



GAVIN NEWSOM
GOVERNOR



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SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

NOTICE OF PROPOSED RULEMAKING

TITLE 23. Waters

DIVISION 3. State Water Resources Control Board and Regional Water Quality Control Boards

CHAPTER 3.5 – Urban Water Use Efficiency and Conservation

SUBJECT: WATER LOSS PERFORMANCE STANDARDS

NOTICE IS HEREBY GIVEN that the State Water Resources Control Board (State Water Board) will conduct a public hearing during which any interested person may present statements, arguments, or contentions (all of which are hereinafter referred to as comments) relevant to the action described in this notice.

NOTICE OF PUBLIC HEARING TO CONSIDER THE PROPOSED WATER LOSS PERFORMANCE STANDARDS REGULATION

[Gov. Code, §11346.5(a)(1)]

The State Water Board will conduct a public hearing regarding the subject proposed regulation at the time and place noted below. The public hearing will provide a detailed overview of the proposed regulation, overall framework, timeline, and proposed requirements. At the hearing, any person may present comments orally or in writing relevant to the proposed action described in this notice. The public hearing will be preceded by a staff presentation summarizing the proposed regulation, followed by an opportunity for the public to ask questions. While a quorum of the State Water Board may be present, the Board will not take formal action at the public hearing.

DATE: February 10, 2022

TIME: 2:00 p.m.

PLACE: Remote Participation

As a result of the COVID-19 emergency and the Governor's Executive Orders to protect public health by limiting public gatherings and requiring social distancing, this meeting is scheduled at this time to occur via remote presence. The hearing will be recorded and will be webcast at <https://video.calepa.ca.gov/>.

For those who only wish to watch the hearing, the customary webcast remains available at <https://video/calepa.ca.gov> and should be used UNLESS you intend to comment. For those who wish to make oral comments, additional information about participating telephonically or via the remote meeting solution will be made available before the Hearing.

This hearing is for the public to provide comments on the proposed regulation. The Board will not take formal action at this public meeting. After consideration of all written and oral comments, the Board is expected to consider adoption of the final regulation in the second quarter of 2022. Additional information regarding State Water Board meetings, hearings, and workshops is available on the Board's internet web page at https://www.waterboards.ca.gov/board_info/calendar/.

The notice and additional information on the agenda are available at the State Water Board's water loss program webpage:
https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/water_loss_control.html.

SPECIAL ACCOMMODATION REQUEST

To request special accommodations or language needs, please contact the Clerk to the Board at (916) 341-5600 as soon as possible, but no later than 10 business days before the scheduled Board hearing.

Para solicitar comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 341-5600 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo.

WRITTEN COMMENT PERIOD AND SUBMITTAL OF COMMENTS

[Gov. Code, § 11346.4(a), § 11346.5(a)(15)]

Any interested person may submit written comments relevant to the proposed regulatory action to the Clerk to the State Water Board. Any written comments pertaining to the proposed regulation, regardless of the method of transmittal, must be received by the Clerk **by 12:00 p.m. (noon) PST on February 11, 2022**, which is hereby designated as the close of the written comment period. Comments received after this date will not be considered timely. Written comments may be submitted via any of the following methods:

1. By email to: commentletters@waterboards.ca.gov. The State Water Board requests but does not require that email transmission of comments, particularly those with attachments, contain the regulation package identifier "**Comment Letter – Proposed Water Loss Performance Standards**" in the subject line to facilitate timely identification and review of the comment;
2. By fax transmission to: (916) 341-5620. The State Water Board requests but does not require that faxed comments contain the subject line "**Comment Letter – Proposed Water Loss Performance Standards**";

3. By mail to: Clerk to the Board, Jeanine Townsend, State Water Resources Control Board, P.O. Box 100, Sacramento, CA 95812-0100; or
4. Hand-delivered to: Clerk to the Board, Jeanine Townsend, State Water Resources Control Board, 1001 I Street, 24th Floor, Sacramento, CA 95814.

The State Water Board requests but does not require that written comments sent by mail or hand-delivered be submitted in triplicate.

The State Water Board requests, but does not require, that, if reports or articles in excess of 25 pages are submitted in conjunction with the comments, the commenter provide a summary of the report or article and describe the reason for which the report or article is being submitted or its relevance to the proposed regulation.

All comments, including email or fax transmissions, should include the author's name and U.S. Postal Service mailing address in order for the State Water Board to provide copies of any notices that may be required in future.

Due to the limitations of the email system, emails larger than 15 megabytes (MB) may be rejected and will not be delivered and received by the State Water Board. Therefore, emails larger than 15 MB should be submitted under separate emails or via another form of delivery.

Please note that under the California Public Records Act (Gov. Code, § 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

If you would like to request a copy of the public comment letters received by the Board for this item, send an email to commentletters@waterboards.ca.gov and identify that you are requesting copies of public comments for Proposed Water Loss Performance Standards.

To be added to the mailing list for this rulemaking and to receive notification of updates for this rulemaking, you may subscribe to the listserv for "**Water Conservation Regulations**" [here](#) by selecting "General Interests," then selecting "Water Conservation Regulations."

AUTHORITY AND REFERENCE

[Gov. Code, § 11345.5(a)(2); Cal. Code Regs., tit. 1, § 14]

Authority: Sections 1058 and 10608.34, Water Code.

References: Article X, Section 2, California Constitution; Section 116275, Health and Safety Code; Section 102, 104, 105, 350, 516, 1122, 1846, 10608.12, and 10608.34, Water Code.

INFORMATIVE DIGEST

[Gov. Code, § 11346.5(a)(3)]

Summary of Existing Law and Regulations [Gov. Code § 11346.5(a)(3)(A)]

Water Code section 10608.34 (added by Senate Bill (SB) 555 of 2015) requires the State Water Resources Control Board (State Water Board) to develop and adopt performance standards for water loss for urban retail water suppliers¹ (URWS or supplier), while considering lifecycle cost accounting. The proposed Water Loss Performance Standards (WLPS or regulation) aim to reduce water loss, reduce the energy and associated greenhouse gas emissions associated with supplying and treating water that is lost to leakage,² and achieve more efficient water use in California. Additionally, section 10608.34 established water loss reporting for URWS; URWS have been required to report their water loss estimates through annual water loss audits since 2017.

Effect of Proposed Rulemaking

[Gov. Code § 11346.5(a)(3)(A)]

The proposed regulation is designed to bring water losses to levels that are cost-effective and feasible for each URWS, and the proposed regulation will support each URWS in planning and implementing water loss control in a cost-effective manner. The intent of the proposed regulation is to identify and require each supplier to reduce leakage to the level of a specific volumetric standard that is based on its own unique characteristics and is cost-effective, while providing each supplier the flexibility to choose any effective approach best suited for its system and budget to meet its standard. Cost savings may be passed on to customers, and URWS supplying water to disadvantaged communities that face burdensome upfront costs will have additional time to comply if their standard requires at least a 25% reduction from their baseline.

Comparable Federal Statute and Regulations

[Gov. Code § 11346.5(a)(3)(B)]

¹ “Urban retail water supplier” means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes (Wat. Code, § 10608.12).

² California has a high energy consumption associated with water supply, accounting for 20% of total electricity use and 30% of total natural gas consumed in the state (PPIC Water Policy Center, 2016).

There are no federal regulations or statutes that address the specific subject addressed by the proposed regulation.

Policy Statement Overview

[Gov. Code § 11346.5(a)(3)(C)]

The proposed regulation has the following elements:

- Urban retail water suppliers will be required to comply with individual numeric volumetric standards for real water loss. Compliance will be required by 2028, or by 2031 for suppliers serving disadvantaged communities/residents if their calculated benefit to cost ratio is less than 2 until 2028 and the standard requires at least a 25% reduction in real loss from the baseline. These standards will be calculated using a model developed by the State Water Board that assesses the additional benefits and costs associated with reducing the leakage from current levels. The standard will require leakage reduction only if the net benefit is positive for the supplier, given the system and water resource conditions. If the net benefit is negative, the standard will be increased to the point at which the net benefit is positive, if possible. Otherwise, in cases where a positive net benefit is not possible, the standard will be raised to the point at which the net benefit is positive, if possible. If a positive net benefit is not possible, the supplier must maintain current real water loss.
- Apparent loss standards will be assessed concurrently with real loss standards, with the first assessment by 2028 and every third year after 2028 with three-year averages of reported apparent losses. Urban retail water suppliers will be required to report an inventory of their apparent losses and any calculations and data used to determine apparent losses unless they meet their apparent loss standard. The apparent loss standard for each URWS is equal to the average of the baseline (2017 through 2020) apparent losses plus an allowed variation of 5 gallons per connection per day. The apparent loss standard functions to trigger a reporting requirement only and will not be a cause for noncompliance.
- Suppliers will be required to comply with data submission requirements in 2023, 2024, 2026, and 2027, unless they have existing low leakage levels and high-quality data. The data submissions will help the State Water Board:
 - Improve data quality of water loss estimates during the early implementation period (2023).
 - Better determine the operational and economic feasibility of reducing water loss through means that require larger capital investment, such as pressure management (2023, and updated in 2026) and asset management (2024, and updated in 2027), for individual water distribution systems.
- Suppliers will be required to annually submit their registry of breaks, repairs, and estimated water losses unless they have existing low leakage levels and high-quality data. This data submission will help the State Water Board:
 - Understand the frequency and severity of breaks, repairs, and water losses specific to California suppliers.

- Provide the public with information on breaks, repairs, and estimated water losses that that has not yet been available, which would have great value as a source for research, trend analysis, capital planning, and performance benchmarking for California suppliers.
- The proposed regulation also allows for the following:
 - Adjustments: URWS can provide the State Water Board with individualized data to replace the economic model defaults as each system improves its data accuracy and begins field implementation of water loss control approaches. This updated data leads to an adjustment to the supplier's real loss standard. Suppliers can request these adjustments until July 1, 2023.
 - Variances: In case of natural disasters or other unexpected adverse circumstances, suppliers can request variances at any time, which would provide the supplier with temporary relief regarding compliance with their real loss standard.
 - Variances: Suppliers can request a variance for their apparent loss standard if increases from the average baseline apparent loss level are attributable to improvements in data quality.
 - Variances: Any other adjustment requests can be submitted to the Board at any time and will be considered based on the merits of the proposed change.
 - URWS with existing low losses: Suppliers with existing water losses lower than 16 gallons per service connection per day or the equivalent amount in gallons per mile per day that also meet data quality criteria will not be required to reduce their water loss further or respond to questionnaires. Suppliers can qualify for this alternative compliance pathway until July 2023.
 - Compliance Plan: Suppliers with standards that require a real loss reduction of more than 30 percent from baseline losses can request more time to meet their standard, given they show progress and meet other requirements.

The goal of the proposed regulation is to establish individual water loss standards for each supplier, built on industry-established concepts and an economic analysis of the benefits and costs associated with reducing leakage. Calculation of the standards depends on the accuracy of reported data. Inaccuracies in the reported volumes can introduce significant error into these audits. The accuracy of the reported volumes reflects the supplier's practices for water metering, testing meters for accuracy, and data handling. The data submission requirement regarding practices to improve data quality is intended to improve reliability of reported data, and to encourage data quality improvement during implementation and prior to compliance. The proposed regulation does not prescribe data improvement practices.

The intent of the proposed regulation is to provide each supplier the flexibility to choose any effective approach suited for its system and budget that allows the supplier to reduce leakage to the level of its specific volumetric standard. The State Water Board

developed its economic model to calculate the individual volumetric standards; the model focuses on unreported, hidden leakage to ensure flexibility in suppliers' choice of approach because there are many approaches to controlling this type of leakage.

Overall, the proposed regulation is anticipated to reduce statewide water loss by approximately 35 percent. For a typical (average) utility per the Standardized Regulatory Impact Analysis and the economic model results, the proposed regulation would result in 12,655 acre-feet (AF) of water loss reduction and therefore generate total benefits of \$15.5 million in present value over the identified lifecycle. The total amount of water saved at the state level is approximately 3.4 million AF, and the associated total benefit approximately \$4.1 billion.

Reducing water loss can further benefit URWS by delaying the need for additional water supply and reducing the amount of energy needed to treat and supply potable water. Reducing leakage is an effective approach for prolonging the use of existing water resources, thus delaying the need for suppliers to identify and secure additional scarce sources of water supply. Reduction in energy usage due to water loss control efforts will simultaneously reduce supplier costs and greenhouse gas emissions.

Breaks or large failures in distribution system infrastructure, such as pipelines or hydrants and valves, have adverse impacts such as damage to property and disruptions to water supply, traffic, and essential services. Typically, smaller leaks develop into larger breaks if not detected early (American Water Works Association, 2016). Regular leak detection provides the ability to implement preventive measures prior to the occurrence of large breaks. Similarly, managing pressure to reduce leakage also protects distribution infrastructure and can reduce the occurrence of breaks. Pipeline breaks may also cause intrusion of external contaminants into the pipeline, thus compromising water quality. Proactive water loss control reduces the risk associated with contamination of water in distribution infrastructure through breaks.

Evaluation of Inconsistency or Incompatibility with Existing State Regulations [Gov. Code, § 11346.5(a)(3)(D)]

The State Water Board reviewed its existing general regulations and regulations specific to water loss to evaluate whether the proposed regulation is inconsistent or incompatible with existing state regulations. The State Water Board determined that no other state regulation addressed the same subject matter and that this proposal, if adopted, would not be inconsistent or incompatible with existing state regulations.

MANDATED BY FEDERAL LAW OR REGULATIONS [Gov. Code, § 11346.2(c)]

Adoption of this regulation is not mandated by federal law or regulations.

OTHER STATUTORY REQUIREMENTS [Gov. Code, § 11346.5(a)(4)]

External Scientific Peer Review

[Health and Safety Code, § 57004(b)]

Health and Safety Code section 57004, subdivision (b) requires that the scientific portions of any regulation proposed by the California Environmental Protection Agency (CalEPA), or any board, department, or office within CalEPA, be submitted to an external scientific peer review entity for evaluation. The State Water Board requested external scientific peer review of the model assumptions and equations. The peer review and the State Water Board's response to those comments can be found on the [State Water Board's Water Loss Control webpage](#).

Safe, Clean, Affordable Water

[Wat. Code, § 106.3]

Water Code section 106.3 states that it is the policy of the state that every human has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. In preparing the proposed regulation, the State Water Board determined the proposed regulation is consistent with this statewide policy. While the proposed regulation may result in increased costs to those served by a water system, that potential cost is expected to render water neither unaffordable nor inaccessible and is outweighed by the benefits of reducing water loss.

Pre-Notice Meeting with Affected Parties

[Gov. Code, §11346.45(a)]

Government Code section 11346.45, subdivision (a) requires that, prior to publication of the notice of proposed rulemaking, the agency proposing the regulation must involve parties who would be subject to the proposed regulation in public discussions, when the proposed regulation involves complex proposals or a large number of proposals that cannot be easily reviewed during the comment period. The State Water Board provided URWS and other stakeholders opportunities to be involved in public discussions about the proposed regulation in ten workshops on the following topics:³

- Data quality and performance indicators: March 2018
- Water loss control actions: June 2018
- Avoided cost of water, water loss control implementation in California (presented by water suppliers): September 2018
- Staff proposed framework: February 2019
- Assumptions, benefit-cost calculations behind economic framework: June 2019

³https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/water_loss_control.html

- First draft of economic model to calculate standards: September 2019 (with 32-day written comment period)
- Data submission requirements: December 2019
- Second draft of economic model to calculate standard, data submission requirements and revised regulatory proposal: May 2020 (with 47-day written comment period)
- Overview of proposed water loss standards and regulatory framework: December 2020
- Overview of peer review and responses: March 2021

LOCAL MANDATE

[Gov. Code, § 11346.5(a)(5)]

The proposed regulation would not impose a mandate on local agencies or school districts that requires state reimbursement. The proposed regulation will not be a requirement unique to local government and will apply equally to public and private water systems.

Local agencies and school districts currently incur costs in their operation of URWS. The costs imposed by the proposed regulation are not the result of a “new program or higher level of service” within the meaning of Article XIII B, section 6 of the California Constitution because the proposed regulation applies generally to all individuals and entities that operate URWS in California and do not impose unique requirements on local governments (*County of Los Angeles vs. State of California et al*, 43 Cal App 3d 46 (1987)). In addition, URWS can pass on the cost of regulation implementation through increasing service fees. Therefore, no state reimbursement of these cost is required (Gov. Code, §17556, subd. (d)).

FISCAL IMPACT

[Gov. Code, § 11346.5(a)(6)]

Cost to Local Agencies and School Districts Requiring Reimbursement

The costs to local agencies and any possible indirect costs to school districts are not reimbursable by the State because this regulation does not mandate a new program or higher level of service of an existing program, pursuant to Article 13B, section 6, of the California Constitution and Government Code sections 17500 through 17630.

Costs or Savings to State Agencies

Improved water distribution efficiency from water loss control results in prolonged use of existing water resources, possibly delaying the need for additional or high cost water suppliers. State agencies, as ratepayers, might see a delayed or reduced increase in water rates over time. Simultaneously, water loss control may result in capital improvements resulting in rate increases. Overall, fiscal impacts to state agencies as ratepayers are expected to be small and positive.

The proposed regulation would have a minor impact on staffing resources and would require one and one-half personnel-years assisting urban retail water suppliers with compliance and modifications to their standards, reviewing supplemental documentation, and enforcement including audits of reported information. The cost of the position is estimated to be \$200,000 annually in 2020 dollars. The total estimated annual cost due to additionally required staff hours would be \$300,000. This additional workload is expected to be absorbed by current staff.

Other Non-discretionary Cost or Savings Imposed Upon Local Agencies

The proposed regulation directly impacts urban retail water suppliers that are public agencies. Among the 265 systems potentially impacted by the proposed regulation, 205 are local public water systems and one is a state or federal water agency. The public water systems are typically operated by cities or local water authorities. The revenues of water agencies come from different sources, including local grants, local taxes, and operating revenues.

The overall fiscal impact to local governments is positive. In the short term, expenditure on leakage detection and repair services, capital investments towards replacing old water pipes and infrastructure could lead to increased annual budgets for public water agencies. In the longer term, the total direct costs to water systems due to the proposed regulation result in annual savings due to water loss reduction and reduced operating costs and increased available resources. The annual total direct costs and benefits of the proposed regulation to public water agencies relative to the baseline are summarized in the Initial Statement of Reasons, Appendix A, Section F.1, Table 18 on page 80.

As the change in water price caused by the proposed regulation is not expected to be significant, the burden from this on local governments will be minimal. It is likely that local governments will experience some fiscal benefits from economic activity induced by the regulatory requirements. They will also benefit from reduced environmental liabilities associated with water loss in their communities.

Costs or Savings in Federal Funding to the State

The State Water Board has determined that the proposed regulation will not create additional costs or savings in federal funding to the state.

HOUSING COSTS

[Gov. Code, § 11346.5(a)(12)]

The State Water Board does not expect that the regulation will have an impact on housing costs.

RESULTS OF THE STANDARDIZED REGULATORY IMPACT ANALYSIS (SRIA)

[Gov. Code, § 11346.5(a)(10), § 11346.3(c)]

The State Water Board determined that the economic impact of the proposed regulation would likely exceed \$50 million in a 12-month period and would therefore be considered a Major Regulation as defined by California Code of Regulations, title 1, section 2000, subdivision (g). The State Water Board prepared a SRIA as required by Government Code section 11346.3, subdivision (c). For estimating these costs, the State Water Board adopted the regional economic model developed by the U.S. Bureau of Economic Analysis: the Regional Input-Output Modeling System (RIMS II). The RIMS II model allows the Board to estimate the effect of the regulation on the industries in California.

Creation or Elimination of Jobs within California

The proposed regulation is estimated to result in an overall positive job impact of 4,410 jobs in total over the 30-year time horizon of the regulation. The net employment impacts represent the net change in employments, which consists of positive impacts for some industries and negative impacts for others. These changes in employment represent less than 0.03 percent of baseline California employment.

The proposed regulation is expected to create a net demand for services in the following industries: leak detection services, leak repairing equipment, leak repairing services, and monitoring and reporting. The expected job growth from the final demand change ranges from 95 to 258 jobs per year for the lifetime period of the regulation, primarily due to additional demand for work related to leak detection and repair. Employment will consist of full- and part-time jobs, though the RIMS II data used in this analysis does not capture the difference.

It should be noted that while the job growth in companies that perform support activities on a contract or fee basis for leak detection and repair is captured in the quantitative analysis, there is a possibility that water suppliers themselves may downsize the number of in-house employees if they shift these activities from in-house to outsourcing. Also, for the leak detection and repair service companies, competition could be tougher due to new firms entering. This could drive some small firms out of markets. All these examples would lead to job losses not captured by the RIMS II model. However, it is anticipated that these negative impacts would be dominated by the positive effects on job creation, so that the net impact would be positive.

Creation or Elimination of Businesses within California

The RIMS II model used for this analysis cannot directly estimate the creation or elimination of businesses. The overall increase in jobs represents the net impact, which can be associated with both creation and elimination. The direct increase occurs in the form of demand for leak detection, repair, and consulting services; this may promote creation of new business to advise URWS on compliance with the proposed regulation. At the same time, new businesses generally promote competition among existing firms, which can result in exiting of less-competitive firms.

In addition, water rates are likely to increase in the short term to cover initial capital investment. Although the potential increase in water rates on average is not large based on State Water Board calculations, suppliers in various regions may react differently depending on their ability to finance the initial capital costs. Thus, in certain regions with high water use, there could be a relatively higher increase in water rates than the baseline estimate, which may theoretically lead to a possibility of exit or entry of businesses that use water intensively.⁴ However, businesses have absorbed increases in water rates over the years, and are anticipated to do so for future increases as well.

The increase in gross output will not only affect the industries that provide the contracted services, but also all the related equipment manufacturers, maintenance operators, equipment suppliers, and other businesses that provide intermediate services or goods to those leak detection contractors. Therefore, leak detection service contractors and their various suppliers will likely see an increase in demand for their services as a result of the proposed regulation. However, barriers to entry, such as the cost of equipment or innovation needed to provide goods and services for leak detection and repair work, is likely to limit the number of new indirectly impacted service contractor businesses.

The cost of compliance could be a financial burden on smaller businesses. However, there are four mechanisms in the proposed regulation that will help suppliers manage costs: variances are allowed in cases of unexpected adverse conditions, which could prevent exiting of such smaller businesses; adjustments to the volumetric standard can be made if default parameter estimations by the urban retail water suppliers are different from the State's default values; more time is provided to suppliers struggling to meet their standard if that standard requires a large (more than 30%) reduction in real loss; and flexibility is provided for suppliers serving disadvantaged communities.

Competitive Advantage or Disadvantage for California Businesses

Water service is provided locally and consumers generally don't have a choice of their water service supplier. As we have discussed, water prices will not change significantly due to this regulation. Water loss control services are labor-intensive and will likely be provided by California-based businesses. The other inputs needed for water loss control, such as trucks or pipes, tend to be provided by sectors that compete across state lines. The regulation will not materially affect the relative competitiveness of California as a place these suppliers decide to locate.

⁴ In order to quantify these disparate impacts, information on individuals and businesses served by each water system is required. Due to data limitation, these analyses are not feasible at this stage.

Increase or Decrease in Investment in California

The direct cost impacts mostly consist of increased leak detection and repair services or equipment to meet the requirements of the proposed regulation. The total increase in purchases from these two directly affected industries is approximately \$500 million over the assumed lifetime. The indirect economic effect of this spending is expected to create about \$897 million of gross outputs over the lifetime and \$593 million in value added. This increase in outputs would be associated with higher investment spending. However, this impact of the proposed regulation will be insubstantial compared to California's roughly \$3 trillion annual economy.⁵

Incentives for Innovation

The proposed regulation would potentially increase incentives for innovation through two channels. First, increased use of leak detection and repair equipment will promote competition and innovation in this sector. Higher demand could increase the competition among equipment producers. If the market is large enough, some producers could have incentives to invest in developing new technologies to improve their productivity and obtain a larger market share. Second, the proposed regulation could increase the incentives for innovation in water-saving appliances related industries. The proposed regulation could increase water price in the short run if water suppliers pass some of the compliance costs to the consumers, which could further increase the demand for water-saving appliances, such as high efficiency shower heads, toilets, dishwashers, and washing machines and therefore promote innovation in the related industries.

Benefits of the Regulation

The proposed regulation is intended to reduce water losses in the distribution systems of urban retail water suppliers through system-specific performance standards. The main direct benefits are from the value of water saved due to the proposed regulation, which reduces water losses by 35 percent. The saved water results in reduced costs associated with extracting or importing water and then treating and pumping it for distribution. Direct benefits have been quantified in the economic model as a function of system-specific variables (e.g., variable production costs). To evaluate the lifecycle benefit, future benefits are converted to present values through discounting.

There are currently 460 systems that have reported data as URWS. The total monetary benefit to the State is composed of the total values of water loss reduction for all these systems over the 30-year time horizon. The total amount of water saved in response to the proposed regulation is approximately 3.4 million AF and the associated benefit is \$4.1 billion (in 2020 dollars).

⁵ California Department of Finance, *Gross State Product*.
<http://www.dof.ca.gov/Forecasting/Economics/Indicators/Gross_State_Product/>

Importantly, the model does not incorporate additional benefits from leak reduction approaches other than leak detection and repair, such as preventative pipe replacement or pressure management. Additional benefits may include the prevention or reduction of:

- Strain on and early deterioration of distribution systems.
- Unexpected main breaks that can cause property damage.
- Water outages.
- Traffic caused by repairs.
- Contamination of water due to defects in infrastructure.
- Carbon emissions associated with water treatment and pumping activities.

Quantifying these benefits involves a high amount of uncertainty, and thus these likely additional benefits are not quantified.

Submission to the Department of Finance

The SRIA was submitted to the Department of Finance (DOF) on October 13, 2021. DOF provided comments to the State Water Board on November 12, 2021. DOF generally concurred with the State Water Board's methodology for estimating annual impacts and stated that the analysis generally met requirements of the SRIA, with two comments. The two comments, and the State Water Board's response to those comments, are as follows:

Comment 1: The SRIA should report costs, benefits, and fiscal impacts annually for each year through 12 months after full implementation. Currently, the SRIA only reports impacts for select years. Since full implementation is expected by 2031, the estimates of costs, benefits, and fiscal impacts should be reported for each year through 2032.

Response: The costs, benefits, and fiscal impacts tables in the SRIA have been expanded to include each year through 2032.

Comment 2a: The SRIA must estimate costs, benefits, and fiscal impacts based on a consistent universe of affected entities. Currently, benefits are estimated for 460 systems that have reported water audit data while costs and fiscal impacts are calculated for the 265 potentially impacted systems. Hence benefits are currently inflated and should be corrected to only reflect water loss reduction for the 265 impacted systems or the SRIA should provide a justification and updated costs and fiscal impacts if other systems are also expected to change behavior due to the regulation.

Response: The costs, benefits, and fiscal impacts were estimated based on the same set of 265 impacted systems. The SRIA has been updated to make this clear.

Comment 2b: Similarly, the SRIA should estimate household water bill impacts based on the households served by the affected water systems only or provide a justification for why the current approach of dividing among all 13 million households in the state is appropriate.

Response: We agree that the SRIA should estimate household water bill impacts based on the households served by the affected water systems only. The approach has been updated to divide the household impacts only among the 6.1 million households served by the impacted water systems.

SIGNIFICANT STATEWIDE ADVERSE ECONOMIC IMPACT DIRECTLY AFFECTING BUSINESS, INCLUDING ABILITY TO COMPETE

[Gov. Code, § 11346.3(a), § 11346.5(a)(7), § 11346.5(a)(8)]

The State Water Board has determined that the proposed regulatory action would have no significant direct adverse economic impact on California business enterprises and individuals, including the ability of California businesses to compete with businesses in other states.

In the first years after the regulation has been implemented, leak detection and repair costs may outweigh benefits from water savings for some URWS. However, by 2025 all but 9 of the 460 systems have positive net benefits, and all systems have positive net benefits by 2032. These net benefits, which total \$3.6 billion statewide over the 30-year time horizon, will be realized by URWS.

The State Water Board recognizes that public water systems often provide water to businesses. Privately owned public water systems may also be businesses, such as a mobile home park or investor owned utilities, which will incur indirect impacts and may include businesses within their service areas.

The State Water Board assumes that a public water system that incurs costs as a result of this regulation will likely pass the costs of compliance onto that system's customers, which may include businesses. In the first year of the regulation, water bills will decrease slightly on average by \$1.27 per customer. By 2028 and for the remainder of the 30-year time horizon, the actual water supply costs will decrease by roughly \$8 to 16 per year per customer, due to the benefits from saved water, which could delay any rise in water prices for individual customers.

COST IMPACTS ON REPRESENTATIVE PRIVATE PERSONS OR BUSINESSES

[Gov. Code, § 11346.5(a)(9); Cal. Code Regs., tit. 1, § 4(a) and(b)]

The agency is not aware of any direct cost impacts that a representative private person would necessarily incur in reasonable compliance with this regulation. Indirect cost impacts to individuals could occur as a result of suppliers passing on costs or savings to their customers. In the first year of the regulation, water bills will decrease slightly on average by \$1.27 per customer. By 2028 and for the remainder of the 30-year time horizon, the actual water supply costs will decrease by roughly \$8 to 16 per year per customer due to the benefits from saved water, which could delay any rise in water prices for individual customers.

The direct costs of conducting leak detection and repair are calculated based on a unit cost of surveying and repair detected and located leaks for each mile of the distribution system. The calculation of the direct costs is based on input values for each utility over a 30-year period for the time horizon of the economic assessment, and then aggregated up to the state level. A typical utility is then defined as a utility with the average cost and benefit among all the impacted utilities. The initial costs for a typical utility are \$97,728 in 2022. Ongoing costs vary but can be represented by the costs in 2029 of \$74,716.

EFFECT ON SMALL BUSINESS

[California Code of Regulations § 4(a)]

Among the 265 URWS impacted by the proposed regulation (i.e., expected, based on current data, to be required to reduce water loss), 6 of them are identified as small businesses. On average, the regulation would reduce their water loss by 3,786 acre-feet in the 30-year assumed lifetime for these 6 small businesses, with total benefits amounting to 4.6 million dollars. These are much lower than the projected benefits to a typical utility since smaller utilities have smaller water systems, with a lower volume of total leakage that could occur. On average, the total cost is about \$975,363 for these 6 small businesses, less than half of the cost for the typical system. This is mainly because small businesses have smaller water supply systems with shorter pipes and fewer total leaks to repair, which leads to both lower leak detection and repair costs. In addition to these 6 small businesses being directly affected by this regulation, some

small businesses that buy water from URWS may experience indirect impacts in the form of changes to their water bills. On average, changes to water bills are expected to be small and provide savings.

REQUIREMENT FOR BUSINESS REPORT

[Gov. Code, § 11346.5(a)(11), § 11346.3(d)]

Government Code subsection 11346.3, subdivision (d) requires that any administrative regulation adopted on or after January 1, 1993, that requires a report shall not apply to businesses, unless the state agency adopting the regulation makes a finding that it is necessary for health, safety, or welfare of the people of the state that the regulation apply to businesses. To the extent that this regulation is requiring reporting of businesses, that reporting is necessary for health, safety, or welfare of the people of the state.

It is assumed that each impacted utility would need 1/24 personnel-year of an engineer position to monitor the leak detection and repair progress and report to the State Water Board for compliance in the form of response to questionnaires, annually submitting the breaks and repairs registry, requesting adjustments or variances, submitting apparent losses when required, and preparing data and paperwork. It is anticipated that these tasks could be absorbed by existing employees at water utilities. The cost of this position is assumed to be \$200,000 per year in 2020 with an annual real growth rate of 3.5 percent. This results in a total of monitoring and reporting cost of \$250,000 in present value.

CONSIDERATION OF ALTERNATIVES

[Gov Code, § 11346.5(a)(13)]

The State Water Board considered two alternatives to the water loss performance standards based on stakeholder comments. The two alternatives were evaluated for costs and benefits, economic impacts, and cost-effectiveness relative to the proposed regulation, and both alternatives were rejected. No reasonable alternative considered by the State Water Board or that has otherwise been identified and brought to the attention of the State Water Board 1) would be more effective in carrying out the purpose for which the action is proposed, 2) would be as effective and less burdensome to affected private persons than the proposed action, or 3) would be more cost-effective to affected private persons and equally effective in implementing the statutory mandate of Water Code section 10608.34.

Alternative 1

The first alternative proposes using a more stringent leak detection survey frequency to calculate the standards, which would lead to quicker reduction in leakage as compared to the proposed regulation. The assumed leak detection survey rates from the proposed regulation were halved for this alternative, meaning that suppliers would be expected to take double the time to survey their systems for this alternative.

Under Alternative 1, 302 URWS systems would be required to conduct leak detection and repair to achieve the water loss levels.

Costs and Benefits

For a typical system, the total cost to comply with Alternative 1 is \$3.08 million in present value. The statewide total cost is about \$931 million. As compared to the proposed regulation, Alternative 1 would incur about 86 percent higher costs. This is consistent with the fact that Alternative 1 would require more frequent leak surveying, which is associated with higher costs. The lifetime benefit from water loss reduction for a typical system is about \$18.9 million in present value, which results in a total of 5.7 billion dollars statewide benefit. This is about 39 percent higher than the proposed regulation. As more frequent leak detection surveying would be able to identify and repair more leaks in time, it would reduce the total water loss further and lead to a higher total benefit. The net benefit is about 35 percent higher than the proposed regulation as well. It should be noted that even though Alternative 1 would generate a larger net benefit, the percentage increase in cost is much higher than the percentage increase in benefit. This implies that the extra benefit is associated with a much larger cost increase.

Economic Impacts

Macroeconomic impacts are also evaluated for Alternative 1. The same approach is adopted using the RIMS II model as for the proposed regulation. Both the lifetime impacts and annual impacts are about 86 percent higher than for the proposed regulation, which is consistent with the fact that the direct cost is about 86 percent higher and the same RIMS-II multipliers are adopted.

Cost-Effectiveness

Cost-effectiveness is measured by the average cost to achieve one AF of water loss reduction. The cost-effectiveness is approximately \$201 per AF of water saved, which is about 34 percent higher than the cost-effectiveness for the proposed regulation. Alternative 1 would achieve higher water loss reduction, but the total cost is much higher than the proposed regulation. Alternative 1 is a less cost-effective alternative compared to the proposed regulation.

Reason for Rejection

Though Alternative 1 could lead to a rapid reduction in leakage, it would increase the annual costs to approximately \$31 million per year. The initial cost per system would increase by about 112 percent compared to the proposed regulation. Even though the long-run benefits are relatively higher than the proposed regulation, the higher initial costs would impose a much larger burden on the suppliers. In addition, the cost effectiveness analysis shows that even though the total water loss reduction is higher for Alternative 1, the average cost of reducing water loss is higher than for the proposed regulation by about 34 percent. Therefore, Alternative 1 is rejected.

Alternative 2

Alternative 2 would require a decrease in leakage to a volume equal to the 85th percentile of overall leakage for California averaged over three years instead of individual standards.

Under Alternative 2, 68 URWS systems would be required to reduce their leakage. This is as expected since Alternative 2 would require systems to reduce their leakage less, compared to the proposed regulation, to a much higher level of loss (85th percentile of average losses in California). A majority of systems report leakage that is lower than the threshold for additional water loss requirements proposed through Alternative 2.

Costs and Benefits

For a typical system, the total cost to comply with Alternative 2 is \$515,617 in present value. The total cost on a statewide basis is approximately \$35.1 million. Costs incurred pursuant to this alternative would be about 93 percent lower than those for the proposed regulation. This is consistent with the fact that Alternative 2 would result in less frequent leak surveying and repair, which results in lower costs.

The lifetime benefit from water loss reduction for a typical system is about \$14 million in present value under Alternative 2, which results in a total of \$963 million in statewide benefit. The total benefit is 76 percent lower than that for the proposed regulation. As less frequent leak detection surveying would identify and repair fewer leaks in time, Alternative 2 would reduce the total water loss reduction and lead to a lower total benefit. The net benefit is about 74 percent lower than for the proposed regulation.

Economic Impacts

Macroeconomic impacts have been evaluated for Alternative 2 using the RIMS II model in the same way as the proposed regulation and Alternative 1. Both the lifetime impacts and annual impacts are less than one-tenth of those for the proposed regulation. This is consistent with the fact that the direct cost for Alternative 2 is about 93 percent lower than for the proposed regulation with the same RIMS II multipliers.

Cost-Effectiveness

Cost-effectiveness is measured by the cost to achieve one AF of water loss reduction. For Alternative 2, though the total cost (\$44 per AF of water saved) is 71 percent lower than the proposed regulation, it would achieve significantly lower overall water loss reductions. The cost-effectiveness is much lower than for the proposed regulation. This means that the average cost of saving one AF of water loss is lower than that for the proposed regulation.

Reason for Rejection

Alternative 2 is rejected because it would not reduce statewide water loss to an economically efficient level. The current median leakage for the state is 26 gallons per connection per day, while the average is 35 gallons per connection per day. The proposed threshold per Alternative 2, i.e., the 85th percentile of statewide leakage, would result in a standard of 57.1 gallons per connection per day for all suppliers regardless of their system-specific characteristics, potential for reducing water loss, or water resilience. The proposed threshold would be twice that of the current median, which would not adequately improve statewide water loss control, reduce potential leakage, or improve maintenance of water infrastructure, and could result in a lapse in ongoing or future water loss control efforts.

Alternative 2 would impose lower costs on urban water suppliers, but the amount of total water loss reduction would be 76 percent lower than under the proposed regulation. Additionally, with inadequate water loss monitoring and maintenance of water supply infrastructure, suppliers and businesses would likely face higher costs in terms of unexpected leaks, water outages, and property damage. Water supply infrastructure has been inadequately maintained and rehabilitated over past decades, which has led to its deterioration and overall higher long-term operational costs, which suggests efforts towards water loss control would be beneficial (Sedlak, 2015). Thus, Alternative 2 would not achieve the goals of adequate water loss control as effectively as the proposed regulation. Therefore, Alternative 2 is rejected.

FORMS OR DOCUMENTS INCORPORATED BY REFERENCE

[Cal. Code Regs., tit. 1, § 20(c)(3)]

None.

STATE WATER BOARD CONTACT PERSONS

[Gov. Code, § 11346.5(a)(14)]

Requests for copies of the proposed regulatory text, the Initial Statement of Reasons, subsequent modifications of the proposed regulatory text, if any, or other inquiries concerning the proposed action may be directed to:

Beti Girma
Water Resources Control Engineer
State Water Resources Control Board, ORPP
Email address: beti.girma@waterboards.ca.gov

Charlotte Ely
Senior Environmental Scientist (Supervisor)
State Water Resources Control Board
Email address: charlotte.ely@waterboards.ca.gov

In the event Beti Girma and Charlotte Ely are not available to respond to requests or inquiries, please contact:

Bethany Robinson, PhD.
Water Resources Control Engineer
State Water Resources Control Board, Division of Drinking Water
Email address: bethany.robinson@waterboards.ca.gov

Please identify the regulation by using the State Water Board regulation package identifier, “Proposed Water Loss Performance Standards” in any inquiries or written comments.

AVAILABILITY OF INITIAL STATEMENT OF REASONS, TEXT OF PROPOSED REGULATION AND THE RULEMAKING FILE

[Gov. Code, § 11346.5(a)(16)]

The State Water Board has prepared and has available for public review an initial statement of reasons for the proposed regulation, all the information upon which the proposed regulation is based, the text of the proposed regulation, and all other required forms, statements, and reports. In order to request that copies of these documents or alternative formats of these documents be mailed or emailed to you, please write to or email the Contact Persons. Upon specific request, these documents will be made available in Braille, large print, or CD.

AVAILABILITY OF CHANGED OR MODIFIED TEXT

[Gov. Code, § 11346.5(a)(16)]

After holding the hearing and considering relevant comments received in a timely manner, the State Water Board may adopt the proposed regulation substantially as described in this notice. If the State Water Board makes modifications that are substantially related to the originally proposed text, the State Board will make the modified text – with changes clearly indicated – available to the public for at least 15 days before the State Water Board adopts the modified regulation. Any such modifications will also be posted on the State Water Board Web site. Please send requests for copies of any modified regulation to the attention of the contact persons provided above (“Contact Persons”). The State Water Board will accept written comments on the modified regulation for 15 days after the date on which they were made available.

AVAILABILITY OF FINAL STATEMENT OF REASONS

[Gov. Code, § 11346.5(a)(19)]

The State Water Board will prepare a final statement of reasons pursuant to Government Code section 11346.9 after final adoption of the regulation, and when ready will make the final statement of reasons available. A copy of the Final Statement

of Reasons may be obtained from the contact persons or the State Water Board program webpage, listed in the next section.

AVAILABILITY OF DOCUMENTS ON THE INTERNET

[Gov. Code, § 11346.4(a)(6); § 11346.5(a)(20)]

Copies of this Notice of Proposed Rulemaking, the Initial Statement of Reasons, and the text of the regulation may be found on the [State Water Board's Water Loss Control webpage](#).

December 24, 2021



Jeanine Townsend
Clerk to the Board