



August 25, 2017

State Water Resources Control Board

Attn: Mary Yang

1001 I Street, 24th Floor Sacramento, CA 95814

Comments Submitted Electronically to [Mary.Yang@waterboards.ca.gov](mailto:Mary.Yang@waterboards.ca.gov)

Re: Comment Letter on Statewide Low-Income Rate Assistance Program

Dear Ms. Yang and State Water Resources Control Board staff:

The organizations listed below, which are committed to equitable access to water, have prepared the following comment letter in response to the proposed Low Income Rate Assistance (LIRA) program implementation scenarios prepared pursuant to AB 401 (Dodd, 2015).

Section I addresses the series of questions posed to the public by the Water Board in Summer 2017. Section II makes a set of general recommendations to consider when finalizing the program proposal.

Thank you again for the opportunity to provide comments on the proposed LIRA program. Should you have any questions about our comments, please feel free to reach out to us.

Sincerely,

Laura Feinstein, PhD; Senior Researcher; Pacific Institute

Stan Keasling, Chief Executive Officer, RCAC

Colin Bailey, Executive Director, The Environmental Justice Coalition for Water

Collin Tateishi, Sustainable Housing Policy Analyst, California Housing Partnership Corporation

Amanda Monaco, J.D.; Policy Advocate; Leadership Counsel for Justice and Accountability

Jennifer Clary, Water Policy and Legislative Analyst, Clean Water Action

Sonia Saini, Policy Analyst, Community Water Center

Camille Pannu; Director, Aoki Water Justice Clinic; UC Davis School of Law (title for identification purposes only)

Tracey Patterson, MPH; Director of Legislation; California Food Policy Advocates

Kyle Jones, Policy Advocate, Sierra Club of California



## Section I: Responses to questions posed by Water Board in “Topics for Comment,” Summer 2017

### 1. Which of the four scenarios presented by UCLA do you prefer, and why?

We recommend that, rather than instituting one of the four options presented by UCLA, the state pursue a program to subsidize the cost of water over 1.5% of the federal poverty line, with the goal of providing greater relief for low-income families paying a high proportion of their income for water. We describe this proposal in greater detail in our General Recommendations, below.

Among the four scenarios presented by UCLA, we prefer Option 2 for the following reasons. First is the consideration of whether a statewide program is superior to a mix of a state and local programs. Assuming that the independent local LIRAs under Options 3 and 4 meet appropriate standards, Options 3 and 4 are reasonable. Nonetheless, there are multiple potential benefits to a consistent, statewide system that lead us to favor Options 1 and 2. The advantages of a single statewide program include:

- a. Widespread public recognition and familiarity with the system may yield higher enrollment rates.
- b. Total administrative costs may be lower for a single unified program.
- c. One well-funded program may be better equipped to administer the program effectively than many small programs.
- d. A state-run program can access different, and potentially less restricted, revenue sources than local programs.
- e. Most importantly, a statewide program would have the capacity to deliver benefits through an avenue other than the utility bill, which is an important mechanism for awarding benefits to households that do not receive a water bill. Water utilities are commonly limited to disbursing benefits on the water bill. Within local programs, non-account holding households would likely be excluded from participating in the program.

If the Water Board does pursue Option 3 or 4, we recommend developing standards for the independent LIRAs that set:

- a. A minimum penetration rate (% enrolled households/% eligible households).
- b. Minimum outreach efforts that address the challenges of communicating with hard-to-reach customers, including non-English materials and non-written means of outreach.
- c. A demonstrably effective strategy for qualifying and delivering the benefit directly to non-account holders who reside in the utility’s service area. By non-account holders, we are referring to those served by a water utility that are unmetered - usually because they reside in master-metered housing - as well as residences that are not connected to the utility, such as homes reliant on private wells.

- d. A demonstrably effective strategy for qualifying and delivering the benefit to non-profit group residences, such as shelters for homeless, domestic violence victims, and foster children.
- e. Maintain consistency with the statewide program on all major variables: application procedure, eligible income levels, eligible customer types, eligible household type, benefit calculation, and benefit types.

Between the consistent statewide programs presented in Options 1 and 2, we prefer Option 2, which offers a higher discount for those utilities with exorbitantly high costs for low-volume users. We strongly support increasing the discount across the board to levels higher than 20/35% if there are funds available. Costs for water have risen an average of 11% in real dollars between 2010 and 2017, while hourly wages for most workers have remained stagnant since the 1960s (Circle of Blue, 2017; Pew Research Center, 2014). Consequently, a 20% discount will only temporarily reverse the trend of low-income households paying an ever-increasing share of their income for water. To the extent that funds are available to offer a greater discount, more assistance will make a valuable difference for low-income households.

**2. Are the estimated costs shown on slide 17 for these four scenarios reasonable and acceptable? Note that they do not include estimated administrative costs, which will depend on the structure of the program and other factors. Note also that slide 19 presents costs for existing LIRA programs.**

Even the most expensive option for a water LIRA presented, Option 2, at \$619 million, costs less than the Universal Services Program to provide financial assistance for telecommunications, and less than half of the public expenditures under the California Alternative Rates for Energy program. Water is far more of a necessity than telecommunications and on par (or more necessary, depending on context) than energy; arguably California should be willing to have a budget for a water LIRA that is on par with the budget for CARE, if that is necessary to make water affordable.

**3. Should additional scenarios be considered, such as those shown on slide 23 at the above link?**

- a. *100%/150% of FPL* – A major advantage to using 200% of FPL as the eligibility threshold is that it allows the LIRA to cross-enroll eligible households from other programs such as the Earned Income Tax Credit (EITC), CalFresh, CalWorks, California Lifeline, and California Alternate Rates for Energy (CARE). Moreover, a 100% FPL threshold would be below the income level deemed “Very Low Income” by the United States Office of Housing and Urban Development for all 58 counties in California; a 150% threshold would be below the income level deemed Very Low Income (VLI) by the United States Office of Housing and Urban Development for 25 of the 58 counties in California. There is inherently a problem in using a flat income eligibility threshold for the entire state.

There is also a tradeoff between giving greater benefits to lowest income households versus a smaller benefit to more households. We recommend that the program consider the problem that there are VLI households above 100, 150, or 200% FPL, and those households should be eligible for the program. We discuss this issue in greater detail in Section II, “General Recommendations.”

- b. *Paying more than 150%, 200%, 300% of average state water bill* – Provides benefits to households below 200% FPL in a system with exceptional costs relative to the state average.

We do support the principle of offering a greater discount in those areas where water costs are unusually high. However, we wish to emphasize that the best solution to address the problem of systems with exceptionally high water costs is not to subsidize the bills for a large proportion of their customers. The problem of high utility water costs should first and foremost be addressed through mechanisms that address costs at the system level (e.g. inter-agency cooperation, physical or managerial consolidation, and reducing energy costs). Subsidizing the bill for a large proportion of customers receiving water that is priced unaffordably would have the unintended consequence of incentivizing poor cost management at the utility level. The state should strive for all utilities to deliver water at rates that are affordable for the median household in a service area. Subsidizing the water bill for low-income households should be the solution of last resort, useful in those cases where low-income households struggle to pay rates that are affordable for the majority of households in their service area.

- c. *Spending 1,2,3,4,5% of income on drinking water bill*- We support the general principle of ensuring that low-income families do not spend more than about 1.5% of their income on water. It is worth noting that the 1.5% standard is flawed, because households that spend nearly all their income on essentials can have difficulty even affording a small percentage such as 1.5% for water. To ensure that families do not lose access to water because they cannot afford even a relatively modest bill, we make recommendations for due process protections to prevent service disconnections for households that are paying what they can in Section II, General Recommendations.
- d. *Below DAC, SDAC income lines used by other state programs* - All state households with incomes below level used for Disadvantaged Community designation (80% of state median household income) or Severely Disadvantaged Community designation (60% of state median household income). California Department of Water Resources defines census geographies with an MHI of \$49,191 as a disadvantaged community (DAC), and a severely disadvantaged community (SDAC) \$36,893. Twice the federal poverty line for a family of four is \$49,200. Defining the income eligibility threshold as that of a DAC would be similar to using 200% of the federal poverty line for a family of four. However, the federal poverty line has two major advantages over the DAC. First, the federal poverty line considers household size, with the line increasing with the number of people. Second, using 200% FPL as the eligibility criteria has the advantage of allowing easy cross-enrollment between other assistance programs, such as CARE, with the

proposed water LIRA. We do recommend that the state consider allowing some families over the 200% FPL to enroll in the state water LIRA in certain counties with high median incomes. We discuss this recommendation in greater detail in General Recommendations, below.

- e. *Small Systems- Provides benefit to those households below 200% FPL that exist in small systems, serving less than 200 people. Serving only small systems would serve a vastly reduced number of people* - We do not understand the justification for prioritizing the needs of low-income households served by small systems over households with similar incomes served by large systems. Do not support.
- f. *Other benefit level definitions considered and empirically modeled:*
  - 20% discount on monthly 10 or 14 CCF expenditure* – We understand that the present working proposal is for the water LIRA program to offer a fixed dollar amount per month to every person in a region, scaled to the local cost of water. Households will continue to receive a water bill, unaltered; therefore, the benefit does not reduce the conservation signal of the volumetric charge on the bill. Given that framework, the volume of water used to calculate the benefit amount is of little importance. If, however, the state were to pursue a strategy of calculating the discount on a per-household basis based on actual water usage, we would advocate for offering a greater discount on a smaller volume of water (rather than a lower discount on a higher volume) as a means of incentivizing conservation without penalizing large households. An allocation of 12 CCF assumes 74 gallons per capita per day for 4 people. This is a high allocation of water for basic indoor needs - the average household size in California is only 2.9 people (though the average size may be larger for low-income households<sup>1</sup>), and a household with devices and fixtures that meet California’s 2017 standards and loses an average amount leaks would use 39 gallons per person per day. 2.9 people using 39 gallons per person per day would use 4.6 CCF a month. There is no disadvantage for households who use large volumes of water to receive a deeper discount on a smaller allocation of water, because they receive the same total benefit either way. Meanwhile, smaller families who can reduce their water use have a greater incentive to do so if the lowest-price first tier is small. On the other hand, if the program delivers the benefit as a fixed dollar amount regardless of how much water a household uses, the actual method for calculating the benefit should not affect the conservation signal.
  - 35% discount on monthly 12 CCF expenditure* – a larger discount across the board would be useful to low-income families. We make some related comments about raising the benefit level in our General Recommendations, below.

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<sup>1</sup> For example, 2010 Census data indicate that, under the US Housing and Urban Development framework, households in San Francisco classified as Low-Income had an average of 3 members, while Very-Low Income households had an average of 4 members. Johns, Rose. 2013. Families Living on the Edge: A Report on the Role of CalWORKs for Low-Income Families in San Francisco, 2013.

**4. Should the LIRA program be available to non-metered households such as multi-family apartments and mobile home parks? If so, how would the program be administered since rates are not paid directly by the low-income households?**

Yes, given that a large proportion of low-income households are either unmetered or on a master meter and do not hold an account with a water utility, the program should include non-account holders. Nearly a third (31 percent) of California households (approximately 4.3 million) live in multifamily rental housing that is two or more units in size, and typically is master-metered (CDHCD 2017). The cost of water is typically passed on to non-account holders through their rent (Saunders et al. 1998). In regulated housing such as rent-restricted affordable rental homes, non-metered households benefit from a property that does not pass water costs to tenants because of strict regulations on rent and utility expenses. Regardless of housing type, non-metered households will benefit from a statewide program because they are excluded from existing assistance programs.

If the low-income rate assistance program is available to non-metered households, then the program should be administered by a state agency that can enroll and deliver benefits directly to metered and non-metered households. We recommend that the benefit be delivered through another vehicle than the water bill to reach all eligible low-income Californians.

The program should align with existing assistance programs to expedite enrollment, deliver benefits directly to households, and maintain administration costs. Assistance programs that use a 200% Federal Poverty Level (FPL) eligibility standard include Earned Income Tax Credit (EITC), CalFresh, CalWorks, California Lifeline, and California Alternate Rates for Energy (CARE). While using the 200% FPL eligibility standard is efficient because it allows the water LIRA to auto-enroll eligible households by using lists from other assistance programs, it does exclude some low-income households in the more expensive regions of the state. We discuss how to address this below by adopting an Area Median Income standard in select high-cost counties in our General Recommendations, below.

**5. What state agency (or agencies) should be responsible for administering the LIRA program?**

If the vehicle for delivering the benefit is another social assistance program, then presumably the best agency to administer the program would be the agency already responsible for the existing program.

There are several advantages to making the energy bill the vehicle and asking the CPUC to administer the program in alignment with the CARE program. The CPUC already has an existing Energy Savings Assistance Program for CARE customers, which could be expanded to include a Water Savings Program. Presumably it would be more cost-effective to offer home audits,

repairs, and device upgrades for energy and water at one time, rather than to create duplicative programs. CPUC also has developed programs to deliver the bill discount to for nonprofit group living facilities, agricultural employee housing facilities, and migrant farm worker housing facilities.

There are some disadvantages to using the energy bill as the vehicle for delivering the water benefit. First, it may have the unintended consequence of encouraging more energy use. Second, there may be some cases where a family's full benefit exceeds their energy bill, and they lose some portion of their potential benefit. Third, there is a small but non-zero number of people who do not hold energy utility accounts. While these are real disadvantages, the energy bill nonetheless seems like the best vehicle available for delivering the benefit at this time.

## Section II: General Recommendations

1. **The Water Low-Income Rate Assistance Program should be one piece of a larger framework to address the growing problem of water unaffordability.** While we applaud the Legislature and the Water Board for their effort to alleviate the burden of unaffordable water rates for low-income households, the unfortunate fact is that given both the rising costs of water, increasing prices for other essentials, and wage stagnation, many people receiving the benefit will still struggle to pay their water bill. To address the problem of unaffordable water more comprehensively, we recommend that the bill discount program be one piece of a larger initiative. We recommend four additional items:
  - a. *A program to reduce the bills for low-income customers through free or low-cost home water audits, leak repair, and device upgrades.* This may be best conducted by the energy utilities and overseen by the CPUC as part of their energy audit and efficiency program rather than as a standalone program for water. To be clear, we are not recommending that a low-income conservation and efficiency program be restricted to water utilities regulated by the CPUC; rather that the CPUC offer this service wherever they deliver energy service. Ideally, a portion of funds from the water LIRA could be directed to the Energy Savings Assistance Program to add water conservation and efficiency to the ESAP program. The addition of a water component to the ESAP could also be funded in part with energy savings.
  - b. *We recommend that the state enact laws and regulations to limit water utility fines and penalties that are unduly burdensome for working families.* Charges for problems that stem from inability to pay the water bill include fines and penalties for late payment, disconnections/reconnections, and "water theft" (turning on a connection without permission). With the addition of high fines and penalties, an initially small debt on a water bill can spiral into an insurmountable financial burden resulting in long-term

water service disconnection. California has recently made efforts to address the undue burden that high traffic fines can impose on low-income households (SB 881, Hertzberg, Statutes of 2016; SB 185, Hertzberg, pending legislation). Unlike fees, fines and penalties are not subject to Proposition 218's prohibition against cross-subsidies. We advocate that fines and penalties associated with late payment and service disconnections be adjusted according to a household's ability to pay.

- c. *We recommend that the state pass laws and enact regulations to strengthen due process protections before allowing service disconnections for inability to pay.* Water shutoffs for inability to pay can result in health problems for members of the household, including dependents; public health problems for the community at large; and even in families losing custody of children. We are not recommending that there be a blanket ban on shutoffs, but when a household falls behind on their water bill, the following processes should be undertaken before a shutoff is ordered:
- i. If a household is delinquent in their payments and is not enrolled in the water LIRA or Customer Assistance Program (CAP), the utility should conduct active outreach to determine if the household is eligible to enroll in the LIRA/CAP. The utility should call the household, visit in person if necessary, and provide customer support in the household's native language to assist the customer with their application. If the customer newly qualifies for the LIRA/CAP, they should automatically have 50% of their debt over \$50 forgiven.
  - ii. Every household that is delinquent in their payments, regardless of income level, can apply for a special allowance for temporary financial hardship to receive forgiveness of 50% of their debt over \$50 once every two years. Circumstances that constitute special financial hardship should include but not be limited to: job loss, death in the family, a recent severe medical hardship, and divorce.
  - iii. If a household is delinquent in its payments and has an average bill that is more than 20% above average for a comparable household, they can qualify for an affordable audit, leak repair, and device upgrade program. The customer should be allowed to pay for the audit, leak repairs, and device upgrades over time on subsequent water bills.
  - iv. When a household falls behind on their water bill, a payment in arrears plan is developed so the household can pay their debt over a period of 24 months.
  - v. As long as the household is making their debt payments on time, they will maintain full water service.
  - vi. Flow restrictors should initially be used in place of shutoffs.
  - vii. Service can be disconnected for failure to pay only if a flow restrictor is vandalized.
  - viii. If a flow restrictor or shutoff is ordered, the utility should offer an opportunity for the customer to appeal their case to the Board of Directors of the utility. The

Board of Directors should make special allowances for extended payment plans and debt forgiveness in cases where a service disconnection will endanger the health and well-being of children, the disabled, or senior citizens.

- ix. In cases where a landlord is delinquent in payment, the utility should pursue payment from the account holder, but not terminate service to a tenant who is not the account holder.

d. *We recommend measures be put in place to ensure that water rates are structured fairly and that all reasonable measures are taken to reduce rates without sacrificing quality, reliability and sustainability of the water supply.*

- i. At present, the Water Board has authority to order mandatory consolidation for utilities that chronically deliver unsafe water. This authority should be expanded to apply to utilities delivering water at costs that are severely burdensome to the majority of their customers.
- ii. To the greatest extent possible, utilities should reduce their fixed fees and recover most of their costs through volumetric charges. Rate structures that obtain most of the revenue via volumetric charges tend to cost less for low-volume users, and offer an opportunity for low-income customers to reduce their bills through efficiency and conservation.

2. **Raise the Upper Income Limit for Enrollment in Certain High-Income Counties.** We strongly recommend that the Water Board address the discrepancy between 200% FPL and Very Low Income (VLI) in counties with a high Area Median Income. There are nine counties in which families categorized as VLI by US HUD, and deemed eligible for Section 8 Housing, would be ineligible for the proposed water LIRA because they earn more than 200% of the FPL (Fig. 1). These families are arguably some of the most vulnerable in the state, earning too much to qualify for most public assistance programs, yet too little to afford the high cost of living in their counties. We recommend that the baseline eligibility criteria remain as 200% of the Federal Poverty Level, but that in those counties where VLI is greater than 200% FPL, households under the VLI threshold be allowed to enroll as well.
3. **Subsidize the Cost of Water Over 1.5% of the Federal Poverty Line.** It is important to note that for customers of those water utilities with the highest water rates, bills will remain high even with a 35% discount, and would be extremely burdensome with a 20% discount. There are 145 water utilities in the state that in 2015 reported an average cost for 12 CCF of \$120 and above. The utility with the highest cost, Southern California Edison of Santa Catalina, reported that it charged on average \$254 for 12 CCF (Fig. 3). In these cases, a 35% discount would still result in a bill of \$78-165, or 4-8% of the monthly income for a family of 4 at the federal poverty line. To address the severe needs for these extremely high-cost utilities, we recommend that instead of offering a percent discount on the cost of 12 CCF to all utilities, the program instead should calculate the benefit for low-income residents within a given utility service area as the cost of 12 CCF over \$31 (\$31 equals 1.5% of the Federal Poverty Line).

Figure 2 shows the difference between the contrast between offering a benefit of 35% versus subsidizing the cost of 12 CCF that exceeds \$31/month, and illustrates why a simple percentage discount - even using a higher rate such as 35% or 50% - does not adequately lower rates in those utilities with exorbitantly high costs for 12 CCF.

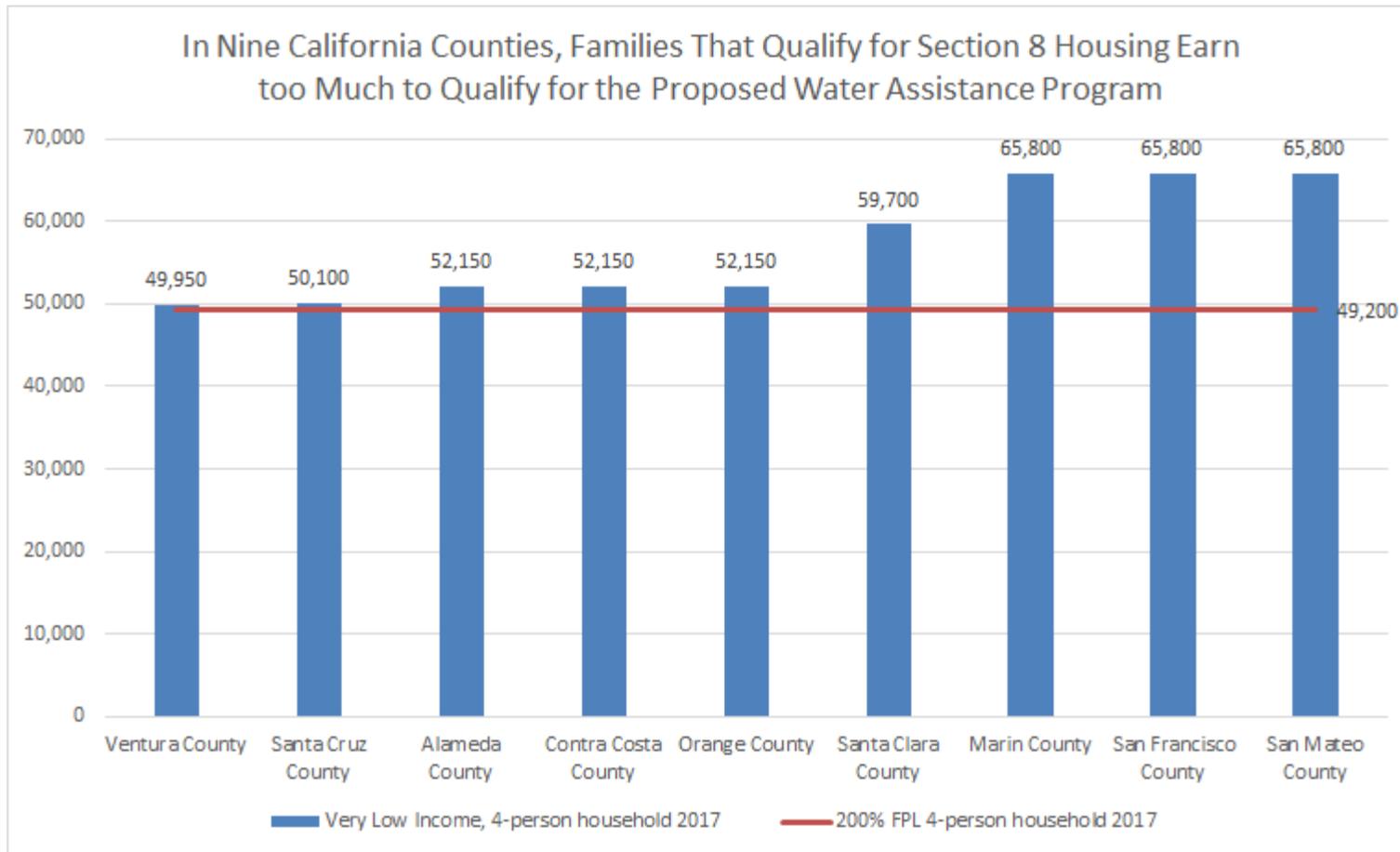
The approach we are recommending (subsidizing the cost of water over a given amount statewide) functions best if the threshold is low, below the cost of 12 CCF for most households in the state. If the threshold is raised - for example, if the subsidy is calculated as the cost of 12 CCF in exceedance of \$60 - many large metropolitan areas (such as Los Angeles) would be excluded for the time being from the program.

If the Water Board does decide to use a percent discount model for calculating the benefit, we recommend that the percentages be higher than 20 and 35%. We would recommend a three-tier approach so that in areas where the cost of 12 CCF/month exceeds \$120, low-income households receive at least a 50% discount.

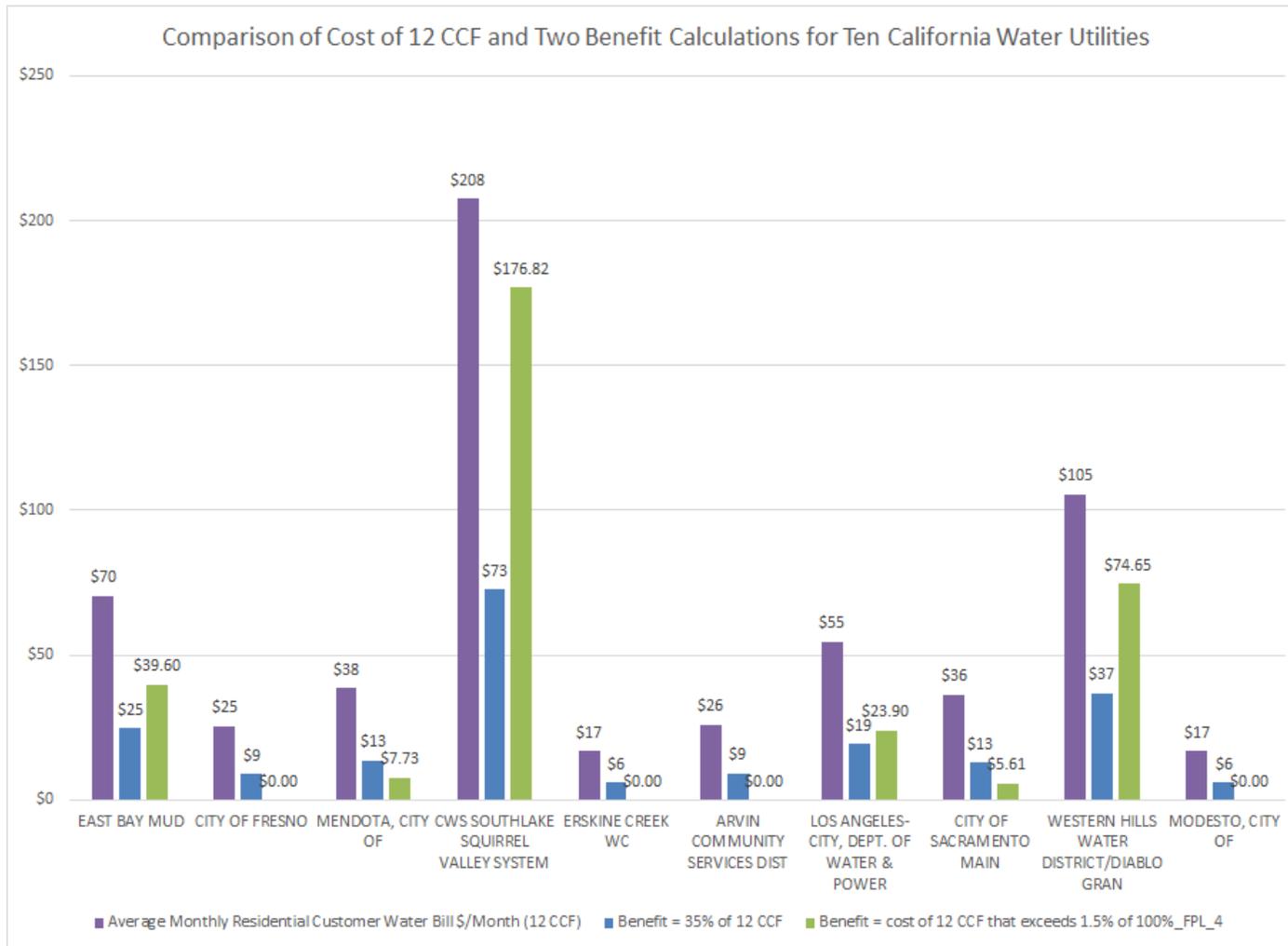
4. **Include Undocumented Residents.** Undocumented families should be eligible for the benefit. A substantial proportion of the low-income families paying high water bills in the Central Valley have a head of household who is undocumented. Lack of access to sufficient and safe water represents a public health hazard for their families and their communities. When selecting a vehicle for disbursing the benefit, the potential to reach undocumented families should be taken into consideration; either the vehicle itself should reach undocumented families, or there should be an alternative mechanism for undocumented families to receive the benefit.
5. **Include Replacement Costs for Households with Unsafe Drinking Water.** There should be an additional subsidy of \$30 a month for customers of water systems that appear on the list proposed in SB 623 (Monning, pending legislation) as described in Section 116769(b), the list of community water systems and nontransient noncommunity water systems without access to safe drinking water. A subsidy of \$30 a month is estimated to be the average monthly replacement cost for households receiving unsafe water (Smith, Balazs, Heberger and Longley, 2013).
6. **Utilities Should Have the Option to Offer Customer Assistance Programs to Supplement the State Water LIRA.** While we recommend that the state not allow utilities to opt-out of participating the statewide LIRA, we do recommend that utilities be allowed to offer additional subsidies in addition to the state program if they so choose.
7. **Address Information Gaps and Data Needs.** We recommend that the Water Board systematically collect more data related to affordability, specifically on wastewater and stormwater rates and numbers of shutoffs. Drinking water is often a minority of the total bill for water, wastewater and stormwater, and without knowledge of the true total costs of access to water, it will be impossible to accurately address affordability problems. Number of shutoffs is an important indicator of access to water, and a high number can potentially indicate

affordability problems. In addition, a decline in the number of shutoffs after this program is instituted can be an indicator of its success.

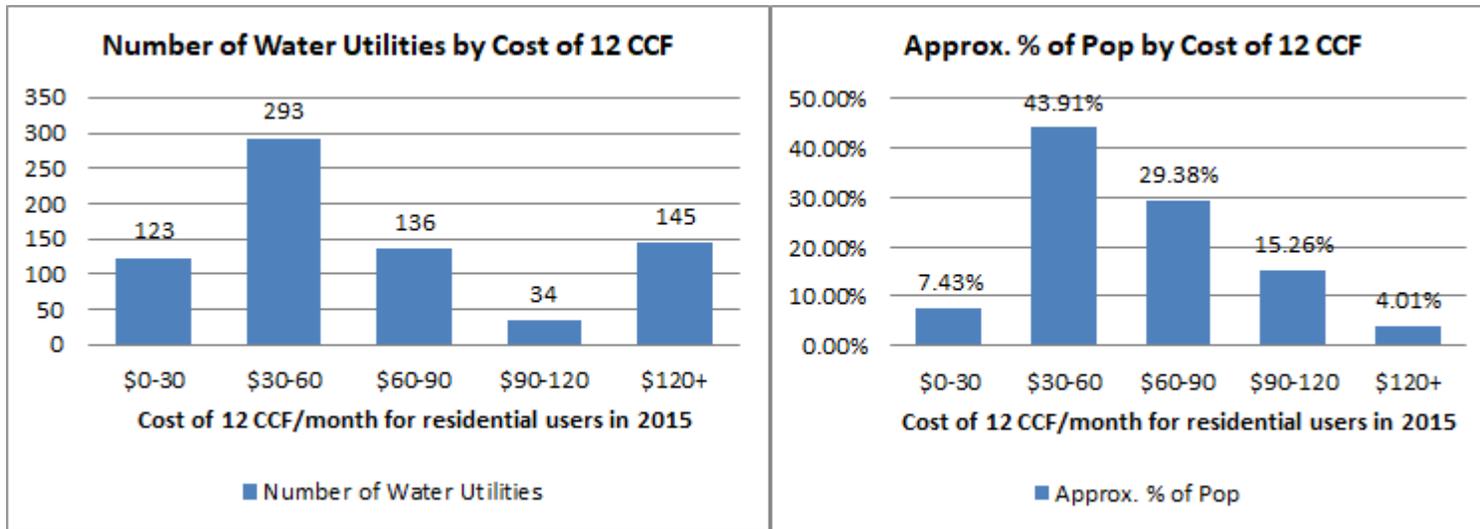
8. **Funding Mechanism.** We recommend dual funding streams to fund the water LIRA. The first funding stream could be a very small charge (less than 1 cent per liter) for bottled beverages in the state, restricted to sizes of 1 L or below for bottled water. The second funding stream could be from a small water user fee on utility water bills for those households that are not enrolled in the water LIRA. Local water utilities could choose to offset this fee for their customers by using non-rate revenue. Many California water utilities, including most of the largest systems, use non-rate revenue to fund their existing CAPs; presumably this money could reasonably be used instead to fund the state water LIRA and offset the proposed water user fee.



**Figure 1.** Very Low Income thresholds for the nine highest-income counties compared to 200% FPL. Y-axis shows annual income for a family of four in 2017 dollars. Blue bars show Very Low Income for a family of four as defined by U.S. HUD, 2017. Red line indicates 2017 200% FPL for a family of 4. For data on all California counties, see Appendix I, Figure I-1. Source for Very Low Income threshold: [https://www.huduser.gov/portal/datasets/il.html#2017\\_data](https://www.huduser.gov/portal/datasets/il.html#2017_data). Source for FPL from Health and Human Services Federal Poverty Guidelines for 2017, <https://aspe.hhs.gov/poverty-guidelines>.



**Figure 2.** Comparison of the benefit amount for ten utility service areas calculated in two ways. Purple bar shows the average cost of 12 CCF per month for residential customers in 2015 for ten water utilities of a range of sizes and average costs around the state. Blue bars indicate the benefit dollar amount calculated as 35% of the cost of 12 CCF. Green bars show the benefit amount calculated as the difference between the cost of 12 CCF and \$31 (1.5% of FPL for a family of 4). The second means of calculating the benefits concentrates the subsidy in areas with the highest water costs, and scales up for those utilities with exorbitantly high water bills. Data source: CA SWRCB 2015, Large Water Systems Electronic Annual Reports, Average Cost of 12 CCF Per Month for Residential Customers. *Note: the utilities self-report the average cost of 12 CCF per month for their residential users; we did not check the data for accuracy.*



a)

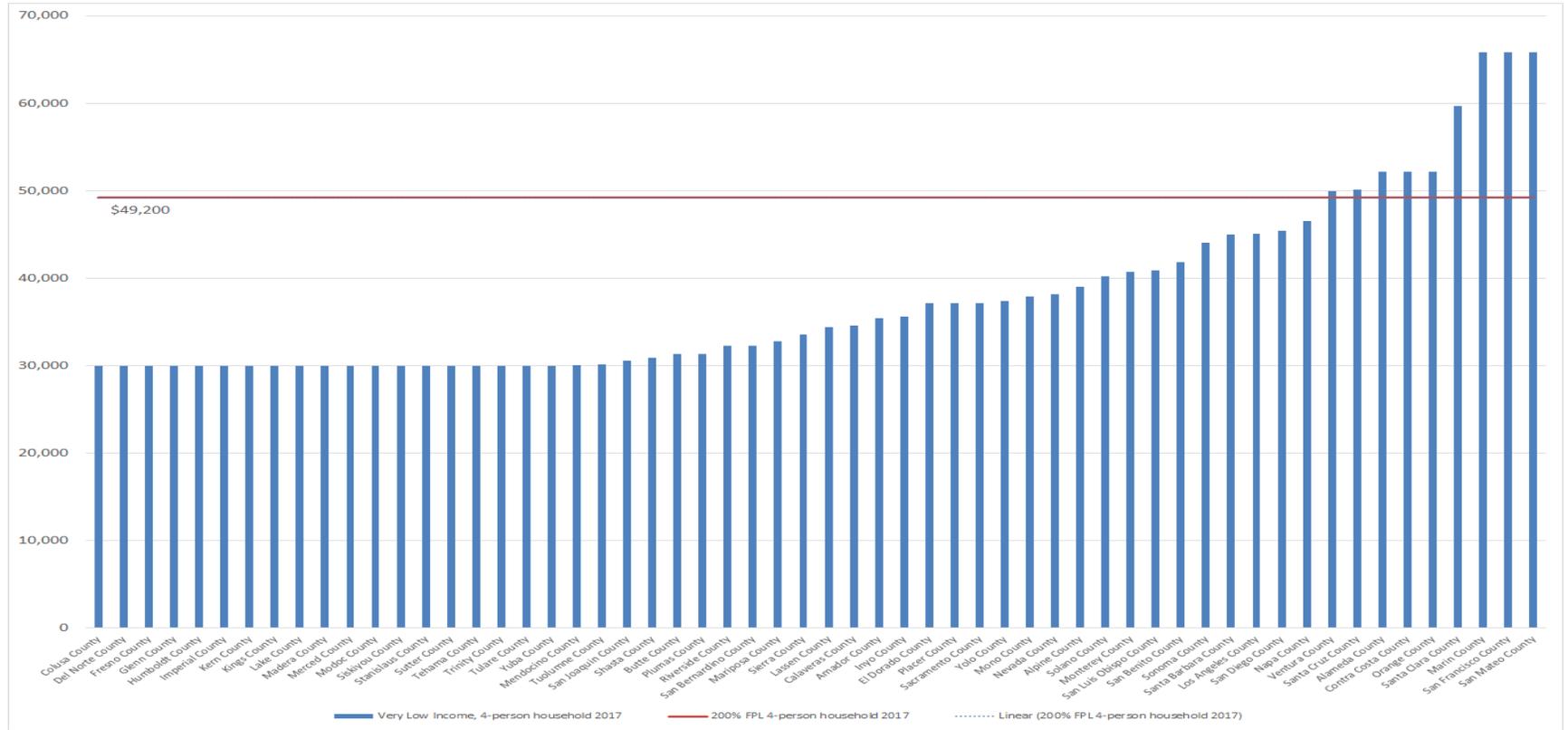
b)

**Figure 3.** Number of water utilities (a) and approximate percent of population served (b) by cost of 12 CCF. Nearly half the population - about 44% - is served by a utility where the cost of 12 CCF is between \$30-60 a month. A very small segment of the population - about 4% is served by a utility where the cost of 12 CCF is greater than \$120/month. Source: CA SWRCB Large Water System Electronic Annual Reports. *Note: the utilities self-report the average cost of 12 CCF per month for their residential users as well as the permanent population they serve; we did not check the data for accuracy.*

## References

- CDHCD (California Department of Housing and Community Development). 2017. California's Housing Future: Challenges and Opportunities, page 15. [https://www.google.com/url?q=http://www.hcd.ca.gov/policy-research/plans-reports/docs/California%27s-Housing-Future-Full-Public-Draft.pdf&sa=D&ust=1502400656237000&usg=AFQjCNHDJfxq\\_8Xtlq4ogLelRaXfi1QoXw](https://www.google.com/url?q=http://www.hcd.ca.gov/policy-research/plans-reports/docs/California%27s-Housing-Future-Full-Public-Draft.pdf&sa=D&ust=1502400656237000&usg=AFQjCNHDJfxq_8Xtlq4ogLelRaXfi1QoXw).
- Christian-Smith, J., C. Balazs, Matthew Heberger, and K. Longley. 2013. Assessing Water Affordability: A Pilot Study in Two Regions of California. Oakland: Pacific Institute. <http://www.pacinst.org/wp-content/uploads/2013/08/assessing-water-affordability.pdf>.
- Circle of Blue. 2017. Water Rates Dashboard. <http://www.circleofblue.org/waterpricing/>, accessed 8/10/2017.
- Davis, Jon P, and Manuel P Teodoro. 2014. "Financial Capability and Affordability." In Water and Wastewater Finance and Pricing: The Changing Landscape, Fourth Edition, edited by George Raftelis, 443–66. CRC Press.
- US GAO (U.S. Government Accountability Office). 2008. HUD Has Made Progress in Promoting Green Building, but Expanding Efforts Could Help Reduce Energy Costs and Benefit Tenants. GAO-09-46.
- Pew Research Center. 2014. For most workers, real wages have barely budged for decades. <http://www.pewresearch.org/fact-tank/2014/10/09/for-most-workers-real-wages-have-barely-budged-for-decades/>.
- Saunders, Margot Freeman. 1998. Water Affordability Programs. American Water Works Association.
- United Nations. 2015. "Affordability of Water and Sanitation Services: Report of the Special Rapporteur on the Human Right to Safe Drinking Water and Sanitation." [http://ap.ohchr.org/documents/dpage\\_e.aspx?si=A/HRC/30/39](http://ap.ohchr.org/documents/dpage_e.aspx?si=A/HRC/30/39).

## Appendix I. Supplemental Figures



**Figure I-1.** Very Low Income thresholds by county compared to 200% FPL. Y-axis shows annual income for a family of four. Blue bars show Very Low Income for a family of four as defined by U.S. HUD, 2017. Red line indicates 2017 200% FPL for a family of 4. Source for Very Low Income threshold: [https://www.huduser.gov/portal/datasets/il.html#2017\\_data](https://www.huduser.gov/portal/datasets/il.html#2017_data). Source for FPL from Health and Human Services Federal Poverty Guidelines for 2017, <https://aspe.hhs.gov/poverty-guidelines>