Options for Implementation of a Statewide Low-Income Water Rate Assistance Program

State Water Resources Control Board
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Appendices can be accessed through the State Water Board website at: https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/assistance/.

Introduction

In 2012, California enacted the Human Right to Water Act (Assembly Bill (AB) 685), establishing a state policy that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking and sanitary purposes. Since the passage of AB 685, the Legislature passed and the Governor signed various laws[1] aimed at making this policy a reality. There is, however, more to do. In recognition that many Californians may not be able to pay their water bills, AB 401 (Dodd, 2015) enacted the Low-Income Water Rate Assistance Act, which directed the State Water Resources Control Board (State Water Board or Board) to submit recommendations for a statewide Low-Income Water Rate Assistance Program (W-LIRA).

In this draft report, the State Water Board outlines possible components for developing a successful program to help low-income households pay their water bills. Specifically, the report identifies potential program recipients, different mechanisms for delivering benefits to low-income households, and possible funding sources to implement such a W-LIRA program. The purpose of this report is to present ideas for a W-LIRA program for public and stakeholder input, and the options outlined reflect discussions with public interest groups and stakeholders. The Board will use the input gathered in response to this draft to develop a final report to the Legislature in 2019.

In addition to welcoming feedback on this AB 401 draft report, the State Water Board also encourages review of the Office of Environmental Health Hazard Assessment's (OEHHA) draft *Framework and Tool for Evaluating California's Progress in Achieving the Human Right to Water*. Following the adoption of a Human Right to Water Resolution[2] in 2016, the Board enlisted OEHHA to develop a methodology for evaluating the state's progress in meeting the Human Right to Water policy. OEHHA's draft framework and tool can help evaluate and track our progress towards achieving safe, clean, affordable, and accessible water for all Californians.

While AB 401 is focused on assisting low-income households in paying their water bills, the State Water Board is committed to achieving the Human Right to Water in full. Multiple strategies will be necessary. This includes securing sustainable funding for the long-term operation and maintenance of water systems, consolidation of unsustainable systems, and improving technical, managerial, and financial capacity for systems serving disadvantaged communities. While the state continues to explore options for comprehensive solutions, developing a W-LIRA program will provide a necessary safety net for the most vulnerable Californians.

[1] These laws include: Senate Bill (SB) 88 (2015), SB 552 (2016), SB 1263 (2016), AB 401 (2015), AB 1668 & SB 606 (2018), AB 2501 (2018), and SB 998 (2018).
[2] State Water Board. Human Right to Water Resolution. Available at URL: http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2016/rs2016_0010.pdf.

Executive Summary

The Growing Water Affordability Challenge

Drinking water is a basic human need. Satisfying this need, however, is becoming more difficult for California's households, as the retail cost of water has risen substantially over the last decade and is expected to rise significantly over the coming years. Figure 1 shows that, adjusting for inflation, the average Californian household was paying around 45% more per month for drinking water service in 2015 than in 2007. The burden of rapidly-rising drinking water costs falls most heavily on the 13 million Californians living in low-income households, many of whom have seen their incomes stagnate during the same period. The high and rising costs of other basic needs for California residents, including housing, food, and other utility services, means that cost increases for any single need, such as water, can lead families to make difficult and risky tradeoffs which could harm their health and welfare. Expenditures to meet basic water needs are expected to continue to rise rapidly due to the need for water systems to replace aging infrastructure, meet treatment standards, diversify supplies, and maintain a well-trained workforce.

Figure 1. Inflation-adjusted Increase in average price of water (15 CCF[3]) for California Households

Source: American Water Works Association Data, 2007-2015

Need for a Statewide Program

Only 46% of California's population is served by a community water system (CWS)[4] offering some form of a rate assistance program, and many of these programs have low levels of enrollment and limited

[3] Centum cubic feet (CCF) is also known as a hundred cubic feet (HCF), which is 748 gallons. For a four person household, 12 CCF of use in a month equates to 75 gallons of water per person per day.
[4] Community water systems serve communities with more than 25 people year-round. It is a term the Board's Drinking Water Division uses to distinguish them from other drinking water providers, such as domestic wells, truck stops, camp grounds, etc.

financial support. As a result, less than 20% of the state's low-income population currently receives benefits from a low-income rate assistance program. One reason for the limitation in program offerings is that publicly-owned water systems are constrained by Proposition 218[5] in the use of their water fees and charges. Systems that do provide low-income rate assistance benefits are able to fund them from non-fee revenues.

There are also administrative obstacles associated with providing a rate assistance program to water users at the system level. Asking approximately 3,000 individual CWS to operate their own standalone rate assistance programs for their individual customer bases is infeasible. As illustrated in Figure 2, using 200% of the federal poverty level (FPL) as the baseline eligibility criteria for W-LIRA programs would mean that for many systems more than 50% of their customers would be eligible for assistance. To operate a low-income rate assistance program, these systems would likely have to impose outsized cost burdens on higher-income households served by the systems.

Figure 2. Large Water Systems with High Percentages of Low-Income Households That Could be Eligible for Rate Assistance

Note: Calculated using Census data and system water boundaries. The percentages shown above represent the proportion of residential customers served by the system who have incomes under 200% of the Federal Poverty Level.

[5] Passed in 1996, Proposition 218 requires certain local government taxes, fees and assessments to go before the voters for approval.

Because developing a comprehensive low-income rate assistance program at the system level is not practical, the Board envisions a statewide program, with benefits distributed through other existing assistance program, such as utility bill credits, tax credits, or direct cash benefits.

The Board recommends progressive revenue sources (i.e. taxes or fees) in order not to burden some of the residents that this program seeks to serve. For example, taxes on personal and business income would provide progressive revenues, while fees on bottled water or alcohol would have a nexus to water use.

Eligibility criteria and benefit levels would influence the total program costs. AB 401 directed the Board to use 200% of the FPL as the primary eligibility criteria in its analysis; however, the Board seeks input on alternate eligibility criteria that can feasibly be implemented across the state (some of which are discussed in Appendix F). Benefit levels could be tied to the cost of water, other assistance programs, or certain affordability criteria. The Board developed the working proposal below to elicit input and inform a robust discussion. The program scenario would offer a three-tiered benefit to all eligible residential households (those with income under 200% of the FPL) in the state.[6] The program would provide a benefit equivalent to the tiers below. The monetary value of the discounts provided in each tier would be based on a consumption level of 12CCF each month for each of the 3,000 community water systems, rather than each household's actual amount consumed (and actual bills), as explained below in Chapter 2.

Text Box 1: Potential Program Benefit Levels

Tier 1: 20% discount to all households that have incomes below 200% of the federal poverty level (FPL) in water systems where monthly water expenditures (at 12 CCF) are below $90,

Tier 2: 35% discount to all households that have incomes below 200% of the FPL in water systems where monthly water expenditures (at 12 CCF) are between $90 and $120, and

Tier 3: 50% discount to all households that have incomes below 200% of the FPL in water systems where monthly water costs (at 12 CCF) are above $120.

Because the average monthly water bill is around $60 per month,[7] most low-income households would be in Tier 1.

The proposed benefit levels would provide substantial assistance to all low-income households, but also a larger benefit to those in the CWS that have the greatest drinking water expenditure burden. Moreover, both the program eligibility criteria and first two benefit tiers correspond to the California Alternative Rates for Energy (CARE) program design where 4.3 million low-income households receive a 30-35% discount on their electric bill and a 20% discount on their natural gas bill. However, CARE benefits relate to customers' actual bill amounts rather the system-wide rates for a set level of consumption, as in this report's working proposal.

This scenario is projected to cost about $606 million in the first year for benefit distribution and program administration. Costs would adjust over time based on changes in the number of eligible households and

[6] The Federal Poverty Level is based on household size; so larger households would qualify with higher incomes than smaller households.
[7] See Chapter 2: Program Design Scenarios: Eligibility, Benefit Level, and Total Program Cost.

water rates. The total annual cost includes ongoing program management costs, such as potential expanded household enrollment verification procedures, marketing and outreach, and benefit distribution system modifications, as discussed further in Chapter 4 and the Appendices. Modifications to this scenario would result in different cost projections. For example, shrinking eligibility to households earning up to 150% of the FPL would reduce program costs, while expanding eligibility to households earning up to 250% of the FPL would raise program costs. The same logic applies to the program benefit levels, including the amount of water use upon which calculations are based. In addition, initial program costs would decrease if the program were phased-in overtime, such as if benefits were initially only extended to low-income households in areas with higher water bills.

Although there are many options for improving water affordability, the need to address this growing crisis is clear. The Board looks forward to receiving feedback on this report and to working with stakeholders, the Administration, and the Legislature to develop and implement policy solutions.

Safe Drinking Water Must Be a Priority

The development of a W-LIRA program and other discussions on water affordability should not delay the urgent need to address the problem of unsafe drinking water. This is an urgent public health crisis and solutions are already well developed. Hundreds of thousands of Californians lack access to safe drinking water. A significant challenge is the lack of a sustainable funding for long-term operations and maintenance for drinking water systems. Over the past two years, the Legislature has proposed a modest surcharge of $1 per month on certain California households to address the systematic challenges that prevent the delivery of safe drinking water to Californians.[8] Low-income residents would be exempt from paying such a charge, and community water systems would be allowed to retain a portion of the funding for their expenses of collecting and transmitting the monies to the state.

[8] SB 623, SB 844 and SB 845.

Chapter 1: Why help households pay for drinking water service? The need for Low-Income Rate Assistance in California

AB 401 mandates that the State Water Board, in collaboration with the Department of Tax and Fee Administration (formally known as the State Board of Equalization) and relevant stakeholders, develop a plan for the funding and implementation of a W-LIRA, which would include specified elements (see Appendix A for the full text of AB 401). This draft report (including its appendices) reflects the analysis from the planning process envisioned by AB 401, while allowing for additional public and stakeholder feedback.

Why help households pay for drinking water service?

Rising income inequality coupled with California's high cost of living means that meeting basic needs, including housing, food, clothing, transportation, healthcare, and utilities is increasingly a struggle for many households. Currently, 34% of Californians, roughly 13 million people, live in households with income under 200% of the federal poverty level (FPL), which in 2018 is $50,200 for a family of four. When families are unable to pay their bills, they face difficult and highly consequential trade-offs, like skipping meals and going hungry, risking eviction, or facing potential disconnection for electric, gas, or water services.

An analysis of U.S. Census data reveals that the real median household income in California in 2017 was lower than it was in 2007.[9] Across the nation more broadly, there has been a stagnation in real incomes for low- to moderate-income earners, and a lack of households moving out of poverty conditions spanning the last 30 years.[10] At the same time, the largest necessary cost of living – housing costs – have shown rapidly increasing divergence from household income since 2000.[11] Low-income households need more support to make ends meet. Providing all low-income households with financial assistance to help pay their water bills is a small, but important way the state can support provision of basic necessities for all Californians.

Table 1 shows the results of the stagnation in household incomes for the lower end of the income distribution in California. Recent data shows that nearly 15% of California households have an income below the FPL and more than one-third of California households have an income below 200% of the FPL.[12]

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[9] Alternatively, the percentages of households under 100% or 200% of the FPL are slightly higher in 2015 than 2005.

[10] Drew Desilver (2014). Pew Research Center. *For most workers, real wages have barely budged for decades.* Available at: http://www.pewresearch.org/fact-tank/2014/10/09/for-most-workers-real-wages-have-barely-budged-for-decades/; Elise Gold (2015). Economic Policy Institute. *2014 Continues a 35-Year Trend of Broad-Based Wage Stagnation*. Available at: http://www.epi.org/publication/stagnant-wages-in-2014/.

[11] California Housing and Community Development Department (2017). *California's Housing Future: Challenges and Opportunities Public Draft.* Available at: http://www.hcd.ca.gov/policy-research/plans-reports/docs/California%27s-Housing-Future-Full-Public-Draft.pdf.

[12] The percentage of households below the 100% and 200% FPL closely corresponds to the national averages, which are 16% and 35%. For reference, 200% of FPL for a 4-person household in 2015 was $48,600. This income level roughly corresponds to the Board's 2015 median household income cutoff for defining "disadvantaged communities" (DAC) of $49,454. The DAC threshold in turn is set at 80% of the state's median household income (which is $61,818) and the metric is widely used to determine eligibility

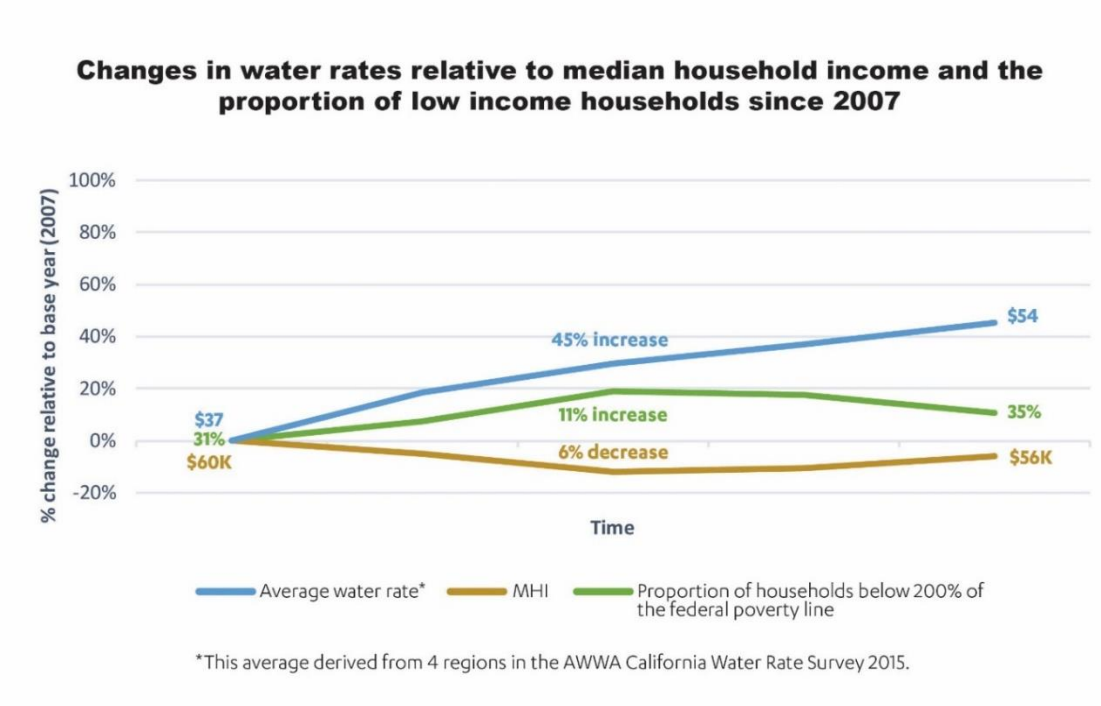
Table 1. Financially Disadvantaged California Households

Designation	% Percent of State Households
Below 100% of Federal Poverty Level	14%
Below 150% of Federal Poverty Level	24%
Below 200% of Federal Poverty Level	34%

Source: 2010-2014 American Community Survey Data

Figure 3 illustrates the combined effects of stagnating incomes for low- and median-income households and rising retail drinking water costs.

Figure 3. Changes in water rates relative to median household income and the proportion of low-income households since 2007 (adjusted for inflation)



There are at least four additional rationales to support the development of a W-LIRA program in California:

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for other drinking water system financial assistance programs in California. The 200% FPL threshold is particularly relevant for the purpose of considering the need for a W-LIRA program because these income levels are most commonly used as eligibility criteria for existing low-income rate assistance programs. AB 401 also specifically mentions the 200% FPL threshold.

1. *The devastating health and livelihood impacts people experience where water is unaffordable,*

2. *The rapidly-rising retail cost of drinking water,*

3. *The general absence of robust* low-income rate assistance program *or affordability programs, when they are available for many other basic household needs, and*

4. *The inability of many individual water systems to support a rate assistance program on their own.*

Each of these motivations for a W-LIRA program is explained in turn below.

#1- Health and livelihood impacts

If water is unaffordable, low-income households will likely either consume less water than is healthy and/or consume less of other vital goods and services to pay for the water they need.[13] In other words, low-income households face tradeoffs that harm their health and welfare.[14] One example of this is in the City of Detroit, where 156,000 households struggled with increased water rates alongside necessary electricity costs for heating during a frigid winter. Households prioritized the immediate need of electricity over water, and the city experienced a high rate of water shutoffs due to non-payment.[15]

Unaffordable water service, especially in light of low-income households' extremely-constrained incomes, can lead to service disconnections. A major public health concern from water shutoffs is water-related illnesses. A recent study by the Henry Ford Hospital examined the public health implications of water shutoffs in the City of Detroit. By analyzing water-borne illnesses and comparing them to home addresses of water shutoffs, researchers found that patients diagnosed with skin and soft tissue diseases were 1.48 times more likely to live on a block that experienced water shutoffs. Following the release of the study in July 2017, a panel of experts, including physicians, called for the declaration of a public health emergency in the city because of the correlation between water shutoffs and water-related illnesses.[16] For similar reasons, the City of Pittsburgh Water and Sewer Authority recently placed a moratorium on drinking water service shutoffs in the winter season.[17] Moreover, the recent Hepatitis A outbreak across parts of California among at-risk populations without permanent shelter has been partially attributed to a lack of access to adequate water and sanitation facilities.[18] At a broader scale, shutoffs and lack of affordable access to water can result in an economic burden to the state, as low-income families facing these challenges incur outsized healthcare costs, some of which are subsidized by the state.

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[13] Davis, Jon P. and Teodoro, Manuel P. (2017). "Financial Capability and Affordability." Chapter 22 in Water and Wastewater Finance and Pricing: The Changing Landscape, Fourth Edition.
[14] Morduch, Jonathan, and Schneider, Rachel. *The Financial Diaries: How American Families Cope in a World of Uncertainty*. Princeton University Press, 2017.
[15] Filson, J. and Avery, T. (2017). "Water Shutoffs in Detroit: An Ongoing Crisis*." Food & Water Watch*.
[16] Chambers, Jennifer. Experts: Water shutoffs causing public health emergency. *The Detroit News.* [Online] July 26, 2017. Available at: http://www.detroitnews.com/story/news/local/detroit-city/2017/07/26/detroit-water-shutoffs-health-study/104016812/.
[17] The Pittsburgh Water and Sewer Authority (2017). Winter Moratorium Program- Frequently Asked Questions. Available at: http://apps.pittsburghpa.gov/redtail/images/1647_WinterMoratoriumProgram_FINAL.PDF.
[18] For instance, see California Department of Public Health (2018). "Hepatitis A Outbreak in California". Available at: https://www.cdph.ca.gov/Programs/CID/DCDC/Pages/Immunization/Hepatitis-A-Outbreak.aspx.

Households that cannot pay their water bill in turn face negative impacts to their credit, risk of loss of property, and/or eviction. An example of this is in the City of Baltimore where the water system often sells unpaid water bills as property liens in tax sales. Households that cannot pay back the bill in addition to charges and interest to the buyer of the lien lose the home to foreclosure. From 2014 to 2015, the number of homes sold at tax sales in Baltimore with water-only liens rose from 671 to 902.[19] While the Board does not yet have a complete dataset for statewide water shutoffs, shutoff concerns were raised at the public meetings Board staff held around the state, and in the comment letters the Board received.[20]

#2- The rapidly-rising retail cost of drinking water

Understanding drinking water affordability for households requires consideration of the necessary expenditure for water paid by a household, the income of the household, as well as the costs of other vital goods and services such as housing, utilities, food, transportation, and healthcare.[21] Water affordability becomes a more pressing issue for households as water service rates rise.

The Board began maintaining water rate data for California's drinking systems in 2014. Using this data for estimation purposes, the average California household in 2015 paid around $60 per month for 12 CCF of drinking water service. Longer-standing sources of rate data indicate that the retail price of water has risen dramatically above the pace of inflation in California (and the U.S. more broadly) over the last decade.[22] Moreover, financial analysts project the retail price of water to rise significantly in California over the coming years.[23]

As summarized in Figure 4, rising rates for water service are attributable to a number of factors, two of which are relatively unique to water within basic service sectors.[24] First, water has been historically underpriced compared to the true cost of service,[25] which has led to many water systems in California now having aging infrastructure that must be replaced. In addition, more stringent water quality standards

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[19] Jacobson, Joan (2016). *Keeping the Water On: Strategies for addressing high increases in water and sewer rates for Baltimore's most vulnerable customers.* The Abell Foundation.

[20] See https://www.waterboards.ca.gov/water_issues/programs/conservation_portal/assistance/ for links to AB 401 comment letters.

[21] For instance, see Teodoro, M. P. (2018). Measuring Household Affordability for Water and Sewer Utilities. *Journal-American Water Works Association*, *110*(1), 13-24. While designing a statewide affordability program with an eligibility or benefit criteria which takes account of the cost of other vital goods and services for low-income households may be ideal, it was deemed infeasible for two reasons. First, it is not possible to obtain accurate and representative data on variation in other essential costs outside of large metropolitan areas, as shown in a close reading of Teodoro, 2018. Second, and perhaps more importantly, it is unreasonable to expect a potential statewide drinking water affordability program to compensate for the high local cost of other essential services given that this potential program has no federal or state general fund assistance and is being considered after the establishment of other much longer-standing benefit programs.

[22] 2015 California-Nevada Water and Wastewater Rate Survey. American Water Works Association and Raftelis. Available at: http://ca-nvawwa.org/canv/downloads/2016/ CANVRateSurvey2015.pdf.

[23] Carroll, Rory. September 18, 2015. "California water prices set to rise next year: Fitch." Available at: http://www.reuters.com/article/us-california-water-rates/california-water-prices-set-to-rise-next-year-fitch-idUSKCN0QN1PH20150818.

[24] 2015 California-Nevada Water and Wastewater Rate Survey. American Water Works Association and Raftelis. Available at: http://ca-nv-awwa.org/canv/downloads/2016/CANVRateSurvey2015.pdf; American Society of Civil Engineers, California Infrastructure Overview (2017) .

[25] For instance, see Timmins, C. (2002). Does the median voter consume too much water? Analyzing the redistributive role of residential water bills. *National Tax Journal*, 687-702.

require additional costs for treatment and operator training.[26] Second, the percentage of federal support in the total public spending on infrastructure for water utilities has fallen from over 30% in the 1970s to less than 5% in 2015.[27] In other words, state agencies and especially local water systems need to finance their own operations to a much greater extent than in the past.

Figure 4. Drivers of Rising Water Rates in California

Source: Based on feedback from water system managers and review of academic literature on water rates.

Among these cost drivers, climate change adaptation will play a significant role in the future of water affordability as both populations and suppliers shift behaviors and practices in response to climatic impacts. At the household level, the effects of higher temperatures will be felt across the state, with increases of 5°F and 10°F predicted by the 2030s and late 2090s, respectively.[28] Numerous studies show these increased temperatures will result in greater residential water demand;[29] the most specific urban case study shows an annual per capita increase of 1.6 gallons per 1°F increase, for temperatures above 78°F.[30]

Alongside this increase in demand, there will also be an increase in the difficulty of maintaining safe and consistent water supplies due to physical and hydrologic shifts, including drought, occurring throughout the state. One widely-recognized challenge is sea level rise, which is expected to increase and inundate

[26] Hanak, E., Gray, B., Lund, J., Mitchell, D., Chappelle, C., Fahlund, A., Jessoe, K., Medellin-Azuara, J., Misczynski, D., Nachbaur, J., Suddeth, R., Freeman, E., and Stryjewski, E. "Paying for Water in California." (2014). Public Policy Institute of California, pg. 35.
[27] U.S. Congressional Budget Office (2015), Public Spending on Transportation and Water Infrastructure, 1956 to 2014, Available at: https://www.cbo.gov/publication/49910; Eskaf, Shadi, September 26, 2015. "Four Trends in Government Spending on Water and Wastewater Utilities Since 1956" Available at: http://efc.web.unc.edu/2015/09/09/four-trends-government-spending-water/.
[28] CalEPA & CPDH, 2013
[29] Pacific Institute, 2012; Wang et al., 2015; Neale et al., 2007
[30] Protopapas et al., 2000

groundwater with salts, decreasing groundwater availability for drinking water supplies.[31] Additionally, the increased prevalence of wildfire burns across California described by Westerling et al. (2011) and Westerling & Bryant (2007) is diminishing watershed health and will likely lead to increases in the costs of drinking water supplies. Lastly, and most importantly for California, the Sierra Nevada snowpack, which currently supplies the state with over 60% of its water supply for urban and agricultural uses, is shrinking and will continue to do so, forcing water providers to seek alternatives.

In addition to past and expected future water rate increases for all customers, the water sector is different than other basic services in its variability in retail rates across different retail systems. Retail rate divergence by neighboring systems is not unique to California[32] but is certainly very common within the state.[33] Again, the average California household paid around $60 per month for 12 CCF of drinking water service in 2015, but there was tremendous variation in the price paid by households. Many systems (973) charge rates higher than the state average, with some charging one and a half (175), two (28), or three times (4) the average price for the same amount of water. The state's geography, population distribution, and hydrology mean that source water quality and quantity vary tremendously, and some systems face high costs to obtain and treat water.

Prominent examples of very high drinking water costs include those experienced by residents of Cantua Creek in Fresno County and Lucerne in Lake County. Residents in Cantua Creek pay roughly $174 a month.[34] Residents in the Lucerne pay roughly $350 in monthly water bills due to system upgrades.[35] Moreover, in the City of Fontana, residents will experience a 30.7% increase in water rates over the next three years.[36] Larger cities are not exempt from this trend; the City of San Francisco rates have risen 127% over seven years.[37] As more fully discussed in the report, differences in the geographic location, source water quality, regulatory oversight, and socioeconomic profile of systems drive variation in rates across water systems in California.

#3- Comparable programs exist in other sectors

Another justification for the creation of a W-LIRA in California is that statewide programs already operate to subsidize other essential services at the household level. As discussed in more detail in Appendix C, robust, relatively-longstanding mandated programs at the federal and state levels subsidize the

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[31] Hoover, et al., 2017

[32] Gregory, Ted; Reyes, Cecilia; O'Connell, Patrick M.; and Caputo, Angela; Same Lake, Unequal Rates: Why our water rates are surging – and why black and poor suburbs pay more. (October 25, 2017). Chicago Tribune, Available at http://graphics.chicagotribune.com/news/lake-michigan-drinking-water-rates/index.html; Jordi Honey-Rosés, David Gill, Claudio Pareja (March 2016), British Columbia Municipal Water Survey 2016.

[33] For instance, see the analysis of retail price variation for 18 CCF in Los Angeles County in DeShazo, J.R.; Pierce, Gregory; and McCann, Henry. "Los Angeles County Community Water Systems Atlas and Policy Guide: Supply Vulnerabilities, At-Risk Populations, Conservation Opportunities, Pricing Policies, and Customer Assistance Programs." UCLA: Luskin Center for Innovation.

[34] Public comment made by Cantua Creek resident at the AB 401 Public Meeting. (2017). Fresno, CA. Additional information available at: http://www.co.fresno.ca.us/home/showdocument?id=5925.

[35] Dilling, Audrey. "Why This California Town's Water Costs Way More Than the National Average." (2017). *KQED News*.

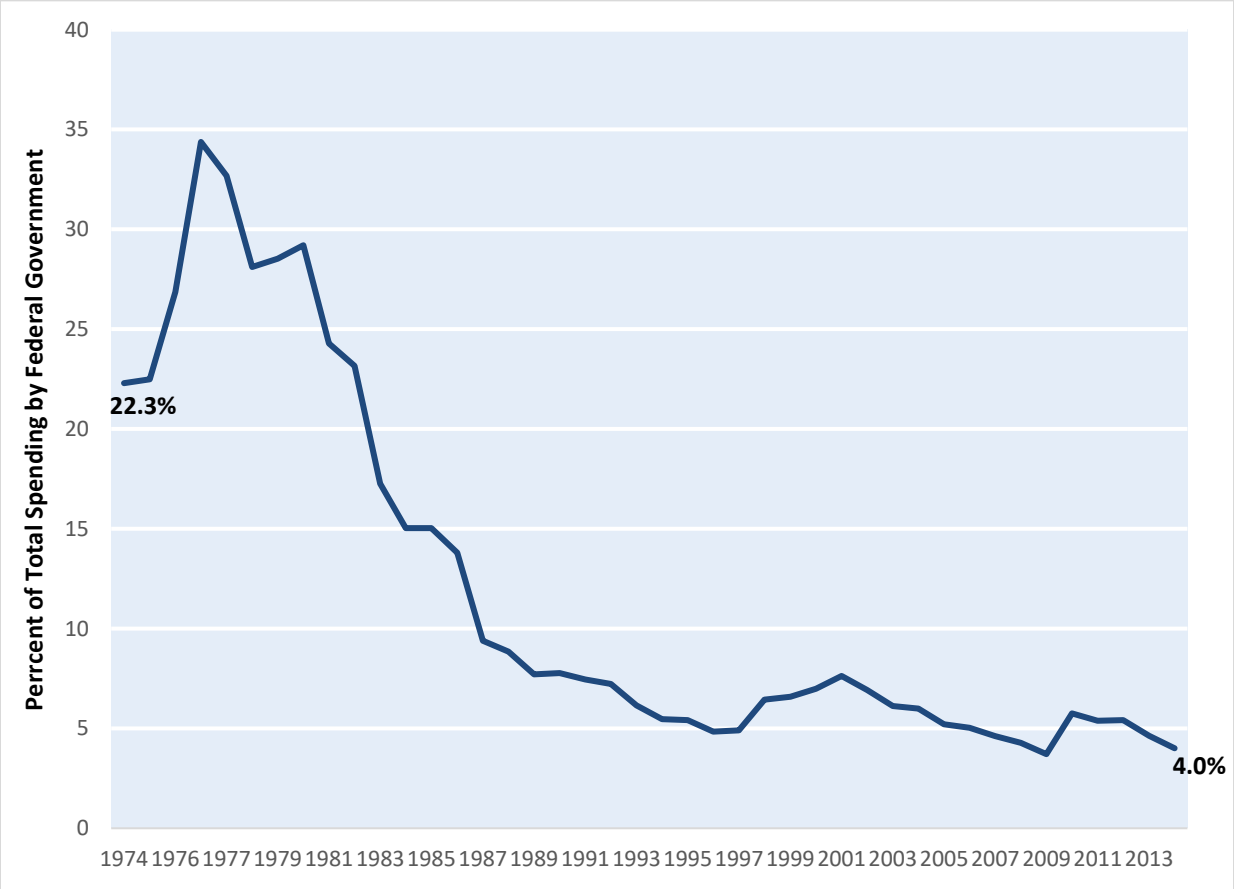
[36] "Water Rates for Fontana Water Company Customers Will Go Up 30.7 Percent, CPU Says." (2017). *Fontana Herald News*. Available at: https://www.fontanaheraldnews.com/news/water-rates-for-fontana-water-company-customers-will-go-up/article_af2cb0e4-6d97-11e7-a4e0-eb5fe175579c.html

[37] The Price of Water: Water Rates Dashboard-San Francisco. (2017). *Circle of Blue*. Available at http://www.circleofblue.org/waterpricing/.

affordability of basic energy and telephone services for low-income households who apply and are eligible.[38]

By contrast, no state or federal programs provide affordability assistance directly to households for drinking water services. Similarly, the relative role of federal financial support for water utilities nation-wide has fallen since the mid-1970s, as compared to local and state government financial support for water utilities. Figure 6 shows that the federal government supported over 30% of total spending on water utility infrastructure through the 1970s, but less than 5% by 2014.[39]

Figure 6. The Percent of Total Public Infrastructure Spending on Water Utilities by the Federal Government (1974-2014)



Similarly, nationwide, programs addressing water affordability have traditionally been left up to individual CWS. This holds true in California except for large investor-owned utility systems, which are regulated by the California Public Utilities Commission (CPUC) to provide LIRA programs.

The State Water Board estimates that approximately 46% of the entire Californian population is served by a water system offering some type of rate assistance. Unfortunately, however, the presence of a rate

[39] See the Congressional Budget Office's March 2015 report *Public Spending on Transportation and Water Infrastructure, 1956 to 2014*, which contains detailed data of public spending on transportation and water infrastructure at local, state, and federal levels.

assistance program does not mean that the program adequately addresses the affordability need experienced by the system's population. The biggest obstacle faced by existing programs is their limited extent and inability to support those households that are most in need, because many low-income households do not pay a water bill directly, and because the existing programs have low enrollment levels and provide insufficient support. In addition, except for the investor-owned water systems, these existing rate assistance programs are funded by non-rate revenues to comply with Proposition 218, and therefore their funding is insufficient to provide benefits to all eligible households in their jurisdiction. Table 2 shows annual rate assistance programs expenditure data for drinking water systems serving 31% of the state's population in 2015. These systems all offered rate assistance programs and were most likely to have high enrollment rates as compared to other water systems.

Table 2. W-**LIRA Program Expenditure for Sample Water Systems in California (2015)**

Water Systems	Percent of State's Population Served by System	Amount spent on low-income rate assistance in 2015
Los Angeles Department of Water and Power (LADWP)	10%	$26 million
CPUC Private Water Systems	14%	$27 million
24 Other Large Urban Public Water Suppliers	7%	$4.2 million
TOTAL	31%	$57.2 million

Sources: LADWP and CPUC financial reports, and a survey of municipal systems conducted directly by the Board

#4: The limitations of standalone system rate assistance *programs*

The final justification for a W-LIRA program is the fact that many individual water systems in California economically cannot support a rate assistance program on their own. Although there are about 3,000 CWS operating in California, over 80% of the population is served by the 400 largest systems. While the most intuitive solution would seem to be to allow or enable the 3,000 individual CWS to operate their own standalone rate assistance programs for their customer base, the Board's research shows that individual CWS would bear vastly different cost burdens to provide assistance to eligible customers. Ultimately, this means that customers ineligible for assistance in one system (i.e., higher-income customers) might pay much more to support affordability for eligible customers in their system than ineligible customers would in another system. Although most of the systems with the highest eligibility burdens are classified as small or very small, more than 22% of systems throughout the state would have eligibility burdens of more than 50% of their residential customers.

On the other hand, large, more sophisticated systems also see high eligibility rates. Figure 2 illustrates that even among some systems which serve 3,000 or more customers, imposing a requirement to run a standalone rate assistance program would likely cause outsized affordability burdens as well. To operate a W-LIRA program in these systems, outsized cost burdens would need to be passed on to ineligible households within each CWS. Even if a CWS were willing to raise revenue for a rate assistance program in this way, it could face legal challenges from ratepayers arguing that the system's use of water rate revenues for rate assistance program benefits may be subject to Proposition 218. The likely result of encouraging or mandating affordability assistance in systems with high eligibility burdens would be that a sizeable number of CWS would simply not be able to operate a sustainable rate assistance program that would meet the goals envisioned by the Human Right to Water and the Low-Income Water Rate

Assistance Act. Given the challenges facing the many water systems with high eligibility burdens, a W-LIRA appears more feasible to address the statewide mandate of the Human Right to Water.

Chapter 2: Program Design Scenarios: Eligibility, Benefit Level, and Total Program Cost

This chapter proposes a W-LIRA program scenario, with a focus on three key elements in the program design. *Eligibility* is defined as the number of program-qualifying households based on socioeconomic criteria. *Benefit* is the type and dollar amount of annual financial assistance received by an eligible household. *Estimated annual program cost* is equal to the number of eligible households multiplied by the household benefit per household and adjusted for expected enrollment (which decreases total costs) and administrative costs (which increases total costs). Table 4 shows a basic example program scenario cost calculation incorporating each of these three program design elements.

Table 4. Example W-LIRA Program Scenario Calculation

Eligibility	Estimated Number of Eligible Households	1,000
Benefit	Theoretical Benefit per Household	$100
	Maximum Total Benefits to be Distributed	$100,000
Annual Cost	Accounting for Expected Enrollment Level*	$84,000
	Estimated Annual Program Operating Cost**	**$92,400**

*This enrollment value mirrors the California Alternative Rates for Energy (CARE) program's enrollment level 84%, as explained in Chapter 4.
** Assuming 10% administrative costs to operate the program, as explained in Chapter 4.

Appendix E discusses the advantages and disadvantages of several alternative program designs with different eligibility and benefit criteria (and thus total costs) to the proposed scenario which were fully considered in the process of plan development and stakeholder engagement. Using the data and methods described in Appendix B, more than 70 program scenarios were evaluated and empirically estimated over the past three years.

The proposed program scenario would offer three-tiered benefit levels to all eligible residential households in the state, as described in Assembly Bill (AB) 401. In the context of a statewide water assistance program, there is no administratively feasible way to provide an individual percentage discount on each household level consumption,[40] unless there are verified data on household consumption reported to the program administrator of the assistance program.[41] Therefore, this scenario would provide a benefit based on the cost of consuming 12 CCF as described below:

Tier 1: 20% discount to all households that have incomes below 200% of the federal poverty level (FPL) in water systems where monthly water expenditures (at 12 CCF) are below $90,

Tier 2: 35% discount to all households that have incomes below 200% of the FPL in water systems where monthly water expenditures (at 12 CCF) are between $90 and $120, and

[40] This is how the four large energy investor-owned utilities operate the California Alternative Rates for Energy (CARE) program.
[41] While this could be achieved via a data transfer process for some systems, the per household consumption-based bill discounts would prove administratively costly to implement across all water systems which either do not meter consumption, have different billing periods, or do not have fully digitized administrative operations (see Chapter 4 for more discussion of this challenge).

Tier 3: 50% discount to all households that have incomes below 200% of the FPL in water systems where monthly water costs (at 12 CCF) are above $120.

The estimated total annual cost of such a program, and thus the annual revenue target for program operation, in its first year is $606.4 million. Changes to the proportion of the state's households eligible for the program (those with incomes under 200% of the FPL) could raise or lower the cost of the program. Moreover, the annual cost of the program would rise if residential water rates at the 12 CCF consumption level continue to increase.

Proposed Program Scenario Factors

Eligibility: Baseline eligibility as 200% of the FPL

Most assistance scenarios used in the Board's analysis have a common eligibility criteria of household income equal to or below 200% of the FPL. There are several reasons for the establishment of this common eligibility criteria. Firstly, 200% of the FPL is explicitly defined as the "low-income" criterion in the AB 401 legislation text. Secondly, this eligibility criterion is inclusive: more than one-third of the state's households have incomes at or below 200% of the FPL. Thirdly, 200% of the FPL is a commonly-used criterion by other Low-Income Assistance Programs (LIRA) and social benefit programs (most notably CARE) in California. Use of 200% of the FPL has a clear precedent and allows for potential administrative cost efficiencies between eligibility for other programs and the new W-LIRA program.

Benefit Type: Percentage of total bill benefit

Water systems across the state charge vastly different total dollar amounts for the same volume of water consumed (i.e. 12 CCF), even within the same customer class (residential customers using the same sized pipe). Since all water systems— except those regulated by the CPUC— have discretion over rate design and levels consistent with cost of service requirements, there is wide variability in rate structure design, as further discussed in Chapter 1. (Chapter 1 also explains why some systems face much higher source water costs than others). Consequently, the Board faced the challenge of developing proposals for providing eligible households with equitable benefits based on a certain component of the bill.

Given the complexity in rate structures, a benefit assigned as a percentage of a residential bill at a specified consumption level (including all fixed and variable costs but excluding other non-water service related to charges and fees) is likely to be more equitable than a flat benefit discount, or a discount to a certain component of the bill. To illustrate this point, an example of the affordability support experienced by households served by different community water systems with different rate levels and structures (but the same consumption level, 12 CCF) is shown in Table 6 below.

Three Tier Structure

The tiered benefit structure was developed from the average statewide water expenditure of about $60 a month for 12 CCF. Low-income households that pay more than 150% (Tier 2) and 200% (Tier 3) of the state average water bill would be eligible for a higher percentage of bill discounts structured through the Proposed Program Scenario. The tiered percentages of bill discounts were chosen with reference to those offered by CARE at 20% (Tier 1) and 35% (Tier 2), with the highest tier of 50% (Tier 3) increasing incrementally by another 15%.

The Proposed Program Scenario has the collective advantage of providing not only substantial affordability assistance to all low-income households, but also a larger benefit to those who face the

greatest drinking water cost burdens.[42] The biggest disadvantage of this program scenario is that it would require verification of rate data at the system level, and, for newly enrolling households, verification of income data, raising the cost of program administration. The Board would need to verify the cost of 12 CCF for residential customers (for Tier 2 and 3 purposes), and households not already enrolled in the CARE program would need to document their eligibility status (income).

The 20% discount is equivalent to the CARE discount for natural gas service, as well as the high end of discounts currently offered by existing low-income rate assistance programs in California. A discount of 35%, also offered to CARE customers for electricity service, helps households that face water bills exceeding the state average by more than 150% to 200% of the bill average. Finally, the 50% discount tier accounts for the small number of water systems charging more than 200% of the state average for 12 CCF water bills and has a precedent in California Water Service where 50% is the benefit level for households served in very high cost areas.[43] Following annual updates to the Board's record of drinking water costs, information used to determine eligibility and benefit would be adjusted.

Consumption: 12 CCF of water monthly

This program scenario has the advantage of providing not only substantial affordability assistance to all low-income households, but also a larger benefit to those who have the greatest drinking water cost burden. Moreover, both the eligibility criteria and the first two benefit tiers correspond to the criteria laid out by the statewide CARE program for electricity and natural gas affordability. The 12 CCF consumption level accounts for indoor use for large households or a modest amount of outdoor use. As shown in Table 5, the benefit also allows the average California household to afford above 55 gallons/person/day, the current standard for indoor set by AB 1668 (2018) and provides for some outdoor use for a family of four.

Table 5. Daily Water Use Available to a Family of Four at 12 CCF Monthly

Daily Water Use Category	Amount Allocated
Indoor Use	220 gallons (55 gallons x 4)
Outdoor Use	75 gallons
Total Use	295 gallons

12 CCF = 8977 gallons. 8977 gallons = 295 gallons × 30.42 (365/12) days in average month.

For the statewide W-LIRA program, a benefit associated with a percentage of a fixed volume like 12 CCF, would be provided regardless of whether an individual household is consuming more or less than this level. A shortcoming of this approach occurs when necessary household level consumption exceeds 12 CCF, as no additional assistance would be provided compared to what the same household would receive if its necessary consumption was lower than 12 CCF. However, as described above, the 12 CCF consumption level addresses situations where more than four people reside in a household and where households can use modest amounts of water for outdoor irrigation. An additional benefit of using a fixed consumption level is that the W-LIRA program is less exposed to risk of manipulation and does not subsidize or incentivize over-use.[44] In addition, since most low-income households do not pay a water bill

[42] While additional or alternative eligibility criteria or benefit tiers might allow for more refined targeting, going beyond the complexity of the primary scenario would be extraordinarily difficult for a statewide program.
[43] Available at: https://www.calwater.com/docs/rates/rates_tariffs/all/20180101-Low-Income_Ratepayer_Assistance_-_Schedule_LIRA.pdf.
[44] On the other hand, using a benefit calculation which is untied to consumption but is set based on the

directly, there is no way to determine their water use, and providing them with benefits requires a uniform approach such as using a fixed consumption level (e.g. 12 CCF) for calculating a benefit level.

To illustrate how a benefit based on a fixed consumption level would work, an example comparing two eligible low-income households is shown below in Table 6. The two households are served by the same community water system but have different consumption levels. The monthly water bill for 12 CCF in this system is $60, and thus the benefit distributed to each household will be $12 (20% of $60). Therefore, when allotting a percent discount to 12 CCF in the various billing tiers, households receive a positive conservation signal to the households that are able to consume less water, while reducing their water bill simultaneously.

Table 6. Illustration of Benefit for Fixed Volume Provided to Households with Different Water Consumption Levels

	Household A	Household B
Water Consumption Level	12 CCF	6 CCF
Initial Monthly Water Bill Amount	$ 60	$ 40
Monthly Benefit Received	$ 12	$ 12
Remainder of Bill to be paid by Household	**$ 48**	**$ 28**

Another reason that 12 CCF was chosen as the primary option for analysis is due to access to robust real data at that consumption level. As described in Appendix B, the independent analysis for this report was undertaken using self-reported, system-level expenditure at three consumption levels: 6, 12, and 24 CCF. Both 6 CCF and 24 CCF were also considered but not evaluated. In light of the state's water conservation priorities and public health goals, 24 CCF was considered too high of a level to subsidize. Conversely, 6 CCF was generally considered too low of a level of supply to support households, considering that many low-income households are larger than the state average.[45] Some organizations have provided a recommendation that the Board use a lower consumption level, such as 9 CCF, which more closely tracks basic indoor use.[46] The Board notes that besides the above stated reasons for using 12 CCF, the fundamental question relates to a value judgment about the types of uses and activities that should be subsidized. In the electric sector, the CARE program provides discounts for use up to 400% of the "baseline," demonstrating a willingness to subsidize consumption over basic levels.[47]

rate set by the system for a consumption level is potentially open to manipulation by systems via rate setting. Systems could respond to a W-LIRA program by shifting the rate burden to consumption levels below 12 CCF, and thus elevate the benefit for eligible households. This type of strategic rate setting would harm a system's non-eligible households who consume less than 12 CCF of water and dampen the conservation signal to all households, and thus the net incentive to a given system to alter rates is unclear. In stakeholder meetings, water system representatives have also stated that they would not or could not practically engage in this type of strategic rate setting. If the W-LIRA program is established, the Board will monitor this potential for rate setting response to the program going forward.

[45] Using 2016 American Community Survey data, the average household under 225% of the FPL in California has 10% more members than the average household above 225% of the FPL.

[46] See for example, the Association of California Water Agencies comment letters.

[47] See Public Utilities Code Section 739.1 h(i)(1).

Enrollment and Administrative Cost Assumptions

To calculate the annual program cost for any W-LIRA scenario, the plan assumes an 84% enrollment of program-eligible households. This is the enrollment rate achieved by the CARE program, and is the highest enrollment rate observed among state or federal benefit programs. The plan also assumes an additional 10% administrative (or overhead) cost above the dollar value of benefits directly distributed to households for a statewide W-LIRA program. Accessing comparable data or calculating exact administrative cost burden, even for large state and federal benefit programs, is not straightforward. While some existing Board programs have lower overhead rates than 10%, most state or federal benefit programs have higher rates. Moreover, there are substantive start-up costs, including data management, marketing and outreach, billing system adjustments, and fund management that will require higher initial administrative costs and that will vary depending on the selected program option.

Around 34% of the state's households would be income-eligible for this program. Of this 34%, only a small proportion of households will be eligible for the higher tier benefits, 2% and <1% for Tiers 2 and 3 respectively. Building on these high-end estimates for eligibility and enrollment, the Board calculates the initial total annual cost of such a program, and thus the revenue target for program operation, to be $606.4 million annually.[48]

Table 7. Primary Scenario Breakdown of Eligibility and Cost by Tier

Tier Criterion (Cumulative) 200% FPL	Tier 1 Paying up to $90	Tier 2 Paying at $90-$120	Tier 3 Paying Above $120	Total
Estimated Number of Eligible Households*	4,045,564	198,040	106,041	4,349,645
Benefit Level per Household	20% of Water Bill	35% of Water Bill	50% of Water Bill	
Maximum Total Benefits to be Distributed	$ 493.9	$82.6	$79.8	$656.3
Accounting for an Expected Enrollment of 84%**	$414.9	$69.4	$67.0	$551.3
Total Program Operating Costs (in millions)***	$456.40	$76.3	$73.7	$606.4

*Accounting for all households in the state (including those not captured by the Board's 2015 rate data (2%) and those not served by CWS (6%)).

**This enrollment value reflects of CARE's enrollment estimation of 84%.

*** Assuming 10% administrative costs to operate this program.

[48] This figure is generated based on a $656.3 million annual program cost at 100% enrollment. At a more feasible 84% enrollment target with 10% administrative overhead, the total cost is $606.4 million.

Chapter 3: Revenue Collection Options

This chapter focuses on how a W-LIRA could be independently and sustainably financed through new revenue collection options. A range of options to finance the program were considered, including taxes on high personal income earners or businesses via the state income tax system, bottled water taxes, surcharges on non-eligible households' water bills, and other revenue sources (see Appendix G). The broad advantages and disadvantages of each potential revenue source are also discussed in Appendix G. The Board recommends that revenue sources be progressive (see Text Box 2) to avoid imposing additional financial burdens on low-income households. Examples of progressive state taxes include Proposition 63 (2004), the Mental Health Services (MHS) Act and Proposition 39 (2012) also known as the California Clean Energy and Jobs Act.[49] The MHS Act imposed a 1% special tax on personal taxable income in excess of $1 million to fund MHS.[50] Prop 39 closed tax loopholes for out-of-state corporations.[51]

Text Box 2: Defining Progressive Revenue Sources

> Generally, progressive revenue sources include taxes on income, capital gains, and property. Other taxes, such as sales and excise (production) taxes on certain goods impact economically disadvantaged populations to the extent that they consume these goods and depending on whether the goods or services being taxed are easily substitutable. For example, taxes on food are regressive because everyone needs to eat and there are no substitutes for food. Taxes on luxury goods, on the other hand, generally do not impact low-income households because they are less likely to purchase those goods.

While a personal income tax similar to Prop 63 and Prop 39 would generate significant revenues, additional funding would be needed to support a W-LIRA program as outlined in this document. Table 8 (below) describes a combination of revenue sources to fund a W-LIRA program as detailed in Chapter 2 scenario. A quarter percent tax increase on personal income above $1 million, combined with sales tax revenues from bottled water sales is estimated to generate $ 619.6 million. [52]

Table 8: Potential Revenue Sources Scenario

Source	Revenue Estimate
Personal income tax	$466 million*
Bottled water sales tax	$153.6 million*
Total	$619.6 million

* Estimate for income tax is based on 2017 tax receipts. Estimate for bottled water sales tax is based on California Department of Tax and Finance Administration estimate for fiscal year 2022-2023, which would be the first full year of tax collection for an initiative passed on the 2020 ballot.

[49] California Department of Education Website. California Clean Energy Jobs Act (Proposition 39). Available at: https://www.cde.ca.gov/ls/fa/ce/.
[50] 2004 Cal. Legis. Serv. Prop. 63; CAL. REV. & TAX CODE §§17043(a), 19602.5.
[51] Available at: https://lao.ca.gov/ballot/2012/39_11_2012.aspx.
[52] This figure is generated based on a $656.3 million annual program cost at 100% enrollment. At a more attainable 84% enrollment target with 10% administrative overhead, the total cost is $606.4 million.

The Board notes that the feasibility of passing any new tax or fee for this purpose, as required by Proposition 26[53], would require a supermajority vote in the state Legislature to come into effect. Additionally, the bottled water sales tax would require a ballot referendum.

The Board invites input on feasible and sustainable revenue sources for a W-LIRA program.

[53] Proposition 26 was passed in 2010 requiring a supermajority vote of the Legislature to pass fees, levies, charges and taxes.

Chapter 4: Options for Benefit Distribution and Administrative Features of a Statewide Low-Income Ratepayer Assistance Program

Administrative considerations

The administrative mechanics of a W-LIRA would be vastly different depending on the method of the benefit delivery model (energy utility bill credit vs. tax credit vs. Electronic Benefits Transfer (EBT)). For a benefit delivered via the electric or gas bill, the CPUC and the Board would have administrative and oversight responsibilities, while the electric utilities (both publicly-owned and investor-owned) would be responsible for implementation to low-income customers. For a tax credit, the California Franchise Tax Board (FTB) would be responsible for implementation. In an EBT scenario, counties would have the bulk of the implementation and management responsibilities while the California Department of Social Services would likely have oversight responsibilities. Regardless of program design, revenue collection would be handled by the FTB and Department of Tax and Fee Administration (formally known as the Board of Equalization) depending on the revenue sources used for the program.

The administrative and management needs under any program design include tracking and delivering benefits, marketing, education, outreach, fund management, and designing and evaluating metrics for program effectiveness. The administrative costs would differ, however, between the program designs. For a tax credit, tax forms (and tax preparation software) would have to be modified. Under a community water system benefit distribution program, the system would be responsible for delivering benefits via bills, which would entail modifications to billing systems (and would have the previously-discussed other drawbacks). For an electric or gas program, the utilities would also require new accounting procedures to track W-LIRA funds apart from ratepayer contributions. For a benefit delivered via the California Department of Social Services' CalFresh program, counties would need new procedures to ensure each CalFresh recipient's EBT card was loaded with the appropriate dollar value. In independent EBT programs, a new set of administrative procedures, personnel, and information technology resources would be necessary.

The section below describes the challenges associated with each of the program scenarios. This is not meant to be an exhaustive list (see Appendix F for more detail), but rather provides additional factors that merit consideration in selecting a preferred program design.

The Board welcomes input on program design and administrative elements that should be included in the final report.

Benefit distribution via electric or gas bills

There are 65 electric and gas utilities in the state and each would need to modify its billing system to add the monthly W-LIRA credit. In addition, each utility would need to bill the state for its expenditures for delivering the W-LIRA credit along with applicable administrative costs. Those costs might include training for customer service personnel about the W-LIRA program, modifications to marketing, and education, and outreach programs. The utilities would have to work closely with the State Water Board to provide the appropriate benefit to each customer based upon water system rates and to modify benefit levels when recipients move from one water system to another within their service area. The CPUC, the State Water Board, the Legislature, and potentially the Commission on State Mandates would each have a role in determining which administrative costs and costs to maintain data privacy would be recoverable from the W-LIRA fund. In addition, some publicly-owned electric utilities would need to modify their LIRA enrollment criteria and take significant steps to increase overall enrollment levels.

Benefit distribution via CalFresh

Each of the 58 counties would need to modify its CalFresh program to incorporate the new W-LIRA benefit. They would have to work closely with the State Water Board to load the appropriate monthly benefit onto recipient EBT cards based upon water system rates and modify benefit levels when recipients move from one water system to another within the county. As with electric utilities, the counties would also face administrative costs associated with marketing, education and outreach, and billing the state for the costs of running the program. (Even if revenues were sent directly to the counties, they would still have to develop accounting mechanisms to ensure that revenues were aligned with expenditures). Furthermore, enrollment in CalFresh is limited to citizens, and any additional federal changes to the program such as additional eligibility verification requirements could impact enrollment levels and reduce the number of households that would benefit from the W-LIRA. (See Appendix I).

Benefit distribution via a new EBT program

As described above, creating a new program to deliver monthly benefits via EBT cards would involve start-up and ongoing administrative costs, including costs to ensure data privacy, for the counties. The counties would have to work closely with the State Water Board to provide the appropriate benefit onto recipient EBT cards based upon water system rates and modify benefit levels when recipients move from one water system to another within the county. Also, while a new stand-alone program could be clearly marketed as a water benefit and be extended to all low-income households regardless of citizenship status. Data management, including confidentiality and privacy protections, would need to be addressed. (See Appendix J).

Benefit distribution via tax credits

The FTB could apply the credits on individual tax filings annually based upon whether a filer met program eligibility criteria. The FTB would have to work closely with the State Water Board to provide the appropriate benefit to each taxpayer based upon water system rates and modify benefit levels when recipients move from one water system to another within the State. The Legislature or FTB would also have to determine how to calculate a benefit for a household that moved one or more times during the year.

Benefit distribution via water bills

As with the energy utilities, each of the nearly 3,000 CWS would need to modify its billing system to add the monthly W-LIRA credit and each 3,000 CWS would need to bill the state for its expenditures for delivering the W-LIRA credit along with applicable administrative costs (not to exceed 10%). Those costs might include training for customer service personnel about the W-LIRA program, and modifications to marketing, education, and outreach programs. In addition, low-income households would have to demonstrate their eligibility to their CWS, making the CWS responsible for verifying the income eligibility and distributing the benefits authorized by the Board.

Reasons to consider providing water benefits through other programs

Many low-income households pay for water indirectly through rent because they do not have individual water meters. Estimates vary as there is no perfect source for this information, but at least 29% to as

much as 46% of households in the state do not pay a water bill directly or are master-metered.[54] Table 9 below shows how water meters are much less prevalent than electric and gas meters.

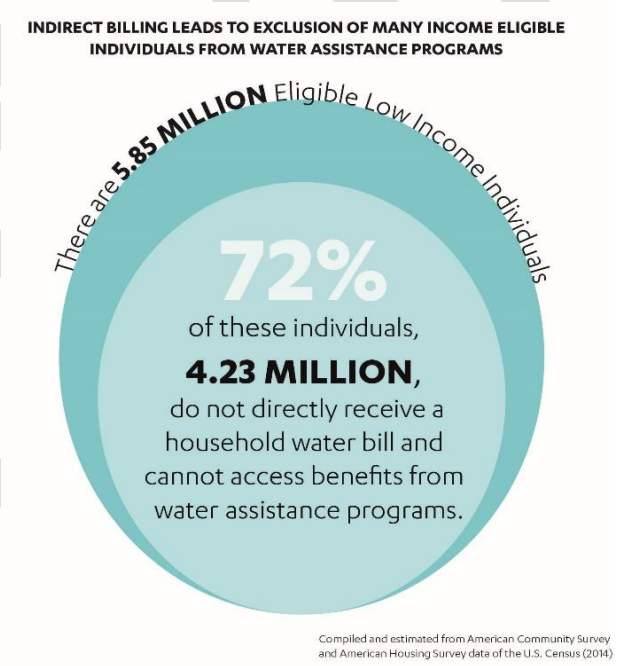
Table 9. Californian Households Reporting That They Do Not Pay a Direct Bill for Utility Service

Bill/service type	Prevalence
Water	44%
Natural Gas	13%
Electricity	5%

Source: 2015 American Housing Survey data on California sub-sample

As illustrated in Figure 8, there are households with incomes under 200% federal poverty level (FPL) and living in multi-family housing, an estimated 72% (or 1.4 million households) do not directly receive a water bill and thus cannot access benefits from water affordability assistance programs.[55] In the water sector, master-metering has effectively meant that no affordability benefit has been delivered to eligible households. [56]

Figure 8: Low-Income Households That Do Not Receive a Water Bill



[54] Varying estimates derived from 2015 Census, American Community Survey data for California, the Water Research Foundation's national 2017 report *Customer Assistance Programs for Multi-Family Residential and Other Hard-to-Reach Customers* and from the 2015 American Housing Survey to refine our assumptions of the number of master-metered accounts and the number of households each account serves.

[55] This estimate was made using data on the percentage of low-income (below 200% of FPL) tenants in different housing types who were master-metered and sub-metered from the 2015 American Housing Survey, which was then mapped onto the number of low-income households across the state derived from the from the 2010-2014 American Community Survey.

[56] While some drinking water systems maintain in their official documents that they allow income eligible master-metered households to apply for drinking water affordability programs in conjunction with their landlords, we have yet to identify a system which actually delivered a benefit to a non-metered customer.

Master-metering is particularly problematic for water affordability programs because eligible low-income households are much more likely to live in multi-unit dwellings. Each of the options discussed above and in Appendix M would allow low-income households to receive a benefit regardless of whether they pay a water bill directly or indirectly.

Conclusion

Drinking water costs have been rising much more quickly than inflation and the multitude of upward cost drivers are likely to intensify, leading to even greater water rate increases across the state. These rate increases will reduce affordability for low-income households already struggling with rising expenses for housing, food, other utilities, and other basic needs. This report offers a set of options for rate assistance programs with statewide coverage and meaningful benefit levels. These options have a significant cost, but these are costs that California can afford given our existing financial assistance to low-income households for other basic needs. The Board urges stakeholders to provide constructive feedback on this report so that the Legislature can act on water affordability.

Options for Implementation of a Statewide Low-Income Water Rate Assistance Program

APPENDICES

State Water Resources Control Board
January 3, 2019

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Appendix A: Text of Assembly Bill 401, Dodd. Low-Income Water Rate Assistance Program

The people of the State of California do enact as follows: SECTION 1. Section 189.5 is added to the Water Code, to read: 189.5. (a) This section shall be known, and may be cited, as the Low-Income Water Rate Assistance Act. (b) No later than January 1, 2018, the board, in collaboration with the State Board of Equalization and relevant stakeholders, shall develop a plan 93 for the funding and implementation of the Low-Income Water Rate Assistance Program, which shall include all of the following elements: (1) A description of the method for collecting moneys to support and implement the program, including a discussion of any constitutional restrictions on public water agency rate setting. (2) A description of the mechanism for providing funding assistance under the program through either direct credits to enrollees in the program or reimbursements to water service providers, including a method for verifying income eligibility of low-income ratepayers, clarification of the role of the Public Utilities Commission and water utilities in determining and verifying customer eligibility, and recommendations regarding the structure of the program, particularly whether it will be administered by the state or locally administered. (3) A description of the method to be used to determine the amount of moneys that may need to be collected from water ratepayers to fund the program.

The plan shall include a set of recommendations and best practices of cost-savings measures to ensure water utilities are demonstrating whether and how they are keeping rates low. This section does not authorize the imposition of a state charge to fund the program. (c) In developing the plan required in subdivision (b), the board may consider the existing rate assistance programs authorized by the Public Utilities Commission for investor-owned water utilities pursuant to Section 739.8 of the Public Utilities Code. (d) The plan may also include recommendations for other cost-effective methods of offering assistance to low-income water customers besides rate assistance, including billing alternatives, installation of water conservation devices, and leak repair. In considering other methods, the board may consider the Public Utilities Commission's "Assessment of Water Utility Low-Income Assistance Programs." (e) (1)

No later than February 1, 2018, the board shall report to the Legislature on its findings regarding the feasibility, financial stability, and desired structure of the program, including any recommendations for legislative action that may need to be taken. (2) The requirement for submitting a report imposed under this subdivision is inoperative on February 1, 2022, pursuant to Section 10231.5 of the Government Code. (3) A report to be submitted pursuant to this subdivision shall be submitted in compliance with Section 9795 of the Government Code. (f)

For purposes of this section, the following terms have the following meanings:
(1) "Board" means the State Water Resources Control Board.
(2) "Low-income" means a household with income that is equal to or no greater than 200 percent of the federal poverty guideline level. For one-person households, program eligibility shall be based on two-person household guideline levels.
(3) "Program" means the Low-Income Water Rate Assistance Program.

Appendix B: Summary of Public Input Process and Methodology for Program Scenario Analysis

This appendix outlines the public input and stakeholder engagement process which the State Water Resources Control Board (Board) facilitated to inform plan development, as well as a summary of the data collection and methodology used for program scenario analysis. The program scenario analysis is summarized in Chapter 2 but is also featured throughout the report. The data sources used to inform discussion of benefit delivery options are detailed in Chapter 4 and details of revenue collection are detailed in Chapter 3.

Public Input and Stakeholder Engagement Processes

During the development of this proposed plan the Board has provided an opportunity to incorporate community and stakeholder voices. A formal process to facilitate public and expert input began in 2016. As of October 2018, there have been numerous opportunities for public comment, including 17 public events consisting of community meetings, workshops, and symposiums that allowed for remote and in-person participation. To date, the public process engaged at least 1,380 participants and generated 72 public comment letters. Moreover, an invited group of expert stakeholders from water associations; water systems; environmental justice advocacy groups; and food, energy and housing assistance programs convened twice to provide targeted input.

The first round of formal public meetings were held at five locations across the state, from October 12, 2016 - November 9, 2016, including a conference call held on November 16, 2016. On February 8, 2017 there was a State Water Board workshop to receive public comment on cost estimates for safe and affordable water. The second round of public meetings were held in seven locations across the state from June 7, 2017 - August 14, 2017, which included online participation during two of those meetings: July 10, 2017 and August 14, 2017. In addition, there were two joint workshops hosted in conjunction with the California Public Utilities Commission held on August 17, 2017 and November 13, 2017 to discuss safe and affordable drinking water through consolidation of water systems. On April 5, 2018 a Water Affordability Symposium was held in Sacramento and webcasted to more than 400 participants. The 17 public meetings provided the Board with thoughtful recommendations for this report.

All meeting notices and agendas were distributed electronically through the Board's Water Affordability listserve and posted on the Board's website in English and Spanish. Informational items such as a summary of meeting input, presentation materials, public comments, videos (when applicable), and other public process items about AB 401 and the plan, are also available on the Board's website at "Water Conservation Portal - Low-Income Water Rate Assistance Program." Input on this report will be solicited through a noticed public comment period.

Overview of Data and Methods

Data were derived from several sources to support the proposed plan's state-wide program design options (discussed in Chapter 2). This research provides the evidence base for the options and recommendations in the report. The four key categories of data informing the analysis were:

1) the spatial boundaries of community water systems (CWS),
2) other characteristics of CWS,
3) socio-economic data characterizing the state's residents, and
4) retail drinking water rates paid by the state's residents.

Wherever possible, we cite the raw data source and explain the method used to obtain and process it in the broader analysis. Only the rate data estimated for a small proportion of the state's population is not included here.

Community Water System Boundaries

The raw geographical boundaries of CWS were obtained in Geographic Information System (GIS) shapefile format from the California Environmental Health Tracking Program (CEHTP) maintained by the California Department of Public Health. The CEHTP compilation represents by far the most comprehensive set of boundaries available for the state. The CEHTP database was originally compiled with the assistance of University of California, Davis' Information Center for the Environment in 2012.[1] Individual boundaries within the shapefile are crowd-sourced, presumably mostly by individual water system staff, and the aggregate file is updated by CEHTP staff as often as possible.[2]

We downloaded the most recent version of this dataset in March 2016. At the time, this dataset only contained boundaries for approximately 50% of approximately 3,000 active CWS in the state, when compared to the list of active systems maintained by the Board's Drinking Water Watch Database (2016). However, in 2018, the CEHTP compilation of systems for which boundaries are available serve approximately 92% of the state's population, and this collection of boundaries is by far the most comprehensive source in the state.[3]

Because of errors or inaccuracies introduced by those drawing shapefile boundaries, approximately half of the drinking water systems showed overlapping boundaries when in fact they are spatially discrete. However, most of these overlaps were very small in spatial extent. We took several steps to remedy this problem using the ArcGIS software program. First, we manually reviewed systems and excluded those with overlapping boundaries which were pure wholesale systems that were originally mis-classified in the database as CWS).[4] Second, for those remaining overlaps, we evaluated several potential rectification methods. We ultimately decided to employ a similar method as used by the Office of Environmental Health Hazard Assessment in their determination of discrete system boundaries for the purpose of their CalEnviroScreen 2.0 (2014) — namely, to default to keeping the boundaries of the smallest system in any overlapping set of boundaries under the assumption that smaller system boundaries were more likely to be accurate. We subsequently reviewed the results of this procedure and found it to be reliable in resolving individual boundary discrepancies. Using this method allowed us to create a set of non-overlapping boundaries for all systems in the shapefile.

To account for the remaining 8% of residents served by the systems for which we do not have complete, reliable boundaries, we obtained a single, reliable address for each system from the from the Safe Drinking Water Information System's Drinking Water Watch from the Board's website and matched it to block group characteristics available in the American Community Survey (ACS), as further described below.

Publicly-Available System-Level Data

As described above, a list of active CWS at any given point in time can be obtained from the Board's Drinking Water Watch website. We obtained a version of this list in March 2016.[5] This database maintained by the Board provides basic information such as the California public water system number, water system name, type of public water system, system status (active or inactive), principal county served, and primary source water type. Additional information about the water system, such as its administrative contact information and address, as well as a link to its consumer confidence report can also be found within each "water system detail" page. One can also obtain basic information about the

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[1] ICE, 2012.
[2] Meltzer, 2016.
[3] In Washington, the state administrative code requires water companies to maintain a current map of its system and submit the map to the Public Utilities Commission for review within five business days of a request (WAC 480-110-261). These maps are not available on their website.
[4] Full technical details of this coding procedure in GIS are available upon request.
[5] We note that more commonly- federal EPA databases of California CWS have missing data gaps as compared to the Board's database.

primary source type[6] for each system and whether the system is served by a wholesaler. From this database, we identified 2,950 active CWS operating in California in March 2016.

Governance type of each was coded manually using keyword identification from system names given in the database. Based on the water system name, they were classified into one of five categories. The value "0" identified a city or municipally-run water system – which typically contains keywords "City of" or "municipal" in its water system name. The value "1" represented private water systems – these systems often have "company" in their name. This category also included mobile home parks and trailer parks. Non-municipal but public agencies, such as county water districts, irrigation districts, public utility districts, were coded as governance type "2." Mutual water companies were identified when the water system names contain keywords "mutual" or "MWC" and were coded as governance type "3." Other types of CWS were identified in a separate category "4." To the extent possible, community water systems which would not be included in any W-LIRA scenarios— including universities, prisons, and other public facilities which house residential populations but whose residents do not directly pay for water service— were omitted on the basis of their name from the analysis.

For the revenue option of fees from drinking water accounts, we needed estimates of the number of connections by customer class or pipe size serviced by each drinking water system. As the Board does not currently maintain such a database, we developed an estimate using the Board's Wastewater User Charge Survey 2016-2017. This survey contains a recent tally of wastewater connections by customer class (single family, multi family, industrial, commercial, and institutional) across California. We expect most users with drinking water connections to also have wastewater connections (with the exception of those practicing on-site wastewater treatment). To validate this dataset, we examined the ACS count for the number of single-family households against the wastewater survey's number of single-family wastewater connections. The two showed a strong correlation giving us confidence in the validity of the wastewater survey estimates. To maintain consistency with several other aspects of the analysis, we chose to utilized the ACS data when available and the wastewater survey data to supplement.

Moreover, we compared these estimates to estimates of the number of service connections by pipe size across California provided by an independent consultant.

Socioeconomic Status Data

Data on the socioeconomic status of the state's residents were obtained from the 2010-2014 ACS, published by the U.S. Census Bureau and available to the general public. The ACS, while not a true census of the population, is by far the most contemporary and comprehensive survey of socioeconomic characteristics available for classifying communities. This dataset is available throughout the state and is based on characteristics collected during the decennial census.

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[6] The Drinking Water Watch database classifies each system according to one of the following primary sources:
GU - Groundwater under the direct influence (UDI) Surface Water – System that has a source that provides water under the direct influence of surface water (e.g., unprotected well or springs) and no surface water sources.
GUP - Purchased Groundwater UDI Surface Water – System that purchases water that originates from source that provides water under the direct influence of surface water and no surface water sources.
GW - Groundwater – System that has a groundwater source that is not under the direct influence of surface water (e.g., protected wells) and no surface water or groundwater under the influence of surface water sources.
GWP - Purchased Groundwater – System that purchases water that originates from a groundwater source that is not under the direct influence of surface water and no surface water or groundwater under the influence of surface water sources.
SW - Surface Water – System that has a surface source (e.g., river, reservoir, intake).
SWP - Purchased Surface Water – System that purchases water that originates from a surface source.

We collected ACS data at the scale of the block group, of which there are 23,212 in California. This is the smallest geographical scale available, which allowed us to collect the full range of socioeconomic characteristics that were considered in the analysis. Some of the variables we collected at the block group scale were the population (density), bracketed household income distributions, median household income, poverty status, race/ethnicity, as well as housing unit structure type, age, and tenure status of each block group.

Determining Alternative Poverty Status Thresholds

Block group data from the U.S. Census Bureau's ACS does not allow us to independently calculate the percent of households below the California Department of Human Health and Services federal poverty guideline[7] based on a cross-tabulation of their income level and household size. Instead, we must rely on a calculation by the ACS itself of the percent of households below various cut points— 100% and 200% of the federal poverty level (FPL)— across the entire state.[8] The ACS does provide a direct estimate of the persons below each of these thresholds, which we apply as a ratio to the total number of households in each system to find the proportion of household within each threshold. In order to alternatively estimate the households below 150% of the FPL in each system, we take the known number of persons[9] between 100% and 200% of the FPL and linearly interpolate between the two.[10]

Retail Drinking Water Expenditure Data

The Board obtained retail pricing data obtained directly from large community water systems via an electronic survey embedded in their annual reports to the Division of Drinking Water in 2015. A total of 705 systems participated in the survey and answered a range of questions regarding their billing cycles, retail pricing levels for different customer classes, retail pricing structures, expenditure data at three residential consumption levels (6, 12, and 24 CCF), low-income assistance offerings, aggregate water deliveries and conservation efforts.

For our analysis, we used the system-level data on rate structure for the single-family residential customer class, expenditure levels for consumption (particularly the average expenditure for the 12 CCF level of consumption) and the offering of low-income assistance. However, only 478 systems reported full, useable data. These systems served approximately 80% of the state's total population in 2015. The consistency of the Board's rate data was compared for consistency to other rate data collected and analyzed for all available systems in Los Angeles County in 2014-2015,[11] a sample of small system rate data across the state, and a proprietary database of 2015 retail rates for 900+ systems. Contrary to expectations and those of other experts surveyed, variation in system size was not shown to correlate to variation in expenditures and was not observed to have a clear trend in other independent rate data we

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[7] For instance, see Federal Register (2016). "Annual Update of the HHS Poverty Guidelines." Volume 81, No. 15.

[8] The ACS calculation of the FPL is slightly different than the DHHS poverty line estimate, as it also accounts for age of householder if the household size is two or less, and for the number of children under the age of 18 within a household (U.S. Census, 2015). However, the result of the two calculations is practically identical.

[9] Converting persons to households directly (via the average household size per system) for each system does not lead to as reliable of an estimate of the percent of households in poverty as the method we employ.

[10] We are confident in this method for at least two reasons. First, the estimates of households below the poverty line between 100-200% of the FPL are nearly identical to the percentages of California's households under these two thresholds as reported in the 2011 American Housing Survey, which has by far the largest sample (n=26,919) of households for which we can calculate poverty status outside of the ACS itself. Moreover, the within-system correlation between our household estimates and the ACS person estimates for each of these thresholds is nearly unity (R^2=0.999), so any small discrepancy between our estimates and the real system averages is consistent across systems.

[11] In a separate research effort.

examined. Conseqently, in the interest of parsimony, system size was not included in subsequent estimation models.

In order to model both potential eligibility criteria (affordability) and benefit designs (subsidizing the percentage of cost) for all low-income households, we used the data from the 478 systems to model expenditures for the remaining CWS, which serve the other 20% of the state's population. Using these rate estimates[12], total program cost estimates were developed. As described further below, the statistical models suggest that the estimates are reasonable.

System Expenditure Data: Comparison of Three Estimation Methods

To assess the best fit, three expenditure imputation models were built and the results were compared: an unrestricted least absolute shrinkage and selection operator (LASSO) model, a restricted LASSO, and a reduced form model based on previous research. Construction of the reduced form model relied on the factors (independent variables) found to be significant in the few previous studies which explain price variation across drinking water systems in the U.S. and internationally. The result of similar average expenditures derived from each of the models lend confidence that the results are relatively robust. The restricted LASSO yields reasonable average expenditure estimates and addresses the problem of negative expenditure predictions and predictions of decreasing expenditure trends[13] as consumption increases. However, Table 1 suggests that the range of predictions yielded by the restricted LASSO model is insufficiently narrow compared to the range of expenditures observed across actual systems.

Table 1. Comparison of Expenditure Data Per Residential Connection to Estimates

Modeling Approach	Average 6 CCF Expenditure (Std. Dev.)	Average 12 CCF Expenditure (Std. Dev.)	Average 24 CCF Expenditure (Std. Dev.)
Board data (self-reported)	$37.67 ($20.32)	$54.95 ($30.06)	$95.20 ($59.81)
Reduced form	$38.02 ($8.33)	$55.32($16.09)	$95.33 ($34.88)
Unrestricted LASSO	$34.68 ($8.16)	$52.52 ($14.81)	$94.67 ($31.76)
Restricted LASSO	$37.34 ($2.02)	$55.29 ($2.05)	$93.67 ($2.89)

Between the unrestricted LASSO and the reduced form model, the results of the reduced form model were chosen due to its mild advantages over the unrestricted LASSO in average expenditure and range prediction levels, and due its outsized advantages in parsimony and readability among a range of audiences.

Modeling Factors and Outcomes

Table 2. Reduced form, ordinary least squares regression (OLS) model expenditure results at three consumption levels

VARIABLES	(1) Bill 6 CCF	(2) Bill 12 CCF	(3) Bill 24 CCF

[12] Depending on the source, between 92-94% of the state's population.
[13] No negative estimates are observed in any approach at the 12 CCF consumption level.

0.governancetype	Omitted	Omitted	Omitted
1.governancetype	13.07***	21.88***	40.55***
	(3.089)	(4.484)	(8.190)
2.governancetype	2.802	2.587	2.444
	(2.007)	(2.711)	(5.182)
3.governancetype	2.399	3.151	-1.854
	(3.106)	(4.154)	(7.601)
4.governancetype	-8.245	13.99	38.08
	(13.69)	(33.97)	(63.47)
Median household income ('000s)	-0.256***	-0.378***	-0.676***
	(0.0626)	(0.0947)	(0.194)
Median home value ('000s)	0.0399***	0.0683***	0.130***
	(0.00815)	(0.0117)	(0.0231)
Population density	-0.000766**	-0.00120***	-0.00221***
	(0.000319)	(0.000408)	(0.000689)
Watsource=GU	0.762	0.671	-3.495
	(3.350)	(4.318)	(7.797)
Watsource=GW	-1.178	-4.500	-8.638
	(2.117)	(2.859)	(5.724)
Watsource=GWP	-1.721	-1.152	-4.623
	(7.276)	(5.484)	(12.97)
Watsource=SW	6.546**	10.36**	15.28*
	(2.767)	(4.165)	(7.945)
Watsource=SWP	Omitted	Omitted	Omitted
Latitude	-1.851	-6.763***	-19.71***
	(1.151)	(1.629)	(3.309)
Longitude	-2.661**	-8.081***	-22.75***
	(1.171)	(1.617)	(3.437)
Constant	-211.9**	-667.8***	-1,918***
	(102.5)	(141.1)	(302.8)
Observations	483	482	476
R-squared	0.161	0.274	0.339

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 2 shows the results of theoretically-derived, reduced form ordinary least squares regression (OLS) models of self-reported expenditures to consume different levels of drinking water per month: 6, 12, and 24 CCF. The model results suggest that, all else equal, the geographic location of the system within the state (further south and west), private governance of the system, dependence on surface water, higher population density, lower median income, and higher median home value all have a positive, statistically significant relationship with a higher expenditure level for 12 CCF of drinking water in a month. Around 27% of the total variation in expenditure at 12 CCF is explained by the reduced form modeling. Table 3 shows the estimated expenditure levels for all systems (n=2,154) that have a valid address or shapefile.

Table 3. Actual and Estimated Expenditure Levels Per Residential Connection

Consumption Level	6 CCF	12 CCF	24 CCF
Estimated expenditure (n=2154)	$41.44	$60.12	$102.75

Note: Estimates were only made for residential drinking water systems which have a valid address or a shapefile.

Spatial Data Merging

Data merging from the ACS block groups to the system shapefile was performed using an aerial-apportioned, population weighted spatial join technique in ArcGIS and Microsoft Access.[14] Data merging from the ACS block groups to systems without boundaries in the shapefile was performed using simple spatial joining techniques based on the geocoded address of the system provided. Data merging from the retail pricing database to the water system shapefile was performed by a simple attribute join based on the system identification number. We subsequently performed quality checks on the joined data and found no anomalies.

[14] Full technical details of the data joining procedure are available upon request. During this join, 38 systems were found to be void either due to errors in their boundary drawings or missing data from the ACS. Most of these systems were very small.

Appendix C: Features of Existing Low-Income Ratepayer Assistance Programs

This appendix reviews and highlights common practices employed by existing low-income assistance programs (LIRA) for reducing the affordability burden across sectors and jurisdictions. There are much more robust, organized, and financed public support systems at the federal and state levels to directly subsidize other vital basic goods and services. By contrast, both in California and nationally, programs addressing water affordability have traditionally been left up to individual community water systems (CWS) to independently implement a LIRA. The limitations imposed by Proposition 218 has practically meant that only large CWS provide some type of affordability assistance.

Throughout this appendix, consideration is given to defining and describing three critical parameters of program design:

a. who is eligible for assistance,
b. the nature of the benefit which eligible participants receive, and
c. the revenue source for each type of assistance.

As no other state (nor the federal government) currently offers a LIRA to households for drinking water service,[15,16] California can only draw on existing program features to a limited extent.

Range and Type of Assistance Programs Reviewed

There is no comprehensive list of rate assistance programs offered by water systems or utilities. Given the absence of a comparable state-level program for water rate assistance in the U.S., the chapter focuses on design elements of:

a. single-system or single-utility water rate assistance programs in California,
b. prominent standalone rate assistance programs offered in cities outside California, and
c. state and federal assistance programs offered for other basic services.

To conduct this review, this chapter draws on primary documentation regarding these programs or correspondence with program administrators, in addition to incorporating existing scholarly analyses of similar programs when necessary.

Single-system or single-utility rate assistance programs in California

Using comprehensive 2015 data on rate assistance program offerings from Los Angeles County and data from large systems collected by the Board, 22% of 731 large systems in California self-report that they offer some type of direct or indirect rate assistance. Moreover, water systems offering some type of rate assistance serve 46% of the entire population of California. However, despite this apparent widespread coverage, actual per person monetary assistance is relatively low, as described in the report and also below on page 14. Moreover, as described in the report and below most low-income households do not directly pay a water bill and could not receive assistance under current programs.

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[15] Due to Proposition 218, very few if any public agencies are setting up or modifying LIRAs in California currently, unless they are funded by voluntary donations and thus draw little scrutiny. Most cities or county-run systems appear to have the ability to modify their LIRA when they undertake rate structure changes. Class A utilities can modify their programs, but must request CPUC approval. The Board did not identify any systems which explicitly reported shutting down a previously-operational LIRA program, although some programs may be defunct.

[16] While a new international focus on affordability has been inaugurated in the transition from the Millennium Development Goals to the Sustainable Development Goals as of 2015 (see https://reliefweb.int/sites/reliefweb.int/files/resources/The0costs0of0m0ene000summary0report.pdf), a review revealed no known LIRA programs enabling households to afford drinking water which operate at provincial or national scales in other countries.

Households holding direct water accounts which are served by investor-owned (IOU), Class A water utilities (those serving 10,000 or more connections serving roughly 14% of the state's population), are guaranteed to be able to access a rate assistance program due to the oversight and guidance of the California Public Utilities Commission (CPUC). These programs do not assist households that do not pay bills, however. Since 2005, the Low-Income Oversight Board within the CPUC has prompted the development and increasing standardization of rate assistance offerings across large IOUs.[17] The Board notes, however, that this effort to establish a water rate assistance has been relatively recent, compared to energy rate assistance programs or California Alternative Rates for Energy (CARE) programs which have been offered since the mid-1990s.[18] Despite the CPUC regulating them, non-Class-A private water systems (serving fewer than 10,000 people) are much less likely to operate a rate assistance programs.

Outside of CPUC-regulated Class A water utilities, rate assistance programs are not mandatory for drinking water systems. Moreover, publicly-owned (county, city, special district, etc.) systems in California are severely constrained from offering robustly-financed rate assistance programs by Proposition 218.[19] Accordingly, the prevalence and character of publicly-governed programs is much more diverse. Available information also suggests that mutual water companies (MWCs) are much less likely to operate formal rate assistance programs than either publicly-owned or other privately-owned water systems, although informal rate assistance practices by MWCs are reputed to be more common.[20]

The IOU rate assistance programs are primarily focused on single-family residences, although at two Class A IOUs offer the rate assistance program to agricultural employee housing, migrant farmworker housing, and non-profit group living facilities. Another IOU extends rate assistance to mobile home park residents, but only if they are sub-metered. Therefore, in general landlords whose multi-family residences are served by Class A IOUs are not eligible for rate assistance, which then prevents them from passing along assistance to their tenants.

Prominent standalone W-LIRA examples in other states

The Board reviewed existing W-LIRA programs offered by single drinking water systems or utilities in other U.S. states to identify general trends and to focus on programs which feature particularly novel and relevant dimensions for consideration in California's W-LIRA program design.

In the U.S., the overall prevalence of rate assistance programs offered by single drinking water systems or utilities is unknown. In several reports discussing drinking water rate assistance programs across the U.S., Oregon, Ohio, Michigan, and Pennsylvania appear to have the most commonly cited examples. With the notable exception of Wisconsin, other public utility commissions outside of California do not appear to play as large of a role in regulating water systems, much less rate assistance programs. Among those public utility commissions which do oversee drinking rate assistance programs, none appear as proactive or comprehensive in promoting rate assistance offerings as the CPUC, with Pennsylvania's Public Utility Commission coming the closest.

Federal or state-level ratepayer assistance programs offered for other basic services

As described earlier in the report, for several decades the electric, gas, and telecommunications utilities regulated by the CPUC have offered rate assistance programs to California's households. Other federal

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[17] Wilson, S. October 2007. "Assessment of Water Utility Low-Income Assistance Programs." California Public Utilities Commission: Division of Water and Audits. See ftp://ftp.cpuc.ca.gov/PUC/water/dwa_low-income_research_paper_112507.pdf.

[18] Kahlon, Rami. February 23, 2016. "Water Utilities Update: Low-Income Oversight Board." California Public Utilities Commission Division of Water and Audits. See http://www.liob.org/resultsmt.cfm?meetingtype=Board%20Meeting.

[19] University of North Carolina Environmental Finance Center (2017). *Navigating Legal Pathways to Rate-Funded Customer Assistance Programs: A Guide for Water and Wastewater Utilities.* See https://efc.sog.unc.edu/sites/www.efc.sog.unc.edu/files/Pathways%20to%20Rate-Funded%20CAPs.pdf.

[20] Personal communication with Adán Ortega, Executive Director, CalMutuals.

programs administered by a joint effort between state agencies, county agencies, and local non-profit contracting entities, also offer direct financial assistance to low-income households for other basic services. These include energy (Low Income Home Energy Assistance Program- LIHEAP), food (Supplemental Nutrition Assistance), and housing (Section 8) programs.

Eligibility: Who benefits from the program?

The first parameter of program design defined and described is eligibility. The proposed plan defines eligibility as the socioeconomic criteria by which households are qualified or disqualified from a rate assistance program. As suggested by the term "Low Income Rate Assistance" program, the most common eligibility criteria is some measure of or reference to household income level, often tied to household size. However, in practice, there are numerous instances of non-income criteria used in combination with or to substitute for income level as measures of eligibility for rate assistance programs. While individual variations of eligibility criteria are too numerous to describe one by one, Table 4 outlines the options identified in the Board's review. A number of different types of eligibility criteria for W-LIRAs are employed across California, and more broadly across the U.S.

Table 4. Range of Major Options for Rate Assistance Program Eligibility Determination Seen Across the U.S.

Eligibility Determination	Eligibility Definition	Example Water Systems
100% of the Federal Poverty Level (FPL)	A household income amount that is tied to household size.[21]	None identified
150% of FPL	A household income amount at or below 150% of the FPL	The defunct Massachusetts Statewide LIRA program, Great Lakes Water Authority, West Virginia American Water, Detroit Water and Sewerage Department, Kentucky American Water, Pennsylvania Water Company, Philadelphia Water Department, Columbus City Department of Public Utilities
200% of FPL	A household income amount at or below 200% of the FPL	All CPUC-regulated Class A water utilities. Municipal systems tend to reference CARE requirements
Other Income Criteria	An income level set without reference to the FPL, but usually based on some other poverty threshold	Tucson-City Water, Kansas City Water Services, Sussex County Sewer and Water, Aquarion Water Company of Connecticut, New York City Department of Environmental Protection
Financial Crisis	Household is undergoing a financial hardship or crisis as defined by the water system	Illinois American Water, Memphis and Shelby County, Saint Paul Regional Water Services, Hampton Roads Virginia Water Company
Income Criteria & Age	A household income below a poverty threshold with an account holder over a certain age limit	Los Angeles Department of Water and power, Azusa Light and Water, Burbank-City Water, Crescenta Valley County Water District, Glendale-City Water, La Verne-City Water, Santa Fe Springs, Santa Monica-City Water, Torrance- City Water

[21] These levels do not consider variation in local cost of living except for Alaska and Hawaii. They are the same for the 48 contiguous states and the District of Columbia.

Income Criteria & Medical or Disabled Criteria	A household income below a poverty threshold with an account holder or household member who is disabled or has a severe medical condition	Azusa Light and Water, Burbank City Water
High Drinking Water Service Cost	A Rate Support Fund established by a utility subsidizes rates for one CWS based on rate premiums collected from other CWS	California Water Service Company
Affordability	Cost of drinking water service paid by household divided by household income	Philadelphia Water Department
Multi-Family Household Eligibility	Households who do not hold direct water accounts but are otherwise eligible for rate assistance can still obtain the program benefit	Golden State Water Company systems, East Bay Municipal Utility District, Columbus- City Department of Public Utilities; City of St. Helena[22]

The most common household eligibility criteria for rate assistance programs is a household income that adjusted for the number of people in the household, based on a certain threshold. In most cases, the threshold for household size-adjusted income is made with reference to the federal poverty level (FPL), although no systems appear to use 100% of the FPL as the sole criteria.

The Board did not find any water systems which use income thresholds below 100% FPL as the eligibility basis for their rate assistance program, and most systems use income thresholds significantly above this level. For instance, each of the CPUC's nine Class-A water utilities use 200% of FPL as the criteria for household eligibility in their rate assistance programs. This is the same eligibility criteria which the CPUC-regulated energy utilities use for their LIRA, the CARE program. Similarly, many municipal water systems will enroll households which demonstrate enrollment in CARE or other federal programs which define eligibility as 200% of FPL, without further verifying their eligibility independently.

Outside of California, other water systems rely on similar income limits. For instance, Sussex County Sewer and Water of Delaware determines eligibility based on U.S. Housing and Urban Development income limits which in turn are based on the Median Family Income estimates and Fair Market Rent area definitions. Aquarion Water Company of Connecticut and the New York City Department of Environmental Protection will both automatically enroll households in their rate assistance programs, if households demonstrate their existing enrollment in other assistance programs.

If reference is not made to other low-income program enrollment, rate assistance program administrators typically define eligibility based on household income below the 130-150% FPL. Yet other systems, within and outside California, use an exact income level (i.e., $40,000) without making adjustments for household size as an eligibility criterion. The logic for these income levels are rarely specified in writing but, when asked, systems usually refer to either borrowing income criteria from another rate assistance program or doing their own internal analysis of income levels within their community.

Another type of rate assistance program eligibility criterion requires that the eligible households be both low-income and meet additional vulnerability criteria, such as being elderly or disabled, as seen in the guidelines of many rate assistance programs operating in Southern California cities. Moreover, some systems determine their eligibility with reference to acute household financial hardship conditions but with no specific longer-term income thresholds. These programs are typically referenced as, "financial crisis

[22] These programs all have limitations as to which multi-family households can receive benefits; none provide universal eligibility.

or hardship" but do not specify further on how they define eligibility. Examples of hardships include a recent loss in the family or unemployment.[23]

Uniquely, the California Water Service Company (Cal Water) gives an additional benefit to all households served by systems within its total service territory which charge high retail water costs. Cal Water identified three high-cost districts within its service territory and collects surcharges from all ratepayers served by the company to fund rate relief within those three districts.[24]

As discussed in more detail throughout the report (especially Chapter 4), low-income households living in master-metered units which otherwise would be eligible for a rate assistance program are in most cases practically disqualified from receiving a benefit because they do not have a direct account with a water system running the program.[25] Estimates using administrative data suggest that nearly half of the households living in master-metered buildings in California would be income-eligible (have incomes at or below 200% of the FPL) for a rate assistance program. Several systems have guidelines allowing their tenants, landlords, or building managers (who hold the water account) and the systems to find a way to deliver a rate assistance benefit to households. However, awareness of these guidelines is low, and, despite significant searching and inquiry, the Board only identified a single system, the City of St. Helena,[26] which actually delivers benefits to non-account holders. This is particularly significant considering that more than 30% of low-income households in the state are non-account holders and thus may find difficulty in accessing a rate assistance program despite being eligible for one.

Benefit: Type and Level(s) of Financial Assistance Offered by Program

The second parameter of program design defined and described is the benefit. Households enroll in a rate assistance program to receive a benefit. The plan defines the term "benefit" as the type and level of assistance which households receive by enrolling. While non-rate assistance benefits were reviewed, robust benefit offerings typically are delivered by systems in the form of on-bill rate assistance.

There is more diversity in exact benefits than eligibility criteria among rate assistance programs. For instance, while eligibility criteria are the same across Class A water utilities in California, and Class A utilities deliver benefits in the form of on-bill financial assistance, benefit levels vary substantially depending on the individual water systems within the utilities. Given their diversity, Table 5 highlights the major types of benefits offered by rate assistance programs. Among the rate assistance programs offered by the 60 systems across California for which a dollar value of their benefit could be calculated using the Board's electronic reporting data, the average monthly benefit amount is $11.99. This equates to 20% of the statewide average water bill for 12 CCF of $60.12, estimated as described in Chapter 2 of this report.

Table 5. Benefit Types for Rate Assistance Programs in the U.S.

Type of Assistance	Explanation	Examples
Alternative Rate Structure (lifeline)	Subsidized rate for a fixed amount of water, then higher tiered water charges based on necessary consumption levels	City of El Segundo, San Gabriel Valley Water Company, Montebello-City Water, Marin Municipal Water Department, Los Angeles Department of Water and Power (LADWP), City of

[23] Memphis Light, Gas, and Water Division. (2017). "Plus-1." See http://www.mlgw.com/plus1
[24] California Service Water Company. "Water Rate Update: Redwood Valley District, Lucerne System." See https://www.calwater.com/docs/grc/2012/decision/grc_decision-rv-luc.pdf
[25] Environmental Protection Agency. (2016). "Drinking Water and Wastewater Utility." See https://www.epa.gov/sites/production/files/2016-04/documents/dw-ww_utilities_cap_combined_508.pdf
[26] Information based on electronic communication between Board staff and St. Helena CWS CARES program administrators.

		Norman, District of Columbia Water and Sewer Authority
Fixed or Capped Credit	A flat amount credited to bill which may take the form of a fixed-dollar credit, meter charge discount or utility tax exemption, or a percentage discount which is capped at a certain dollar amount	Most common. All Class A water utilities. East Bay Municipal District. Santa Clara Valley Water district. Glendale Water and Power. City of Huntington Beach, Marin Municipal Water District, Western Municipal Water District, Palmdale Water district
Total Bill Percentage Discount	A percentage discount on the total bill	San Francisco Water Power and Sewer, San Jose Water Company, Seattle Human Services Department, the CARE program
Rate Stability Guarantee	Exempt from water rate increase for given amount of time	Bellflower Municipal Water System
Flexible Terms on Timing and Level of Payment	Arrearage forgiveness and time adjustment for bill payments	East Bay Municipal District, Elk Grove Water District, LADWP, California American Water systems, Riverside Public Utilities District, Illinois American Water
Temporary Assistance or Unspecified Assistance Dependent on Contributions or General Fund Support	Short-term or one-time basis assistance or amount of assistance is not defined	City of Palo Alto, LADWP, Elk Grove Water District, El Dorado Irrigation District, Aquarion Water Company, New York City Department of Environmental Protection, Memphis Light, Gas, And Water, Hamptons Roads Sanitation District, Tacoma Public Utility, City of Santa Rosa, City of San Diego
Percent of Income Spent on Water	Limits the percentage of their income which eligible households must pay for water service	Philadelphia
Water Efficiency	Subsidizes repairs and offers rebates	California Water Service Systems, Marin Municipal Water District, City of Aurora, Pueblo Wastewater Department, Portland Water District, Kansas City Water Services, San Antonio Water System, City of Dallas, Pennsylvania American Water Company

"Lifeline Rates," considered a benefit in the broadest conception of the term, are an alternative rate structure for households. These rates offer a discounted rate for a baseline amount of water that covers a household's basic needs. When a household surpasses the lifeline amount higher water rates begin to apply. However, lifeline rates in the U.S. are typically available to all water system customers and thus

have no eligibility criteria *per se*. The CPUC is currently evaluating requiring all Class A water utilities to provide lifeline rates.[27]

The most common type of direct benefit made available to eligible households through rate assistance programs appears to be a flat or capped dollar discount amount on the ratepayer's bill. Most Class A water utilities and many municipal systems offer this type of benefit to eligible households. The exact benefit may take the form of a capped-dollar credit on the total bill, or more commonly, a percentage or fixed-dollar credit on some portion of the bill in the form of a meter charge discount or utility tax exemption. Flat discounts in California bases benefit level on the total bill and, in our review, range from $6.50-$25.50. This flat-dollar value, however, typically equates to a smaller discount on the total bill than rate assistance programs which offer a percentage discount, or than offered by the CARE program.

Other rate assistance programs offer percentage discounts on the total bill for eligible households. For instance, the San Jose Water Company offers a 15% discount on the total bill via its water rate assistance program. The prevalence of total bill discounts, however, is much less common than flat discounts among water systems or as compared to the energy sector. The CARE program offered by IOUs and some municipal power providers offers a 20% discount on natural gas bills, and 30-35% discount on electricity bills, with consumption caps on discounts set high above average consumption.

Especially in California, where Proposition 218 hinders the robust funding of rate assistance programs administered by publicly-owned water systems, temporary assistance programs which offer financial assistance to eligible households on a yearly or ad hoc basis, are increasingly common. One time-assistance can range from $50 up to $750, and in some cases non-profit organizations offer this assistance rather than it being offered directly by water systems.[28]

Some rate assistance programs do not offer a direct discount at all, but rather allow for more flexible terms of repayment or repayment forgiveness on water bills to eligible households. Flexible payment terms can include debt forgiveness, normalized debt repayment schedules, or the delay of payment dates. For instance, a simple plan may require households to pay 25% of the total balance within 48 hours of notice from their water company, whereas a more nuanced payment plan might offer eligible households to pay 20-50% of total utility balance upfront, then the remaining balance in 3-6 months

Uniquely, the City of Philadelphia has implemented a percentage-of-income benefit for eligible households: The Tiered-Assistance Program. As of July 2017, Philadelphia was the only known water system in the U.S. offering this type of benefit, which was designed to match the required customer payment for water with the customer's ability to pay and to stop the accrual of delinquent back payments due by customers unable to pay their bill. Households making 0-50% of the FPL will pay a maximum of 2% of their monthly income for their water bill. Households making 51-150% of the FPL will pay a maximum of 2.5-3% of their income.[29]

A rate stability guarantee is another unique type of benefit rarely offered by water systems to eligible households. Although it is unclear whether this program is still in effect since the system's privatization in 2016, Bellflower Municipal Water System recently offered a rate assistance program which exempted eligible households from up to 50% of water rate increases in their monthly payments.

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[27] CPUC Proceeding (filed June 29, 2017). "Order Instituting Rulemaking Evaluating the Commission's 2010 Water Action Plan Objective of Achieving Consistency between Class A Water Utilities' Low-Income Rate Assistance Programs, Providing Rate Assistance to All Low – Income Customers of Investor-Owned Water Utilities, and Affordability." R.17-06-024. See: https://apps.cpuc.ca.gov/apex/f?p=401:56:0::NO:RP,57,RIR:P5_PROCEEDING_SELECT:R1706024

[28] For instance, see Aquarian Water Company's assistance program: http://www.aquarion.com/CT/CustomerAssistanceProgram or the City of Palo Alto's assistance program: https://www.cityofpaloalto.org/civicax/filebank/documents/16912

[29] Walton, Brett. (2017). "Philadelphia Water Rate Links Payments to Household Income." Circle of Blue.

Finally, a rate assistance program can offer water efficiency benefits or incentives to some households. Providing this type of benefit assumes that such upgrades will lead to lower consumption by eligible households and thus to water bills. Efficiency benefits can include the subsidization of leak repair, fixture upgrades, rebates for or free high-efficient indoor or outdoor fixtures, or direct installation services to eligible households. However, as explained below, low-income households may only receive marginal financial benefit from these programs.

Water Use Reduction Strategies

Advantages of water use reduction strategies as affordability assistance

Three related indirect means of affordability considered in the context of statewide affordability assistance were the state-wide provision of conservation rebates, direct efficient fixture installation or leak repair services to low-income households. Conservation rebates are financial incentives provided to customers to encourage them to use less water. Some drinking water systems (and wholesalers) offer rebates to households in exchange for the installation of efficient appliances and low flow plumbing devices, as well as outdoor strategies such as efficient sprinkler systems, soil moisture sensors, drought-resistant landscaping, or rain collection barrels.

The benefit of providing indirect affordability assistance through conservation rebates or leak repair services is that these enable low-income households to use substantially less water and further the state's goal to promote conservation as a way of life, while also potentially substantially reducing their bill. If fully successful, as with rate structure changes, such water use reductions could lessen or eliminate the need for direct affordability assistance.

Disadvantages of water use reduction strategies as affordability assistance

There are several conceptual and practical limitations to implementing water use reduction strategies as affordability assistance.

The proposed plan details the first and main problem with using water use reduction strategies as an affordability assistance strategy. In all but the systems with the most progressive rate structures (still relatively few in California), households cannot realize enough financial savings by limiting their water use through conservation to make their water bill affordable. In some cases, in households already using little water and served by systems with substantial fixed charges, conserving additional water may yield very little net financial benefit. The second practical problem with relying on water use reduction strategies as a state-wide affordability assistance solution is that the offering of conservation rebates, much less leak detection and repair services is highly variable across the state. Large urban water systems, over small rural systems, are more likely to offer these services, and it is easier for moderate- and higher-income households to take advantage of rebate programs than low-income households due to cash flow constraints. Moreover, given that many systems have water use reduction programs in place already, and augmenting them would require the systems to raise rates, those rate increases would be subject to Proposition 218 constraints.

The final disadvantage of relying on place-based water use reduction strategies to ensure drinking water affordability for low-income households is that the average U.S. household moves every five years, and low-income households may move even more often.[30] When a household moves, it cannot take the physical water conservation technology investment made in their home or property with them. The next resident who may or may not be low-income, will experience the benefit of this investment and thus may have no long-term impact on drinking water affordability.

[30] For instance, see Phinney, R. (2013). Exploring residential mobility among low-income families. *Social Service Review*, *87*(4), 780-815.

Consolidation of financially unsustainable systems

Consolidations are increasingly seen as an important tool to improve the Human Right to Water in small communities where water system operators may not have the technical, managerial, or financial capacity to sustainably operate the system. The Board identified consolidations as a key element in its Safe Drinking Water Plan[31] and recent legislation, including Senate Bill (SB) 88 (2015), SB 552 (2016), and AB 2501 (2018) has given the Board additional authority to facilitate and mandate consolidations under certain circumstances. Recent reports have illuminated the potential for increasing consolidations in California.[32] Consolidations can enhance affordability by spreading costs over a wider customer base and through operational efficiencies. However, consolidations can be time consuming, contentious, and costly, and therefore do not necessarily bring affordability benefits.

The Board supports additional funding for system consolidations and is committed to using its existing resources to facilitate consolidations between willing systems. Nevertheless, additional consolidations would only have a marginal statewide benefit for affordability given that the vast majority of low-income households reside in large urban systems.

Financing: How are the funds for benefit distribution and program operation raised?

The third parameter of program design defined and described by the proposed plan is financing the benefit. Internal financing is typically, if not universally, necessary for water systems to cover the cost of direct rate assistance benefits provided to eligible households, as well as administrative costs of the program. Compared to the diversity seen in eligibility and benefit components, financing for single-system W-LIRA programs appear to only have one major sustainable approach: putting a charge on the water bills of non- program eligible ratepayers served by the system. On-bill charges on non-participating customers' bills are how most CPUC-regulated systems finance their CARE and rate assistance program offerings.

During the Board's review, no other existing state or federal programs providing funding to support customer-level rate assistance programs were identified. Moreover, water systems offering programs provide little information about program financing mechanics, as compared to the well-described eligibility and benefit aspects of their programs.

Given the different socioeconomic profiles of the populations served by these systems and their differing benefit levels, however, surcharges levied upon non-participating customers within CPUC-regulated systems are not standardized. These fees range from flat surcharges of $0.04-$6.07 per month to usage-based surcharges of $0.014-$0.156 per CCF (100 cubic feet, CCF). The Golden State Water Company utilizes different surcharges across its three regions, while Cal Water uses either flat or usage-based surcharges dependent upon customer type. Some IOUs (including the Great Oaks Water Company and San Gabriel Valley Water Company) state that they do not levy surcharges upon their non-participating

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[31] See https://www.waterboards.ca.gov/drinking_water/safedrinkingwaterplan/, accessed October 12, 2018.

[32] Jonathan London, Amanda Fencl, Sara Watterson, Jennifer Jarin, Alfonso Aranda, Aaron King, Camille Pannu, Phoebe Seaton, Laurel Firestone, Mia Dawson, and Peter Nguyen. The Struggle for Water Justice in California's San Joaquin Valley: A Focus on Disadvantaged Unincorporated Communities (February 2018);
Gregory Pierce, Larry Lai and J.R. DeShazo (in press) "Identifying and Addressing Drinking Water System Sprawl, Its Consequences, and the Opportunity for Planners' Intervention: Evidence from Los Angeles County." Journal of Environmental Planning and Management;
Larry Lai (2017). Adopting County Policies Which Limit Public Water System Sprawl and Promote Small System Consolidation. UCLA Luskin Center for Innovation;
See http://innovation.luskin.ucla.edu/content/adopting-county-policies-which-limit-public-water-system-sprawl-and-promote-small-system-con

customers to fund their rate assistance program, although that would imply that they are expending shareholder contributions or non-utility revenues in lieu of charges on non-participating customers.[33]

By contrast, due to Proposition 218, special district, city-, and county-run rate assistance programs in California cannot legally be financed using revenue obtained via charges placed on non-participating customers' bills. Accordingly, many systems finance their rate assistance programs using donations (such as the City of San Diego). Lack of internal financing capacity is a common theme amongst W-LIRAs in other states as well (for instance, see the Aquarion Water Company of Connecticut, Memphis and Shelby County Tennessee, and NYC Department of Environmental Protection). In fact, less than 20% of rate assistance programs surveyed in the U.S. in 2010 reported direct system financing. Most systems relied on external, but limited financing options including voluntary customer or non-profit contributions.[34] Programs financed by donations tend to offer limited assistance on a first-come, first-serve basis.

Direct or implicit transfers from a general fund or other internal revenue streams are another means of finance that cities may to employ. However, no city-run water system explicitly states that it uses general city funds to finance its W-LIRA. Rather, the use of general funds by cities to finance rate assistance programs is inferred from the lack of other stated financing streams. Some cities specify other sources of municipal revenue. For instance, the City of Santa Rosa states that a portion of the revenues accrued via cellular tower leases granted by the city provide financing for its rate assistance program.

Conclusion

Our review of current rate assistance programs, with the exception of IOU Class A, suggests that publicly-available data on any aspects of these programs besides eligibility and benefits— whether it be financing, enrollment levels or measured impact of the program— is sparse. Above all, however, our review of the relevant policy design parameters of existing W-LIRA programs offered by CWS and other utilities revealed enormous diversity in eligibility and benefit levels. This diversity, and thus the variation in availability and quality of rate assistance programs available, illustrates the potential for a state-wide program to ensure more equal opportunity for all low-income households in need of water affordability assistance. This lack of equal opportunity is reinforced by the lack of successful examples which deliver benefits to non-water account holding households (e.g. renters).

The review also revealed the dependence of rate assistance programs on the standards and household enrollment efforts of other social benefit programs which are longer-standing and supported at the state or federal scales. Finally, because the financing of rate assistance programs is rarely stable or robust (except for CPUC-regulated systems), the revenue means used by water systems to support their programs rarely compare favorably to the most sustainable and equitable practices employed to finance such programs. Sustainable and equitable financing ensures that the program is accessible to all eligible households who apply and can avoid the economic burden of benefit programs ultimately falling back on lower- or middle-income household.

[33] California Assembly Committee on Utilities and Commerce and Assembly Committee on Aging and Long-Term Care. (2014). "Briefing Paper for Oversight Hearing: Water Rate Affordability." See http://autl.assembly.ca.gov/sites/autl.assembly.ca.gov/files/2014_01_30_water_rate_affordability_final.pdf
[34] Water Research Foundation (2010). *Best Practices in Customer Payment Assistance Programs*. See http://www.waterrf.org/publicreportlibrary/4004.pdf

Appendix D: Lack of Federal and State Water Affordability Programs

This appendix addresses the fact that there has never been a federal program providing direct ratepayer assistance for drinking water service. There has been legislation introduced to the U.S. Congress as recently as February 2016 to establish a national "Low Income Sewer and Water Assistance Program" (U.S. HR 4542). However, the Board's assessment is that the likelihood of passage of such a program by Congress and approval by the President remains low.

Based on a comprehensive search, no other state in the U.S. provides direct ratepayer assistance for drinking water service. Moreover, no other state besides California is known to be currently considering such a program. The State of Massachusetts, however, did operate a low-income ratepayer assistance program starting in the early 2000s. As enshrined in the state's general law, the Massachusetts Department of Housing and Community Development offered the Low-Income Sewer and Water Assistance Program. Households received a benefit of up to 25% off their annual bills, and eligibility was determined the same as for the Low-Income Home Energy Assistance Program (Massachusetts General Law, Section 24 B). Administrative costs were capped at 10% of total program costs.

One of the implementers described the program in this way:

> "Low-Income Sewer and Water program consisted of our state reimbursing low income fuel assistance clients for a portion of their annual water and sewer costs. The state decided to do this because during that period of time it appeared that water and sewer costs were eating away at the attainable income of our low-income clients. I believe the program lasted 1 (2 years at the most) year and has never been funded again. I believe it has been more than a decade since this program existed."[35]

This program was discontinued by 2014. Little additional public information is available.

[35] Personal communication between UCLA and Elizabeth Berube (July 17, 2016), Assistant Executive Director, Citizens for Citizens, Inc. (Massachusetts).

Appendix E: Alternate Program Scenarios

This appendix discusses the advantages and disadvantages of several alternatives to the recommended scenario which were fully considered in the process of plan development and stakeholder engagement. These scenarios represent a small snapshot of the more than 70 program scenarios which the State Water Resources Control Board (Board) evaluated over the past three years.

Split-Program Scenarios

The first alternative program scenarios considered were split-program approaches which otherwise mirror the recommended scenario. A split-program scenario would allow certain systems to offer their own rate assistance programs while other systems would be aggregated under a separately operated W-LIRA program. As described earlier in the report, many individual water systems in California practically cannot support a rate assistance program on their own. Accordingly, the Board explored two program scenario options which would allow certain systems to continue to operate their rate assistance programs but would create a unified W-LIRA program for all eligible households not served by those systems.

The first alternative approach would create a unified W-LIRA program for all eligible households that are not served by a California Public Utilities Commission (CPUC)-regulated water system. The CPUC would be responsible for ensuring rate assistance coverage for eligible households served by the systems which it regulates. The second alternative approach would create a unified W-LIRA program for all eligible households which are not served by a water system currently offering a sufficient rate assistance program. The standard of sufficiency would be further established based on the enrollment, assistance levels established in the unified program. In these scenarios, systems currently offering a robust rate assistance program would be responsible for maintaining benefit coverage for the eligible households which they serve.

For both approaches, the unified W-LIRA program would offer the same three-tiered benefit program as detailed above. At the same time, the CPUC-regulated systems or other systems not included in the state program would need to offer equivalent or more generous eligibility and benefit levels than the state program, while maintaining comparable enrollment levels. To ensure comparable benefits across the programs, data would be collected on both the state and standalone programs on an annual basis. Thus, each of these scenarios would be designed to ensure that every income-eligible household in California would be offered drinking water affordability assistance. Table 6 shows the coverage, eligibility and cost differences between the W-LIRA program and system-governed rate assistance programs.

Table 6. Coverage, Eligibility and Cost of Split-state Scenarios

Program Scenario	% of state's households covered by new state program	% of households eligible within coverage area	Estimated annual new program cost for the state ($ Millions)	Estimated annual program cost for the CPUC or individual systems ($ Millions)
Unified state program excluding CPUC-regulated systems	86%	34%	$514.0	$92.4
Unified state program excluding all systems with any existing rate assistance programs	54%	33%	$247.2	$357.2

In the first alternative scenario, all households in CPUC-regulated systems (around 14% of the state's households), would be excluded from both the revenue collection and benefits of the newly-created W-LIRA program. All large (Class A) CPUC-regulated CWS currently offer rate assistance programs, but to the best of our knowledge only one Class B-D CWS[36] offers a drinking rate assistance program, a disparity which the CPUC is actively evaluating solutions to in an ongoing quasi-regulatory proceeding.[37] CPUC-regulated systems rate assistance programs would thus need to be formed and/or brought into compliance with uniform state standards in a separate effort. The upsides of this approach include: 1) allowing Class A CPUC-regulated systems to build on their experience of administering existing rate assistance programs; 2) realizing potential synergies with California Alternative Rates for Energy (CARE) program administration; and 3) benefiting from past CPUC-wide studies rate assistance program cross-subsidization.[38]

Several possible disadvantages, however, also emerge from this approach. Most fundamentally, two different governance bodies would split the administration of rate assistance programs. One of the other main disadvantages of this program scenario is that the base of financial support (and cross-subsidization) would be $92 million lower than in the scenario where a statewide program served all households. The financial and administrative costs of CPUC Class-A programs not only deviate from each other, but also from the envisioned state program standards and from each other in terms of eligibility criteria, benefit level and enrollment.[39] While Class A utility systems have standardized eligibility, they provide lower benefits than envisioned for the state program and have enrollment rates substantially lower than targeted enrollment across the state. If compliance among CPUC systems was funded by higher retail water rates paid by ineligible households within these systems, this might lead to different household-level cost burden impacts, as compared to the rest of the state's households served by a separate program. The plan estimates that full enrollment in this separate program scenario would require funds of approximately $514 million annually.

In the second alternative scenario, all water systems which currently offer a robust rate assistance programs would be excluded from the newly-created W-LIRA program. The plan estimates that a maximum of 46% of the state's households are currently served by systems offering rate assistance programs. Assuming that all of these systems' programs were brought into compliance with uniform state standards, the Board estimates that the cost of operating a W-LIRA program for the remaining households would be $247.2 million annually. Some upsides of this scenario include a lower overall cost of the program to the state, a lower continued local administrative cost, and the opportunity to allow existing rate assistance programs which are well-functioning, to continue operations while building on their operational experience.

One of the main disadvantages of this scenario is that the base of financial support (and cross-subsidization) would be $357.2 million lower than for the primary program scenario. Additionally, many systems with existing rate assistance programs substantially deviate from the envisioned minimum state program standards in terms of eligibility criteria, benefit level and enrollment. To bring these rate assistance programs into compliance, these system-level programs would likely bear substantial financial and administrative costs, making their standalone operation less appealing.

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[36] Class B-D systems only represent about 5% of the total households served by systems regulated by the CPUC.

[37] See the active CPUC Proceeding R1706024, "Order Instituting Rulemaking Evaluating the Commission's 2010 Water Action Plan Objective of Achieving Consistency between Class A Water Utilities' Low-Income Rate Assistance Programs, Providing Rate Assistance to All Low – Income Customers of Investor-Owned Water Utilities, and Affordability." See http://www.cpuc.ca.gov/General.aspx?id=6442454183

[38] Wilson, S. October 2007. "Assessment of Water Utility Low-Income Assistance Programs." California Public Utilities Commission: Division of Water and Audits. See ftp://ftp.cpuc.ca.gov/PUC/water/dwa_low-income_research_paper_112507.pdf

[39] Again, consistency between programs may be achieved as a result of the active CPUC proceeding R1706024.

Moreover, it seems highly unlikely that community water systems (CWS) with existing rate assistance programs can self-finance existing or enhanced enrollment rates without raising retail water rates to ineligible households. Our analysis, as well as many others,[40] suggests that publicly-owned systems raising rates on a certain group of customers to fund rate assistance for another group may run afoul of legal interpretations of Proposition 218. In the absence of full or partial reform of Proposition 218, the Board therefore finds individual water system rate assistance programs an unreliable option for supporting affordability statewide.

[40] For instance, see Mukherjee, M., Mika, K., & Gold, M. (2016). Overcoming the Challenges to Using Tiered Water Rates to Enhance Water Conservation. *California Journal of Politics and Policy*, *8*(3); Hanak, Ellen, Brian Gray, Jay R. Lund, David Mitchell, Caitrin Chappelle, Andrew Fahlund, Katrina Jessoe et al. *Paying for water in California*. San Francisco: Public Policy Institute of California, 2014.

Appendix F: Other Program Scenarios Evaluated

Program Scenarios with Alternative Benefit or Eligibility Parameters

Using water rate data and census data, more than 70 program scenarios were evaluated which either followed the form of existing rate assistance programs or were proposed by stakeholders. Among these, several additional program alternatives were specifically evaluated as alternatives to the primary statewide scenario explained above. The estimated total annual program costs and pros and cons of these alternative approaches are discussed below. The plan briefly describes these alternative approaches according to their emphasis on different eligibility or benefit definition from the primary scenario. Table 7 also summarizes the estimated annual program costs of each of these approaches, using the same assumptions about enrollment and overhead cost as used for the recommended scenario.

Table 7. Annual Cost of Secondary Program Scenarios

Program Name	Estimated Annual Cost (Millions)
Alternative A	$636.7
Alternative B	$483.1
Alternative C	$542.5
Alternative D	$596.0
Alternative E	$177.1-$895.1
Alternative F	$1,224.9
Alternative G	$1.3

Alternative Eligibility Approaches

Alternative A: Households Served by Systems with Below-Disadvantaged Community Income Level

In this scenario, all state households with incomes below the income level used for the disadvantaged community (DAC) designation, equivalent to 80% of state median household income,[41] a standard which employed by the Board in some funding decisions to local entities, would be eligible for the W-LIRA program. The Board's DAC designation in 2015 ($49,454) was nearly identical to the maximum income level of a 4-person household under 200% of the federal poverty level (FPL) in 2015 ($48,600). The benefit in this scenario would be a discount equivalent to the first tier of the primary scenario, 20% of a household's water bill for 12 CCF. The total estimated annual program cost for this approach would be $636.7 million.

One advantage of this approach is that using the DAC designation for eligibility is California-specific, as opposed to the national level federal poverty statistics. This metric is already widely used by other community-based programs in the public sector, which may lend itself to ease of use. However, the similarity between the DAC line and a 4-person household under 200% of the FPL suggests that using the DAC designation does not actually yield a substantial difference from using the FPL. Moreover, the DAC line does not allow for flexible eligibility which adjusts to household size as the FPL does. Finally, using a community-based designation to define household eligibility is less desirable than using an established household level measure of need.

[41] See California Water Code, CHAPTER 1. General Provisions [79500 - 79509.6]: http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=WAT&sectionNum=79505.5 and its use in state programs, for instance the Proposition 84 IRWM guidelines. See: http://www.water.ca.gov/irwm/grants/resources_dac.cfm

Alternative B: Households Served by Systems in Severely Disadvantaged Communities

In this scenario, all state households with incomes below the income level used for severely disadvantaged community (SDAC) designation employed by the Board, equivalent to 60% of state median household income (in 2015, $37,091), would be eligible for the W-LIRA program. The benefit in this scenario would be a discount equivalent to the first tier of the primary scenario, 20% of a household's water bill for 12 CCF. The total estimated annual program cost for this approach would be $483.1 million. One advantage of this approach is that using the SDAC designation for eligibility reduces overall costs by focusing the program on the most income-poor households in the state, ensuring that those most in need receive some benefit. However, the downsides are similar to the DAC approach. Using the SDAC line does not allow for flexible eligibility which adjusts to household size as the FPL does. As opposed to the primary scenario which accounts for both income and necessary drinking water expenditure, the SDAC approach only accounts for income in determining eligibility and benefit. Finally, using a community-based designation to define household eligibility is less desirable than using an established household level measure of need.

Alternative Benefit Approaches

Alternative C: Single Eligibility and Benefit Level

In this scenario, all state households with incomes below 200% of the FPL would be eligible for the W-LIRA program. The benefit in this scenario would be a discount equivalent to the first tier of the primary scenario, 20% of a household's water bill for 12 CCF. The total estimated annual program cost for this approach would be $542.5 million.

The advantage of this approach is its simplicity in using a single eligibility criterion and a single tier of benefit. The simplicity of this program scenario makes it easier to implement than others, and thus also lowers its administration costs. As other utility affordability programs already utilize the 200% of FPL metric for eligibility, there is some opportunity for cross-enrollment to ensure that the W-LIRA program is meeting the needs of the public, as further discussed in Chapter 4 of the plan. On the other hand, as compared to the primary scenario, this approach has the shortcoming of not accounting for necessary monthly expenditures by households served by systems which charge very high amounts for 12 CCF of water.

Alternative D: Providing Higher Percentage Discount on 6 CCF Consumption

Alternative scenario D is an approach which places its primary emphasis on supporting necessary drinking water expenditure at lower levels of consumption than in the recommended scenario. In this alternative, households below 200% of the FPL are considered eligible for assistance on volumes up to 6 CCF. Additionally, those who also spend an excessive amount on their water bill compared to the state average for 6 CCF (about $40) would receive greater benefits. The scenario would offer a three-tiered benefit to all eligible residential households in the state. The total estimated annual program cost for this approach would be $596.0 million.

The program would provide a benefit equivalent to a:

> Tier 1: 35% discount to all households that have incomes below 200% of the FPL with monthly water costs (at 6 CCF) below $41,
> Tier 2: 50% discount to all households that have incomes below 200% of the FPL with monthly water costs (at 6 CCF) between $62 (about 150% of the state average) and $83 (about 200% of the state average), and
> Tier 3: 75% discount to all households that have incomes below 200% of the FPL with monthly water costs (at 6 CCF) above $83.

This is the program scenario which comes closest to ensuring a "lifeline rate" approach as discussed in Appendix G. In comparison to the primary scenario, this alternative allocates a larger benefit to low-income households to be able to afford a relatively smaller amount of water. The primary downside of this approach is that providing a benefit for the first 6 CCF of consumption would not cover the necessary consumption for low-income households with more residents or outdoor use. Moreover, this design will allocate more assistance to low-income households served by systems which concentrate their retail charges in flat or fixed fees, and thus effectively rewards non-conservation-based pricing schemes.

Alternative E: Capping Percentage of Household Income Spent on Drinking Water

In alternative scenario E, households who would need to spend over a certain percentage of their monthly income to obtain 12 CCF of service from their drinking water system are considered eligible. This eligibility designation was considered for households estimated to be spending between 1-5% of their annual income on water.[42] The benefit in this scenario would be a discount equivalent to the first tier of the primary scenario, 20% of a household's water bill for 12 CCF. The total estimated annual program cost for this approach would be between $177.1 million for a scenario which only subsidizes households paying more than 5% of their income for 12 CCF of service, and $895.1 million for a scenario which subsidizes all households paying more than 1% of their income for 12 CCF of service.

This is the program scenario which comes the closest to operationalizing the commonly-discussed metric of "affordability" used by the press, some government agencies and scholars.[43] To the best of our knowledge and to date, the use of percentage of income spent on drinking water standards for eligibility has only been employed once in one new actual household-level W-LIRA program operated in Philadelphia. The primary disadvantage to this approach in the context of a statewide program is the necessary verification (and its associated considerable cost) of exact household incomes for all potentially eligible households in the state, and the subsequent need for individualized household-level calculations of eligibility.

Alternative F: Capping Total Drinking Water Costs

The final alternative scenario caps the total dollar amount spent on 12 CCF of water by all households with incomes below 200% of FPL. Households below 200% of FPL would pay a maximum monthly amount for 12 CCF of drinking water service of $30.32, which is 1.5% of the monthly FPL income for a household of four. The W-LIRA program would then pay or subsidize any amount above $30.32 which the drinking water system charges an eligible household for 12 CCF of service in a given month. The total estimated annual program cost for this approach would be $1.225 billion.

This approach has the advantage of guaranteeing that low-income households in California do not bear an outsized, or even equal, burden of the cost of water as compared to higher income households. In fact, low-income households would effectively be guaranteed paying no more than 50% of the state average cost of 12 CCF. This scenario would also be relatively easy to administer as it would only require that CWS inform the W-LIRA program operators of the total costs incurred by eligible households. This cost could be reimbursed directly to the CWS without affecting cash flow for households while also having a relatively low administrative cost due to the reduced coordination needs in communicating with water systems, when compared to the household level communication required in the primary scenario.

One of the downsides of this approach is its high annual total program cost, about double the cost of the primary scenario. Moreover, this approach does not incentivize water systems to maintain low drinking water retail prices. In fact, this scenario may wind up effectively subsidizing or incentivizing the continued

[42] ACS household income data are only provided in bracketed increments. Accordingly, the midpoint of each bracket was used for this analysis.

[43] For instance, see Pacific Institute, Water Rates: Water Affordability (n.d.): http://pacinst.org/wp-content/uploads/2013/01/water-rates-affordability.pdf; Guy Hutton (2012), "Monitoring "Affordability" of water and sanitation services after 2015: Review of global indicator options," A paper submitted to the United Nations Office of the High Commission for Human Rights.

operation of inefficient and/or high-profit water systems, rather than the lowering of rates at the system level.

Alternative G: Households Served by Small Systems

In this scenario, only state households with incomes below 200% of the FPL who are also served by water systems with fewer than 200 people would be eligible for the W-LIRA program. The benefit in this scenario would be a discount equivalent to the first tier of the primary scenario, 20% of a household's water bill for 12 CCF. The total estimated annual program cost for this approach would be $1.30 million.

This program scenario targets households in smaller CWS, recognizing (as do many of the Board's financial assistance programs) that small systems face the greatest cost-operational challenges and that customers served by these systems face greater difficulties in accessing public assistance programs. However, the exclusivity of this approach to eligibility is inappropriate for accomplishing the goals and intentions of Assembly Bill 401 as it excludes the vast majority of low-income households and households with high drinking water expenditures simply because they are served by larger systems.

Appendix G: Analysis of Revenue Collection Options

Revenue Collection from the State Income Tax System

One means for collecting revenue for W-LIRA is from the California state income tax system. The collection of state income tax in California is conducted by the Franchise Tax Board (FTB). State income tax payers can broadly be classified into two categories: personal and business.[44] In 2016, there were 16.1 million personal income tax payers and 972,000 business income tax payers in California.[45] The number of personal income tax payers is significantly larger than the number of households (12.7 million in 2016) in California, accounting for the fact that there are often multiple personal income tax payers per household.

One of the advantages of collecting W-LIRA revenue via the personal income tax system is that it allows for a collection method which is very progressive with respect to income (ability to pay for the W-LIRA subsidy). Another advantage of this approach is that would not include some of the challenges associated with Proposition 218 and system-level rate assistance programs. Instead, it would be a relatively efficient approach since it builds on an existing revenue collection structure that, by definition, already has direct access to income information and household size.

One downside[46] to this revenue collection approach is the potential volatility of the revenue source. Revenues for the program would likely decrease due to a recession or other downturn in macro-economic conditions, just as they did for Proposition 63 (2004), the Mental Health Services (MHS) Act during the 2008-2010 recession.[47] Another potential disadvantage is the diversion of a significant amount of income taxes collected into education. To avoid this and to protect the funds collected, the funds would have to go into an account that is separate from the General Fund.

Collection Plan #1: Personal Income Tax from High-Earners

The proposed revenue collection plan would impose a percentage income tax on annual personal income in excess of $1 million. This plan exactly mirrors the tax established by Proposition 63: The MHS Act.[48] The MHS was passed via 53.8% voter approval in 2004 and allows the California Department of Mental Health to more fully support county mental health programs.

The 1% tax funding the MHS was paid by approximately 25,000-30,000 taxpayers at its outset and rose to 69,000 filers in 2015. In 2014, the FTB reported taxable personal income in California of $1 trillion, with total personal income tax liability of $65 billion, so this tax amounted to less than 1.2% of all personal income tax collected by the FTB.

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[44] Self-employed individuals (sole proprietorships) are classified as personal tax payers by the FTB.
[45] There are approximately 190,135 tax-exempt organizations (non-profits) registered in California.
[46] Another downside of collecting W-LIRA revenue in this way is that an income tax has no direct connection to water usage (or cost to provide water service to a particular user), except to the extent that higher income/revenue for a person or business is directly correlated to water usage.
[47] Another argument against raising personal income taxes on high-earners, that they will move out of California as a result, has been largely debunked.
[48] Other recent propositions which raised non-income taxes include Propositions 99 and 10, and Propositions 30 and 55. Pre-dating the MHSA, Proposition 99 and 10 increased taxes on cigarettes and allocated the revenue towards health programs. Proposition 99 specifically imposed an addition tax of 25 cents for a pack of 20 cigarettes. Proposition 10 imposed a higher tax increase of 50 cents and put the revenue raised towards early childhood development and smoking prevention programs. Proposition 30 (2012) raised the sales tax rate for four years and added three new personal income tax rates through 2018. It provided funding for schools and public services. Proposition 55 extended this tax.

Table 8. MHS Revenue for Fiscal Years[49]

Year	MHS Revenue ($ Billion)
2004-05	$0.254 billion
2005-06	$1.319 billion
2006-07	$1.377 billion
2007-08	$1.564 billion
2008-09	$1.022 billion
2009-10	$0.734 billion
2010-11	$1.062 billion
2011-12	$1.064 billion
2012-13	$1.684 billion
2013-14	$1.454 billion
2014-15	$1.737 billion

At 0.25%, the revenue from this tax would provide more than ¾ of the projected annual cost of the program. The establishment of a holding fund would mitigate any reasonably-expected volatility in revenue collection due to an economic downturn in California which might leave the drinking W-LIRA program under-funded.

Bottled Water Tax Revenue

The plan recommends that revenue obtained from higher income taxes for certain earners be supplemented by removing the current exemption for bottled water sales tax, which would be collected by the California Department of Tax and Fee Administration (CDTFA).[50] Per CDTFA, an estimated $153,600,000 in revenue could be raised by removing the current exemptions from sales tax for bottled water which it receives due its classification under the CDTFA's Sales and Use Tax regulations as a food product.[51]

The major downsides of reliance on bottled water sales taxes are the potential decreased consumption of the products due to the higher price (the effect of the price elasticity of demand for the product), as well as potential reduced consumption of these beverages due to changing consumer preferences. Additionally, this tax could have a regressive impact on low-income households that purchase bottled water due to actual or perceived contamination of tap water. Most expenditures on bottled water are discretionary, however. The only known assessment of the price elasticity effect of a bottled water tax (or change in bottled water price) at a large scale is from the State of Washington, which passed a bottled water tax in 2010.[52] A study of this tax found that "when taxed, the average quantity of bottled water purchased in treated states drops by 6.4 percent, as compared to the untaxed control states." Whether these results translate to the California context is unclear.

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[49] Little Hoover Commission. (2015). "Promises Still to Keep: A Decade of the Mental Health Services Act." *State of California.*

[50] For this purpose, CDTFA is the successor agency to the Board of Equalization.

[51] See http://www.boe.ca.gov/lawguides/business/current/btlg/vol1/sutr/sales-and-use-tax-regulations-art8-all.html

[52] See Berck, Peter, Jacob Moe-Lange, Andrew Stevens, and Sofia Villas-Boas. "Measuring consumer responses to a bottled water tax policy." *American Journal of Agricultural Economics,* 98, no. 4 (2016): 981-996.

For Californians with safe water supplies, bottled water is a discretionary good and therefore a reasonable product upon which to apply a sales tax. It is also directly related to potable water consumption and therefore passes the nexus criterion. Moreover, consumption of bottled water contributes to plastic trash and other environmental impacts, and bottled water is many times more expensive than tap water. These reasons provide a possible basis for taxing bottled water sales to fund a W-LIRA program.

Collection Plan #2: Rely Solely on Personal Income Tax Revenues

A tax increase of 0.33%, rather than 0.25%, on all personal income over $1 million would be sufficient to fund the proposed program in year one. Based on 2017 tax receipts from the MHS Act of $1.864 billion, a 0.33% tax increase would raise an additional $615.1 million. However, sole reliance on the personal income tax makes for a significant risk of revenue volatility, as described above. The Board also notes that personal income tax increases could be levied at income levels below $1 million as well. Lowering the tax threshold to $500,000 or $250,000, for example, would mean more individuals would be subject to the tax.

Collection Plan #3: Combination of Personal and Business Income Tax

This approach would add revenue from business income tax payers to revenue from personal income tax payers. In 2015, the FTB reported corporate income tax revenue of $9 billion. There are different rationales that could apply for dividing up the program revenue between individuals and businesses. For this report the Board used a ratio of 75 personal/ 25 business based on statewide date showing that non-residential water use accounts for roughly 25% of total urban water use. Thus, in order to meet the $606.4 million year one funding target, the business tax would need to raise $151.6 million. One method for raising this revenue would be to apply a flat fee to all business tax payers. This method would require a fee of approximately $168/year spread across roughly 900,000 businesses. Other methods would include raising the tax rates for different types of businesses, as shown in Table 9 below.

Table 9. Business Income Tax Rates

Business Entity type	Tax Rate
Corporations other than banks and financials	8.84%
Banks and financials	10.84%
Alternative Minimum Tax (AMT) rate	6.65%
S corporation rate	1.50%
S corporation bank and financial rate	3.50%

The Board stresses that the numbers reflected here are used for demonstration purposes and are not as a final proposed tax levels, nor do they reflect dynamic responses by taxpayers to increased taxes. Both the form and level of taxes could be altered to meet revenue goals.

Collection Plan #4: Personal Income Taxes Combined with Targeted Business Taxes

In keeping with the revenue criteria listed above, this option would levy businesses taxes directly on businesses whose activities have a direct nexus to water use. Examples of potentially included businesses are bottled water producers, wine, beer, and liquor producers, and certain industries (i.e., oil and gas, cement, and paper) that use high volumes of water. Total revenue from businesses sources would depend on the type of tax levied (income versus excise (production) tax), the level of the tax, and the number of businesses impacted.

Collection Plan #5: Fee Levied on CWS Customer Bills

The Board evaluated two fee collection approaches from community water system bills[53]:

a. A flat surcharge levied on account holders (excluding low-income households) assessed by customer class, or

b. A flat surcharge levied on account holders (excluding low-income households) assessed by pipe size.

Both approaches result in surcharges between $7 and $10 per month on single-family account holders. The Board does not recommend pursuing these options. The Board is open to evaluating other revenue collection options and will assess other approaches based on stakeholder feedback and direction from the Administration and Legislature.

[53] Another approach initially considered was a progressive, volume-based surcharge on all non-income eligible account holders assessed by customer class. However, around 15% of CWS (for which we have rate structure data) charge flat rates to their residential customers without any unit-based consumption component. Moreover, CWS have expressed concern that administering a unit-based surcharge would cause systems to incur substantial administrative costs to implement. This requirement might also cause CWS, for a diverse set of reasons, to alter their entire rate structure in way that is less progressive than how many CWS currently implement such surcharges. Unless the Board were to directly involve itself in rate-setting and rate structure decisions, it would have to be reactive in assessing and addressing the incidence of such a surcharge across CWS over time.

Appendix H: Analysis of Benefit Delivery Methods

This appendix discusses the advantages and disadvantages of different benefit delivery methods. An essential component of the State Water Resources Control Board's (Board) plan focuses on the potential means by which the W-LIRA program benefit (discussed in Chapter 4) would be delivered to eligible households, since there is no existing statewide program infrastructure which delivers a drinking rate assistance benefit. A range of options to deliver the benefit were considered, including but not limited to: delivering the benefit through existing electric or gas utility affordability programs (when collectively discussed hereafter, energy utilities), through the CalFresh program, on eligible households' community water systems' (CWS) drinking water bills, via an income tax rebate, or non-bill delivery benefits (discussed in Appendix G). The Board recommends and focuses on the delivery of the benefit through either the energy utility programs or Electronic Benefits Transfer (EBT) cards (via CalFresh or a new program) due to their statewide reach and longstanding operation. The report details the advantages and disadvantages of alternative benefit delivery options in Appendix E. Additional discussion on this topic which informed the recommendations of the Board's plan can also be found in the video transcript of the Board's April 2018 Water Affordability Symposium.[54]

Electricity Program Option

As discussed in Chapter 2, the California Alternate Rates for Energy (CARE) program provides financial relief to the vast majority of the state's households which are served by California Public Utilities Commission (CPUC)-regulated large investor-owned utilities (IOUs) to be able to afford natural gas and electricity.[55] CARE offers a 20% discount on natural gas bills, and a 30-35% discount on electricity bills to households with income levels below 200% of the federal poverty level (FPL), with consumption caps on discounts set high above average consumption. These discounts are applied to customers' actual bill amounts and are credited directly on the bill, making the payments individually tailored, and clearly identifiable as energy benefits.

As Table 12 shows, in 2013-14, 84% of eligible households (4,536,290) were enrolled in CARE, the highest percentage among state programs analyzed. Moreover, compared to other programs, CARE had the lowest percent (3%) of programs costs allocated to administration as a proportion of its total budget.[56]

Table 12. Overview of CARE Program Eligibility, Enrollment, and Costs

Eligibility		Eligible Enrolled	Direct Program Benefits Disbursed	Current Administrative Costs
Persons in Households	**Total Gross Annual Household Income***	84% (Total Households in 2013: 4,536,290)	$1.3 Billion	2015 Budget: $31 million $42 million[57] 2015 Actual: $31 million[3] *
1-2	$32,480 or less			
3	$40,840 or less			
4	$49,200 or less			
5	$57,560 or less			
6	$65,920 or less			
7	$74,280 or less			

[54] See "Panel 3: California's Affordability Programs" at http://cal-span.org/unipage/index.php?site=cal-span&owner=SWRCB&date=2018-04-05.
[55] Smaller multi-jurisdictional utilities regulated by the CPUC also provide a 20% CARE discount for electric and gas services.
[56] Actual expenses for fiscal years were commonly lower than approved budgets. In 2015, the CPUC authorized 37 million dollars for CARE, but only 31 million dollars was used.
[57] "Decision 16-11-022." (2016). Public Utilities Commission of the State of California, Pg. 344.
*Note: In 2015, the authorized budget was roughly $37 million.

8	$82,640 or less			
9	$91,000 or less			
10	$99,360 or less			
11+	Add $8,360 per additional person			
*Before taxes based on current income sources (as of May 2018). **Source**: "CARE/FERA Programs." (2017). CA.GOV-CPUC.				

Electricity Low-Income Rate Assistance (LIRA) programs run by publicly-owned utilities (POUs), as well as the eligibility criteria and enrollment levels in those programs, are more variable than for investor-owned utilities (IOUs), and there is no central source for this information across POUs. Among large POUs which operate household-level affordability programs, rates of household enrollment are significantly lower than for CARE. About 44% of eligible households were enrolled in the Sacramento Municipal Utility District's (SMUD) program, and less than 40% of eligible households were enrolled in the Los Angeles Department of Water and Power's (LADWP) affordability program. Lower levels of enrollment in POU programs are likely attributable to similar factors influencing low levels of enrollment in publicly-owned water system programs. POUs also do not uniformly use 200% of FPL as their eligibility criteria and therefore the Legislature would need to mandate them to modify the eligibility criteria or some households would not be able to receive the rate assistance benefit.

Despite the need for change in enabling regulation and program offerings to allow households served by POUs to have the same access to rate assistance benefits as those served by IOUs, it is a smaller gap in coverage than either presented by CalFresh or by water systems' existing affordability programs. Administrators of the W-LIRA program could more feasibly work with the small number of large POUs and see a boost in enrollment induced by the new program benefit, whereas the addition of a water benefit to the existing CalFresh benefit is unlikely to incentivize much more enrollment, as described further below.

Broad Advantages of Energy Utility Option

There are several broad advantages of distributing a water affordability benefit to households through energy utilities' existing affordability programs. First, there are far fewer regulated energy utilities than regulated drinking water systems in California. Whereas California has no more than 65 electric utilities[58] and no more than 35 natural gas utilities (four of which cover almost all of California) which provide direct service to residential customers, there are approximately 3,000 CWS providing direct service to residential customers. Distribution of funds through less than 100 entities as opposed to several thousand is likely to be more efficient.

Second, there is far less master-metering of residential accounts in either the electricity or natural gas industry than in the drinking water sector. Master-metering of residential accounts refers to when a single multi-dwelling building or development utility account is held by the property owner or landlord, and thus individual households within that development do not hold their own direct account with the utility. Sub-metering refers to individual residential units, whether rented or owned, have their utility usage measured and directly pay for their usage. Estimates of master-meeting in each sector vary as there is no perfect source for this information, but at least 29% and as much as 46% of households in the state do not pay their water bill directly, or are master-metered.[59] On the other hand, between 5-13.5% of households in

[58] A rise in the popularity of community choice aggregators does not currently and is not expected to affect the direct billing relationship or the number of electrical providers which serve residential customers.

[59] Varying estimates derived from 2015 Census American Community Survey (IPUMS) data for California, the Water Research Foundation's national 2017 report *Customer Assistance Programs for Multi-Family Residential and Other Hard-to-Reach Customers* and from the 2015 American Housing Survey to refine

the state do not pay their energy bill directly, or are master-metered.[60] To make a direct comparison from the same source, the 2015 American Housing Survey, Table 13 shows the percentages of Californian households reporting that they do not pay a direct bill for the three utility services of interest. This comparison clearly shows that households are much less likely to pay their water bill, as opposed to their energy bills, directly.

Table 13. Californian Households Reporting That They Do Not Pay a Direct Bill for Utility Service

Bill/ Service Type	Prevalence
Water	44%
Natural Gas	13%
Electricity	5%

Source: 2015 American Housing Survey data on California sub-sample

As illustrated in Figure 1, among households with incomes under 200% of the FPL and living in multi-family housing, an estimated 72% (or 1.4 million households) do not directly receive a water bill and thus cannot access benefits from water affordability assistance programs.[61] In the water sector, master-metering has effectively meant that no affordability benefit has been delivered to otherwise eligible households.[62] On the other hand, IOUs have developed effective mechanisms to directly contact sub-metered CARE eligible households to expedite their enrollment in the program, and have enrolled substantial percentages of these households in the program.[63]

our assumptions of the number of master-metered accounts and the number of households each account serves.

[60] Varying estimates derived from 2015 American Housing Survey sub-sample for California; Residential Energy and Water Intelligence Software, "Task 4 Summary Documentation: Parcel and Electricity Account Aggregation" (2016); and Hal Nelson, Sean Bjurstrom, Wenjie Zhang (2016), "Multi-Family Residential Natural Gas Monitoring and Analysis Software (MFR-MAS) Project," Energy Innovations Small Grant Program Final Report.

[61] This estimate was made using data on the percentage of low-income (below 200% of FPL) tenants in different housing types who were master- and sub-metered from the 2015 American Housing Survey, which was then mapped onto the number of low-income households across the state derived from the from the 2010-2014 American Community Survey.

[62] While some drinking water systems maintain in their official documents that they allow income eligible master-metered households to apply for drinking water affordability programs in conjunction with landlords, we have yet to identify a system which actually delivered a benefit to a non-metered customer.

[63] For instance, SoCal Edison estimates = that among 4,469 CARE eligible master-metered tenants in its service area, it enrolled 1,390 customers (31%) in CARE at the end of 2015 (see SoCal Edison (2016) Annual Report of Energy Savings Assistance and Alternate Rates for Energy Programs). Similarly, PG&E estimates that among 54,252 CARE eligible master-metered tenants in its service area, it enrolled 28,885 customers (53%) in 2015 (see PG&E (2016) 2015 Annual Report of Energy Savings Assistance and Alternate Rates for Energy Programs). Moreover, SDG&E estimates that among 22,456 CARE eligible master-metered tenants in its service area, it enrolled 68% at the end of 2015 (see SDG&E (2016) Annual Report on Low Income Assistance Programs for 2015).

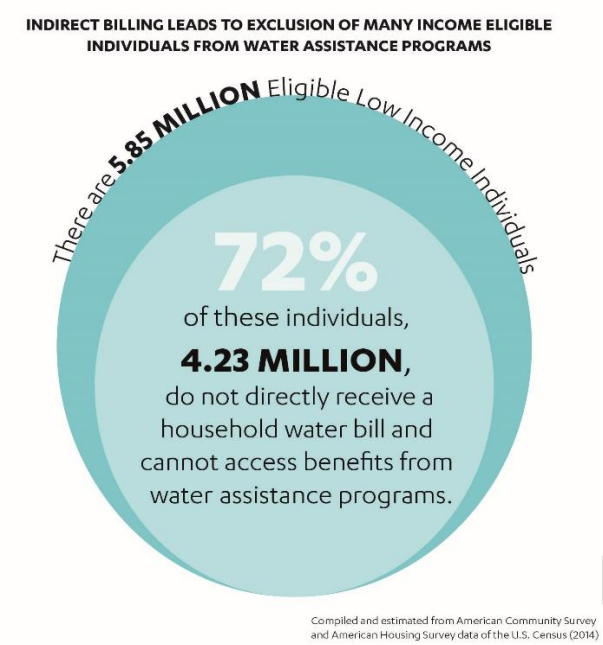

Figure 1: Low-Income Households that do not Receive a Water Bill

Master-metering is particularly problematic for energy or water affordability programs because low-income households eligible for such programs are much more likely to live in multi-unit dwellings. However, while the master-metering challenge still exists for electric utilities, the extent of the challenge is far less than for CWS and a partial solution has been identified.

Offering the rate assistance benefit through the CARE (and POU) programs would build on existing oversight and regulatory authority. Households already enrolled in these affordability programs would automatically receive a rate assistance benefit, so the only costs associated with W-LIRA program enrollment would be for households not already enrolled in an energy assistance program. Automatic enrollment also avoids new privacy concerns since electric utilities are already implementing an income-based program and have rules for safeguarding customer data. An additional advantage of offering the W-LIRA benefits through energy utility programs, as compared to CalFresh, is that identifying the legal status of the benefit recipient is not necessary for enrollment in these programs.

Finally, energy utilities have an inherent advantage over water systems in that they have operated well-regarded household-level affordability programs for several decades. The distribution of a water affordability benefit through CARE would require adaptation of the existing IOU marketing materials which currently address the CARE, and other energy assistance programs, and the comparable marketing materials maintained by POUs. A portion of the W-LIRA revenue would need to cover the expense of these adaptations.

Broad Disadvantages of Energy Utility Option

A broad disadvantage presented by energy utilities administering a monetary benefit to eligible low-income households to assist with drinking water is that recipient households may not recognize the benefit as offsetting or being related to drinking water expenditures. Low-income households which receive water bills may still struggle to pay those bills, and the general public perception may be that the program supports energy affordability rather than water affordability.

Also, in cases where eligible households' drinking water bills are exceedingly high, they are past due on payments, or their water and energy billing cycles do not align, the lack of on-water bill crediting may

create a cash flow or liquidity problem for customers that might induce further bill payment delays or delinquency.[64]

Moreover, as the W-LIRA program would be authorized by the Legislature, it would likely entail more legislative engagement in the design of both CARE and public energy assistance programs. In addition, the administrative costs of the current CARE programs would be substantially increased for implementation of a W-LIRA program. The CARE programs are relatively simple because all eligible customers receive a percentage discount on the amount of the bill charged by the utility itself. In contrast, administering a W-LIRA would require water system data to be transferred, shared, and continuously maintained with the electric utilities.

In addition, unlike the CARE program, for a W-LIRA program, the energy utilities would need to reconcile multiple water system boundaries within the electric/gas service area in order to determine the dollar amount of the water credit on the bills of eligible customers. That is, each utility would need to superimpose water system boundaries over their service areas and work with the Board on the appropriate benefit level to be provided, since it is linked to the water system's rates at a given level of usage. The energy utilities would also need to make adjustments to benefit levels when eligible customers relocate into different water systems.

As the CPUC has not previously evaluated the prospect of distributing non-energy benefits through CARE, the administrative cost burden for the IOUs and the CPUC is difficult to estimate. A CPUC proceeding (or deliberations within each utility's General Rate Case proceeding)[65] would be necessary to establish program rules and determine reasonable administrative costs and appropriate ratemaking treatment for costs such as billing system upgrades, modifications to marketing materials, and adjustment of W-LIRA benefits for low-income households that move from one water system service territory to another.

Similarly, the administrative cost burden for POUs is unknown but can be expected to be significant. For example, SMUD has more than 20 water systems within its boundaries and would have to administer benefits to customers that correspond to each.

Finally, the energy utilities maintain their own funding under CARE and do not receive funds from the State for CARE purposes. In contrast, this W-LIRA option would require the State to transfer hundreds of millions of tax-payer dollars to energy utilities, some of which are for-profit, publicly-traded businesses. Significant oversight and control mechanisms that attend to State funding would be newly imposed on the utilities, and new mechanisms may have to be created to ensure that the utilities use the taxpayer funds properly and efficiently to avoid the risk of fraud, waste, and abuse. In particular, there is a history of energy utility bankruptcy in California, which may recur given the electric utilities' potential liability from recent "megafires." Continuation of the program during bankruptcies would have to be assured for uninterrupted water benefits. The utilities would need to continually demonstrate fiscal responsibility and account for all monies received, transferred, and remitted to beneficiaries. Any excess collections would need to be remitted back to the State. All these processes would have to be tracked and audited.

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[64] While carryover balances from CARE and California climate credits, IOU energy bill customers may be paid out upon request, the default is a carryover balance of the credit being applied to the next billing cycle. In other words, the credit is illiquid in the short-term but may be more liquid in the medium-term if the household takes action.

[65] Per a 2018 electronic communication between CPUC staff and the Board, "A proceeding would be required to establish program rules and determine reasonable administrative costs and appropriate ratemaking treatment. Since GRC proceedings are staggered across the utilities, this could take many years to fully implement. It may be possible to consolidate the issues into a single proceeding, but given the fact that each utility has different billing and back office systems and have a standalone proceeding on this issue would require additional, administrative law judge, legal, audit, and GRC staff/resources it may not be possible to litigate the issues."

Comparing Advantages and Disadvantages of Electric v. Natural Gas Utility Option

There are also differences in the potential administration of a water affordability benefit between electric and natural gas utilities. The first consideration is that there are roughly double the number of electric (n=65)[66] than natural gas utilities (n=30), and nearly all households with natural gas service in the state are covered by four utility companies. The number of energy utilities matters because if a water benefit is to be delivered on either a gas or an electric bill, matching of water system boundaries (and associated benefit levels) to energy utility provider boundaries[67] and transfer of this information to either type of provider is necessary. It is logistically easier to match boundaries and transfer eligibility information when fewer parties are involved, although again the disparity between numbers of different energy utility types pales in comparison to the disparities that would be faced in the water sector. [68]

In other respects, working with electric utilities to distribute the benefit appears advantageous. First, according to the 2015 American Housing Survey conducted by the U.S. Census Bureau, fewer households in California have natural gas service (93.9%)[69] than electricity service (99.7%). Further, at least five large electric utilities (including LADWP, serving 10% of the state) are combined municipal electric and water utilities, which makes matching boundaries between a substantial proportion of the state's population served by these utilities very simple. Additionally, household water use is tied to electricity use (efficient fixtures and appliances use less water and electricity), and therefore low-income households and the public may see a plausible connection for delivering water benefits through an electric bill.

Summary

While there remain shortcomings in universal coverage, likely regulatory hurdles, and significant increased administrative costs, the delivery of a drinking water affordability benefit alongside the energy benefit already delivered through energy utility affordability programs has appeal given these programs sustained success in achieving high enrollment with low administrative costs, albeit with internally - generated and distributed revenues. Additional detailed considerations, including expected increases in costs for administration of a statewide drinking water affordability program through energy utility existing programs are discussed in Chapter 4.

[66] See list at: http://www.energy.ca.gov/almanac/electricity_data/utilities.html
[67] Obtainable here: http://www.energy.ca.gov/maps/
[68] The CPUC already facilitates an automatic transfer of enrollment between CARE and low-income water affordability programs offered by IOUs (CARW).
[69] See http://www.energy.ca.gov/maps/serviceareas/naturalgas_service_areas.html for a map of natural gas service providers.

Appendix I: CalFresh

CalFresh is the California version of the federal Supplemental Nutrition Assistance Program (formerly known as Food Stamps), which offers households monthly financial assistance to purchase food. Outreach and enrollment efforts for CalFresh are run with considerable levels of discretion by individual counties in California, which in turn contract out work to non-profits. Accordingly, details from a case study of the operations of the CalFresh program in Los Angeles County are used to illustrate the opportunities and challenges presented by delivering a water benefit through local CalFresh programs.

Broad Advantages of CalFresh Option

Delivering a drinking water affordability benefit to households through the CalFresh program is intuitively appealing given that the program is long-standing and helps low-income households to afford food, which is a basic need similar in importance to drinking water. Moreover, the CalFresh program maintains the same basic (gross) income eligibility criteria— 200% of the federal poverty level (FPL)—the State Water Resources Control Board (Board) was directed to consider in Assembly Bill 401).

CalFresh benefit distribution relies upon an established administrative structure in each of the state's 58 counties to deliver funds to purchase food to low-income households across California via electronic benefit transfer (EBT) cards. Once households have enrolled in CalFresh and have an operating EBT card, they can use the monetary benefit on the card for any eligible food or beverage purchase at any EBT-participating locations in California. The delivery of a drinking water affordability benefit through CalFresh would thus not be constrained or limited to households that directly pay water bills. In addition, CalFresh is in the process of rolling out the Safe Drinking Water Supplemental Benefit Pilot Program to deliver bottled water benefits to communities that have unsafe tap water,[70] creating a limited but direct relationship between CalFresh and drinking water.[71]

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[70] Welfare and Institutions Code section 18901.25

[71] The Welfare and Institutions Code section 18901.25 reads:
(a) There is hereby created the Safe Drinking Water Supplemental Benefit Pilot Program, a state-funded program to provide additional CalFresh nutrition benefits for interim assistance to purchase safe drinking water in areas where it is necessary.
(b) The State Department of Social Services shall use moneys allocated for this program to provide time-limited additional state-funded nutrition benefits to residents of prioritized disadvantaged communities that are served by public water systems that consistently fail to meet primary drinking water standards, as defined in Section 116275 of the Health and Safety Code. Benefits shall be in addition to benefits provided for pursuant to Article 6 (commencing with Section 11450) of Chapter 2 of Part 3, and shall not be considered as income for any program established in this code.
(c) The department may use its own existing databases and databases from the State Water Resources Control Board to determine which CalFresh households are eligible to receive benefits pursuant to this section. The following households shall receive priority:
(1) CalFresh recipients served by persistently noncompliant public water systems in disadvantaged communities, as defined in Section 79505.5 of the Water Code, as determined by the location of the recipient's residence.
(2) CalFresh recipients in communities deemed eligible for interim emergency drinking water benefits by the State Water Resources Control Board, as determined by the recipient's residence.
(d) Benefits granted pursuant to this section shall be delivered through the electronic benefits transfer (EBT) system created pursuant to Sections 10072 and 10072.2.
(e) The benefits authorized pursuant to this section are not entitlement benefits. A county is required to comply with the provisions of this section only to the extent funding for this purpose is appropriated in the annual Budget Act and available to the county. A county shall not be required to expend county funds for the provision of benefits authorized under this section.
(f) This section shall become inoperative on July 1, 2020, and, as of January 1, 2021, is repealed.
(Added by Stats. 2017, Ch. 24, Sec. 53. (SB 89) Effective June 27, 2017. Inoperative July 1, 2020. Repealed as of January 1, 2021, by its own provisions.)

Furthermore, CalFresh is an established program that provides government benefits and thus already has in place appropriate fiscal tracking and accountability systems for counties to accept and administer government funds.

Finally, providing a drinking water benefit through CalFresh would promote the integration of public benefits for essential needs, such as water and food affordability. Furthermore, the program would have statewide reach since it would provide benefits regardless of whether recipients have gas, electric, or water meters.

Broad Disadvantages of CalFresh Option

At the state level, the CalFresh program exhibits lower enrollment of income-eligible persons (72%)[72] compared to other assistance programs, such as the California Alternative Rates for Energy program (CARE, 84% of households).[73] Using slightly older geographically-specific data, the percentage of eligible households enrolled also varies widely at the county level across California, from 39% in Marin County to 93% in Del Norte County. CalFresh also only allows U.S. citizens to enroll, which may limit potential enrollment. Other major likely reasons for low enrollment levels at the state level are the intensive application and verification procedures required for enrollment, and the limitations or hesitancy of otherwise eligible households to participate due to immigration status or fear of deportation. While California also maintains the California Food Assistance Program (CFAP) for applicants who cannot receive CalFresh due to their immigration status—these applicants must still demonstrate their legal permanent residency status. As of April 2017, only 19,554 households across the State receive CFAP.[74] Accordingly, while CalFresh's statewide benefit delivery system is theoretically superior in coverage and ease of funds transfer to all other options, its limited enrollment levels are a major practical limitation.

Moreover, CalFresh has a higher percentage of administrative costs as a percentage of total spending, compared to all other California-wide affordability assistance programs studied, at 24%. This high proportion of administrative costs is generally attributed to the intensive enrollment and verification processes undertaken for each applicant, as well as the number of public, private, and non-profit entities involved in administering the program. By contrast, CARE had the lowest percent of programs costs for administration with 3% of its total program budget, and the Energy Savings Assistance program reported overhead of only 5%. CalWORKs and the Low-Income Home Energy Assistance Program roughly had the same proportion (10%) of administrative cost as a share of their total program budgets.

Another broad disadvantage of administering a drinking water affordability benefit through CalFresh is that recipient households may not recognize the benefit as being related to drinking water consumption. This potential lack of recognition may detract from state and water system efforts to enhance affordability and raise awareness of the importance of water. Moreover, in cases where eligible households' water bills are exceedingly high or they are past due on payments, the lack of on-water bill crediting may create a cash flow or liquidity problem for customers that might induce further bill payment delays or delinquency.

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[72] This percentage has increased notably from 57% in state fiscal year 2012/2013 to 72% in 2016/2017, see http://www.cdss.ca.gov/Portals/9/CalFreshResourceCenter/CFPA2018.pdf?ver=2018-03-22-135717-117 or for the raw data, see: http://www.cdss.ca.gov/inforesources/Data-Portal/Research-and-Data/CalFresh-Data-Dashboard.

[73] Historically, CalFresh ranked last among state SNAP programs in enrollment levels, but enrollment levels have risen dramatically in the last four years. See U.S. Department of Agriculture, Food and Nutrition Services, Reaching Those in Need, December 2011.

[74] See "California Food Assistance Program." (2017). California Department of Social Services Administration Division. See: http://www.cdss.ca.gov/Portals/9/DSSDB/Trends/DFA256FS04.pdf?ver=2017-04-07-081926-823; California CalFresh Outreach Plan." (2016). California Department of Social Services Welfare to Work Division. See: http://www.cdss.ca.gov/calfreshoutreach/res/California_SNAP_OutreachPlanFFY2017-FFY2018.pdf.

Additionally, counties do not necessarily have access to drinking water system boundaries or rate information which are crucial for distributing water affordability benefits to the right households within their jurisdiction. A few water systems cross county lines, which would complicate determining the appropriate county jurisdiction. If an affordability benefit is to be delivered via EBT cards, information on water system boundaries and associated benefit levels would need to be transferred, shared, and continuously maintained with CalFresh county offices and their sub-contractors.[75] (The Safe Drinking Water pilot program will use zip codes as proxies for water system boundaries).

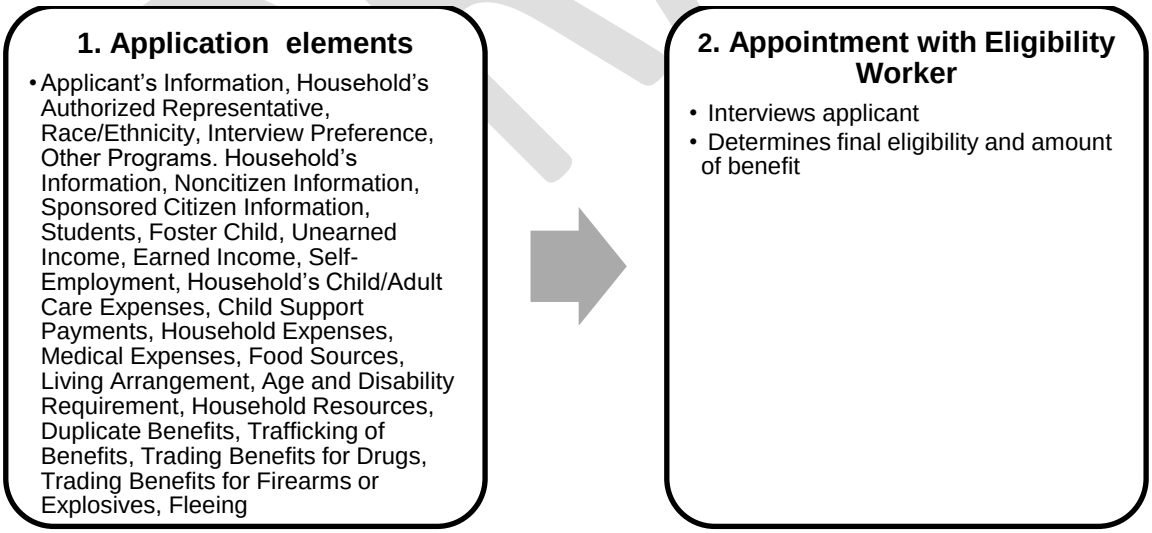
CalFresh enrollment procedures, advertising efforts and administrative costs: Case Study in Los Angeles County

The Case Study below is presented to give readers additional context about the administrative components of the CalFresh program.

Enrollment Procedure and Verification

To enroll in CalFresh, households must first pass a gross income test (income below 200% of the FPL needed), and then undergo a subsequent net income test. Additionally, heads of household (which are determined by the household)[76] must have lived in the U.S. in a qualified status for five years. Moreover, households must produce documented evidence on each of the elements shown in Figure 2 to finalize enrollment in the program.[77] In addition to extensive paperwork, applicants must be interviewed via telephone or in person.[78] The verification and enrollment process can last up to 30 days. Once enrolled, households must submit a Semi-Annual Report (SAR-7) if they experience a change in household income, composition, or living costs. After enrollment, applicants must comply with yearly redetermination by submitting a recertification application. After the recertification application is received, the enrollment procedure repeats itself.[79]

Figure 2. CalFresh Application Elements and Procedure



[75] We could not find data on the exact number of CalFresh sub-contractors across the state.
[76] See http://www.cdss.ca.gov/foodstamps/entres/getinfo/pdf/fsman4a.pdf.
[77] This requires forms including but not limited to a birth certificate, driver's license, paycheck, voter registration card, U.S. passport, social security number, utility bill, pay stub, and child support check.
[78] Except for elderly applicants (60+), who may have their interviews waived.
[79] See "How to Apply for CalFresh and the Process." (2017) Los Angeles County Department of Public Social Services. See: http://dpss.lacounty.gov/wps/portal/dpss/main/programs-and-services/calfresh/how-to-apply/; "CalFresh Program." (2017). California Food Stamps. See: https://californiafoodstamps.org/.

As noted above, low enrollment levels in CalFresh reflect the intensive application and verification procedures required, and the hesitancy of otherwise eligible households to participate due to concerns regarding immigration status. Using the latest available data in Los Angeles County, about 50% of income-eligible households were enrolled in the program.[80] Enrolling in the program can be done at a number of physical locations across the state. CalFresh operates over 100 district offices in California, including 31 in Los Angeles County. Other options for in-person enrollment are through outreach office sites—health clinics, food pantries, farmers' markets, California Special Supplemental Nutrition Program for Women, Infants, and Children sites, churches, and schools. These office sites have eligibility workers that can assist in the application process. There are about 75 outreach sites located throughout Los Angeles County.[81] Households can also apply for CalFresh via mail, telephone, fax, online, or at the County Welfare Department office.[82] Over 100,000 people across California apply to the program each year, with approximately 69,500 persons successfully enrolling across the state over the last four years.[83]

Ongoing Advertisement

Recognizing historical low levels of enrollment, California's Department of Social Services (CDSS) created an outreach plan. The statewide CalFresh program runs an outreach program,[84] wherein it directly contracts with seven non-profit groups to work with community-based organizations.[85] To bring awareness and boost enrollment, the statewide outreach program and its contractors run the CalFresh Awareness Month, which occurs each year.

Counties that are interested in voluntarily participating in the statewide outreach efforts can also do so at their discretion. In Los Angeles County, about 50 governmental and non-profit organizations are listed as collaborative partners for CalFresh Awareness Month. These events provide the community with relevant benefits like nutritional counseling, health information, and CalFresh application assistance. In addition, Los Angeles County Department of Public Social Services (DPSS) holds a community forum event during CalFresh Awareness Month where representatives from federal, state, and local government attend and answer questions about the program. During the event, community members also have access to the DPSS Health and Nutrition Mobile Unit where they can apply for CalFresh and other services. Other Los Angeles County advertising activities for CalFresh include a community bike ride and resource fair, and social media campaigns.[86]

Administrative Costs

Direct CalFresh benefits provided to households are federally funded. CalFresh administrative costs are shared amongst federal, state, and county entities. In California, 15% of administrative costs are borne

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[80] See "Nutrition and Food Insecurity Profile." (2012). California Food Policy Advocates: http://cfpa.net/county-profiles.
[81] See http://dpss.lacounty.gov/wps/portal/dpss/main/programs-and-services/calfresh.
[82] See "How to Apply for CalFresh and the Process." (2017) Los Angeles County Department of Public Social Services: http://dpss.lacounty.gov/wps/portal/dpss/main/programs-and-services/calfresh/how-to-apply/; "CalFresh Program." (2017). California Food Stamps. See: https://californiafoodstamps.org/.
[83] See http://www.cdss.ca.gov/inforesources/Data-Portal/Research-and-Data/CalFresh-Data-Dashboard.
[84] Adding to the complexity, the U.S. Department of Agriculture reimburses some of the expenses of outreach to the outreach program's prime contractors, and the California Department of Public Health assists CDSS in some of its outreach efforts. See "Chapter One," (2018), CalFresh Outreach Basics Handbook, California Department of Social Services.
[85] See http://www.cdss.ca.gov/calfreshoutreach/res/Toolkit/Handbook-GeneralMarket/GeneralMarketHandbook_CH1_CaliforniasCalFreshOutreachProgram.pdf.
[86] See "CalFresh Awareness Month." (2017). California-Department of Social Services: http://www.cdss.ca.gov/inforesources/CalFresh-Outreach/CalFresh-Awareness-Month; "CalFresh Awareness Month." (2017). Los Angeles County Department of Public Social Services. See: http://dpss.lacounty.gov/wps/portal/dpss/main/programs-and-services/calfresh/awareness-month/

by the county, 35% by the state, and 50% by the federal government.[87] California first must spend its 35% share in order to receive its federal funds. Likewise, each county must spend all of its funds in order to receive its 35% state funds. The CalFresh program had a proposed budget of $1.54 billion for the 2017-2018 period.

At the county level, the non-profit California's County Welfare Directors Association (CWDA) and CDSS disperse the 15% of funds to each of the state's 58 counties. Each county's budget is based on the previous year's allocated amount and caseload growth. CWDA also surveys counties mid-year to review budgets statuses. Reallocation of funds within counties can occur so that the CDSS reaches the percent listed above to receive the requisite federal funds.

Summary

The delivery of a drinking water affordability benefit alongside the food benefit already delivered through CalFresh is intuitively appealing and has state-wide deployment capacity through an existing administrative structure in each county, which is not limited to households that directly pay water or energy bills. On the other hand, the intensive enrollment and verification process, low levels of enrollment, and high overhead costs associated make the delivery of a drinking water affordability benefit through the program less appealing.

[87] See Tecle and et al. "CalFresh and CalWORKS in South LA." (2011). University of Southern California's School of Policy, Planning, and Development.

Appendix J: New Electronic Benefits Transfer (EBT) Program

CalFresh is not the only assistance program that utilizes Electronic Benefits Transfer (EBT) cards.[88] If the Legislature created a new program, it could deliver the water benefit on eligible individuals' EBT cards without making it a part of CalFresh. Counties (or non-profit subcontractors) would administer the program just as they do for CalFresh. Revenue could either be delivered directly to the counties for distribution to existing EBT beneficiaries, or revenue could first be disbursed to a State department, which would reimburse the counties for benefits provided. Direct funding of the counties would reduce administrative costs. However, channeling of funds through the State would provide a greater degree of program oversight.

In 2017, the Legislature provided funding for a pilot project to augment EBT CalFresh assistance for those beneficiaries whose tap water is not safe to drink. The additional EBT benefits are available to these recipients for the purchase of bottled water. The Department of Social Services is currently working with the State Water Resources Control Board (Board) and with stakeholders to implement the pilot program. A new affordable drinking water program implemented through EBT could capitalize on the existing pilot project for safe drinking water.

Broad Advantages of a New EBT Program

As a program funded solely by the state, a new EBT program would avoid the federal linkage of CalFresh, which is the source of administrative hurdles, including the citizenship requirement which in turn is a cause of low enrollment. It would also promote the integration and integrated marketing of public benefits, as water and food affordability are interrelated issues, and EBT cards are already used for other benefits such as CalFresh, CalWORKs, and other programs. Notably, EBT benefits from at least one existing EBT program, Disaster CalFresh, does not require legal immigration status for receipt of benefits; a new EBT program could similarly be designed to provide benefits via EBT cards for these residents.

Furthermore, a new EBT program would be readily identified by recipients as assisting with water affordability, unlike the other options. Existing CalFresh recipients could be automatically enrolled in the new water EBT program. In addition, the program would have statewide reach since it would provide benefits regardless of whether recipients have gas, electric, or water meters.

Finally, although the program would be new, it could build on the appropriate fiscal tracking and accountability systems for accepting and administering government funds that are already in place for other EBT programs such as CalFresh, reducing the risk of fraud, waste, and abuse.

Broad Disadvantages of a New EBT Program

A separate program would also entail new and separate administrative costs. The new program would need to be designed to minimize eligibility hurdles, in order to promote enrollment beyond the existing low levels of CalFresh. As for most of the other benefit delivery options, aggressive marketing would be needed to ensure widespread enrollment, raising administrative costs. Also, while many thousands of retailers statewide accept EBT as payment, the feasibility of water systems accepting EBT is unknown. Water systems could change their practices if W-LIRA via EBT were adopted. Alternatively, recipient households could use the EBT benefits to indirectly offset their water bills, as is contemplated for the electric utility and CalFresh options. Furthermore, a new EBT program would present interface and data management challenges to track recipients and benefits while maintaining privacy protections. Finally, if an affordability benefit is to be delivered via EBT cards, information on water system boundaries and associated benefit levels would need to be transferred, shared, and continuously maintained with CalFresh county offices and their sub-contractors.

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[88] See https://www.fns.usda.gov/ebt/state-ebt-websites, for a list of benefits provided by EBT by different states.

Summary

The creation of a new EBT program could eliminate some of the drawbacks associated with the CalFresh program. However, it would face significant start-up and operational challenges, along with a smaller initial enrollment than an energy benefit program.

Appendix K: Community Water Systems

As one of the other primary alternative to energy utilities, the State Water Resources Control Board (Board) explored the administrative advantages and disadvantages apparent in delivering a monetary benefit to eligible low-income households in California to assist with drinking water affordability through California's community water systems (CWS). While low-income households which receive water bills directly from a CWS would simply receive an on-bill credit via the program, special consideration is given to potential mechanisms for benefit delivery to income-eligible but non CWS-account holding households.

Broad Advantages of a Water System option

Delivering a drinking water affordability benefit to households through CWS is intuitively appealing. If a benefit for drinking water affordability is delivered as a monetary credit on water bills, recipient households will most easily recognize the benefit as offsetting drinking water expenditures. The association or crediting by recipients of the benefit to the water sector will also help raise the profile of the state and water systems' efforts to enhance affordability among recipient households. It also would open up the possibility of a more tailored rebate. Similar to the California Alternative Rates for Energy (CARE) program's percentage discount off each month's actual electric/gas utility bill, and it could provide a percent discount on each customer's water bill.

Furthermore, this is the only option that does not require information on water system boundaries and associated benefit levels to be transferred, shared, and continuously maintained with an outside entity. Moreover, in cases where eligible households' water bills are exceedingly high or they are past due on payments, on-water bill crediting will directly assuage cash flow or liquidity problems for customers that might otherwise induce bill payment delays or delinquency. Administratively, delivering the benefit through a CWS would not require the transfer of system boundary or rate data to distributors who are largely unfamiliar with CWS boundaries or rate setting.

Broad Disadvantages of Water System Option

One downside of CWS administering the benefit is that, for the vast majority of systems which do not already operate an affordability program with 200% of the FPL as the baseline eligibility criteria, these systems would either need to assess eligibility of households in their service area by directly obtaining sensitive household-level income data, or obtain a list of eligible households from an existing program such as CARE which already uses the same eligibility criteria.

One of the other considerations of CWS administering the benefit to households is that some systems may need to make billing system modifications. Using data from CWS electronic annual reports ("EAR" data) which were submitted to the Board's Division of Drinking Water in 2015,[89] Table 14 shows that around 8% of systems only levy fixed charges and 6% indicated that they do not charge rates at all. Given that the data is largely drawn from large systems, the percentage of the state's systems which would require the creation or substantial modification of billing systems may be even larger than indicated here.

Moreover, there would be substantial and new privacy concerns introduced by the offering a Low-Income Water Rate Assistance Program (W-LIRA) benefit through CWS. Although CARE, CalFresh, and the Franchise Tax Board (FTB) all have privacy protections in place for household income data used to determine program eligibility, this would be new to many CWS. They would each have to adopt robust privacy protection measures.

[89] See https://drinc.ca.gov/ear/.

Finally, distributing the benefit through CWS would require the creation of a fund management agency, compared to distributing the benefit through CalFresh or the FTB. The role and scope of state-level fund management for each benefit distribution alternative is discussed more fully in Appendix K.

Table 14. California Water Systems' Self-Reported Rate Structure Type

Rate Structure Type	Proportion of Reporting Systems
Mixed	65%
Volumetric Only	12%
Fixed Only	8%
Other	8%
No Rate	6%

Source: 2015 EAR data

However, the most significant disadvantage of distributing a benefit through CWS is the inherent limit on program participation rates due to lack of direct billing for water, particularly for low-income households. There is far more master-metering and indirect bill-paying of residential units in the drinking water sector than either the electricity or natural gas industry sector. Master-metering of residential accounts refers to when a multi-dwelling building or development utility account is paid by the property owner or landlord, and thus individual households within that development do not hold their own direct account with or receive a bill from the utility. Even if they do not hold a direct water account, in market-priced housing, economic theory and empirical evidence suggests that landlords will pass on some of the costs which they bear such as drinking water service to tenants through the rent.[90] If drinking water affordability benefits are to be delivered via CWS bills, and an income-eligible household does not receive a bill, they are thus inadvertently made ineligible for the program even though they are indirectly paying the cost of water.

Estimates of master-meeting or non-account holding in each sector vary as there is no perfect source for this information, but at least 29% and as much as 46% of households in the state do not pay their water bill directly, or are master-metered.[91] To make a direct comparison from the same source, the 2015 American Housing Survey, Table 15 shows the percentages of Californian households[92] reporting that they do not pay a direct bill for the three utility services of interest. Again, this comparison clearly shows that households are much less likely to pay their water bill, as opposed to their energy bills, directly.

[90] We are aware of one study which directly assesses the cost pass through of water service (in the context of all utility services) from landlords to tenants in the form of rent using hedonic regression methods, see Choi, S. J., & Kim, S. (2012). Why Do Landlords Include Utilities in Rent? Evidence from the 2000 Housing Discrimination Study (HDS) and the 2002 American Housing Survey (AHS). *Journal of Housing Economics*, *21*(1), 28-40). This study finds that inclusion of utilities in rent leads to higher rent, all else being equal. Beyond this study, the closest parallel is a study of cost pass through in rent due to master-metering of energy service, see Levinson, A., & Niemann, S. (2004). *Resource and Energy Economics*, *26*(1), 51-75. This study finds that landlords pass on some, but not all of the costs of energy services to their master-metered tenants.

[91] Varying estimates derived from 2015 Census American Community Survey (IPUMS) data for California, the Water Research Foundation's national 2017 report *Customer Assistance Programs for Multi-Family Residential and Other Hard-to-Reach Customers* and from the 2015 American Housing Survey to refine our assumptions of the number of master-metered accounts and the number of households each account serves.

[92] A national study using AHS data shows similar results. See Choi, S. J., & Kim, S. (2012). Why Do Landlords Include Utilities in Rent? Evidence from the 2000 Housing Discrimination Study (HDS) and the 2002 American Housing Survey (AHS). *Journal of Housing Economics*, *21*(1), 28-40)

Table 15. Californian Households Reporting That They Do Not Pay a Direct Bill for Utility Service

Bill/ Service Type	Prevalence
Water	44%
Natural Gas	13%
Electricity	5%

Source: 2015 American Housing Survey data on California sub-sample

Master-metering is particularly problematic for household-level affordability programs because low-income households eligible for such programs are much more likely to live in multi-unit dwellings. As noted above, among households with incomes under 200% of the FPL and living in multi-family housing, an estimated 72% (or 1.4 million households) do not directly receive a water bill and thus cannot access benefits from water affordability assistance programs. To date, in the water sector, master-metering has effectively meant that no affordability benefit has been delivered to otherwise eligible households. [93]

Potential Solutions to Master-Metering Problem

We have identified three potential, but likely only partial, solutions to deliver benefits through CWS to non-account holding but otherwise income-eligible households. In each approach, water systems and low-income tenants are necessarily involved, whereas the role of landlords varies.

CWS Works with Landlords and Households

The first draws on the experience of large energy investor-owned utilities (IOUs) and involves direct interaction and sharing of information between all three parties, CWS, landlords, and tenants. Over time, energy IOUs have shifted away from an approach which relies more heavily on landlords toward a model which enables direct contact with those tenants with sub-meters.[94] The large energy IOUs have developed a mechanism to directly contact sub-metered, but not directly bill- paying CARE and Federal Emergency Relief Administration (FERA) eligible households to expedite their enrollment in affordability programs. At the same time, the IOUs generate lists of eligible CARE and FERA tenants and share them with owners and managers of master-meter accounts on a monthly basis. Once the CARE tenant is enrolled, responsibility shifts to the master-meter customer to pass the benefit onto the CARE tenant as well as update the utility of the status of the tenant should they move or become ineligible. These efforts have resulted in enrolling substantial percentages of these households, although not nearly all of those eligible.[95]

There is a major caveat, however, to the transferability of this approach as it applies to water systems. Households are much more likely to be sub-metered for energy service, even if they do not directly pay an energy bill (which in turn relies on the master-meter held by the landlord), than they are for water

[93] While some drinking water systems maintain in their official documents that they allow income eligible master-metered households to apply for drinking water affordability programs in conjunction with their landlords, we have only identified a single system which actually delivered a benefit to a non-metered customer.

[94] See SoCal Edison (2016) Annual Report of Energy Savings Assistance and Alternate Rates for Energy Programs.

[95] For instance, SoCal Edison estimates that among 4,469 CARE eligible master-metered tenants in its service area, it enrolled 1,390 customers (31%) in CARE at the end of 2015 (see SoCal Edison (2016) Annual Report of Energy Savings Assistance and Alternate Rates for Energy Programs). Similarly, PG&E estimates that among 54,252 CARE eligible master-metered tenants of master-metered customers in its service area, it enrolled 28,885 customers (53%) at the end of 2015 (see PG&E (2016) 2015 Annual Report of Energy Savings Assistance and Alternate Rates for Energy Programs). Moreover, SDG&E estimates that among 22,456 CARE eligible master-metered tenants in its service area, it enrolled 15 (68%) in 2015 (see California Department of Public Health SDG&E (2016) Annual Report on Low Income Assistance Programs for 2015).

service. Even among energy IOUs, as far as we can assess, there remains no mechanism to deliver benefits to non-sub-metered tenants who are solely master-metered.

CWS Works with Landlords Who Pass on Benefits to Households

A second approach involves direct interaction and transfer of funds between CWS and landlords, and between landlords and tenants, but not between CWS and tenants. This approach would require, that for low-income households who pay for water indirectly through rent, landlords deduct a water credit amount from the rent, and notify tenants in writing of the deduction and other affordability program information. In turn, CWS would then credit landlords' master-metered bills to cover rent deductions.

There are major challenges to this approach. The primary challenge would be establishing the legal means to require landlords to pass on the full affordability benefit to tenants and establishing a verification mechanism.[96] While complaint and grievance mechanisms could follow those set out in Senate Bill 998 (2018), the volume and complexity of disputes between tenants and landlords could require significant administrative management and legal expertise. We also note that energy IOUs have moved away from reliance on landlords to play an active role in enabling tenants to receive an affordability benefit, given their demonstrated inactivity in this role.

CWS Directly Deliver Benefits to Households

Finally, the third approach involves direct interaction and transfer of funds between CWS and tenants, but does not involve landlords. The one known precedent[97] for this approach is the City of St. Helena CWS' affordability program, which is just over one year old. This system offers a low-income discount via their "CARES" program to their all of their low-income residents (homes, apartments, and mobile homes).[98] The benefit is a 50% discount on the fixed charges for water and sewer bill for all households with incomes below 200% of the FPL. A total of 108 households (or 27% of eligible households) are enrolled in the program, of which 20-30 are master-metered.

The City of St. Helena CWS used to credit landlords, and rely on them to pass credits directly to sub-metered households.[99] However, given the lack of success with this strategy, the CWS added an approach where it sends benefit checks directly to eligible households. The system reports devoting little staff time to maintaining the program. Staff market the affordability program on the back of billing statements as well as sends annual renewal reminders to the 108 households enrolled, which are required to show proof of enrollment in comparable benefit programs or provide proof of income. Most qualifications are made based on enrollment in the Pacific Gas & Electric CARE program, so there is little administrative work involved for the CWS during the approval process. The main downside of this approach is that it has only been demonstrated by a single CWS over a relatively short period of time,

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[96] For instance, the Portland Water Bureau cited difficulty in finding a cost-effective way to verifying that landlords pass on savings to tenants as a key-challenge to expanding its low-income assistance program (WRF 2017 Hard to Reach Report).

[97] A similar program appears to be operated in Washington by the Seattle Public Utilities (SPU), which has partnered with a local energy utility to offer direct discounts to households via energy bills (WRF Hard to Reach Report, 2017). Vouchers are also offered to households that do not receive an energy or water bill. This strategy proves effective because the partnering energy utility, City Light, shares the same billing system as SPU.

[98] Information based on electronic communication between Board staff and St. Helena CWS "CARES" program administrators.

[99] The old approach was the following: There was a written agreement between the three relevant parties: the system, the account holder, and the tenant where the account holder must pass the credit to the tenant by either a (1) utility bill credit or (2) rent reduction. If a written agreement was not possible then after the bill is paid, (3) the City will issue a check to the account holder monthly. The discount was required to be given only to the eligible tenant, not all sub-metered customers. If the discount was not properly applied by the account holder, then the tenant could contact the Finance Dept and the monthly checks would be sent directly to the tenant.

and at a relatively small scale. It is unclear how or whether a direct CWS-tenant approach would scale across the state.

Additional Considerations for Discussion

Just as with the recommended means of benefit delivery through existing energy utilities' affordability programs, there are several additional statewide considerations which would need to be fully vetted to ensure consistency in the administration of a water affordability benefit through CWS. These include but are not limited to: (a.) determining how and when water systems would be reimbursed for their W-LIRA credits from the state revenue collection and fund management agency; (b.) determining how a credit would be provided to households whose water bill is zero or near zero; (c.) potential ratemaking considerations associated with increased operations and maintenance costs due to billing system modifications and customer assistance demands; (d.) how the marketing, education, and outreach component of water systems would be modified if a water credit was included and whether some of these tasks should be sub-contracted to non-governmental organizations; and (e.) what (phased) standards for advertising and enrollment would be appropriate for systems.

Alternative: Income Tax Rebate

The Board also explored the administrative advantages and disadvantages apparent in delivering a monetary benefit to eligible low-income households in California to assist with drinking water affordability through a state income tax rebate. In this approach, the FTB would serve as both the revenue collection and fund maintenance agent and would use collected revenues to deliver the benefits as tax rebates. An income tax rebate would function similarly to the current Renter's Credit. [100]

Broad Advantages of Income Tax Rebate
The major advantage of this approach is that it capitalizes on an existing (and successful) state-level fund management and rebate program, the Renter's Credit. It would be the simplest benefit distribution option of those considered to implement, although it would still require the establishment of a special fund (like FTB's voluntary contribution funds)[101] to avoid reliance on the General Fund and accompanying Proposition 98 complications. While the FTB would still have to acquire water system boundaries and rate information to distribute household-level benefits, it would not have to transfer money between different entities, as would the energy utility, water system, and CalFresh options. Transferring money among different entities inherently creates inefficiencies and a higher potential for fraud, waste, and abuse.

Another major advantage of this approach is that it would avoid any of the difficulties in offering a benefit to non-account-holding or un-billed but otherwise eligible households, such as faced in the approaches through energy utilities or CWS. Finally, the FTB already has much of the relevant eligibility information (household income, household size, and addresses – for water system service area determinations).

Finally, the FTB already successfully complies with fiscal tracking and accountability systems since it accepts and administers State taxpayer funds, thus avoiding any new risks of financial malfeasance.

Broad Disadvantages of Income Tax Rebate

A major disadvantage of this approach is that not all California households (especially low-income undocumented households) pay income tax. These households would have to file taxes to receive benefits and might be hesitant to do so. Equally important, the benefit in an income tax rebate approach

[100] See https://www.ftb.ca.gov/law/legis/17-18bills/AB1100-021717.pdf. Current state law allows a nonrefundable credit for qualified renters in the following amounts for tax year 2016: $120 for spouses filing joint returns, heads of household, and surviving spouses, with an adjusted gross income (AGI) of $78,125 or less. $60 for all other individuals with an AGI of $39,062 or less.
[101] See https://www.ftb.ca.gov/individuals/vcfsr/indvolcon.shtml.

would only arrive annually, making it less useful especially to those struggling with cash flow concerns. Moreover, the FTB would need to know which water system served each income-eligible household and the dollar amount of each household's benefit. Information on water system boundaries and associated benefit levels would need to be transferred, shared, and continuously maintained. Also, low-income households that move during the year would only receive a tax credit relative to the 12 CCF water cost of one of their residences.

Appendix L: Options for Improving Affordability That Do Not Include Direct Rate Assistance

This report focuses on the provision of household-level assistance rather than community water system (CWS)-level assistance to make drinking water more affordable for low-income households[102] are the fundamental building blocks of the water supply network and provide water service to 94-96% of households in California. The proposed plan's focus on residential customers draws on a distinction between the financial capability of a water system, defined as its "ability of the utility [water system] to pay for the capital and operations costs associated with providing safe and reliable service" and household-level affordability, defined as "the ability of individual customers to pay for services that are adequate to meet their basic needs."[103] While system-level financial capability is inextricably linked to household-level affordability, the proposed plan emphasizes assistance to residents because targeting financial assistance to low-income households is the most direct, effective, and equitable way of reducing the affordability burden for all low-income customers. In cases where systems need state-level technical, managerial, and financial capability (TMF) assistance, receipt of such assistance may help the system deliver higher quality and more reliable water service but may have a neutral or negative effect on household-level affordability. More broadly, there are many water systems which are not in need of system-level TMF assistance but which still serve large numbers of low-income households that struggle to pay their water bills. Low-income households served by systems which are not candidates for state-level TMF assistance can best be supported in the affordability of their water bill by either progressive rate structures, water-saving technologies, or via direct monetary assistance.

The advantages and disadvantages of using alternatives to direct rate assistance to support drinking water affordability were fully considered in the process of the proposed plan preparation and findings are discussed here. The three alternative, indirect means of assistance analyzed are: 1) progressive rate structures, which can keep rates low for low-water using households; 2) water use reduction strategies, such as conservation rebates or leak repair assistance; and 3) consolidations of financially unsustainable systems.

Progressive Rate Structures

<u>Advantages of progressive rate structures for indirect affordability assistance</u>

Drinking water systems generally have discretion over the structure of their residential rates and billing components. In California, public entities providing retail water service must comply with cost of service requirements pursuant to Proposition 218 (1996), whereas investor-owned utilities (IOUs) must comply with California Public Utilities Commission (CPUC) regulations. Water rate structures are generally classified into three categories: only fixed fees, fixed fee and variable quantity rates, and only variable quantity rates (which may be either uniform or tiered based on quantity thresholds). A fixed or flat fee structure charges customers the same amount regardless of how much water they use, which does not incentivize conservation, or enable customers to adjust their expenditure by altering water consumption. An exclusively variable rate charges customers exactly in proportion to how much water they use, which provides customers the largest opportunity to reduce their water cost by as much as they can reduce consumption but also leaves the water system vulnerable to shortfalls.

There is no "typical" rate structure or residential water bill type across the state.[104] There is also no comprehensive database of residential rate structures or billing components for drinking water systems

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[102] Any drinking water network serving 15 connections or 25 people is classified by the U.S. EPA as a public water system and is subject to government regulation. A CWS is a subset of the broader category of public water systems which serves the same population year-round (U.S. EPA, 2015).
[103] Jon P. Davis and Manuel P. Teodoro (2017). "Financial Capability and Affordability." Chapter 22 in *Water and Wastewater Finance and Pricing: The Changing Landscape,* Fourth Edition.
[104] Due to the inconsistency in billing practices across systems, credits or benefits applied uniformly to the fixed or variable charge segments across all bill types will also result in different impacts on customer

across the state. Consequently, the proposed plan uses data obtained directly from CWS electronic annual reports (EAR) which were submitted to the State Water Resources Control Board's (Board) Division of Drinking Water in 2015.[105] The proposed plan uses verified data on 441 systems (serving at least 62% of state's population) to characterize, as well as possible, the prevalance of rate structures and billing components across California.[106] This data included information about system retail pricing levels for the single-family residential customer class, retail pricing structures, and expenditure data at three consumption levels (6, 12, and 24 CCF).[107] Rate structure data from 705 systems was reported to the Board through the EAR in 2015, however, not all of the data was usable due to errors or incomplete reporting.

Table 16 uses this rate structure data to show the percentage of systems reporting each of these three billing types. It suggests that most rate structures have a fixed and variable component (hereafter, mixed bills), but a significant proportion of systems maintain only fixed fees or only variable rates, and some report using other types or no rate structures. Seventy-three percent of all systems' residential bills contain some fixed charge component.

Table 16. California Water Systems' Self-Reported Rate Structure Type

Rate Structure Type	Proportion of Reporting Systems
Mixed	65%
Volumetric Only	12%
Fixed Only	8%
Other	8%
No Rate Provided	6%

Source: 2015 EAR data

Beyond the broad type of rate structure which a water system employs, the emphasis placed on the fixed versus variable components of a bill can change its financial burden or affordability to customers—particularly for low-income households. Generally, rate structures which place a greater emphasis on recovering revenue through the variable component of the bill, charge lower variable rates for lower levels of consumption (increasing block rates) and are classified as progressive rate structures. Even though they are applied to all ratepayers and not low-income ratepayers per se, well-designed progressive rate structures may lessen or eliminate the need for direct affordability assistance by keeping rates low for low-income households that consume low levels of water.[108]

Accordingly, a means of potential statewide affordability assistance could be extending guidance to water systems to use very progressive rate structures. To be considered progressive, billing rates would need to use "lifeline" or "budget-based"[109] structures which offered a free or steeply discounted rate for an initial

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consumption behavior. Accordingly, assistance assigned as a percentage of a household's total bill (including both fixed and variable charges, but excluding other charges and fees) is deemed more equitable than flat discounts. The strength of this benefit type is its ability to equitably distribute assistance regardless of differences in rate structures and levels, ensuring that each household receives assistance relative to their total expenditure burden.

[105] See https://drinc.ca.gov/ear/.

[106] The EAR distinguishes between volumetric and non-volumetric billing types in 10+ categories. The Board simplified this information into three usable categories.

[107] Water systems often bill using a unit of 100 cubic feet (CCF), which is equivalent to 748 gallons.

[108] For instance, see Baerenklau, K. A., Schwabe, K. A., & Dinar, A. (2014). The residential water demand effect of increasing block rate water budgets. *Land Economics, 90*(4), 683-699.

[109] Budget-based structures have the advantage of adjusting for household size in their first-tier allocations. The downside of lifeline rates not adjusted for household size is that they assume low-income households consume little water, whereas the relationship between water consumption and income is not linear (for instance, see Whittington, D., Nauges, C., Fuente, D., & Wu, X. (2015). A diagnostic tool for

or baseline quantity of water that would cover a typical household's basic needs. After this volume was consumed, progressively higher variable rates begin to apply at different consumption levels.

Proposition 218 restricts local governments from attempting to raise funds from property owners to four methods: 1) an *ad valorem* property tax, 2) a special tax, 3) an assessment, or 4) a fee or charge for property-related services. It also requires that rates be set at the cost of providing service. This serves as a practical limit on the ability of local government-run community water systems from using rate revenue to fund low-income assistance programs. Despite the constraints of Proposition 218, many water systems in California have already, or are actively working within these constraints to incorporate progressive elements into rate structures.

The benefit of providing affordability assistance through progressive rate structure design is that it incentivizes all households to conserve water. If successful, such rate structure designs can also eliminate or reduce the need for a transfer of rate revenue from one set of (higher income) customers to fund a subsidy for another set of (lower income) customers. This reduces administrative costs while avoiding the legal barriers of Proposition 218 and general political resistance to cross-subsidies.

Disadvantages of Progressive Rate Structures for Indirect Affordability Assistance

A practical obstacle to relying on progressive rate structures to provide affordability assistance is that, despite efforts by some systems, very few systems in the state employ sufficiently progressive rate structures to ensure affordability for low-income households. In other words, more systems would need to adapt their current rate structures to be more progressive or adopt new rate structures to support household-level affordability.

There remain, however, two major reasons for systems to keep non-progressive rate structures besides the legal complexities outlined above. First, some water systems prioritize revenue stability, which can be more easily achieved through imposing less progressive rates. To ensure that they can cover their fixed costs even in the context of lower consumption, such as occurs during droughts or economic downturns, these systems will put more emphasis in their rate structures on high fixed charges that they can collect regardless of consumption.[110]

Second, some systems would face significant opposition from high-use customers if they attempted to impose more progressive rate structures. As there are no state or federal requirements regarding retail rate design, ensuring affordability through sufficiently progressive rates statewide would be challenging and would likely be widely opposed by many California water systems operators. Even if standardization in progressive rates could be achieved across the state, the rate design would need to be constantly monitored and adjusted to ensure that if water consumption is reduced further in the future, as seen in the most recent drought, the impact on water systems' finances would be minimal. Finally, and as detailed more throughout the report, a substantial proportion of the state's low-income households do not receive a water bill directly. The benefits of progressive rate design for single-account residential customers may not be experienced by these households.

Without implementing standardized rate designs, there are disadvantages to relying on existing progressive rate structures to provide affordability assistance to low-income households. Even more important for household-level affordability than the presence or absence of a fixed charge on the bill, is the magnitude of the fixed charge as a proportion of the total bill. The Board measures this as a percent of a residential customer's bill which goes to pay fixed charges levied by the system. The Board

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estimating the incidence of subsidies delivered by water utilities in low- and medium-income countries, with illustrative simulations. *Utilities Policy*). While income and water consumption are positively, strongly correlated, one cannot assume that households that are most in need of a subsidy will need a small quantity of water.

[110] For instance, see Dinar, Ariel, and Ashok Subramanian. "Policy implications from water pricing experiences in various countries." *Water Policy* 1, no. 2 (1998): 239-250; Winpenny, J. (2005). *Managing water as an economic resource*. Routledge.

estimates the average proportion of the total customer payment going towards fixed charges at the 12 CCF consumption level as 44%, or nearly half the bill. Table 17 illustrates the prevalence of systems using fixed charges with the percent of systems (for which the Board has data) in which households would pay above 25% of their bill on fixed charges at both the 6 and 12 CCF consumption levels. In more than one-third of systems, customers using 12 CCF per month would pay more than 50% of their bill on fixed charges.

Table 17. Distribution of California Systems Based on the Share of Fixed Charge Component in their Rates[111] at 6 and 12 CCF Consumption Levels

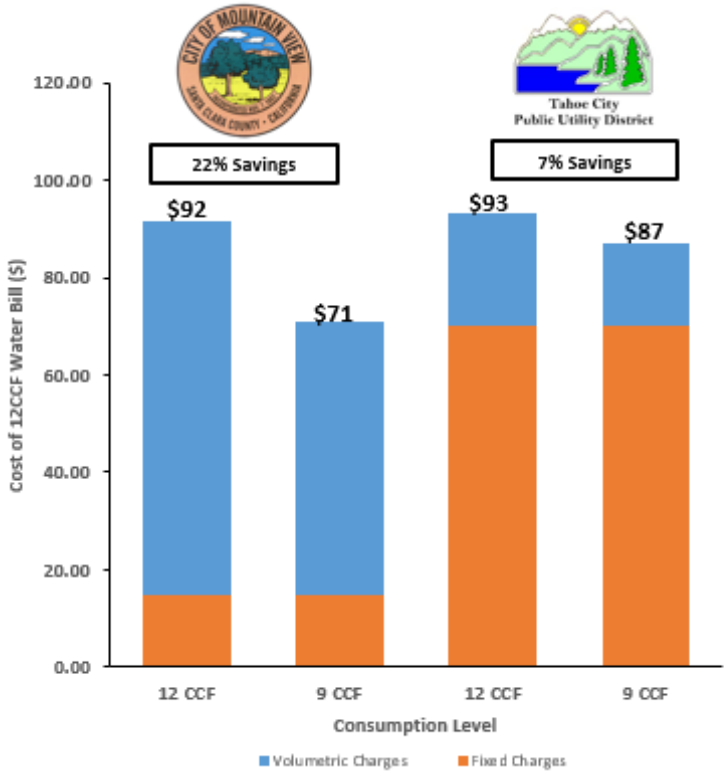
Share of Fixed Charge Component in Water Systems' Rates	6 CCF	12 CCF
0-25%	17%	26%
26-50%	25%	38%
51-99%	43%	24%
100%	15%	12%

This demonstrates that relying on current water system rate structures to provide affordability assistance to low-income households in California may not be effective as many systems have only mildly progressive rate structures. Because of relatively high fixed costs, systems with only mildly progressive rate structures may not yield enough potential rate relief to low-income households to be deemed a sufficient means of affordability assistance. In other words, under existing rate structures, households cannot realize enough savings by limiting their water use through conservation to make their water bill affordable.

The proposed plan illustrates the impact of fixed charges using the example of two water systems which have very similar total charges for residential customers using 12 CCF of water in a month: the City of Mountain View ($92) and Tahoe City Public Utilities District (PUD) ($93). While total charges are comparable, the two systems maintain vastly different balances between fixed and variable charges. The former has a lower proportion of their 12 CCF bill attributed to fixed charge at 16%, whereas the Tahoe PUD's proportion is at 75%. The two systems' different emphases on the fixed charge component of the total bill means that when customers lower their consumption to 9 CCF (a 25% reduction), their monetary savings are dramatically different. Customers of the City of Mountain View would experience a 22% reduction in the cost of their bill by reducing consumption by 25%, a nearly one-to-one difference. Customers of the Tahoe PUD would experience only a 7% reduction in the cost of their bill by reducing consumption by 25%. In short, systems with lower fixed charges as a percentage of the total bill provide greater ability and incentive to low-income households to conserve and make their monthly water bill affordable as show in Figure 3 below.

[111] The percentage of households served by systems moderately or heavily reliant on fixed charges is different than the percentage of systems shown in Table 17. In our sample, it appears that large systems are more likely to rely on fixed charges as a percent of the total bill in the 51-99% range at the 6 CCF level, and in the 26-50% range at the 12 CCF level. At both levels, large systems are much less likely to use an exclusive fixed charge (100% of the bill) approach.

Figure 3. Simulated Savings for 3 CCF Reduction Proportional to 12 CCF Bill, Comparison of the City of Mountain View and Tahoe City Public Utilities District Water Systems



This analysis does not attempt to fully explain the complexity of rate structure design and the constraints which different types of CWS face in rate design and revenue recovery. Thus, the above example of contrasting rate structures is provided only as an illustration, without attempting to control for the multitude of factors which influence differences in system rate structure decisions. Certainly, in some systems, especially those like Tahoe PUD experiencing large transient, tourist populations (and therefore seasonal water use), instituting high fixed charges may be prudent for maintaining year-round system operations. Nevertheless, this example illustrates the principle that fixed costs can significantly impact the value of water use reduction strategies in providing water affordability. Specifically, the presence of a sizable fixed charge component prevents low-income households from being able to proportionately reduce their bill by conserving water. Recognizing that a high proportion of the state's water systems currently employ mixed billing with a substantial fixed charge component, only mandatory state or federal standards regarding drinking water system rate design can overcome this obstacle.

Thus, one of the Board's proposals is for the Legislature to evaluate (or direct the Board to evaluate) options for additional state oversight and direction on how public water systems set rates. During the drought, Governor Brown directed the Board to examine rate structures via Executive Order B-29-15.[112] The Board has determined that there are multiple ways the state could exert additional oversight over rates without violating Proposition 218, including: providing more detailed guidelines or requirements for cost-of-service studies,developing sales forecasts, and enhancing public process associated with rate increase proposals. Making these actions mandatory, however, would require new statutory authorities.

[112] Executive Order B-29-15. See: https://www.gov.ca.gov/wpcontent/uploads/2017/09/4.1.15_Executive_Order.pdf.

Appendix M: Roles and Responsibilities Under Different Program Scenarios

Oversight and Guidance Agency: California Department of Social Services (CDSS)
Provide guidelines and recommendations to counties for the following tasks:

- Marketing, education, and outreach for Low-Income Water Rate Assistance Program (W-LIRA) program through CalFresh or new Electronic Benefits Transfer (EBT) benefit
- Data management and privacy protections
- Accounting procedures

Benefit Delivery Agents: Counties

- Manage revenues from tax collection agencies in a separate fund.
- Using water rate data provided by the State Water Resources Control Board (Board), distribute W-LIRA benefits to EBT recipients based on water system boundaries.
- Modify computer systems to include the W-LIRA credit amounts on EBT cards.
- Perform marketing, education, and outreach for the W-LIRA program.
- Manage W-LIRA program budget as directed by authorizing statute and fiscal control agencies (e.g. State Treasurer and Controller).

Regulatory Agency: State Water Resources Control Board

- Collect and ensure accuracy of water rate data and water system boundary data from all community water systems.
- Develop and publish performance metrics, including but not limited to enrollment levels, total shutoffs for inability to pay, and on-time payment levels.

Roles and Responsibilities for Benefit Distribution via Electric Bills

Regulatory Agency: California Public Utilities Commission (CPUC)

- Make recommendations for recovery of administrative costs and set rules for appropriate ratemaking treatment, for each electric investor-owned utility (IOU)[113] and what program data IOUs must provide to the CPUC.
- Modify California Alternative Rates for Energy CARE marketing, education, and outreach requirements to include the W-LIRA program.
- In consultation with the Low-Income Oversight Board, monitor electric IOU compliance with new CARE + W-LIRA program.
- As part of oversight of the CARE program, oversee IOU benefit distribution program to ensure effectiveness and prevent fraud, waste, and abuse.

Regulatory and Fund Management Agency: State Water Resources Control Board

- Collect and ensure accuracy of water rate data and water system boundary data from all community water systems.
- Manage revenues from tax collection agencies in a separate fund.
- Institute a means of transferring state funds to each electric IOU and publicly-owned utility (POU) for the program and institute controls to prevent fraud, waste, and abuse.

[113] Per a 2018 electronic communication between CPUC staff and the Board, "A proceeding would be required to establish program rules and determine reasonable administrative costs and appropriate ratemaking treatment. Since GRC proceedings are staggered across the utilities, this could take many years to fully implement. It may be possible to consolidate the issues into a single proceeding, but given the fact that each utility has different billing and back office systems and have a standalone proceeding on this issue would require additional, Administrative Law Judge, legal, audit, and GRC staff/resources it may not be possible to litigate the issues. It should be noted that modifying the electric utility billing systems will be expensive and require significant lead times."

- Work with CPUC to ensure transparency of W-LIRA program data.
- Disburse revenues to electric utilities (both IOUs and POUs) for public benefit distribution.
- Manage funds and maintain fund balances as specified by statute,[114] in conjunction with the State Controller's Office, State Treasurer's Office, and State Auditor's Office, as well as control agencies such as the Department of Finance.
- Make recommendations for which administrative costs are recoverable by electric POUs and set rules for what W-LIRA program data the POUs must provide to the Board.
- Provide oversight of the POU benefit distribution program to ensure effectiveness and prevent fraud, waste, and abuse.
- Develop and publish performance metrics, including but not limited to enrollment levels, total shutoffs for inability to pay, and on-time payment levels.
- Coordinate with all state agencies and resolve disputes.

Benefit Delivery Agents: Electric IOUs

- Modify billing systems to include the W-LIRA credit amounts on customer bills.
- Using water rate data provided by the Board, distribute W-LIRA benefits to CARE customers based on water system boundaries.
- Perform marketing, education, and outreach for the new CARE + W program as directed by the CPUC.
- Provide the Board with invoices for W-LIRA program costs, as allowed by the CPUC, statute, or the Commission on State Mandates.

Benefit Delivery Agents: Electric POUs

- Modify billing systems to include the W-LIRA credit amounts on customer bills.
- Using water rate data provided by the Board, distribute W-LIRA benefits to low-income customers enrolled in existing assistance programs, based on water system boundaries.
- Perform marketing, education, and outreach for the new assistance program as directed by the Board.
- Provide the Board with invoices for W-LIRA program costs, as allowed by statute or the Commission on State Mandates.

Roles and Responsibilities for Revenue Collection Agencies and the Legislature

Revenue Collection Agency: Franchise Tax Board (FTB)

- Collect revenues from individual and business income as directed by authorizing statute.
- Hold collected revenues in an account separate from other income tax receipts.[115]
- Transfer revenues to the Board or counties as specified by statute.
- Notify tax preparers and tax software vendors of changes, to allow reprogramming of software.

Revenue Collection Agency: California Department of Tax and Fee Administration (CDTFA)[116]

- Collect sales and excise taxes on products as specified by authorizing statute.
- Hold collected revenues in an account separate from other revenues.
- Transfer revenues to the Board or counties, and local entities as specified by statute.

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[114] Proposed fund carry-over provisions will resemble provisions for the Safe and Affordable Drinking Water Fund as proposed in SB 845 (Monning).

[115] Note that the "state appropriations limit" (also known as the "Gann Limit") would need to be taken into account such that revenue balances did not remain too high, even as reserves accumulate to protect against recession decreases in revenues. Note that the MHSA is not set-aside and is subject to diversion to other purposes. If no protections are in place for a similar high-income tax, high balances could be subject to "raids" during years of low revenue.

[116] For this purpose, CDTFA is the successor agency to the Board of Equalization.

Oversight: Legislature

- Evaluate program effectiveness.
- Modify tax rates if needed after first 5/10 years.
- Hold hearings to receive input from CPUC, Board, CDSS, and counties on program implementation issues.

Ongoing Tasks for Effective Program Implementation

- Electric utilities or counties identify changes of address of low-income customers to ensure correct benefit amount corresponding to water system.
- Electric utilities or counties cross-check current CARE/CalFresh addresses with water system boundary map addresses to determine which customers/recipients are within which water systems.
- Water systems provide the Board with updates on water system boundaries.
- Water systems provide updated water rates to the Board.
- Electric utilities or counties provide ongoing customer assistance support to answer customer questions.
- Electric utilities or counties conduct ongoing marketing, education, and outreach to increase enrollment.
- Auditors evaluate financial transactions.
- Legislative Analyst's Office performs program effectiveness evaluation.

Appendix N: Estimate of State Water Board Program Implementation Costs for Electric Benefit Delivery Program Option

Assumptions:

1. One-time contracts between the State Water Resources Control Board (Board) and the 65 electric utilities will likely be necessary for initial program capitalization. Thereafter, electric utilities would invoice the State on a monthly basis for reimbursement for costs incurred implementing this program.
2. Approximately 65 invoices per month for the program would need to be reviewed and paid on a reimbursement basis, using the Underground Storage Tank Cleanup Fund as a model.
3. Electric utility companies would be responsible for: 1) determining which of their customers are eligible for the assistance program; 2) distributing revenues to their low-income California Alternative Rates for Energy (CARE)/CARE-equivalent customers according to the rate assistance level associated with each customer's community water system (CWS); and 3) invoicing the Board each month to recover their costs via reimbursement of actual costs incurred.

State Water Board Tasks:

1. Program administration:
    a. Set up the program
        i. Work with tax collection agencies to set up revenue stream and money transfer mechanisms to get funding to the Board
        ii. Set up program guidelines/rules:
            1. Determine eligible administrative costs
            2. Collect and ensure accuracy of water rate data and water system boundary data from all community water systems
            3. Determine the needed revenue for required public benefits from both Franchise Tax Board (FTB) and California Department of Tax and Fee Administration (CDTFA) and notify each agency of needed revenue amount.
            4. Work with the California Public Utilities Commission (CPUC) to ensure transparency of W-LIRA program data.
            5. Work with CPUC to ensure transparency of Low-Income Water Rate Assistance Program (W-LIRA) program data.
            6. Set rules for which administrative costs are recoverable by electric publicly-owned utilities (POUs) and what W-LIRA program data the POUs must provide to the Board.
            7. Set up invoice review/approval and payment guidelines.
            8. Review guidelines should include applicable level/detail of review.
            9. Set up fraud, waste and abuse prevention program, including measures to include in invoice reviews to prevent these issues.
    b. On-going program administration
        i. Act as Fund Manager
        ii. Ensure revenue is properly collected
        iii. Review monthly invoices for accuracy, compliance with guidelines and rules, and appropriateness.
        iv. Approve invoices for payment.
        v. Dispute inadequate or incorrect invoices with claimant
        vi. Disburse revenues to electric utilities (both investor-owned utilities (IOUs) and POUs) for public benefit distribution;
        vii. Provide oversight of POU benefit distribution program to ensure effectiveness and prevent fraud, waste, and abuse
        viii. Develop and publish performance metrics, including but not limited to enrollment levels, total shutoffs for inability to pay, and on-time payment levels
        ix. Coordinate with all state agencies and resolve disputes

x. Coordinate with Drinking Water Program staff to ensure that water systems provide electric utilities with updates on system boundaries
xi. Coordinate with water systems to ensure that they provide updated water rates to the Board.
xii. Oversee overall program and ensure continued coordination among state agencies.
xiii. Coordinate with various stakeholders on the program implementation, including periodic stakeholder meetings to solicit feedback for program improvements
xiv. Internally, work with accounting and drinking water program staff to ensure that:
    1. Auditors evaluate financial transactions as appropriate
    2. Either contractors or the Legislative Analyst perform program effectiveness evaluation periodically
xv. Prepare and provide periodic reports on the effectiveness and efficiency of the program to all interested parties, including the Board, the Legislature, Governor's Office, POUs, IOUs, environmental justice groups, etc.

2. Drinking water program support:
    a. Provide electric utilities access water systems boundaries (on CDPH map).
    b. Assist electric utilities in overlaying their boundaries with water system boundaries, to allow ongoing cross-checking of low-income customer addresses, to provide the appropriate water benefit.
    c. Provide information regarding water system rates and tiered benefit amounts to electric utilities.
    d. Provide support and assistance to the Fund Manager and the Administrative Unit in implementing the program, such as providing assistance on technical program issues.

3. Accounting
    a. Manage revenues from tax collection agencies and deposit into separate fund.
    b. Institute and manage on an ongoing basis a means of transferring state funds to each electric IOU and POU for the program and institute controls to prevent fraud, waste, and abuse.
    c. Issue payments to IOUs and POUs.
    d. Manage funds and maintain fund balances as specified by statute, in conjunction with the State Controller's Office, State Treasurer's Office, and State Auditor's Office, as well as control agencies such as the Department of Finance.
    e. Contract for financial audits of the program with appropriate auditing firms, as necessary.
    f. Assist the Administrative Unit with appropriate program effectiveness audits or evaluations.

4. Legal Support:
    a. Legal support in the setting up of the program, including any necessary rulemaking.
    b. Ongoing legal support for the implementation of the program.

5. IT Support:
    a. Assist with necessary IT requirements for funding transfers and tracking.
    b. Assist with various on-going IT requirements to implement the program.

Staffing Needs Proposal:
1. Program Administration:
    a. 1 Fund Manager (SSM I level)
    b. 5 AGPAs
2. Drinking Water Program Support:
    a. 1 WRCE
3. Accounting
    a. 1 senior accountant for fund management
    b. 1 accountant trainee for transactions

4. Legal Support
    a. 1 attorney
5. IT Support
    a. 1 staff person

Staffing needs and implementation cost estimates for other potentially responsible agencies (CPUC, CDSS, Counties, CDTFA, FTB) will be developed ahead of the completion of the final report.