Pricing Water for Conservation

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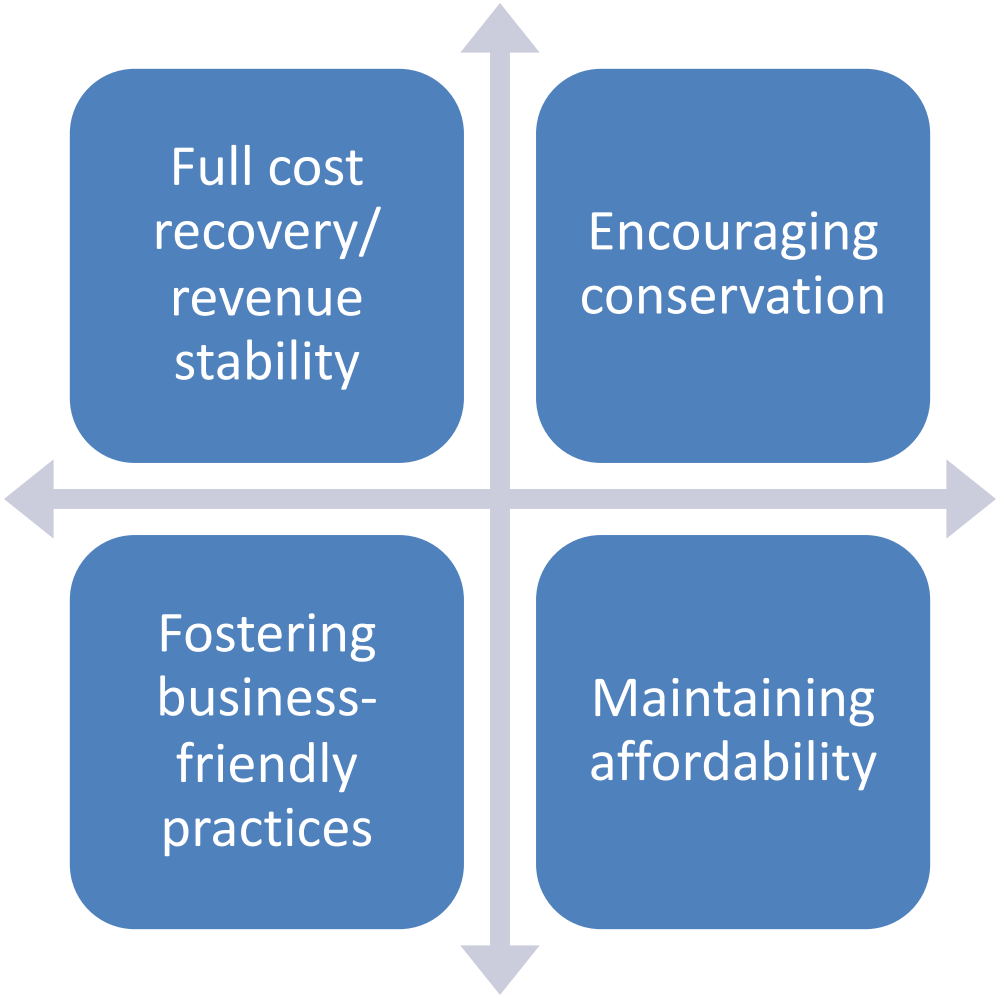
Webinar Objectives

- Understanding conservation as a water system objective
- Explore ways that water can be priced to encourage conservation
- See how different rate structures impact different types of customers

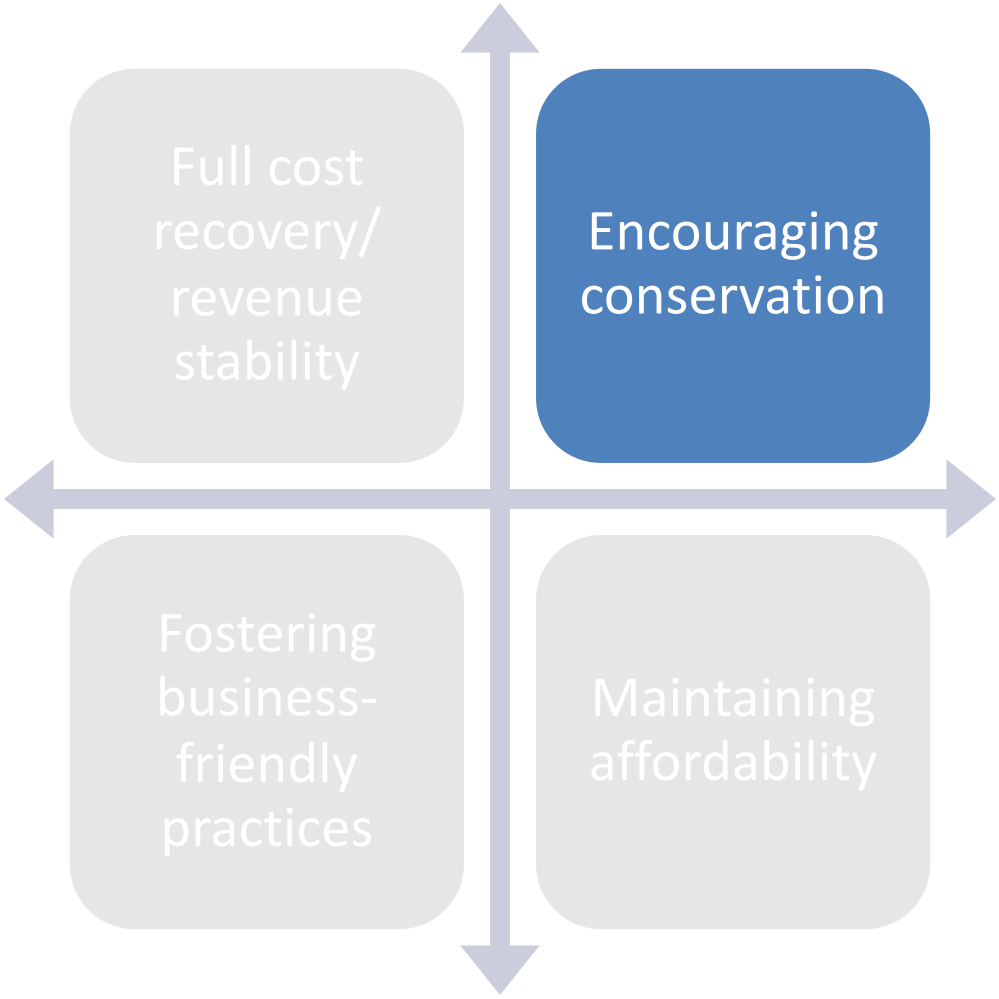
http://efcnetwork.org/events/webinar-encouraging-customers-to-conserve-pricing-and-non-pricing-approaches/

Water System Objectives



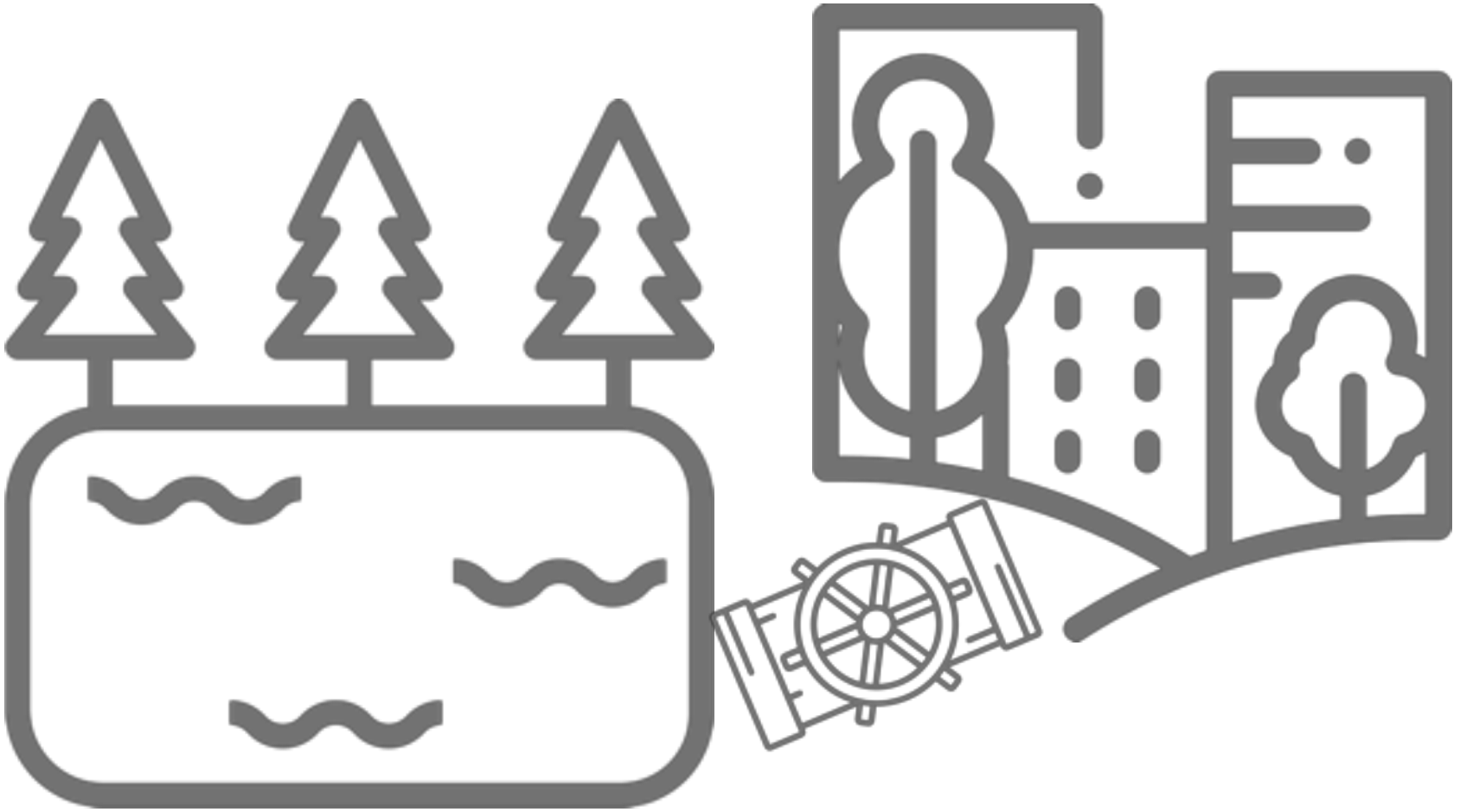
Polling Questions

Encouraging Conservation

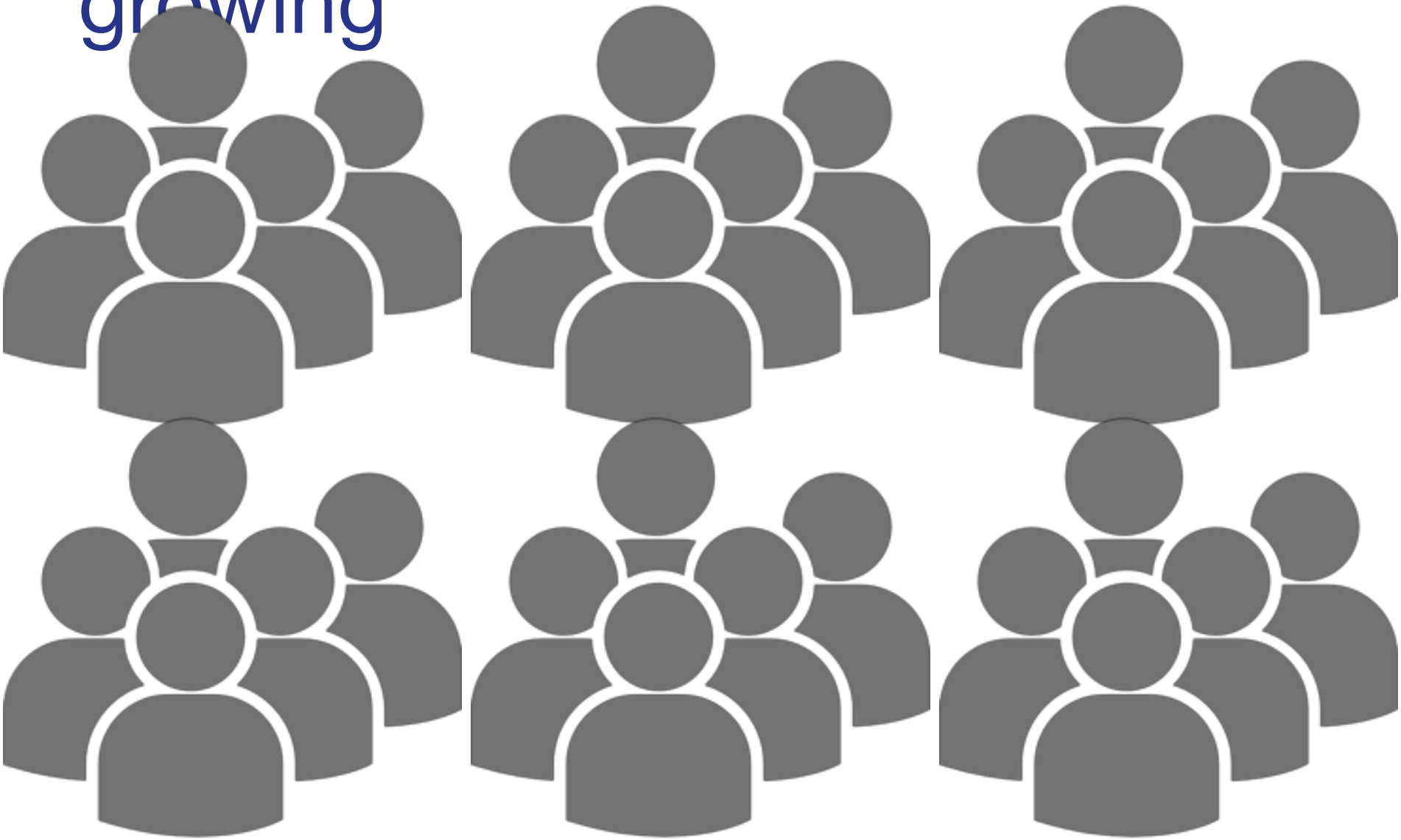


Environmental benefits

Lack of adequate supply for the population served

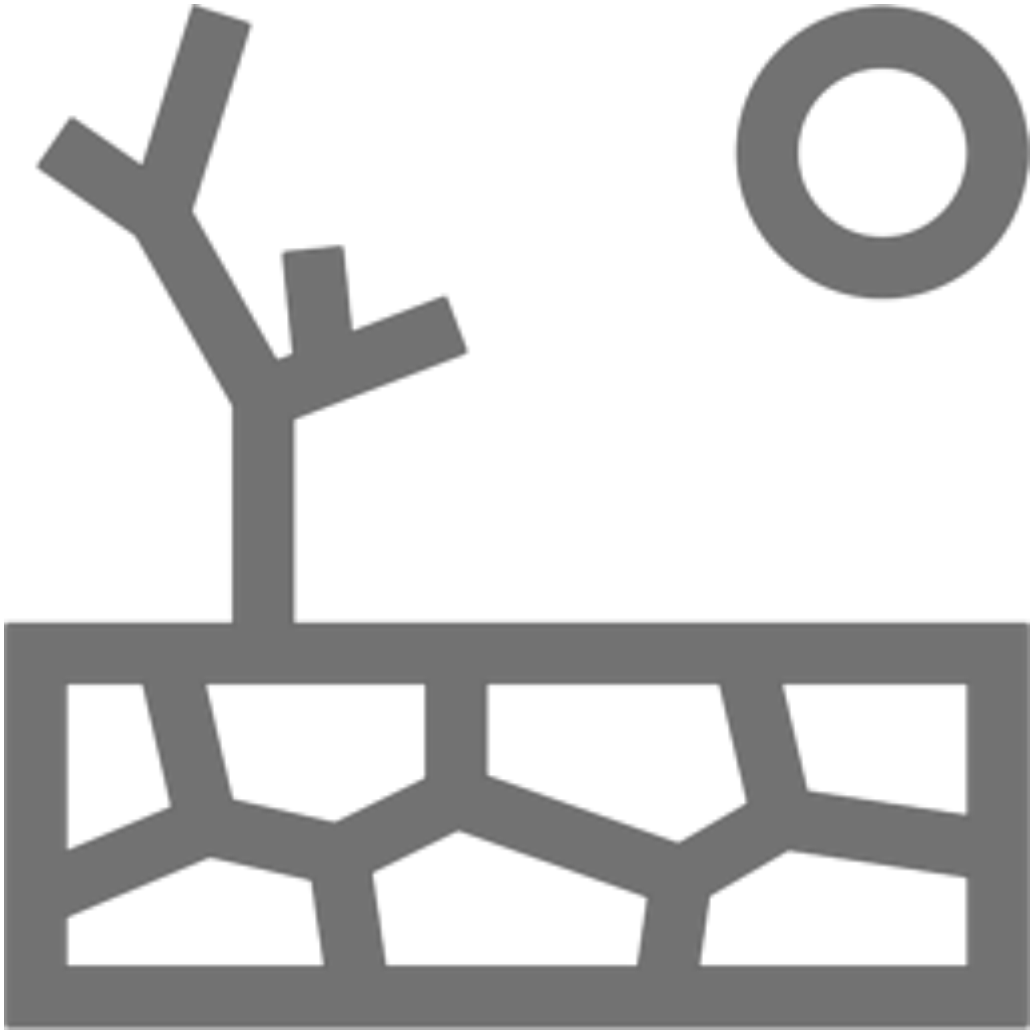


Your service population is growing



Nearing your storage or treatment capacity, or the limits of your withdrawal permit or water rights

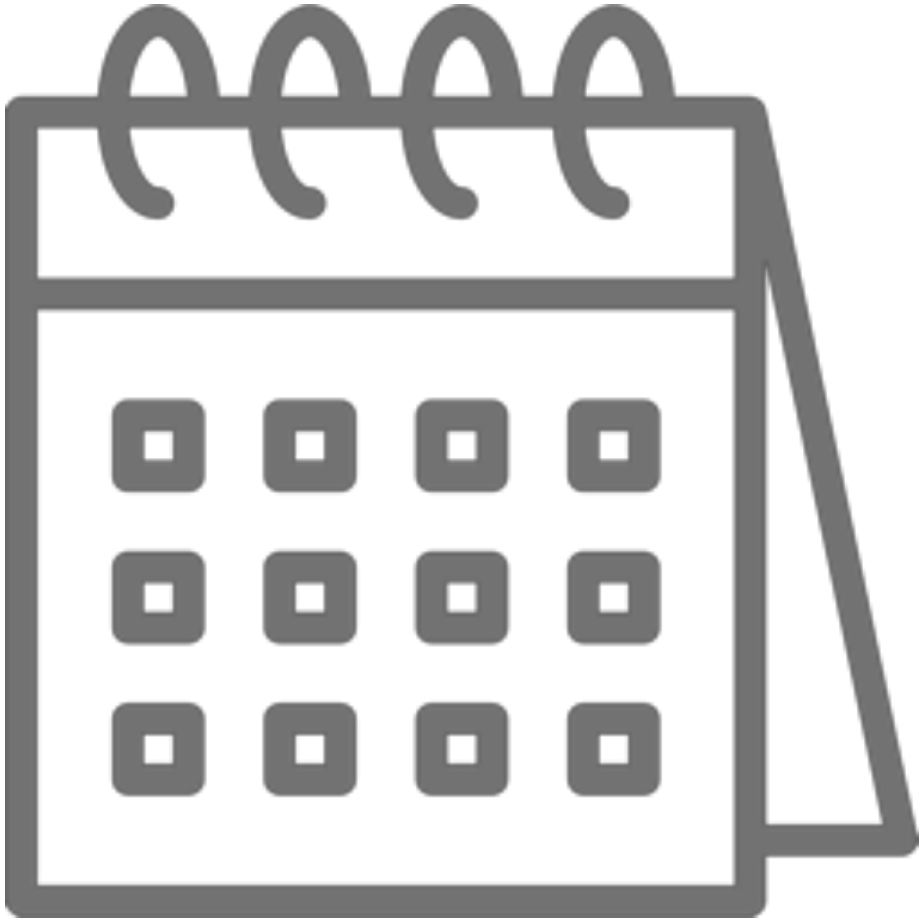
Drought



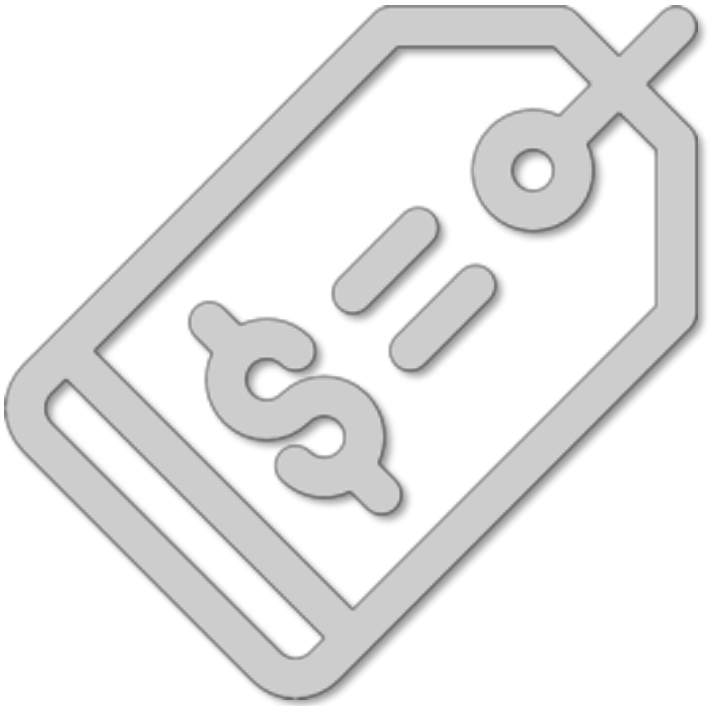
Emergency


Montgomery County Environmental Services - Ohio
13 February at 19:36
Due to the widespread water service interruption, all Montgomery County and city of Dayton residents are urged to conserve water or avoid using water while the system is under evaluation.
20
13 Comments 65 shares

Short Term vs. Long Term



Two Approaches to Conservation



Pricing signals through your rates

Non-price strategies

Non-Pricing Strategies

https://efcnetwork.org/events/webinar-encouraging-conservation-an-in-depth-look-at-non-pricing-approaches/

WEBINAR | Encouraging Conservation—An In-Depth Look at Non-Pricing Approaches

Date/Time

Date(s) - 08/23/2018

2:00 pm - 3:00 pm

iCal (add to your calendar)

Register

Fill out form below to register for this event.

Categories

- Conservation
- Webinars

View the video recording

Download the Slides from this Webinar Here

2:00PM-3:00PM EDT

(1:00pm-2:00pm CDT, 12:00pm-1:00pm MDT, 9:00am-10:00pm PDT)

The Problem with Conservation

- We are in the business of selling water

- If we want customers to use less water, what impact does that have on our revenues?

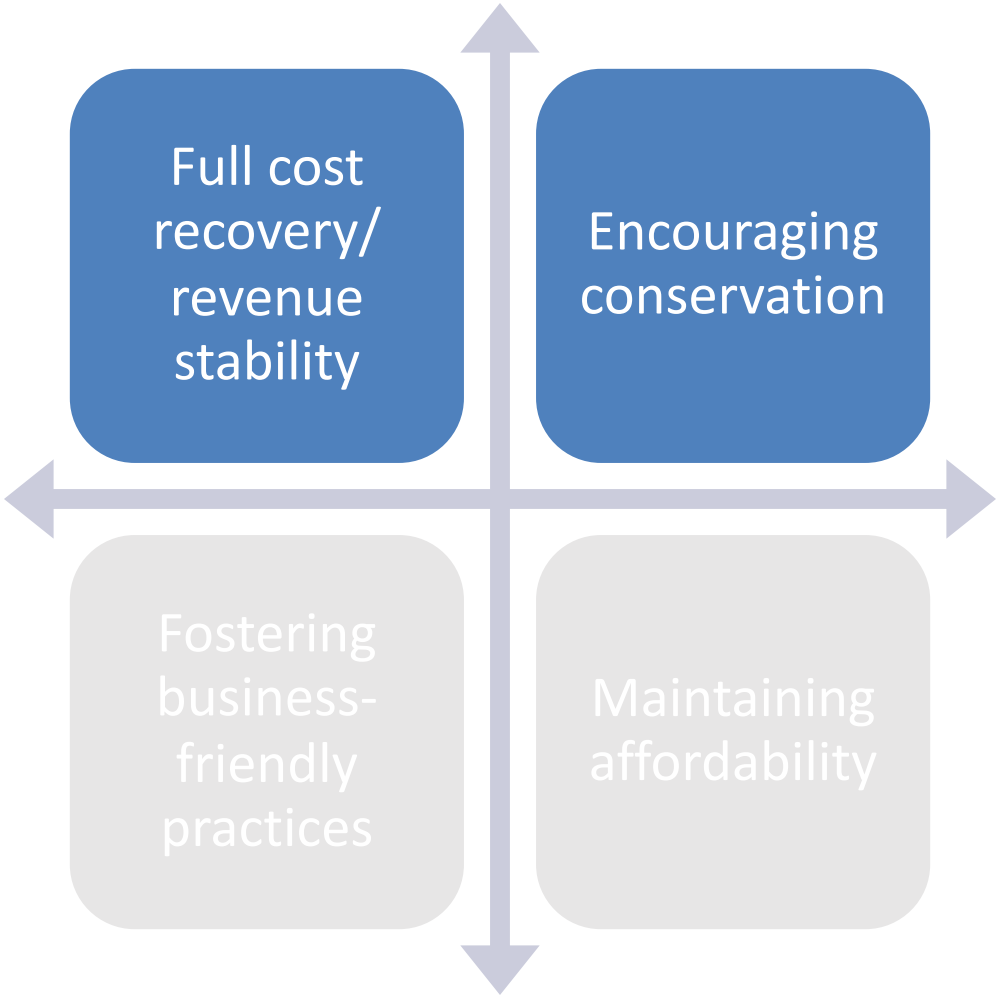

When you conserve water-
we have a deficit... So I
have to raise your rates!
PWC

Two Approaches to Conservation

Pricing signals through your rates

Non-price strategies

Balancing Objectives



Pricing Strategies

- There is no single rate structure that can be called a conservation rate structure

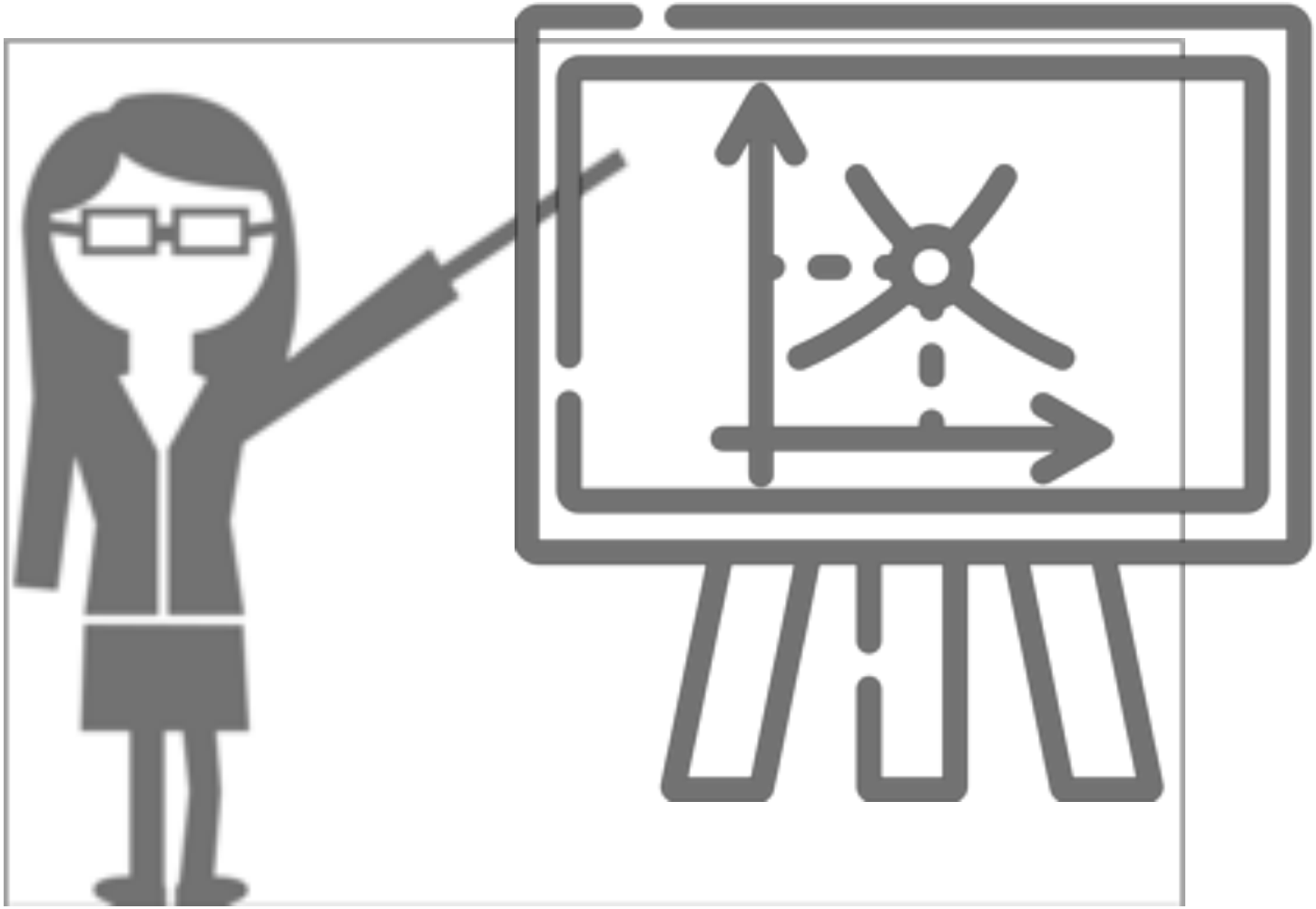
- Many different rate designs can be used to encourage conservation. The devil is in the details

Pricing Strategies

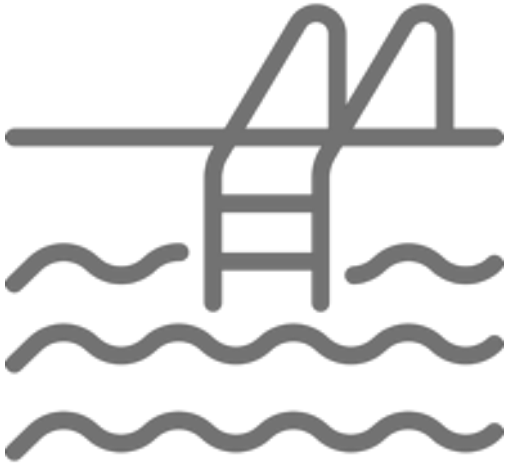
- The rate level may matter more than the rate structure

- Consider higher rates at average usage levels in addition to high levels, though be aware of affordability issues

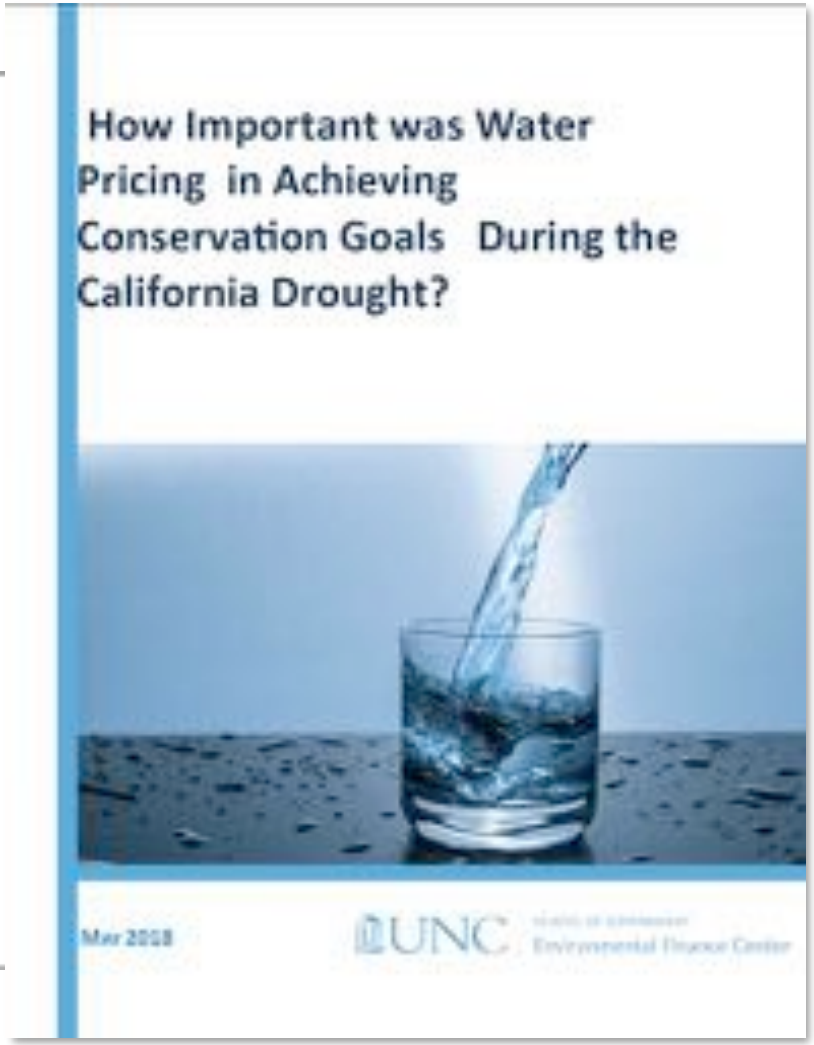
ECON 101



Discretionary Water Use



https://efc.sog.unc.edu/project/california-multi-agency-analysis-relationship-between-water-sales-and-pricing-during-drought



Some Ideas of Rate Structures

- High uniform rates
- Increasing block rates
- Budget based rates
- Irrigation rates
- Seasonal rates
- Surcharges when supply is low/drought

So.....

What does this mean in the real world? What would conservation pricing actually look like?


Greetings from
Irvington
U.S.A.

Irvindale, USA

Small town with a water and wastewater system

Population: 1,100

Service Connections: 450

MHI: $24,432

Annual Budgeted Revenues

Account	Type	Amount
30-371-01	Water Charges	$214,423
30-371-02	Sewer Charges	$262,072
30-373-02	Service Charges	$12,500
30-378-00	I&I Study Grant - Commerce	$12,000
30-336-00	Fund Balance Appropriated	$9,188
30-374-00	Online W/S Payment Fee	$1,600
30-373-00	Tap Connections	$1,500
30-373-04	Impact Fees	$1,000
30-385-00	Sale Of Assets	$0
30-386-00	Transfer From Other Fund	$0
Total		**$514,283**

Irvindale's Customers

4,000 gallons/month
(all indoor)

15,000 gallons/month
(4K indoor; 11K outdoor)

15,000 gallons/month
(all indoor)

34,000 gallons/month
(all indoor)

Exercise

Let’s figure out some rates for Irvindale that promote conservation and see how those rates impact different types of customers

High Volumetric Uniform Rates

- What information do we need to make this calculation?

- Total revenue needed from rates
- Total gallons sold

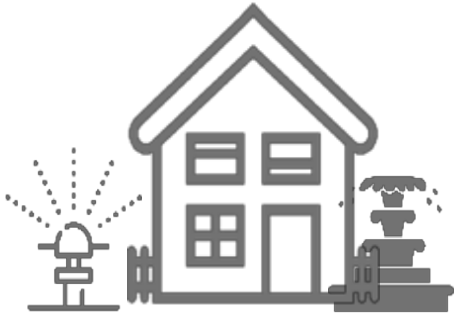
High Volumetric Uniform Rates

$$\frac{\$214,423}{32,877,590} \times 1,000 = \$6.52$$

Total Needed Revenue / Total Gallons Sold

Price per 1,000 Gallons

All Volumetric Uniform Rates

			
$26.09	$97.83	$97.83	$221.74

Increasing Block Rates

- What information do we need to make this calculation?

- Total revenue needed from rates
- Total gallons sold, broken out by customer per billing period for ideally multiple years

Usage and Peaking

- Determine the average of the lowest non-zero period of usage for all customers, and figure out what percentage of billing periods are above or below this number

- Determine which percentage of customers have a period of usage twice their lowest non-zero period of usage

Usage and Peaking

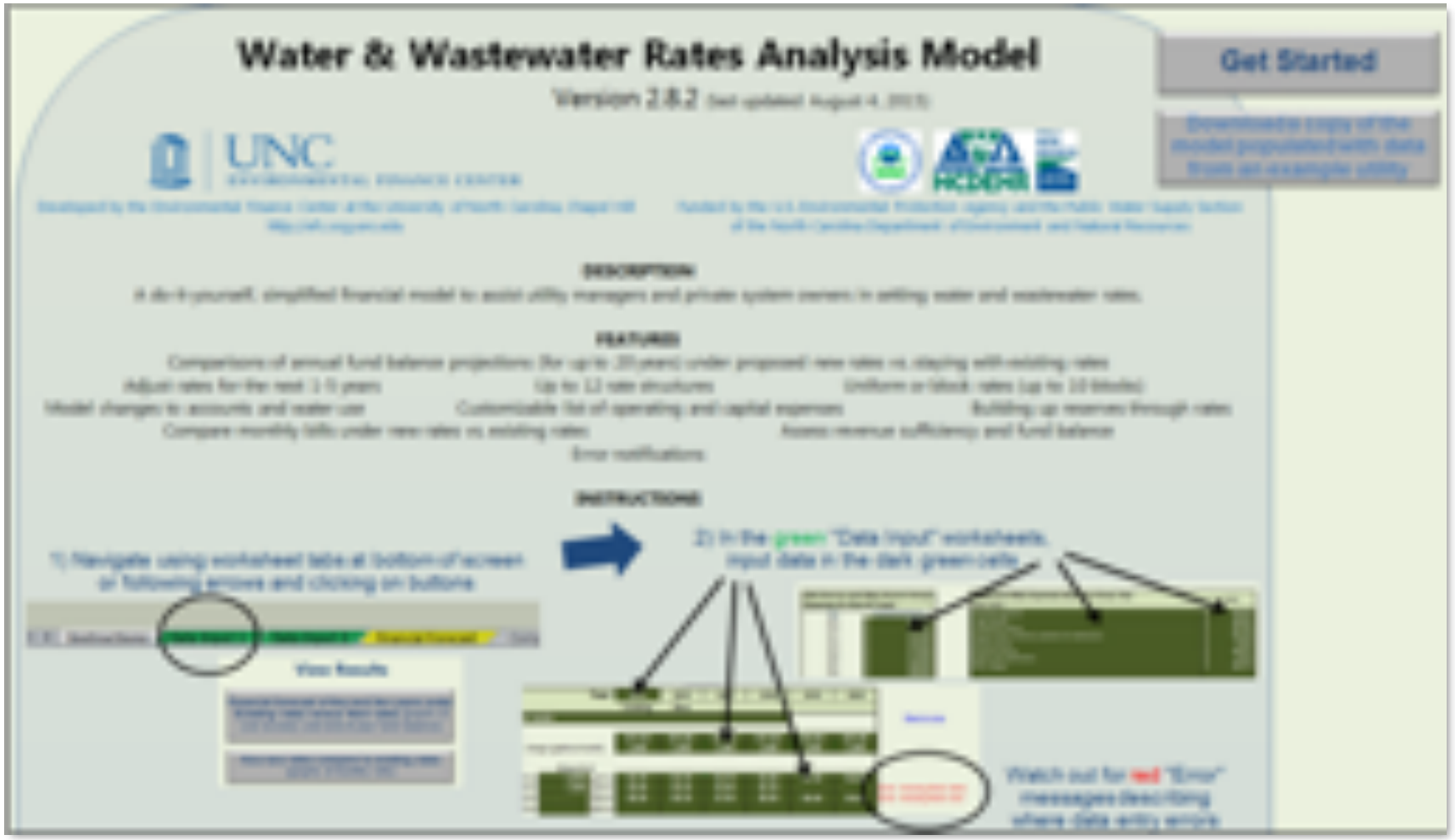
	Low Peak	High Peak
Low User	27%	11%
High User	39%	23%

Increasing Block Rates

For block rate structures to be effective:

- Decide on the correct number of blocks
- Decide on where the blocks should end/start
- Set significant rate differentials between blocks

Increasing Block Calculations



Increasing Block Calculations

Upper tiers will be priced above this

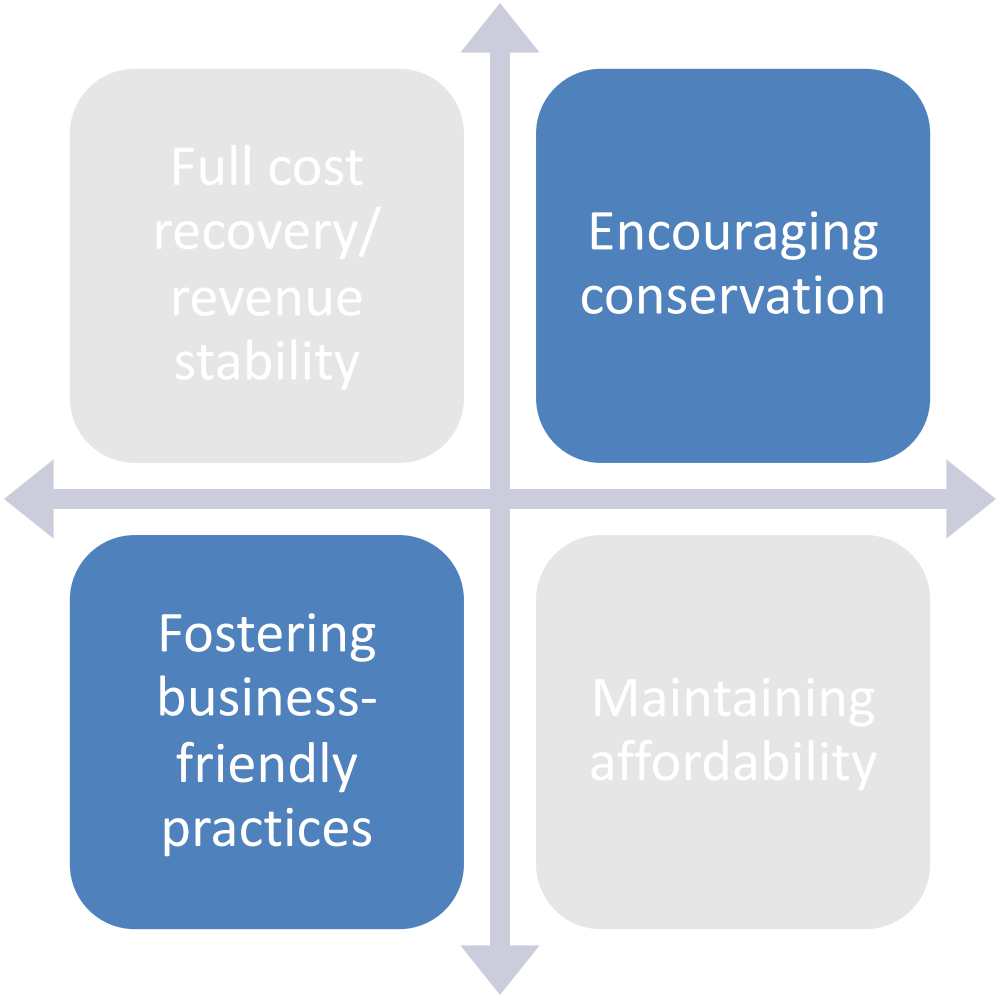
$6.52

Lower tiers will be priced below this

Increasing Block Considerations

34,000 gallons/month
(all indoor)

Competing Objectives



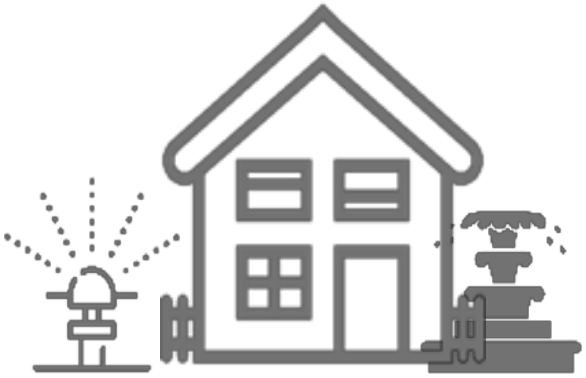
Increasing Block Considerations

15,000 gallons/month
(all indoor)

High use, low peak

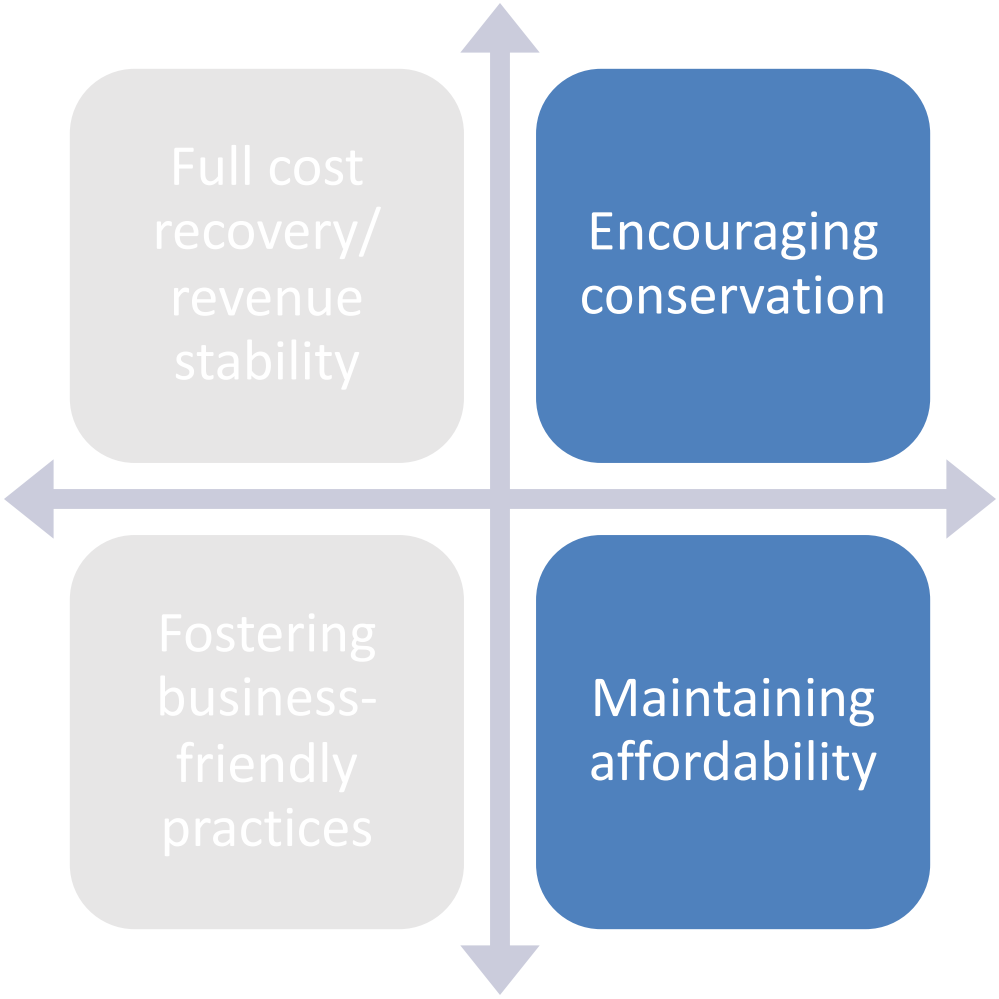
Vs.

High use, high peak



15,000 gallons/month
(4K indoor; 11K outdoor)

Competing Objectives



Possible Solution: Budget Based Rates

- Works like increasing block. The prices are the same for each customer, but the size of the block varies based on characteristics unique to each account

- For this, you definitely need a spreadsheet tool

Possible Solution: Irrigation Rates

- Meter and charge a higher rate for outdoor water use than you do for indoor water use

Irrigation Rates

- What information do we need to make this calculation?

- Total revenue needed from rates
- Total gallons sold *indoors*
- Total gallons sold *outdoors*

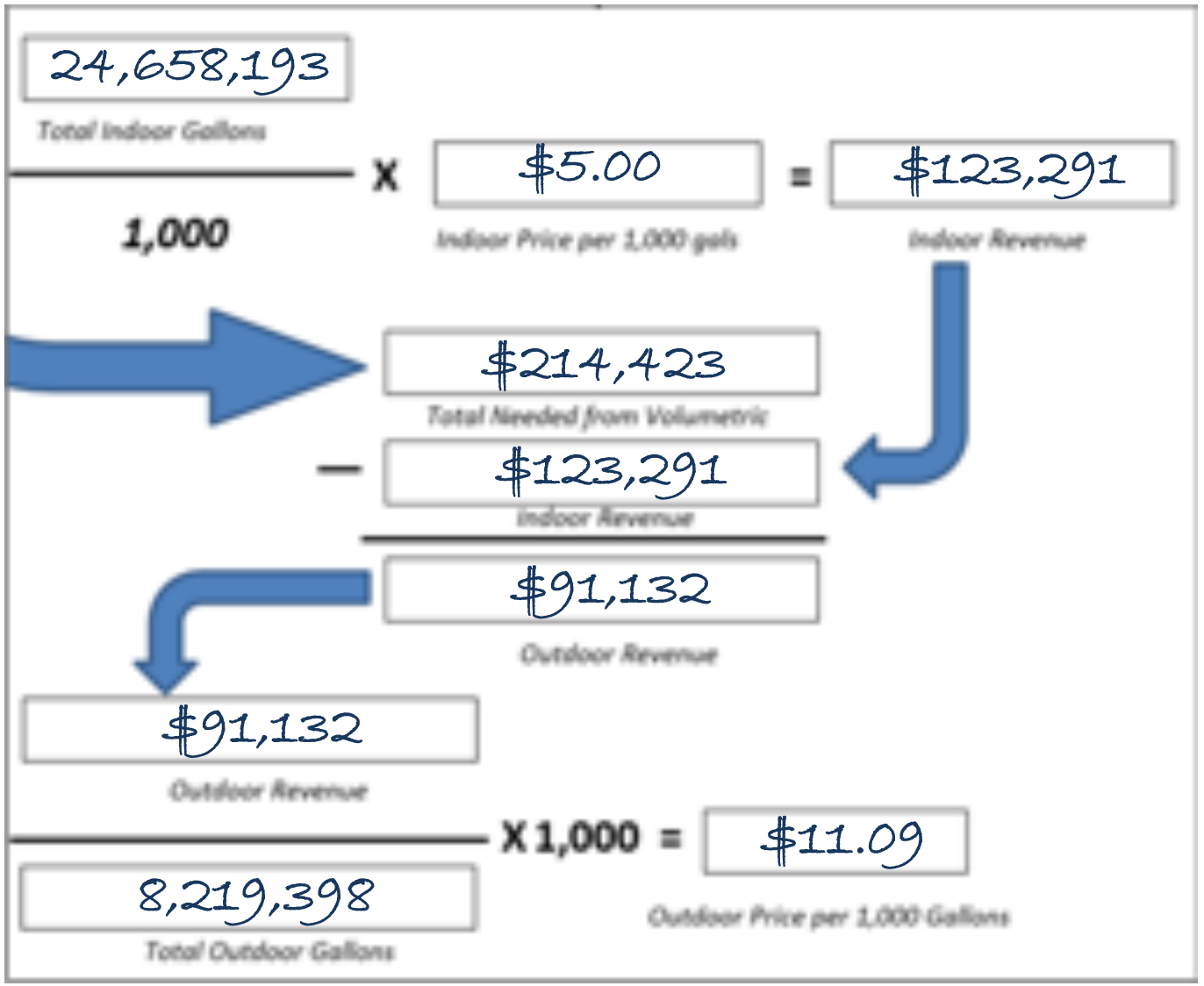
Irrigation Rate Calculations

Outdoor rates will be priced above this

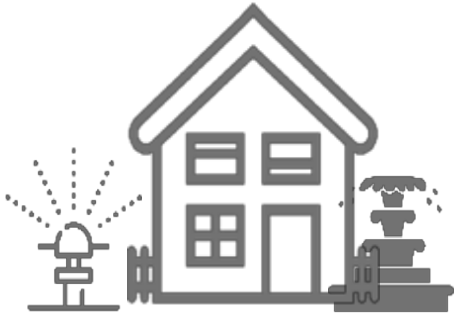
$6.52

Indoor rates will be priced below this

Irrigation Rates



Irrigation Rates



$20.00	$141.99	$75.00	$170.00

Seasonal Rates

- Charge a higher price to all customers during the months when overall water use is highest

- Again, watch out for the impacts on businesses and large families

Seasonal Rates

- What information do we need to make this calculation?

- Total revenue needed from rates
- Total gallons sold *during low months*
- Total gallons sold *during high months*

Low Supply and Drought Surcharges

- Prices increase only when supplies of water are limited, encouraging conservation at crucial times

Remember!

- If your pricing strategy is successful, and your customers do conserve, your assumptions about revenue may be wrong

- Best to anticipate lower usage when setting the rates, or to build in some contingency into the financial target

http://efc.web.unc.edu/2015/11/23/key-financial-benchmarks-for-water-systems-conservation-signal/

Key Financial Benchmarks for Water Systems: Conservation Signal

Designing Rate Structures That Support Your Objectives

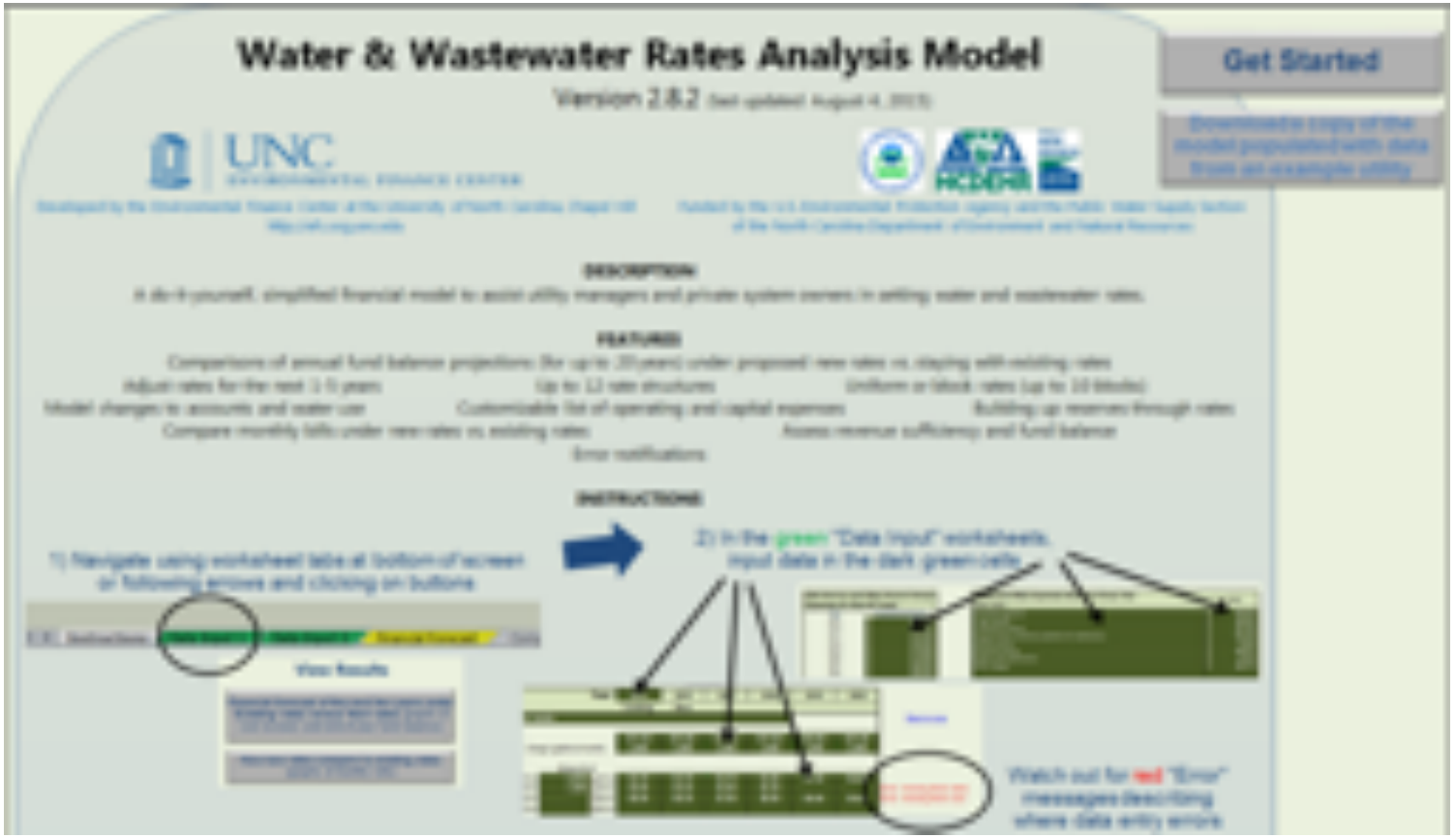
Free guide written for system managers

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

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



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