

Policy White Paper

Improving Water Affordability by Creating a New Federal Plumbing Repair and Efficiency Assistance Program

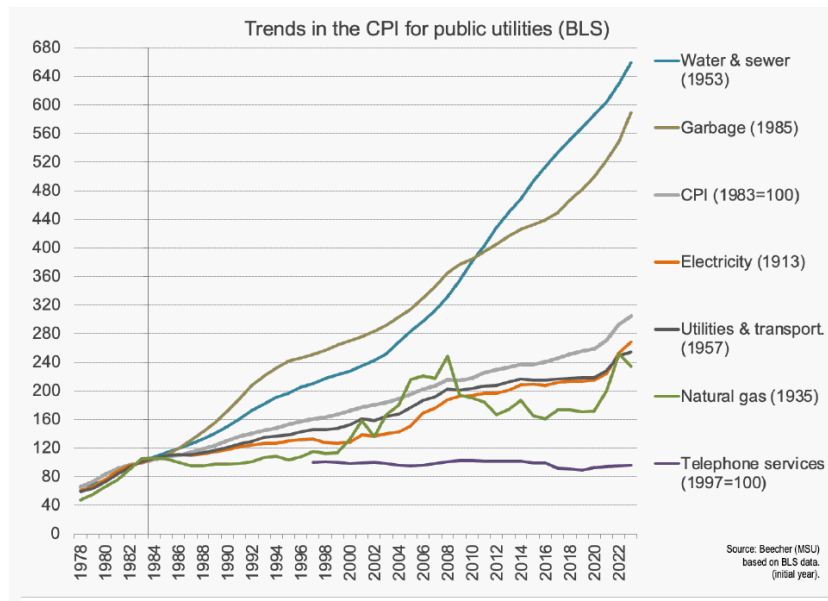
IMPROVING WATER AFFORDABILITY BY CREATING A NEW FEDERAL PLUMBING REPAIR AND EFFICIENCY ASSISTANCE PROGRAM

Alliance for Water Efficiency (AWE) believes the federal government has a unique opportunity to help make water affordable for more low-income households. This policy white paper outlines AWE’s proposal that Congress create and generously fund a new federal program covering plumbing repairs and water efficiency improvements for low-income households in states, tribes, and territories. Addressing high usage and inefficiency will permanently reduce water and sewer bills for participating households. AWE is calling this concept the Plumbing Repair and Efficiency Assistance Program (PREAP). This policy white paper outlines the growing affordability challenge, some precedent for federal support of affordability through efficiency from the energy sector, and potential benefits from PREAP.

As water bills and rates surpass the growth rate of inflation, affordability presents a growing challenge for low to middle-income families. In February 2024, the U.S. Department of Health and Human Services, Administration for Children and Families, Office of Community Services (OCS) announced the release of the [LIHWAP Water Utility Affordability Survey Report](#), which collected 1,822 responses from water and wastewater utilities across the U.S. about arrears, disconnections, fees, rates, and other utility information. Here are some key survey findings:

- ON AVERAGE, 20% OF HOUSEHOLDS ARE IN DEBT TO THEIR WATER UTILITY.
- THE AVERAGE HOUSEHOLD DEBT IS \$285.
- FOR HOUSEHOLDS AT 75% OF THE FEDERAL POVERTY LEVEL, UP TO 40% OF THEIR MONTHLY INCOME IS SPENT ON WATER AND SEWER BILLS.
- THE SITUATION FOR TRIBALLY OWNED UTILITIES IS EVEN MORE DIRE (OFFICE OF COMMUNITY SERVICES, 2024).

This chart from the Institute of Public Utilities at Michigan State University captures the growing water affordability challenge and compares it to other utilities as well:



As our water and sewer systems continue to age, the costs of maintaining and replacing these essential systems are expected to continue increasing, putting more upward pressure on water and sewer bills.

Many communities, utilities, and some states are working to address water affordability with limited funding and subject to legal limitations on their ability to fund improvements in customers' homes. Based on its funding capacity and flexibility, the federal government needs to step in to help if significant progress is to be made.

The good news is that Congress took a first step in this direction when it created the temporary Low-Income Household Water Assistance Program (“LIHWAP”) to provide bill payment assistance, which provides funding to directly reduce customer bills. LIHWAP is based on a similar, long-standing federal program for energy bill payment assistance called the Low Income Home Energy Assistance Program (“LIHEAP”). It is also encouraging to see that some members of Congress and many water utilities through their national associations have studied¹ and are now advocating for a permanent LIHWAP. Making LIHWAP permanent is essential to helping stem affordability challenges across the country.²

But bill payment assistance alone will not address two common root problems – inefficiency and leaks. To address these common problems, we need to help low-income households repair and replace leaking plumbing and fixtures and become more water efficient. This will allow them to meet their essential needs for drinking, cooking, and sanitation by fixing what's broken and improving their systems with high-performing technologies that use less water.

To build on this important work of making LIHWAP permanent, AWE is proposing that Congress act to create the PREAP program. Water efficiency improvements and leak repairs will create a lasting affordability benefit through lower bills year after year. There is a longstanding and direct precedent for this type of program called the Weatherization Assistance Program (“WAP”), which has been helping reduce low-income customers' energy bills since 1976 through things like high efficiency heating and cooling systems, air sealing, and insulation. While bill payment assistance is essential for helping households following events like a job loss or illness, this does nothing to change the long-term situation for households with inefficient plumbing fixtures and appliance and leaks because once the assistance runs out, their bills will be the same, unaffordable bill they had before due to unnecessarily high consumption.

It's time to advocate for both PREAP to permanently lower bills and LIHWAP to help with bill payment during hard times. We need to build a foundation of more efficient water use and leak free homes because this will permanently lower bills. In all cases this will improve the LIHWAP program by helping bill payment assistance go farther and help more people, and for some customers that struggle with inefficiency or leaks, it will help address one of the root causes of their affordability challenges.

UNDERSTANDING WAP AS A MODEL FOR PREAP

WAP is a federal program authorized in Title IV of the Energy Conservation and Production Act (ECPA, P.L. 94-385) and established in 1976. Administered by the U.S. Department of Energy (DOE), WAP is a grant program that provides funding to states, territories, and tribal governments to implement energy-saving measures for low-income households. WAP reduces utility bills through measures like insulation and air

¹ See *Low-Income Water Customer Assistance Program Assessment Final Report* (April 20, 2023) prepared for the American Water Works Association, the Association of Metropolitan Water Agencies, the National Association of Clean Water Agencies, the National Association of Water Companies, and the Water Environment Federation, available at www.awwa.org/Portals/0/AWWA/Communications/liwcap-full-final-report-formatted.pdf.

² New bipartisan legislation continues Low-Income Household Water Assistance Program, AWWA Press Release (April 18, 2024), available at www.awwa.org/AWWA-Articles/new-bipartisan-legislation-continues-low-income-household-water-assistance-program.

sealing, heating system upgrades, cooling system upgrades, windows and doors, energy efficient lighting, hot water efficiency, health and safety measures. Additionally, WAP stimulates local economies through the creation of jobs and the promotion of energy-related technologies. While it has been amended a number of times over the years, WAP was most recently reauthorized by the Energy Act of 2020 (Division Z of the Consolidated Appropriations Act, 2021, P.L. 116- 260), and the act amended the program to, among other things, allow DOE to consider the non-energy benefits of weatherization like health and safety.

The idea and political will to create WAP was born out of the oil and energy crises of the early 1970s because efficiency was viewed as the foundational tool for improving affordability for low-income households. In fact, WAP predates the origins of the large-scale, federally funded bill payment assistance program – LIHEAP, which wasn't created until 1980 as part of the Crude Oil Windfall Profits Tax Act (P.L. 96-223). Not only did WAP with its energy efficiency focus come first, but Congress continued to recognize the foundational importance of efficiency by allowing states to transfer some of their LIHEAP funds to their WAP programs.

The rationale is that if a program simply pays someone's bill once or for a short period, this won't actually solve the underlying problem of an inefficient home that is very costly to heat and cool.

States understand this need for addressing the underlying issue, and they show it through their actions. In addition to their annual, dedicated WAP funding received from the federal government, states are allowed to transfer up to 15% of their LIHEAP money to their WAP, and with a waiver from the federal government, states may increase this transfer up to 25%. In practice nearly every state has used this authority to provide more funding for WAP because they, too, recognize that efficiency is necessary to make a permanent difference in energy affordability for customers. For the energy sector, efficiency has served as the bedrock on which to build bill pay assistance programs like LIHEAP, and the same should be true in the water sector; PREAP should serve as the bedrock for LIHWAP.

The benefits of WAP have been, and continue to be, a source of meaningful savings to low-income households across the country. According to a July 2023 fact sheet³ from the DOE's Office of State and Community Energy Program, key impacts of WAP include:

- 7.2 MILLION – NUMBER OF HOUSEHOLDS THAT HAVE RECEIVED WAP SERVICES SINCE INCEPTION
- \$372 – AVERAGE YEARLY ENERGY SAVINGS PER PARTICIPATING HOUSEHOLD (PPH) (2022 DOLLARS)
- 18% ANNUAL HEAT SAVINGS PPH
- 7% ANNUAL ELECTRIC SAVINGS PPH
- \$4.50 – ENERGY AND QUALITY OF LIFE BENEFITS FOR EVERY \$1.00 INVESTED IN WAP

In addition to the primary affordability benefits achieved through energy savings and according to the same DOE fact sheet, households are also estimated to save on average \$538 in pay per year due to fewer missed working days and \$514 per year in household out-of-pocket medical expenses. These benefits come from reducing problems with moisture, mold, and poor indoor air quality through WAP-funded health and safety improvements. While affordability and energy savings for households are and should be, the primary focus, there are also environmental benefits from WAP, such as avoided emissions, which weigh in favor of

³ Available at www.energy.gov/scep/wap/articles/weatherization-assistance-program-fact-sheet

spending more on efficiency rather than bill pay assistance alone. As the following sections of this policy white paper will show, meaningful water and bill savings would also be available from a program like PREAP.

PREAP - INCREASING EFFICIENCY AND REDUCING LEAKS

In most places in the United States, low-income households use water primarily indoors, and approximately 80 percent of all indoor household water is consumed by toilets, showers, faucets, and clothes washers.⁴ Toilets alone account for 24% of indoor water use. While some efficiency improvements related to hot water are allowed federally under WAP, some states and local programs choose to exclude hot water products. PREAP would include toilets and ensure that indoor water efficiency is addressed fully and comprehensively. Many of these products have relatively long useful lives, and the levels of efficiency in new products have continued to advance quickly, which makes these indoor products promising candidates for replacement as part of PREAP, given the water savings and bill reduction potential. New dishwasher installations should be allowable, and replacements of inefficient dishwashers should also be an allowable measure under PREAP in areas with especially high water and sewer rates.

PREAP should also focus on repairing leaks. Leaks on the customer side of the meter regularly occur and significantly increase bills.⁵ Leaks in this context refer to things like a leaky water service line outside the house to running toilets and dripping faucets and pipes in the house. According to WaterSense, 10% of homes have leaks that waste 90 gallons or more per day, and using the national average combined water and sewer cost of \$12.60 per 1,000 gallons, this would cost at least \$34 per month. For even these relatively large leaks, some low-income customers may choose to pay a higher monthly bill because they cannot afford the large up-front cost of repairing a leak. Even larger leaks can increase water bills by multiples of a customer's typical water bill, often two, three, and five times the average bill.

Furthermore, some areas have high pressure in the utility's water system and households, therefore, may have pressure in their pipes that is far in excess of the design pressure of fixtures and appliances. This excess pressure increases the likelihood and size of leaks, increases water usage overall with flows beyond the stated flow rates, and reduces the average life of fixtures and appliances.⁶ A federally funded program like PREAP should help customers address leaks, allow for leak detection, and identify excess pressure conditions in households to solve the underlying issues with water use. PREAP should also include the installation or replacement of pressure-reducing valves in homes and hot water expansion tanks.

In some parts of the country, outdoor water use is essential to keeping grass and plants alive, and in others, having regularly watered green grass can be a requirement of homeowners associations. Low-income customers in these areas, often older residents who rely on fixed incomes, may be forced to use some water outdoors. Ensuring these customers have efficient, well-maintained, and functional irrigation equipment can help control water use and reduce bills. PREAP should include the flexibility to allow states to include outdoor water efficiency measures in their program criteria based on state and local needs.

⁴ Figure ES.4 from the Residential End Uses of Water, Version 2 (WRF 2016)

⁵ See, e.g., *Smart Practices to Save Water: An Evaluation of AMI-enabled Proactive Leak Notification Programs*, Alliance for Water Efficiency (March 2023), which found that 16.7% of homes studied had a leak over the course of 12 months.

⁶ See *Pressure Reducing Valves Save Water and Prevent Problems*, by Peter Yost (June 24, 2010), Green Building Advisory, available at <https://www.greenbuildingadvisor.com/article/pressure-reducing-valves-save-water-and-prevent-problems>.

PREAP - POTENTIAL FOR IMPACT

Using estimates based on leading sources⁷ in the industry, this table summarizes the potential water savings and bill reduction impacts of the efficiency components of a program like PREAP. While not all households would need all of these replacement and retrofits, the bill reduction potential for the individual improvements and the improvements viewed overall are substantial.

| Existing Condition | Water Efficiency Improvement | Annual Savings per Household (gal) | Estimated Annual Water & Sewer Savings per Household* | Expected Cost (Materials & Labor) | Simple Payback (yrs) | Useful Life (yrs) | Lifecycle Net Benefits** |
|---------------------------|------------------------------|------------------------------------|---|-----------------------------------|----------------------|-------------------|--------------------------|
| 15+ yr old clothes washer | New Energy Star Top Loader | 7,400 | \$93 | \$800 | 8.6 | 13 | \$412 |
| 3.5 gpf toilet | WaterSense toilet | 10,100 | \$127 | \$750 | 5.9 | 30 | \$3,068 |
| 2.5 gpm shower head | WaterSense shower head | 2,200 | \$28 | \$90 | 3.2 | 15 | \$326 |
| 2.2 gpm bathroom faucet | WaterSense bathroom faucet | 500 | \$6 | \$20 | 3.2 | 12 | \$56 |
| 2.2 gpm kitchen faucet | 1.8 gpm kitchen faucet | 1,800 | \$23 | \$100 | 4.4 | 12 | \$172 |
| | Total | 22,000 | \$277.20 | \$1,760 | 6.3 | | \$4,033 |

gpf = gallons per flush; gpm = gallons per minute

*WaterSense estimate combined water & sewer / 1,000 gal \$12.60

*Does not include energy savings from reduced hot water use

**Holds savings constant & doesn't account for time value of money

While this table focuses on water savings, households will also realize energy savings. For example, showerheads save energy on hot water, which, based on WaterSense data for gas hot water heating, would amount to a 1,500 cubic feet per household per year savings. This would nearly double the annual household cost savings by adding an additional \$22.85 in annual energy cost savings. This is based on the Energy Information Administration's average retail price of \$15.23 per thousand cubic feet. The annual energy costs savings for households using electric hot water heating would be even greater. To the extent that state and local WAP includes hot water plumbing fixtures, these savings would not be double counted.

⁷ Leading sources used in estimating the potential impact include: Residential End Uses of Water, Version 2 (WRF 2016), WaterSense supporting statements when they create a specifications for new products, US Census Bureau statistics, documents from the California Energy Commission. Detailed source references and calculations are on file with the Alliance for Water Efficiency and are available upon request.

In addition to these direct energy savings, water and wastewater utilities also save indirect energy by pumping, treating, and distributing water to households and collecting and treating their wastewater. Furthermore, all energy savings help avoid emissions of air pollutants and greenhouse gases.

For more detailed information on how potential water and bill savings from water efficiency would impact customers served by different utilities, see AWE's recent affordability studies, including:

- [An Assessment of Water Affordability and Conservation Potential in Detroit, Michigan \(2020\)](#)
- [An Assessment of Water Affordability & Conservation Potential in Long Beach California \(2022\)](#)
- [An Assessment of Water Affordability & Conservation Potential in Houston, Texas \(2023\)](#)
- [An Assessment of Water Affordability & Conservation Potential in the City of Santa Barbara, CA \(2024\)](#)

These bill reductions and net benefits are based on a customer that is connected to both public water and sewer; however, PREAP should be available to people on private wells and/or septic tanks. These efficiency improvements should also be offered to both owner-occupied homes and to tenants in a rental home. PREAP should be available to single-family homes, manufactured homes, duplexes, triplexes, and quadplexes.

PREAP – REPAIRS TO IMPROVE PLUMBING SAFETY AND ADDRESSING MAINTENANCE NEEDS

While often grant-funded and of limited duration, a number of utilities around the country have experience implementing water efficiency retrofit and replacement programs for low-income customers, and plumbing safety and maintenance issues in a home can preclude any action on water efficiency and present a health risk to occupants. Common problems include:

- Old, galvanized service lines or premise plumbing that leak or have corroded from the inside and results in very low flows and rust in the water (note – lead service line replacements are handled under a separate program and are not contemplated as part of PREAP)
- Leaks in copper pipe joints or in other connections and fittings that have slow leaks, causing moisture damage and mold
- Holes in old cast iron drain lines that leak wastewater into wall and floor cavities, basements, and crawlspaces
- Damage to toilet flanges, flooring, and subflooring around the toilet from wastewater leaks

Repairing and addressing these issues should be included in the PREAP program because they are typically necessary before water efficiency improvements can be made. Additionally, sources of indoor water and wastewater leaks often result in conditions that can lead to mold, and fixing these leaks can help improve indoor air quality and health. This is similar to how WAP covers health and safety issues related to moisture and flue gas venting in homes to support both efficiency and safety.

PREAP - NEXT STEPS

1. The Alliance for Water Efficiency will **convene a coalition** to help with further policy development and advocacy. We will invite a wide range of organizations with an interest in water affordability, including water sector associations, water utilities, water and plumbing industry partners, and environmental and poverty prevention nonprofits.
2. The coalition will work to **develop any additional details needed before legislation can be written**. This could include determining which federal agency will be responsible for implementation, adjusting the

scope of the program, considering whether to use efficiency levels beyond the minimum levels needed to qualify for WaterSense and EnergyStar, refining costs and benefits estimates, determining any desired connections to LIHWAP, and addressing questions and comments from coalition members and potential congressional sponsors.

3. The coalition **will identify and build relationships beyond the water sector** in an effort to seek unity and build momentum with efforts that benefit low-income households by helping them pay their utility bills, become more efficient, and expand the total federal funding available for both water and energy efficiency and bill-pay assistance programs.
4. The coalition will work to **identify and work with congressional sponsors**, with the goal of introducing bipartisan legislation in 2025.

For organizations interested in getting involved in these next steps, please contact Andrew Morris at andrew@a4we.org.

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About the Alliance for Water Efficiency

The Alliance for Water Efficiency (AWE) is a nonprofit organization dedicated to the efficient and sustainable use of water. AWE supports water conservation practitioners from over 500 member organizations, including water utility agencies, businesses and corporations, governmental agencies, nonprofits, and researchers, to advance the adoption of water-efficient practices, appliances, and programs across North America.

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