United States Government Accountability Office

Report to the Honorable Charles E. Schumer, Majority Leader, U.S. Senate

March 2021

PRIVATE WATER UTILITIES

Actions Needed to Enhance Ownership Data

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GAO-21-291

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Highlights

Highlights of GAO-21-291, a report to the Honorable Charles E. Schumer, Majority Leader, U.S. Senate

March 2021

PRIVATE WATER UTILITIES

Actions Needed to Enhance Ownership Data

Why GAO Did This Study

The roughly 50,000 drinking water utilities in the United States face steep costs—more than $470 billion over the next 20 years, according to EPA estimates—to repair and replace drinking water infrastructure. These costs are passed on to customers through water rates. States regulate the rates charged by privately owned water utilities. EPA has responsibilities to implement programs to further the health protection objectives of the Safe Drinking Water Act.

GAO was asked to review private for-profit drinking water utilities and rates. This report examines, among other things, (1) information available from EPA and other sources about the number and characteristics of private for-profit water utilities in the United States, and (2) Drinking Water SRF assistance provided to private for-profit water utilities. GAO reviewed EPA SDWIS data, Drinking Water SRF data, and Global Water Intelligence data, as well as EPA's and others' documents. GAO also interviewed EPA and water utility stakeholders.

What GAO Recommends

GAO is making two recommendations, including that EPA define all utility ownership types in SDWIS and verify and correct this data as needed. In written comments on the report, EPA generally agreed with both recommendations.

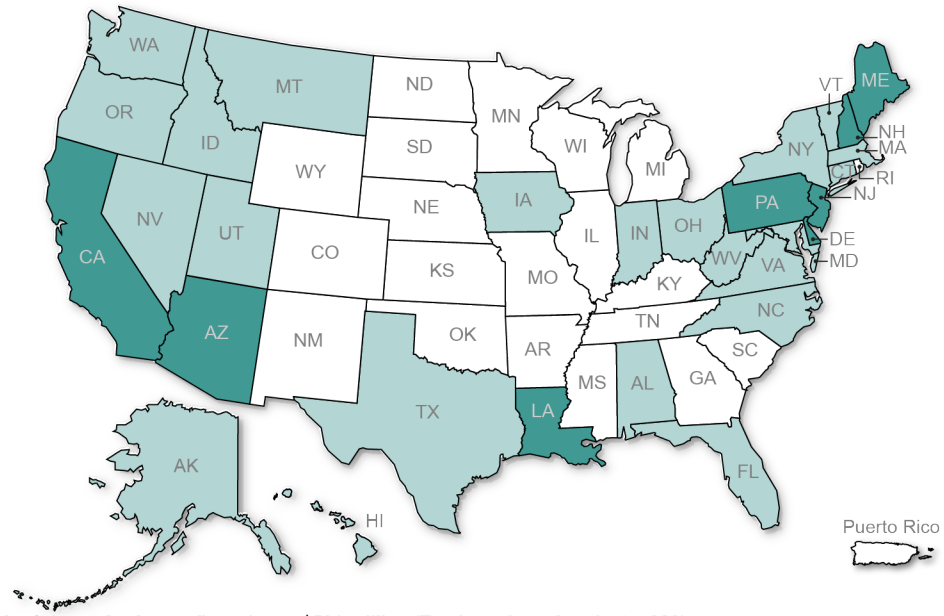
View GAO-21-291. For more information, contact J. Alfredo Gómez at (202) 512-3841 or gomezj@gao.gov.

What GAO Found

Available information on private for-profit drinking water utilities shows that 14 publicly traded companies served customers in 33 states in 2019. However, the Environmental Protection Agency's (EPA) primary source of publicly available information on U.S. drinking water utilities—the Safe Drinking Water Information System (SDWIS)—contains ownership information that is limited by inaccuracies. EPA collects information in SDWIS from states but does not include definitions for utility ownership types in its data entry guidance. In addition, EPA takes actions to verify some of the data, but does not verify or correct ownership data. EPA and others use SDWIS for purposes such as analyzing Safe Drinking Water Act violations by type of utility ownership. Such analysis can help EPA and states build utility capacity to provide safe drinking water. By defining ownership types, and verifying and correcting the data in SDWIS, EPA could help ensure the data are accurate and reliable for users of the data and the public.

EPA provided over $500 million in Drinking Water State Revolving Fund (SRF) assistance to for-profit utilities for 226 projects to help ensure delivery of safe drinking water from January 2010 through June 2020. EPA's Drinking Water SRF program, created under the Safe Drinking Water Act, provides grants to states for low- or no-interest loans or grants to drinking water utilities for infrastructure projects. The amount provided to for-profit water utilities is small, about 2 percent of the $26.5 billion provided overall from January 2010 through June 2020.

States That Provided Private For-Profit Utilities with Assistance from the Drinking Water State Revolving Fund, since January 2010



Assistance for for-profit projects: $501 million (Total number of projects: 226)

$0 assistance to private-for-profit water utilities | Less than $10 million | Greater than $10 million

Sources: GAO analysis of Environmental Protection Agency data from the Project Benefits Reporting database; Map Resources (map). | GAO-21-291

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Abbreviations

EPA	Environmental Protection Agency
GWI	Global Water Intelligence
OMB	Office of Management and Budget
PBR	Project Benefits Reporting
PFAS	Per- and polyfluoroalkyl substances
PSC	Public Service Commission of Wisconsin
PUC	Public utility commission
SDWIS	Safe Drinking Water Information System
SEC	Securities and Exchange Commission
SRF	State Revolving Fund

441 G St. N.W.
Washington, DC 20548

March 26, 2021

The Honorable Charles E. Schumer
Majority Leader
United States Senate

Dear Majority Leader Schumer:

Concerns about the safety and affordability of drinking water are common across the United States, according to the Environmental Protection Agency (EPA) and others.[1] Ensuring the safety of drinking water involves treating source water to remove various contaminants and requires making investments to maintain and improve system infrastructure and develop processes and treatments to address new contaminants. According to EPA's Safe Drinking Water Information System (SDWIS), roughly 50,000 community water systems in the United States—many of them small, serving fewer than 3,300 customers—are owned by utilities that are responsible for treating source water to make it safe to consume.[2]

Drinking water utilities face steep costs for capital improvements to maintain and improve their infrastructure. In 2018, EPA estimated that utilities will need $472.6 billion over the next 20 years to repair and replace numerous elements of the nation's drinking water infrastructure.[3] More recently, the presence of per- and polyfluoroalkyl substances (PFAS) in drinking water sources has created the need for new and

[1]Environmental Protection Agency, *Drinking Water and Wastewater Utility Customer Assistance Programs* (Washington, D.C.: April 2016) and American Water Works Association, *Buried No Longer: Confronting America's Water Infrastructure Challenge* (Boulder, Colorado: 2011).

[2]Under the Safe Drinking Water Act, a community water system is a public water system that serves at least 15 service connections used by year-round residents of the area served by the system or that regularly serves at least 25 year-round residents. 42 U.S.C. § 300f(15). For the purposes of this report, we use the term "drinking water utilities" to refer to the regulated entities that own one or more community water systems.

[3]Environmental Protection Agency, Office of Water, *EPA's 6th Drinking Water Infrastructure Needs Survey and Assessment*, EPA-816-K-17-002 (Washington, D.C.: March 2018).

expensive treatments to address these contaminants.[4] The costs of infrastructure improvements and new treatment methods are generally passed on to utility customers through the rates they pay for water. Some consumer advocacy organizations have raised concerns about the increasing costs for drinking water, especially the rates charged by private for-profit water utilities.[5]

The overarching goal of the Safe Drinking Water Act, originally enacted by Congress in 1974, is to ensure that public drinking water is safe.[6] Under the act, EPA has various responsibilities related to protecting drinking water, but according to EPA officials, the agency does not have a role in regulating water rates charged by utilities. The rates charged by privately owned, and some publicly owned, water utilities are generally regulated by the states through public utility commissions. EPA is responsible for implementing the Drinking Water State Revolving Loan Fund Program (SRF) that provides states with capitalization grants to provide eligible drinking water utilities, including eligible private for-profit water utilities, with assistance to help pay for drinking water projects.[7]

GAO was asked to provide information on private water utilities, and to review the regulation of private for-profit utilities' drinking water rates and the amount of Drinking Water SRF assistance awarded to such utilities. This report examines: (1) the extent of information available from EPA and other sources about the number and characteristics of private for-profit water utilities currently operating in the United States, (2) key

[4]PFAS are a group of chemicals manufactured and used in a variety of consumer products such as non-stick cookware like pans, fast food wrappers, cleaning products, and firefighting foams. There is evidence that exposure to PFAS can lead to adverse health outcomes in humans. Drinking water can be a source of exposure in communities where these chemicals have contaminated water supplies. For more information on PFAS, see GAO, *Man-Made Chemicals and Potential Health Risks: EPA Has Completed Some Regulatory-Related Actions for PFAS*, GAO-21-37 (Washington, D.C.: Jan. 27, 2021).

[5]For the purposes of this report, we define "private for-profit water utility" to mean a drinking water utility owned by a private for-profit company, where supplying drinking water is the company's primary business. We focus on private for-profit water utilities currently operating in the United States. Other ownership structures include municipal governments, homeowner associations, regional authorities, and cooperatives.

[6]Pub. L. No. 93-523, 88 Stat. 1660 (1974) (codified as amended at 42 U.S.C. §§ 300f–300j-27).

[7]For more information on the Drinking Water SRF program, see GAO, *State Revolving Funds: Improved Financial Indicators Could Strengthen EPA Oversight,* GAO-15-567 (Washington, D.C.: Aug. 5, 2015).

factors that affect water rates and how private for-profit water rates compare with those charged by publicly owned utilities, (3) the processes selected states use to regulate water rates charged by private for-profit utilities, and (4) the purposes for which Drinking Water SRF assistance is provided to private for-profit water utilities and how much funding private for-profit water utilities have received.

To determine the extent of information available from EPA and others about the number and characteristics of private for-profit water utilities currently operating in the United States, we reviewed two EPA databases and five other private sources to attempt to identify the complete universe of private for-profit utilities. First, we reviewed publicly available data from EPA's SDWIS and from EPA's 2006 Community Water System Survey.[8] We found SDWIS did not identify private for-profit utilities and Community Water System Survey data were out of date. We assessed the reliability of the SDWIS data, by ownership type, for purposes of reporting summary data on the number of water systems in the country. We conducted electronic testing for outliers and missing data, reviewed related documentation, interviewed knowledgeable agency officials, and found the data to be sufficiently reliable for the purposes of our reporting objectives. As part of this work, we determined that the information and communication component of internal controls was significant to this objective. We assessed use of quality information and communication of data from SDWIS and the Community Water System Survey for use by internal and external parties to meet agency objectives in EPA's strategic plan and national water program guidance.

Second, we developed a list of publicly traded private for-profit companies that operate water utilities from Global Water Intelligence (GWI) data that we acquired and corroborated this information with lists from three stakeholders and a search in a Bloomberg database. We limited our list to publicly traded parent companies on a United States or foreign stock exchange because of greater access to publicly available information on these companies, such as annual reports and Securities and Exchange Commission (SEC) filings. In addition, we analyzed GWI data and information on characteristics of these companies. We assessed the reliability of the GWI data by conducting electronic testing for outliers and missing data, and reviewing the company's methods for gathering data.

[8]Environmental Protection Agency, *2006 Community Water System Survey Volume II: Detailed Tables and Methodology*, EPA-815-R-09-002 (Washington, D.C.: May 2009).

We determined the GWI data were reliable for our purposes of developing a list of private for-profit parent companies that operate water utilities and for reporting certain characteristics of these companies, such as mergers and acquisitions data.[9] We also gathered available data and information on characteristics of these companies from company websites and publicly available reports on these companies, including SEC filings and company annual reports. However, our list is not comprehensive of all private for-profit water utilities or all characteristics of these utilities because we restricted our list to publicly traded companies.

To determine key factors that affect water rates and how private for-profit water rates compare with those charged by publicly owned utilities, we conducted a search and review of relevant literature.[10] We selected relevant studies from 2009 onward. We found what we considered to be 16 relevant studies and conducted a content analysis for information on the key factors affecting water rates and how the rates charged by private for-profit utilities compare to the rates charged by public water utilities. We evaluated the methodological soundness of empirical studies that contained relevant information. We also interviewed 11 water utility stakeholders from academia, relevant water utility industry organizations, and advocacy groups using a standard set of questions; four interviews included participation by multiple people.[11] We identified stakeholders from our literature search as well as through suggestions from EPA and other stakeholders during our interviews. We selected stakeholders who work on or study water utility issues, including water utility rates. We included questions to obtain data and other information on key factors that affect water rates, and to discuss how private for-profit water rates compare to those charged by publicly owned utilities.

To determine the processes used by five selected states to regulate water rates charged by private for-profit utilities, we reviewed studies and reports summarizing information on state regulation of rates identified by EPA and stakeholders we interviewed. We also interviewed officials from

[9]All dollar values in this report are nominal—not adjusted for inflation.

[10]Key factors are those factors most likely to affect drinking water rates, such as water supply and demand, geographical location, and structural aspects of a water system.

[11]While there were multiple people participating in four of 11 stakeholder interviews we conducted, we were able to ascertain the collective view of each entity in most interviews. In cases where there were differing opinions on a question in an interview with a stakeholder group, we noted it in the findings.

public utility commissions and states' consumer advocate organizations from a non-generalizable sample of states to illustrate how selected states regulate private for-profit water rates.[12] We selected five states based on several factors, including how many publicly traded private for-profit utilities were operating in the state in 2019, and variation in state regulatory jurisdiction over private and other water utility rates; the five are California, New Jersey, New York, Pennsylvania, and Wisconsin. We also reviewed relevant state laws, including fair market value laws, as well as rate regulations and policies. Fair market value laws generally permit private companies to acquire water utilities at higher than book value—which is based on original cost, less depreciation—and allow companies to factor the acquisition value into the rates they charge for water.[13]

To determine the purposes for which Drinking Water SRF assistance is provided to private for-profit water utilities, we reviewed the Safe Drinking Water Act, relevant regulations, and EPA policies that outline the purposes of the Drinking Water SRF program. To determine the amount of Drinking Water SRF funding for-profit water utilities have received, we collected and analyzed data from January 2010 through June 2020 on Drinking Water SRF assistance to drinking water utilities from EPA's Project Benefits Reporting (PBR) system. We evaluated the reliability of relevant data sources through electronic testing for outliers and missing data, collecting and reviewing appropriate documentation, and interviews with knowledgeable EPA officials. We found that PBR, like SDWIS, does not differentiate systems owned by for-profit water utilities from other privately owned water systems and had missing ownership data. We filled in missing data on ownership using various methods including matching ownership information from SDWIS, key word identification, and internet searches. To validate data on private ownership and further determine for-profit ownership, we then conducted original research using state and water utility websites. Although we found errors in the PBR and SDWIS data, we corrected these data with our original research, and we determined that the corrected data were reliable for the purpose of our reporting objectives. Appendix I presents a more detailed description of our objectives, scope, and methodology.

[12]The Wisconsin Citizen's Utility Board is a nonprofit advocacy organization and the only state advocate organization that we interviewed that was not a state governmental entity.

[13]Depreciation refers to the reduction in value of an asset over time due to general use.

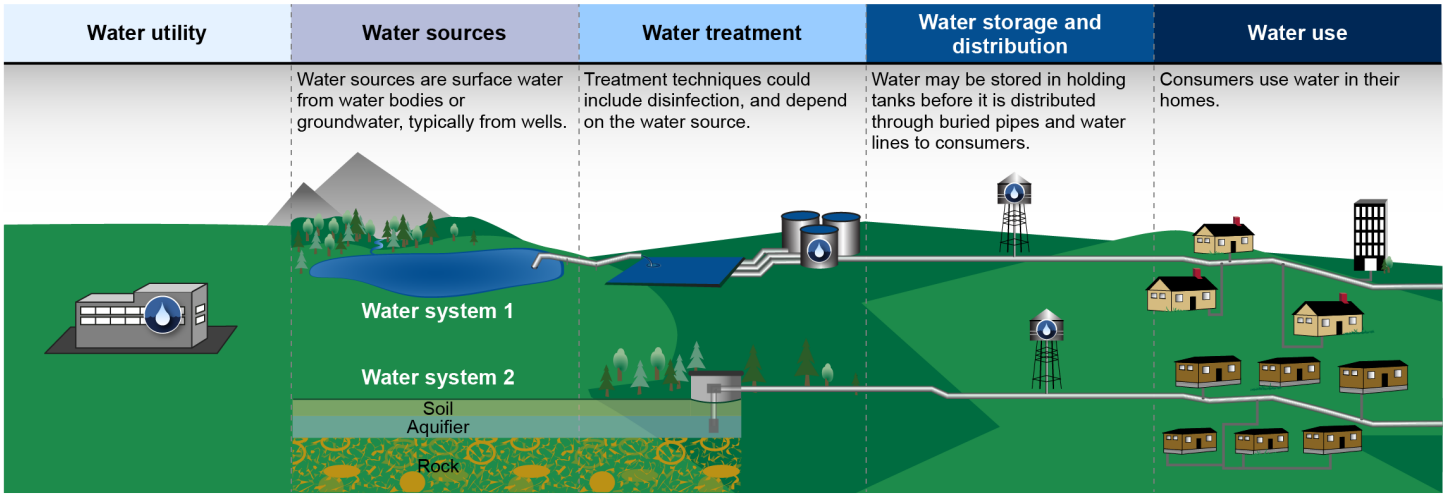
We conducted this performance audit from March 2020 to March 2021, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Drinking Water Industry

Drinking water systems consist of treatment facilities, storage areas, and pipelines to collect water from a source—such as a lake, stream, or underground aquifer—treat it to remove contaminants, store it in reservoirs or tanks, and deliver it to households, businesses, and other consumers (see fig. 1). The collection and treatment processes used by drinking water systems depend on the source of the system's water. For example, drinking water collected from groundwater—typically drawn from one or more wells—may need no treatment, or minimal treatment, such as disinfection with chlorine or another disinfectant, before being distributed. In contrast, systems that rely on surface water generally pump water from a river, stream, lake, or other water body and treat it using different filters and processes at a centralized facility. Treated water may be stored in holding tanks before being pumped to consumers. In both cases, water is delivered through a distribution system, which consists of a network of underground pipes and water lines.

Figure 1: Components of a Drinking Water System



Source: GAO analysis of Environmental Protection Agency information. | GAO-21-291

The drinking water industry in the United States is composed of a large number of water systems of varying size and ownership types. For this report, we focus on community water systems—one type of public water system regulated under the Safe Drinking Water Act—which serve at least 15 service connections, such as water service to a home through pipes, used by year-round residents of the area served by the system, or regularly serve at least 25 year-round residents.[14] According to available EPA data, there are about 50,000 community water systems.[15] About 45,000 community water systems, or more than 90 percent, are small, serving less than 10,000 people, with the remaining 10 percent consisting of systems serving more than 10,000 people each. A few hundred systems in the United States serve communities of more than a 100,000 people. For the purposes of this report we use the term drinking water

[14] *See* 42 U.S.C. § 300f(15). Other types of public water systems are: (1) non-transient, non-community water systems that regularly serve at least 25 of the same people over 6 months per year, such as schools, factories, office buildings, and hospitals; and (2) transient, non-community systems that do not regularly serve at least 25 of the same people over 6 months per year, such as a gas station or campground, where people do not remain for long periods of time. *See* 40 C.F.R. § 141.2.

[15] According to EPA information, in 2017, community water systems provided water to about 94 percent of the population in the United States. The remainder of the population is served by other water sources, such as privately owned wells.

utilities to refer to the regulated entities that own one or more community water systems. Drinking water utility size is characterized by the number of service connections and the population served by the utility, which is the utility's estimate of the number of people served by the systems it owns.

Drinking water utilities can have public- or private-ownership types as described in table 1. Public utilities are owned by government or public agencies, such as local governments, states, the federal government, or tribes. According to SDWIS data, about 261 million people, or almost 80 percent of the U.S. population, receive drinking water from about 24,000 community water systems owned by local government utilities (e.g., cities, counties, public water authorities). About 50 million people are served by the remaining 26,000 community water systems. These systems are primarily owned by private utilities involving a mix of highly different ownership structures including nonprofit organizations (e.g., small homeowner associations with volunteer boards); ancillary companies (e.g., mobile home parks); and for-profit companies including publicly traded companies.[16]

Table 1: Public and Private Drinking Water Utility Ownership Types in the United States

Ownership Type	Definition
Public Utility	A water utility owned by a government or public agency and operated by a government, public agency, or private contractor
Private Utility	A water utility owned and operated by a private for-profit company, nonprofit, or ancillary company
Private For-Profit Utility	A private water utility owned and operated for profit, primarily as a water business. A subset of these companies are publicly traded on a United States or foreign stock exchange, while the remainder are privately owned.
Nonprofit Utility	A private water utility not operated for profit
Ancillary Utility	A private water utility operated as a necessary part of another business, such as hospitals or mobile home parks

Source: GAO analysis of Environmental Protection Agency documentation. | GAO-21-291

The large and diverse number of drinking water utilities in the United States complicates the response to challenges facing the industry—aging infrastructure and emerging water quality issues. According to EPA,

[16]According to SDWIS data, community water systems owned by private water utilities serve nearly 37 million people or more than 10 percent of the U.S. population.

investments are needed to repair or replace pipes that deliver water and infrastructure used to treat and store drinking water, as well as to build wells and water intakes. In particular, according to EPA estimates, small community water systems account for a disproportionate percentage of capital improvement needs in relation to the population served.[17] Specifically, small systems are estimated to need $74.4 billion over the next 20 years—which is 16.5 percent of the total needs across all systems, although they serve about 8 percent of customers. Furthermore, small water utilities can face unique financial and operational challenges to consistently provide drinking water that meets EPA standards and requirements. According to a 2017 report, small water utilities have a small rate base and struggle to pay the cost of infrastructure projects, either to repair or replace aging infrastructure or to add treatments for new contaminants.[18]

According to EPA and others, consolidation is one of several approaches that may help small utilities address the challenges of providing safe water to the communities they serve.[19] According to a 2019 report, consolidation occurs when two or more legal entities become one and operate under the same governance, management, and financial functions. It may or may not include physically connecting assets.[20] Among other things, consolidation can help small utilities reduce costs and maintain lower water rates by operating at scale and improving overall efficiency of water service. One type of consolidation is direct acquisition, where a water utility is purchased by a high capacity utility

[17]Environmental Protection Agency, *Drinking Water Infrastructure Needs Survey and Assessment Sixth Report to Congress*, EPA 816-K-17-002 (Washington, D.C.: March 2018).

[18]National Regulatory Research Institute, *Small Water Systems: Surveying State Utility Commission Best Practices*, Report No. 17-05 (Silver Spring, Maryland: July 2017).

[19]Environmental Protection Agency, *How to Support Water System Partnership: Water System Partnership Handbook*, EPA 810-B-19-002 (Washington, D.C.: March 2020); Environmental Protection Agency, *Water System Partnerships: State Programs and Policies Supporting Cooperative Approaches for Drinking Water Systems*, EPA 816-S-17-002 (Washington, D.C.: August 2017); and US Water Alliance and University of North Carolina Environmental Finance Center, *Strengthening Utilities Through Consolidation: The Financial Impact* (2019).

[20]U.S. Water Alliance and University of North Carolina Environmental Finance Center (2019).

such as a private for-profit utility or a large municipal utility.[21] When small utilities with significant compliance challenges or deteriorating infrastructure are acquired by higher capacity utilities, they gain increased economies of scale, increased technical expertise, and increased access to capital that often results in improved compliance and water service.

EPA encourages water utility partnerships, including consolidations, as an approach to help smaller and potentially unsustainable utilities to overcome challenges they face in meeting federal and state drinking water standards and requirements. Among other things, in March 2020 EPA updated its *Water System Partnerships Handbook* for states' drinking water programs to help identify, assess, and implement water system partnerships, including consideration of consolidations—such as direct acquisitions by private for-profit utilities.[22] Furthermore, legislation regarding water utility consolidation has been recently enacted. A provision of America's Water Infrastructure Act of 2018 required EPA to issue regulations that authorize primacy states, referring to states and tribes with lead enforcement responsibility for public water systems described below, to mandate the owner or operator of certain noncompliant public water systems to assess options for consolidation or transfer of ownership.[23]

[21]Other types of consolidation are: joint merger, where two or more relatively equal partners both adjust governance, operations, and financial frameworks to create a new entity; and balanced merger, where two or more entities consolidate with the goal of establishing a governance structure that provides a basis for at least some direct participation in future decision-making by the pre-existing utility.

[22]Environmental Protection Agency, *How to Support Water System Partnership: Water System Partnership Handbook*, EPA 810-B-19-002 (Washington, D.C.: March 2020).

[23]Pub. L. No. 115-270, § 2010(a), 132 Stat. 3765, 3847 (codified at 42 U.S.C. § 300g-3(h)). Specifically, primacy states can require such assessment for a public water system that (1) has repeatedly violated one or more national primary drinking water regulations and such repeated violations are likely to adversely affect human health; and (2) is unable or unwilling to take feasible and affordable actions, as determined by the state, that will result in the public water system complying with the national primary drinking water regulations, including accessing technical assistance and financial assistance through the state loan fund, or has already undertaken such actions without achieving compliance.

EPA's Roles and Responsibilities for Drinking Water Regulation and Oversight

Under the Safe Drinking Water Act, EPA is authorized to regulate contaminants in public water systems that provide water for human consumption, including community water systems.[24] Among its responsibilities under the act, EPA is to establish standards for public water systems, called national primary drinking water standards, which generally set limits on the levels of specific contaminants in drinking water that can adversely affect public health. States and tribes can seek lead enforcement responsibility, called primacy, for public water systems if they adopt drinking water regulations that are no less stringent than EPA's regulations and meet other statutory and regulatory requirements.[25] EPA maintains a database of public water systems called the Safe Drinking Water Information System (SDWIS) database. EPA collects information on each state's water utilities—such as water source, population served, and ownership type—and uses the database to track permit information, violations, and enforcement data.[26]

EPA works with its state and tribal partners to implement various technical and financial programs related to the health protection objectives of the Safe Drinking Water Act. For example, EPA provides assistance to states and tribes to build the technical, managerial, and financial capacity of drinking water utilities. Primacy states are required to have capacity development strategies for drinking water utilities to acquire and maintain technical, managerial, and financial capacity, and must implement those strategies in order to receive the full allotment of their Drinking Water SRF capitalization grant described below. Adequate technical, managerial, and financial capacity enables such utilities to have

[24]Pub. L. No. 93-523, 88 Stat. 1660 (1974) (codified as amended at 42 U.S.C. §§ 300f-300j-27). Specifically, under the act, a public water system is a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves at least 25 individuals. 42 U.S.C. § 300f(4)(A).

[25]Most states and territories (except Wyoming and the District of Columbia) and the Navajo Nation have primacy, and the states that implement the Safe Drinking Water Act are called primacy states. EPA implements the Safe Drinking Water Act in non-primacy areas and retains oversight of primacy states.

[26]In previous reports, GAO has found that SDWIS has reliability problems related to violations and enforcement data, and EPA is taking steps to correct these. GAO, *Drinking Water: Unreliable State Data Limit EPA's Ability to Target Enforcement Priorities and Communicate Water Systems' Performance*, GAO-11-381 (Washington, D.C.: June 17, 2011) and GAO, *Drinking Water: Additional Data and Statistical Analysis May Enhance EPA's Oversight of the Lead and Copper Rule*, GAO-17-424 (Washington, D.C.: Oct. 2, 2017).

the capability to consistently provide safe drinking water to the public. EPA provides states and tribes with resources, including training and technical assistance, for updating their capacity development strategies as well as grants to fund nongovernmental organizations to provide small systems with training and technical assistance activities related to drinking water.

In addition, EPA manages programs, including the Drinking Water SRF program, to help drinking water utilities finance water projects and further the health protection objectives of the Safe Drinking Water Act.[27] EPA awards drinking water SRF capitalization grants to states for infrastructure improvements that help drinking water utilities comply with the act.[28] States provide a 20 percent match to the EPA grants and then determine how to distribute the total funds among drinking water utilities in their state through financial assistance, generally through subsidized loans.[29] As the recipients pay the loans back, the state will loan out the funds again, thus revolving the funds. EPA tracks these grants to states as well as the loans and other Drinking Water SRF assistance that states provide to water utilities through EPA's Project Benefits Reporting database.

State Role in Regulation of Private Drinking Water Utility Rates

State public utility commissions (PUC) regulate the rates of privately owned utilities, and although less common, some also regulate rates charged by municipal and non-profit owned utilities. States regulate water utility rates, in part, to curb monopoly power over water rates, according to economic literature we reviewed. Drinking water utilities have features of a natural monopoly where most communities rely on a single provider

[27]GAO-15-567.

[28]See 42 U.S.C. § 300j-12. For the purposes of Drinking Water SRF, the term "state" means each of the 50 states, the District of Columbia, and Puerto Rico. 42 U.S.C. § 300f(13)(B).

[29]According to EPA officials, the most common type of financial assistance provided to water utilities are loans, but assistance could also be a grant or insurance. For the purposes of this report, the term assistance covers any financial assistance provided through the Drinking Water SRF including loans, grants, and insurance.

for access to water.[30] Given the lack of competition to lower water rates, monopolies without regulatory oversight may use their market power to extract higher prices than are socially optimal, according to economic literature. In these cases, regulation—when well-implemented—may generate more efficient outcomes than unregulated markets. Regulators have a role to help ensure that utility costs are prudent and customers' rates are just and reasonable.[31] Most states have PUCs that regulate private water rates, although with different jurisdiction. According to a 2018 Michigan State University policy brief, PUCs in 45 states regulate private for-profit water rates and, though less common, some of these PUCs also have jurisdiction to regulate water rates of some local government or nonprofit-owned water utilities.[32] Five states (Georgia, Michigan, Minnesota, North Dakota, and South Dakota) have no economic regulatory jurisdiction over the water industry, according to the policy brief.

[30]According to economic literature we reviewed, under a natural monopoly, the entire demand in the market can be satisfied at the lowest cost by one firm and direct competition may not be desirable or possible. Like natural gas and electric utilities, which are also considered natural monopolies, water utilities have significant capital costs related to the large-scale infrastructure needed to produce and distribute services. Further, infrastructure costs are sunk costs, as utilities cannot repurpose infrastructure to produce other goods and services. In addition, natural monopolies, such as water utilities, exhibit economies of scale where the average cost of production, in this case water supply and treatment, decreases with increased production to a larger customer base.

[31]Principles for regulating rates are grounded in constitutional law and affirmed through Supreme Court cases, according to literature we reviewed on economic regulation. Beecher, Janice A, *Economic Regulation of Utility Infrastructure*, Chapter 4 in Lincoln Institute of Land Policy*, Proceedings of the 2012 Land Policy Conference: Infrastructure and Land Policies* (Cambridge, Massachusetts: 2013) and National Regulatory Research Institute, *Alternative Rate Mechanisms and Their Compatibility with State Utility Commission Objectives*, Report No. 14-03 (Silver Spring, Maryland: April 2014).

[32]According to the policy brief, Wisconsin is the only state with comprehensive economic regulatory jurisdiction for municipal water utilities. In addition, nine states have conditional jurisdiction for municipal or other non-private water utilities. Janice Beecher, Department of Political Science and Institute of Public Utilities, Michigan State University, *"Michigan at a Crossroads: Potential for Economic Regulation of Michigan's Water Sector,"* A policy brief for the incoming 2019 Gubernatorial Administration, prepared at the direction of Michigan State University Extension Center for Local Government Finance and Policy (Lansing, Michigan: Nov. 7, 2018).

Some Information Is Available on Private For-Profit Water Utilities, but Information from EPA Is Limited

Available information shows that 14 publicly traded companies with private for-profit drinking water utilities served customers in 33 states in 2019, with total mergers and acquisitions of about $5.8 billion from 2010 to 2020. One source of EPA water utility data, EPA's SDWIS database, does not differentiate private for-profit drinking water utilities from other private water utilities, nor does EPA provide definitions for utility types, leading to inaccuracies. A second source of EPA information, EPA's Community Water System Survey data, does differentiate private for-profit drinking water utilities from other private utilities, but data were collected for 2006 and are outdated.

Available Information Shows That 14 Publicly Traded Companies with Drinking Water Utilities Serve Customers in 33 States with Mergers and Acquisitions of $5.8 Billion from 2010 to 2020

According to lists of private for-profit companies and water utilities collected from private sources, we identified 14 publicly traded companies operating private, for-profit water utilities in 2019. According to SEC form 10-K filings, company annual reports, and GWI data, these companies operated in 33 states (see table 2). The 14 companies include 12 companies with headquarters in the United States, and two international companies. Thirteen companies are parent companies to smaller subsidiaries in water or other industries; the 13 operate smaller utilities across a state or multiple states. For example, Essential Utilities, Inc. owns utilities in the water and natural gas industry, and American States Water Company operates water utilities as well as power plants in the electric industry. In addition, according to GWI data, from 2010 through 2020, 12 of these companies acquired 353 water utilities at a total cost of about $5.8 billion.[33]

Table 2: Operations Information for 14 Publicly Traded Companies with Water Utilities

Parent company[a]	Headquarters country	2019 total operating revenue (dollars in millions)	Number of states with water utility operations[b]	Water utility mergers and acquisitions, 2010 to 2020 price (dollars in millions)[c]	Number of water utility mergers and acquisitions, 2010 to 2020[c]
Domestic companies					
Allete, Inc.	United States	1,240.5	1	0	0
American States Water Company	United States	473.9	1	0	0

[33]We identified mergers and acquisitions of utilities by the 14 publicly traded companies from GWI data. We only included acquisitions of utilities where 100 percent of the target was acquired. These data do not include acquisitions of oil and gas related utilities. Thirty-nine of these deals for a total of about $1.3 billion were still pending as of December 2020.

Parent company[a]	Headquarters country	2019 total operating revenue (dollars in millions)	Number of states with water utility operations[b]	Water utility mergers and acquisitions, 2010 to 2020 price (dollars in millions)[c]	Number of water utility mergers and acquisitions, 2010 to 2020[c]
American Water Works Company, Inc.	United States	3,094	16	1,106.8	143
Artesian Resources Corporation	United States	83.6	3	6.9	9
California Water Service Group	United States	714.6	4	8.1	2
Essential Utilities, Inc.	United States	889.7	8	954.1	101
Eversource Energy	United States	8,526.5	3	1,719.7	21
Global Water Resources, Inc.	United States	35.5	1	8.8	7
Middlesex Water Company	United States	134.6	3	2.4	2
Northwest Natural Holding Company	United States	746.4	4	101.5	14
SJW Group	United States	420.5	4	849	12
The York Water Company	United States	51.6	1	4.9	22
Foreign companies					
Algonquin Power & Utilities Corp.[d]	Canada	Not available	7	1,023.9	14
Suez	France	Not available	6	22.6	6
Total		**16,411.4**		**5,808.7**	**353**

Source: GAO analysis of Global Water Intelligence Data, 2019 SEC form 10-Ks, 2019 company reports, and stakeholder information. | GAO-21-291

[a]This list does not include companies that sources identified but did not meet our criteria of publicly traded utility companies that operated water utilities in 2019. Companies with stock traded over the counter were also excluded.

[b]These numbers do not include states with contracted services.

[c]These numbers include completed and pending utility mergers and acquisitions of 100 percent, as of December 2020. Mergers and acquisitions of oil and gas were not included. These dollar figures are not adjusted for inflation.

[d]The company is publicly traded on the New York Stock Exchange and the Toronto Stock Exchange.

According to GWI data, annual reports, and SEC form 10-K filings, 10 of the publicly traded companies operate water utilities in multiple states, while the other four operate in one state each. The company operating in the most states, American Water Works Company, or American Water, operates in 16 states, while the company operating in the second largest number of states, Essential Utilities, Inc., operates in eight. The state with the most companies, Pennsylvania, has six different companies currently operating in the state. The available information on revenues for the 12 companies with headquarters in the United States showed that total operating revenues in 2019 were about $16.4 billion. Total overall operating revenues for these companies ranged from about $35.5 million to $8.5 billion. Five companies had information on 2019 total operating

revenues for water that ranged from $16.1 million to $2.9 billion.[34] Six companies reported making investments in their water infrastructure in 2019, ranging from $118 million to $1.9 billion. These investments included replacing old pipes and storage tanks, as well as building other facilities such as new water treatment plants. Additionally, nine companies reported the number of employees in their business, which ranged from 106 to 8,300 people.[35] Finally, two companies reported service information and a customer satisfaction rating of over 80 percent.

In addition, according to GWI data, of the 12 publicly traded companies that acquired water utilities in the United States from 2010 through 2020, Eversource Energy spent the most on mergers and acquisitions at over $1.7 billion for 21 acquisitions, and American Water had the greatest number of mergers and acquisitions—143 for over $1.1 billion. Seven companies had fewer than 10 acquisitions during this period. Additionally, out of the 353 mergers and acquisitions from 2010 through 2020, 101 included acquisitions of municipal utilities and five included acquisitions of companies on the list of 14 publicly traded companies. For example, Essential Utilities, Inc. acquired Texas American Water's 51 regulated water systems and its five wastewater systems in Texas, serving a total of 16,000 people. Individual prices of the 353 mergers and acquisitions ranged from $0 to about $1.7 billion.

EPA's SDWIS Database Contains Some Inaccurate Ownership Data, and EPA's Community Water System Survey Data Are Outdated

EPA has two sources of publicly available data on drinking water systems that include information on utility ownership type. EPA collects data in SDWIS, which includes basic descriptive information on water systems regulated under the Safe Drinking Water Act, but does not differentiate among types of private utilities and contains some inaccurate data. EPA's Community Water System Survey includes data on various system characteristics, such as ownership type that differentiates for-profit utilities. The Community Water System Survey was last collected for 2006, and the data are therefore outdated.

EPA's SDWIS Contains Inaccurate Data, Limiting Its Reliability

SDWIS is the primary source of publicly available information on regulated water systems in the United States; however, we found that it contains inaccurate ownership data. SDWIS includes information on

[34]Water operating revenues in the 2019 SEC form 10-Ks were available for American States Water Company, American Water Works Company, Inc., Artesian Resources Corporation, Essential Utilities, Inc., and Global Water Resources, Inc.

[35]Some companies reported their employees for all sectors.

ownership type, water source, treatment, violations, and enforcement actions taken for water systems regulated under the Safe Drinking Water Act. To enter information on ownership type in SDWIS, states can select from six different categories: federal government, state government, local government, Native American, public/private, and private. The private category includes all for-profit, nonprofit, and ancillary utilities, such as mobile home parks and hospitals.

EPA officials said that they use SDWIS data to review water system compliance with health-based standards in order to understand which regulations and rules utilities find challenging to implement and to help identify the training needs of utility staff. For example, EPA provides funding to states to build technical, managerial, and financial capacity of utilities and works with states to develop required capacity development strategies for drinking water utilities, including training. EPA officials said that they use information on ownership type in SDWIS to look at the national inventory of regulated drinking water systems and violation trends for different ownership categories.

Academic researchers also rely on SDWIS data to conduct studies on ownership type, compliance with standards, and water rates that may be used to inform policy development. For example, one study we reviewed that used SDWIS data evaluated trends in water system characteristics, including utility ownership, and community demographics for underperforming systems with violations.[36] The authors of another study on ownership type in SDWIS stated that the "validity and reliability of the data used to identify and differentiate water systems are equally important to the interpretation of research findings and the development of regulatory policy."[37] The authors cited eight other studies that used SDWIS ownership data in their modeling to analyze various aspects of water utilities' performance.

[36]M. Allaire, M., H. Wu, and U. Lall, "National trends in drinking water quality violations," *PNAS*, vol. 115, no. 9 (2018) 2078-2083.

[37]The authors stated that this study was not representative of the entire country because three of the eight states had a very limited private sector presence and four of the eight states had either limited economic regulation or economic regulation of some private and public systems. See Beecher, J.A., Redican, K., and M.L. Kolioupolous. "(Mis)classification of water systems in the United States." *Available at SSRN 3627915* (2020).

However, we found evidence that the SDWIS data contain inaccurate ownership information. Specifically:

- In our review of a subset of SDWIS data, we found that at least 48 of the 559 such water systems (8.6 percent) had incorrect ownership information—some publicly owned utilities were identified as private and vice versa. For example, we found that 13 municipal utilities in Ohio were identified in SDWIS as having private ownership. We also found that six water systems owned by private entities in Louisiana were identified in SDWIS as having local government ownership.
- Authors of the study on SDWIS ownership sampled 11,411 community water systems in eight Great Lakes states found that 4.7 percent of the sampled systems of all ownership types had incorrect ownership classification in SDWIS. The authors found, as we did in our review, that some publicly owned utilities were identified as private, and some private utilities were identified as publicly owned.
- One stakeholder whom we interviewed said that while SDWIS data contain information on ownership, the data have many errors. Another stakeholder said that the accuracy of SDWIS data varies for each state and that there were errors in the ownership field, where some public water systems were labeled as private. Both stakeholders used SDWIS for analyses that they or their organization conducted on water rates and affordability.

According to EPA officials we interviewed, states are responsible for entering data from their state systems into SDWIS and are also supposed to validate the data that they submit to the system.[38] Data are submitted using an integrated set of tools in SDWIS, which validate data for completeness and accuracy, and assist state primacy agencies and EPA with the extraction, formatting, validation, and preparation of federally reportable drinking water data. According to EPA officials, once states submit data, EPA checks the data and may flag data entries for states to review and correct. However, according to EPA officials we interviewed, EPA's review of the ownership data is limited to determining whether the

[38]According to EPA officials, states are to collect and update water system inventory information in SDWIS, such as ownership type, as part of triennial sanitary surveys that primacy agencies are required to conduct. Sanitary surveys involve review of the water source, facilities, equipment, operation and maintenance of public water systems, including community water systems, to evaluate their adequacy for producing and distributing safe drinking water.

information that states enter matches one of the six existing ownership options.

We found that the data errors we and others identified may have been due to misinterpretation of ownership categories or mistakes that were not corrected. In our review of SDWIS guidance, we found that EPA does not include definitions for any utility ownership type. EPA officials said that they leave it up to the states to determine how to classify utility ownership type for the water systems that states enter into the database. However, we and others found it difficult to classify utility ownership without definitions. For example, because there is no definition of the public/private type of utilities, we conducted additional checks and research for the 46 utilities in our sample identified as having public/private ownership in SDWIS in order to validate their ownership type. We found that the public/private category in SDWIS contained a mix of utility types that could be classified as either public or private but not both public/private, including utility associations, water districts, and some local governments. In addition, an EPA Financial Advisory Board did not use the public/private category in a study where it reported on governmental versus nongovernmental ownership of community water systems based on SDWIS data, because it could not classify the category without a definition.[39] Moreover, the authors of one study we reviewed noted that the public/private category in SDWIS appears to include systems for which ownership was unknown or not coded.

In our analysis of SDWIS data, we also identified another type of utility that was categorized differently by states because its ownership type was not defined. We found 152 systems with district-type ownership, such as rural water districts or water authorities, which were categorized differently from one another. Without a definition that includes these types of utilities, some states categorized them as local government entities in SDWIS and other states classified them as private-nonprofit entities in SDWIS. As a result, these types of utilities are inconsistently identified in different SDWIS ownership categories.

EPA officials said that the agency is not required by the Safe Drinking Water Act to collect information on ownership type. According to these officials, the Safe Drinking Water Act does not define ownership type, and

[39]Environmental Financial Advisory Board, *Financing Strategies to Promote System Regionalization* (Washington, D.C.: Apr. 25, 2019).

drinking water system requirements do not differ based on ownership type. Nevertheless, EPA collects the information from states because it uses the information in analyses such as drinking water trend analyses. EPA officials told us that ownership categories in SDWIS are self-explanatory and that they rely on states to enter the correct data. However, EPA's 2018-2022 *Strategic Plan* identifies collaborating with states and tribes to improve data quality and public access to drinking water data, as well as ensuring data's accuracy and completeness, as important steps to achieving EPA's long-term performance goal to reduce the number of water utilities out of compliance with health-based standards.[40]

In addition, EPA's *National Water Program Guidance* for fiscal years 2020 through 2021 indicates that EPA will ensure accuracy and completeness of community water systems data.[41] This guidance is consistent with federal internal control standards that state that agency management should use quality information—which is appropriate, current, complete, and accurate, among other characteristics—to achieve the agency's objectives.[42] In using quality information to achieve the agency's objectives, management should define information requirements at the relevant level and requisite specificity, and it should evaluate processed information and make revisions when necessary so that the information is quality information.[43] EPA already obtains data from the states and takes action to verify key data entered into SDWIS by states. However, by developing definitions of ownership types for states and EPA regions to use when entering such data in SDWIS, EPA would help ensure that states and regions enter accurate data into SDWIS. And by verifying and correcting data for defined water system ownership types in SDWIS, EPA could better ensure that SDWIS provides accurate data about different ownership types at the national level, thus facilitating the agency's ability to provide users of the data and the public with reliable information.

[40]Environmental Protection Agency, *Working Together: FY2018-2022 U.S. EPA Strategic Plan*, EPA-190-R-18-003 (Washington, D.C.: February 2018, Updated September 2019).

[41]Environmental Protection Agency, *National Water Program Guidance, FY2020-2021*, 815B19001 (Washington, D.C.: June 2019).

[42]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: September 2014). The standards specify that quality information is appropriate, current, complete, accurate, accessible, and provided on a timely basis.

[43]GAO-14-704G.

EPA's Community Water System Survey Differentiates Among Three Types of Private For-Profit Water Systems but Is Outdated

EPA's Community Water System Survey has collected information on water systems owned by private for-profit utilities, beyond what is reported in SDWIS. In EPA's periodic survey, EPA collects and analyzes certain financial information on a statistically representative sample of water systems of different size categories and reports the data for three categories of private utilities: for-profit utilities operated primarily as a water business, nonprofit utilities, and utilities operated as a necessary part of another business (i.e., ancillary systems).[44] Information collected in past Community Water System Surveys included baseline data on water system revenues and expenses as well as utility ownership, size, water sources, treatment practices, and storage and distribution.

We did not use the survey to report numbers of private for-profit water utilities, however, because data from the 2006 Community Water System Survey, collected 14 years ago, are outdated.[45] For example, the number of drinking water systems continues to decrease due to consolidations. From 2000 to 2006, when EPA conducted the two most recent Community Water System Surveys, the number of active community water systems included in the surveys decreased by 6 percent. According to SDWIS data, from 2006 through 2020, the total number of active community water systems and the total number of private water systems each decreased by 10 and 14 percent, respectively.

According to EPA's 2006 Community Water System Survey report, the primary purpose of the survey is to support EPA's regulatory development and implementation efforts, but EPA also notes other intended uses, such as policy development analyses and compliance analyses.[46] Specifically, according to EPA's website, EPA uses the Community Water System Survey data in regulatory impact analyses as a baseline against which

[44]The 2006 Community Water System Survey estimated 5,406 utilities operated for profit primarily as a water business; 9,327 operated as nonprofit utilities, and 9,554 as ancillary utilities. Environmental Protection Agency, *2006 Community Water System Survey Volume II: Detailed Tables and Methodology*, EPA-815-R-09-002 (Washington, D.C.: May 2009) 15.

[45]Environmental Protection Agency, *2006 Community Water System Survey Volume I: Overview*, EPA 815-R-09-001 (Washington, D.C.: February 2009). The 2006 Community Water System Survey data were collected in 2007.

[46]Environmental Protection Agency, *2006 Community Water System Survey Volume I.*

the agency can measure the effects of newly proposed regulations.[47] For example, EPA officials said that they use the physical system configuration data—such as treatment processes, number of entry points and design, and average daily flow—to forecast rule compliance and estimate rule costs and benefits. EPA uses the financial data, such as system revenue and expenses, in the economic impact and affordability analyses for a rulemaking. For example, in the economic analyses of the lead and copper rule published in the Federal Register in January 2021, EPA used the Community Water System Survey for labor rates associated with national drinking water rules, in part because the data can be organized by system size, source, and ownership.[48]

When asked about the outdated status of the survey as a baseline for regulatory analyses, EPA officials told us that the Community Water System Survey is a key source of data but not the only source. EPA officials said that they are often able to use relevant peer-reviewed data, such as for physical treatment processes used in water systems that are more recent and equally comprehensive, in the agency's regulatory impact analyses. According to EPA officials, data are adjusted as needed. These adjustments are limited and may not take into account changes in technology.[49] EPA officials told us that the agency would consider conducting another Community Water System Survey; however, the agency had no current plans or time frame to do so.

The Office of Management and Budget's (OMB) *Circular A-4* states that agencies need to take certain actions in their regulatory impact analyses,

[47]Agencies use economic analysis of regulatory alternatives—known as regulatory impact analysis—to help assess whether the benefits of an action justify the costs and identify a regulatory alternative that yields the greatest net benefits (benefits minus costs). In addition, regulatory impact analyses can provide affected entities, government agencies, Congress, and the public with important information about the potential effects of new regulations. GAO, *Environmental Regulation: EPA Should Improve Adherence to Guidance for Selected Elements of Regulatory Impact Analyses*, GAO-14-519 (Washington, D.C.: July 18, 2014).

[48]Environmental Protection Agency, *Economic Analysis for the Proposed Lead and Copper Rule Revisions* (Washington, D.C.: October 2019). For final rule, see National Primary Drinking Water Regulations: Lead and Copper Rule Revisions, 86 *Fed. Reg.* 4198 (Jan. 15, 2021).

[49]For example, EPA officials said that dollar values from prior years are escalated to current year dollars using an employment cost index for labor costs or a producer price index for treatment equipment as appropriate. However, this fix assumes that the mix of capital and labor has not changed and that no technological changes have taken place since the last survey.

including identifying a baseline, in order to properly evaluate the benefits and costs of regulations and their alternatives.[50] According to OMB *Circular A-4*, agencies should establish this baseline by considering the evolution of the market, as well as changes in external factors affecting expected benefits and costs and other information. For example, this approach could include considering changes in numbers of private versus public utilities as well as technology and changes in labor and capital intensities that may not be captured in adjusted data. According to EPA's 2006 Community Water System Survey, without an accurate baseline, changes due to regulations cannot be measured. However, because the data are 15 years old and the number of systems has changed, EPA's 2006 survey does not have a current, and therefore accurate, baseline for utilities of different ownership types. By conducting another Community Water System Survey, EPA would have updated financial and other data and therefore a more accurate baseline of drinking water system information that would be useful in helping decision makers and the public understand the potential effects of the agency's regulations on water systems.

Several Key Factors Affect Water Rates, and Limited Data Affect Applicability of Study Results

Several key factors affect water rates. Data on all of these factors are needed to accurately compare private for-profit and public water utility rates; however, available data are limited. Five empirical studies that compared private for-profit and public water rates found that water rates charged by private for-profit utilities are about $15 to $21 higher per month than the rates charged by public water utilities.[51] However, researchers conducted these studies by examining larger utilities in certain regions of the country or relied on limited available data, and the results are therefore limited in their application.

Utility Ownership Is One of Several Key Factors That Affect Water Rates

Utility ownership, which includes private for-profit or public ownership among other ownership types, is one of several factors that affect water rates. For example, while there are differences in the water rates charged

[50]Office of Management and Budget, *Circular A-4: Regulatory Analysis* (Washington, D.C.: Sept. 17, 2003).

[51]These empirical studies examine the charges of a water utility, which are equal to per-unit cost at some level of consumption plus any additional fixed charges. Fixed charges for water utilities include administrative or other fees related to water service such as set-up fees, connection charges, minimum usage fees, and fire protection. Per-unit rates can be structured as uniform, which are constant with usage, or decreasing or increasing block rates that decline or increase with usage. For the purposes of this review, we refer to charges as rates.

by private for-profit and public utilities, it is important to compare utilities with similar characteristics, such as the number of customers served, or to account for differences that might affect rates, such as climate, quality of source water, or the condition of existing infrastructure. Based on a review of 16 studies from relevant literature—13 studies that broadly discussed factors affecting water rates and three additional studies on specific factors—we identified seven key factors that affect water rates: utility ownership, water supply costs, economic and demographic characteristics, utility service delivery, rate structure, rate regulation, and climate characteristics.[52] We corroborated these key factors during our interviews with EPA officials and with 11 water utility stakeholders. We describe additional information on each of the seven key factors from our literature review and interviews with EPA and 11 stakeholders below.

- **Utility ownership.** This factor involves utility ownership types and the effect they have on rates, including how private and public utilities face different incentive structures that are reflected in their rates. All 13 studies that broadly examined factors affecting water rates discussed utility ownership. For example, private utilities have an incentive to generate a return for investors, while public utilities may pursue different goals and may face different constraints, such as responding to political pressures to keep rates low for all residents. Additionally, private for-profit and public utilities may rely on different sources of revenue. For example, some utilities may have greater availability of non-rate funding sources, such as Drinking Water SRF funds, for infrastructure improvements. All the stakeholders and EPA officials we interviewed said that utility ownership is a factor that affects rates.[53] In particular, a few stakeholders and EPA officials said that private for-profit utilities pay taxes, which are included in rates, while public utilities do not.
- **Water supply costs.** This factor involves the cost of supplying water to a particular service area, including treatment costs for groundwater

[52]We reported the information together from two similar empirical studies related to affordability. See M.P. Teodoro, "Water and sewer affordability in the United States." *AWWA Water Science*, vol. 1, no. 2 (2019) and M.P. Teodoro and R.R. Saywitz, "Water and sewer affordability in the United States: a 2019 update," *AWWA Water Science*, vol. 2, no. 2 (2020).

[53]For the 11 stakeholder interviews, we counted the responses for each statement and defined modifiers to quantify stakeholder views as follows: "all" represents 11 stakeholder interviews, "most" represents 8 to 10 interviews, "many" represents 5 to 7 interviews, and "a few" represents 2 to 4 interviews.

versus surface water sources, and water distribution costs related to pipeline requirements, local topography, and utility size. Ten of 13 studies that broadly discussed factors affecting water rates mentioned water supply costs. According to these studies, generally, larger utilities charge less for water service, an effect that may arise because larger systems benefit from economies of scale, where average per unit costs fall at higher levels of production. Many of the stakeholders and EPA officials we interviewed said that the cost of supplying water is a factor that affects rates. For example, they said that the quality of the water source, such as aquifers or sources with saltwater intrusion, can affect treatment costs.

- **Utility service delivery.** This factor involves a utility's overall effectiveness in complying with the Safe Drinking Water Act or federal and state water quality standards, providing quality customer service, and providing cost-efficient water services (e.g., by minimizing costs from energy usage).[54] Nine of 13 studies that broadly discussed factors affecting rates mentioned utility service. Most of the stakeholders and EPA officials we interviewed said that utility service affects rates, since better service requires infrastructure and operations investment. EPA officials said that some utilities are not performing necessary system maintenance or asset management in order to avoid water rate increases. Two additional studies found that private utilities had fewer Safe Drinking Water Act violations than public utilities.[55] One study accounted for whether a utility had a newer system, but the authors indicated that system age would have been the preferred control. The other study did not account for differences in infrastructure quality, and private for-profit utilities may be more selective in the systems they acquire so as to avoid infrastructure costs, and may choose to purchase systems with newer infrastructure. These findings make it difficult to determine whether the underlying infrastructure quality or ownership type is the cause of these fewer observed violations for private for-profit water utilities.
- **Rate structure.** This factor refers to the way customers are billed for water. Rate structures generally include a recurring fixed charge that

[54]Water services require substantial amounts of energy to extract, treat, pump, and deliver water to for human consumption. See R.B. Sowby, "Comparison of operational energy requirements in publicly and privately owned U.S. water utilities," *Utilities Policy*, vol. 54 (2018) 92-95.

[55]D.M. Konisky and M.P. Teodoro, "When Governments Regulate Governments," *American Journal of Political Science*, vol. 60, no. 3 (2016) 559-574 and Allaire, Wu, and Lall, "National trends in drinking water quality violations," 2078-2083.

reflects administrative fees and a variable or volumetric consumption charge. Variable charges can be structured as uniform rates where customers are charged a constant per-unit rate based on volume of water used, decreasing-block rates that decline with usage, or increasing-block rates that rise with usage. Rates may also differ inside and outside the service area or for nonresidential customers. Eight of 13 studies that broadly discussed factors affecting water rates mentioned rate structure. Two studies found that charges were lower for customers inside a service area when utilities differentiated rates spatially.[56] One study we reviewed examined consolidated pricing, where a single utility that owns multiple water systems applies the same rate structures across all systems, and found charges to be higher for systems where consolidated pricing is used.[57] However, this study concluded that the observed effect may have been influenced by ownership type, given that the sample of systems using consolidated pricing was comprised mostly of private systems. A few stakeholders we interviewed said that rate structure affects water rates. For example, one stakeholder said that with consolidated rates, communities who are not receiving service benefits subsidize rates for other communities. Another stakeholder said municipal water rates for customers located inside city limits often differ from those for customers outside city limits.

- **Rate regulation**. This factor involves the extent to which private and some public utilities are regulated by state PUCs, including regulation of their accounting, financing, reporting, and ratemaking practices. Seven of 13 studies that broadly discussed factors affecting rates mentioned rate regulation.[58] Most stakeholders we interviewed and

[56]R.E. Thorsten, S. Eskaf, and J. Hughes, "Cost Plus: Estimating Real Determinants of Water and Sewer Bills," *Public Works Management & Policy*, vol. 13, no. 3 (2009) 224-238, and J.A. Beecher and K.A. Kalmbach, "Structure, Regulation, and Pricing of Water in the United States: A study of the Great Lakes Region," *Utilities Policy*, vol. 24 (2013): 32-47.

[57]Beecher and Kalmbach, "Structure, Regulation, and Pricing of Water in the United States," 32-47.

[58]According to studies we reviewed, regulation in the water market is intended to check monopoly power, which could reduce rates, but regulation requires that firms incur more costs in the process of complying with the regulation. For example, it takes time and money to file rate changes with regulators. In net, the effect of regulation on rates is ambiguous. However, one of these studies, which was limited to one region, found that bills for regulated public water systems in eight states were generally lower, than bills for public nonregulated systems indicating the effect of regulation may be important in determining rates. See Beecher and Kalmbach. "Structure, Regulation, and Pricing of Water in the United States: A study of the Great Lakes region," 32-47.

EPA officials said that rate regulation affects rates. For example, a few stakeholders told us regulated utilities have incentives to invest in water infrastructure improvements because of returns they receive on capital investments, whereas unregulated utilities do not have these same incentives. Another stakeholder told us variability in state resources to review water rate applications may affect rate regulation across states.

- **Climate characteristics.** This factor involves the weather and climate characteristics associated with the geographic location of the utility, including annual temperature, annual rainfall, and drought conditions. Seven of 13 studies that broadly discussed factors affecting rates mentioned climate. One of these studies found that utilities in areas with higher temperatures charged higher rates at the average level of consumption, although the magnitude of the effect was small.[59] A few stakeholders we interviewed said that climate affects water rates; for example, water use and costs vary depending on the scarcity of water in the geographic location of the utility.
- **Economic and demographic characteristics**. This factor involves the economic and demographic characteristics of the communities in which water utilities operate, such as the median household income and percentage of residents in poverty; these characteristics affect the demand for water and the ability of customers to pay their water bills. Six of 13 studies that broadly discussed factors affecting rates mentioned community economic and demographic characteristics. One study found that a community's income inequality was associated with affordability challenges.[60] A few stakeholders we interviewed said that economic and demographic characteristics affect water rates. For example, one stakeholder said that in their state, people in some counties are severely disadvantaged and others are not, so one has to consider local economic conditions, demand, and public purpose programs when setting rates.

[59]This article described utilities in one state and only surveyed non-profit and public utilities. Thorsten, Eskaf, and Hughes, "Cost Plus," 224-238.

[60]Teodoro and Saywitz, "Water and sewer affordability."

Five Studies Found That Private For-Profit Rates Are Higher Than Public Rates, but These Studies and Data to Compare Rates Are Limited

Five empirical studies we reviewed analyzed private for-profit water rates versus public rates and found that water rates are higher for private for-profit utilities.[61] These studies found that, at certain levels of water consumption, residents served by private for-profit water utilities paid, on average, about $15 to $21 more per month than residents served by public water utilities. Specifically, one study that surveyed the 500 largest utilities in SDWIS found that private for-profit utility rates were $185 higher per household than public utility rates for a year, or about $15.42 more per month.[62] Another study that surveyed a mix of private for-profit and public utilities in Washington, D.C., and 484 other cities across the 50 states found that private for-profit utility rates were $19.56 more per month than public rates.[63] One study surveyed the 10 largest utilities in each of eight states and found that private for-profit utility rates were $20.13 more per month than public rates for customers at the middle level of water usage used in the study, 3,740 gallons.[64] Finally, the more recent of two studies on water affordability surveyed 414 utilities with service populations larger than 3,300 people and found that private for-profit utility rates are $21.06 higher per month than public rates.[65]

The authors of the five studies we reviewed identified several limitations in their results, including that they could not generalize their results because their findings relied on limited samples, often including larger utilities, and may not extend to utilities servicing small communities. Additionally, the rates analyzed in the studies were for specific volumes of water. However, water rates can vary substantially due to the several key factors described above, such as water supply costs, including treatment, and climate characteristics specific to the location of the utility, and the authors did not account for all of these factors in their studies.

[61]All of these studies obtained rate information online or by contacting utilities.

[62]Food & Water Watch, *The State of Public Water in the United States* (Washington, D.C.: 2016).

[63]I.W. Wait, and W.A. Petrie, “Comparison of Water Pricing for Publicly and Privately Owned Water Utilities in the United States,” *Water International*, vol. 42, no. 8 (2017): 967-980.

[64]Beecher and Kalmbach, “Structure, Regulation, and Pricing of Water in the United States,” 32-47.

[65]These studies measured hours of work needed at the local minimum wage to pay for monthly water bills. The more recent study estimated 2.51 additional hours at the average local minimum wage of $8.39, or approximately $21.06 per month. Teodoro and Saywitz, “Water and sewer affordability.”

Our review of the studies identified several additional limitations beyond those identified by water utility stakeholders. Researchers collected ownership and rate data from publicly available information from EPA, state PUCs, and utility websites, which was very time intensive. As a result, researchers limited samples by geography, utility size, or population, and generally examined rates for only 1 year of data. Because the studies generally examined a single year of data, researchers were unable to account for unusual events that may have occurred in the year that researchers collected the data that may affect rates. In addition, the rates in several studies may be dated. For example, in some cases researchers relied on the best available information on rates, which extended 10 or more years in the past. Furthermore, some studies we reviewed did not provide sufficient detail on how the rates were calculated, nor did they specifically examine the effect of all of the key factors we identified on water rates. Specifically, studies did not address factors such as differential infrastructure investment by private and public utilities, and one study only included information on the regulatory environment.

In addition to reviewing the five empirical studies, we asked water utility stakeholders and EPA officials about private for-profit water utility water rates and how they compare to those charged by publicly owned utilities. Most stakeholders we interviewed said that private for-profit water utility rates are higher than public water utility rates, and most EPA officials generally agreed that for-profit water rates are generally higher than public rates.[66] One stakeholder said that special district utility rates are higher than public utility rates as well. One other stakeholder we interviewed told us that neither public water utility rates nor private for-profit water utility rates are higher. This stakeholder said that rates are difficult to compare because public utilities may use tax revenues to supplement budget shortfalls, resulting in artificially low rates for those utilities. They also said that addressing rates for public utilities is a more political decision than it would be for private utilities.

Overall, we found that existing data on water utility rates are limited, as there is no national database of water utility rates. According to EPA officials, EPA does not collect drinking water rate data in SDWIS because the Safe Drinking Water Act does not establish a role for EPA to oversee

[66]In two stakeholder interviews with associations, participants had differing opinions based on experiences in their respective states.

water utility rates. EPA officials we interviewed told us that it is difficult to compare public and private water utility rates and that EPA does not assess whether public or private water utility ownership is better. Additionally, many stakeholders we interviewed also said that data on water utility rates are limited. One stakeholder identified private sources of data, such as private companies or organizations that collect information from a nonrandom sample of mostly larger water utilities, such as rates from their water utility customers or members, so results are skewed.

Selected States Use a Similar Process to Regulate Rates Charged by Private For-Profit Water Utilities, and Some Are Taking Steps to Help Address Affordability

The five states we reviewed use a similar rate process, involving a state PUC and advocate organization, to regulate water rates charged by private for-profit water utilities and help ensure that established rates are reasonable. The rate-setting process in these states does not explicitly consider the affordability of rates for individual consumers; however, some selected states' PUCs have begun studying the affordability of water rates and are taking steps to address water affordability issues. States also have different requirements for private water utilities that may affect rates, and three of the five selected states have enacted fair market value laws. Fair market value laws have the potential to increase customers' water rates, but their actual effect on rates and affordability are unknown.

Selected States Generally Use a Similar Process to Regulate Water Rates Charged by Private For-Profit Utilities

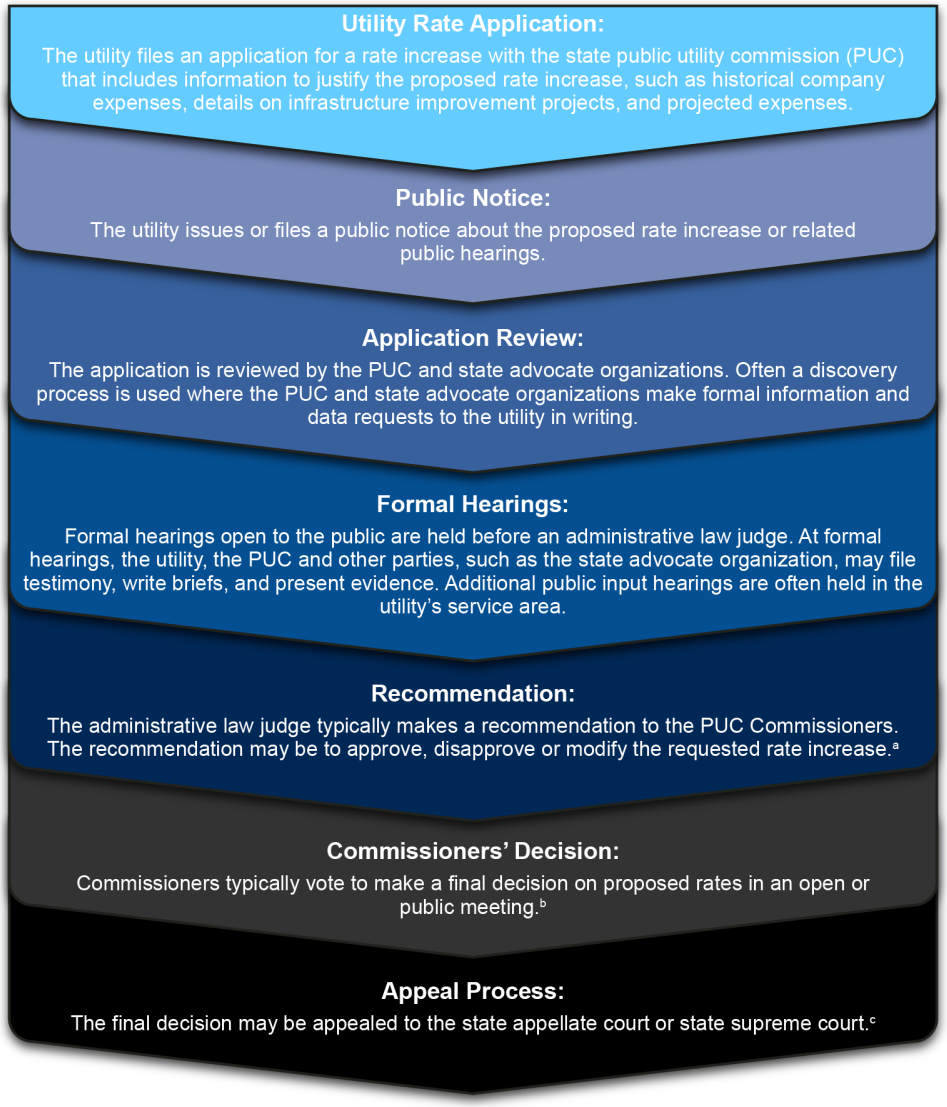
State regulators in the five selected states use a similar process known as a "rate case" to determine how much customers will pay for water service as a part of regulating private for-profit water rates, though there are some variations.[67] In the five selected states a formal rate case process is used to review and approve rate increases generally when proposed by large utilities or where a minimum level of rate increase is proposed.[68] Formal rate cases follow several steps in a standard process, according to literature on utility rate regulation.

Common steps in this process used in the selected states, shown in figure 2, begin with an application by a utility for a rate increase; move through application review and formal public hearings typically before an administrative law judge and involving presentation of testimony from the utility, PUC and consumer advocates; and finish with a decision on the rate increase. According to state officials we interviewed, the formal rate case process generally lasts 6 to 18 months, and three of the selected states—New Jersey, New York, and Pennsylvania—have time limits (9 to 11 months) for rate review and approval when a formal rate case process is used. According to PUC officials in selected states, large utilities typically submit an application for a formal rate case every 2 to 5 years, and smaller utilities submit applications generally less frequently and with greater variability.

[67]In addition to variations in their formal rate case processes, selected states have different specific criteria for when other processes may be used. For instance, some states have informal or simplified processes they use for small systems or minor rate increases that do not require a formal hearing. Four of the selected states, with the exception of New Jersey, have such processes that they use.

[68]For example, in California, a formal process is used for rate increases proposed by large investor-owned utilities with 10,000 or more connections, and may be considered for smaller utilities in cases where 50 percent of utility customers file protests. In New York, a formal rate case process is used for utilities that seek increases in annual revenues of greater than $300,000 or 2.5 percent. New Jersey uses a formal rate case process for small and large utilities, and there is no minimum level of rate increase.

Figure 2: Common Steps in a Formal Water "Rate Case" Process in Selected States According to State Public Utility Commission Documents and Officials



Source: GAO analysis of state documentation and interviews. | GAO-21-291

Notes: We reviewed state public utility commissions' documents and conducted interviews with public utility commission officials to identify common steps in the formal rate case process in the following five selected states: California, New Jersey, New York, Pennsylvania, and Wisconsin.

Selected states use a similar rate case process to regulate water rates of private for-profit utilities, as well as other municipal and nonprofit utilities that may be under the public utility commission's jurisdiction. In addition to the formal rate case process, some selected states have different specific criteria for when other processes may be used. For instance, some states have informal or simplified processes they use for small systems or minor rate increases that do not require a formal hearing.

[a]In Wisconsin the administrative law judge does not make a recommendation. Rather, at the completion of the hearings and comment period in the rate proceeding, the Commissioners (or delegated decision maker) receive the record which consists of all the party testimony and exhibits, and the party hearing session transcript. The record also contains all the public comments received.

[b]In Wisconsin it is relatively rare for the full Commission to vote on a water rate case; rather the vast majority of water rate cases involve decisions by a delegated decision-maker, according to state officials.

[c]In Wisconsin, state law allows a person aggrieved by a final decision to file a petition for a rehearing or judicial review.

According to our interviews with PUC officials from selected states, state PUC staff evaluate the proposed rate increase and develop alternative proposals, as appropriate, to be presented at the formal hearing. PUC staff review and take steps to verify comprehensive data and information submitted with the application to justify the proposed rates, such as a cost-of-service study, detailed balance sheets, description of depreciation methods, and financial information of the company and parent company. For example, state PUC officials told us that staff review information from the latest rate case to look for anomalies and try to tie information to source documents, such as actual receipts or invoices, or may conduct site visits to verify costs that the utility is claiming. PUC staff often collect additional information from the utility, as needed. For example, they can use an information request, referred to as discovery, as a formal way to ask company questions in writing. Officials from one PUC told us they send hundreds of questions for a utility as part of their review of the rate application. According to state PUC officials, each formal rate case typically involves multiple staff with a range of expertise, such as accountants, financial analysts, engineers, and lawyers.

The Public Service Commission of Wisconsin Regulates Municipal Water Utility Rates

In addition to the rates for private for-profit water utilities, the Public Service Commission of Wisconsin (PSC) regulates water rates for 575 municipal drinking water utilities statewide. According to a 2018 Michigan State University report, Wisconsin is the only state with comprehensive jurisdiction for municipal water utilities.

PSC officials noted it is important to make sure municipal water utilities collect the rates they need to carry them forward. As part of a conventional rate case, municipal utilities receive a rate of return on revenues according to a benchmark—4.9 percent in July 2020—to support investment in needed capital projects. PSC officials said municipalities may have less incentive to come in for a rate case that requires a public hearing and other steps, due to political pressure to keep rates low and the time required to file a rate application.

PSC has other approaches to help ensure municipal utilities have the financial capacity they need. For example, PSC has a simplified process for inflationary rate increases, with a 2020 rate increase factor of 3 percent. According to PSC officials, PSC also has a financial outreach program where they review utilities annually to make sure that they are financially sustainable over the long term. Through this review, PSC uses financial indicators, such as available cash on hand, to help identify those utilities that may need to raise rates or take other actions in order to remain financially viable.

PSC of WISCONSIN

Sources: GAO analysis of Wisconsin PSC documents and interviews; Wisconsin PSC (image). | GAO-21-291

State advocate organizations created under state law to represent utility customer interests are very involved in water rate cases in four of five selected states, according to state advocate officials, we interviewed.[69] According to state advocates' officials in the four states, their organizations take steps to become formal parties in rate case proceedings where they testify and present evidence for their recommendations on rates. For example, New Jersey Division of Rate Counsel officials told us they challenge nearly every rate case, and overall, are successful in reducing proposed rate increases by 40 percent. Similar to state PUC staff, state advocate organizations closely examine submitted rate case information and data, and make additional data requests from private utilities as part of discovery, as needed. In addition, two of the state advocate organizations we interviewed told us they hire experts to conduct data review and discovery, and identify issues and testify, as needed.

In four selected states, officials told us that PUC Commissioners' decisions, including rate case decisions, can be appealed in state court, although the officials stated that this rarely happens. In Wisconsin, officials told us state law allows a person aggrieved by a final decision to file a petition for a rehearing or judicial review. However, Wisconsin state officials we interviewed were not aware of any recent petitions being filed.

According to rate regulation literature, a key step in the rate process is the review of the proposed revenue requirement on which rates are based. According to state officials we interviewed, all five selected states rely on the same standard formula for determining revenue requirements to set private for-profit water rates. The formula relies on the actual costs of the utility for a past year with adjustments, or a projected year, including capital invested in its facilities, operations and maintenance costs, taxes, and other adjustments. We provide additional information on this formula in appendix II. Appendix III provides information on jurisdiction and other practices used by selected states to regulate private for-profit water rates, including advantages and disadvantages of each.

[69]The state advocate organization in one state—New York Department of State Division of Consumer Protection—told us it rarely participates in water rate cases and declined to be interviewed for our review.

Some Selected States Are Taking Steps to Help Address Affordability of Water Rates

The rate-setting process in the five selected states does not explicitly consider the affordability of rates for individual consumers; however, some selected states have begun studying the issue and are taking steps to help ensure the affordability of rates in their state. According to rate regulation literature we reviewed, PUCs use a rate-setting process to determine a just and reasonable rate that allows utilities to maintain financial integrity, while ensuring customers receive safe and reliable service. Overall, the range of rates for regulated water utilities in the five selected states varies broadly. According to officials we interviewed from the five selected states, drinking water bills for residential customers of regulated water utilities range from less than $2 to $198 per month for a typical residential customer.

Yet, officials in all selected states recognized that some customers cannot afford these rates. Furthermore, all 11 water utility stakeholders we interviewed identified affordability as a concern for water utilities. For example, three stakeholders cited concerns about water shutoffs across the country when customers cannot pay their water bills. In addition, two water utility stakeholders told us the challenge of keeping rates affordable while trying to meet drinking water safety standards for water utilities is that they have deferred spending to maintain and replace water infrastructure for many years. One stakeholder said that for any utility, there will be customers who are unable to afford water rates and that the number of such customers might grow in the future.

Federal Assistance for Water Affordability

According to a 2020 Bipartisan Policy Center report, customer water rates have been rising in recent years, leading to concerns about the ability of low-income households to pay their bills. Ongoing economic hardship related to the COVID-19 pandemic throughout 2020 combined with growing concerns about access to water for washing to maintain public health has raised awareness about the need for water bill assistance for low-income customers. The Consolidated Appropriations Act of 2021 enacted in December 2020, included, among other things, $638 million for a new program to provide drinking water and wastewater utility bill assistance to low-income families. The program— the first of its kind for water—will be administered by the Department of Health and Human Services and will provide grants to states and tribes, which in turn will provide funds to owners or operators of public water systems or treatment works to reduce arrearages and rates of low-income households. Up to 3 percent of the funds will be set aside for tribes and tribal organizations. According to a letter from water sector associations, the funding acknowledges the critical role of drinking water services and the strain many households are facing in paying water bills.

Sources: GAO analysis of legislation and related documents; wavebreak3/stock.adobe.com. | GAO-21-291

The PUCs in three selected states—California, New York, and Wisconsin—are taking steps to help address water affordability as part of their rate process or in other ways. Specifically:

- In July 2020, the California PUC issued a decision adopting metrics and methodologies for assessing the relative affordability of essential electricity, gas, telecommunications, and water utilities using certain socioeconomic metrics.[70] The decision was issued under sections of the California Public Utilities code that refer the desirability of affordable utility services.[71] Among other things, under the decision, the utilities are to calculate affordability metrics so that PUC decision-makers and stakeholders can consider the relative impact of affordability in rate proceedings as well as in other proposals before the PUC. The three affordability metrics are: (1) the hours at minimum wage to pay for essential utility services, (2) the vulnerability index of various communities in California, and (3) the ratio of essential utility service charges to non-disposable household income—known as the affordability ratio.
- In New York, according to state officials, the New York State Department of Public Service is considering establishing a low-income assistance program to be provided by large companies as part of rate cases, similar to a policy the state has for gas and electric utilities they regulate. According to New York PUC officials, in practice, the energy affordability program involves the collection of up to 2 percent of utility revenues from all utility customers and reallocates those funds to qualified low-income customers in the form of utility bill discounts, within the same utility service area.[72]
- Wisconsin Public Service Commission officials told us that, as a first step, they are examining community demographics to identify who may be affected by rate increases. Where appropriate, the PSC plans to make utilities aware of resources that may be available to help connect customers with assistance, and will work with utilities to

[70]California Public Utility Commission, *Decision Adopting Metrics and Methodologies for Assessing the Relative Affordability of Utility Service*. Decision 20-07-032, July 16, 2020.

[71]For example, with respect to water, the California Public Utility Code provides that access to an adequate supply of healthful water is a basic necessity of human life, and shall be made available to all residents of California at an affordable cost. Cal. Pub. Util. Code § 739.8(a).

[72]The program was established under a May 2016 order. State of New York Public Service Commission, *Order Adopting Low-Income Program Modifications and Directing Utility Filings*, Issued and effective May 20, 2016.

examine affordability-oriented rate alternatives.

According to officials from the other two states—New Jersey and Pennsylvania—their states did not have any state affordability policies in place or specific efforts under way; however they noted that larger private for-profit companies in their states already have customer assistance programs. For example, New Jersey American Water provides grants of up to $500 to help qualified New Jersey American Water customers struggling to pay their water bills. In addition, Pennsylvania PUC officials told us they can adjust their recommendation for a utility's return on equity considering customer affordability. They told us they generally look at affordability for each rate case and make recommendations accordingly.

Some Selected States Have Enacted Laws That Encourage Privatization of Water Utilities, but the Laws' Effects on Water Rates Are Unknown

One factor relevant to states' regulation of water utilities and the potential affordability of water rates is the adoption of fair market value laws by states. Regulators traditionally use original book cost less depreciation to set the value for acquired assets on which utilities earn a return. Fair market value laws generally permit private companies to acquire water utilities at higher than book value and allow those companies to factor the acquisition value into the rates they charge for water. According to officials we interviewed in the selected states, such laws could result in increased water rates, but the laws' effect on rates is unknown because the states' laws have only recently been enacted or the states have not studied their effects.

Three of the five selected states we reviewed—California, New Jersey, and Pennsylvania—have enacted fair market value laws. A summary of the background and general process under the fair market value laws in each of these three states is described in table 3.

Table 3: Summary of Fair Market Value Laws in Selected States

State		Summary
California	Background	Public water systems are faced with the need to replace or upgrade their infrastructure to meet increasingly stringent state and federal safe drinking water requirements, and increasing amounts of capital are required to finance necessary investment in such infrastructure. Providing water corporations with an incentive to achieve scale economies will provide benefits to ratepayers.
	General process	Applicable to private or public water utilities. The commission is to use the standard of fair market value when establishing the rate base value for the distribution system of a public water system acquired by a water corporation; such standard is to be used for rate setting. Fair market value price or adjustment is incorporated into rates on the effective date of the PUC Commissioners' decision.
New Jersey	Background	It is in the public interest that public utilities have the option to transfer, lease, or sell water or wastewater assets if there exist emergent conditions that threaten drinking water or the environment.
	General process	Applicable to municipal utilities facing an emergent condition, such as violation of Safe Drinking Water Act maximum contaminant levels or lack of historical investment in infrastructure. Requires the municipal utility to: obtain certification of the utility's emergent condition and select a public or private utility to lease or purchase the municipal utility using a request for qualifications process, among other steps. The PUC is to approve or reject the proposed contract within 90 days.
Pennsylvania	Background	To provide options and incentives for acquisition of municipal water and wastewater systems by larger, well-capitalized and well-run regulated privately owned utilities.
	General process	Applicable to private or public water or wastewater utility. The process requires two separate fair market value appraisals completed by two utility valuation experts, one selected by the acquiring utility or entity and one selected by the selling utility. The PUC is to issue a final order within 6 months of the filing date of an application. The ratemaking rate base of the selling utility is the lesser of the negotiated purchase price or the fair market valuation. The ratemaking rate base of the selling utility is incorporated into the acquiring public utility during its next base rate case.

Source: GAO analysis of state documents and interviews with state public utility commission (PUC) and state advocate officials. | GAO-21-291

Notes: Fair market value laws generally permit private companies to acquire water utilities at higher than book value—the original cost of the utility less any depreciation—and factor acquisition value into the rates they charge for water. Of the five selected states in our review, two states—New York and Wisconsin—have not enacted fair market value laws.

Officials from four of five selected states told us that one advantage of fair market value laws is the incentive that the laws create for the acquisition of small and at-risk utilities, such as those with regulatory compliance issues or deteriorating infrastructure. According to representatives from the National Association of Water Companies, enacting fair market laws

is a policy decision about how to solve the problem of small, poorly financed utilities. Buyers of such utilities are often private for-profit water companies that can make investments to bring the acquired utilities up to standard. The costs of the fair market value of the utility and additional investments are then recouped through the water rates approved by the state PUC and may be distributed across the utility's broader customer base across multiple systems owned by the acquiring utility.

However, not all fair market laws target the acquisition of troubled utilities. New Jersey is the only of the three selected states with fair market value laws we reviewed that limits the law's applicability to utilities with certain specified emergent conditions indicating serious risks to drinking water integrity or the environment. California's and Pennsylvania's fair market value laws we reviewed do not restrict fair market value acquisitions to at-risk utilities, although state background documents discussed incentives for the acquisition of systems by currently well-run utilities.[73]

Officials we interviewed from four of the five selected states told us that one potential disadvantage of fair market value laws is their potential to increase a utility's rates, resulting from overvaluation of the utility when fair market value is included in the rate base. For example, Pennsylvania state advocate officials told us fair market value has ranged from one and one-half to two times the value of water infrastructure assets, the cost of which is then passed on to ratepayers. In a written brief submitted on one fair market value application, the California Public Advocates Office raised concerns about the fair market value purchase price proposed for the acquisition of a small utility, which the office deemed to be fundamentally unfair to ratepayers.[74] According to the brief, the California Public Advocates Office found the proposed valuation did not account for utility upgrades that will be required for regulatory and liability considerations, among other things, and that the estimated cost of these upgrades was nearly two times greater than the proposed purchase price.

[73]According to New Jersey PUC officials there have been no fair market value acquisitions in their state since the law was enacted in 2015. California PUC officials could not speak to the number or type of utilities acquired using fair market value except that it was not applied for smaller acquisitions under $5 million. State advocate officials from Pennsylvania told us at-risk utilities are not the only ones being targeted for fair market value acquisitions in Pennsylvania.

[74]Opening Brief of the Public Advocates Office before the Public Utilities Commission of the State of California: Application for Order Authorizing California-American Water Company to Purchase Bellflower Municipal Water System's Assets and for Related Approvals, Application 19-09-103, filed July 12, 2019.

According to the brief, the proposed purchase price was supported by overstated valuation and fundamentally unfair to ratepayers.[75]

In addition, five of the 11 water utility stakeholders we interviewed raised concerns about the increasing adoption of state fair market value laws and its effect on water rates. For example, one stakeholder stated that fair market value laws create perverse incentives for both buyers and sellers. The stakeholder further noted that normally, the buyer wants to pay the lowest price, and the seller wants the highest price. Under fair market value laws both the buyer and seller want to have the highest price because the buyer can pass along the costs through rates.[76] Another stakeholder told us under fair market value laws, private companies acquire systems at a high price and then may pay millions to bring them up to standards. Existing and new customers ultimately pay for the costs related to overvaluation of the acquired system as well as for improvements made after the acquisition of the system.

State officials we interviewed from the five selected states said that they did not have enough knowledge or experience, or had not studied the effects of fair market value laws to assess their effects on water rates. According to a 2020 industry report, California was the first state to enact fair market value laws in 1997, but a number of states have enacted laws more recently, including New Jersey and Pennsylvania, which enacted such laws in 2015, and 2016, respectively.[77] Overall, according to the report, as of August 2020, 12 states have enacted fair market value laws, and fair market value laws are pending in two states. A representative of the National Regulatory Research Institute we interviewed told us they

[75]The fair market value acquisition application for which the brief was written is still pending before the California PUC, as of January 2021.

[76]According to a presentation on fair market value laws, sellers of water utilities benefit from fair market value laws because they stand to secure a purchase price much higher than the standard book value from the sale. Buyers also benefit from the higher valuation and purchase price because it creates the opportunity for the sale and the additional cost is reimbursed through customer rates. These incentives are inconsistent with healthy tensions in competitive markets. Janice A. Beecher, Institute of Public Utilities, Michigan State University, Slide presentation entitled “Corporate Consolidation of Water Utilities: Is Fair Market Value Fair?” (Nov. 4, 2019).

[77]Bluefield Research, *Quarterly Insight: U.S. Private Water: Key Trend, M&A Activity and Market Outlook, Quarter 3 2020* (Boston, Massachusetts: Aug. 18, 2020).

are in the process of conducting a study of state fair market value laws to be completed by April 2021.[78]

More Than $500 Million in Drinking Water SRF Assistance Was Provided to Private For-Profit Water Utilities to Help Ensure Delivery of Safe Drinking Water

To help ensure delivery of safe drinking water, from January 2010 through June 2020, EPA's Drinking Water SRF provided private for-profit water utilities with more than $500 million in assistance, equal to approximately 2 percent of the about $26.5 billion in total assistance provided through the program, according to our analysis of EPA's Project Benefits Reporting (PBR) data. Under the Safe Drinking Water Act, Drinking Water SRF funds are made available to assist drinking water utilities, including privately owned water utilities, in providing safe and adequate water.[79] According to EPA officials, private utilities are not prohibited from receiving funding through the Drinking Water SRF because very small systems—many of which are privately owned—need the most support. Under the Drinking Water SRF program, each state determines the criteria it will use to provide funding to water utilities, such as whether Drinking Water SRF loans or other assistance will be provided to privately owned water utilities. According to state documents, some states prohibit the distribution of Drinking Water SRF assistance to private for-profit water utilities, but the Safe Drinking Water Act allows for assistance to all community water systems, without regard to ownership type.[80] As of 2020, there were approximately 50,000 community drinking water systems, according to EPA data.

From January 2010 through June 2020, the average amount of assistance provided for a single project to a private for-profit utility was around $2 million, which is smaller than the average amount of assistance, $3 million, provided for a single project to all utilities. According to some water utility stakeholders we interviewed, the smaller

[78]The National Regulatory Research Institute serves as a research arm to the National Association of Regulatory Utility Commissioners and its members, the utility regulatory commissions of the 50 states and Washington, D.C. Its primary mission is to produce and disseminate relevant and applicable research for association members.

[79]42 U.S.C. § 300j-12.

[80]In contrast, the Clean Water Act does not allow funds to be provided to for-profit entities for certain purposes. In 1987, Congress authorized the creation of the Clean Water Act State Revolving Fund. This fund helps local governments and other entities construct projects to improve water quality and help safeguard public health and the environment. Privately owned utilities are not eligible for all funding under the Clean Water Act, although 2014 amendments allowed eligibility in some situations. According to EPA officials, when the Clean Water Act State Revolving Fund was established in 1987, there were few, if any, private for-profit wastewater systems.

average amount of Drinking Water SRF assistance may be related to the fact that large private for-profit water utilities prefer to access the private capital market or invest their own funds to finance infrastructure projects and are often not interested in obtaining public funding, such as through the Drinking Water SRF.

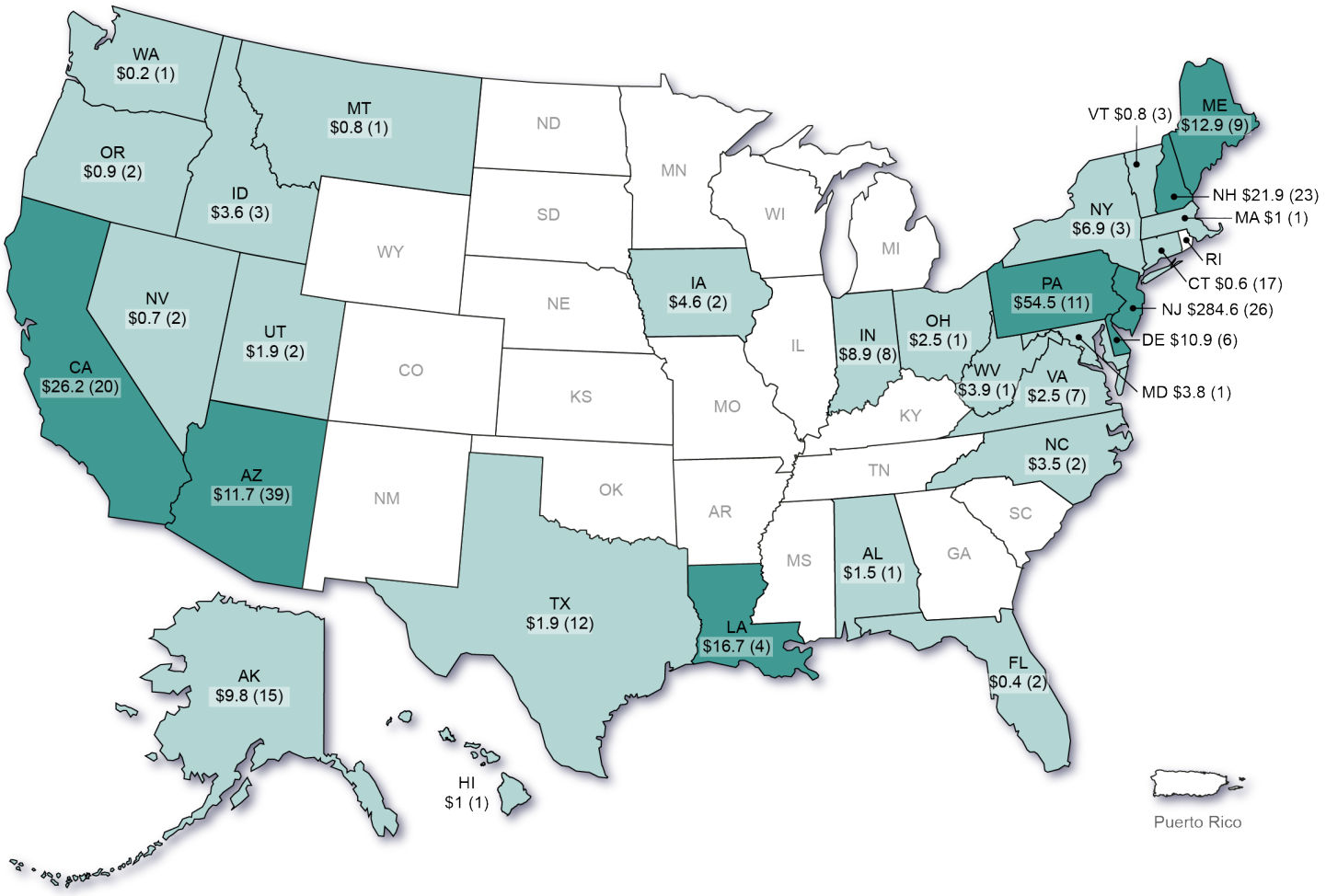
According to our analysis of PBR data, the Drinking Water SRF financial assistance provided to private for-profit water utilities from January 2010 through June 2020 paid for 226 projects in 30 states. Drinking Water SRF assistance agreements were provided to 106 different for-profit water utilities.[81] Appendix IV details the amounts provided to each private for-profit utility based on our analysis of PBR data. The majority of the assistance was provided through 223 loans, which are required to be repaid, whereas three assistance agreements were provided as grants. The amount of loans ranged from $6,000 to $65 million; the three grants were for $600, $825, and $2 million. Loan funds were provided with interest rates ranging from zero to 3.75 percent, with an average interest rate of 1.2 percent for for-profit water utilities. For all Drinking Water SRF assistance provided to projects, from January 2010 to June 2020, loan interest rates ranged from -3 percent to 4.3 percent and the average loan interest rate was 1.4 percent.[82] Ninety-seven percent, or 8,058 of 8,279, of Drinking Water SRF assistance agreements were loans.[83]

[81]If subsidiaries are counted separately, the total number of private for-profit water utilities who received Drinking Water SRF assistance from January 2010 through June 2020 is 120.

[82]A negative interest rate acts as a partial grant in which borrowers are credited or provided interest on the loan amount and remaining loan funds are provided to the utility with no interest, according to EPA officials.

[83]In addition to grants and loans, from January 2010 to June 2020, Drinking Water SRF assistance was provided for 42 projects to refinance long or short-term debt. None of the debt refinancing was provided to for-profit water utilities.

Figure 3: Amount and Number of Drinking Water State Revolving Funds Provided to Private For-Profit Water Utilities, from January 2010 through June 2020, by State



Sources: GAO analysis of Environmental Protection Agency data from the Project Benefits Reporting database; Map Resources (map). | GAO-21-291

Note: Numbers may not sum to totals because of rounding. All dollar figures are not adjusted for inflation.

As shown in figure 3 above, eight states provided more than $10 million through Drinking Water SRF financial assistance to private for-profit water

utilities for the period January 2010 through June 2020. New Jersey provided the most assistance to private for-profit water utilities—about $285 million—more than half of the total Drinking Water SRF assistance provided to private for-profit water utilities in all states during this time frame. New Jersey's largest single project award—provided in 2012 to New Jersey American Water Company-Delran, a subsidiary of American Water—received about $65 million to replace a water treatment plant. In comparison, Pennsylvania, the state that provided the second largest amount of Drinking Water SRF funding to private for-profit water utilities from January 2010 through June 2020, provided a total of approximately $54 million to private for-profit utilities, equal to about 84 percent of New Jersey's largest assistance amount.

The amount of Drinking Water SRF assistance provided to private for-profit water utilities varied widely and varied in purpose as well. The May 2012 New Jersey American Water Company-Delran loan of $65 million, with an interest rate of 0.83 percent, provided assistance to replace an old treatment plant to bring it up to standards to meet new drinking water treatment requirements. The treatment plant helps to serve around 1.3 million customers. The treatment plant was originally built in the 1920s. In June 2018, Bar-Len Mutual Water Company in California received a $6,000 loan with a zero percent interest rate to study different ways to address arsenic in their water system. This system serves 124 customers.

While the specific purpose of the projects varied, 188 of 226 projects, or 83 percent, were to assist private for-profit companies in achieving compliance with the Safe Drinking Water Act and associated regulations, such as water quality standards issued by EPA, according to EPA's PBR database. For example, the 188 projects included infrastructure replacements, such as well replacements or well part upgrades to remove arsenic or treat radium in a community's well water. Of the 226 projects, only 28 were not for purposes of compliance.[84] These 28 projects included energy efficiency initiatives, such as the installation of advanced meters that can detect leaks in order to reduce water loss and damage to property and infrastructure.

[84]The other 10 projects were not identified as for compliance or for non-compliance purposes, according to EPA's PBR database.

Of the 226 projects that received Drinking Water SRF assistance, 52 served disadvantaged communities. Under the Safe Drinking Water Act, states may use a portion of their Drinking Water SRF capitalization grants to provide additional assistance, such as forgiveness of loan principal or negative interest rate loans, to disadvantaged communities.[85] Disadvantaged communities are identified using state established criteria, such as median household income, poverty rates, and population trends, according to EPA. Overall, projects undertaken by for-profit water utilities using Drinking Water SRF funds to assist disadvantaged communities affected about 250,000 customers. For example, in Indiana, a total of 92,000 customers from disadvantaged communities were served, the largest number of people served by the states providing Drinking Water SRF funds to for-profit water utilities. These Indiana for-profit water utilities received a total of $2.9 million in assistance for two projects. New York State provided $6.9 million to three projects by private for-profit water utilities, all in disadvantaged communities, to serve 1,500 people. These three projects—Beaver Dam Lake Water Corporation, a subsidiary of American Water; West Valley Crystal Water Company, Inc.; and Chaffee Water Company—all sought new water sources and delivery system upgrades for outdated systems, portions of which were more than 100 years old.

Conclusions

Private for-profit utilities provide drinking water service to communities nation-wide; however, private water utilities have highly different ownership structures. Private water utilities with different types of ownership have different characteristics. For example, for-profit and nonprofit utilities have different sources of capital, tax status, and incentives, providing reasons to make different investment decisions. Though the Safe Drinking Water Act does not distinguish among different ownership types and all utilities must meet drinking water standards, regulators, academics, and the public are interested in studying differences in compliance, safety, and cost among the different ownership types.

EPA's SDWIS, as the primary data source for information on water systems in the United States, provides information for EPA and researchers to use for various purposes, including understanding the extent of differences in water system characteristics, such as differences in compliance with regulatory standards by ownership type. Yet

[85]42 U.S.C. § 300j-12(d).

inaccurate ownership data in SDWIS make such analysis difficult and potentially misleading. Errors in existing SDWIS ownership data may be due to misinterpretations of ownership categories that are not defined by EPA or mistakes that were not corrected. EPA has a process for collecting and verifying data entered into SDWIS, but relies on states to enter data on ownership. By developing definitions of ownership types for states and EPA regions to use when entering such data in SDWIS, and by verifying and correcting data for defined water system ownership types in SDWIS, EPA could better ensure that SDWIS provides accurate data about different ownership types at the national level. This can better facilitate the agency's ability to provide users of the data and the public with reliable information.

EPA has collected information on community water systems owned by private for-profit utilities, beyond what is reported in SDWIS, in its 2006 Community Water System Survey. EPA conducts the survey periodically to have baseline data for analyzing the effects of regulations and for other purposes. However, it must adjust the data from the survey or use other sources of data when available, as the most recent survey is from 2006 and is outdated. By conducting another Community Water System Survey, EPA would have a more accurate baseline of drinking water system information, which would be useful in helping decision makers and the public understand the potential effects of the agency's regulations on water systems, including effects on water systems of varying ownership types.

Recommendations for Executive Action

We are making two recommendations to EPA:

The Assistant Administrator for EPA's Office of Water should develop definitions for all utility ownership types for regional offices and states to use when entering data on ownership type in EPA's Safe Drinking Water Information System and should verify and correct the data as needed. (Recommendation 1)

The Assistant Administrator for EPA's Office of Water should conduct another Community Water System Survey to establish an updated, accurate baseline of drinking water utility information for rulemaking and other purposes. (Recommendation 2)

Agency Comments

We provided a draft of this report to EPA for review and comment. In its comments, reproduced in appendix V, EPA generally agreed with our recommendations. EPA stated that though water system ownership information is not essential for implementing the Safe Drinking Water Act, EPA and the drinking water community find value in improving the clarity and accuracy of information on the characteristics of water systems in the United States.

As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies to the appropriate congressional committees and the Administrator of the Environmental Protection Agency. In addition, the report will be available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-3841 or gomezj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff members who made key contributions to this report are listed in appendix VI.

Sincerely yours,

J. Alfredo Gómez
Director, Natural Resources and Environment

Appendix I: Objectives, Scope, and Methodology

GAO was asked to provide information on private water utilities and to review the regulation of private for-profit utilities' drinking water rates and the amount of Drinking Water State Revolving Fund (SRF) assistance awarded to such utilities. This report examines: (1) the extent of information available from the Environmental Protection Agency (EPA) and others about the number and characteristics of private for-profit water utilities currently operating in the United States; (2) key factors that affect water rates and how private for-profit water rates compare to those charged by publicly owned utilities; (3) the processes selected states use to regulate water rates charged by private for-profit utilities; (4) the purpose for which Drinking Water SRF assistance is provided to private for-profit water utilities and how much funding private for-profit water utilities received.[1]

To determine the extent of information available from EPA and others on the number and characteristics of private for-profit water utilities currently operating in the United States, we reviewed data from the following:

- First quarter 2020 data from the Safe Drinking Water Information System (SDWIS), EPA's database of regulated drinking water systems that contains information such as water source, population served, and ownership type, as well as violations and enforcement data,[2] and
- EPA's 2006 Community Water System Survey, a periodic survey of a sample of community water systems regulated under the Safe Drinking Water Act, through which EPA collects and analyzes data on various system characteristics, including utilities' financial information and utilities' ownership, size, water sources, and treatment practices.

We assessed the reliability of the SDWIS data for reporting background summary data on the number of water systems by ownership type by conducting electronic testing for outliers and missing data, reviewing related documentation, and interviewing knowledgeable agency officials. We found all 49,602 active community water systems had ownership data in SDWIS—therefore missing data were not an issue. We found the data

[1]All dollar figures reported and analyzed in supporting data for this report are not adjusted for inflation.

[2]The 2020 quarter 1 SDWIS data includes information through December 2019. It was the latest dataset as of June 2020 that was not affected by reporting delays permitted by EPA due to COVID-19.

reliable for the purposes of reporting summary data. We also tested the data in SDWIS on ownership and identified errors in the data for 48 of 559 community water systems (8.6 percent). We identified these errors when we conducted additional research to distinguish for-profit ownership for utilities receiving Drinking Water SRF assistance contained in the Project Benefits Reporting system discussed below. We decided to report summary information to generally describe ownership of drinking water utilities and found the data to be sufficiently reliable for this purpose. We reviewed the Community Water System Survey that contained data collected for 2006 and determined that the data are outdated, and did not report data from it. In addition, we determined that the information and communication component of internal controls was significant to this objective. We assessed the use of quality information and communication of data from SDWIS and the Community Water System Survey for use by internal and external parties to meet agency objectives in EPA's *2018-2022 Strategic Plan* and *National Water Program Guidance* for fiscal years 2020 through 2021.

We also developed a list of parent companies that operate water utilities from an analysis of Global Water Intelligence (GWI) data that we acquired and corroborated this information with lists from three stakeholders and a search in a Bloomberg database.[3] Using these lists, we identified a list of 14 publicly traded parent companies that operate water utilities and searched online to verify the ownership and trading status of these companies. We gathered available data and information on characteristics of these companies from publicly available reports, such as Securities and Exchange Commission (SEC) filings and company annual reports.[4] We also reviewed information on characteristics of these companies acquired from GWI, such as mergers and acquisitions data. We assessed the reliability of the GWI data by conducting electronic testing for outliers and missing data and obtaining written responses to data reliability questions from the company. We found these data to be sufficiently reliable for our purposes of helping identify a list of publicly traded companies that operate water utilities and for providing information on additional associated characteristics of these companies. We also gathered available data and information on characteristics of these

[3]We collected information on some subsidiaries of parent companies and used web searches to identify the parent companies. We identified an additional 47 parent companies that did not meet our criteria.

[4]We excluded companies traded over the counter from this list, as those companies are not required to make the same level of operations information publicly available.

companies from company websites and publicly available reports on these companies, including SEC filings and company annual reports. However, our list is not comprehensive of all private for-profit water utilities or all characteristics of these utilities because we restricted our list to publicly traded companies.

To determine key factors that affect water rates and how private for-profit water rates compare to those charged by publicly owned utilities, we conducted a literature review and interviewed EPA officials and utility stakeholders. Through multiple search iterations conducted from April 2020 through July 2020, we searched various databases, such as Scopus, Ebsco, ProQuest, and Social Science Research Network. Search terms included: "public," "private," "drinking water," "water," "utility," in close proximity to "customer rates," "rates," "fees," "perform*," and "quality." We selected studies from 2009 onward that analyzed water utility performance, water utility affordability, and water utility rates in the United States. We also asked EPA and stakeholders that we interviewed to recommend additional studies. We examined summary level information about each study or report, and then from this review, identified 16 relevant U.S. based studies that appeared in scholarly journals.

After reading each study and summarizing the methodology, we determined that all 16 studies included key factors that affect water rates to answer the objective. Thirteen of the studies had information discussing a variety of factors; the remaining three studies included information on a specific topic or factor, such as utility service and regulatory factors. We then conducted a content analysis of 13 relevant studies for information on the key factors affecting water rates. To complete this content analysis, we first identified and defined seven key factors that affect water rates in collaboration with our team's economist based on our review of the literature and interviews with stakeholders. After we defined the key factors, one analyst reviewed the studies and identified key factors present in those studies and a second analyst repeated this process. The analysts discussed points of disagreement. We also reviewed information from the three studies on specific topics or factors, and integrated the information into our analysis of key factors. Additionally, of the 16 total studies, we determined five were empirical studies that included a comparison of private for-profit and public water

rates.[5] We evaluated the methodological soundness of all empirical studies that contained pertinent information that we reported. As part of our review, our team's economist performed a secondary review and confirmed our reported analysis of these empirical studies.

We also interviewed EPA officials and water utility stakeholders from academia, relevant water utility industry organizations, and advocacy groups using a standard set of questions. We identified stakeholders from our literature search as well as through suggestions from EPA and stakeholders during our interviews. We selected stakeholders who work with water utilities, such as national organizations, or who study water utility rates, such as academic researchers. Specifically, we conducted 11 interviews with stakeholders to obtain existing data and other information on the key factors that affect water rates, and to discuss how private for-profit water rates compare to those charged by publicly owned utilities. Stakeholders we interviewed were affiliated with the following organizations: Bluefield Research, Boenning & Scattergood, Inc., Food & Water Watch, Marshall University, Institute of Public Utilities at Michigan State University, National Association of State Utility Consumer Advocates, National Association of Water Companies, National Regulatory Research Institute, National Association of Regulatory Utility Commissioners, University of Wisconsin-Madison,[6] and University of North Carolina Environmental Finance Center.[7] While there were multiple people participating in four of 11 stakeholder interviews we conducted, we were able to ascertain the collective view of each entity in most interviews.[8]

[5]Two of these studies were conducted using the same methodology by the same author in 2 consecutive years, and we reported data for the most recent year.

[6]This stakeholder was at Texas A&M University when interviewed in April 2020.

[7]The 11 stakeholders represented academics, consumer groups, regulatory groups, and private water utilities. Three of the 11 stakeholders work with or represent private for-profit utilities: Bluefield Research, an independent advisory firm founded to help utilities, companies, and organizations address water challenges; Boenning & Scattergood, Inc., an independent securities, asset management, and investment banking firm with expertise in the water utility sector; and the National Association of Water Companies, a national membership organization representing large and small private water companies that own and operate water utilities, as well as provide many forms of public-private partnerships.

[8]In cases where there were differing opinions on a question in an interview with a stakeholder group, we noted it in the findings.

To determine the processes used by selected states to regulate water rates charged by private for-profit utilities, we reviewed studies and reports summarizing information on state regulation of rates identified by EPA and stakeholders we interviewed. We also attended and reviewed training materials for Michigan State University's Institute of Public Utilities accounting and ratemaking course in April 2020. In addition, we selected a non-generalizable sample of five states to illustrate how states regulate private for-profit water rates: California, New Jersey, New York, Pennsylvania, and Wisconsin. Information gathered from these selected states cannot be generalized to those we did not include in our review. We selected these states based on a mix of the number of publicly traded investor-owned utilities that were operating in the state in 2019, variation in regulatory jurisdiction for water rates, and presence of fair market value laws. Fair market laws generally permit private companies to acquire water utilities at higher than book value—which is based on original cost minus depreciation—and factor the higher value into the rates they charge for water.

For selected states, we reviewed relevant state laws, including fair market value laws, as well as rate regulations and policies. In addition, for each of the selected states, we interviewed officials from public utility commissions (PUC) and state consumer advocate organizations. We interviewed these state officials about various topics including: the organizations' mission and responsibilities in the regulation of water rates, regulatory jurisdiction, general processes for regulating water rates, implementation of fair market value laws, other key practices used to regulate water rates and advantages and disadvantages of each, and perspectives on a federal role to support states with water rates. We spoke with the state PUCs and state advocate organizations in each state except the New York Department of State Division of Consumer Protection, the state advocate organization in New York. Officials there told us they rarely participate in water rate cases and declined to be interviewed for our review.

To determine the purposes for which Drinking Water SRF funds may be provided to private for-profit water utilities, we reviewed the Safe Drinking Water Act, relevant regulations, and EPA policies that outline the purposes of the Drinking Water SRF program as well as the project descriptions of assistance awards, using the data described below. We also reviewed information on EPA's Clean Water SRF program, which awards grants to states to provide assistance for wastewater utility improvements, in order to compare and contrast the eligibility of private for-profit water utilities under each program.

To determine the amount and purposes for which private for-profit water utilities have received Drinking Water SRF funding, we collected and analyzed data from January 2010 through June 2020 on Drinking Water SRF assistance to private for-profit water utilities from EPA's Project Benefits Reporting (PBR) system. We evaluated the reliability of PBR data through electronic testing for outliers and missing data, collection and review of appropriate documentation including data dictionaries for database users, and interviews with knowledgeable EPA officials. We found that the ownership data in PBR, like SDWIS, did not differentiate systems owned by for-profit water utilities from other privately owned water systems owned by nonprofits (e.g., homeowner associations) and ancillary organizations (e.g., mobile home parks). In addition, ownership data was missing for 1,065 of 8,292 entries (13 percent) and EPA does not review the ownership field. To determine which entities are private for-profit water utilities we took several steps:

- First, we filled in missing ownership data and identified the ownership type of water systems in the PBR system. We filled in blanks by matching public water system identification numbers in PBR and SDWIS so that we could apply SDWIS information on ownership type and using keyword identification (e.g., city, town, or county for public, and homeowners association or company for private). We filled in remaining blanks using internet searches of individual water system and utility names.
- Second, as an added approach for checking the reliability of the ownership data that was reported, we compared existing ownership data contained in the PBR system to data in SDWIS. We used the unique public water system identification number reported in both systems to match the data. We found more than a 90 percent match in public and private ownership type where ownership data were available in both databases.
- Last, we conducted original research to determine whether the utilities were for-profit water utilities. We made the determination of for-profit water utility ownership using web searches of (1) state business directories using individual water system and utility names, (2) state environmental or health department websites, or (3) individual system and utility names. The coding was conducted by one analyst and verified by a second analyst. Although we found errors in the ownership data from SDWIS and PBR, we corrected these data based on our findings. For example, in some cases we determined borrowers identified as having private nonprofit or for-profit ownership in PBR or SDWIS had local government ownership based on our web

searches. Once corrected, we determined that data were reliable for the purpose of our reporting objectives.

We used this corrected data to determine the amount of assistance provided to private for-profit water utilities from January 2010 through June 2020. We also examined additional fields to describe the type and purpose of the assistance including assistance type, project purpose, loan interest rate, disadvantaged assistance, consolidation, project description, health impact description and age of system. Although we found some missing data in the description fields, we did not find obvious errors or outliers in these fields. We found the data to be sufficiently reliable to provide summary information on private for-profit water utilities projects and to qualitatively report on some projects as illustrative examples.

We conducted this performance audit from March 2020 to March 2021, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Standard Revenue Requirements Formula Used to Set Rates

According to state public utility commission (PUC) officials we interviewed, all five selected states rely on the same standard formula for determining revenue requirements to set private for-profit water rates (see fig. 4). The formula relies on the actual costs of the utility for a past year, or a projected year, including capital invested in its facilities, operations and maintenance costs, taxes, and other adjustments.

Figure 4: General Enterprise Basis Formula Used for Determining Rates

Annual Revenue Requirement = r(RB) + O&M + D + T

Where:		
r	=	Authorized rate of return
RB	=	Rate base that consists of the original cost of utility plant in service net of accumulated depreciation and adjustments
O&M	=	Operation and maintenance expense
D	=	Depreciation expense
T	=	Taxes

Source: Accounting and Ratemaking Course Materials, Institute of Public Utilities, Michigan State University, April 2020. | GAO-21-291

The formula incorporates a rate of return on the rate base, or the cost of facilities adjusted for age and new investment. The rate of return is based on a weighted average of the utilities' interest rates on loans and PUC-authorized return on utilities' or investors' funds, or equity, used to invest in infrastructure such as water mains, tanks, or other facilities. According to stakeholders we interviewed, the purpose of this revenue component of the formula is to repay the interest that utilities are charged on loans, or debt, that they borrow to pay for infrastructure improvements. It also compensates for the use of a utility's own funds or equity and includes a payment to utility shareholders as a profit for the use of that equity, referred to as the return on equity, to compensate for and encourage investment. PUC officials we interviewed said that the average return on equity ranged from 8 to 11 percent.

The formula also includes a component for utilities to recover depreciation expense. The depreciation expense compensates the utility for using up assets and is usually calculated based on the expected life of assets. The depreciation expense provides a source of revenue for additional infrastructure investment in the water system by the utility, repayment of principal on debt, or may be used for other purposes.

Repayment of public funds, such as the Drinking Water SRF loans, that a private for-profit water utility may receive for capital projects are

recovered through rates in different ways. In three of five selected states, PUC officials explained that when private for-profit water utilities receive public loans, it is considered similar to other debt (e.g., private loans), where principal payments are made from rates collected to cover depreciation expense and interest payments are recovered through the rate of return on the rate base, as described above. This method is a standard practice according to utility rate regulation literature we reviewed and stakeholders we interviewed. In California and often in Pennsylvania, officials explained that public loan principal and interest payments are collected through a separate surcharge on customers' bills and are not a part of the rate base or rate calculation. PUC officials from all five selected states told us grants are considered a contribution and not permitted to be included in the rate calculation of private for-profit utilities at all. State officials representing PUCs and advocate organizations we interviewed were not aware of any concerns about private for-profit water utilities receiving public funds within their respective states.

Once the revenue requirement is calculated, costs are allocated and rates are designed for different classes of customers (e.g., residential, commercial, or industrial) using a variety of established methods. For example, flat or fixed prices may be applied in cases where water is not metered, or prices per volume of water used may be charged at a uniform price or by applying increasing or decreasing block pricing depending on the amount of water used. Often, a combination of fixed customer charges and volumetric rates are applied for each customer class. In addition to these base rates, customer bills will include other charges such as regulatory fees or certain taxes.

In contrast, municipal utilities and small nonprofit utilities that are not typically regulated by state PUCs do not incorporate all of the same elements into their rates. EPA guidance on setting rates for small drinking water systems recommends that a small utility charge rates to cover full costs of operating its system and that will provide funds for future investments to address water infrastructure needs.[1] EPA guidance recommends utilities account for various operation and maintenance expenses in their revenue calculations for setting rates, such as staff salaries and benefits, costs for equipment and supplies, and also collect rates to build reserves for rehabilitation and replacement of infrastructure.

[1]Environmental Protection Agency, *Setting Small Drinking Water System Rates for a Sustainable Future: One of the Simple Tools for Effective Performance (STEP) Guide Series*, EPA-816-R-05-006 (Washington, D.C.: January 2006).

Different from regulated for-profit private utilities, municipal and small nonprofit utilities do not incorporate a rate of return and rate base to cover debt expenses. Rather, principal and interest rates on loans or other debt expenses are directly included in the revenue calculation. Municipal and nonprofit utilities also often do not pay property tax expenses, as private for-profit utilities do. For example, according to New York PUC officials, property taxes can represent a large portion of private for-profit water utility bills in the state, as much as 50 percent of the bill in some counties in New York.

Appendix III: Jurisdiction and Other Practices Used to Regulate Private Water Rates in Selected States

Jurisdiction for Regulating Water Rates

The jurisdiction for regulating water rates varies in each of the five selected states that we reviewed, as shown in table 4. All five selected states regulate for-profit drinking water utilities, and had varying oversight for drinking water utilities with other types of ownership, such as nonprofit utilities managing homeowner association water systems and municipal utilities. In addition, four of the selected states also regulate wastewater utility rates.

Table 4: Jurisdiction for Regulating Water Rates in Selected States

	California	New Jersey	New York	Pennsylvania	Wisconsin
Total number of regulated drinking water utilities	95	22	228	81	578
• Private for-profit utilities (number)	● (95)	● (12)	● (113)	● (58)	● (3)
• Private non-profit utilities (number)	○	○	● (115)	○	○
• Municipal utilities (number)	○	◐[a] (10)	○	◐[b] (23)	● (575)
Regulated wastewater utilities (number)	● (12)	● (10)	○	● (50)	● (2)

Legend
● = State has jurisdiction to regulate rates
◐ = State has partial jurisdiction to regulate rates
○ = State has no jurisdiction to regulate rates

Source: GAO analysis of state public utility commission documents and interviews | GAO-21-291

[a]The New Jersey Board of Public Utilities regulates rates for municipal water utilities that serve 1,000 or more connections outside municipal boundaries. New Jersey has no rate jurisdiction over those municipal water utilities that charge the same rates to both jurisdictional "inside customers" and non-jurisdictional "outside customers." All of the corresponding municipal water utilities have equalized their rates and are not subject to rate regulation.

[b]The Pennsylvania Public Utility Commission regulates rates for municipal water utilities that serve customers outside its municipal boundaries and for the Pittsburgh Water and Sewer Authority.

Other Practices Used to Regulate Private Water Rates

Table 5 lists different practices used by state public utility commissions (PUC) to regulate water rates and advantages and disadvantages of each practice identified by officials from PUCs and advocacy organizations in selected states we interviewed.

Table 5: Other Practices Used by Public Utility Commissions (PUC) to Regulate Private Water Rates in Selected States

Test-year

Description

Rates are typically set based on utility operations and maintenance expenses and capital investment data from a 12-month period of time, referred to as the test-year, with the following options:

- Historical, where rates are based on actual expense data prior to a rate case;
- Future, where rates are based on projected expenses over a future period after a rate case; and
- Hybrid, where rates are based on a combination of historical data and changes that occur during the rate case or measureable projected data after the rate case

Advantages	Disadvantages
• Historical: Rates are based on actual cost data that can be verified • Future: Rates allow utilities to project expenses based on estimated or expected changes in the upcoming year in order that rates may be more appropriate for the time period they are collected • Hybrid: Rates are based on actual past cost data, which gives more substance, but allows utilities to forecast changes they expect	• Historical: May cause utilities to file for rate increases more frequently because of construction projects or insurance increases outside of the test year • Future/Hybrid: Rates depend on projections and there are concerns about reliability of projections

Use of practice in selected states

California	New Jersey	New York	Pennsylvania	Wisconsin
Future	*Historical*	*Hybrid*[a]	*Any, selected by the utility*	*Future*

Single Tariff Pricing

Description

Also referred to as consolidated pricing, single tariff pricing is a rate structure that allows a single utility to charge one rate for multiple systems it owns which may or may not be physically interconnected

Advantages	Disadvantages
• Enables cost sharing for needed infrastructure improvements across a larger customer base, while keeping rates more affordable for smaller utilities, in particular, that have fewer customers • Facilitates risk-pooling of damages that may be incurred from natural or other disasters across multiple utilities • Creates efficiencies, such as by consolidating administrative burdens	• Customers pay for improvements and projects they do not directly benefit from or use • There may be a perception that there is a minimal effect of capital improvement projects on rates. For example, projects are often evaluated by project costs per customer per month (e.g., determining that a multi-million dollar project costs fractions of a dollar per customer per month), instead of whether or not the project is necessary

Use of practice in selected states

California	New Jersey	New York	Pennsylvania	Wisconsin
●	●	●	●	○

Infrastructure Replacement Charge

Description

A specific charge added outside a general rate case proceeding, that allows for recovery of capital investments made to replace infrastructure necessary to sustain safe, reliable services for the company's customers

Advantages

- Utilities can collect on capital investment projects at a later point, in between rate cases, when details associated with the project can be validated and customers begin benefiting from the project
- Allows for more rapid infrastructure replacement
- Extends the time between rate cases

Disadvantages

- The additional charge pushes caps on rates higher and can be a burden on ratepayers
- Requires additional tracking and review by PUCs in between rate cases that may be resource intensive

Use of practice in selected states

California	New Jersey	New York	Pennsylvania	Wisconsin
○	●	●	●	○[b]

Revenue Stability Mechanisms

Description

Also referred to as decoupling, allows periodic rate adjustments to ensure that a utility's revenue will be sufficient to cover its costs, regardless of sales volume

Advantages

- Considered a method to decrease the company's incentive to sell more water, which aids conservation efforts
- Transfers risk of higher than expected actual sales (e.g., due to weather) from the utility to customer credit

Disadvantages

- Transfers the risk of lost sales from the utility to ratepayers
- There are more opportunities for declines in revenues from unexpected events that may occur, such as flooding or COVID-19, requiring rate increase versus increase in sales, like new homes coming on the market

Use of practice in selected states

California	New Jersey	New York	Pennsylvania	Wisconsin
○[c]	○	●	●	○

Legend
● = State uses the practice
○ = State does not use the practice

Source: GAO analysis of PUC documents and interviews with officials from PUCs and state advocate organizations in selected states | GAO 21-291

[a]The New York Public Service Commission uses a historical test year not to be more than 5 months old from when rate filing is made, to forecast into the rate year to determine the rate. The process accounts for up to a 16-month lag—up to 5 months for the water utility to put the historical filing data together plus the 11 month period from filing date to when the Commission issues an order. According to state officials, to develop the forecast for the rate year from the actual historical data, the PUC sometimes makes adjustments related to normalizations, changes in projected future spending on capital assets, and price changes for particular goods or services.

[b]The Wisconsin Public Service Commission has authorized use of an expense depreciation mechanism to fund main replacement for three utilities, according to officials. This mechanism, which must be approved within the context of a conventional rate case, uses accelerated depreciation to provide a specific level of funding annually. For example, the mechanism may allow a utility rate schedule to include a separate, quarterly, fixed main replacement charge.

[c]A decision to discontinue use of decoupling mechanisms in California, called water revenue adjustment mechanisms, was made in August 2020. See Decision 20-08-047 on Rulemaking 17-06-024, August 27, 2020, Before the Public Utilities Commission of the State Of California, *Order Instituting Rulemaking Evaluating the Commission's 2010 Water Action Plan Objective of Achieving Consistency between Class A Water Utilities' Low-Income Rate Assistance Programs, Providing Rate Assistance to All Low-Income Customers of Investor-Owned Water Utilities, and Affordability* (San Francisco, California: Issued Sept. 3, 2020).

Appendix IV: List of Private For-Profit Water Utilities Receiving Drinking Water State Revolving Funds (SRF), since January 2010

According to EPA's Project Benefits Reporting database in November 2020, the for-profit water utility companies listed in table 6 below received Drinking Water State Revolving Funds from January 2010 through June 2020.[1] In total, there were 106 for-profit companies that received this assistance for a total of 226 projects and approximately $501 million.

Table 6: Private For-Profit Water Utility Companies Receiving Drinking Water State Revolving Funds (SRF), January 2010 through June 2020

Company name[a]	States providing award	Years awarded	Number of projects	Total Drinking Water SRF assistance (in thousands of dollars)[b]
American Water Works Company, Inc.	Indiana	2013	6	6,702
	Maryland	2018	1	3,826
	New Jersey	2010, 2012, 2014, 2017, 2018, 2020	13	189,343
	New York	2010	1	3,349
	Pennsylvania	2010, 2012, 2015, 2016	5	23,011
	Virginia	2020	1	250
	West Virginia	2010	1	3,850
			Total: 28	**230,331**
Middlesex Water Company	Delaware	2011, 2016, 2018, 2019	5	7,292
	New Jersey	2010, 2012, 2013, 2014 2016, 2017, 2018	10	91,446
			Total: 15	**98,739**
Pennichuck Corporation	New Hampshire	2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2019	20	21,320
Essential Utilities	New Jersey	2010, 2012	3	3,823
	North Carolina	2013	2	3,452
	Pennsylvania	2010, 2011, 2018	3	12,494
			Total: 8	**19,769**
Columbia Water Company	Pennsylvania	2012	1	15,248
SJW Group	Connecticut	2010, 2013	14	478
	Maine	2012, 2013, 2015, 2019	8	12,771
			Total: 22	**13,249**
Baton Rouge Water Works Company, Inc.	Louisiana	2018	1	8,000

[1]All dollar figures are nominal—not adjusted for inflation.

Company name[a]	States providing award	Years awarded	Number of projects	Total Drinking Water SRF assistance (in thousands of dollars)[b]
Corix Utilities	Alaska	2010, 2012, 2013, 2018	7	6,713
	Texas	2015	2	353
			Total: 9	**7,066**
Louisiana Water Company	Louisiana	2017	1	6,500
Amana Society Service Company	Iowa	2018	2	5,400
Del Oro Water Company	California	2019	1	5,189
Bass Lake Water Company	California	2019	1	4,612
Maywood Mutual Water Company #1	California	2011	1	4,281
Artesian Resources Group	Delaware	2011	1	3,607
Comore Loma Water Corporation	Idaho	2014	1	3,046
West Valley Crystal Water Company, Inc.	New York	2013	1	2,587
Choctaw Utilities, Inc.	Ohio	2019	1	2,484
Emporium W.C.	Pennsylvania	2014	1	2,417
Yankeetown Water Authority	Indiana	2011, 2012	2	2,245
Lakeview Ranchos Mutual Water Company	California	2017	1	2,160
Harbor View Mutual Water Company	California	2014	1	2,084
Valencia Heights Water Company	California	2018	1	1,949
White Hills Water Company	Utah	2010, 2016	2	1,932
West Goshen Mutual Water Company	California	2013	1	1,626
Thomas Bridge Water Corporation	Virginia	2018, 2019	3	1,607
West Escambia Utilities, Inc.	Alabama	2015	1	1,475
Alpat Water Utility	Alaska	2011, 2015, 2019	3	1,426
L and R Utilities, Inc.	Louisiana	2020	1	1,350
Elverson Water Company, Inc.	Pennsylvania	2018	1	1,287

Company name[a]	States providing award	Years awarded	Number of projects	Total Drinking Water SRF assistance (in thousands of dollars)[b]
Terrace Water Company	California	2014	1	1,193
Payson Water Company, Inc.	Arizona	2014, 2019	2	1,071
Sheffield Water Commission	Massachusetts	2011	1	1,036
Southland Utilities Company, Inc	Arizona	2012	1	1,014
Hana Water Systems, LLC	Hawaii	2019	1	1,000
East Slope Water Company	Arizona	2012, 2015	2	974
Oasis Water Utility	Alaska	2013	2	963
Valle Verde Water Company	Arizona	2011	1	960
Chaffee Water Company	New York	2010	1	947
North Gualala Water Company, Incorporated	California	2010, 2015	2	908
French Settlement Water Co., Inc.	Louisiana	2014	1	868
Tierra Buena Water Company Inc.	Arizona	2016, 2017	2	850
Truxton Canyon Water Company	Arizona	2016, 2017, 2019	3	781
Lake Morena's Oak Shores Mutual Water Company, Inc.	California	2019	1	757
Sunrise Water Co.	Arizona	2014	1	755
Missoula - Mountain Water Co	Montana	2010	1	750
Gold Country	Nevada	2011	1	662
Cordes Lakes Water Company	Arizona	2017, 2018	2	554
Morning View Water Company	Idaho	2013	1	542
South Coast Water District, Inc.	Oregon	2017	1	531
Golden Shores Water Company	Arizona	2017	1	515
Willhoit Water Company, Inc.	Arizona	2010	3	510

Company name[a]	States providing award	Years awarded	Number of projects	Total Drinking Water SRF assistance (in thousands of dollars)[b]
Devore WC	California	2020	1	493
Smith Management Services	Texas	2014	3	476
Woodstock Aqueduct Company	Vermont	2017	1	440
Lighthouse Utilities	Florida	2016, 2019	2	416
Big Park Water Company	Arizona	2010	1	415
Derby, ING	Texas	2015, 2016, 2017	3	394
Sedley Water Company	Virginia	2014	1	384
Pelican Bay Heights Water System, LLC	Oregon	2016	1	369
Home Water, LLC	Alaska	2019	1	364
Lazy C Water Service	Arizona	2018	1	353
Cerbat Water Company	Arizona	2012	1	332
Mountain Water Company	Vermont	2010	1	320
Pratt Mutual Water Company	California	2010	1	312
Potter Creek Water Company	Alaska	2018	2	304
Humboldt Water System	Arizona	2014	1	302
Pound Road Water Works	New Hampshire	2020	1	300
Tito Balling, Inc. Dba California Water Services	California	2012	1	270
Parker Springs Water Company	Arizona	2012	1	269
Casa Grande West Water Company	Arizona	2011	1	259
Hampstead Area Water - Walnut Ridge	New Hampshire	2012	1	255
Rancho Estates Mutual Water Company	California	2013	1	244
San Pedro Estates Water LLC	Texas	2015	1	240
Eagletail Water Company, LLC	Arizona	2012, 2017	2	233

Company name[a]	States providing award	Years awarded	Number of projects	Total Drinking Water SRF assistance (in thousands of dollars)[b]
Holiday Water Company	Arizona	2014	1	225
Camano Hills Water Company, Inc.	Washington	2011	1	207
Vista Verde Water Systems Inc	Texas	2014	1	200
Park Water Company, Inc.	Arizona	2010	1	198
Granite Mountain Water Company	Arizona	2014	1	181
Walkerton Water System	Virginia	2010	1	180
Rancheros Bonitos Water Company	Arizona	2018	1	160
Monte Vista Water Company	Arizona	2018	1	160
East Vassalboro Water Company LLC	Maine	2010	1	151
Lake Verde Water Company	Arizona	2016	1	150
Clear Springs Utility Company	Arizona	2015	1	140
Camp Nelson Water Company	California	2013	1	139
Patterson Water Supply LLC	Texas	2018	1	139
Sunland Water Company	Arizona	2012	1	122
Beaver Dam Water Company	Arizona	2010	1	104
Hazardville Water Company	Connecticut	2017	1	68
Jewett City Water Company	Connecticut	2013	1	64
Vermont Water Utilities, Inc.	Vermont	2016	1	62
Texas H2O Inc	Texas	2020	1	53
West Swanzey Water Company, Inc.	New Hampshire	2012	1	40
Virginia Ridge Water Company, Inc.	Virginia	2015	1	40

Company name[a]	States providing award	Years awarded	Number of projects	Total Drinking Water SRF assistance (in thousands of dollars)[b]
Steamboat Springs Water Works, Inc.	Nevada	2013	1	34
Dells Water Company	Arizona	2010	1	30
Orange Grove Water Co.	Arizona	2012	1	30
Arrowhead Ranch Water Company LLC	Idaho	2020	1	30
Livco Water Company	Arizona	2012	1	30
Nice Mutual Water Company	California	2020	1	17
Ash Water Company, LLC	Connecticut	2015	1	12
Mirabell Water Company	Arizona	2011	1	10
Bar-Len Mutual Water Company	California	2018	1	6
Mettler Valley Mutual Water Company	California	2018	1	.8
Center Water Company	California	2016	1	.6

Source: GAO analysis of Environmental Protection Agency and Securities and Exchange Commission data. | GAO-21-291

[a]Company name refers to the ultimate parent company, as opposed to the subsidiary, that received the assistance.

[b]Numbers may not sum to totals because of rounding. Dollar figures are not adjusted for inflation.

Appendix V: Comments from the Environmental Protection Agency (EPA)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF WATER

Mr. Alfredo Gomez
Director
Natural Resources and Environment
U.S. Government Accountability Office
Washington, D.C. 20548

Dear Mr. Gomez:

Thank you for the opportunity to review and comment on the Government Accountability Office's (GAO) draft report, "Private Water Utilities: Actions Needed to Enhance Ownership Data" GAO-21-291. The purpose of this letter is to provide the U.S. Environmental Protection Agency's (EPA or Agency) response to the draft report findings, conclusions, and recommendations.

The Agency generally agrees with the GAO's findings, conclusions, and recommendations. As you noted in your report, the Safe Drinking Water Act (SDWA) requires all Public Water Systems to meet all applicable drinking water standards regardless of ownership types. Additionally, EPA works with states, tribes, other federal agencies, and technical assistance providers to ensure that water systems can meet these drinking water standards regardless of system ownership. While the information is not essential, EPA generally agrees that the drinking water community may find value in more complete information on water system ownership and other characteristics of water systems in the United States.

Over 300 million Americans rely on the safety of tap water provided by public water systems that are subject to national drinking water standards. As you noted in your report, the SDWA applies to all Public Water Systems and EPA provides technical assistance, enforcement, or funding under the Drinking Water State Revolving Loan Fund to drinking water systems with no distinction among ownership types. EPA currently uses two sources of information on ownership of Public Water Systems. As part of its Safe Drinking Water Information System (SDWIS), the Agency maintains inventory information (which includes, for example, ownership type, population served and source water type) on all systems regulated under SDWA. There are currently six ownership categories in SDWIS: Federal, State, Local Government, Native American, Private, and Private-Public. EPA has also collected ownership information through its Community Water System Survey, with the most recent one conducted in 2006.

GAO's findings state that SDWIS contains some inaccurate data on water system ownership and the Community Water System Survey data is outdated. To improve the information on water system ownership, GAO makes two recommendation to support these findings.

GAO Recommendation 1: The Assistant Administrator for EPA's Office of Water should develop definitions for all utility ownership types for regional offices and states to use when entering data on ownership type in EPA's Safe Drinking Water Information System and should verify and correct the data as needed.

EPA Response: In general, EPA agrees that adding definitions to the six ownership categories in SDWIS (i.e. Federal, State, Local Government, Native American, Private, and Private-Public) can improve clarity and accuracy of ownership information entered into SDWIS. EPA is currently working to modernize SDWIS. As part of this effort, EPA will consult with states in its development of definitions for each of the six ownership categories. EPA plans to incorporate the definitions into the updated version of SDWIS.

GAO Recommendation 2: The Assistant Administrator for EPA's Office of Water should conduct another community water system survey to establish an updated, accurate baseline of drinking water utility information for rulemaking and other purposes.

EPA Response: EPA generally agrees that it would be useful to conduct another Community Water System Survey to collect updated information on drinking water utilities. The updated information could be used to inform EPA's regulatory and other efforts. While there are other sources of information that can be used to supplement and to adjust available characteristics data from water systems, a new survey would provide a higher level of precision on specific metrics that describe the financial and operational profiles of drinking water systems across the nation. EPA is planning to develop the Information Collection Request this year for a survey instrument for the next community water system survey.

Thank you again for the opportunity to review the draft report. As noted earlier, while EPA does not need water system ownership information for the implementation of SDWA, EPA and its partners in SDWA implementation find value in improving the clarity and accuracy of information on the characteristics of water systems.

If you have questions or need further information, please contact Ron Bergman at Bergman.Ronald@epa.gov or 202-564-3823.

Sincerely,

Fox, Radhika Digitally signed by Fox, Radhika Date: 2021.03.12 07:46:20 -08'00'

Radhika Fox
Acting Assistant Administrator

cc: EPA GAO Liaison Team

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Appendix VI: GAO Contacts and Staff Acknowledgments

GAO Contact

J. Alfredo Gómez, (202) 512-3841 or gomezj@gao.gov

Staff Acknowledgments

In addition to the contact above, Susan E. Iott (Assistant Director); Swati Sheladia Thomas (Analyst-in-Charge); Natalie Block; John Delicath; Cindy Gilbert; Patricia Moye; Zoe Need; Silda Nikaj; Cynthia Norris; Jacob Selgestad; and Sara Sullivan made key contributions to this report.