

# Lesson Learned from the 2015 Drought: How to Prepare for the Next one

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APWA Ventura Chapter

June 1, 2022



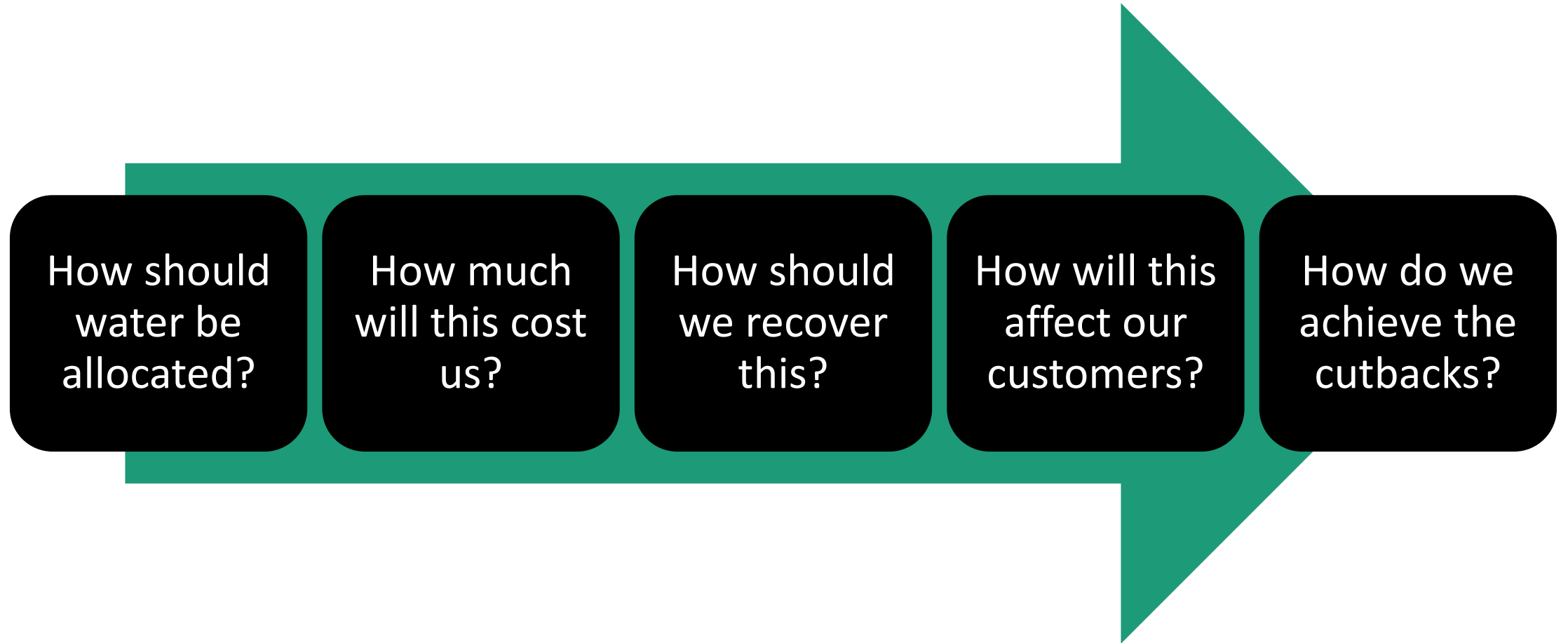
**Water Resources  
Economics**

PROMOTING THE VALUE AND PRICE OF  
WATER SERVICE

# Why Do we Need Drought Stage Rates?

- Providing water services is a fixed cost business
  - Fixed cost means that the cost of providing services does not change based on water use
- For most agencies, operating budget is 60% to 95% fixed cost
  - More purchased water, less fixed cost
- Agencies, also have capital cost for refurbishing the water system
- Most agencies collect between 10% to 50% of the revenue on fixed meter charge
  - This is to maintain affordability for low water users and to promote conservation
- The discrepancy between the fixed cost nature of water utility and the goal of maintaining affordability on water rates, creates financial instability when water use is significantly cut back

# Steps to Develop Drought Stage Rates



How should water be allocated?

How much will this cost us?

How should we recover this?

How will this affect our customers?

How do we achieve the cutbacks?

# Step 1: How should water be allocated?



# 2020 Urban Water Management Plan / Water Shortage Contingency Plan Provides an Agency a Road Map

Example: Coastside County Water District

<b>Customer Class</b>	<b>Stage 1</b>	<b>Stage 2</b>	<b>Stage 3</b>	<b>Stage 4</b>	<b>Stage 5</b>	<b>Stage 6</b>
Single Family	85%	79%	70%	64%	59%	48%
Multi-Family	86%	79%	70%	65%	59%	48%
Non-Residential	95%	79%	70%	57%	38%	12%
<b>Target Reduction Goal</b>	<b>≤10%</b>	<b>20%</b>	<b>30%</b>	<b>40%</b>	<b>50%</b>	<b>&gt;50%</b>

# Policy Discussion – Priority of Water Use?

- Should each customer category cutback at the same percentage?
- Or should we have different cutbacks in each category that would still achieve an overall 20% savings?
- Priority of use:
  - 1. water for health & safety, economic development
  - 2. discretionary water use i.e. landscaping

# Allocation Methodology

- Three methods in allocating water:
  - Historical use: 3-year running average of water use during the billing period
  - Minimum threshold for indoor needs
    - Assume 4 people per household and provide 55 gallons per day = 9 ccf
  - Water budget framework
    - Indoor budget as above
    - Outdoor budget considers landscape area and weather conditions

Step 2: How much will this cost us?





# Drought Stage Implications

- Some questions to consider:
  - How much lost commodity revenue is expected due to cutbacks?
  - How will this change our water supply mix (and the costs associated with each source)?
  - How will this change our operating costs (if at all)?

# Case Example of Financial Impact for Coastside County Water District

Supply Mix	Baseline	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Local Supply	309,700	72,784	0	0	0	0	0
SFPUC Sources	505,300	655,054	643,850	570,500	497,766	408,064	266,424
<b>Total (ccf)</b>	<b>815,000</b>	<b>727,838</b>	<b>643,850</b>	<b>570,500</b>	<b>497,766</b>	<b>408,064</b>	<b>266,424</b>

Stage Costs	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Lost Commodity Revenue	\$1,467,437	\$2,685,762	\$3,755,397	\$4,812,319	\$6,111,576	\$7,960,127
SFPUC Water Purchase Cost*	\$609,445	\$563,849	\$265,341	(\$30,662)	(\$395,716)	(\$972,140)
<b>Total</b>	<b>\$2,076,882</b>	<b>\$3,249,610</b>	<b>\$4,020,738</b>	<b>\$4,781,657</b>	<b>\$5,715,860</b>	<b>\$6,987,987</b>

\*Additional drought-related SFPUC wholesale water shortage rates and/or surcharges can be passed through

# Financial Implication

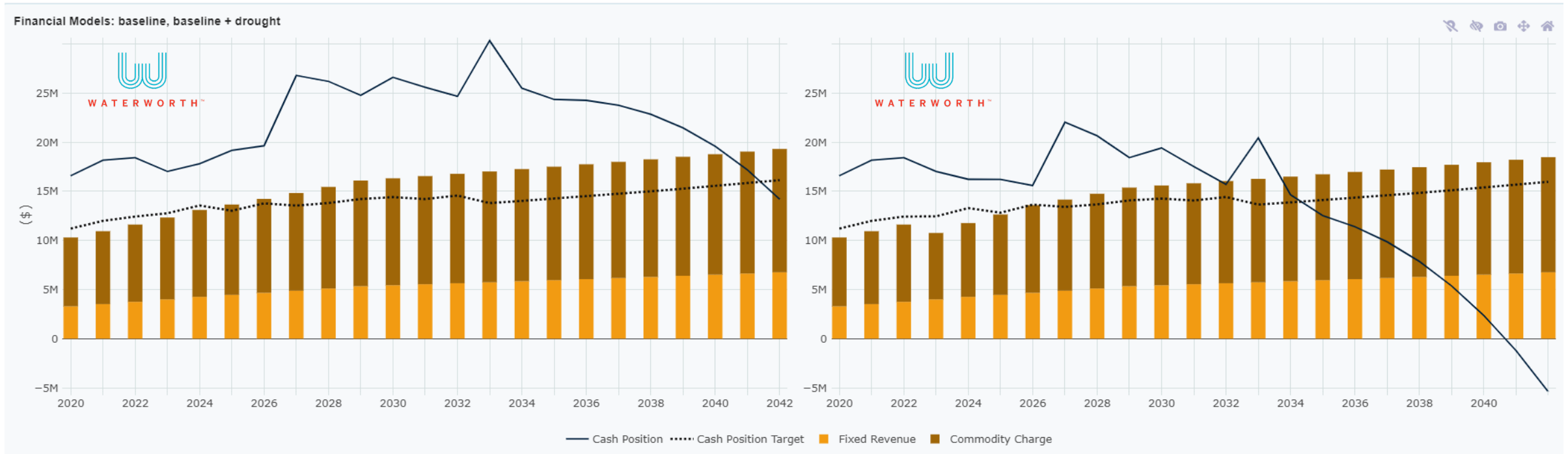
- It is important for an agency to understand the financial implication of each stage
  - Reduction in revenue
  - Increase cost
- Both factors will affect the coverage ratio requirement and reserve balance
  - For agency that have debt service payment, it is important to understand how much cut back needs to occur before one is not in compliance with its coverage ratio requirement



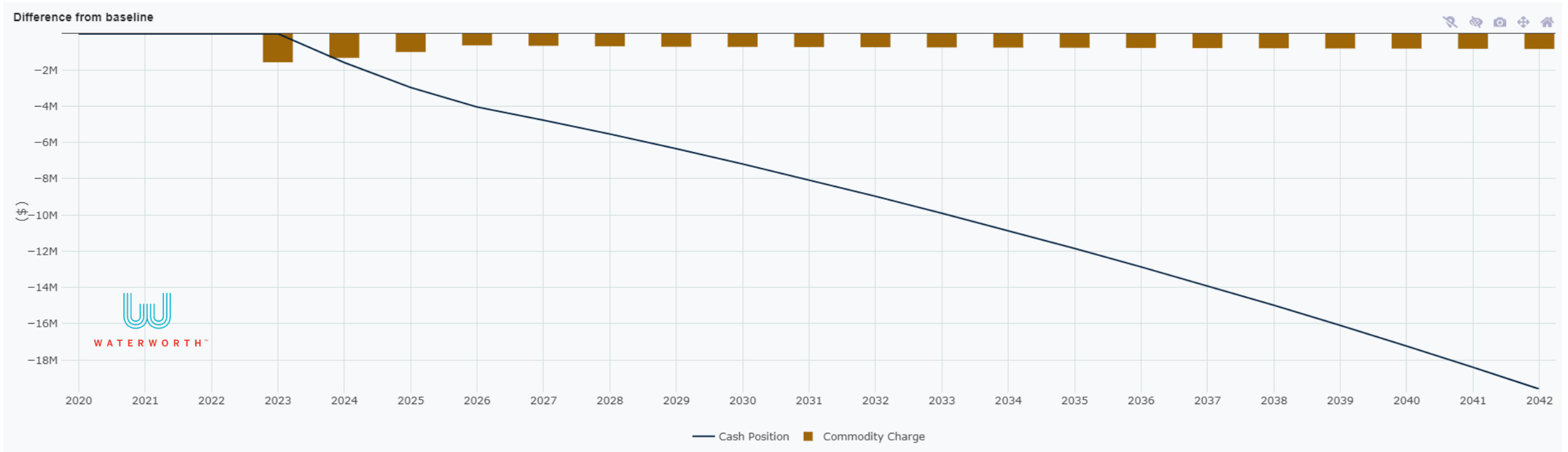
# Financial Model are Tool to Understand Uncertainty

## Baseline Scenario

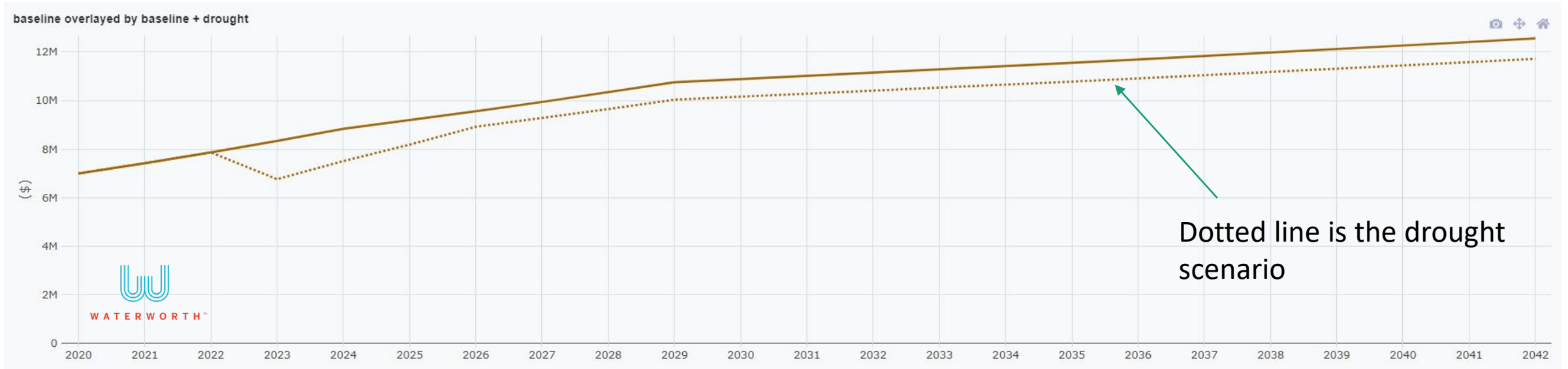
## 20% Reduction in Demand in 2023: slow rebound



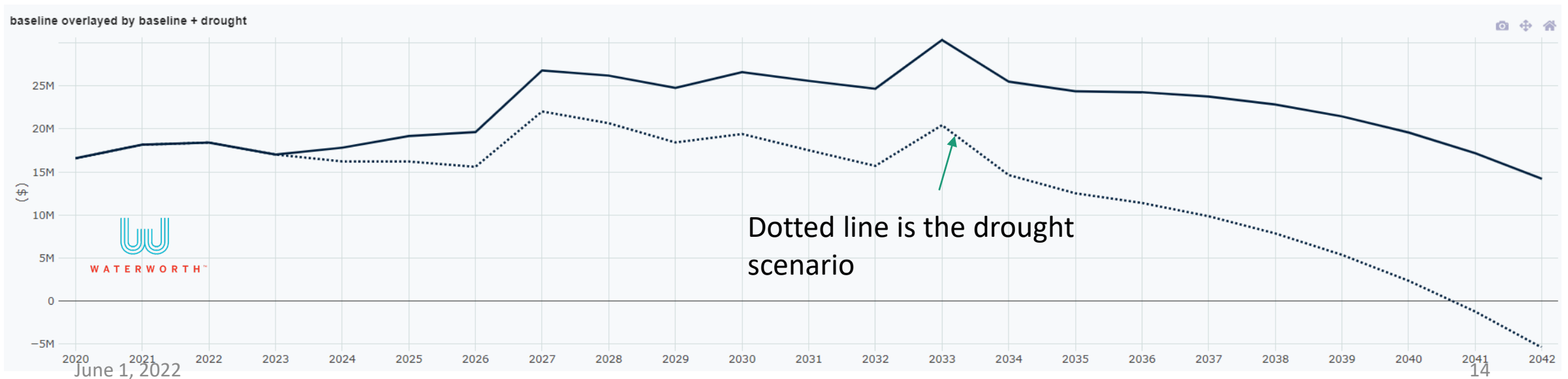
# Comparison of Revenues and Ending Cash Balance



# Comparing Baseline Commodity Revenue with Drought Scenario

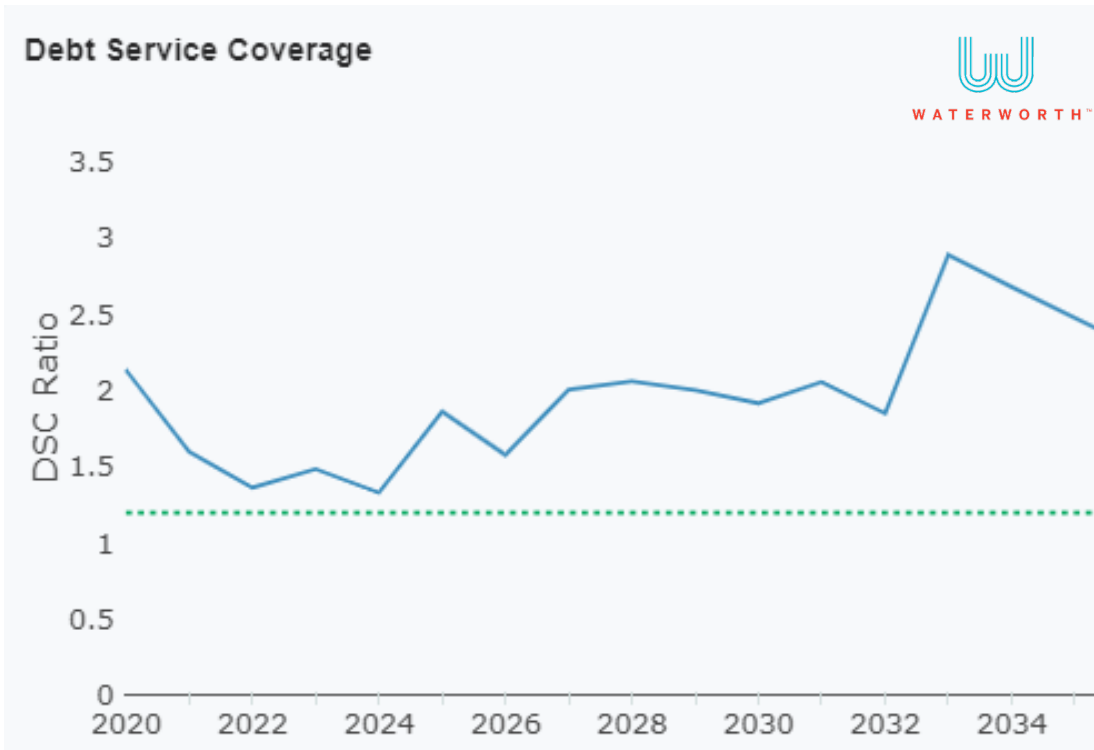


# Comparing Baseline Cash Position with Drought Scenario

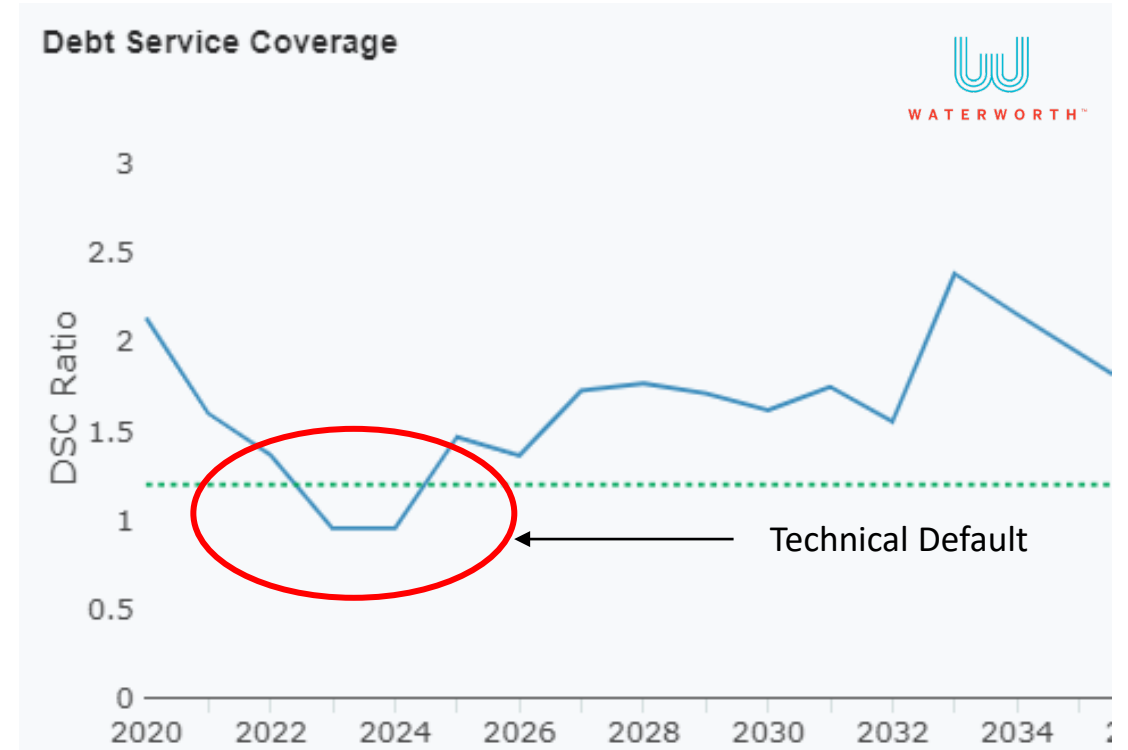


# Pay Close Attention to your Coverage Ratio

## Baseline Scenario



## Drought Scenario



# Step 3: How should we recover this?





# Rates or Penalties?

## Drought Stage Rates

Recover the financial impacts of having water restriction

Are a revenue-generating mechanism

Require a nexus between the cost of providing service and associate rates (Prop 218)

## Drought Penalties

Utilize price to enforce water rationing

Are non-revenue generating and strictly punitive

Are violations not based on cost of service

# What are Drought Stage Rates?

- Given Proposition 218 requirements, drought stage rates:
  - Are designed to recover lost revenue due to reduction in water usage and difference in water purchase costs
  - Are surcharges tied to specific stages, tied to the Urban Water Management Plan / Water Shortage Contingency Plan
  - Provide financial flexibility for agency in implementing the appropriate stage rates

# Drought Stage Rate Options

## 1. Uniform Commodity Charge

- Same Stage rate applied to all commodity charges, regardless of customer class or tier

## 2. Uniform Percentage Applied to Commodity Charge

- Same percentage increase applied to all commodity charges

## 3. Monthly Fixed Meter Charge

- Stage rates are applied as a monthly fixed charge and not tied to usage

# Policy Overview for Drought Stage Rates

Policy Objectives	Uniform Commodity Charge	Uniform Percentage	Monthly Fixed Meter Charge
Easy to understand and administer	★ ★	★ ★	★ ★ ★
Stability and guaranteed recovery of revenue	★ ★	★	★ ★ ★
Ability to change the bill	★ ★	★ ★ ★	★
Targeted use and conservation	★ ★	★ ★ ★	★
Promotes affordability	★ ★	★ ★ ★	★

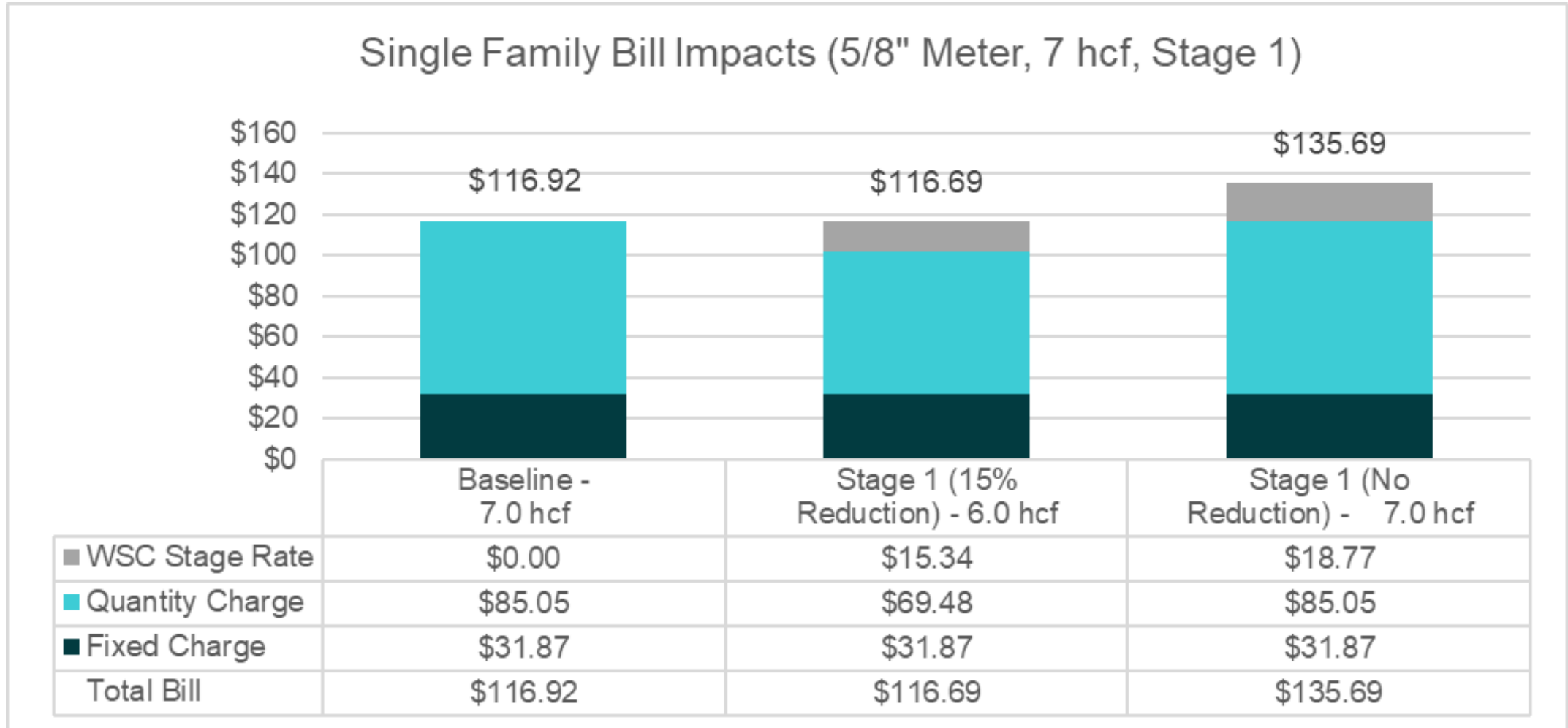
# Step 4: How will this affect our customers?



# Drought Rates and Messaging

- Asking customer to cut back in water use, while their bill are increasing is a hard sell
  - Active public outreach will be required
- Ideally, we can have customers cut back in their water use and still have the same bill
  - Still difficult to explain

# Customer Impacts –Drought Stage 1



# Logistics in Implementing Drought Stage Rates

1. Water Shortage Contingency Stage must be declared by the Board of Directors
2. The Board of Directors must take action to implement the Drought Stage Rates
3. A written notice must be mailed to all customers at least 30 days prior to implementing the Drought Stage Rates



# Stage Rate Implementation

- Based on Prop 218 requirements, the Drought stage rates shown in the Prop 218 notice are the maximum that the Board can implement
- Board has the discretion to:
  - Implement a lower stage rate
  - Use reserves
  - Defer capital projects
  - Any combination of the above

# Step 5: How do we achieve the cutbacks?



# Options to achieve water allocation targets

- Information / Education
- Ordinance – Restrict certain behaviors
- Drought Penalty

# Question 1 on Drought Penalty: When do we assess it?

1. When a person does a specific activity that is restricted?
  - Watering on certain day / time, using water on a sidewalk, ect . .
    - Administratively hard to enforce, unless we have access to AMI data
2. When an account goes over a certain allowable allowance?
  - Fairness on how the water allowance / budget is developed will be a critical factor in success

# Question 2 on Drought Penalty: How do we assess it?

1. Per incident? Typically tied to water conservation ordinance
  - Example: \$ 20 per citation
  - Appears most common with water agencies
2. Volumetric? The penalty will be assessed based on the water use that is deemed unappropriated
  - Example: \$ 10 per hcf

# Future Challenges

- Competition in the media
  - 2015 the media focused on the drought
  - 2022 – there are so events occurring around us
- How low can we go?
  - GPCD has dropped significantly in the last 20 years
  - Common perception is that any further reduction will require a change in lifestyle
    - Is it time to say goodbye to Kentucky bluegrass?
- Rate fatigue
  - Water bills have been increasing by 6% per year for the last 15 years
  - Water agencies need to promote the value they provide to prevent rate revolt



## Water Resources Economics

PROMOTING THE VALUE AND PRICE OF  
WATER SERVICE

# Thank you!

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