Proposed Changes to the Cost Assessment Model: Long-Term Treatment

Needs Analysis Unit
Division of Drinking Water

October 5, 2023
Remote participation only

Meeting Logistics

Mawj Khammas
Needs Analysis Unit
Division of Drinking Water

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

2. Email: Submit a comment or ask a question that will be read aloud, send an email to:
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 COST ASSESSMENT & SUMMARY OF PROPOSED CHANGES

2 OVERVIEW OF MODELED LONG-TERM TREATMENT

3 PROPOSED UPDATES TO MODEL CRITERIA

4 PROPOSED UPDATES TO MODEL UNIT COST ASSUMPTIONS

5 NEXT STEPS

COST ASSESSMENT BACKGROUND

Audience Poll Question 1

Did you participate in any past webinars about Cost Assessment Model or Needs Assessment?

- Yes
- No

View recordings and materials here: https://bit.ly/3SnTmD2

Audience Poll Question 2

Have you read the White Paper: "Proposed Changes for Modeled Long-Term Treatment"?

- Yes, I read the whole thing
- Yes, I skimmed it
- No, but I plan to
- No, I don't intend to read it

Access the white paper online:
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2023/modeled-treatment-draft-whitepaper.pdf

Safe and Affordable Drinking Water Fund

Up to $130 million per year through 2030.

The annual **Fund Expenditure Plan** prioritizes projects for funding, documents past and planned expenditures, and is "based on data and analysis drawn from the drinking water **Needs Assessment**" (Health and Safety Code §116769).

Needs Assessment Components

Community Water Systems & K-12 Schools

Small and Medium Community Water Systems; K-12 Schools; SSWS; & DWs

Failing & At-Risk Systems and Domestic Wells

DAC/SDAC Community Water Systems

https://bit.ly/SAFER-NA

Purpose of the Cost Assessment

Failing & At-Risk Water Systems & Domestic Wells

SB 200 directs the State Water Board to estimate "anticipated funding needs" related to the implementation of interim and/or emergency measures and longer-term solutions for Failing and At-Risk systems.

Results of the Cost Assessment are used to inform the prioritization of existing SAFER funding.

The Cost Assessment is NOT intended to inform local decisions.

Systems Included in the Cost Assessment

Failing

Public Water Systems

- Primary MCL Violation
- Secondary MCL Violation
- *E. coli* Violation
- Treatment Technique Violations
- Monitoring & Reporting Violations

At-Risk

Public Water Systems

- Water Quality Risk
- Accessibility Risk
- Affordability Risk
- Technical, Managerial, Financial (TMF) Risk

At-Risk

State Small Systems

- Water Quality Risk
- Water Shortage Risk
- Socioeconomic Risk

At-Risk

Domestic Wells

- Water Quality Risk
- Water Shortage Risk
- Socioeconomic Risk

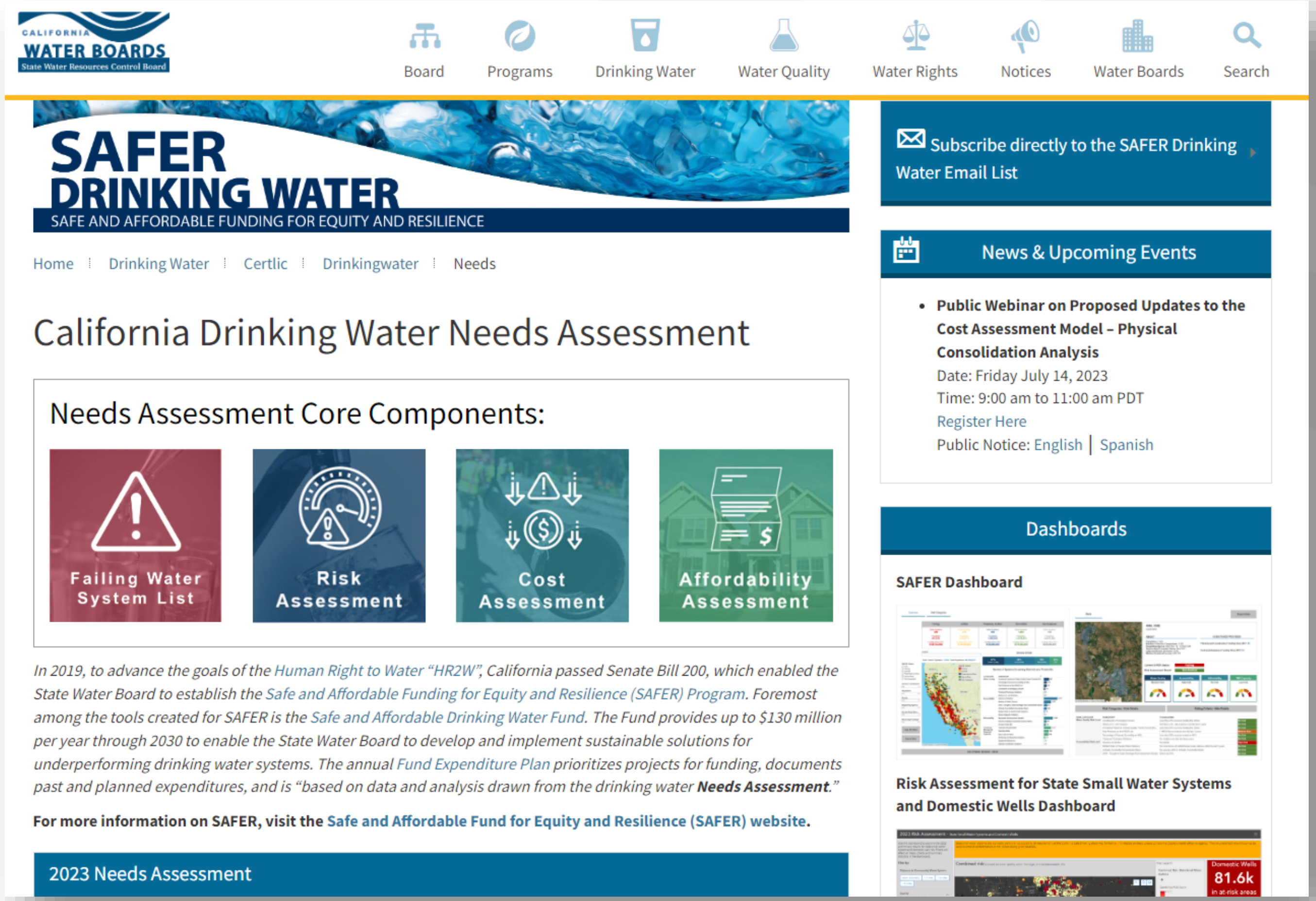
OVERVIEW OF PROPOSED CHANGES

Past Workshops on the Cost Assessment

The State Water Board has hosted workshops on the development and refinement of the Cost Assessment Model.

NEEDS ASSESSMENT COMPONENTS	2019	2020	2021	2022	2023	2024
Risk Assessment: Public Water Systems	■	■	■	■	■	
Risk Assessment: State Small Water Systems & Domestic Wells	■	■	■	■	■	
Cost Assessment	1	3	3	2	4	
Affordability Assessment		■	■	■	■	

2021 and 2022 Cost Assessment



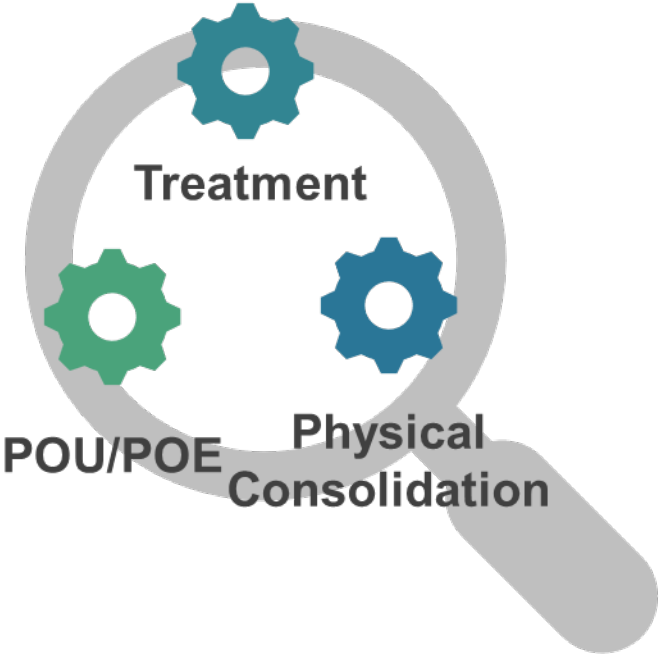
Access the **2021** report here: https://bit.ly/3mAz2yK

Access the **2022** report here: https://bit.ly/3uJSUFH

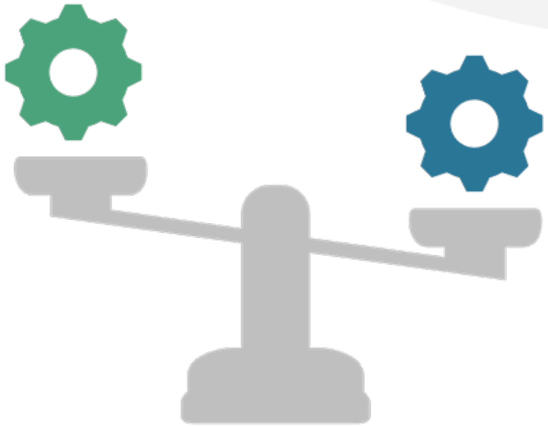
Learn more about the **Needs Assessment** here: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/needs.html

2021 Cost Assessment Modeled Long-Term Solution Selection Process

STEP 1: All possible modeled solutions identified, and cost estimates developed.



STEP 2: Conduct Sustainability & Resiliency Assessment of all modeled solutions and compare top 2 solutions.



STEP 3: Select best model solution using cost and Step 2 score.

Proposed Cost Assessment Modeled Long-Term Solution Selection Process

The proposed new Cost Assessment Model would assess modeled solutions in priority order, using clear selection and viability criteria.

STEP 1: Determine if physical consolidation is viable.

Physical Consolidation

→

STEP 2: If not, determine if centralized treatment is viable.

Treatment

→

STEP 3: If not, select decentralized treatment.

POU/POE

Updates to the Modeled Physical Consolidation Process

The State Water Board hosted a webinar workshop on July 14, 2023 to provide an overview of the proposed updates to the physical consolidation analysis in the Cost Assessment Model.

- **White Paper**: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2023/20230714-final-cost-assessment-consolidation-white-paper.pdf

- **Webinar Presentation**: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2023/20230714-final-cost-assessment-consolidation-workshop.pdf

- **Webinar Recording**: https://youtu.be/cfb_JMesbT8

Summary of Modeled Physical Consolidation Process

The following process will be applied to each modeled solution per system.

STEP 1

Identify potential ***Receiving*** & ***Joining*** systems

STEP 2

GIS analysis to apply ***distance*** criteria

STEP 3

Calculate physical connection cost estimate for systems

STEP 4

Evaluate cost estimates against ***funding viability*** thresholds

STEP 5

Add additional infrastructure needs

If not viable, proceed to next potential model solution

TODAY'S WEBINAR

Proposed Cost Assessment Modeled Long-Term Treatment Selection Process

The proposed new Cost Assessment Model would assess modeled solutions in priority order, using clear selection and viability criteria.

STEP 1: Determine if physical consolidation is viable.

Physical Consolidation

→

STEP 2: If not, determine if centralized treatment is viable.

Treatment

→

STEP 3: If not, select decentralized treatment.

POU/POE

TODAY'S WEBINAR

Audience Poll Question 3

Do you support the proposed modifications to the Cost Assessment Model?

- Yes, they sound good
- Maybe, I need to learn more
- No, I think this is headed in the wrong direction
- Neutral

PROPOSED LONG-TERM TREATMENT ANALYSIS

Summary of Modeled Long-Term Treatment Analysis

The following process will be applied to each modeled solution per system.

STEP 1

Identify systems to include in analysis

STEP 2

Match system needs to modeled treatment technologies

STEP 3

Calculate modeled treatment ***capital cost*** estimates

STEP 4

Calculate modeled treatment ***O&M cost*** estimates

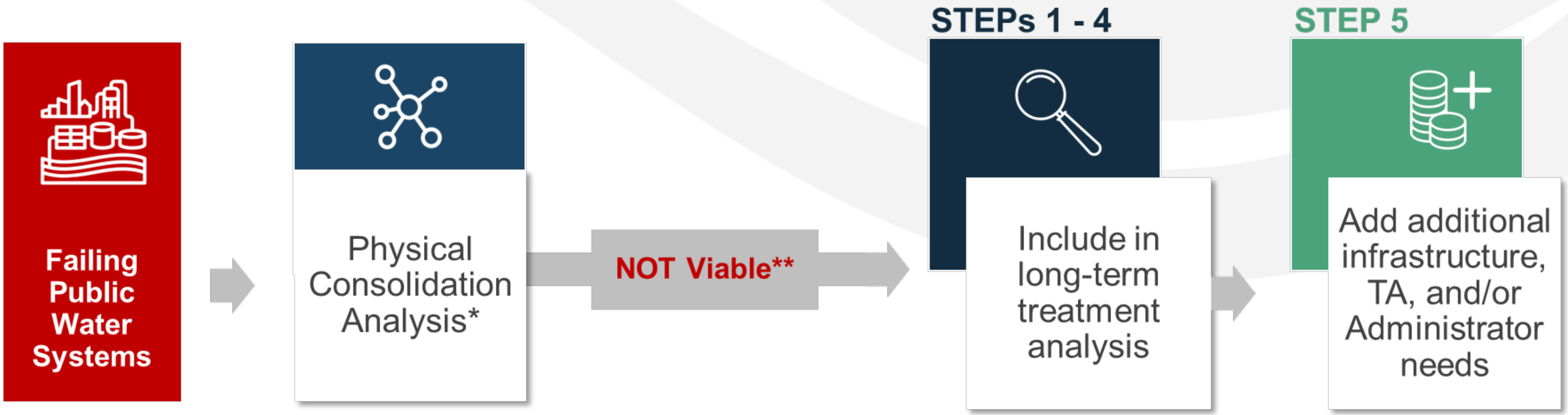
STEP 5

Add additional infrastructure, TA, and/or Administrator needs

STEP 1

Identify Systems to Include in the Long-Term Modeled Treatment Analysis

STEP 1: Failing Water Systems Included in Long-Term Treatment Analysis



** Systems that are modeled as Joining systems are excluded from all additional analysis in the Cost Assessment.*

Water systems Failing for monitoring and reporting violations are excluded from the modeled treatment analysis

*** Includes systems Failing for water quality-related violations that are selected by the Model as Receiving systems.*

STEP 1: Failing Public Water Systems

Failing Criteria	Old Model	Recommended Update
Primary MCL Violation	Included	Included
Secondary MCL Violation	Included	Included
E. Coli MCL Violation	*Excluded* *Criteria Did Not Exist*	Included
Treatment Technique Violation	*Excluded* *Criteria Did Not Exist*	Included
Monitoring & Reporting (M&R) Violations	*Excluded* *Criteria Did Not Exist*	*Excluded*

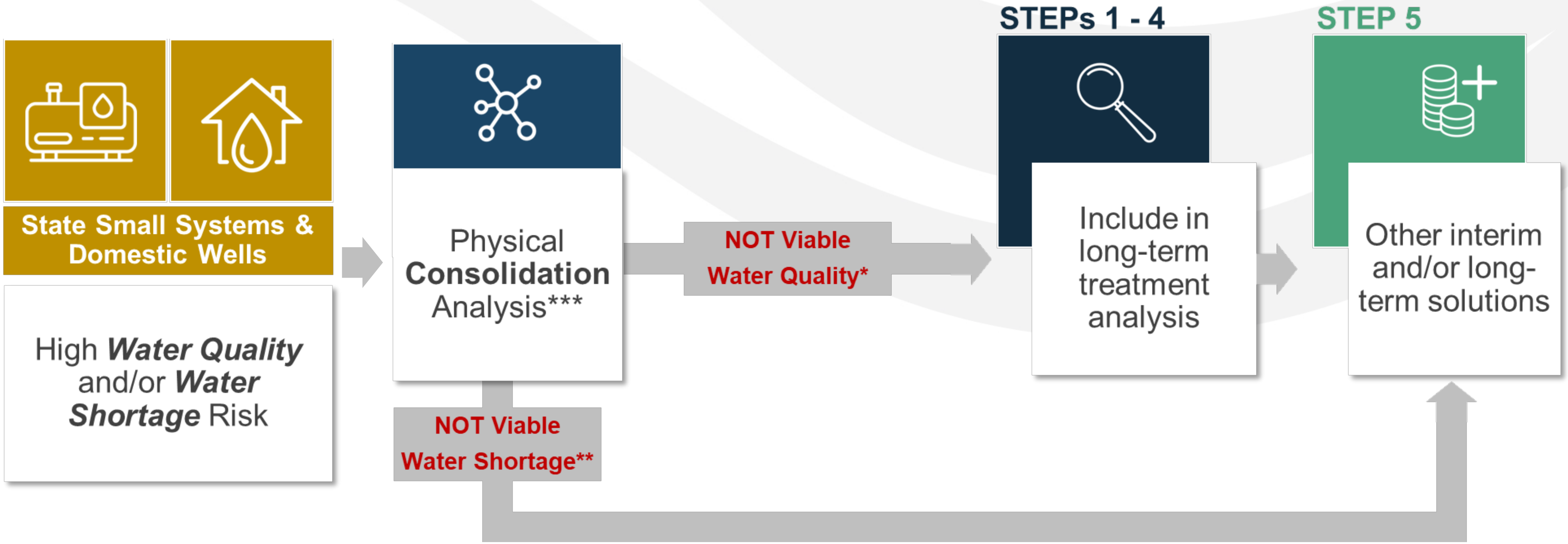
STEP 1: Failing Water Systems – Where Modeled Physical Consolidation is NOT Viable

Total Failing Systems	Old Model	Estimated # of Systems	Recommended Update	Estimated # of Systems
381	Included	**195 (51%)**	Included **Systems Failing for monitoring & reporting violations will be excluded.*	**200 (52%)**

STEP 1: Failing Water Systems – Where Modeled Physical Consolidation is Viable

	Old Model	Estimated # of Systems	Recommended Update	Estimated # of Systems
Viable *Joining* **Failing Systems**	Excluded	0	Excluded	0
Viable *Receiving* **Failing Systems**	Excluded	0	Included – if Failing for a water-quality related violation	14

STEP 1: State Small Water Systems & Domestic Wells



* *Includes state small water systems and domestic wells at high-risk for Water Quality only.*

** *State small water systems and domestic wells at high-risk for Water Shortage are excluded from the modeled treatment analysis.*

*** *Systems that are modeled as Joining systems are excluded from all additional analysis in the Cost Assessment.*

STEP 1: Estimated State Small Water Systems & Domestic Wells Included in the Long-Term Treatment Analysis

Systems High-risk for Water Quality	Total High-Risk Systems	Old Model	Recommended Update
State Small Water Systems	699	303	288*
Domestic Wells	99,814	36,911	43,651

**There are less state small water systems included in the updated Cost Assessment Model's treatment analysis because compared to the older Model, physical consolidation is viable for more systems.*

STEP 2

Match System Needs to Modeled Long-Term Treatment Technologies

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STEP 2: Matching System Challenges to Modeled Treatment Technologies

Centralized Treatment: Centralized drinking water treatment is when a water system extracts water from one or more sources and treats that water before conveying it through a distribution system to its customers.

Source: https://www.universityofcalifornia.edu/news/path-toward-clean-drinking-water-all-californians

Decentralized Treatment: Decentralized treatment, such as point of use (POU) and point of entry (POE) devices, are often installed at individual homes or businesses when centralized treatment is not feasible.

Source: https://www.premierh2o.com/blogs/news/the-difference-between-poe-and-pou-water-treatment-systems

STEP 2: Overview Matching Treatment Technology *Changes*

2021 Model

Auto-selected **decentralized treatment** for Failing water systems with less then **200** service connections.

Proposed Updated Model

Lowers decentralized threshold for most contaminants to **20** service connections or less where modeled physical consolidation is not viable.

STEP 2: Long-Term Centralized Treatment Technologies Included in the Model

	Contaminants	Matching Threshold Criteria
Granular Activated Carbon (GAC)	• Dibromochloropropane (DBCP) • Ethylene Dibromide (EDB) • 1,2,3-Trichloropropane (1,2,3-TCP) • 1,1-Dichloroethylene (1,1-DCE) • Disinfection Byproducts (DBPs)	• Systems ≥ **20** service connections
Adsorption	• Arsenic	• Systems between **20** ≤ N < **500** service connections • Arsenic influent conc. < 50 µg/L
Coagulation Filtration	• Arsenic	• Systems ≥ **500** service connections • Arsenic influent conc. ≥ 50 µg/L
Filtration	• Iron • Manganese	• Systems ≥ **20** service connections

STEP 2: Long-Term Centralized Treatment Technologies Included in the Model

	Contaminants	Matching Threshold Criteria
Regenerable Resin Anion Exchange	• Nitrate	• Systems ≥ **20** service connections • Mean nitrate influent conc. < 25 mg/L • Mean sulfate concentration < 250 mg/l
Regenerable Resin Cation Exchange (*new*)	• Radium-226 and Radium-228	• Systems ≥ **20** service connections
Single-Use Ion Exchange	• Uranium • Perchlorate • Gross Alpha	• Systems ≥ **20** service connections
Activated Alumina	• Fluoride	• Systems ≥ **20** service connections

STEP 2: Long-Term Centralized Treatment Technologies Included in the Model

	Contaminants	Matching Threshold Criteria
4-log Virus Treatment	• Fecal Contaminants (microorganisims). • *E. coli*	• No service connection threshold for Failing public water systems. • Groundwater sources.
Surface Water Treatment Package Plant *4-log Virus Treatment included.*	• Aluminum • Turbidity • Fecal Contaminants (microorganisims). • *E. coli*	• No service connection threshold for Failing public water systems. • Surface water sources.

STEP 2: Long-Term Decentralized Treatment Technologies Included in the Model

	Contaminants	Matching Threshold Criteria
Point of Use (POU)	• Inorganics including uranium • When mean Nitrate concentration < 25 mg/l • When no bacteriological contaminant is present.	• Systems < **20** service connections
Point of Entry (POE)	• Organics	• Systems < **20** service connections

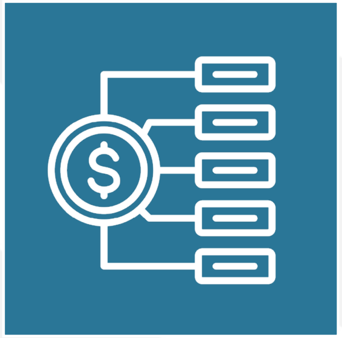
STEP 2: Treatment Technologies for Co-Contamination of Sources

The Cost Assessment Model employs a set of decision-making criteria to determine the best modeled treatment technology(ies) to address co-occurring contaminants.

Criteria	Decision	Co-Contaminants
• Co-contaminants can be removed with the same treatment technology; and • Have the same modeled treatment costs.	The Cost Assessment Model will only include the cost **of a single treatment technology** per source.	• Iron + Manganese • TTHM + HAA5 • Nitrate + Nitrite • Uranium + Gross Alpha • SWTR-related Contaminants
• Co-contaminants can be removed with the same treatment technology; but • Each contaminant has different modeled annual O&M costs.	The Cost Assessment Model will select the single treatment technology with the **highest** annual O&M cost estimate.	• VOC + VOC • Uranium + Perchlorate • Nitrate + Perchlorate • Nitrate + Uranium • Nitrate + Radium

STEP 2: Treatment Technologies for Co-Contamination of Sources

Criteria	Decision	Co-Contaminants
• Co-contaminants cannot be removed with the same treatment technology.	The Cost Assessment Model will combine the costs of **multiple treatment technologies** determined per contaminant.	• Arsenic + 1,2,3-TCP • Arsenic + Uranium • Arsenic + Fluoride • Uranium + 1,2,3-TCP • Nitrate + Iron/Manganese
• Failing water system has one or more sources with co-contaminants that would have different modeled treatment technologies.	***Example:*** • Coagulation Filtration is chosen for co-contamination due to arsenic.	• ***Example***: • Arsenic + Iron/ Manganese



STEP 3

Calculate Modeled Long-Term Treatment *Capital Cost* Estimates

STEP 3: Calculating Estimated Modeled Treatment Capital Costs

State Water Board has made proposed updates to how the Model estimates **capital costs** for long-term treatment technologies.

Staff have conducted internal and external outreach:

- Reviewed 2021 Cost Assessment Model documentation.
- Reviewed U.S. EPA Work Breakdown Structure (WBS) Models.
- Consulted with vendors and consulting firms.
- Reviewed State Water Board funding projects.
- Reached out to water systems to collect/confirm cost data.
- Consulted with an internal workgroup of Division of Drinking Water engineers and Division of Financial Assistance staff.

See Appendix B and C in the white paper.

STEP 3: Overview of Calculating Estimated Modeled Treatment Capital Costs

The Cost Assessment Model develops long-term treatment capital cost assumptions for each modeled treatment technology:

1. The Model estimates **Maximum Daily Demand** (MDD) for each system to “right-size” the modeled treatment technology.
2. Using MDD, the Model develops **capital cost estimates** for water systems.
3. Finally, multipliers are used to convert the capital cost estimates to ***installed*** **capital costs** and adjust the output to ***current market prices***.

STEP 3: Calculating Estimated Water Demand for Capital Costs

Maximum Daily Demand in Gallons per Minute (GPM):

$$\frac{\text{Population x 150 gallons/person/day x 2.25}}{\text{16 hours/day x 60 minutes/hour}}$$

Assumptions:

- Peaking factor of 2.25.
- Average daily demand is 150 gallons/person/day.
- Operating 16 hours a day.

STEP 3: *Example* - Capital Costs Updates for GAC

Summary Comparison of GAS Capital Costs

Cost Component	2021 Model	Recommended Update
Treatment Vessel	Based on multiple quotes from multiple vendors, solicited between 2015 – 2018, adjusted to 2021 ENR CCI. • Averaged by vessel size and translated to installed capital cost with an engineering multiplier of 2.36.	• Continue to use the 2021 Model cost assumptions applying current ENR CCI to adjust the cost to current price.
Booster Pump	A flat cost of $30,000 applied to all systems. • Translated to installed capital cost with an engineering multiplier of 2.36.	• Develop a regression equation to estimate the costs based on pump capacity.

STEP 3: *Example* - Capital Costs Updates for GAC, Treatment Vessel

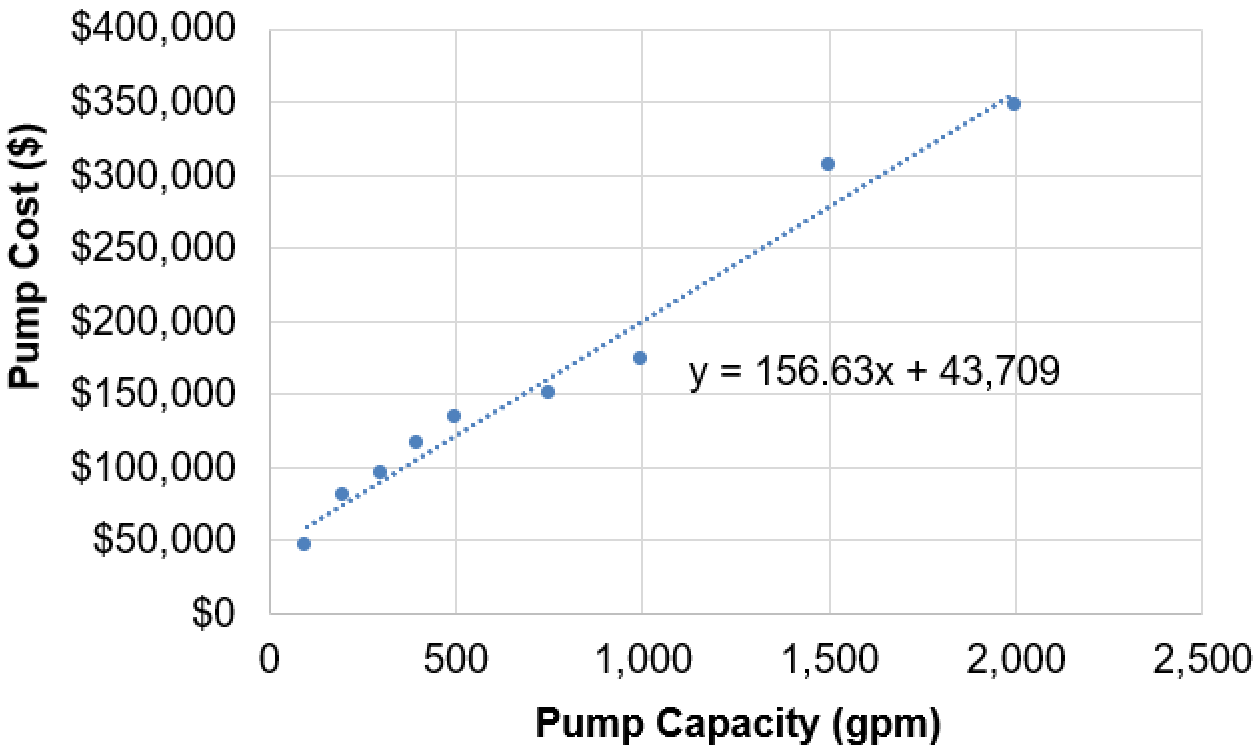
Diameter (ft)	Flow Rate (gpm)	2021 Model	SWB Funded Projects*	Recommended Update
6	1 – 250	$436,000	$456,000 (2023)	**$505,000**
8	251 – 425	$536,000	N/A	**$621,000**
12	426 – 875	$745,000	N/A	**$863,000**
Two Pair - 12	876 – 1,750	$1,490,000	$990,000 (2021) $1,312,000 (2020)	**$1,726,000**

*Costs for equipment includ installation/start-up service costs. Other construction-related costs or multipliers are not included.

STEP 3: *Example* - Capital Costs Updates for GAC, Booster Pump Station

Capacity (gpm)	2021 Model	SWB Funded Projects	External Quotes	Recommended Update
100	$71,000	$26,000 (2022) $75,000 (2022) $12,000 (2023)	$46,000	**Cost estimates by regression equation based on external quotes.**
200	$71,000	$80,000 (2022)	$81,000	
300	$71,000	N/A	$95,000	
400	$71,000	N/A	$116,000	
500	$71,000	N/A	$133,000	
750	$71,000	$31,000 (2019)	$151,000	
1,000	$71,000	$250,000 (2022)	$174,000	
1,500	$71,000	$300,000 (2022)	$307,000	

STEP 3: *Example* - Capital Costs Updates for GAC, Booster Pump Station Cost Regression



y = 156.63x + 43,709

y = Booster Pump Station Cost ($)

x = Maximum Daily Demand (MDD) in gallons per minute (gpm)

STEP 3: *Example* - Capital Costs Updates for GAC, Booster Pump Station Cost Estimate

Capacity (gpm)	2021 Model	Model-Estimate Pump Cost
100	$71,000	$59,372
200	$71,000	$75,035
300	$71,000	$90,698
400	$71,000	$106,361
500	$71,000	$122,024
750	$71,000	$161,182
1,000	$71,000	$200,339
1,500	$71,000	$278,654

STEP 3: Capital Cost Adjustments

Engineering Multiplier

- Applied to estimate installed capital costs.
- Accounts for installation, general site work, electrical, contingency, and other planning and administrative fees.

ENR Construction Cost Index (CCI)

- Adjusts the installed cost to current market prices.

Multiplier	Technologies
Engineering multiplier	GAC, Adsorption, Coagulation Filtration, Filtration, Single Use Ion Exchange, Activated Alumina
ENR CCI	GAC, Adsorption, Coagulation Filtration, Filtration, Single Use Ion Exchange, Activated Alumina, Cation Exchange, Anion Exchange

STEP 4

Calculate Modeled Long-Term Treatment *O&M* Estimates

Bansari Tailor
Needs Analysis Unit
Division of Drinking Water

STEP 4: Calculating Estimated Modeled Treatment O&M Costs

State Water Board has made proposed updates to how the Model estimates **O&M costs** for long-term treatment technologies.

Staff have conducted internal and external outreach:

- Reviewed 2021 Cost Assessment Model documentation.
- Reviewed U.S. EPA WBS Models.
- Consulted with vendors and consulting firms.
- Reviewed State Water Board funding projects.
- Reached out to water systems to collect/confirm cost data.
- Consulted with an internal workgroup of Division of Drinking Water engineers and Division of Financial Assistance staff.

See Appendix B and C in the white paper.

STEP 4: Calculating Estimated Water Demand for O&M Costs

Annual water production in million gallons is estimated based on average daily demand of 150 gallons/person/day, which is used to compute estimated annual O&M costs.

Annual Water Production in Million Gallons (MG):

$$\frac{\text{Population x 150 gallons/person/day x 365 days/year}}{1{,}000{,}000}$$

STEP 4: Calculating Estimated Modeled Treatment O&M Costs

State Water Board has made proposed updates to how the Model estimates 20-year **O&M costs** for long-term treatment technologies.

The Model includes four O&M cost category components:

- **Consumables**
- **Waste Discharge**
- **Labor**
- **Electricity**

STEP 4: O&M - Consumables

The State Water Board recommends adding and/or updating consumables costs depending on the modeled treatment technology. O&M estimates may account for:

Chemical Replacement

- Regeneration salt
- pH adjustment (caustic soda, sulfuric acid)
- Disinfectant
- Coagulant
- Filtration aid
- Chlorine analyzer reagents

Part Replacement

- Virgin Granular Activated Carbon
- Adsorption media
- Filters
- Ion exchange resins
- Cartridge filters

Appendix B and C provides an in-dept overview of which consumables are included in the treatment technology O&M estimates.

STEP 4: Example – O&M Cost Updates for Surface Water Treatment

Summary Comparison of Surface Water Treatment Package Plant Operational Costs

Cost Components	2021 Model	Recommended Update
Coagulant	Excluded	**$2.75/lb**
Filter Aid	Excluded	**$2/lb**
Filter Media Replacement	Excluded	**$220**
Pre/post Treatment pH Adjustment	Excluded	Sulfuric Acid 93% - **$1/lb**
		Sodium hydroxide (caustic) 50% - **$2.75/lb**
Turbidity Standards Calibration Kit	Excluded	**$284**
Chlorine Analyzer Reagent for 4-log Virus Treatment	Excluded	**$84**
12.5% Liquid Sodium Hypochlorite (NaOCl) for 4-log Virus Treatment	Excluded	**$7.80/gallon**

STEP 4: O&M – Waste Discharge

Water treatment processes generate waste, both solid and liquid, that must be disposed of properly to avoid direct or indirect contamination of drinking water or the environment.

For example, used uranium-selective resin contains radioactive waste which can be very expensive to dispose due to restrictions and requirements related to its transportation and limited waste receiving facility.

Uranium-Selective Resin Replacement and Disposal Cost = Resin Cost + Disposal Cost

Where,

Resin Cost = $300 per cubic foot

Disposal Cost = $600 per cubic foot (Labor, disposal, and transportation costs at a Technologically Enhanced Naturally Occurring Radioactive Material (TENORM waste) accepting facility)

STEP 4: O&M – Labor

The State Water Board recommends updating the Operator salary for the different grades.

Treatment Operator Salary Per Grade:

Operator Grade	2021 Model Estimate Salary	Updated 2023 Estimate Salary
T1	$97,353	**$105,000**
T2	$105,092	**$123,192**
T3	$132,463	**$127,992**
T4	$163,937	**$137,280**

STEP 4: O&M – Labor

The operator grade level corresponds with the level of operator expertise and knowledge needed to safely operate and maintain the treatment facility. Labor cost estimates are based on the operator grade per treatment technology.

Operator Grade Per Treatment Technology:

Treatment Technology	Operator Grade	Operator Time Intensity (% of Annual Salary)
Granular Activated Carbon	T2	10%
Adsorption	T2	10%
Coagulation Filtration	T2	20%
Filtration	T2	10%
Anion Exchange	T2	25%
Cation Exchange	T2	25%
Single-Use Ion Exchange	T2	20%
Activated Alumina	T2	20%
4-log Virus Treatment	T2	10%
Surface Water Treatment	T3	25%

STEP 4: O&M – Electricity

General power supply is needed to run the treatment plant, mainly to pump water and overcome head loss due to friction and elevation changes.

$$\textbf{Electricity Cost} = \frac{0.746 \times \text{flow} \times \text{headloss} \times \text{electrical rate}}{3{,}960 \times \text{pump efficiency} \times \text{motor efficiency}}$$

Component	Assumption
Flow in Million Gallons (MG)	Estimated annual production for each Failing system
Headloss (ft)	23.07
Electrical Rate ($/kWh)	0.1646
Pump Efficiency	0.8
Motor Efficiency	0.9

STEP 4: Calculating Estimated Modeled Treatment O&M Costs

$$\text{O\&M Net Present Value} = \frac{\text{Total Annual O\&M} \times (1 + i)^{(n-1)}}{(i \times (1 + i)^{n})}$$

Total Estimated Annual O&M = (Consumables + Waste Discharge + Labor + Electricity)

i = 4% interest rate

n = 20-year life cycle

It is important to note that the Cost Assessment Model's O&M estimates are not representative of the **total O&M** costs needs to sustainably run a drinking water system. They only represent the estimated cost associated with the new modeled treatment.

STEP 5

Add Additional Infrastructure, Technical Assistance, and/or Administrator Needs

Mawj Khammas
Needs Analysis Unit
Division of Drinking Water

STEP 5: Add *Additional Infrastructure/Admin* Needs

The last step is in the Cost Assessment Model is the identification of other additional infrastructure and administration needs to help ensure the system is sustainable.

This will be explored in the next workshop – **December 2023**

Will include:

- Interim Needs
- Other Essential Infrastructure
- Administrator
- Technical Assistance
- Etc.

To be explored in more detail in December 2023 workshop & white paper.

Discussion Topics 1: Proposed Changes to the Long-Term Treatment Analysis in the Cost Model

Q1: Do you agree with the proposed methodology for estimating long-term treatment needs in the Cost Model?

Q2: Do you have any suggestions or feedback on the updates to the treatment technology capital and/or O&M cost assumptions?

Discussion Topic 2: Open Discussion

General questions or feedback on the Cost Assessment Model.

Feedback Requested

The State Water Board is seeking stakeholder feedback on the proposed Cost Assessment Model changes for estimating long-term treatment needs.

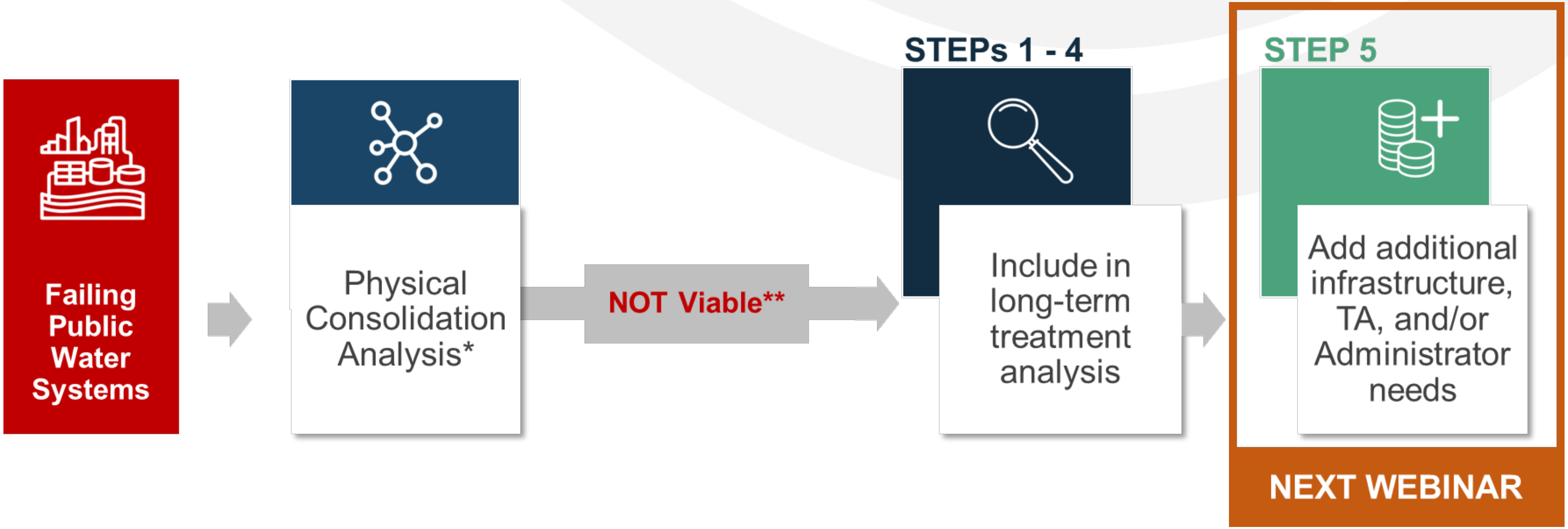
Access the white paper online:
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/docs/2023/modeled-treatment-draft-whitepaper.pdf

Submit feedback to: SAFER@waterboards.ca.gov

Public Feedback due **November 6, 2023**

Next Workshop: December 2023

The third and final workshop of this series will explore the underlying cost assumptions associated with Administrator, technical assistance, essential infrastructure, and interim solutions.



Thank You