

Equitable Water Rates

People often think of utility rates as a function of the total amount of money the utility needs in order to cover its operating costs, capital costs, and, for investor-owned utilities, its profit margin. The more a utility spends to produce clean water and treat wastewater, the higher the rates will be—at least without funding from other, non-ratepayer sources, such as local taxes or state or federal grants. That’s all true, generally speaking, but it’s not the entire story.

Just as important as the total amount of revenue a utility seeks to generate from ratepayers is how that revenue need is *divvied up among ratepayers*. For the purposes of this module, the term “rate structure” refers to how the utility allocates costs among different categories of ratepayers and, within each category, among individual customers.

This module explores how rate structure reforms that apply to *all* ratepayers can be used to produce lower bills specifically for low-income households.¹ Equitable rates should be combined with other approaches discussed in this toolkit that specifically target a discrete subset of

households, such as low-income households and others struggling to pay. (See the Affordability and Assistance Programs, Water Debt, and Water Efficiency modules.)

More equitable rate structures alone will not ensure that rates are affordable for all low-income households. But they can ameliorate affordability challenges for many, reducing the size of the problem that must be tackled with means-tested programs. This module provides technical background on the elements of rate-setting and identifies rate structure reforms that can help advance affordability goals.

SOLUTIONS AND TOOLS EXPLORED IN THIS MODULE:

- Understanding the elements of ratesetting
 - Avoiding diversion of rate revenues for nonutility purposes
 - Challenging cost allocations that place an unfair burden on residential customers
 - Reducing reliance on fixed charges or declining block rates that effectively subsidize higher-income customers’ water use
 - Adopting inclining block rates or “lifeline” rates—which, if carefully designed, tend to reduce costs for low-income households
 - Establishing separate rates for wastewater and stormwater that ensure residential customers do not subsidize stormwater services for nonresidential property owners
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RATE STRUCTURES SIGNIFICANTLY AFFECT HOUSEHOLDS' BILLS

The choices a utility makes regarding its rate structure can have a profound impact on the cost of water service for low-income households. A utility can design rates in ways that reduce bills for those households even without considering any individual customer's income—that is, without adopting a means-tested affordability or assistance program.

Setting water or sewer rates traditionally consists of three steps: determining the utility's total costs of providing service (the "revenue requirement"), allocating costs across customer categories, and designing rates that will generate the allocated amounts from each customer category. As explained below, each of these steps has major implications for household-level affordability.

QUESTIONS TO CONSIDER:

The following questions may help you identify opportunities to push for a more equitable rate structure in your community:

- Is a "rate schedule" readily available on your water or sewer utility's website or elsewhere? When, how, and by whom are the rates set, and what opportunities exist to participate in the rate-setting process? (See the module on Accountability and Participation in Decision Making for further discussion.)
- Do residential water or sewer bills include fixed charges, which do not vary according to how much water a customer uses? If so, how do these charges vary between residential and nonresidential customers?
- Are residential water or sewer bills based, in whole or in part, on the customer's water usage? If so, do low-volume users and high-volume users pay the same per-gallon rate? Do residential and nonresidential customers pay the same per-gallon rate?
- Does the utility have a "lifeline rate," which keeps the cost low for an initial amount of water intended to cover a household's basic needs? If so, does the amount of water covered by the lifeline rate vary with the size of the household?
- Does the sewer system manage both sewage from buildings (wastewater) and runoff from storms (stormwater)? If so, does your sewer utility ensure that nonresidential properties pay their fair share of stormwater costs, for example by having separate rates for stormwater based on a property's impervious surface area?
- Does all of the money customers pay go toward running the utility, or is some of the money diverted for other purposes?

REVENUE REQUIREMENT

What is it? The revenue requirement refers to the total amount of money the utility needs to cover its operating and capital costs.² For investor-owned utilities or public-private partnerships, it also includes the company's profit margin.³ In many systems, a large portion of the revenue requirement may be the costs of paying off debt—interest on bonds or other loans that finance capital improvements, which are secured by a legally binding promise of future ratepayer revenue.⁴ (For more on factors that contribute to variation in rates, see the Background module.)

Why does it matter? If any portion of a publicly owned utility's revenues are diverted to nonutility local government purposes, this would artificially inflate the revenue requirement beyond the actual cost of providing water and sewer service (see text box, "Diversion of Ratepayer Funds Drives Up Bills"). Conversely, if the utility receives any non-ratepayer revenue—for example, funding from local property or sales taxes, or state or federal infrastructure grants—this would be deducted from the amount of revenue that needs to be recovered through rates.



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DIVERSION OF RATEPAYER FUNDS DRIVES UP BILLS

The purpose of a water utility is to provide water service. So 100 percent of the money collected from customers should go toward the costs of operating, maintaining, and improving the water system, right? In many systems, it doesn't.

In too many cases, the steady revenue generated by publicly owned systems is too tempting for local officials to resist as a funding source to meet other local government needs.⁵ Transfers of rate revenue to a municipal general fund unfairly force water customers to subsidize, through their water bills, other local government functions. In Chicago, investigative reporting found that an estimated \$775 million in rate revenues had been used to cover the city's municipal employee pension liabilities.⁶ Sometimes these raids on utility funds are essentially hidden to customers when they pay their bill.⁷ In the case of Chicago, however, the city explicitly imposed a "water-sewer tax" to fund the pension liabilities. Combined with increasing water and sewer rates, this tax contributed to a water debt crisis among residential customers.⁸

Many cities impose taxes on municipal water and sewer bills— or taxes on the utility's revenue, which get passed on to customers through rates—to fund other local government functions. A recent blog article from an academic expert on water rates and affordability provides a helpful primer on this issue, including examples from around the country. The author emphasizes that such taxes are "profoundly regressive ways to raise revenue" and states that "in some places, 10–50% of water/sewer revenue goes to general government taxes."⁹ A companion piece by the same expert offers some recommendations on stopping this practice as a way to improve water affordability for low-income households.¹⁰ Likewise, the U.S. Water Alliance, an influential voice in the water utility sector, recently called for an end to taxes on public water service, arguing that they "can contribute to putting essential services out of reach for low-income customers and should not be allowed."¹¹

COST ALLOCATION

What is it? Cost allocation refers to the method a utility uses to apportion its total revenue requirement to particular retail and wholesale customer categories, based on the cost of serving each category. For retail customers (i.e., individual accounts billed directly by the utility), these categories may distinguish between residential and nonresidential retail customers; in turn, nonresidential customers may be divided into commercial, industrial, institutional, and other categories. When a municipal system serves some retail customers beyond the municipal boundaries, those customers may be treated as a separate category for purposes of rate-setting.

Additionally, for systems that provide wholesale service, cost allocation includes apportioning costs among wholesale customers. For example, some drinking water utilities, serving as a wholesale supplier, deliver under contract some or all of the water they produce to other, nearby water utilities, which in turn provide water service to their own retail customers. Similarly, some regional wastewater treatment utilities, operating as a wholesale supplier of treatment services, receive and treat wastewater from sewer systems owned by individual communities; those communities, in turn, provide wastewater collection services to individual retail customers. Some water or wastewater utilities function as retail providers (directly serving individual users) in some areas and as wholesale utilities in other communities; in that case, cost allocation also includes determining the share of the system's total revenue requirement that will be assigned to wholesale customers and the share that will be assigned to retail customers.

Why does it matter? Cost allocations determine how much total revenue needs to be generated from each customer category. For retail utilities, the greater the cost allocation is to a customer category, the higher the rates will be for those customers, and vice versa. Traditionally, cost allocation has been conceived of as a technical question—a determination (or, more realistically, an approximation) of the discrete costs of providing service to each customer category.

A MORE PROGRESSIVE VIEW OF COST ALLOCATION CAN SUPPORT MORE EQUITABLE RATES

Public health can be broadly impacted—for example, by a spreading disease—when some households lack water for proper hygiene and sanitation. Given this, some academics and utility consultants have recently been promoting a more progressive view of cost allocation that recognizes a utility's core function of protecting public health across its service area, and not simply providing water as a commodity to discrete, individual customers. In effect, they argue that because providing the service of public health protection requires universal service to all households sufficient to meet essential household needs the cost of providing that essential level of service should be widely shared among everyone in a community, across all customer categories. This can provide a rationale for more equitable rate designs, such as lifeline rates (discussed further below) that reduce the cost burdens placed on low-income households, and for using rate revenues to support other low-income affordability and assistance programs.¹²

When cost allocations are not done fairly and reasonably, one group of customers can end up unfairly subsidizing another. Sometimes policy choices are made not to charge a certain category of users at all; for example, some municipal systems do not charge local government buildings (schools, municipal offices, etc.) for the water they use, which means that the costs of providing that water are shifted to other customers. Other choices regarding cost allocation can be hidden in discounted rates for certain classes of nonresidential customers. For example, Philadelphia provides a 25 percent discount to universities—some of which have multi-billion-dollar endowments—which shifts part of their water costs onto other categories of customers.¹³

In communities that contract with a wholesale utility for water or wastewater service, the community's costs under the wholesale contract get passed along in rates to individual residential and nonresidential customers. Arrangements governing wholesale prices are often complex and difficult to influence. Yet wholesale cost allocation can make a huge difference in rates for individual customers. For example, Detroit is a wholesale customer of a regional wastewater utility; the regional sewage treatment plant, located in the city, receives wastewater both from the city and from many surrounding municipalities. Under a formula developed more than 20 years ago, the city and its retail customers are responsible for paying 83 percent of the costs of system upgrades needed to address sewage overflows.¹⁴ The city and many residents believe this and other aspects of the regional system's cost allocation formulas unfairly burden the city, contributing to high wastewater rates for city residents.¹⁵ (Although in-depth discussion of wholesale rate allocation issues is beyond the scope of this toolkit, the endnote below offers some further considerations.¹⁶)

RATE DESIGN

What is it? Rate design refers to a utility's pricing structure. After the utility has determined its revenue requirement and made its cost allocations, it has to decide how to set prices to recover the targeted amount of revenue from each category of customers. (This discussion focuses on retail, not wholesale, rate design.) The U.S. Environmental Protection Agency's website offers a clear, concise primer on the most typical water rate designs.¹⁷

Why does it matter? A utility's rate design choices can have an enormous impact on how much a customer pays for water or wastewater service. Depending on how they design their residential rates, two hypothetical utilities with the same number of customers, same revenue requirement, and same cost allocation could charge very different amounts to customers using the same quantity of water. For example, as discussed further below, some utilities charge all residential customers a flat amount regardless of how much water they use. Others base charges on usage, at least in part, but may charge all residential customers the same per-gallon rate or impose per-gallon higher rates (or even lower rates) on customers who use more water.¹⁸

MORE EQUITABLE RATE DESIGNS CAN REDUCE BILLS FOR LOW-INCOME CUSTOMERS

For any given community, in determining how alternative rate designs would affect affordability for low-income households, it is very important to understand both the utility's current rate design and the consumption levels of low-income households in the utility's service area.

Outdoor water use, such as landscape irrigation, makes up a large share of average residential water use.¹⁹ Therefore, to the extent that low-income households are likely to have lower-than-average outdoor water use in a particular community, they are also likely to use less water than the average household. For example, wealthier families in suburban houses with large, irrigated lawns will use much more water than families in smaller homes in denser neighborhoods with minimal outdoor space, where lower-income families are more likely to live.

However, not all communities and all low-income households are the same, even when one focuses specifically on indoor water use to meet essential needs. Some households may use more water than average because they have more people than average—for example more children in the family, multiple generations living together, or multiple families living in the same housing unit. Further, low-income housing is more likely than most homes to have old, inefficient fixtures and leaky plumbing, which can drive up per capita indoor water use relative to other customers. (For more, see the Water Efficiency and Plumbing Repair Assistance module.)

When utilities have high fixed charges, flat rates, or declining block rates, lower-income customers often subsidize higher-income ones.

In light of household-level variation in water use, the following discussion of rate design alternatives should be considered as a generalization. It should not be taken as a prescription for rate designs that reduce costs for all low-income households, much less designs that ensure affordable water for all. For example, some of the options discussed below focus on reducing costs for lower-volume residential users relative to higher-volume residential users; these approaches would better support low-income households if a utility adjusts its rates based on household size and provides water efficiency assistance to low-income households.²⁰

Rate design options that may tend to reduce bills for lower-income households include:

- **Avoiding overreliance on fixed charges:** A fixed charge refers to a portion of the bill that is the same regardless of level of water consumption. In contrast, a volumetric charge refers to a per-gallon charge for water usage. Where rate designs rely on fixed charges to generate a large share (or even all) of a utility's revenue, low-income customers who use water primarily to meet essential indoor water needs end up subsidizing the water use of higher-income customers who have large volumes of discretionary outdoor water use.²¹ "Flat" rates are the most extreme example of a fixed charge, where a low-income household with no outdoor water use pays the same amount as a wealthy household with a one-acre lawn.²² However, many water and wastewater utilities have rate designs that include both a fixed charge and a volumetric charge; for these utilities, high fixed charges tend to disfavor low-income households.
- **Using tiered, inclining block rates:** The most common volumetric rate designs are uniform rates (the same per-gallon charge regardless of total usage), inclining block rates (a per-gallon rate that increases for larger increments of use, often used to incentivize water conservation), and declining block rates (a per-gallon rate that decreases for larger increments of usage).²³ Of these three rate designs, declining block rates tend to put the greatest burden on low-income customers who use water primarily to meet essential indoor water needs who end up subsidizing higher-use, higher-income residential customers.

Inclining block rates, on the other hand, can result in the lowest bills for many low-income customers; they tend to shift costs away from low-income households by increasing costs for higher-volume residential users.²⁴ The impacts of any particular inclining block rate design depend, however, on how the usage tiers are defined (e.g., the level of water consumption that makes up the lowest tier) and on the relative differences in pricing among the tiers.

- **Adopting lifeline rates:** Rates can be designed to be affordable for an initial amount of water deemed sufficient to cover a household's basic indoor needs, including drinking, cooking, and sanitation. This approach is often known as a lifeline rate. When considering lifeline rates, it is important to take into account unintended consequences for low-income households that may need higher-than-average amounts of water to meet basic needs.²⁵ (See the text box below for more on lifeline rates.)
- **Establishing separate rates for wastewater and stormwater:** Hundreds of communities in the United States (mostly older cities in the Northeast, Midwest, and Pacific Northwest) are served by combined sanitary and storm sewer systems—that is, systems that handle sewage from buildings and runoff from streets in the same pipes. When these utilities rely on wastewater charges to fund both wastewater and stormwater services, as is often the case in these communities, residential customers tend to subsidize stormwater services for nonresidential property owners. For example, when rates are based on water usage (as wastewater service often is), customers pay for stormwater service based on how much water they use. But water usage bears no relationship to the amount of stormwater runoff a customer contributes to the sewer system. Therefore, properties with lots of impervious surface area but relatively low water use, such as nonresidential properties with large parking lots and rooftops, end up being undercharged for stormwater services, while residential customers with little impervious area are overcharged.

In combined sanitary and storm sewer systems, residential customers (including low-income residential customers) can benefit from a restructuring of rates so that stormwater services are charged separately, based on impervious area or some other surrogate for the amount of runoff a property contributes to the public sewer system. In Pittsburgh, a community-based coalition—as part of its water affordability advocacy—successfully fought for this change as “a more equitable way to fund the improvements we need to manage stormwater in Pittsburgh.”²⁶

LIFELINE RATES

Lifeline rates aim to provide an affordable rate for an initial amount of water deemed sufficient to cover all or most of a household's basic needs, such as drinking, cooking, and sanitation.²⁷ Water consumption above the lifeline amount is charged at a higher rate. The aim is to ensure that households can afford enough water for their basic daily needs while maintaining price incentives that reduce excessive water consumption. (Note: Some utilities may also use the term "lifeline rate" for programs that are not based on usage, such as flat discounts.²⁸)

Some water utilities, such as the one in Washington, D.C., apply a lifeline rate to an initial increment of usage for all residential customers.²⁹ Others, such as in Norman, Oklahoma, offer theirs only to low-income households.³⁰ Lifeline rates can also be designed in various ways. For example, in Norman, low-income customers get a lower rate for the first 5,000 gallons of water consumed, as well as a discounted fixed charge.³¹ Alternatively, under an inclining block rate structure, the volume of water included in the first block could be sized to correspond to a lifeline amount and priced at a level intended to ensure affordability.³² The important point is that the rate should be calculated to allow households to access enough water for their essential needs at an affordable price.

Lifeline rates can improve affordability for many households. However, they may fall short if the lifeline water usage amount is unrealistically low or if the utility defines "affordable" unrealistically (for example, on the basis of an average rather than a low-income household). In addition, lifeline rates may negatively impact customers whose usage exceeds the lifeline amount for reasons beyond their control, such as customers who have large households or live in older housing with inefficient fixtures and leaky plumbing. To avoid these effects, the size of the lifeline amount should ideally be adjusted to reflect household size, and lifeline rates should be paired with water efficiency assistance to help customers keep their usage within the lifeline amount.

UTILITIES MAY RAISE CONCERNS ABOUT CERTAIN RATE DESIGNS

Water utilities will often raise concerns about the financial implications of, or potential legal impediments to, some of the rate structures discussed above. Some of these concerns are described below.

Will reduced reliance on fixed charges undercut revenue stability? A major reason why utilities like fixed charges is because they offer a hedge against changes in demand—for example, reduced demand when water-use restrictions are imposed during a drought, or when an especially wet year means less need for landscape irrigation. When shifting allocations between fixed and volumetric charges, utilities can use various complementary strategies to limit revenue fluctuations. There is a rich and growing body of literature and practice in this field.³³ With electric rate design, environmental and consumer perspectives align on numerous strategies to avoid overreliance on fixed charges.

Why are tiered rates (or "conservation rates") needed in areas with abundant water supplies? Tiered rates promote equity as well as efficiency. Nearly every water utility in the United States sees water usage rise during the summer months, due primarily to lawn watering and other landscape irrigation. Even in areas with ample water supplies, high summer usage drives extra costs for the utility because conveyance and treatment infrastructure has to be built to meet peak demand. High summer usage pushes up costs for all customers, so it is only fair that rates be designed to recover extra costs during peak summer usage. This is what tiered rates are designed to do.

Does state law authorize lifeline rates? In some cases, state law may raise questions about whether setting a low rate for an initial increment of water use, specifically to make that basic use affordable, violates a principle that rates should correspond to the "cost of service." State laws are unlikely to explicitly address the permissibility of lifeline rates, but utilities should not assume this means they lack the authority to adopt one; advocates can also commission their own legal research.³⁴ Moreover, as discussed above, when water and sewer services are understood to provide public health and other essential-to-life benefits to all members of a community, this may help legally justify lifeline rates that spread the costs of basic, universal service more equitably across all ratepayers. Finally, lifeline rates that apply equally to all residential customers, regardless of income, should at least avoid the concern that low-income discounts may be unlawful "discrimination" in rates.

Does state law authorize charging separately for stormwater services? Many municipalities have faced court challenges to stormwater fees, with challengers arguing that they are not authorized under state law. Historically, municipalities have tended to fare well in these cases, and utility associations have developed resources to help utilities work through the legal issues.³⁵ When necessary, advocates can seek amendments to state law to explicitly provide legal authority. For example, in 2019 New Jersey enacted legislation authorizing municipalities to charge for stormwater services based on impervious area.³⁶

HOW DID THEY COME UP WITH THOSE RATES? ASK FOR A RATE STUDY.

As part of the formal process used to set rates, some utilities must provide an explanation of why rates were set (or proposed) at a particular level. (For more information on the rate setting process, see the Accountability and Participation in Decision Making module.) But what if the utility can't point to any supporting analysis when you ask? A well-managed utility should periodically conduct a "rate study" that identifies total revenue needs, explains the selected rate structure, and quantifies rate increases needed to generate the necessary revenue. If your utility hasn't done a rate study recently, you can push it to undertake one. You can also urge the utility to actively engage advocates and ratepayers in a new rate study. For example, a formal advisory group could be convened to explore how to make the rate structure more equitable or how to use low-income affordability or assistance programs to mitigate the impact of future rate increases. Here, too, connecting with legal advocacy organizations or academics who may offer pro bono expertise in this area should be considered.

KEY RESOURCES:

WaterSense, "Understanding Your Water Bill," U.S. Environmental Protection Agency, accessed April 11, 2022, <https://www.epa.gov/watersense/understanding-your-water-bill>.

This webpage provides a useful primer on various water rate structures.

ENDNOTES

- 1 This module focuses on equitable rates for households that are direct customers of the water utility, mostly residents of single-family homes. It does not consider how rate structures affect renters who are not direct customers of the utility, such as those in multifamily buildings where the landlord is the direct customer.
- 2 Utility-specific factors contributing to operating and capital costs are discussed briefly in the Background module.
- 3 Public-private partnerships include arrangements in which a private company operates a water or sewer system under contract with a publicly owned utility. They can also include situations in which a private company leases a system by making annual payments to the local government and in return receives the right to retain ratepayer revenue. Despite the central role of private, investor-owned companies, these arrangements typically are not subject to state utility commission oversight because they do not involve actual private ownership of the utility. In some cases, these arrangements have resulted in rate increases far in excess of those anticipated when contracts were negotiated, due to the need to generate a guaranteed level of profit for the private company and its investors. Danielle Ivory, Ben Protes, and Griff Palmer, “In American Towns, Private Profits From Public Works,” *New York Times*, December 24, 2016, <https://www.nytimes.com/2016/12/24/business/dealbook/private-equity-water.html>.
- 4 In some cases, financially struggling systems may also incur significant debt for operating costs.
- 5 Stacey Isaac Berahzer, “Fund Transfer Workarounds,” *UNC Chapel Hill Environmental Finance Blog*, September 27, 2013, <https://efc.sog.unc.edu/fund-transfer-workarounds/>.
- 6 María Inés Zamudio, “Drowning in Debt,” *WBEZ Chicago*, November 8, 2021, <https://interactive.wbez.org/waterdebt/>.
- 7 For example, New Jersey law allows water and wastewater authorities to transfer up to 5 percent of any “surplus” revenues in a given year to a local municipal or county budget. N.J. Stat. Ann. § 40A:5A-12.1 (West). Accordingly, in 2020 the Evesham Municipal Utilities Authority transferred \$779,000 to Evesham Township’s general fund. Evesham Municipal Utilities Authority, Resolution 2020-72, <http://www.eveshammua.com/wp-content/uploads/2020/05/Resolution-2020-75-Appropriation-to-Twp-w-letter.pdf>; Evesham Municipal Utilities Authority, “Meeting Minutes From May 13, 2020,” accessed May 13, 2022, <http://www.eveshammua.com/wp-content/uploads/2020/05/minutes-5-13-2020.pdf> (showing approval of resolution).
- 8 Zamudio, “Drowning in Debt.”
- 9 Manny Teodoro, “Stop Taxing Tap Water,” *Manny Teodoro Blog*, June 21, 2021, <https://mannyteodoro.com/?p=2707>.
- 10 Manny Teodoro, “(Un)taxing the Tap,” *Manny Teodoro Blog*, August 10, 2021, <https://mannyteodoro.com/?p=2738>.
- 11 Mami Hara, Renée Willette, and Emily Simonson, “Making Water a Public Good: The Bigger Picture of Water Affordability,” *U.S. Water Alliance*, 2022, <http://uswateralliance.org/sites/uswateralliance.org/files/Making%20Water%20a%20Public%20Good.pdf>.
- 12 Rick Giardina and Manny Teodoro, “Human Health and Functional Cost Allocation for Water Utility Rates,” white paper, February 16, 2020, https://mannyteodoro.com/wp-content/uploads/WhitePaper-Two-COS-Human-Health_2.16.20.pdf; Eric Rothstein et al., “Affordability and Equity Considerations for Rate-Setting,” *Journal AWWA* 113, no. 7 (September 2021): 36–47, <https://doi.org/10.1002/awwa.1766>.
- 13 Phila. Water Dep’t, Rates and Charges (eff. Sept.1, 2021) § 5.2, <https://water.phila.gov/pool/files/rates-and-charges-2021-09-01.pdf>.
- 14 Joey Horan, “Paying to Get Flooded: Understanding Detroiters’ Sewerage Costs,” *Planet Detroit*, July 16, 2021, <https://planetdetroit.org/2021/07/paying-to-get-flooded-understanding-detroiters-sewerage-costs/>. The 83 percent rule was codified in a federal court consent decree in 1999. That provision of the decree expired in 2011, but it continued in the contracts between Detroit and the suburbs served by its wastewater system. *United States v. City of Detroit*, 2:77-cv-71100-SFC, ECF No. 2393 (E.D. Mich. August 31, 2011, Order to Incorporate Rate Settlements Into Wastewater Contracts and Dismiss All Prior Rate Settlements).
- 15 Horan, “Paying to Get Flooded.”
- 16 When an investor-owned utility is a wholesale purchaser, or when a community is a wholesale purchaser from an investor-owned utility, wholesale prices are subject to utility commission regulation in connection with the utility’s rate cases. For publicly owned systems, however, the process for negotiating or fixing wholesale prices is rarely transparent; the formulas for calculating prices may have been determined years or even decades ago without being updated to account for changes in the water or sewer system; and the underlying contracts may be very difficult to change. For example, changes may require agreement by a large number of wholesale customers that jointly are parties to a single contract, or the financial arrangements may be codified in legislation. Even in these cases, however, the wholesale utility may need to make certain calculations or financial or technical analyses to apply an agreed-upon formula; therefore, it may be possible to identify and remedy inequities in wholesale cost allocations, even without changing any underlying contracts.
- 17 WaterSense, “Understanding Your Water Bill,” U.S. Environmental Protection Agency, accessed April 11, 2022, <https://www.epa.gov/watersense/understanding-your-water-bill>.
- 18 Although wastewater utilities do not measure how much a residential user discharges into the sewer system, wastewater rates can be, and often are, based on the volume of water a customer uses. The premise is that water that is used (at least indoors) ultimately becomes wastewater, so therefore the volume of water used is a reasonable proxy for the relative cost of collecting and treating wastewater; some systems base the wastewater charge specifically on winter water use, which is meant to approximate indoor-only water use. See Michelle Mehta, “Volumetric Pricing for Sanitary Sewer Service in California Would Save Water and Money,” NRDC, January 2012, <https://www.nrdc.org/sites/default/files/Volumetric-Wastewater-FS.pdf>.
- 19 William B. DeOreo et al., *Residential End Uses of Water, Version 2: Executive Report*, Water Research Foundation, April 2016, https://www.circleofblue.org/wp-content/uploads/2016/04/WRF_REU2016.pdf.
- 20 Gregory Pierce et al., “Solutions to the Problem of Drinking Water Service Affordability: A Review of the Evidence,” *WIREs Water* 8, no. 4 (July/August 2021), <https://doi.org/10.1002/wat2.1522>.
- 21 John Cromwell et al., “Shrink the Bills: Alternative Rate Structures,” chapter 10 in *Best Practices in Customer Payment Assistance Programs*, Water Research Foundation, January 2010, <https://www.waterrf.org/research/projects/best-practices-customer-payment-assistance-programs>; Lisa Wood et al., *Recovery of Utility Fixed Costs: Utility, Consumer, Environmental and Economist Perspectives*, Future Electric Utility Regulation, report no. 5, June 2016, 19–46, <https://eta-publications.lbl.gov/sites/default/files/lbl-1005742.pdf>.

- 22 Although metering of water use is very widespread, some water systems still are not fully metered and charge some or all customers a flat rate that does not vary by usage. Additionally, flat rates are likely more prevalent for wastewater than for water. For example, a 2018 study of 323 New Jersey municipalities found that more than two-thirds of them relied entirely on a fixed charge for residential sewer service, with no consideration at all of usage. Daniel J. Van Abs and Tim Evans, *Assessing the Affordability of Water and Sewer Utility Costs in New Jersey*, Jersey Water Works, September 2018, <https://www.jerseywaterworks.org/wp-content/uploads/2018/09/Van-Abs-and-Evans-2018.09.09-Assessing-Water-Sewer-Utility-Costs.pdf>. In California, a 2012 report found that 70 percent of California households served by a public water supplier paid for sewer service through a flat, non-volumetric charge. Michelle Mehta, “Volumetric Pricing for Sanitary Sewer Service in California Would Save Water and Money,” NRDC, January 2012, <https://www.nrdc.org/sites/default/files/Volumetric-Wastewater-FS.pdf>. Where water and wastewater services are provided by separate utilities, the wastewater utility may not have access to current water usage data for billing purposes. Advocates could consider state legislation to require water utilities to provide those data when wastewater utilities request it for the customers they have in common.
- 23 The term “tiered rates” is sometimes used to refer to both inclining block rates and declining block rates.
- 24 Cromwell et al., “Shrink the Bills”; Pierce et al., “Solutions to the Problem of Drinking Water Service Affordability.”
- 25 Cromwell et al., “Shrink the Bills.”
- 26 Pittsburgh United, “Stormwater Fee Information,” February 4, 2022, <https://pittsburghunited.org/stormwater/>. As described by Pittsburgh United, “The way we currently charge for stormwater is not equitable—many people pay too much compared to how much stormwater their property generates, while other properties that contribute a large amount of runoff pay very little or nothing at all. The new billing system will be based on the amount of impervious surface area—hard surfaces such as driveways, patios, parking lots, and walkways that don’t absorb water.”
- 27 U.S. Environmental Protection Agency, *Drinking Water and Wastewater Utility Customer Assistance Programs*, April 2016, https://www.epa.gov/sites/default/files/2016-04/documents/dw-ww_utilities_cap_combined_508.pdf.
- 28 Contra Costa Water District, “Lifeline Rate Information,” accessed April 11, 2022, <https://www.ccwater.com/237/Lifeline-Rate-Information>.
- 29 District of Columbia Water and Sewer Authority, “Lifeline Rate,” accessed April 11, 2022, <https://www.dcwater.com/lifeline-rate>. DC Water offers a “steeply discount[ed]” per-gallon rate to all customers for the first 300 cubic feet (approximately 3,000 gallons) of water consumed. The utility also offers a separate, deeper discount for low-income customers through its Customer Assistance Program.
- 30 The City of Norman, Oklahoma, “Utility Rates and Information,” accessed April 11, 2022, <https://www.normanok.gov/your-government/departments/finance/utility-rates-and-information>.
- 31 Ibid.
- 32 This approach is often seen in the electric and gas sectors.
- 33 For example, see Pacific Institute, *Water Rates: Conservation and Revenue Stability*, August 2013, http://www.pacinst.org/wp-content/uploads/2013/01/water-rates-conservation_and_revenue_stability.pdf; Shadi Eskaf, “Base Charges Customized Based on Customer Water Use,” *UNC Chapel Hill Environmental Finance Blog*, July 31, 2014, <http://efc.web.unc.edu/2014/07/31/base-charges-customized-based-customer-water-use/>. For a description of an innovative “consumption-based fixed charge” that achieves more equitable recovery of fixed charges based on customer usage, see Bartle Wells Associates, *City of Davis: Water Rate Cost of Service Study*, March 12, 2013, <https://www.cityofdavis.org/home/showpublisheddocument/1251/635614413632600000>.
- 34 A 50-state study by the University of North Carolina Environmental Finance Center examined whether state laws allow utilities to use ratepayer revenue to fund means-tested, low-income assistance programs. Some of the state-by-state laws it describes (concerning the permissible bases for setting water and wastewater rates) may also be relevant as a starting point for a legal analysis of lifeline rates. See University of North Carolina Environmental Finance Center, *Navigating Legal Pathways to Rate-Funded Customer Assistance Programs: A Guide for Water and Wastewater Utilities*, 2017, <https://efc.sog.unc.edu/wp-content/uploads/sites/1172/2021/06/Navigating-Pathways-to-Rate-Funded-CAPs.pdf>.
- 35 See National Association of Clean Water Agencies, *Navigating Litigation Floodwaters: Legal Considerations for Funding Municipal Stormwater Programs*, 2016, https://www.nacwa.org/docs/default-source/default-document-library/2016-12-08stormwaterwhitepaper.pdf?sfvrsn=e2f6e961_0.
- 36 New Jersey Department of Environmental Protection, “Stormwater Utility Guidance,” accessed April 11, 2022, https://www.nj.gov/dep/dwq/SWU_stormwaterutility.html.