



# Measuring Drinking Water Affordability

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Division of Drinking Water

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*Remote participation only*



# Meeting Logistics



# **Water Board's Mission Statement**

*Preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use, for the benefit of present and future generations.*

## Ways to Participate-

1. **Watch ONLY:** Visit [video.calepa.ca.gov](https://video.calepa.ca.gov)
2. **Email:** Submit a comment or ask a question that will be read aloud, send an email to: [safer@waterboards.ca.gov](mailto:safer@waterboards.ca.gov)
3. **Q&A:** Submit a question using the Q&A feature at the bottom of your Zoom Screen. You can UPVOTE any question you would like answered.
4. **Raise Hand:** Attendees will be given the opportunity to provide verbal comment or ask questions, if you're interested in this option, please raise your virtual hand when the time is right.

- Please wait for your name to be called.
- Public comments are 3 minutes each.

# Agenda

- 1 BACKGROUND
- 2 WHAT IS "AFFORDABILITY"
- 3 CURRENT MEASUREMENT APPROACH
- 4 OPTIONS FOR DISCUSSION
- 5 NEXT STEPS



# BACKGROUND

# 2012 - Human Right to Water (HR2W)

**Water Code Section 106.3, the State statutorily recognizes that:**

“every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.”



# Why Measuring Affordability Matters



## State & Federal Gov.

- Funding eligibilities: Grant vs. Loan
- Prioritization for & access to technical assistance
- Fee waivers



## Water Systems

- Impacts rate-setting decisions
- Financial capacity of system
- Ability to pay for current and future needs



## Customers

- Quality of life – percent of income spent on drinking water
- Access to safe drinking water



## SB 200 Requirements: Annual Affordability Assessment

State Water Board must identify **disadvantaged community water systems**, that have instituted customer charges that **exceed** the **“Affordability Threshold”** established by the State Water Board in order to provide drinking water that meets State and Federal standards.



# Needs Assessment Components




**Risk  
Assessment**

Community and State  
Small Water Systems &  
Domestic Wells



**Cost  
Assessment**

Failing & At-Risk Water  
Systems & Domestic Wells



**Affordability  
Assessment**

Disadvantaged  
Community Water Systems

[https://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/needs.html](https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/needs.html)

# Past Workshops on Affordability Metrics

The State Water Board has hosted workshops on measuring affordability in the Needs Assessment since 2020.

NEEDS ASSESSMENT COMPONENTS	2019	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q3 2021	2022
<b>Risk Assessment:</b> Public Water Systems	■	■	■	■ ■	■		■
<b>Risk Assessment:</b> State Small Water Systems & Domestic Wells	■	■	■	■ ■	■		■
<b>Cost Assessment</b>	■	■	■	■	■ ■		■
<b>Affordability Assessment</b>		■	■ ■	■	■	■	■

# Affordability in the Needs Assessment

# Nexus of Affordability Definitions

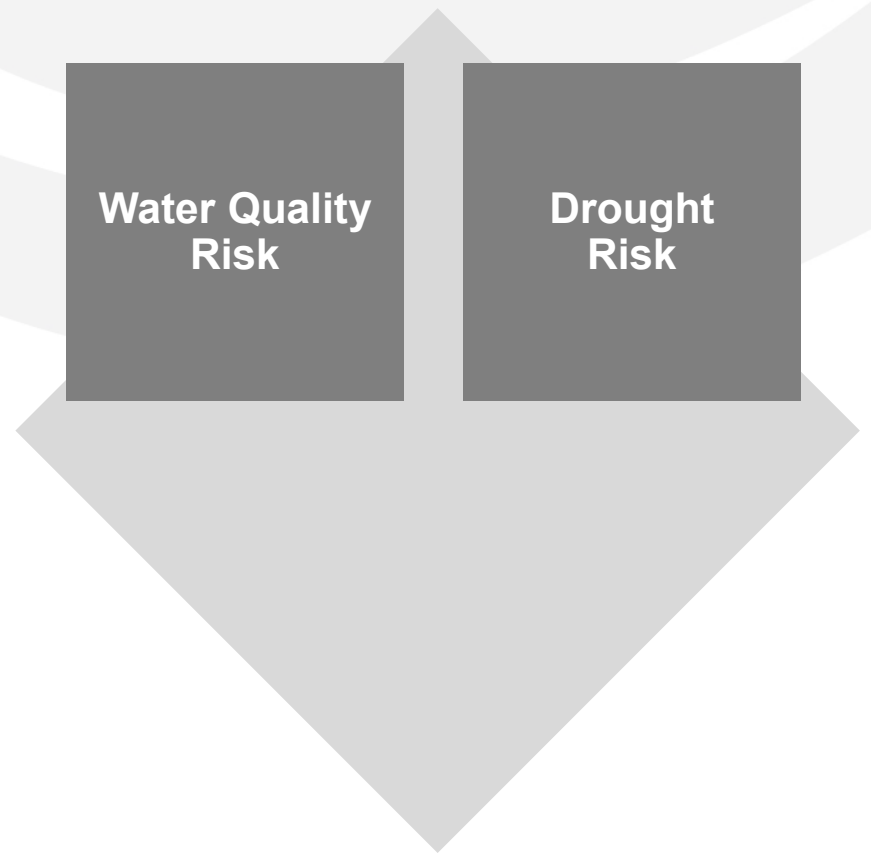


- (1) Household Affordability:** The ability of individual households to pay for an adequate supply of water.
- (2) Community Affordability:** The ability of households collectively within a community to pay for water services to financially support a resilient water system.
- (3) & (4) Water System Financial Capacity:** The ability of the water system to financially meet current and future operations and infrastructure needs to deliver safe drinking water. The financial capacity of water systems affects future rate impacts on households.

# Affordability in the Risk Assessment: 2022

**PUBLIC WATER SYSTEMS**

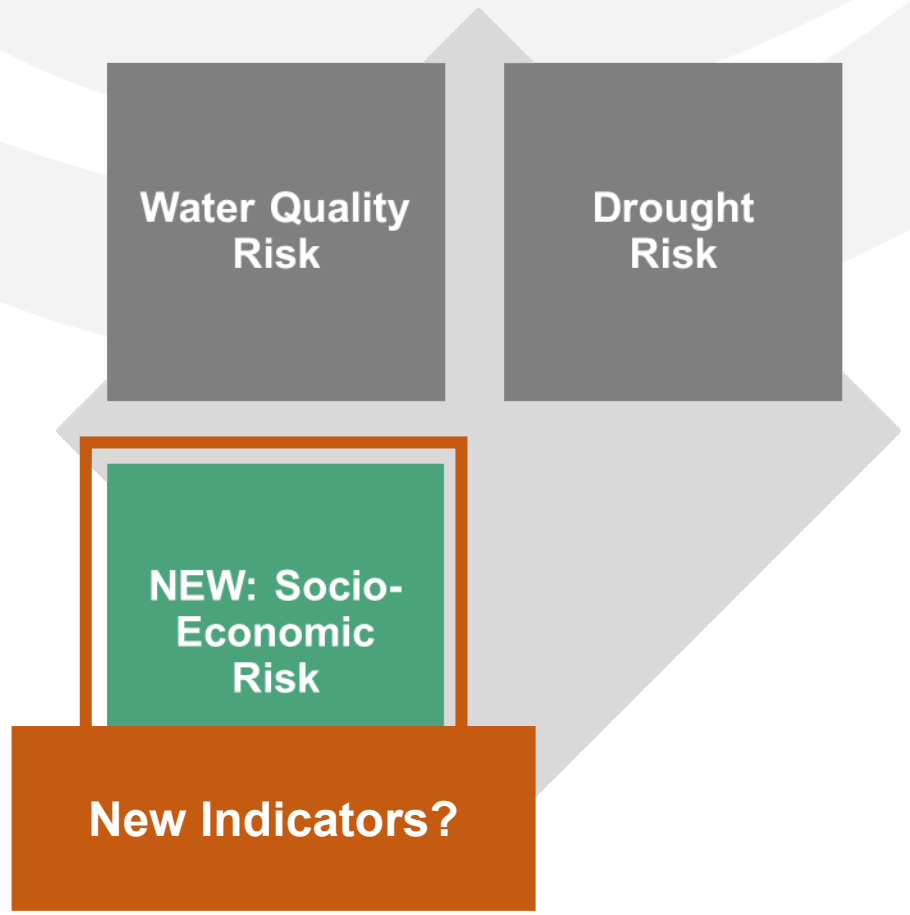
**STATE SMALL WATER SYSTEMS & DOMESTIC WELLS**



# Affordability in the Risk Assessment: 2023

**PUBLIC WATER SYSTEMS**

**STATE SMALL WATER SYSTEMS & DOMESTIC WELLS**



# Needs Assessment Identifies SAFER Program Priority Systems



**FAILING WATER SYSTEMS**  
Community water systems and K-12 public schools that meet the Failing: Human Right to Water (HR2W) list criteria.

**AT-RISK WATER SYSTEMS & DOMESTIC WELLS**  
Public water systems with up to 30,000 service connections or 100,000 population served, K-12 public schools, state small water systems and domestic wells that are at-risk of failing.

**POTENTIALLY AT-RISK WATER SYSTEMS & DOMESTIC WELLS**  
Public water systems with up to 30,000 service connections or 100,000 population served, K-12 public schools, state small water systems and domestic wells that are at-risk of failing.

**NOT AT-RISK WATER SYSTEMS & DOMESTIC WELLS**  
Public water systems, K-12 public schools, state small water systems, and domestic wells that are not at-risk of failing.





# Current Measurement Approach & Affordability Indicators

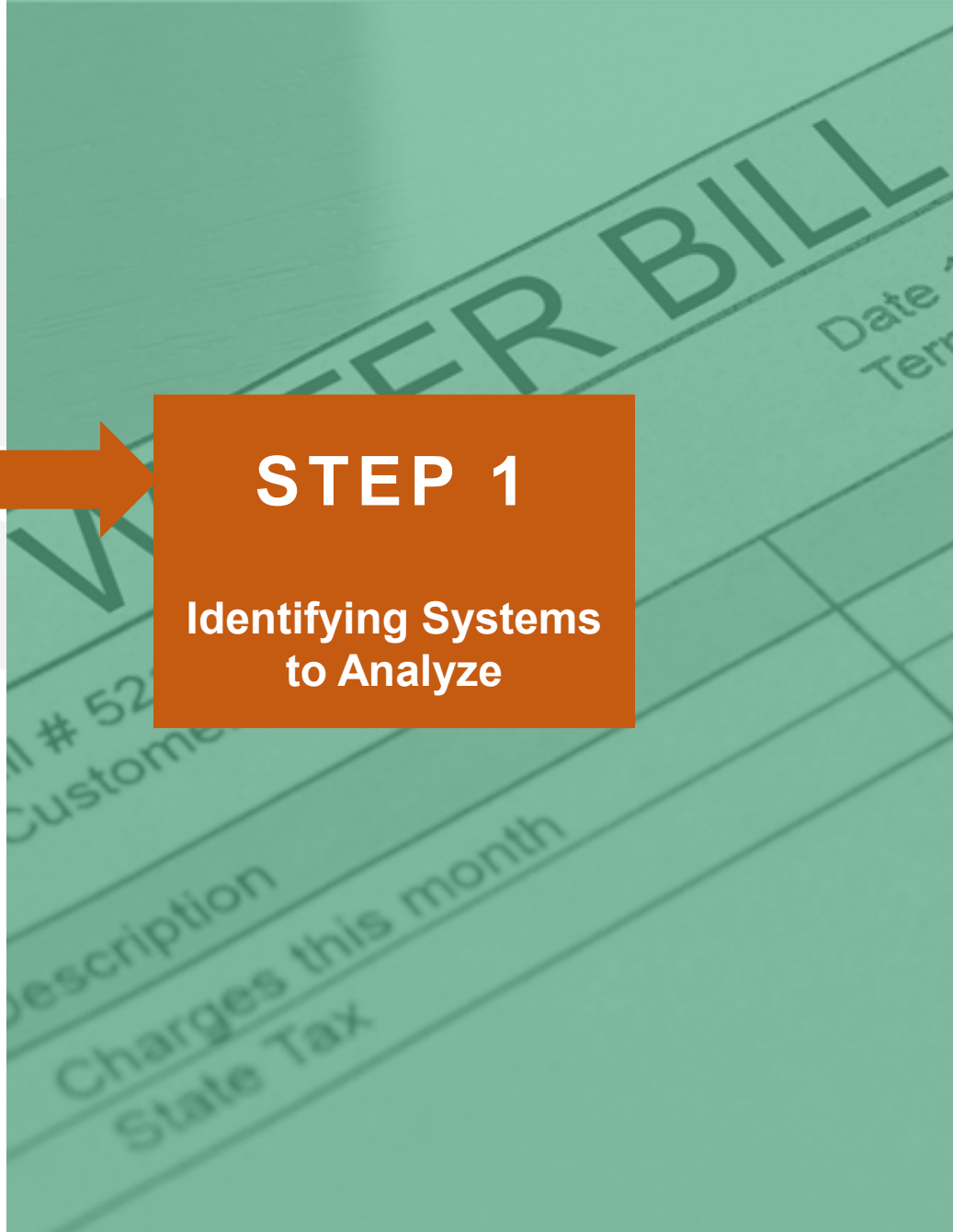
# Public Water Systems

# SB 200 Requirements: Annual Affordability Assessment: STEP 1

State Water Board must identify **disadvantaged community water systems**, that have instituted customer charges that **exceed** the **“Affordability Threshold”** established by the State Water Board in order to provide drinking water that meets State and Federal standards.

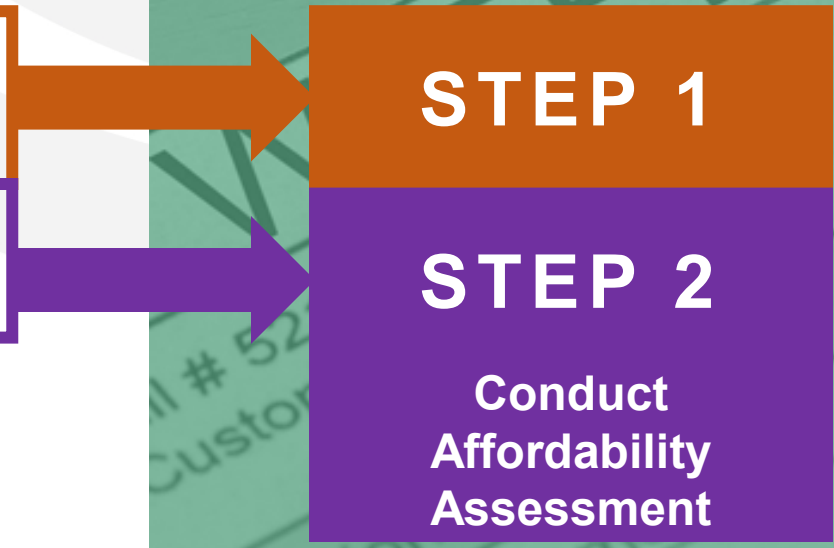


**STEP 1**  
Identifying Systems to Analyze



# SB 200 Requirements: Annual Affordability Assessment: STEP 2

State Water Board must identify **disadvantaged community water systems**, that have instituted customer charges that **exceed** the **“Affordability Threshold”** established by the State Water Board in order to provide drinking water that meets State and Federal standards.



## STEP 1: Identifying Systems Included in the Affordability Assessment



Disadvantaged (DAC) and Severely Disadvantaged (SDAC) communities are currently identified using U.S. Census **Median Household Income (MHI)** data within a system's service area.

Established thresholds in regulation:

- **DAC:** MHI is less than 80% statewide MHI.
- **SDAC:** MHI is less than 60% statewide MHI.

## STEP 1: Pros and Cons of MHI




**PROS:** established in regulation and history of use.

**CONS:**

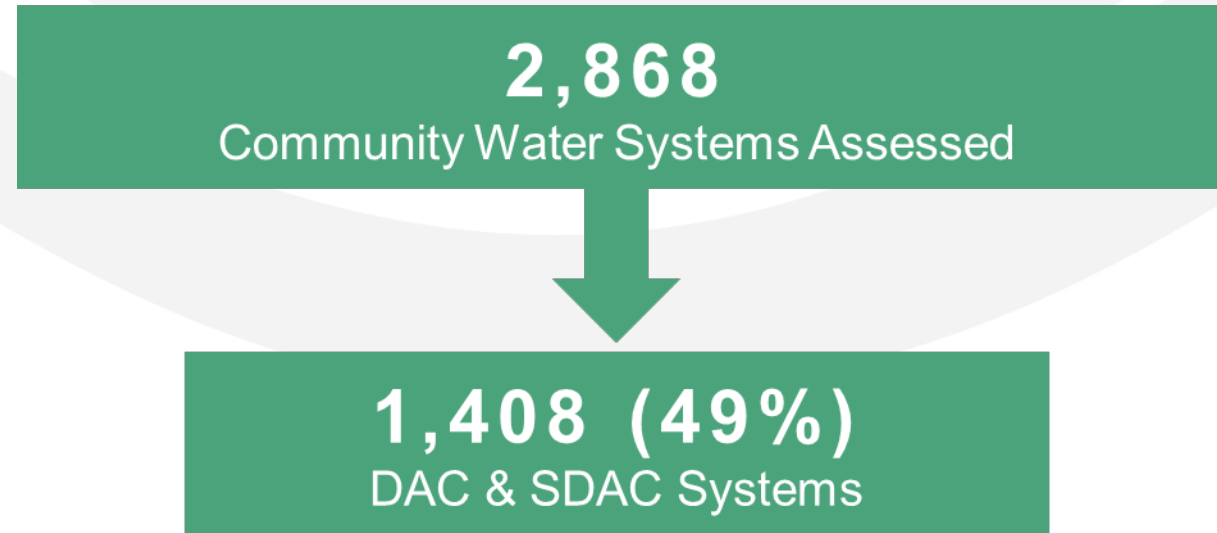
- Use of average income data skews metric in high-income service areas where there are communities that struggle to pay their water bills.
- MHI data is missing for some water systems.
- System service area boundary information used to determine MHI is also missing or has quality issues for some systems.

# STEP 1: 2022 Results for Public Water Systems



**STEP 1**

Identify Systems Serving Disadvantaged Communities



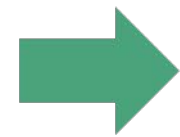
# Affordability Assessment Methodology: **STEP 2**

**1,408 (49%)  
DAC & SDAC Systems**



**STEP 1**

**Identify Systems Serving Disadvantaged Communities**



**STEP 2**

**Identify Systems Charging Rates that Exceed "Affordability Threshold"**



# STEP 2: 2022: DAC & SDAC Systems that Charge Customers Directly for Water

**2,868**  
Community Water Systems Assessed



**1,408 (49%)**  
DAC & SDAC Systems



**836 (29%)**  
DAC/SDAC  
Systems that  
Charge for Water

**2,032 (71%)**  
Community Water  
Systems Excluded



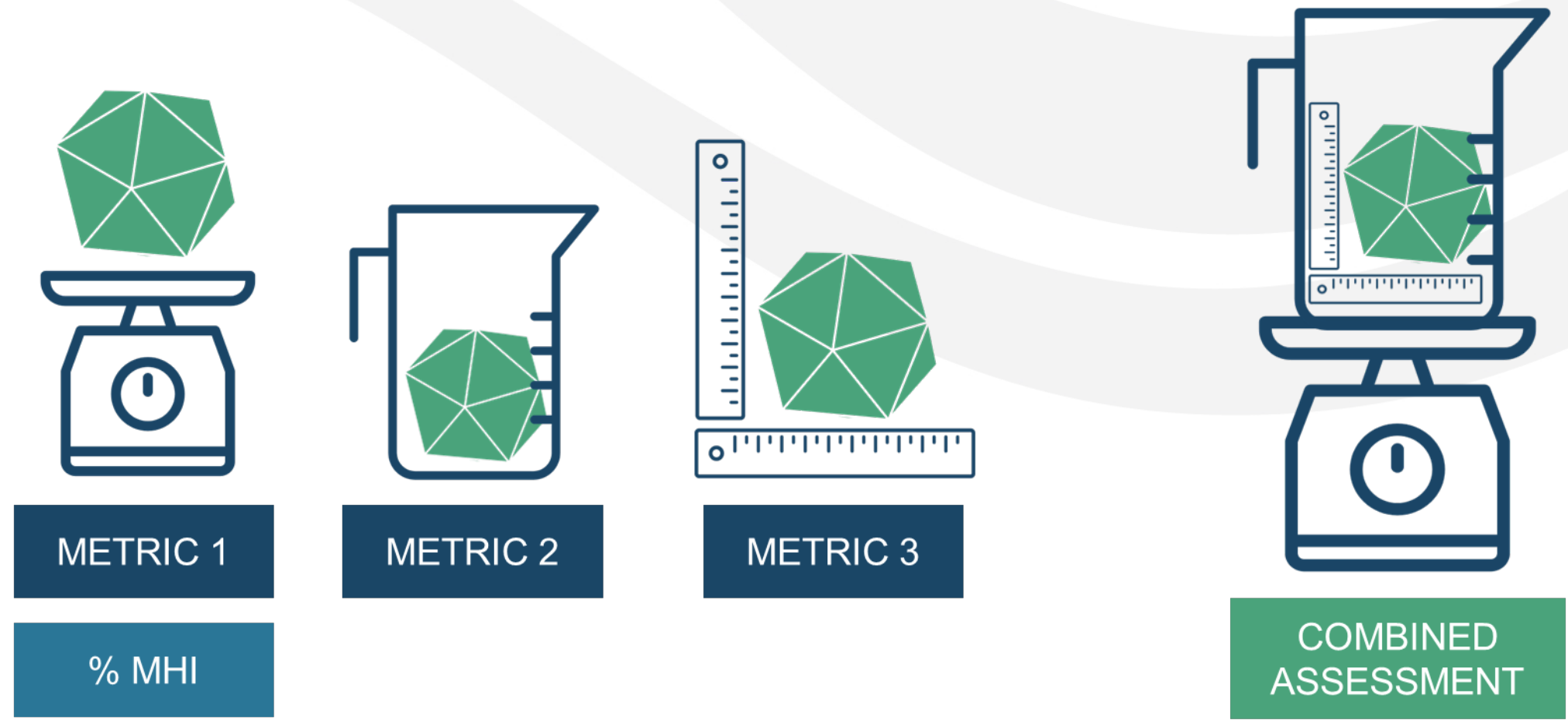
## STEP 2: History of Measuring Affordability

Historically the State Water Board and water sector has relied on **Percent Median Household Income (% MHI)** to measure community and household affordability.

**% MHI measures the percentage of estimated income residential households spend on their drinking water bill each year.**

The State Water Board has for some time used the **1.5% MHI threshold** as a metric for determining grant and funding eligibilities.

# STEP 2: How Do You Measure Affordability?



# Stakeholders Identified Additional Potential Affordability Indicators

<b>Examples <i>(full list in white paper)</i></b>
Percent of Median Household Income
Percent of County Poverty Threshold
Percent of Deep Poverty Income
Average Median Household Income
Percentage of Poverty
Demographic and Socioeconomic Characteristics of Customer Base
Household Burden Indicator
Poverty Prevalence Indicator
Affordability Ratio
WARi®
Hours at Minimum Wage to Pay Water Bill

**2020 Needs Assessment**  
development process identified  
**22 possible affordability**  
**indicators**

White Paper: <https://bit.ly/3o1h6yO>

# Public Water System Affordability Indicators Over Time

## 2020

% Median Household Income

## 2021

% Median Household Income

Extreme Water Bill

% Shut-Offs

## 2022

% Median Household Income

Extreme Water Bill

~~% Shut-Offs~~

% of Residential Arrearages

Residential Arrearage Burden

**% Shut-Offs:** Removed due shut-off moratorium Mar. 2020 – Jan. 2022.

**Arrearage Data:** new indicators utilizing 2021 Drinking Water Arrearage Payment Program data. One-time data use from funding program to supplement % Shut-Off data.

# Affordability Indicator Categories Household and Community



The ability of **individual households** to pay for an adequate supply of water.

### EXAMPLES

- % Residential Shut-offs for Non-Payment
- % Residential Arrearages (customer debt)



The ability of **households collectively within a community** to pay for water services to financially support a resilient water system.

### EXAMPLES

- % Median Household Income
- Extreme Water Bill
- Arrearage Burden

## Household Affordability: % Shut-Offs

Measures the percent of residential customers that had their water shut-offs within the last year for non-payment.

- Utilized threshold: 10% of residential account or greater.
- **PROS:**
  - Direct measurement of households struggling to pay their water bills.
- **CONS:**
  - Large and medium sized water systems must offer to place customers on “payment plans” when they are behind on paying their water bills. Therefore, this metric does not capture or account for customers in debt because they have not *lost service*.
  - Difficult to capture shut-off due to non-payment vs. account deactivation.

## Household Affordability: % Residential Arrearages

High percentage of their residential customers that have not paid their water bill and are at least 60 days or more past due.

- Utilized thresholds: 10% (min. threshold) and 30% or higher (max. threshold).
- **PROS**
  - Closest measure to the number of residential customers struggling to pay their water bills.
- **CONS**
  - Data is not currently collected annually (one time data collection in 2021)
  - Cannot distinguish between “ability” to pay and “willingness” to pay.
  - Does not account for non-residential customer types which may represent a larger proportion of a water system’s customer base.
  - Should be considered along with “Arrearage Burden” many customers with very little debt can skew this number.



## Community Affordability: % Median Household Income

This indicator measures the annual system-wide average residential water bill for six hundred cubic feet (HCF) per month relative to the annual Median Household Income (MHI) within a water system's service area.

- Utilized thresholds: 1.5% (min. threshold) and 2.5% (max. threshold)
- **PROS:**
  - Data is available for most water systems (water rates and MHI).
  - Established affordability metric and industry thresholds.
- **CONS:**
  - Use of average income data skews metric in high-income service areas where there are communities that struggle to pay their water bills.

## Community Affordability: Extreme Water Bill

Measures a system's residential customer charges for 6 HCF compared the state-wide average. Identifies communities that are paying much higher rates.

- Utilized thresholds: 150% (min. threshold) and 200% (max. threshold) of statewide average drinking water customer charges at the 6 hundred cubic feet level.
- **PROS:**
  - Identifies water systems that are charging customers high rates for drinking water.
  - May identify systems that could struggle to raise rates in the future.
- **CONS:**
  - Does not account for regional or technical factors that may lead to higher rates.
  - Does not account for “ability” to pay – customer base may be able to afford higher rates. Does not mean they are not able to pay their bills

## Community Affordability: Residential Arrearage Burden

Measures how much all a water system's customers would have to pay to cover outstanding residential arrearages and compares that burden between water systems

- Utilized thresholds: Top 40% (min. threshold) and top 20% (max. threshold)
- **PROS**
  - Calculation method accounts for differences in total outstanding residential arrearage debt weighted across the system's whole customer base.
- **CONS**
  - Data is not currently collected annually (one time data collection in 2021)
  - Should be considered along with "% Residential Arrearages" a few customers with very high debt can skew this number.

## Developing an “Affordability Threshold”

Current Affordability Assessment methodology:

1. Applies thresholds to each affordability indicator.
2. Identifies systems exceeding multiple indicator thresholds. Systems are assigned an “Affordability Burden” of High, Medium, Low, or None.



## 2022 Affordability Assessment Results

DAC / SDAC Systems	Total Systems	High Affordability Burden	Medium Affordability Burden	Low Affordability Burden
Failing Systems	184	19 (10%)	34 (18%)	48 (26%)
At-Risk Systems	276	32 (12%)	46 (17%)	55 (20%)
Potentially At-Risk Systems	234	8 (3%)	36 (15%)	59 (25%)
Not At-Risk	714	10 (1%)	59 (8%)	149 (21%)
<b>TOTAL:</b>	<b>1,408</b>	<b>69 (5%)</b>	<b>175 (12%)</b>	<b>311 (22%)</b>

# Summary of Limitations to Current Approach / Metrics

## Public Water Systems

- **STEP 1** – MHI excludes many communities from Affordability Assessment. Would require legislative fix to change of DAC / SDAC communities are identified.
- **STEP 2** - Current indicators exclude system that don't charge from the Affordability Assessment: i.e., mobile home parks that imbed water charges into their rent.
- Current indicators do not account for regional factors like housing burden

# State Small Water Systems & Domestic Wells

## Affordability Assessment NOT Required

Legislation **does not require** the State Water Board to conduct an affordability assessment for communities served by state small water systems and domestic wells.

However, in response to public feedback, that State Water Board has begun exploring how to measure affordability for these communities with OEHHA.



## STEP 1: 2022 Needs Assessment Results

The State Water Board used the MHI-based (**STEP 1**) methodology to identify DAC At-Risk State Small Water Systems and Domestic Wells.

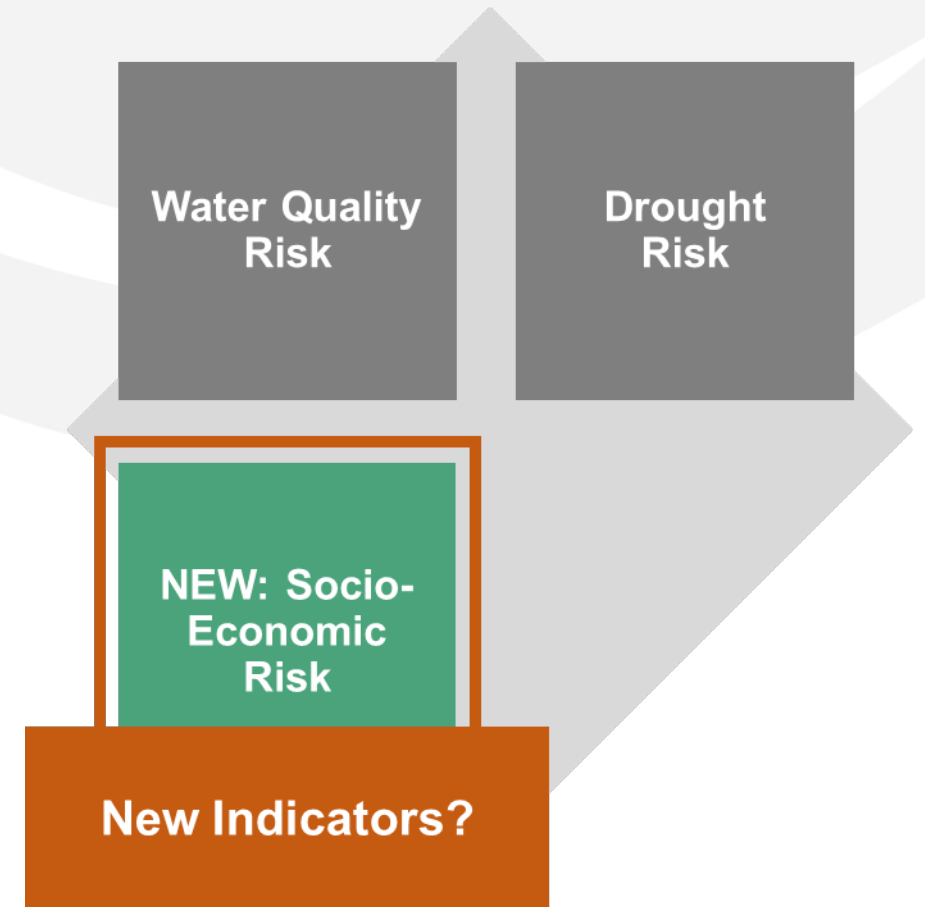
DAC / SDAC Systems	Statewide (all areas)	At-Risk	Potentially At-Risk	Not At-Risk
State Small Water Systems	<b>34%</b> (427)	10% (121)	13% (159)	12% (146)
Domestic Wells	<b>33%</b> (102,166)	9% (27,591)	12% (36,246)	12% (38,326)

\* Analysis of 1,256 state small water system and 309,594 domestic wells

# Summary of Limitations to Current Approach / Metrics.

## State Small Water Systems & Domestic Well Communities

- Only relies on MHI
- Does not account for other regional factors that may impact affordability like housing costs etc.
- Affordability not included in the designation of risk for these communities – exploring how to incorporate for 2023 Needs Assessment.



# 2023 and Beyond – Options to Refine Affordability Assessment

Discussion Topics for Public Feedback

# STEP 1

## DAC Determination

The State Water Board is seeking feedback on the current approach for identifying disadvantaged water systems

## STEP 1: DAC Determination



Currently DAC is determined using U.S. Census **Median Household Income (MHI)** data within a system's service area.

### Established thresholds in regulation:

- **DAC:** MHI is less than 80% statewide MHI.
- **SDAC:** MHI is less than 60% statewide MHI.

# STEP 1: Example of DAC Determination Alternatives



**CalEnviroScreen**

For California’s climate investments requirements (SB535), CalEPA identified DACs using the top 25% census tracts in CalEnviroScreen (state’s environmental justice screening tool) among other criteria.



**HCD County Incomes Levels**

County-level median income levels (median, low, etc.) are used to determine applicant eligibility for state programs such as affordable housing.

The Department of Housing and Community Development (HCD) puts these county income limits out yearly.



**HCD County Incomes Levels OR Statewide MHI**

County and state income levels are used to prioritize low-income DACs for Climate Investments (AB1550).

A census tract is eligible if they are either below the county low income (80% of the county MHI which comes from HCD) or if the tract is below statewide low income (80% MHI).

## Discussion Topic: DAC Determination

(Q1) Should Median Household Income (MHI) continue to be the metric used to identify disadvantaged water systems? Are there other approaches that should be considered?

(Q2) Even more broadly, should disadvantaged systems be identified outside of the metrics used to measure affordability burden (currently STEP 2)?

# STEP 2

# Affordability Indicators

The State Water Board is seeking feedback on existing and new potential affordability indicators



# Number of Affordability Indicators **One** vs. **Multiple**



**1 INDICATOR**

**VS.**



**MULTIPLE INDICATORS**

# Why the State Water Board Uses Multiple Indicators

## Example: System A

49 Connections

\$85,795 MHI (Non-DAC)

**\$105** average monthly charges

Affordability Indicator	Metric	Affordability Risk?
% MHI	1.4%	No
Extreme Water Bill	165% of state average	Yes
% Residential Arrearages	31 accounts (63%)	Yes
Arrearage Burden	\$11,023 in outstanding debt \$224.97 if spread out across all customers	Yes

**HIGH AFFORDABILITY BURDEN**

# Why the State Water Board Uses Multiple Indicators

## Example: System B

50 Connections

\$16,667 MHI (**SDAC**)

**\$8.48** average monthly charges

Affordability Indicator	Metric	Affordability Risk?
% MHI	<b>0.6%</b>	<b>No</b>
Extreme Water Bill	<b>13%</b> of state average	<b>No</b>
% Residential Arrearages	<b>All accounts (100%)</b>	<b>Yes</b>
Arrearage Burden	<b>\$31,163</b> in outstanding debt <b>\$623</b> if spread out across all customers	<b>Yes</b>

**MEDIUM AFFORDABILITY BURDEN**

# Affordability Indicator Categories Household vs. Community



% Residential Shut-offs for Non-Payment  
% Residential Arrearages (customer debt)



% Median Household Income  
Extreme Water Bill  
Arrearage Burden

## Recommended in 2020

Housing Burden  
Poverty Prevalence

# Rate vs. Non-Rate Based Affordability Indicators



## Rate Based

- % Median Household Income
- % Residential Shut-offs for Non-Payment
- Extreme Water Bill
- % Residential Arrearages
- Arrearage Burden



## Non-Rate Based

- Currently None in Use*
- Recommended in 2020**
- Housing Burden
- Poverty Prevalence

## Discussion Topic: **STEP 2: Affordability Indicators**

Q1: Should the State Water Board continue to utilize **multiple** affordability indicators in the Affordability Assessment, or should it use **one**?

Q2: Should the State Water Board utilize **BOTH** household and community level affordability indicators or only one category?

Q3: Should the State Water Board develop new non-rate based affordability indicators so that water systems that don't charge for water can be included in the assessment?

# Next Steps

# Feedback Requested

Complete online survey about discussion topics discussed today: <https://bit.ly/3oT2ZMz>

Public Feedback due September 2, 2022



# Future 2022-23 Affordability Workshops

## 9/20/2022 **Workshop 2: Potential Affordability Indicators**

- Explore options for new and existing public water systems affordability indicators, drawing from recommendations received after Workshop 1.
- Explore options for new affordability indicators for state small water systems and communities served by domestic wells.
- Register: <https://bit.ly/3cQOt5j>

## 11/01/2022 **Workshop 3: Affordability Assessment Methodology & Threshold Setting**

- Explore options for affordability indicator thresholds and the affordability assessment.
- Explore options for incorporating affordability indicators into the risk assessment for state small water systems and domestic wells.
- Register: <https://bit.ly/3zhwtbQ>

## TBD **Workshop 4: 2023 Needs Assessment Workshop**

- Identify how recommendations from Workshops 1-3 will be incorporated into the 2023 and future Needs Assessments.