Utilities

Objectives

- Understand how water utilities operate and make decisions, and how those decisions can impact water affordability.
- Know how utilities fund their operations and receive financial oversight at the local and state levels.
- Explore the various components of a water bill.
- Assess the structure of a water bill to identify potential areas where your utility could establish or incorporate more equitable practices.
- Recognize options for both utilities and customers to improve water affordability and equity outcomes.

What Is a Utility?

A utility is the entity responsible for collecting, treating, and transmitting clean water from a source (groundwater aquifers, or surface water such as rivers or lakes) to residential, municipal, commercial, and industrial customers. In this work, they are responsible for managing various aspects of water infrastructure (ex. miles of water mains, the number of metered households in its system, the comparative number of residential and commercial accounts).

Utilities can be privately owned or publicly owned — water utilities might serve one municipality, or many localities within a limited geography; in addition to providing water services within its prescribed areas, water utilities might also sell wholesale water to surrounding communities.

WHY UTILITIES MATTER

The United States is experiencing a water affordability crisis. Across the past two decades, water and wastewater service expenses have grown much faster than other household expenses; in 2016, an estimated 1.4 million people lost water service due to unpaid bills.[1]

Low-income communities and communities of color are more likely to have unaffordable water bills due to aging and overburdened water infrastructure, population loss, and water rate structures that do not account for ability to pay. And, in exchange for potential job creation, these communities also are more likely to use tax breaks, low water rates, or other measures to incentivize large industries[2] — if there is a financial shortfall, residential customers often receive higher bills to make up the difference, and thus, end up subsidizing industrial operations.

When water payments are past due for a specific amount of time, it is common practice for utilities to shut off water service to incentivize payment. The cities with the largest number of water shutoffs have, on average, a 41 percent higher poverty rate and 47 percent higher unemployment rate than cities with the fewest water shutoffs.[3] This is largely driven by the fact that poorer communities are more likely to have infrastructure systems that are not "right-sized," which drives up investment costs and places a disproportionate burden on the shoulders of those least able to pay.

Unaffordable water bills place vulnerable residents at greater risk of having their water service disrupted. Water shutoffs can lead to dire public health and economic impacts, creating and furthering affordability and environmental justice issues.

For more information on the impacts of unaffordable water bills, see the Affordability section.

1 Food and Water Watch. (2018). *America's Secret Water Crisis: National Shutoff Survey Reveals Water Affordability Emergency Affecting Millions* [PDF]. Retrieved from http://fwa2020prod.wpengine.com/wp-content/uploads/2021/03/rpt_1810_watershutoffs-web2.pdf.

2 Singh, R. K. (2019, February 10). *U.S. Steel wins tax breaks from one of America's poorest cities*. Reuters. https://www.reuters.com/article/us-steel-gary-insight-idUSKCN1PX17D.

3 Food and Water Watch. (2018). *America's Secret Water Crisis: National Shutoff Survey Reveals Water Affordability Emergency Affecting Millions* [PDF]. Retrieved from http://fwa2020prod.wpengine.com/wp-content/uploads/2021/03/rpt_1810_watershutoffs-web2.pdf.

Poor asset management and federal water quality standards also can drive up water rates, resulting in higher bills and rendering services unaffordable for millions of U.S. households. When a utility fails to keep track of its water infrastructure system, leaks or other faults go unnoticed and create opportunities for waste. Federal water quality standards are critical to ensure the safety and cleanliness of rivers and drinking water, but meeting more protective (often more stringent) standards may require upgrade, operation and/or maintenance costs that are then passed on to customers.

TAKEAWAY

- Households who cannot afford to pay their water bills face the threat of shutoffs, which can create numerous challenges.
- Water affordability issues disproportionately impact low-income communities, communities of color, and older communities — their amenities and infrastructure have lacked investment, and these communities contend with other vulnerabilities such as economic instability, racial discrimination, environmental injustice, etc.
- Older communities whose populations have dwindled may have water infrastructure networks that are too big for their service areas. When a customer base shrinks, the municipality collects less revenue, which means less funding for adequate infrastructure investment; this dynamic is particularly stark if the customer base is low-income. Economically disadvantaged communities that need to create jobs may be more likely to incentivize large industries with tax breaks, low water rates, or other economic incentives. Offering lower water rates to industrial users might result in rate increases for residential customers, creating affordability issues.
- Poor asset management practices, and more stringent and protective federal water quality standards, can also increase household water bills, regardless of actual usage and consumption.

HOW UTILITIES WORK

Rate Structure – The pricing method a utility uses to calculate how much a consumer will pay for water usage; it includes both the base (fixed) fee and the volumetric charge.

Building trusting relationships between water utilities and customers/community members can provide long-term value and benefits for both groups, and help advocates and organizations influence decision-making and policies related to water affordability.[4] Given that there is wide variability in how utilities are run and regulated, advocates should first understand some key elements of utility operations.

Rate Setting

Rate setting refers to the process that utilities use to determine how they will charge for water usage.[5] Common rate structures include flat rates; uniform rates; block rates; seasonal rates; and lifeline rates.

Flat Rates: Customers are charged the same amount irrespective of their exact usage.

Uniform Rates: Customers are charged based on actual usage, at a set price per unit.

Block Rates: Customers are charged one rate for usage up to a certain amount; afterward, that rate can either increase or decrease.

With increasing block rates, charges increase for every unit (or block) of water used; for example, customers might pay $1.00 for each unit of water up to a thousand gallons, and if usage exceeds that threshold, the cost per unit would incrementally increase. This rate structure incentivizes conservation and is popular in water-scarce regions.

With decreasing block rates, charges decrease for every unit (or block) of water used; for example, a customer might pay $4.00 for each unit of water up to a thousand gallons, and if usage exceeds that threshold, the cost per unit would incrementally decrease. This rate structures is popular in water-rich regions and farming communities.

Seasonal Rates: Customers are charged different rates based on the season. This rate structure incentivizes water conservation; for example, rates may be higher in the summer due to higher demand and use.

Quiz

Match the water rate structure to its definition:

a. Flat rates
b. Uniform rates
c. Increasing block rate
d. Decreasing block rate
e. Seasonal rate
f. Lifeline rate

i. The rate increases for each additional volumetric unit used
ii. The rate changes based on time period, driven by changes in demand
iii. The rate is the same for each household no matter the volumetric units used
iv. The rate decreases for each additional volumetric unit used
v. The rate is lower for a predetermined volume, and the rate structure changes for volumetric units beyond that amount
vi. The rate is charged based on how many volumetric units a household uses

Answers: a-iii, b-vi, c-i, d-iv, e-ii, f-v

4 Skeo Solutions, Inc. (2019). *A Water Utility Manager's Guide to Community Stewardship.* Denver, CO: American Water Works Association. https://www.awwa.org/Portals/0/AWWA/Communications/AWaterUtilityManagersGuidetoCommunityStewardship.pdf

5 Office of Water. (2017, February 3). *Understanding Your Water Bill* [Overviews and Factsheets]. US EPA. https://www.epa.gov/watersense/understanding-your-water-bill

Lifeline Rates: Customers are charged a lower or fixed rate for an estimated volume of water deemed necessary to cover basic needs; usage beyond this set amount is charged based on a different rate structure.

Governance and Management

There are three main models of local utility governance and management: publicly owned; regional authority or special district; and privately owned/investor-owned.[6]

Closer Look 

(For more information on the management and oversight of water supply systems, see the River Network Drinking Water Guide, pg. 18.)

Publicly Owned

Most water, wastewater, and stormwater utilities are public entities that are part of a local government. Usually, the utility is one department within the local government. Its revenue is comprised of fees collected from customers.

In this scenario, management best practice calls for a utility to be run as an "enterprise fund" — this means that utility revenue, expenses, and expenditures should be somewhat independent of the parent government, and utility funds should not be commingled with local government general funds. In an effort to support wider needs, there is precedent for emergency transfers from utilities to municipalities, however, these should be small and/or one-time reallocations. Generally, advocates should regard large, repeated, and/or arbitrary fund transfers between utility enterprise funds and government general operating funds as a red flag.

Revenue – The money that the water utility collects in rates and fees from its customers.

When a water utility is publicly owned, its agenda, direction and priorities are usually determined by elected officials who sit on the local city council or county board. In some larger municipalities, a specific committee (e.g. a board of water commissioners) may govern the water supply system. Decision-making can be complicated with elected officials at the helm — some may support popular options rather than best options, which could compromise management and affordability initiatives in the long term.

6 RiverNetwork. (2019, July 24). *Understanding how the Money is Supposed to Flow - Water Infrastructure Funding and Finance 101.* https://youtu.be/XT86raPy_j0.

Regional Authority or Special District

Another public model is for the utility to be a separate authority or special district that is not a part of a specific city or county. Often these are regional entities that serve multiple local governments; for example, the Metropolitan Water Reclamation District of Greater Chicago, and the Douglasville-Douglas County Water and Sewer Authority in Georgia.

The governing board of a regional authority or special district is usually made up of individuals from the municipalities that are served by the utility; based on the rules set when the board is established, members may be appointed or elected. In this model, the utility tends to have less oversight from local governments — the municipality representatives must work together to find solutions, set rates and make infrastructure investment decisions for the collective.

Privately-Owned/Investor-Owned

(In the context of this document) private water systems are for-profit companies that provide service to a city, county, or combination of local governments and operate under the management of investors or shareholders. Private utilities are not subject to the same local oversight as the previous two utility models: A board of directors makes governing decisions related to rates, and these are reviewed and approved by a state regulator (ex. a public service commission).

In many cases, private water systems are convened when a local government is unable to manage utility assets and finances. Sometimes the private company owns the utility outright, and in other cases, there is a partnership wherein the municipality maintains ownership and the private company operates and maintains the system.

Lack of customer accountability is a primary concern with privately owned utilities — opponents of privatization highlight that these entities may be more concerned with profits than keeping water services affordable.

Quiz

The three main models of local utility governance and management are: (select all that apply)

a. Publicly owned with local oversight (i.e. the water utility is a department of the local government and its finances are separate from the local government)
b. Regional authorities with regional and local oversight (i.e. the utility is a separate public entity that serves multiple municipalities or regions)
c. Privately owned with local oversight (i.e. the utility is ownedby investors but has the same local oversight as a publicly owned utility)

Answers: a, b (c is not a correct answer because private utilities are regulated at state level, not the local level)

Oversight

Public Comment – A formal process whereby feedback and suggestions can be made about a proposed rule or regulation that is under consideration by the governing agency. Public comments are one form of influence that individuals or groups have on local, state, and federal decision-making.

Typically, a local government or appointed governing board regulates public utilities and regional authorities, whereas private utilities are regulated by state commissions (e.g. public utility commissions/PUCs or public service commissions/PSCs).[7]

See the Decision-Making and Influence section for more details about how to get involved and make your voice heard

When a utility that is governed by a state commission wants to increase or change a water rate structure, there is typically a rate hearing — the utility must present the details of and offer justification for the proposed change, and also provide and receive testimony (oral and written) from customers, advocates, and coalitions. Rate hearings and presentations are great opportunities to register public input.

For utilities that are not regulated by commission, rate change discussions would likely take place during utility board meetings or at city council meetings. Advocates may offer comment during these meetings, but take note:

Tip

Utility staff often prefer to be engaged prior to public comment periods, so it may be more courteous, effective, and advantageous to reach out to individuals by email and/or phone beforehand.

Oversight structures and practices vary throughout the country.[8] For instance, water utilities are not regulated by commission in Georgia, Michigan, Minnesota, North Dakota, South Dakota, and the District of Columbia, while, on the other hand, Wisconsin has a public service commission that regulates all utilities in the state, both public and private. In some states there is a separate entity that plays more of an advocacy and investigative role, such as the South Carolina Office of Regulatory Staff which "represents the public interest" in utility regulation for major industries, including water; similar agencies tend to be good partners for advocacy work.

Quiz

True or False: Only privately owned utilities receive fiscal oversight from state commissions.

Answer: False – In some states, like Wisconsin, the state commission regulates all utilities, both private and public.

7 National Research Council. (2002). *Privatization of Water Services in the United States: An Assessment of Issues and Experience*, Chapter: 5. Structural, Pricing, and Regulatory Issues. https://www.nap.edu/read/10135/chapter/7#92

8 Isaac Berahzer, S., Hughes, J., and Riggs, E. (2017, July 10). *Navigating Legal Pathways to Rate-Funded Customer Assistance Programs.* UNC School of Government: Environmental Finance Center. https://efc.sog.unc.edu/project/navigating-legal-pathways-rate-funded-customer-assistance-programs.

Resources

Due to oversight variability and complexities, advocates might find the following resources helpful:

- Navigating Legal Pathways to Rate-Funded Customer Assistance Programs: A Guide for Water and Wastewater Utilities . This resource is a good starting point for a digestible overview of how water utilities are governed state to state. The report introduction gives a succinct overview of rate setting and CAPs (which are discussed later), and advocates can download two-page policy and legal analysis summaries for each state.
- National Association of Regulatory Utility Commissioners (NARUC). This is a good place to find regulatory commission contact information. (A governor or state legislature appoints most commissioners, but more than a dozen states elect their commissioners.) Writing letters to commissioners is a great way to get on their radars: It is good practice for a group of like-minded individuals and organizations to deliver their objections or suggestions as a collective.

Quiz

What governmental bodies typically regulate fiscal responsibility of a water utility? (choose all that apply)

a. State environmental department
b. Public utilities commissions
c. Public service commissions
d. State regulatory commission
e. State legislature

Answers: b, c, d

TAKEAWAY

- Understanding utility rate structures is important to understand how households are being charged, and it can help customers and advocates identify appropriate interventions to improve affordability outcomes.
- Public utilities commission/PUCs or the public service commissions/PSCs regulate fiscal matters for privately owned utilities (and some public utilities).
- Given the variability in utility governance, management, and oversight, advocates should consider referencing the above-mentioned resources to find pertinent information for their state.

UNDERSTANDING YOUR WATER BILL

A water bill is one of the most important resources that advocates can use to get a glimpse of how utilities make decisions about rates and infrastructure investment needs.

Water bills typically include information about water usage and detail corresponding charges for usage and infrastructure operations.[9] However, bills may also

9 Office of Water. (2017, February 3). *Understanding Your Water Bill* [Overviews and Factsheets]. US EPA. https://www.epa.gov/watersense/understanding-your-water-bill

Profile: The Fok Family

include other expenses that range from wastewater and stormwater charges to trash and recycling services. Many of the charges on a water bill are fixed, i.e. charges that not impacted by water use and stay the same from month to month.

Exploring the terminology and components of a water bill can enlighten customers and advocates, and help them better interpret what factors may be affecting water affordability, e.g. usage trends, system upgrades, or seasonal considerations. Below is a list of terms/items that are commonly included on water bills; remember, this list is not exhaustive, some items might be worded differently, and all of the enumerated elements may not be included in every bill.

Identification

Account Number: This number correlates to your account, it is a unique qualifier specific to you/your household/your business.

Service Class: This signifies your account type, or how your water service is classified (e.g. residential or commercial).

Service Period: The contents of a bill are specific to this interval of time; bills are usually generated month to month but sometimes may be issued bimonthly or quarterly.

Your Meter

Meter Number: Your meter measures how much water is used in your household per billing cycle, and this serial number is unique to your meter. Though it varies from region to region, meters typically are located in a front yard near the curb (in a box labeled "water"); outside, at the back of a house; or inside a house, in the basement or under a sink.

Meter Reading (Previous Read and Current Read): Utilities inspect (i.e. take readings) of your meter to document the amount of water used between billing periods, and you should see these numbers on your bill. Your meter will show what unit is being used to measure water — gallons or centum cubic feet (CCFs) — and your bill should explicitly identify this unit of measure, too.

Measurements

Most common units for measuring water use

- CCF* (centum cubic feet)
- HCF (hundred cubic feet)
- Gallon

*One CCF = 748 gallons

Meter Reading Date: This is the date that the utility read your water meter.

E or Estimated Reading: For metered accounts, an estimated reading occurs when your utility cannot access your meter; in these instances, the bill is based on the amount of water used in previous cycles. For non-metered accounts, the estimated reading is based on property characteristics such as building size, lot size, and/or number of water fixtures (e.g. sinks).

Charges and Fees

Base/Fixed/Service: This fee goes toward the operating costs of the utility and is typically the same every billing period because it's not tied to water usage.

Water Volume or Usage: This charge indicates the amount of water that your household used; on the bill, customers will likely see the charge applied to the water volume, but if your utility uses a block rate, you may see multiple lines that reflect charges for each block.

Wastewater/Sewer Volume: This charge indicates the amount of water discharged to the sanitary sewer or wastewater system; typically, households do not have wastewater meters, so the charge is likely based on the water volume or usage amount (as the utility assumes that all of the water used by the household was subsequently discharged to the wastewater system).

Wastewater/Sewer, Fixed: This fee goes toward operating costs specific to wastewater and sewer maintenance.

Reconnection: This is the cost to restore water service after a shutoff.

Scavenger: This charge is for trash and recycling services, frequently included as a bill line item.

Stormwater: This charge is associated with municipal stormwater management, which may include collection by grey infrastructure (i.e. pipes and treatment plants) or green infrastructure (e.g. nature-based solutions that use soil and vegetation to capture and infiltrate stormwater). Climate change impacts (e.g. more severe and frequent storms) are making such fees more regular.[10]

Non-metered Annual Charge: This fee is used to cover other municipal commitments, for example, pension contributions or environmental cleanup.

Penalty: This is an imposed/incurred charge due to bill nonpayment.

10 *What Is Stormwater Management and Why Is It Important?* (2018, January 31). EEC Environmental. https://www.eecenvironmental.com/what-is-stormwater-management/

Payment

Balance: This is the amount that you owe; any credit and/or outstanding balances would be reflected in this total.

Due date: This is the date by which you must pay your bill.

Previous Bill Amount: These are charges associated with your previous bill, often included for ease of reference.

TAKEAWAY

- Fixed fees and unrelated charges (e.g. trash collection) on a water bill can affect affordability because they are not influenced by actual usage or conservation efforts.
- Although bill terminology can vary, becoming acquainted with key terms can help customers understand the nature and purpose of their charges.

UTILITY PROGRAMS AND PRACTICES

Utilities and local governments have several tools at their disposal to improve water affordability outcomes, including equitable rate setting and assistance programs, transparent billing practices, and improved management approaches. However, implementing these strategies takes time and resources, and many utilities, especially in smaller, economically-disadvantaged communities, may not have the capacity to deal with the challenges.

This section will outline some of these strategies, looking at what utilities need to implement such policies and practices, and providing case examples of communities that are successfully applying these principles.

Equitable Rate Setting and Customer Assistance Programs (CAPs)

Equitable Rate Structure – Rate structures that account for consumer type and ability to pay (also see "equity" entry)

Customer Assistance Programs (CAPs) – Customer assistance programs (CAPs) are used as a supportive mechanism for households who cannot afford to pay as dictated by the standard rate structure. CAPs are designed to help customers manage past-due bills

The most common ways to charge for water are uniform rate structures, decreasing block structures, increasing block structures, and lifeline rates (all defined earlier in this section). But it's important to remember that water rates alone do not dictate whether water bills are affordable.

Equitable rate setting, or appropriate water rate setting, uses different rate structures for different customer classes. This approach can improve water affordability outcomes by accounting for ability to pay (income) and consumer type (commercial vs residential),[11] which can

11 Office of Water. (2017, February 3). *Understanding Your Water Bill* [Overviews and Factsheets]. US EPA. https://www.epa.gov/watersense/understanding-your-water-bill

ensure that the utility is able to recoup enough revenue to fully operate and maintain the water distribution system without burdening low- and fixed-income ratepayers; see the River Network Drinking Water Guide for more information about the cost of water.[12]

To achieve equitable rate structures, utilities should consider the following strategies:

Set a reasonable ratio between the base and volumetric charges. A relatively high base charge produces a more stable revenue stream for the utility, but given that the base charge is unaffected by water usage, customers who are trying to lower their bills through conservation and efficiency measures will see minimal effect. So utilities should work to find a sweet spot between a reasonable base/fixed/service charge and volumetric charge; see "Sample Water Bill from Cleveland" which illustrates such a fixed-to-volumetric charge ratio.

Consider lifeline rates. Lifeline rates often refer to a base fee for a volume of water that is deemed sufficient to cover essential, indoor water use. But utilities often define and implement lifeline rates differently, and employ them in different contexts. Sometimes the fee may be included with a fixed charge; in other cases, the utility sets a very low rate for the first few units of water, and the costs are essentially subsidized because the price is less than the expenses to treat and supply the water. In some instances, utilities dub a specific customer assistance program where the fixed rate is only available to qualified customers as a lifeline rate.

While lifeline rates are a way to address affordability concerns, there are some caveats that should be considered. For example, lifeline rates may have limited benefits for large or multigenerational households, many of which may be low-income. If the volume of water is not sufficient to serve all of the people in the home, these families risk using more water than the lifeline rate allows — they would be charged for the additional usage, inadvertently resulting in high or unaffordable water bills, or these families would lose access to a vital resource if water supply was stopped after the lifeline volume was used.

It's also important to note that lifeline rates may not effectively reduce costs if a household's water supply infrastructure (ex. the pipes that deliver water into the home) is leaky: It can appear that the household

12 Midwest Assistance Program, the Midwest RCAP. (2011). *Formulate Great Rates: The Guide to Conducting a Rate Study for a Water System. Rural Community Assistance Partnership*. https://www.rcapsolutions.org/wp-content/uploads/2013/06/RCAP-Formulate-Great-Rates.pdf

is consuming more water than it actually is, which will increase the charged fees. A good way to check for leaks is to monitor the usage listed on the bill – if it fluctuates wildly from service period to service period, the infrastructure may warrant inspection.

Utilities can be thoughtful in how they operationalize lifeline rates by making sure not to keep rates artificially low. When customers who can afford to pay full cost are charged accordingly, utilities will have adequate and appropriate revenue that can be targeted and tailored to best assist low-income customers.

Establish customer-class and income-qualified rates. Utilities can look at setting rates according to customer class or actual income. Customer class rates could be determined based on variables such as income bracket, water usage, or household type. With income-qualified rates, the water bill would be a set percentage of customer earnings.

Utilities can also offer customer assistance programs (CAPs), which are practices that provide targeted relief. Benefits of five types of CAPs — discounts, budget billing, monthly billing, debt forgiveness and replacing inefficient fixtures — are outlined below[13]:

Discount programs can reduce bill burden on fixed income or low-income households.

Budget billing averages the bill over the year, neutralizing seasonal fluctuations. Because customers pay the same amount every month they can budget proactively.

Monthly billing (versus quarterly) helps households adjust and monitor their activity closer to real-time; for example, a spike might prompt timely detection of a leak, or encourage better conservation efforts.

Debt forgiveness programs wipe away arrears after successful payment of a lower amount across a certain period of time. In addition to reducing the overall amount owed, and stopping the accumulation of additional, associated fees, debt forgiveness reduces emotional burden and diffuses the stress of the debt collection process.[14] [15]

Quiz

Which strategies can utilities can use to achieve equitable rate structures? (choose all that apply)

a. Lifeline rates
b. A high base or fixed charge and low volumetric charge
c. Rates based on customer classes
d. Income qualified rates
e. Debt forgiveness
f. Customer assistance programs

Answers: a, c, d

Learn more about CAPs in the CNT and IB Environmental "Beyond the Water Bill" report, or by referring to the Affordability section.

Arrearage – An outstanding balance; overdue charges on a water bill can lead to penalty fees, water shutoffs, and other compounding, debt-driven issues.

13 AWWA. (2014). *Thinking Outside the Bill: A Utility Manager's Guide to Assisting Low-Income Water Customers.* American Water Works Association. https://www.awwa.org/Portals/0/AWWA/ETS/Resources/ThinkingOutsidetheBill-2Ed.pdf.

14 Walton, B. (2020, August 4). *Millions of Americans Are In Water Debt*. Circle of Blue. https://www.circleofblue.org/2020/world/millions-of-americans-are-in-water-debt/

15 Moler, K. (2016). *The Crisis of Unaffordable Water in the U.S.* Unitarian Universalist Service Committee. https://www.uusc.org/press/the-crisis-of-unaffordable-water-in-the-u-s/

Old, inefficient fixtures (e.g. toilets, faucets, dishwashers, washing machines, etc.) may be leaking or simply using more water than necessary. Utilities can work in their service communities to offer leak detection support, identify repair grants (if leaks are found), and ensure that customers have access to water efficient upgrades that can help reduce water use. Additionally, they might also monitor customer accounts to flag any higher than normal usage that would indicate issues with fixtures.

TAKEAWAY

- There are several equitable rate structures that can improve water affordability outcomes, including lifeline rates, customer-class based rates, and income-qualified rates. Each of these rates are modified to make water bills more affordable for low-income households.
- Customer Assistance Programs (CAPs) can support water affordability through reactive practices such as discounts, averaging water bills over the year, and removing demand-based fluctuations in costs

Transparent and Accessible Billing Practices

It is common to focus on water rates when working to address affordability, but rates do not tell the full story.[16] Water bills often contain several line items beyond usage charges, for example: fees for trash collection, stormwater management, and water infrastructure updates.

Profile: Domitila Valerio

It is vital that utilities transparently delineate what charges on a water bill are influenced by customer usage versus charges that are fixed and not directly related to a household's behaviors and activities. Utilities should abide by these transparent billing best practices:

Provide non-English-language billing services.

Be specific and descriptive when presenting customer charges (e.g. gallons of water used, solid waste fees).

Use plain language to describe when a charge, fee, or rate has changed (either increased or decreased), and alert customers well in advance of any expected changes. Water bills frequently use industry terminology, some of which can be unclear to the general public. Using more accessible language can empower customers who are working to reduce their billing total.

Benchmark usage against community averages, or a comparable customer profile/composition. In some instances, it can be helpful for customers to contextualize

16 Wolf, A., McGraw, J., and Isaac Berahzer, S. (2020). *Beyond the Water Bill* (p. 26). Center for Neighborhood Technology. https://www.cnt.org/sites/default/files/publications/Beyond-the-Water-Bill.pdf

water usage within their community. In the energy sector, it is common practice to include the average usage by geographic area or a similar customer type (e.g. single family household).

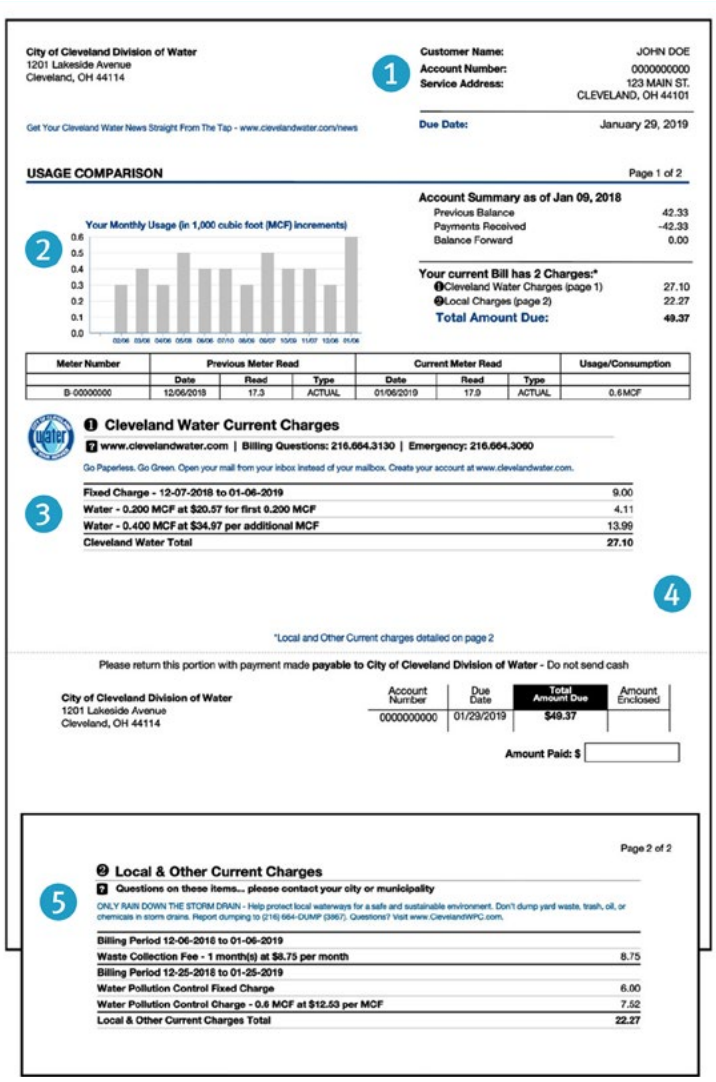
Include leak identification and efficiency upgrade opportunities in water bills. Older homes that have not undergone efficiency improvements or fixture upgrades will use more water, so even if rates are relatively low on a per-unit basis, bills for these households can still be high.

Tip

Affordability efforts must include help to improve and maximize a house's ability to function efficiently.

Show historical water use to aid behavior monitoring and leak detection. Some water bills have a bar chart that shows monthly water use for the past 12 months. This gives customers an opportunity to compare their usage to the same time last year; if there is a marked increase, perhaps there is a leak (see item 2 in "Sample Water Bill from Cleveland").

Sample Water Bill from Cleveland



City of Cleveland Division of Water
1201 Lakeside Avenue
Cleveland, OH 44114

1
Customer Name: JOHN DOE
Account Number: 0000000000
Service Address: 123 MAIN ST. CLEVELAND, OH 44101

Get Your Cleveland Water News Straight From The Tap - www.clevelandwater.com/news

Due Date: January 29, 2019

USAGE COMPARISON

Page 1 of 2

Account Summary as of Jan 09, 2018

Previous Balance	42.33
Payments Received	-42.33
Balance Forward	0.00

2
Your Monthly Usage (in 1,000 cubic foot (MCF) increments)

Your current Bill has 2 Charges:*

❶Cleveland Water Charges (page 1)	27.10
❷Local Charges (page 2)	22.27
Total Amount Due:	49.37

Meter Number	Previous Meter Read			Current Meter Read			Usage/Consumption
	Date	Read	Type	Date	Read	Type	
B-00000000	12/06/2018	17.3	ACTUAL	01/06/2019	17.9	ACTUAL	0.6MCF

❶ Cleveland Water Current Charges

❼ www.clevelandwater.com | Billing Questions: 216.664.3130 | Emergency: 216.664.3060

Go Paperless. Go Green. Open your mail from your inbox instead of your mailbox. Create your account at www.clevelandwater.com.

3

Fixed Charge - 12-07-2018 to 01-06-2019	9.00
Water - 0.200 MCF at $20.57 for first 0.200 MCF	4.11
Water - 0.400 MCF at $34.97 per additional MCF	13.99
Cleveland Water Total	27.10

4

*Local and Other Current charges detailed on page 2

Please return this portion with payment made **payable to City of Cleveland Division of Water** - Do not send cash

City of Cleveland Division of Water
1201 Lakeside Avenue
Cleveland, OH 44114

Account Number	Due Date	Total Amount Due	Amount Enclosed
0000000000	01/29/2019	$49.37	

Amount Paid: $

Page 2 of 2

❷ Local & Other Current Charges

❼ Questions on these items... please contact your city or municipality

5

ONLY RAIN DOWN THE STORM DRAIN - Help protect local waterways for a safe and sustainable environment. Don't dump yard waste, trash, oil, or chemicals in storm drains. Report dumping to (216) 664-DUMP (3867). Questions? Visit www.ClevelandWPC.com.

Billing Period 12-06-2018 to 01-06-2019	
Waste Collection Fee - 1 month(s) at $8.75 per month	8.75
Billing Period 12-25-2018 to 01-25-2019	
Water Pollution Control Fixed Charge	6.00
Water Pollution Control Charge - 0.6 MCF at $12.53 per MCF	7.52
Local & Other Current Charges Total	22.27

Quiz

Transparent billing practices are important to water affordability because they: (choose all that apply)

a. Educate customers, helping them become more informed advocates
b. Delineate the types of charges that would appear on a water bill
c. Help customers understand what control they have in reducing water costs
d. Further the understanding that affordability does not start and end with water rates, but rather, must be understood in the context of the full water bill.

Answers: a, b, c, d

Smart meters

Shifting to smart meters is another critical opportunity to effectively improve data accessibility and transparency. Smart meters provide more detailed information about water consumption, and because they can be read remotely, both customers and utilities can access the information frequently and ascertain real-time insights that may uncover leaks or other possible issues. And like the energy sector, utilities can make smart meter data more accessible to customers and trusted partners (but only if data availability is prioritized as part of smart meter adoption).

While smart meters can help utilities create and target efficiency and affordability programs, it's important to remember that this technology is not cheap — an economically disadvantaged utility should thoughtfully prioritize its infrastructure investment projects and initiatives, and if smart meter adoption is desired, they should seek federal or state funding to facilitate requisition and installation.

Improved Asset Management and Equitable Investment Practices

Asset management simply refers to how a utility accounts for its water infrastructure and makes infrastructure investment decisions that consider repair needs, operational funding, asset maintenance, etc.[17] Asset management is a common practice for large and/or financially healthy utilities that have the capacity to maintain and update asset inventories, capital improvement plans, and infrastructure drawings.

Utilities that can implement an infrastructure-wide asset management planning effort might consider the Integrated Water Resource Planning (IWRP) model. IWRP techniques strive to make existing services more efficient and less costly through scenario planning, participatory decision-making, and stakeholder coordination.[18] The IWRP model is a benefit to utilities because they consider the interconnectedness of wastewater and stormwater, making their planning processes more holistic.

17 Office of Water. (2016, January 26). *Asset Management for Water and Wastewater Utilities* [Overviews and Factsheets]. US EPA. https://www.epa.gov/sustainable-water-infrastructure/asset-management-water-and-wastewater-utilities.

18 CNT. (2011). *The Role of Integrated Resource Planning in Improving Water Resource Management within the Great Lakes Region*. https://www.cnt.org/sites/default/files/publications/CNT_GreatLakesSustainabaleWater.pdf

The IWRP Process

An Integrated Water Resource Plan can help a utility answer questions pertaining to:

- Current system performance
- Risks and opportunities that warrant preparation (e.g. climate change)
- Stormwater management strategies
- Conservation strategies

In the process of answering these questions, a utility can decide what its future portfolio of projects and assets should be in order to maintain supply, reduce costs, and mitigate risks.[19]

Closer Look

Utilities that employ IWRP practices can increase efficiency and avoid unnecessary expenditures by improving existing infrastructure systems, promoting water conservation, and properly investing in green stormwater infrastructure (i.e. systems that use nature-based processes to manage stormwater and improve water quality);[20] *see "Green Stormwater Infrastructure and Community Priorities" below for information on how such work can support multiple goals.*

19 Loucks, Daniel P., and van Beek, E. (2017). "Water Resources Planning and Management: An Overview." In *Water Resource Systems Planning and Management: An Introduction to Methods, Models, and Applications*, 1–49. Springer, Cham. https://doi.org/10.1007/978-3-319-44234-1_1.

20 Palmer, D. R. and Lundberg, K. V. (n.d.). *Integrated Water Resource Planning.* Illinois State Water Survey. https://www.isws.illinois.edu/iswsdocs/wsp/iwrp_palmer_lundberg.pdf.

Water loss consequences and implications are explored more extensively in the Affordability section.

Regionalization – The process by which two or more nearby utilities merge into a single entity, bundle resources, coordinate processes (such as rate setting), establish new governance structures, and share resources.

While a comprehensive asset management strategy is recommended for all utilities, it can be daunting for smaller, cash-strapped, and economically challenged utilities with limited resources to establish such a framework. (They may not have a complete picture of their water infrastructure, let alone a multi-year asset management plan.) These utilities should complete interim or one-off efforts that move the needle on necessary water infrastructure improvements: Water loss auditing and management, service sharing, regionalization, and technical assistance are four ways they can work up to an integrated asset management approach.

Green Stormwater Infrastructure and Community Priorities[1]

Municipalities can install green infrastructure to improve stormwater management thus increasing the lifespan of gray water infrastructure. Green infrastructure serves multiple purposes including flood protection, energy conservation, access to nature, improved health outcomes, and educational opportunities for the neighborhood.[2] However, it is also important to note that some types of GSI are tied to property value increases, which may benefit some, but can create displacement concerns for others.

	GREEN STORMWATER INFRASTRUCTURE									
	Linear Buffer Park / Trail	Stormwater Park	Stormwater Planter	Parkway Bioswale	Rain Garden	Street Trees	Green Roof	Permeable Pavement	Permeable Bike Lane	District Stormwater
HEALTH BENEFITS										
Improved Outdoor Air Quality	•••	•	••	•	••	••	•			••
Improved Indoor Environmental Quality	•	•••	••	•	•	•••	•	••	••	•
Reduced Noise Pollution	•••						•••	••	••	••
Reduced Heat Stress	••	•••	•	•	•	••	•			••
Improved Community Cohesion + Mental Health	•	•••	••	•	•	••	•			••
ECONOMIC BENEFITS										
Improved Workforce Development / Job Creation	•••	•••		•		•••	•	•	•	•••
Increased Vacant Land Reactivation	•••	•••			•••					•••
Increased Property Values	••	•••	•	••	•	••	•••			•••
Increased Sales Revenue			••	••	••	••			••	••
Increased Recreational Revenue	•••	•••							•••	
CLIMATE ADAPTATION / RESILIENCE										
Reduced Flooding	•••	•••	••	••	••	•••	••	•••	••	•••
Reduced Urban Heat Island Temperatures	••	•••	•	•	•	•••	•••	•	•	•••
Protected Water Quality (reduced runoff and combined sewer overflows)	•••	•••	••	••	••	•••	••	•••	••	•••
CLIMATE MITIGATION / AVOIDANCE										
Reduced Greenhouse Gases	•••	•••	•••	•••	•••	•••	•••	•	•	•••
Reduced Energy / Fuel Use	••	••				•••	•••			••
TRANSPORTATION BENEFITS										
Reduced On-Street Flooding	••	••	••	••	••	•••	•	•••	•••	•••
Improved Safety	••		•	•					••	••
Increased Opportunities for Active Transportation	•••	•••	••	•••	••				•••	••

••• high benefit •• medium benefit • low benefit

1 CNT. (2020). Green Values Strategy Guide: Linking Green Infrastructure Benefits to Community Priorities. https://www.cnt.org/sites/default/files/publications/Green%20Values%20Strategy%20Guide.pdf

2 Clean Water for All, Black Women's Health Imperative, Policy Link, NRDC. (2018). Water, Health, and Equity: The Infrastructure Crisis Facing Low-Income Communities and Communities of Color — and How to Solve It. Clean Water for All. https://www.policylink.org/sites/default/files/CWC_Report_Full_report_lowres.pdf

Water Loss Auditing and Management

Water loss generally refers to water that has been treated to drinking standards and sent out for delivery by the utility, but gets lost somewhere in the system, e.g. through major water main breaks, small cracks in the distribution system, and/or leaks in household fixtures.[21] Water loss significantly impacts water affordability.

Conducting audits to assess both water use and loss is a critical first step for utilities to identify faults in their infrastructure and establish a water loss strategy within a comprehensive asset management plan.[22] Some states require that utilities conduct water audits annually, while others are more lax — advocates can find out what their state requires by visiting the National Resources Defense Council (NRDC) interactive map.

The American Water Works Association (AWWA)

The American Water Works Association M36 Manual is the industry standard on water loss management, used by large and small utilities across the country. It recommends beginning with an infrastructure assessment that evaluates direct effects on customers (e.g. costs, shutoffs, frequency and occurrence of leaks, water main breaks, etc.), followed by an inclusive and community-driven investment decision-making process that outlines key points of action related to infrastructure replacement and repair, metering practices, water pressure management, and other related topics.[23] Utilities of any size can use the AWWA water loss auditing software, and small utilities can make use of the Environmental Protection Agency (EPA) Check-Up Program for Small Systems, a free asset management software.

Service Sharing

One strategy recommended in the IWRP process is instituting a regional service sharing arrangement. Service sharing is when multiple utilities seek to reduce administrative costs by purchasing or contracting water services cooperatively.[24] For example, a utility may

Quiz

Asset management practices include which of the following: (choose all that apply)

a. Auditing leaks and weak spots in infrastructure systems
b. Investing in green stormwater infrastructure
c. Implementing a water loss program
d. Identifying opportunities to share resources among utilities
e. Creating near-, mid-, and long-term operations plans
f. Requesting technical support

Answers: a, b, c, d, e, f

21 Office of Water. (2013, July). *Water Audits and Water Loss Control for Public Water Systems*. U.S. Environmental Protection Agency. https://www.epa.gov/sites/production/files/2015-04/documents/epa816f13002.pdf.

22 Ibid.

23 Montag, C. (2019, May). *Water/Color: A Study of Race and the Water Affordability Crisis in America's Cities*. The NAACP Legal Defense and Educational Fund, Inc.. https://www.naacpldf.org/wp-content/uploads/Water_Report_Executive-Summary_5_21_19_FINAL-V2.pdf.

24 The Massachusetts Association of Regional Planning Agencies. (2012). Ways municipalities can share services. https://www.regionalbestpractices.org/right-for-you/what-is-regionalization/share-services/

purchase water services from another utility if it is less expensive than the utility paying for the operation and management of its own system.

Utilities might also use service sharing to save money on engineering services or expensive water infrastructure tools (e.g. jointly purchasing excavation or leak detection tools, or buying water treatment chemicals in bulk).

Regionalization

Regionalization, another IWRP strategy, is the process by which water utility ownership, operations, or management are consolidated within a specific geographic or hydrogeologic area. This can achieve increased production and regulation efficiency, improved service reliability, lower costs through economies of scale (to a certain extent), and better sustainability by working at the water basin or watershed level.[25, 26] Additionally, utilities may earn more revenue through regionalization because the customer base may become more mixed and income diverse.

See this Greater Cincinnati case study for insights about regionalization efforts.

Regionalization – The process by which two or more nearby utilities merge into a single entity, bundle resources, coordinate processes (such as rate setting), establish new governance structures, and share resources.

However, utilities may face policy or internal administrative barriers to regionalization. These may include feared loss of local control, not having a coordinating agency, larger upfront capital costs that call for managing multiple grants, and a general lack of support and knowledge for regionalization as a concept.[27]

Technical Assistance

All states have technical assistance opportunities, whereby utilities can access services related to asset management, rate setting and other needs. Below are some examples:

Rural Water Associations (NRWA)

The organization receives federal and state funding to assist rural systems, which tend to be smaller and have less internal capacity. Staff "circuit riders" travel to rural utilities to provide onsite assistance.

25 Beecher, J. A., Higbee, J., Menzel, A., ; Dooley, R. (1996, July). *The Regionalization of Water Utilities: Perspectives, Literature Review, and Annotated Bibliography*. https://pubs.naruc.org/pub/48860212-155D-0A36-3115-26BCFC16B761.

26 Martin, D. "Regionalization: A Potential Solution to Affordability and Capacity Issues of Small Systems." *Rural Matters*, Summer 2009, p.8-11. https://www.rcap.org/wp-content/uploads/2016/01/RuralMatters-Summer2009-1.pdf.

27 Ibid.

Rural Community Assistance Partnership (RCAP)

A national network of nonprofit organizations that provide support to rural communities across the country. There are six regional offices that manage programs and field work, and the national office manages a USDA program for water and wastewater technical assistance and training for communities along the United States/ Mexico border.

Regional Councils (RCs) and Council of Governments (COGs)

Of the 39,000 local governments in the United States, more than 35,000 are served by COGs and RCs. In most cases, these bodies provide free or low-cost assistance with applying for water and wastewater infrastructure funding and identifying which funding source may be the best fit. There is not a national searchable database for where to find local or regional councils, but advocates can look up their state to find specific resources.

EPA Environmental Finance Centers

The Centers often have grants from federal agencies that allow them to provide free technical assistance and resources to water utilities, particularly on issues of funding, rate setting, asset management and other areas of financial management. Their network of organizations serve all 10 EPA regions.

TAKEAWAY

- Water rate structures are not the only input that can create unaffordable water bills — fixed fees (which are not affected by conservation or efficiency measures) and undiagnosed leaky pipes also drive up costs.
- Comprehensive asset management is a useful strategy for utilities to improve water affordability. Multiple resources exist to improve asset management including the American Water Works Association M36 Manual and the Integrated Water Resource Planning model.
- Asset management strategies allow utilities to better understand the weaknesses in their water infrastructure systems and identify avenues to improve cost efficiencies, such as green stormwater infrastructure. Addressing water loss can lead to more affordable water bills for households.
- Utilities can pursue regionalization, or regional service sharing, as a way to save on operation and management costs.
- Reduce operation and management costs can keep utilities from implementing steep rate increases, and thereby, keep water bills affordable.

RECOMMENDED ACTIONS

Affordability – According to the Pacific Institute, water is affordable when its cost does not prohibit access to the resource, nor interfere with other essential expenditures (ex. food, shelter, electricity).

Utilities have competing priorities: keep rates low to better ensure affordability, but set rates high enough to incentivize conservation and collect enough revenue to update and maintain old and underinvested water systems. Given this financial burden, they typically pass on these infrastructure improvement and investment costs to customers in the form of rate increases or additional fees.

To prevent affordability concerns from ballooning and morphing, utilities and individuals should use the myriad tools at their disposal.

Utilities: Improve Asset Management

There are numerous asset management best practices that utilities can use to improve efficiency in their own systems and pass these benefits along to customers, including:

Instituting a comprehensive asset management plan (ideally an Integrated Water Resources Planning approach) that highlights the interconnectivity among water, wastewater, and stormwater, and strives to achieve equity outcomes.

Taking interim steps toward a comprehensive asset management approach, which can include: water loss auditing and management, service sharing, regionalization, and seeking technical assistance.

Utilities: Pursue State and Federal Funding, and Low-Cost Financing

Profile:
Exasperated utility manager

Much of America's water infrastructure was installed in the early 20th Century with the use of federal funds, but today, the burden to finance and fund infrastructure falls largely to local stakeholders. Utilities may feel fiscally unprepared to implement many of the aforementioned recommendations — addressing rate restructuring efforts, stopping water shutoffs, and implementing customer assistance programs may improve revenue collection in the medium or long term, but utilities need to operate in the short term, and if they are financially struggling to maintain operations in the current moment, implementing affordability or assistance programs may seem out of reach.

See The Future of Affordability Programs infographic.

Federal and state policy offer several funding, financing, and technical assistance opportunities. It is incumbent upon both utilities and municipalities to be intentional and thoughtful in identifying federal and state resources, and petitioning for increased funding and support for water infrastructure investments. "The Future of Water Affordability" graphic shows a set of factors that need to be present to support affordability, equity, and maintenance imperatives, for the benefit of customer safety and broader social and environmental efforts.

Individuals: Understand Water Utility Governance, Practices, and Oversight

By learning the basics of utility governance, oversight, rate setting and billing practices, advocates can get a better sense of what informs decision-making and the ways in which they might influence those decisions to achieve equitable and affordable outcomes.

Advocates should use this information to feel more comfortable and ask informed questions at rate hearings or community, city council, or water board meetings. This information can also help advocates, community groups, or coalitions when they reach out to government officials, because they'll be able to highlight what affordability programs, infrastructure investments, or other areas of concern might benefit from support and funding.

Individuals: Take Up Community Relations and Outreach Efforts

In service of trust-building and ensuring that decision-making is transparent and accessible, advocates should reach out to their utility or elected officials to find out about community advisory boards. Such bodies are tasked with representing the best interests of the community, so they may have established campaigns and initiatives that advocates can move forward (or there may be opportunity to form a community advisory board). A good example of a community advisory board is the Massachusetts Water Resources Authority Advisory Board (MWRD Board), which provides financial oversight, tracks regulations and legislation, and provides education resources to communities.

Visit the Decision-Making and Influence section to find guiding questions that can help you establish the state of affairs in your community.

Case Studies

Case Study: Bellingham, Wash.[28]

Inventorying Infrastructure

The City of Bellingham wanted to extend the life of its 70-plus year old water system, and it hired a consultant to assess its condition.[29] The consultant used a three-tiered assessment approach — visual testing, excavation and sample collection, and physical examination — that progressively accounted for costs and degree of labor, and the move from one tier to the next required completion of the previous tier. This approach demonstrates that a thoughtfully designed set of steps can help a utility establish an asset management framework.

Case Study: Denver

Integrated Water Resource Management

In 1997, Denver Water began using an Integrated Resource Plan that is noted for its optimization approach to making cost-effective decisions.

Denver Water reviews water collection, treatment, distribution, and recycling needs in order to advise for future demand and use. The process in developing the plan included collecting data, deciding on water system design criteria, considering demand-management alternatives, calculating optimized options, and selecting a the final plan. Over time, the plan began to evaluate climate change impacts.[30]

The utility considers energy cost, pressure levels, tank turnover, and tank recovery as part of its optimization criteria. After setting up the plan and implementing next steps, Denver Water continues to evaluate the system and reinitiate planning.[31]

28 Buonadonna, D., and Cleys, T. (2017, May 3). *Lessons on Rightsizing Water and Sewer Infrastructure Projects. Water Online.* https://www.wateronline.com/doc/lessons-on-rightsizing-water-and-sewer-infrastructure-projects-0001.

29 Public Works Department. (2021). "Water Utility." *City of Bellingham*. https://cob.org/services/utilities/water-utility

30 Denver Water. (2020). "Adaptation Planning." Denver Water. https://www.denverwater.org/your-water/water-supply-and-planning/climate-change/adaptation-planning.

31 Szana, K. (2018, March 19). *Denver Water Dynamic and Adaptive Master Plan*. Water Research Foundation. https://www.waterrf.org/sites/default/files/file/2019-07/IWN-Szana.pdf.

Case Study: Colorado Springs, Colo.[32]

Integrated Water Resource Management

Colorado Springs, Colo. is a large city far from a water source. It draws from three different river basins, and the water travels through up to 100 miles of piping to get to the city.

In 2014, Colorado Springs Utilities began developing of an integrated water resource plan for the next 50 years. The goal of the plan was to address demand and sustainability of its water supply in a way that reflected community values and climate change adaptation needs. The plan assessed current system performance; highlighted risks and opportunities; identified projects, programs and policies for implementation; and mapped out future decision-making points. The assessment cited climate change, changes in demand, water rights challenges, infrastructure issues, environmentally driven water source concerns, and federal and state policy changes as risks, all of which could affect reliability, costs, and quality of its future water supply.

After establishing its acceptable level of risk, Colorado Springs Utilities identified relevant strategic responses such as conservation, reuse of non-potable water, agriculture water transfers, and storage methods. To evaluate these strategies, the utility considered performance, logistics, finances, environmental impacts, and social impacts. It also actively engaged its community by sharing updates via website, distributing flyers, organizing focus groups, surveying stakeholders for their input, holding open houses, doing community presentations, and convening an advisory group to inform the process.

Case Study: Successful Regionalization in Greater Cincinnati[33]

Regionalization

The Greater Cincinnati Water Works (GCWW) is a large-scale water system that serves three Ohio counties and parts of northern Kentucky.[34] In its regionalization efforts, GCWW offers its partner utilities and nearby smaller systems a slew of services, including lab-testing, billing support, call center operations, project financing, engineering, and construction-management. It also allows the smaller utilities to decide what type of partnership makes the most sense for them, such as joint contracting, bulk purchasing, bundling debt to access better bond ratings, or relinquishing full control to GCWW.

To make sure all parties are comfortable with the collaboration before endeavoring to create a regionalized utility, GCWW suggests that large utilities should reach out to first establish service sharing agreements or other smaller-scale partnerships.

32 Lusk, K. (2016, July). *Integrated Water Resource Plan: The Big Picture*. Colorado Springs. https://coloradosprings.gov/sites/default/files/pk_bd_july.2016.util_int_water_res.pdf.

33 Martin, D. "Large Systems Are Critical to Making Regional Solutions Work: A Case of Successful Regionalization in Greater Cincinnati." *Rural Matters*, Summer 2009, p.12-14. https://www.rcap.org/wp-content/uploads/2016/01/RuralMatters-Summer2009-1.pdf.

34 Greater Cincinnati Water Works. (2021). "Service Area." *City of Cincinnati*. https://www.cincinnati-oh.gov/water/about/water-source-service-area

Toledo Area Water Authority (TAWA), Ohio

Regionalization

In 2018, in an effort to spread fixed and operations costs across multiple jurisdictions, the City of Toledo, Ohio and its surrounding communities began talks to regionalize the water utility. The motivation was that such action could keep water costs affordable and allow neighboring communities to be involved in rate setting. The bid for regionalization was approved in 2019.[35]

Initially, Toledo residents did express concern that regionalization would end up their water rates.[36] Rates were raised across the board, but it's important to note that rates likely would have increased regardless of the proposal; local advocacy groups continue to monitor impacts and benefits of the regionalization effort.[37]

For more case studies on customer assistance programs, see the Affordability section.

Resources

The Case for Fixing the Leaks (pgs. 7-9)This short report identifies the pitfalls of water loss and provides suggestions for how utilities can begin to address the issue.

The Role of Integrated Resource Planning in Improving Water Resource Management within the Great Lakes Region (pgs. 11, 20-23) This paper lays out the benefits of integrated resource planning within the Great Lakes Region, looking at the importance of a holistic approach to water management.

Blueprint for One Water (pgs. 1-9) This report provides an overview for the rationale and possibilities of an integrated water resource plan and outlines steps to implement a plan, and presents case studies.

The Road to Regionalization (pgs. 11-20) This magazine by the Rural Community Assistance Partnership provides several case studies of the benefits that rural communities have derived from regionalization.

The Regionalization of Water Utilities: Perspectives, Literature Review, and Annotated Bibliography (pgs. 9-12)This structures regionalization as a set of public policies and resource planning frameworks that create institutional changes.

Drinking Water Infrastructure: Who pays and how (and for what?) (pgs. 24-26) This report guides an advocate through the decisions that a water utility makes, and also provides ideas for how utilities can manage affordability while addressing all of their responsibilities.

35 Elms, S. (2019, August 16). *Toledo, suburbs poised to approve regional water agreement*. The Blade. https://www.toledoblade.com/local/2019/08/16/toledo-suburbs-maumee-perrysburg-sylvania-whitehouse-regional-water-agreement/stories/20190816129.

36 *Toledo Area Wrestles with Regional Water*. (2018, June 6). Impact Ohio. https://impactohio.org/toledoregionalwater/

37 Elms, S. (2019, November 26). *City Council Approves 2020 Regional Water Rates*. The Blade. https://www.toledoblade.com/local/city/2019/11/26/toledo-city-council-approves-2020-regional-water-rates/stories/20191126135.

Asset Management for Water and Wastewater Utilities This EPA webpage delves into resources about asset management. It also includes workshop materials with a story line to help a reader visualize how a utility manager may practice asset management.

Water Works: The Job Creation Potential of Repairing America's Water Infrastructure (pgs. 6-8) This resource looks at the impact of water infrastructure investment on economic development within communities.

Racial equity impact assessments

Race Forward: The Center for Racial Justice Innovation suggests ten guiding steps for completing a REIA

1. Identify stakeholders
2. Engage stakeholders
3. Identify and document racial inequities
4. Examine causes of inequities
5. Clarify the purpose of the project
6. Consider adverse impacts
7. Advance equitable impacts
8. Examine alternatives or improvements
9. Ensure viability and sustainability
10. Identify success indicators.

Racial Equity Impact Assessment (REIA) Racial equity impact assessments (REIA) look at how a particular action or decision will affect different racial and ethnic groups.[38] The outcome of a REIA should present an analysis of proposed policies, practices, budgetary decisions, initiatives, and other related inputs, evaluating how those factors might adversely impact already vulnerable communities. This webpage provides an overarching explanation of a racial equity impact assessment and gives examples of REIAs in practice.

Racial Equity Impact Assessment Toolkit This toolkit provides several resources on how to do a racial equity impact assessment.

Great Lakes Water Infrastructure Project Issue Brief: Water Affordability (pgs. 1-2) This brief summarizes how increasing water rates disproportionately affect financially distressed households and offers best practices related to water affordability.

The Invisible Crisis: Water Affordability in the United States (pgs. 42-45) This report discusses the consequences and threats of not having affordable water, and highlights how equitable rate structures and affordability programs can help alleviate the crisis.

River Network and WaterNow Alliance: Building Trust Between Community Groups and Water Systems. This developing initiative is working to provide a roadmap with recommendations and best practices for "partnership-building" that it defines as "efforts to develop a strong and authentic relationship between a local community group and water system that is built on trust and focused on achieving shared goals related to equitable and sustainable water management."

38 Applied Research Center. (2009, March 31). *Racial Equity Impact Assessment Toolkit. Race Forward.* https://www.raceforward.org/practice/tools/racial-equity-impact-assessment-toolkit.