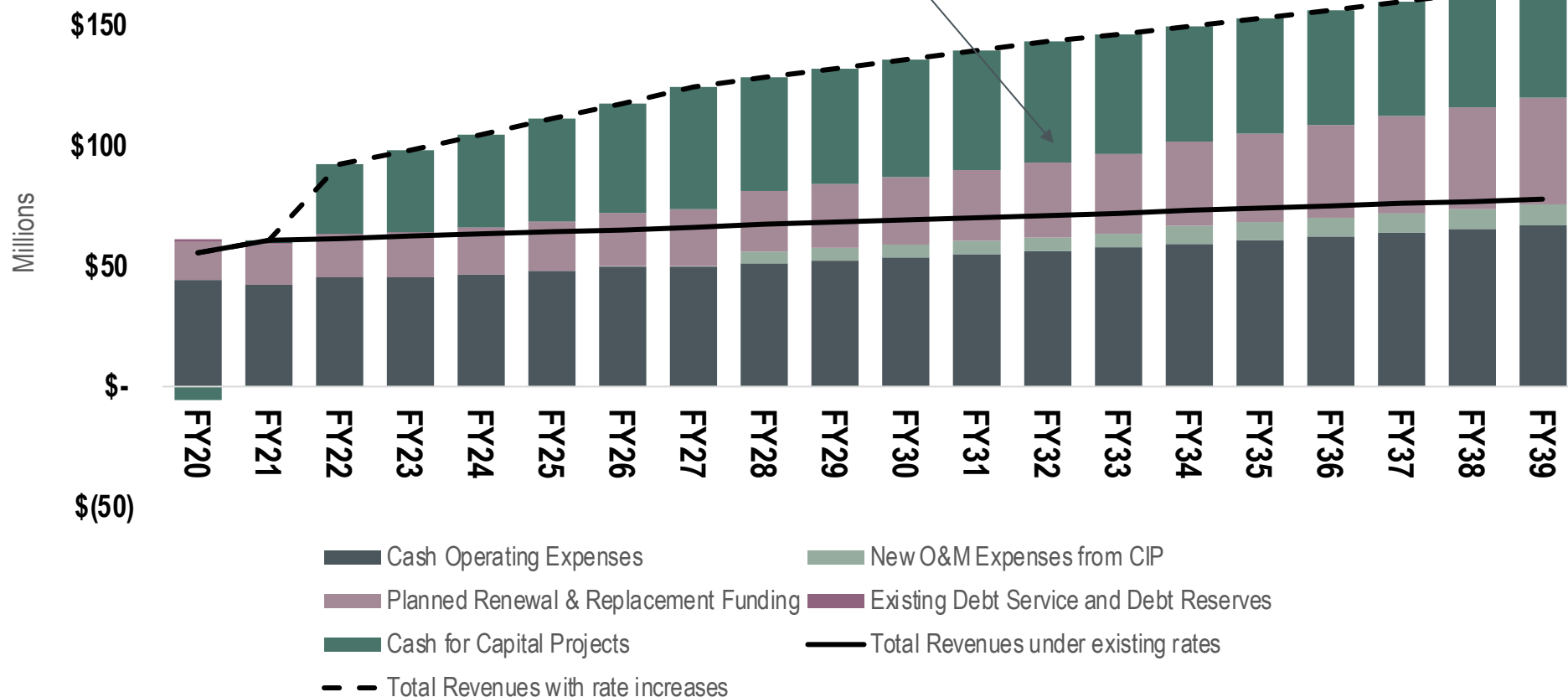
Boise Status Quo slide



Capital Throughput

\$200 One of the most important – if not the most – is getting a realistic estimate of CIP spending

Q: What happens if you raise rates by a lot and then the projects don't happen?





Fiscal Policies



Reserve & Debt Policies

- **Help weather financial risk and disruptions**
- **Make consistent financial and rate decisions**
- **Can help stabilize rates over time**
- **Debt is useful; don't over-rely on debt**
- **Make decisions once versus ad-hoc**
- **Implement immediately or phase in?**

**Documentation
of Policies is
Ideal!**

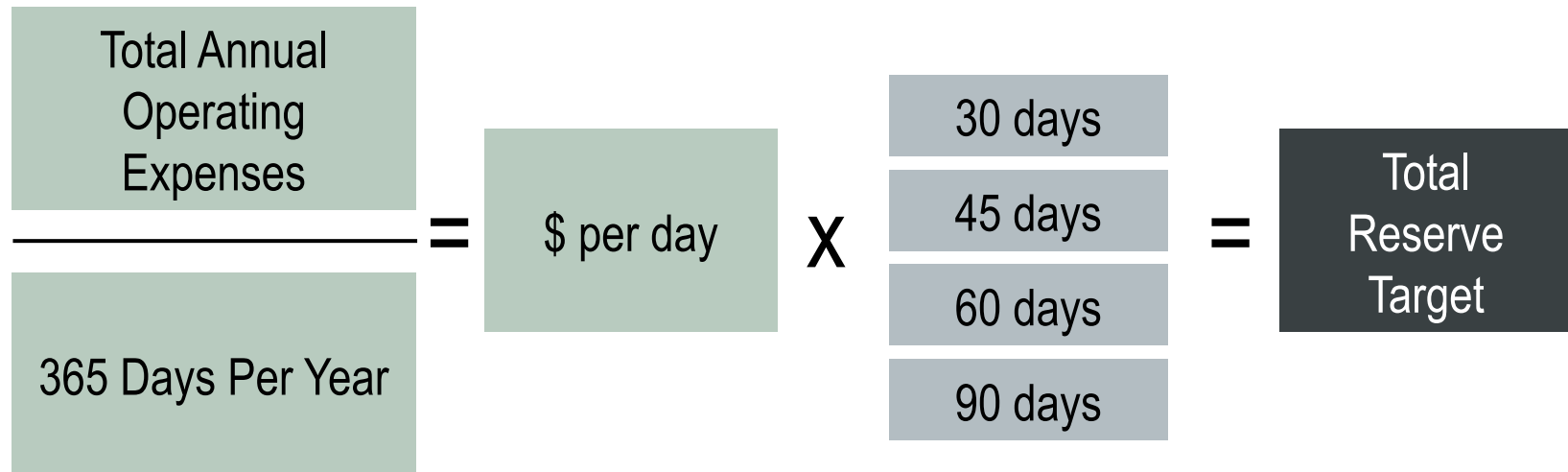


Example Financial Policies

Policy	Purpose	Policy Examples
Operating Reserve	Accommodate variations in revenue & expenses	Water = 90 days O&M Sewer = 45-90 days O&M Storm = 30 days O&M
Capital Reserve	Emergency repairs, unanticipated capital, & project cost overruns	1-2% of capital assets; or Critical asset reserve
Rate Funded Capital	Annual rate funded capital mechanism	Annual depreciation; Average R&R capital spending
Debt Service Coverage	Compliance with existing debt covenants; Maintain credit worthiness for future debt needs	Target 2.0 or higher; Minimum 1.25

Operating Reserve Example

- Target typically equals a “number of days”
- For example 30, 45, 60, or 90 days
- Higher target for utilities with longer billing cycles / volatile revenue





Capital Reserve Target Based on Fixed Assets

Asset Group	Original Cost
Supply/Treatment	\$20,000,000
Storage	\$2,000,000
Transmission & Distribution	\$12,000,000
General Plant	\$1,000,000
Total	\$35,000,000

1% of fixed assets
\$350,000

2% of fixed assets
\$700,000

Note: Capital reserve target grows as utility adds assets



Total Days Cash on Hand Example

Debt Rating Target	Aaa	Aa	A
Days Cash on Hand	> 250 days	$250 \text{ days} \geq n > 150 \text{ days}$	$150 \text{ days} \geq n > 35 \text{ days}$

Source: Moody's Approach to Local Government Credit Analysis; February 2019



Revenue Requirements



Overview of Revenue Requirement

	Revenue Requirement
	Operating & Maintenance
+	Debt Service
+	Rate Funded Capital
=	Revenue Requirement
-	Miscellaneous Revenue
=	Revenue Required from Rates

- Current year budget + inflation?
- Increasing service levels?
- Vacancies?
- O&M increases due to capital program?
- Cost efficiencies?

- What about fund balance?

- Historical trends?
- Customer growth?
- Annexation?
- Seasonality?



Other Sensitivities And Priorities

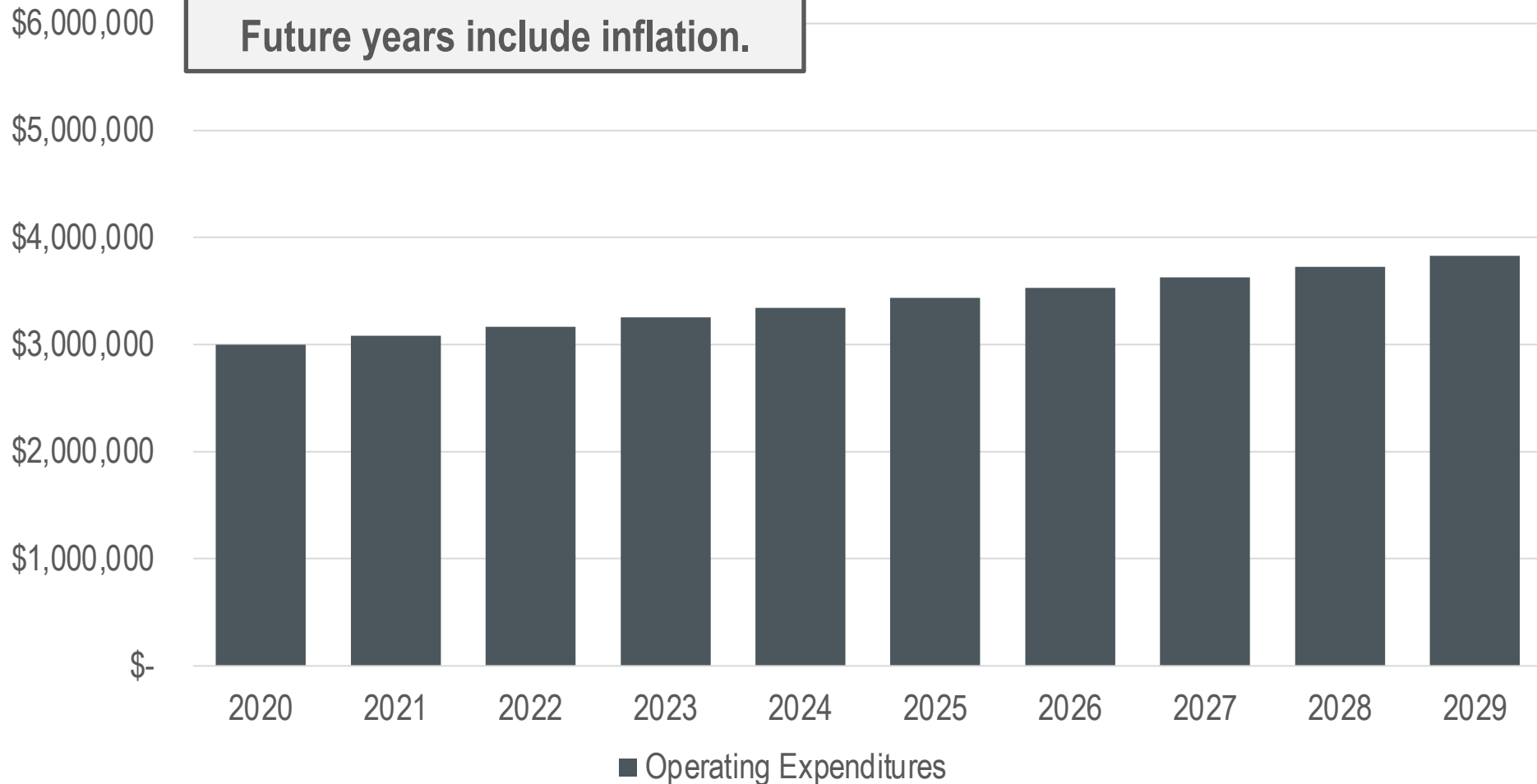
- ♦ Cannot do it all; competing priorities





Step 1: Forecast Operating Costs

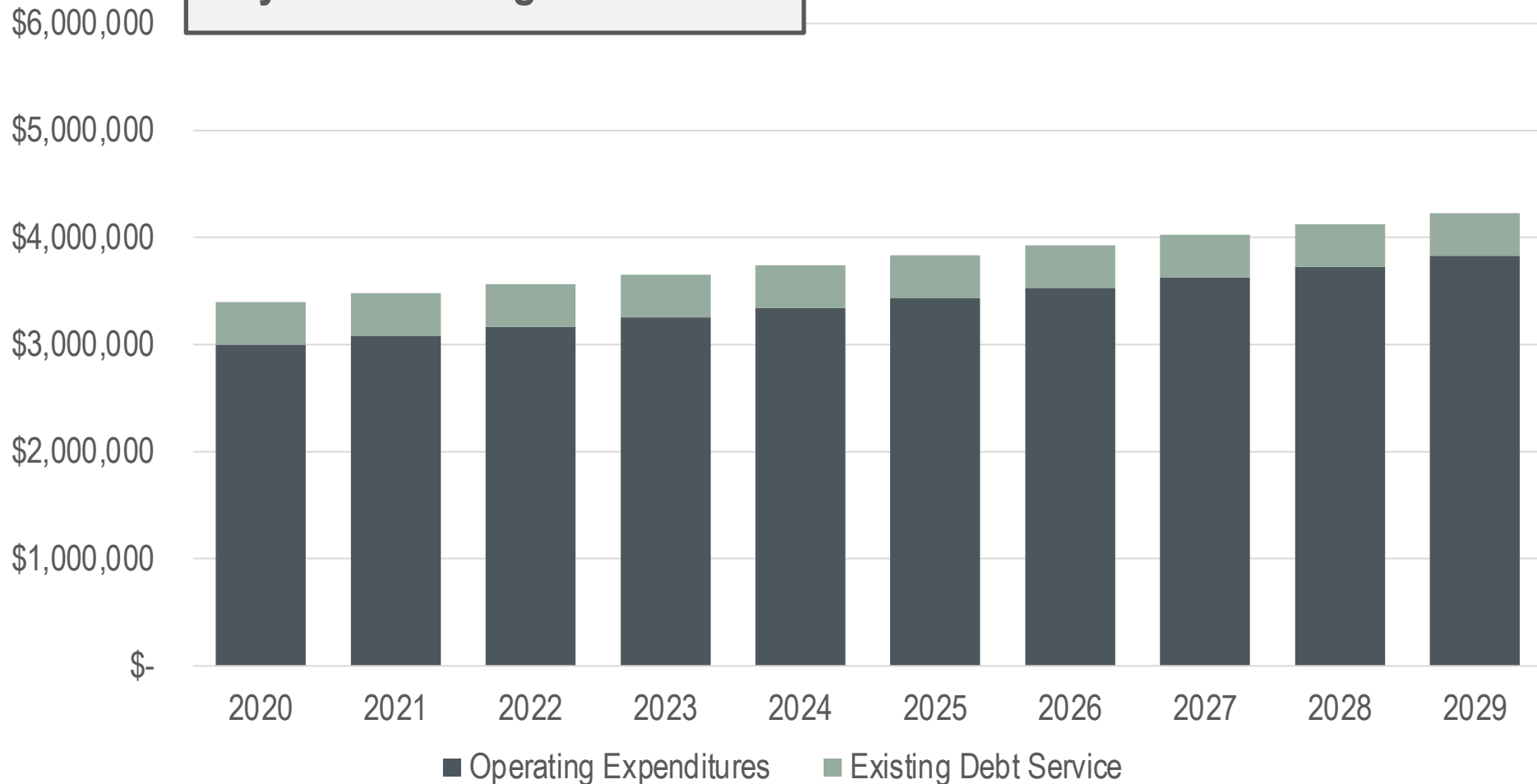
**2019 budget is baseline.
Future years include inflation.**





Step 2: Add Existing Debt Obligations

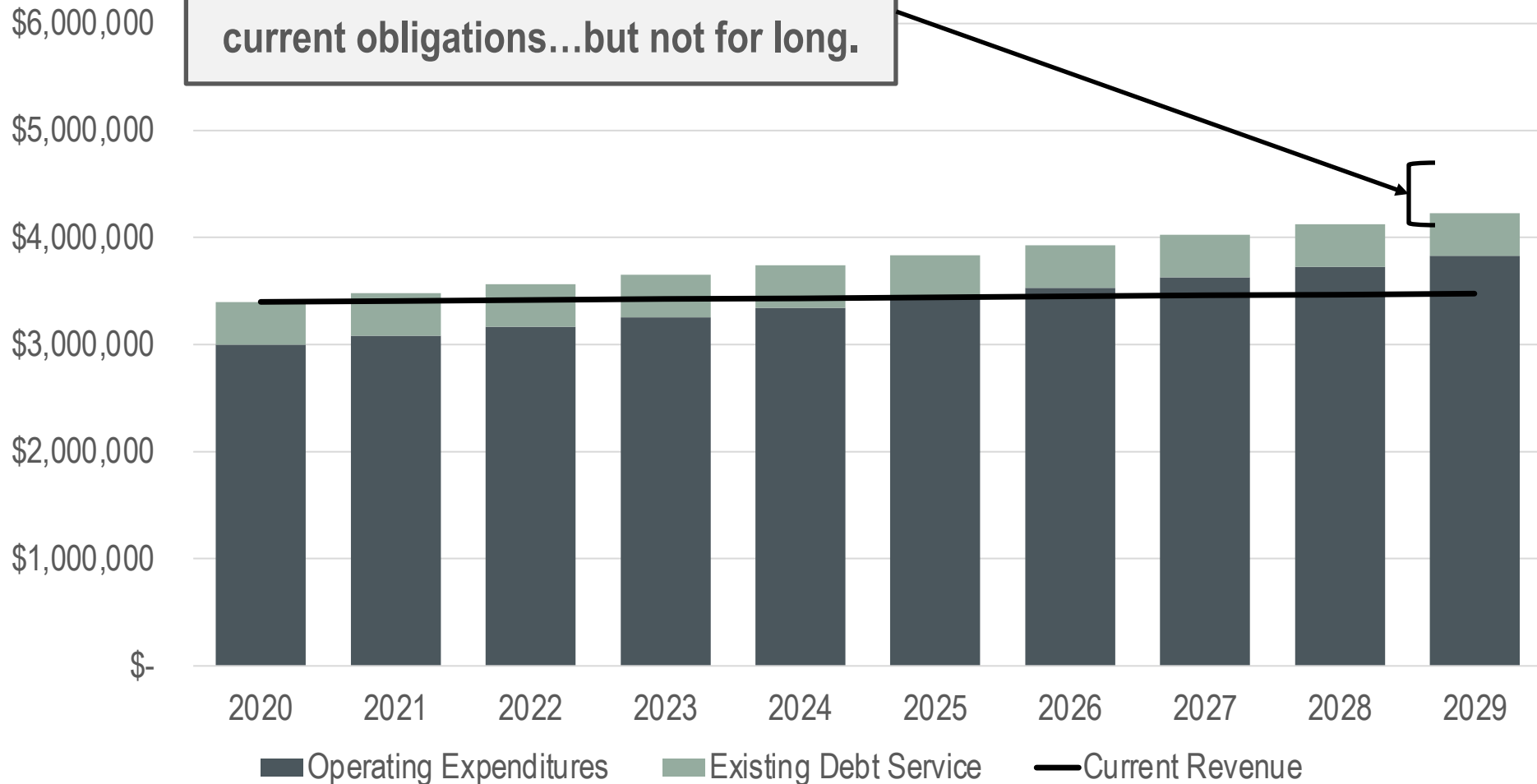
Layer on existing debt service





Step 3: Obligations vs. Existing Rates

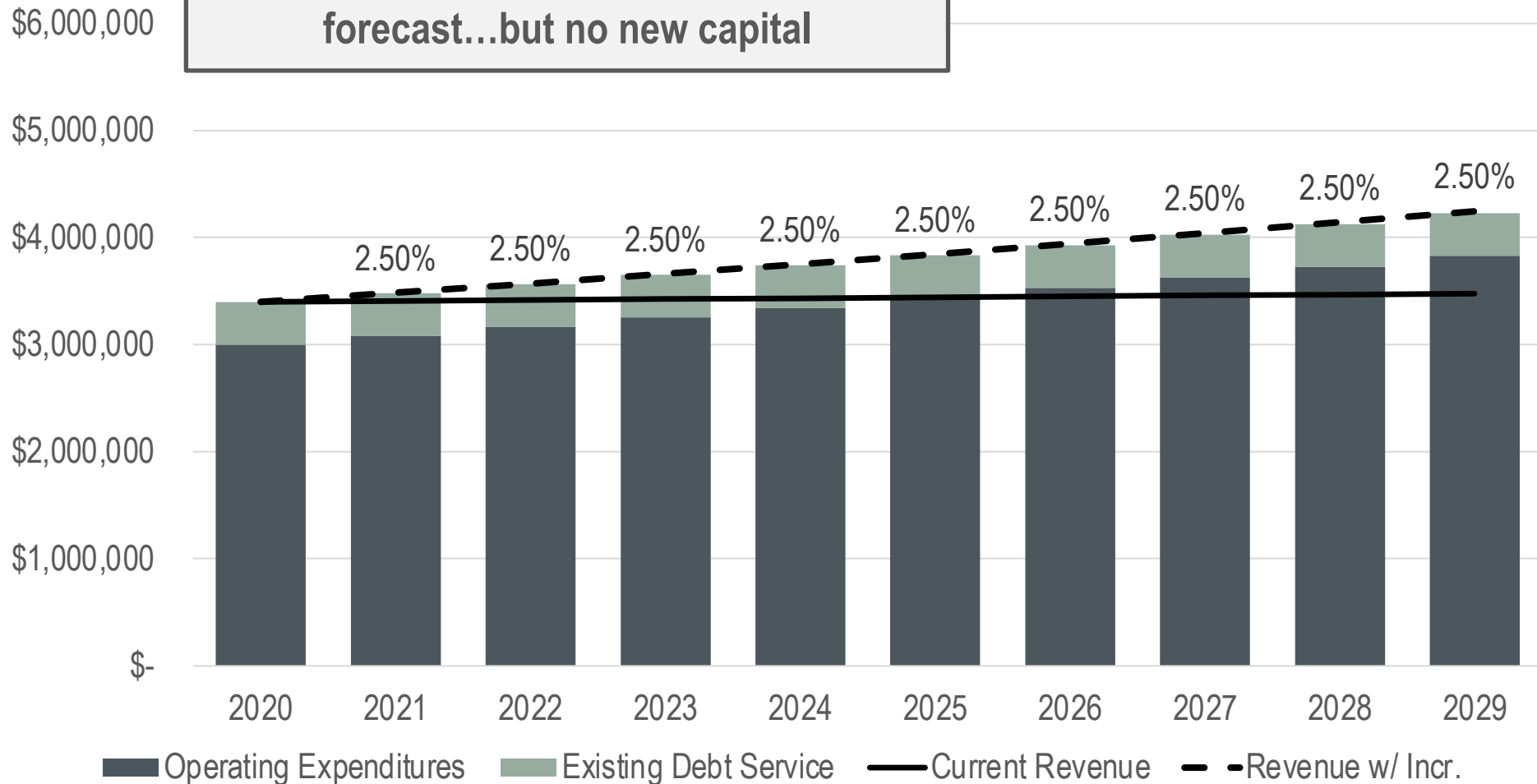
Revenues @ existing rates cover
current obligations...but not for long.





Step 4: Calculate Rate Increases Needed

Inflationary rate increases address
forecast...but no new capital





Capital Funding Philosophy

Cash (pay-as-you-go)

- Higher near-term rates
- Existing customers pay 100% of costs

Debt Financing

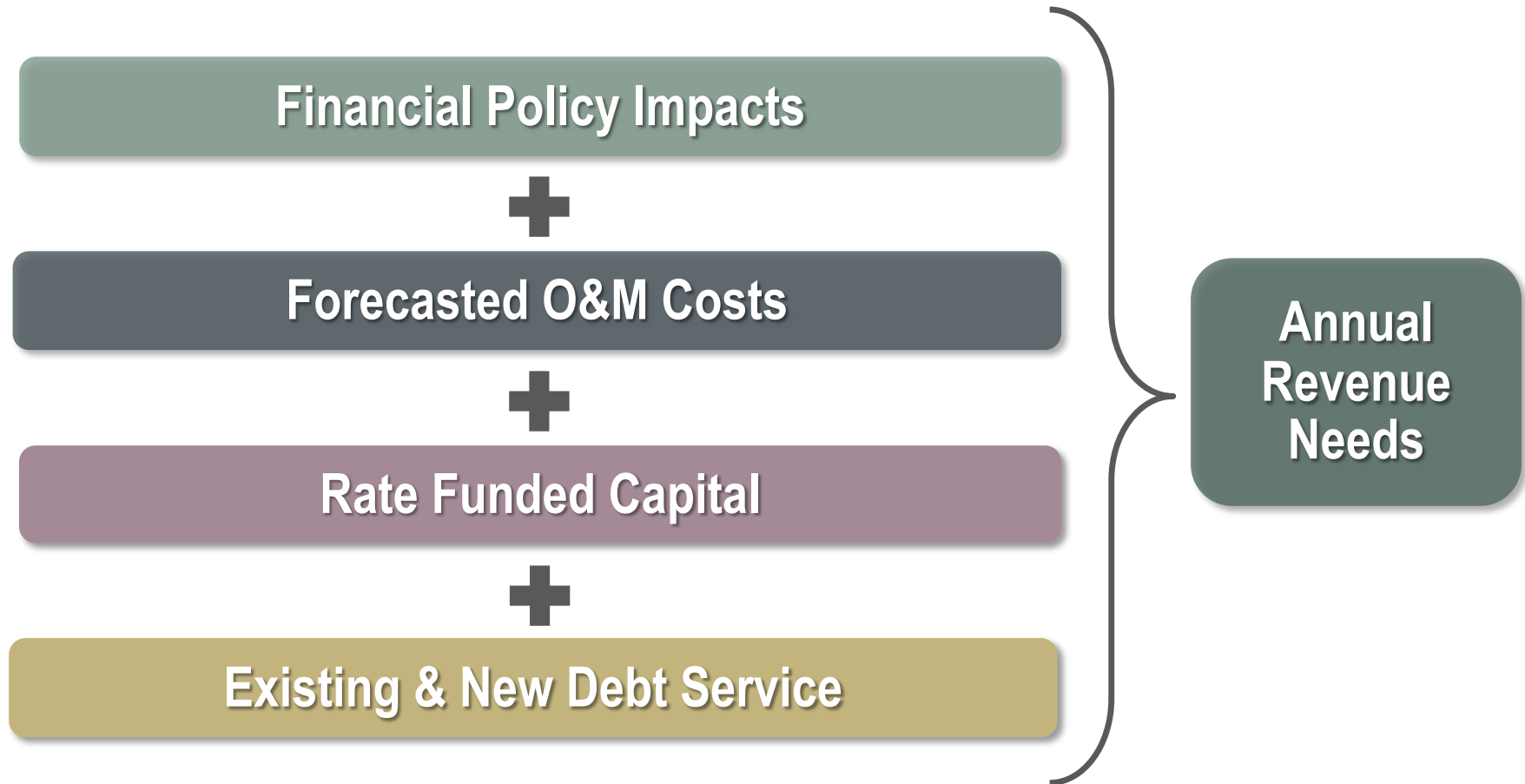
- Lowest near-term rates...but interest cost
- Spreads cost between existing / future customers

Hybrid

- Cash fund repair and replacement projects
- Debt fund large expansion projects

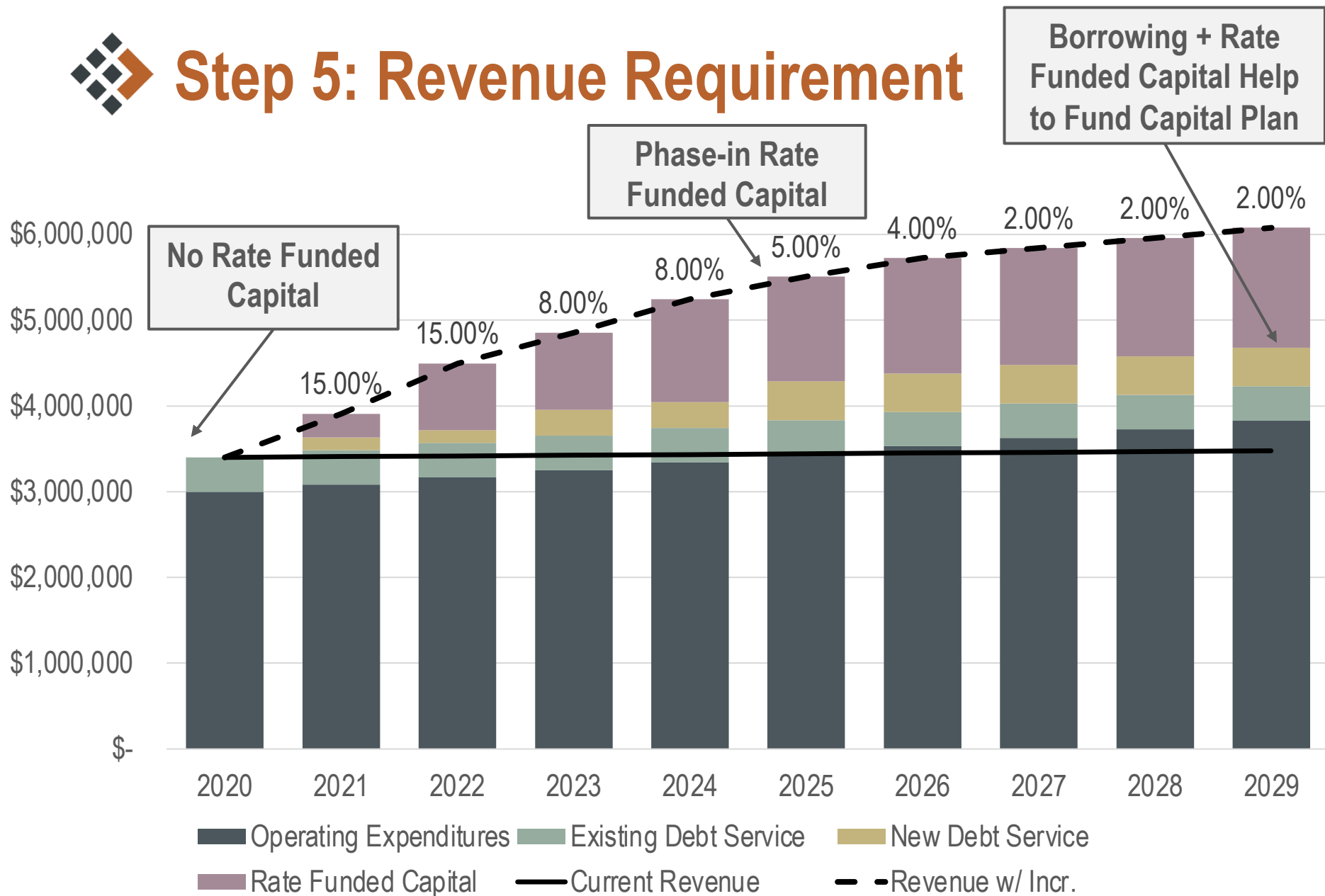


How Much Revenue is Needed?



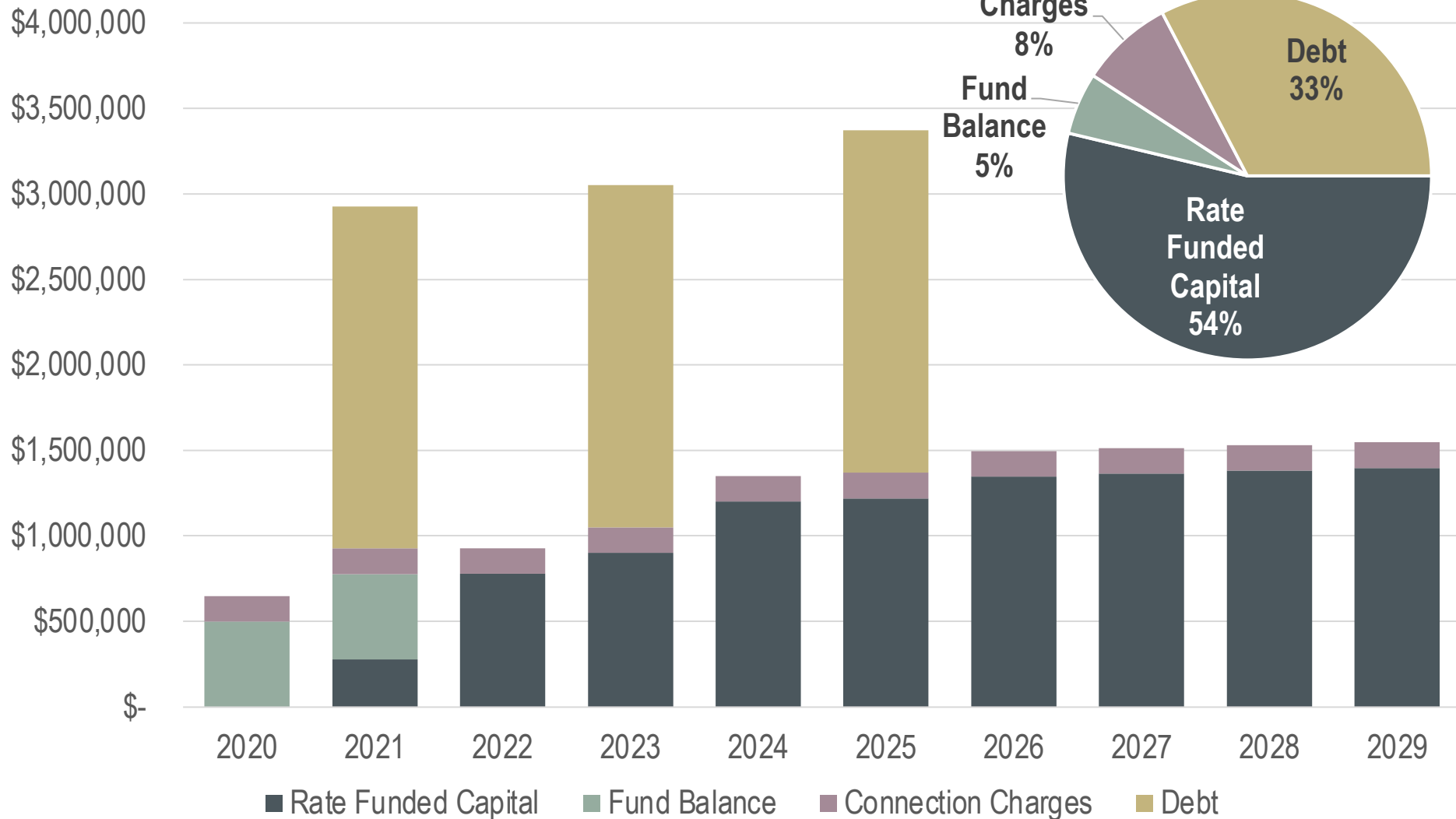


Step 5: Revenue Requirement





Capital Funding Strategy



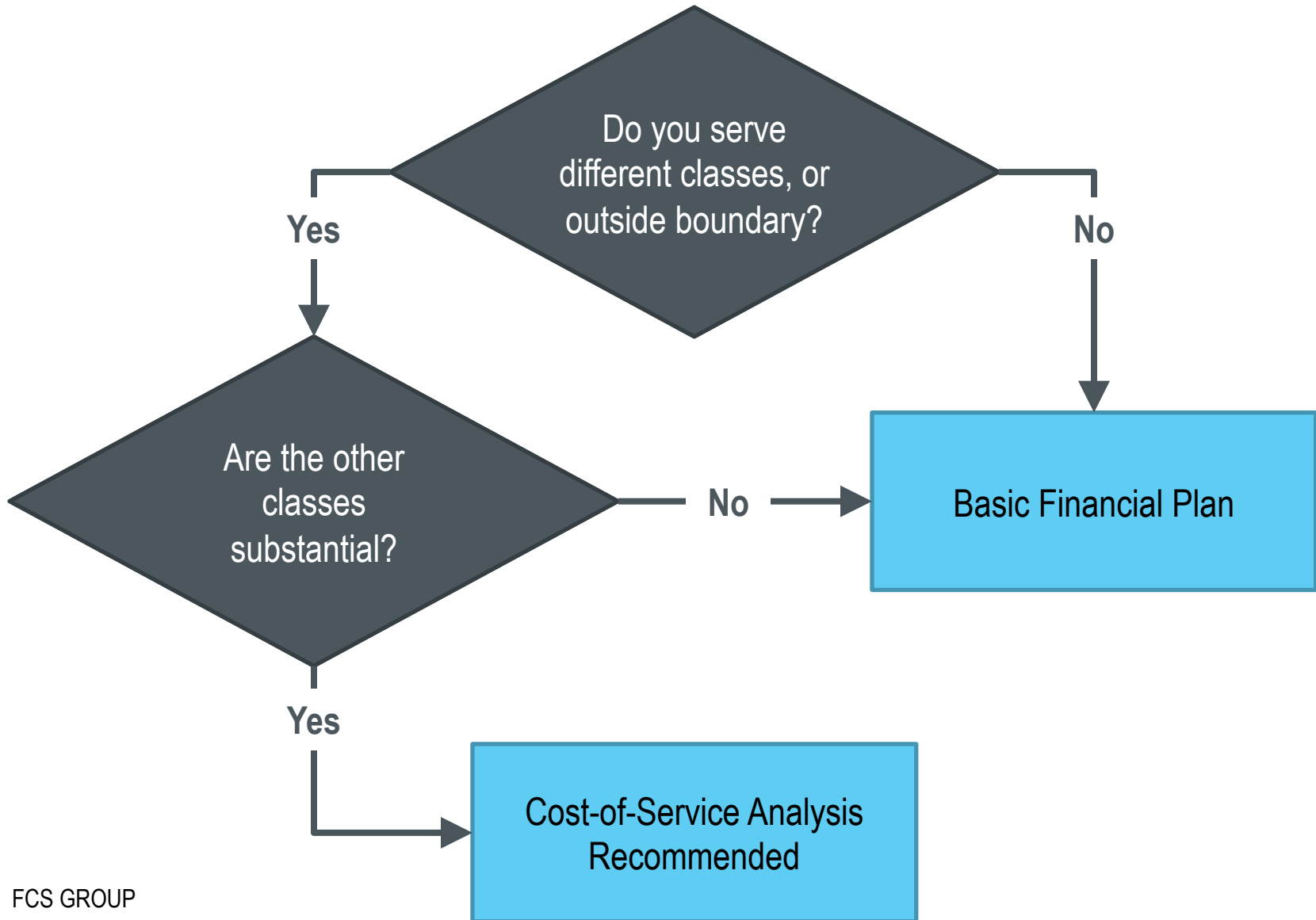
Indexed Rates

- **Setting rates based on an index is not best practice**
- **However, if rates have not been evaluated in some time, consider increasing rates with general cost inflation**
 - » Rates do not get too far behind cost curve
 - » Automatic process

Effective January 1st of each year, beginning on January 1, 20xx, the water rates listed in xxMC xx.xx.xxx shall be adjusted by the annual change in the most recent Seattle-Bellevue-Tacoma Consumer Price Index (Urban Consumers) published by the U.S. Department of Labor



When Should I Do a Cost-of-Service Allocation?





Decision Point for Utility – Can We Stop Here?

- **If no cost of service or rate structure change is needed...**
 - » Simply apply indicated rate increases ‘across-the-board’ (ATB)
 - » E.g., both fixed and variable rates increase by 5% per year

Across-the-Board Rate Schedule	Existing 2020	ATB 2021	ATB 2022
Annual System-Wide Rate Increase		15.00%	15.00%
Fixed Charge per Customer	\$47.14	\$54.21	\$62.34
Volume Charge: per ccf of water usage	\$3.92	\$4.51	\$5.18



Cost of Service

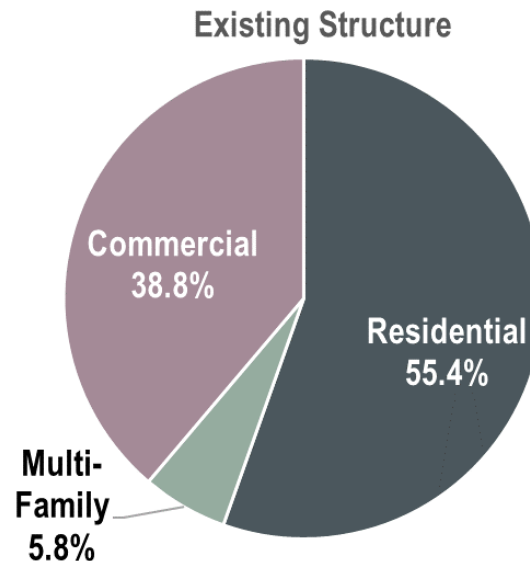


How Will Costs Be Equitably Distributed?

Revenue requirement: How big is the pie?

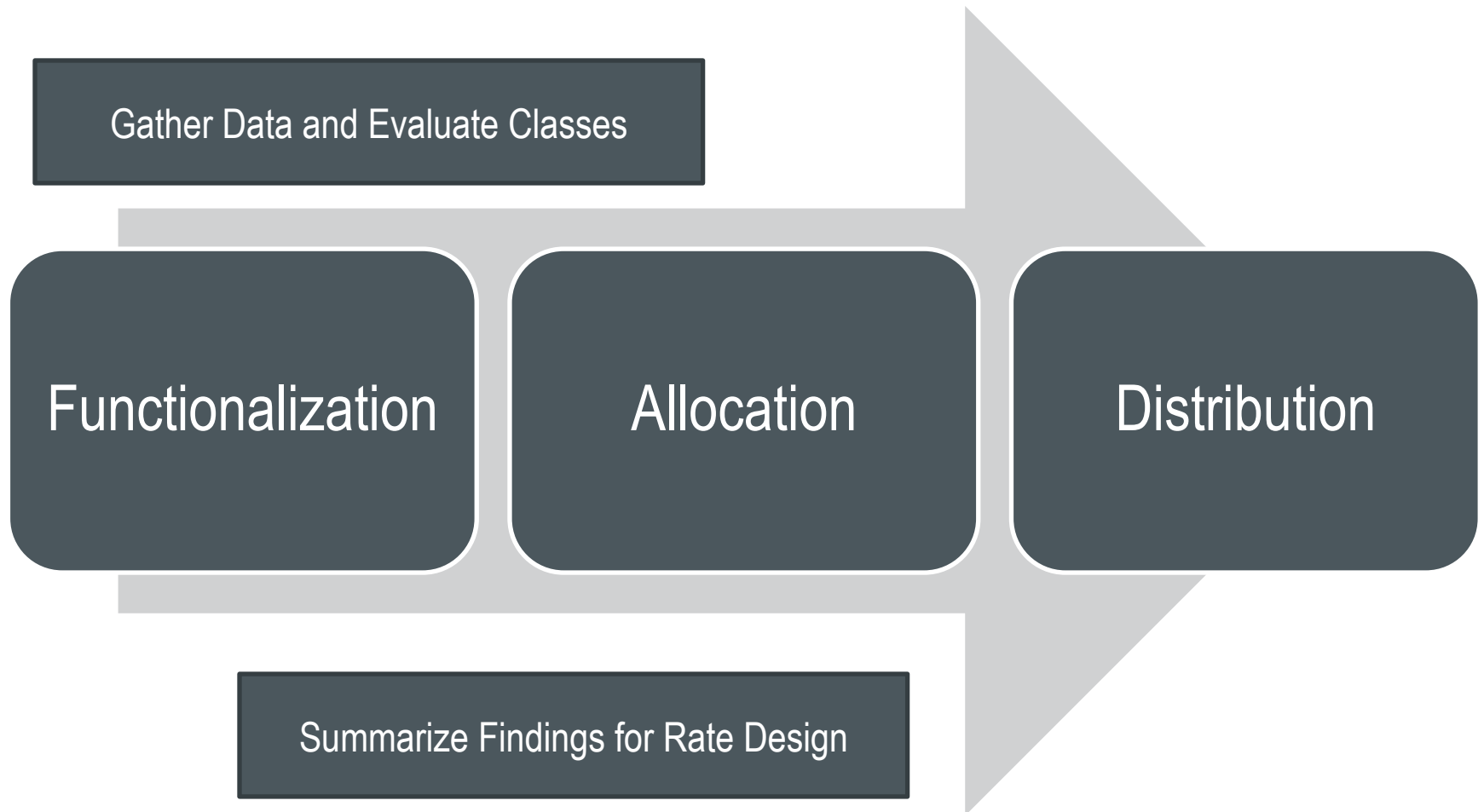


Cost of service: How should the pie be sliced?





Major Steps of a COS Analysis





What Makes a Customer Class Distinct?

Usage levels

Usage patterns

Seasonality of
use

Raw water vs
treated water

Individual versus
master metered

Special service
requirements

Sewer strength
contribution

Social policies
(low-income,
economic
development)



Evaluating Customer Classes

Customer Class: a grouping of users with similar usage characteristics who are served at similar costs.

Service Characteristics

General

- Retail
- Wholesale
- Seasonal

Wastewater-Specific

- Septic Haul
- Pretreatment
- Combined Sanitary & Stormwater

Demand Requirements

- Annual Volume
- Capacity
- Infiltration/Inflow
- Strength (BOD, TSS, Nutrients)

- Base Demand
- Annual Usage
- Extra Capacity (Peaking)
- Meter Size
- Fire Protection

Geographic Location

- Inside or Outside City / Service Area
- Elevation (pumping)
- Distance (uncommon)



Cost of Service Analysis (Water)

Step 1

Functionalize Costs

Supply & Treatment

Pumping

Storage

Trans. & Dist.

Meters & Services

Customer Service

Step 2

Allocate Functions to Revenue Groups

Accounts

Total Annual Demand

Peak Demand

Meters & Services

Capacity

Step 3

Allocate Costs to Customer Classes

Single Family

Multi-family

Commercial

Irrigation

All Other



Cost of Service - Cost Allocation Example

- **Commercial customers**

» 9% of accounts but 42% of annual consumption

Customer Costs				\$ 146,421
Customer Classes	Allocation Basis		Allocated Cost	Cost per Account per Month
	Accounts	% Share		
Residential	6,951	87.8%	\$ 128,506	\$1.54
Multi-Family	221	2.8%	\$ 4,092	\$1.54
Commercial	748	9.4%	\$ 13,824	\$1.54
TOTAL	7,920	100.0%	\$ 146,421	\$1.54

Base Demand				\$ 2,651,532
Customer Classes	Allocation Basis		Allocated Cost	Cost per Account per Month
	Total Annual Usage	% Share		
Residential	54,388,376	53.4%	\$ 1,415,132	\$16.97
Multi-Family	4,750,251	4.7%	\$ 123,597	\$46.54
Commercial	42,768,841	42.0%	\$ 1,112,803	\$124.01
TOTAL	101,907,469	100.0%	\$ 2,651,532	\$27.90



Sample Customer Classes

Single Family Residential (SFR)

- Typically largest customer group
- Relatively low usage per unit
- High peak demand
- Lowest fire flow requirement; domestic sewer strength

Multi-family Residential (MFR)

- Lower usage per dwelling unit
- Usually master metered
- Relatively constant use
- Fire flow requirement between SFR & commercial
- Domestic sewer strength

Commercial/ Industrial

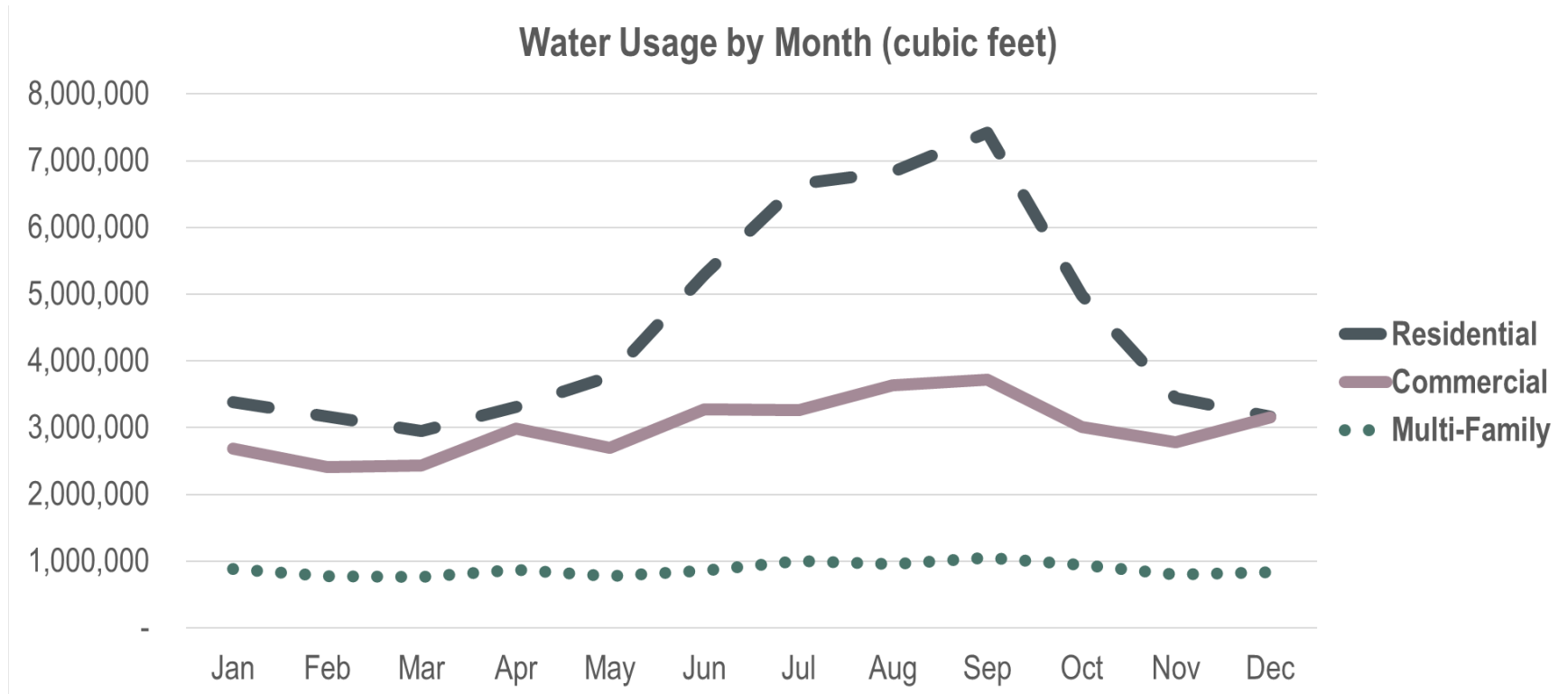
- Diversity in use per account
- Can have relatively constant use
- Highest fire flow requirement
- Varying sewer strength

Parks, Irrigation, & Agriculture

- Often smallest customer classes in terms of accounts
- Majority of use in peak season
- No fire flow requirement
- Economic sensitivity



Sample Customer Class Usage





Redistribution of Cost Recovery

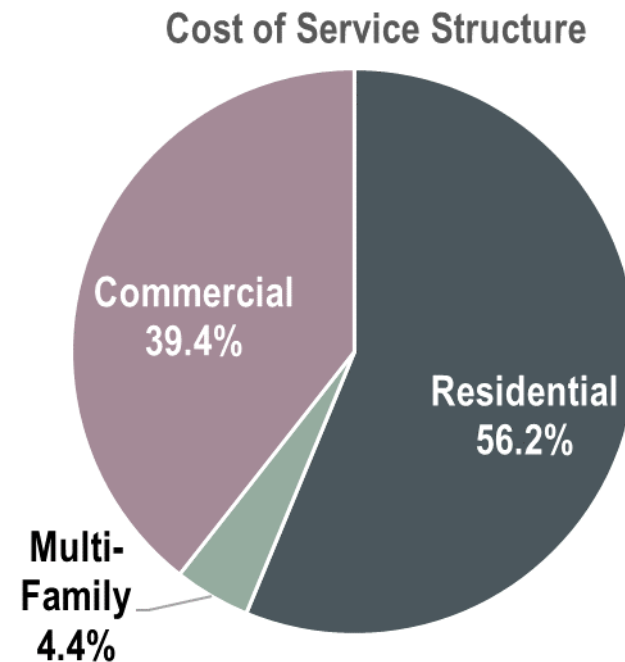
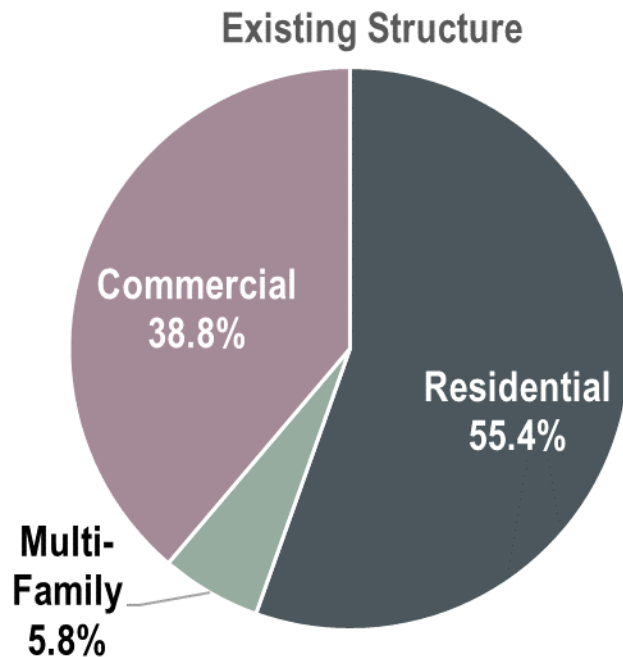
- Cost-of-service analysis identifies how costs should be equitably distributed among customer classes
- In this case, multi-family was subsidizing other classes

Class	Existing 2017 Structure	Cost of Service 2017 Structure	\$ Difference	% Difference
Residential	\$ 2,385,537	\$ 2,420,192	\$ 34,655	1.5%
Multi-Family	247,999	187,428	(60,571)	-24.4%
Commercial	1,669,490	1,695,406	25,916	1.6%
Total	\$ 4,303,027	\$ 4,303,027	\$ -	0.0%



Cost of Service Equity Shift

- Multi-family would generate 4.4% of revenues after equity shift



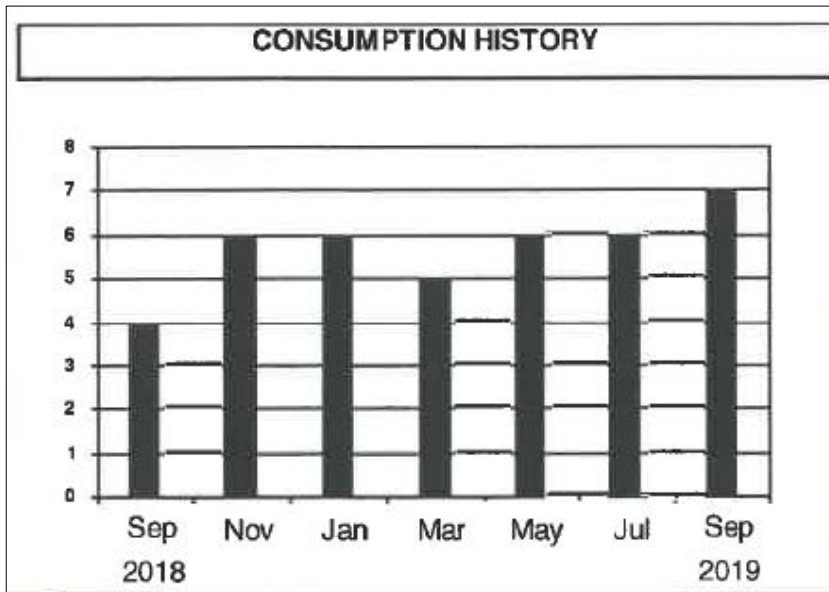


Rate Design



Rate Design = Revenue Collection

- Main goal is to recover target level of revenue
- Primary communication tool with customers
- Typically fixed and/or variable charges



DESCRIPTION	AMOUNT
PREVIOUS BALANCE	59.95
PAYMENTS	-59.95
PAST DUE BALANCE	0.00
BASE CHARGE	55.85
CONSUMPTION	6.60
SUMMERSURCHARGE	1.60
TOTAL NEW CHARGE	64.05



Do Rate Structures Align with Your Objectives?

Example Rate Structure Goals		Sample Rank
Financial Sustainability	• Sufficient & predictable revenues • Stable and predictable impacts to customers	1
Conservation and Efficiency	• Promote conservation and efficiency of use • Protect natural resources	2
Transparency and Simplicity	• Easy to understand, explain and administer • Compatible with billing system	3
Fairness and Equity	• Correlate rates with costs • Reflect customer usage patterns • Reflect other customer service requirements	4
Affordability	• Provide affordable water to “lifeline” users	5



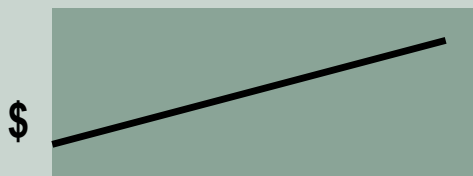
Types of Rate Structures

Flat Rate



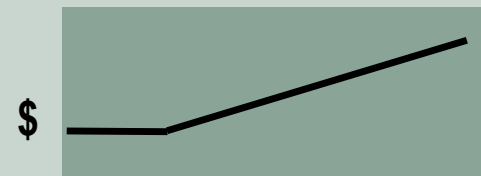
Fixed Charge \$40/mo.

Uniform Rate



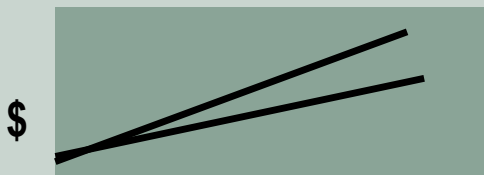
Fixed Charge \$10/mo.
Volume Charge \$0.60/ccf

Allowance Rate



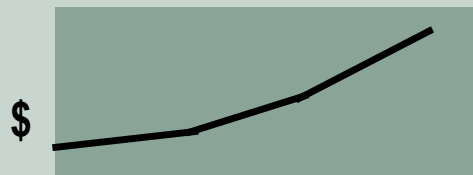
Fixed Charge \$12/mo.
0 - 10 ccf \$0.00/ccf
Use >10 ccf \$1.00/ccf

Seasonal Rate



Fixed Charge \$10/mo.
Winter Charge \$1.00/ccf
Summer Charge \$1.50/ccf

Inclining/Tiered Rate



Fixed Charge \$10/mo.
0-10 ccf \$0.50 / ccf
10-20 ccf \$0.75 / ccf
> 20 ccf \$1.00 / ccf

- ♦ Fixed charges for water utilities are typically charged by meter size
- ♦ Flat rates are common for Sewer and Stormwater rates
- ♦ Sewer moving to volume based rates



Rate Design and Revenue Predictability



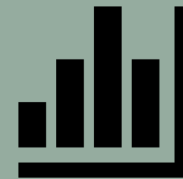
Variable rates are economic price signals to customers

Provides customers more control over their bill

Results in less predictability for utility revenue planning



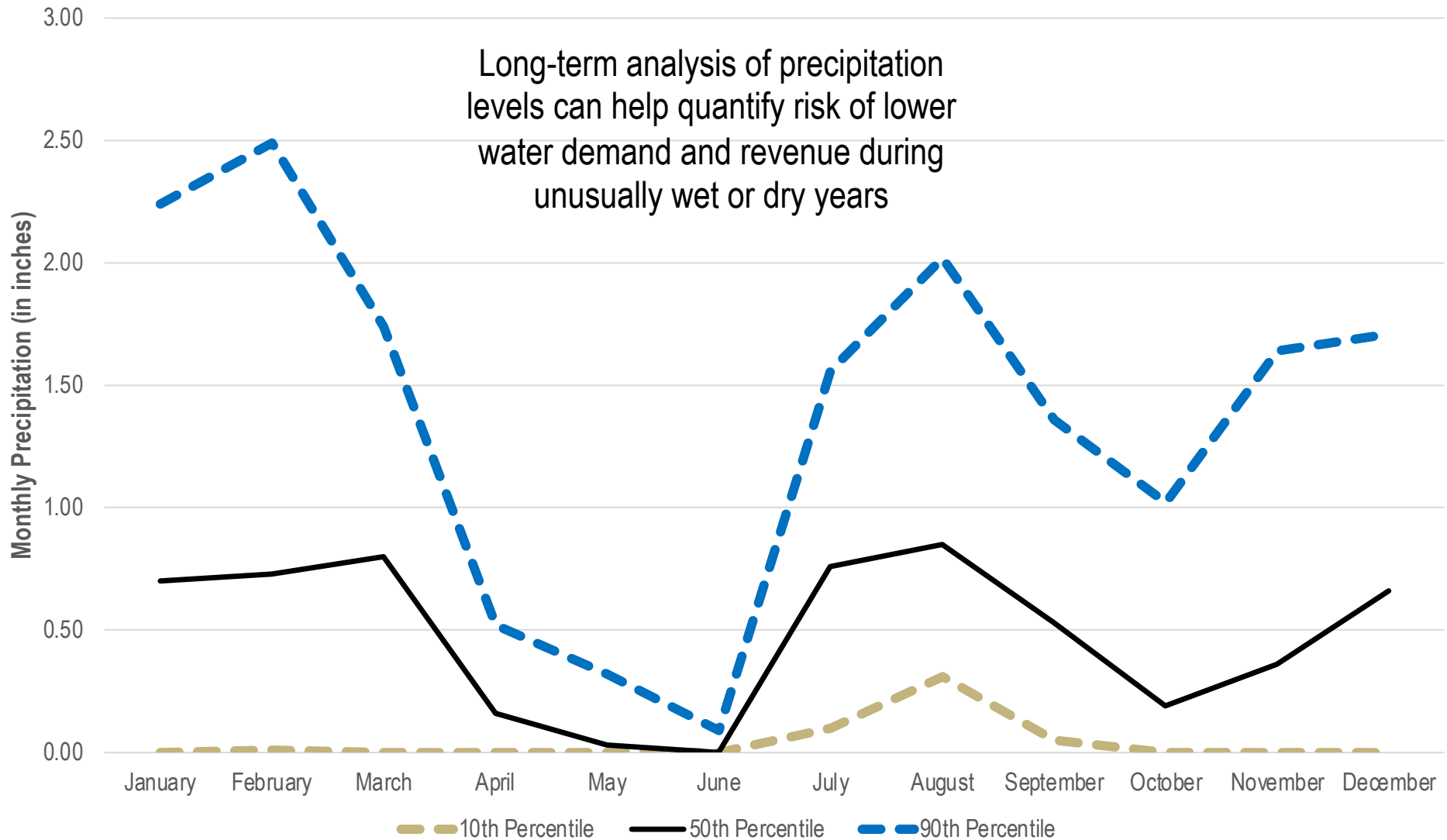
Precipitation, temperature, and pricing can all influence how much water a customer buys from the utility



Effective rate design can provide tools to measure and manage these factors

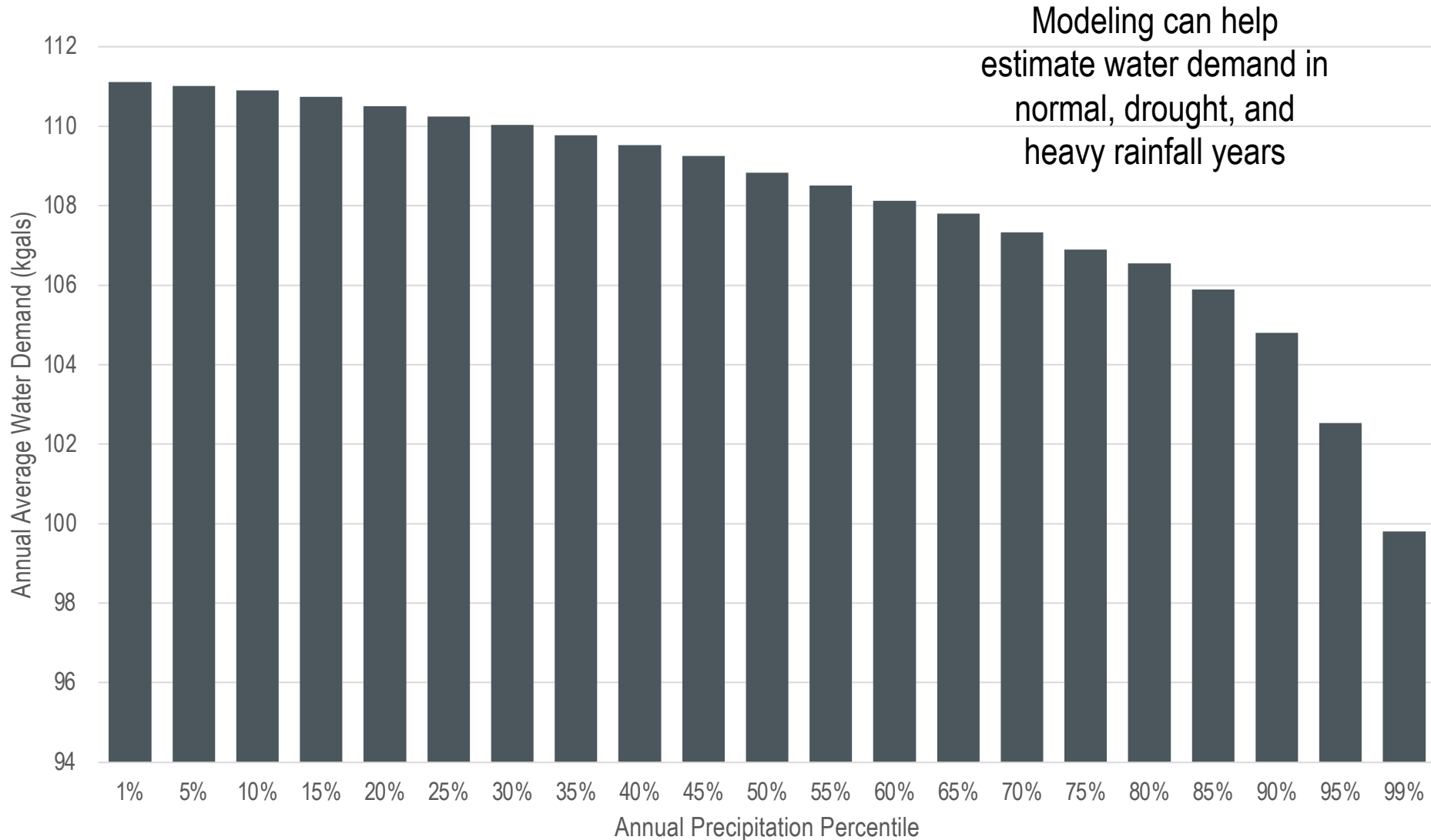


Historical Climate Analysis



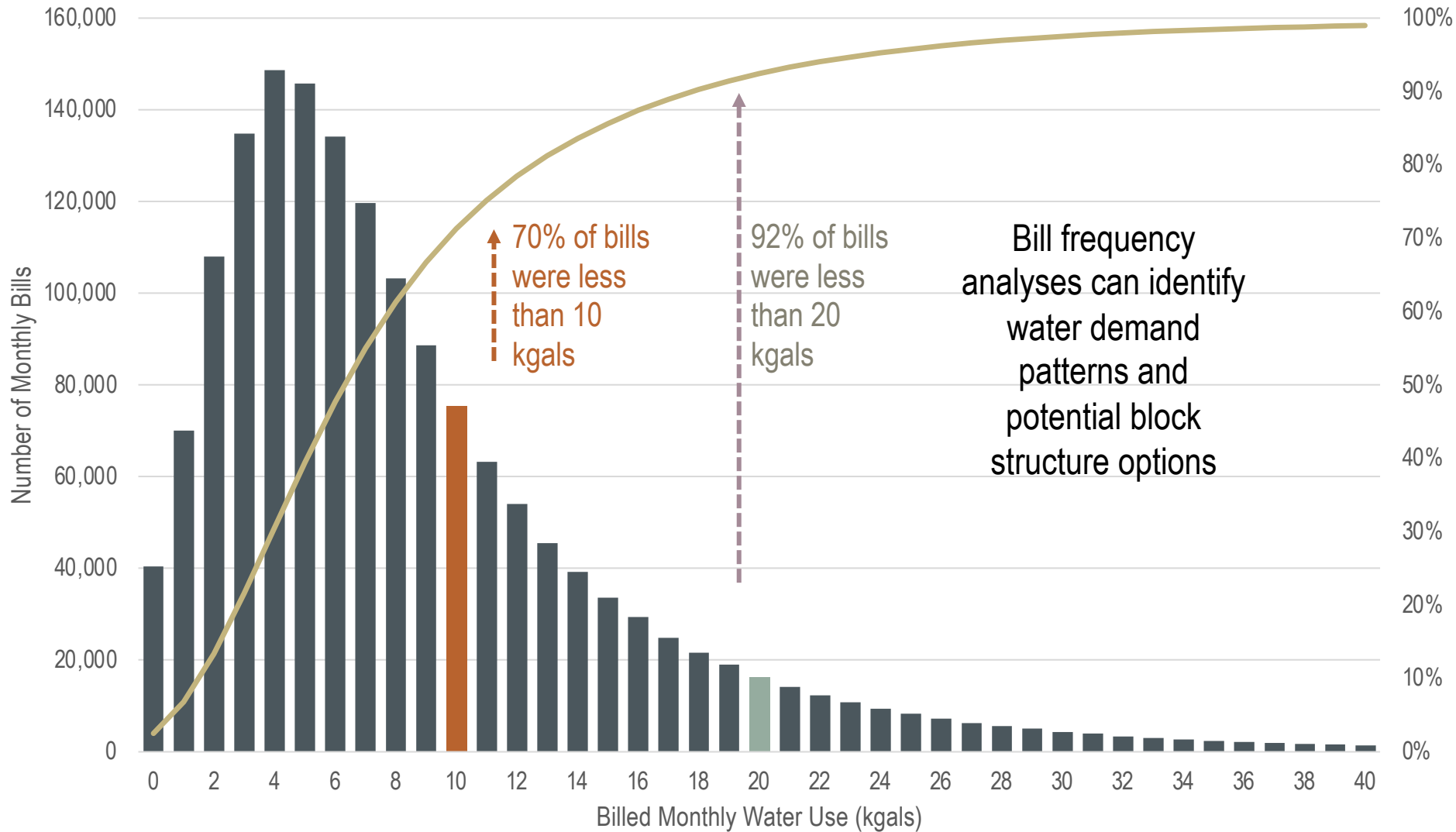


Water Demand Modeling





Bill Frequency Analysis





Communication with Decision Makers



Illustrate Existing Issues

Bottom of Pipe
Eroded Away



Collapsing
Pipes



Joint Separation



Illustrate Existing Issues





Highlight Recent Success

BEFORE



Highlight To Do List

Corrosion Control





Level of Service Options (Storm)

Associate
Rate

Increases with
Level of
Service
Impacts

High Priority



Single Family Annual Rate	Existing 2018 Rate	Options for 2019 Rate
LOS 1: Correct Operating Deficit	\$125	+\$42
LOS 2: Staff / Supplies to Meet NPDES Req.	n/a	+\$33
LOS 3: High Priority Capital	n/a	+\$20
LOS 4: Medium Priority Capital	n/a	+\$32
Grand Total	\$125	\$252

Medium Priority



Public Communication

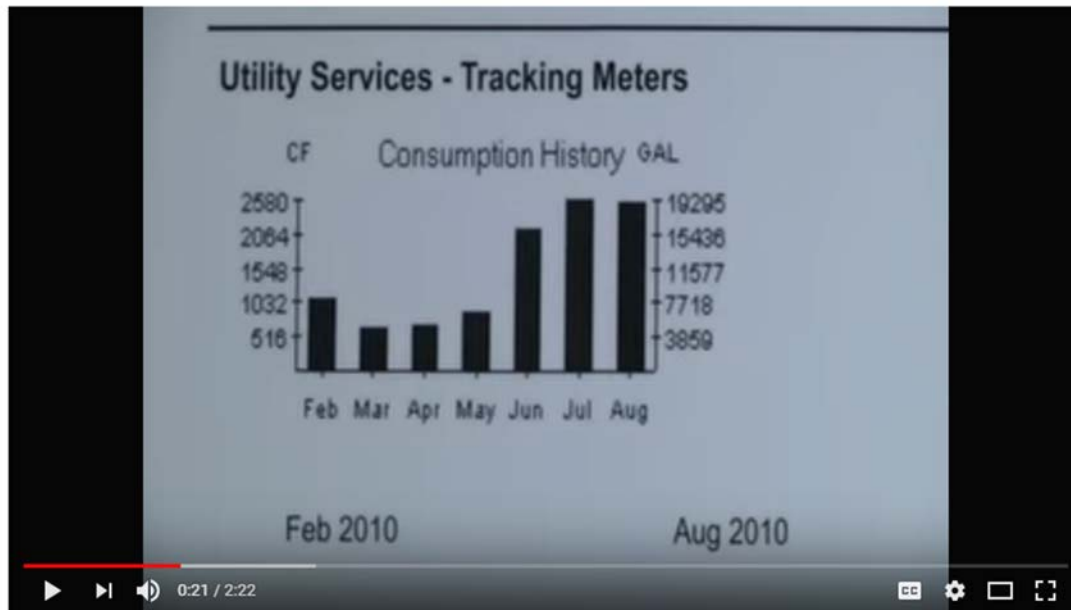
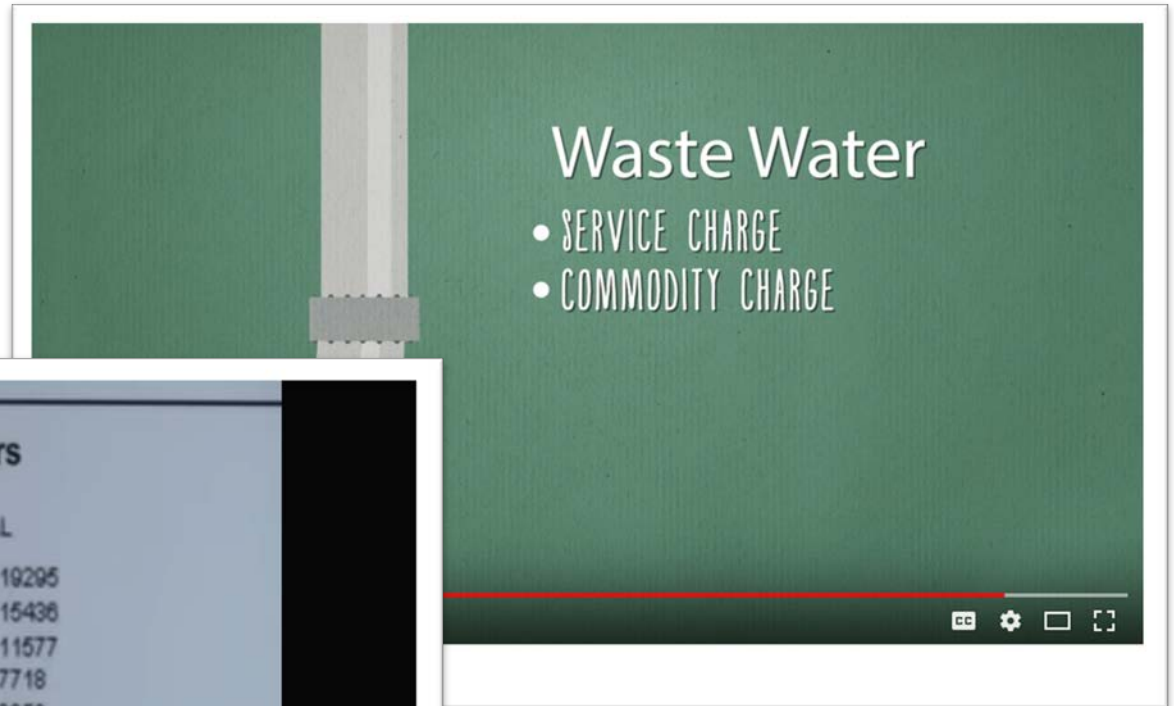


Traditional Public Communication

- **Greater public scrutiny**
 - » Requires public engagement, education, and transparency
- **Traditional options**
 - » Open house
 - » Rate advisory committee
 - » Bill calculators
 - » Frequently asked questions (FAQs)
 - » Newsletters
 - » Bill stuffers / notices
- **Technology Creates New Opportunities**



YouTube Educational Videos



How to Read Your Water Bill

Social Media

- Reach more customers
- Get message out quickly

Lake Whatcom Stormwater Utility Public Meeting April 18

Program Specialist

from Whatcom County · 6 Apr

Whatcom County Public Works is hosting a public meeting to discuss the Lake Whatcom Stormwater Utility Service Area on Wednesday, April 18, 6:30 p.m. at the Bloedel Donovan Park Multipurpose Room, 2114 Electric Ave., Bellingham, WA 98229. Property owners in the unincorporated portion of the Lake Whatcom watershed are encouraged to attend to learn about this new service area and upcoming funding plan process. City of Bellingham residents already pay a stormwater utility fee and will not be affected by this new stormwater utility for Whatcom County.

For additional information visit [http://whatcomcounty.us/2830/Lake-Whatco....](http://whatcomcounty.us/2830/Lake-Whatco...)

Whatcom County is reaching out to Lake Whatcom watershed residents that use Nextdoor through our new public agency Nextdoor account. As a public agency, we can send you notices about programs, meetings, and services applicable to your neighborhood but cannot access your neighborhood feed.

Lake Whatcom Stormwater Utility | Whatcom Coun...
Information on the Lake Whatcom Stormwater Utility
WHATCOMCOUNTY.US

6 Apr · Subscribers of Whatcom

THANK

6

REPLY



Whatcom County PWA @WhatcomCoPWA · Apr 18

Whatcom County Public Works is hosting a public meeting to discuss the Lake Whatcom Stormwater Utility Service Area on TODAY at the Bloedel Donovan Park Multipurpose Room, at 2114 Electric Ave., Bellingham, WA 98229. Property owners in the unincorporated portion of the Lake Whatcom watershed are encouraged to attend to learn about this new service area and upcoming funding plan process. Link to press release: bit.ly/2JnWI5G



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Whatcom County Public Works

April 13 · 🌐

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Link to press release: <http://whatcomcounty.us/DocumentCenter/View/33627>

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whatcomcounty.us



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Easy to Understand Newsletters



City of Ferndale Utility Newsletter

This newsletter provides an update on current events for the City's water, sewer, and stormwater services.

Did you know:

4,800: The number of homes and businesses served by City of Ferndale water, sewer, and stormwater utilities.

365 / 24 hours a day: Delivery of utility services does not stop and requires a large network of pipes, water reservoirs, pressure reducing valves, and pump stations. This network must operate year-round to ensure water is available on demand and to safely convey wastewater away from your homes for treatment.

1907: Year the first documented city utility infrastructure was installed. The majority of the City's utility infrastructure was constructed in the 1950's and 70's to accommodate the population boom triggered by the arrival of the nearby refineries. Much of this infrastructure is still in use today.

As the City's utility system ages, failures such as water line breaks, intrusion from tree roots, and general operating failures are expected to occur with greater frequency.

131 miles: This is the combined length of water and sewer pipe in the City. Ferndale employs a team of 22 maintenance workers that monitor

maintenance workers that monitor
maintain dedicated portions of the system when waves of appreciation City's utility



Photo: Well Pump House

What is the City doing to ensure utility costs are as low as it can be?

City utilities are a basic public service, much like police and fire. It is fundamental to human health, welfare and community development.

To that end, we ensure that utilities are operated responsibly and that the infrastructure to deliver these services is well maintained and operating properly.



Photo: Well Pump House

What are our major utility projects and how will they be paid for?

Major projects on the horizon include expanding the City's wastewater treatment plant and the City's water treatment facilities. Both facilities have reached their operational limits.

Recent engineering evaluations have determined that the City's aquifers are being reduced at a rate faster than anticipated. The City has already taken steps to construct a new well tapping a separate aquifer to ensure there is no shortage of water on the horizon. We will continue to look at ways to protect the City's aquifer and ensure it is sustainable in the long-term.

Below are some facts about each of Ferndale's utilities.

WATER UTILITY:

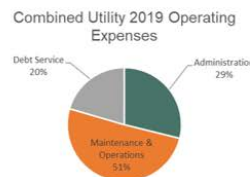
Miles of water main: 73
Pump stations: 4
Water reservoirs: 2
Pressure Zones: 6

STORMWATER UTILITY:

Miles of storm pipe: 70
Pump station: 1
Number of culverts: 453
Number of city storm retention ponds: 23
Miles of open ditches to maintain: 50

The following table lists and provides

Where does our utility money go?



How do we ensure growth pays for growth in the utilities?

The City assesses a connection charge on new customers who connect to the utility system. As a portion of the upcoming rate study, the City will review the charges imposed on new customers who connect to the system.

How do our monthly utility bills compare to neighboring jurisdictions?



Note: Bills are monthly, assuming 11 ccf of bimonthly water usage, 11 ccf of bimonthly sewer usage

How is our water treated to ensure it is safe for cooking and drinking?

The City's wells produce groundwater that meets and exceeds the standards of all State and Federal regulations. Because the groundwater is hard (an annoyance and aesthetic issue for the public) it is delivered directly to the City's water treatment plant where it is treated via greensand filtration and reverse osmosis before being delivered to the public. The City is constantly monitoring the water to make sure your water is always safe for drinking and cooking.

Why did we move to well water rather than draw water from the river?

Prior to December of 2011, the City purchased its water supply from the Public Utility District No. 1 of Whatcom County (PUD). The PUD pumped water directly out of the Nooksack River and provided primary treatment to remove river sediment. For several reasons, the City concluded that shifting its source of water supply to groundwater was the best financial decision. The City then proceeded to develop its own groundwater sources, the Shop Well and Douglas Well.

For more information about your utility bill, please call 360-384-4269.



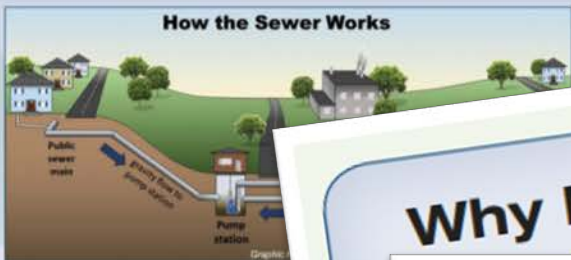
Photo: Reservoir 1



Photo: Reverse Osmosis Unit



Informative Articles



Learn More About Us

Delivering services to our community is the heart of what cities do. The majority of cities' operating revenue comes from property tax, sales tax, and utility taxes. All of those taxes go into the city's General Fund which pays for essential services.

State laws can put limits on taxes including property taxes which are capped at a 1% increase each year. The result is that although property tax is the city's largest revenue source, it does not keep pace with inflation or population growth. For each dollar you pay in property taxes, the city only receives about 21 cents. The rest goes to the state, Saccharish County, Edwards School District and Junior League district (see Economic and financial).

Of the 21 costs the city incurs, nearly two-thirds of the separate payments are for public safety including police, fire, jail costs and emergency medical services. The remaining one-third covers other essential services.

It is important for the community and sewer are accounted for and paid for out of an Emergency fund that sells goods and services directly pay for the utility system other purposes. How do some of

Water Utility

The city's job is to ensure clean days a year. Water is essential to life and community. It gives us life, keeps us clean, fuels our power.

Sewer Utility

Our city incorporated in 1954 in part to provide sanitary sewer connections to the growing number of homes in the area. A group of civic-minded residents wanted to provide sanitary sewer service to the area and take advantage of a tax-exempt bond issue.

cation review, and active participation in the Lake Ball Lake Watershed Forum.

Why Is It Costing More To Provide Water?

that affect the cost of the city's water

water District, and the purchase of our water makes up 30 percent of the utility's costs. These water costs are also rising faster than the rate of inflation.

Fee revenues (fees paid by new developments)

Rates Support Clean, Safe and Reliable Water

The city takes the business of providing clean, safe and reliable water to you as one of our highest priorities. New water rates were r

Clean, Safe, Reliable Water...

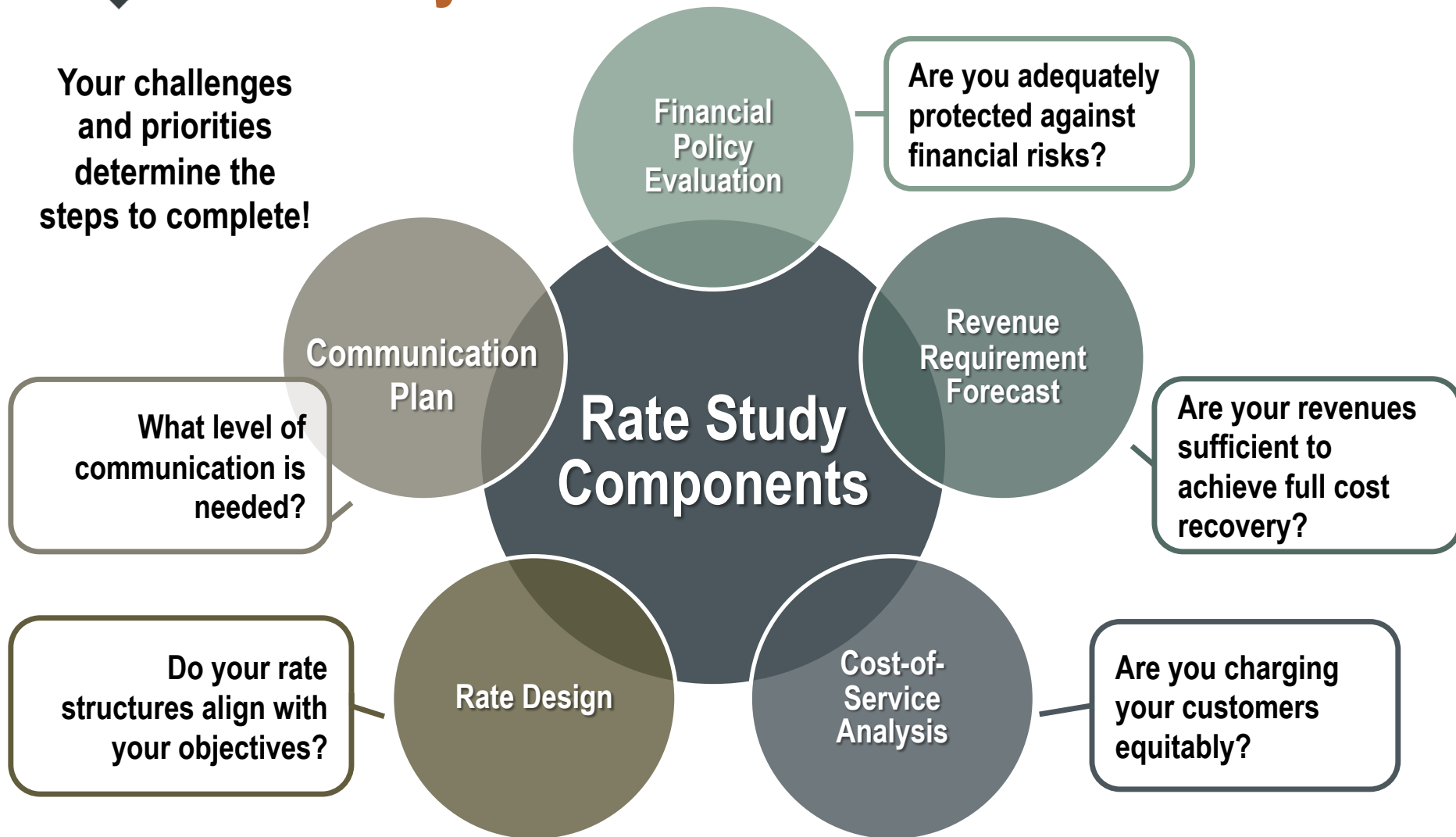
[Click Here to Learn More About Your Water Rates](#)



Water rates pay for the replacement of aging pipes that caused a water main break and two sink holes in January.

Summary

**Your challenges
and priorities
determine the
steps to complete!**



Thank you!
Questions?

(425) 867-1802

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