Integrating Water Reuse into the Clean Water State Revolving Fund

EPA

Clean Water
State Revolving Fund

National Water Reuse Action Plan

Improving the Security, Sustainability, and Resilience of Our Nation's Water Resources

April 2021

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Preface

On February 27, 2020 the Environmental Protection Agency (EPA) released the *National Water Reuse Action Plan: Collaborative Implementation (Version 1)*[1]. This initiative was developed with the goal of advancing the consideration of water reuse across the water sector through a series of actions taken by EPA, other federal agencies, industry associations, and relevant stakeholders. In the development of the Water Reuse Action Plan (WRAP), there was a clear need for federal funding programs for water infrastructure to ensure that practices and policies help facilitate the adoption of water reuse among communities across the country. This specific action was developed to identify successful state policies and practices and demonstrate the potential for the Clean Water State Revolving Fund (CWSRF) to support water reuse.

As part of the WRAP, the Office of Wastewater Management developed this document to highlight current policies and practices used by state CWSRF programs that support water reuse projects. Since 1987, the 51 CWSRF programs have each developed unique policies and practices to suit the specific needs of the states and communities they serve. In terms of water reuse, some states have had great success in financing projects and have developed policies to encourage or incentivize sustainable water reuse practices. Water reuse is a rapidly evolving practice in regions of the country where it was not previously a common practice. This document will clarify eligibility for the full range of potential sources of water for reuse and different end use applications, and help learn from the experiences of others to develop successful policies and programs.

According to Bluefield Research, capital expenditures for municipal wastewater reuse are expected to total $21.5 billion between 2017 and 2027. Much of this growth is expected to come from states like California, Florida, and Texas, but other states and regions are expected to see increased adoption of water reuse as well[2]. To facilitate this investment, it is important for CWSRF programs to understand the different types of water reuse projects; the social, environmental, and economic benefits water reuse can provide; and how projects should be properly evaluated for potential financial support. While this guide primarily focuses on the CWSRF, many of the practices and policies highlighted may be applicable to Drinking Water State Revolving Fund programs as well.

The information in this document is drawn primarily from current state practices and policies, with special thanks to the Council of Infrastructure Financing Authorities, WateReuse Association, Association of Clean Water Administrators, and the individual CWSRF programs for providing guidance and input. Information about current practices and policies has been largely sourced from the CWSRF Intended Use Plans that are submitted to EPA annually by the state programs, along with annual reports and other state program documents (the specific sources are included in Appendix B). In addition to current practices and policies, this guide contains references to certain documents EPA believes would be helpful to CWSRF programs as well as suggestions for new and innovative practices that are not widespread among the states that could promote the goals of the WRAP and benefit the CWSRF programs and the communities they serve.

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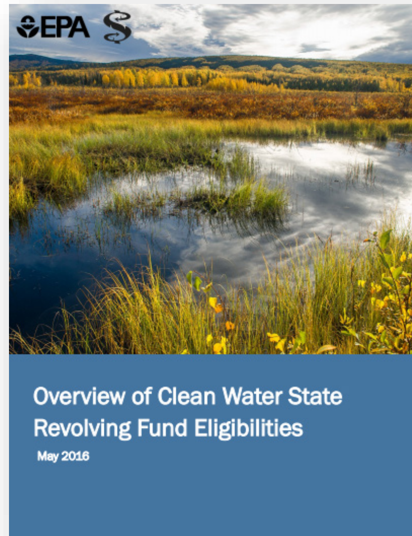
[1] Additional information is found through the EPA website: https://www.epa.gov/waterreuse/water-reuse-action-plan.

[2] Bluefield Research. (2017). U.S. Municipal Water Reuse: Opportunities, Outlook, & Competitive Landscape 2017-2027.

Eligibility of Water Reuse in the CWSRF Program



Since the inception of the CWSRF program, water reuse projects have been eligible and have received financial assistance. Over time, the eligibilities of the program have been expanded and clarified to allow a wide variety of project types to be eligible for assistance. These eligibilities were codified in the 2016 document *Overview of Clean Water State Revolving Fund Eligibilities*[3], which states that both publicly and privately-owned water reuse projects are fully eligible for financing in the CWSRF program. This includes all types of water reuse, many of which are described in this document, including some that may have unique management structures and distinctions that influence how projects are managed within a CWSRF program.

In all cases, only capital costs for a project are eligible for CWSRF financing with all operations and maintenance costs remaining ineligible. Planning and design activities are also eligible costs including activity independent of a capital project. However, this activity must be conducted with a reasonable expectation of resulting in an eligible capital project.

In addition, available additional subsidization authority through principal forgiveness, negative interest rate loans, or grants can also be used for water reuse projects. The availability of additional subsidization varies based on annual appropriation, but under current policy it is available under three circumstances:

1. to benefit a municipality that meets state-defined affordability criteria;
2. to benefit a municipality's residential ratepayers; or
3. to address water or energy efficiency goals, mitigate stormwater runoff, or encourage sustainable project planning, design, and construction.

All applications of water reuse, both publicly and privately-owned, are eligible to receive financial assistance from a CWSRF program for capital costs.

The use of additional subsidization is at the discretion of a CWSRF program, but water reuse projects of any type are eligible to receive this assistance since they promote water efficiency goals.

While there are no eligibility restrictions on the type of water reuse project or ownership structure at the federal level, some states have restrictions of their own. However, EPA encourages states to expand their eligibilities to ensure that projects yielding the largest water quality benefits receive assistance.

[3] This document is found on the CWSRF National Program website: https://www.epa.gov/cwsrf/overview-clean-water-state-revolving-fund-eligibilities.

What are the Different Types of Water Reuse Projects?

Water reuse encompasses various activities each with their own unique characteristics based on the source water and the end use. This section identifies some of the more common forms of water reuse. However, there may be other relevant water reuse practices that are also eligible for CWSRF assistance. **Figure 1** is a schematic on how different types of water reuse projects can be integrated into the urban water cycle.

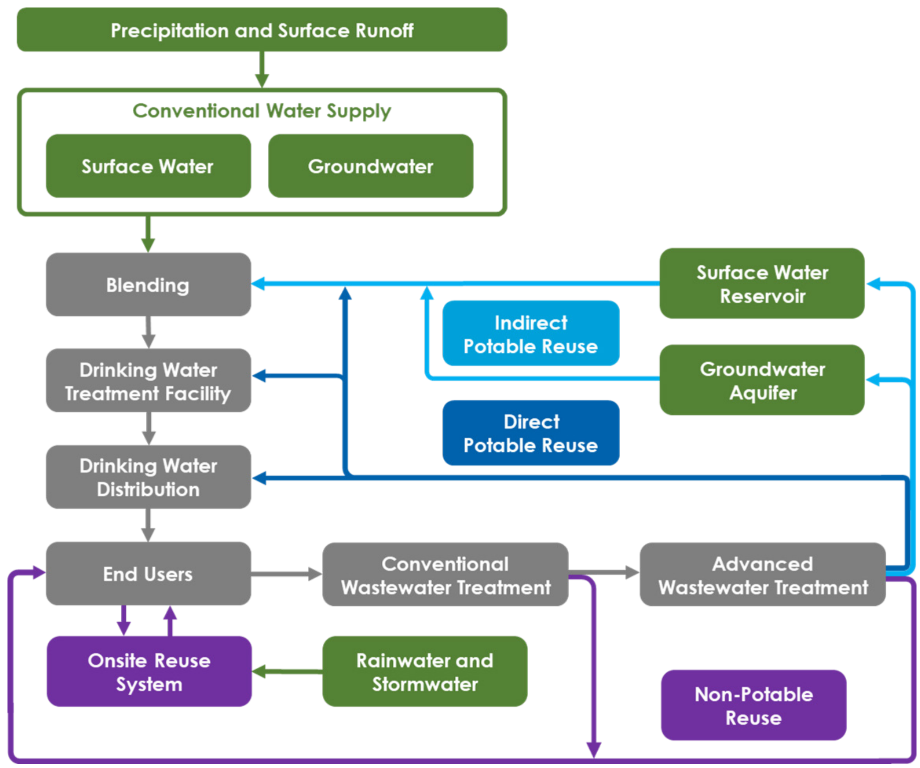


Figure 1. Examples of Integrating Water Reuse into the Urban Water Cycle
Note: These are just a small number of examples and there are many other ways to implement water reuse.

Landscape Irrigation

The use of non-potable recycled water for the irrigation of public or private landscapes to replace or reduce the use of potable water. Examples include the irrigation of public parks, recreational fields, golf courses, and other ornamental landscapes. Projects are generally implemented through the reuse of municipal wastewater in a “purple-pipe” distribution system that is separate from a potable water distribution system.

Landscape irrigation projects are the most common water reuse projects and have a long history of being funded by the CWSRF programs. Typically, the purpose of these projects is to reduce the demand for potable water used for non-potable purposes. This can help ensure that potable water supplies are conserved for the most critical needs while also supporting the irrigation of public spaces and other recreational spaces in times of water scarcity. Landscape irrigation projects may require additional treatment beyond that of a traditional wastewater treatment facility and will also require a separate distribution system to end-users. All capital costs for these projects are eligible for CWSRF financing.

Agricultural Irrigation

The use of non-potable recycled water for the irrigation of commercial crops including food crops. Sources of water can include municipal wastewater and other sources.

This application of water reuse is similar to landscape irrigation, but the level of treatment needed and other requirements will depend on the type of crop and relevant regulations. While landscape irrigation is typically seen in urban and suburban communities, agricultural irrigation is typically found in farmland where there is a sufficient local source of wastewater to support a project. Much like landscape irrigation, agricultural reuse projects generally require a separate distribution system and additional treatment beyond what is implemented at a traditional wastewater treatment facility. All capital costs for these projects are eligible for CWSRF financing.

Potable Reuse

The treatment of wastewater to drinking water standards for potable use. Potable reuse includes indirect potable reuse (IPR) with an environmental buffer through groundwater augmentation (aquifer storage and recovery and/or saltwater intrusion barriers) or surface water augmentation, as well as direct potable reuse (DPR) without the use of an environmental buffer.

Potable reuse is an application of water reuse more commonly associated with water-stressed regions such as California and Texas, but is also a practice in regions that do not traditionally face widespread water scarcity such as Virginia and Georgia. Potable reuse requires the highest level of treatment of any type of water reuse and will typically use advanced treatment processes found in traditional drinking water treatment or desalination facilities. In addition, IPR projects have infrastructure needs for the injection of purified water into a groundwater basin or surface reservoir, and both IPR and DPR projects have infrastructure needs to transport purified water to a drinking water treatment facility or distribution system. It should be noted that the ownership and management for potable reuse projects may be with a drinking water utility that does not have experience working with a CWSRF program. All capital costs for these projects, including the prorated portion of a drinking water conveyance system that distributes water from a potable reuse system, are eligible for CWSRF financing.

With advances in treatment to allow for potable reuse, water reuse can no longer be viewed as just replacing a potable source of water with a non-potable source. However, many CWSRF programs still define water reuse strictly in terms of providing non-potable water. Programs may want to consider a broader definition that would focus on a diversity of end uses, provided that water is treated to be fit for the intended purpose.

Stormwater Capture and Use

The collection, treatment, and use of stormwater for potable and non-potable purposes. Stormwater capture and use can be incorporated into existing potable or non-potable reuse systems or be implemented separately on a large or small scale.

While stormwater capture and use can be incorporated into other water reuse projects that use municipal wastewater, separate collection infrastructure may be needed along with other controls to manage the “first-flush” of stormwater, transport water to treatment facilities and/or infiltration basins, and prevent impacts on combined sewer systems. While many of these projects are implemented on a building or neighborhood scale, some communities are considering large-scale collection projects. All capital costs for these projects are eligible for CWSRF financing.

Source Waters used in Water Reuse

Water reuse takes a variety of forms using a variety of sources of water. While different sources naturally correspond to specific types of water reuse projects, most sources of water can be used in multiple types of projects.

- Municipal Wastewater: Wastewater from municipal sources that is collected and treated in a wastewater treatment facility before discharge or reuse. Municipal wastewater contains wastewater from domestic, commercial, and some industrial sources. Blackwater (wastewater from toilets and kitchen sources) and graywater (non-blackwater sources) that comprise wastewater may be sourced separately in onsite reuse systems.
- Industrial Process Water: Water produced in various industrial processes. It can be separate from municipal wastewater or incorporated into municipal wastewater as part of a pretreatment program. Quality can vary widely depending on the industry sector and specific industrial processes. Examples include food and beverage wash water, manufacturing process water, mine drainage, and oil and gas produced water.
- Agricultural Return Flows: Surface and subsurface runoff following the irrigation of agricultural land.
- Stormwater: Rainwater or snowmelt that flows over land or impervious surfaces, such as paved streets, parking lots, and building rooftops.

Onsite Non-potable Reuse

The collection and reuse of water at a building- or neighborhood-scale for non-potable uses including irrigation, toilet flushing, or other purposes. A variety of sources of water can be used including wastewater (blackwater and/or graywater), rainwater or stormwater, condensate, and subsurface drainage water[4].

Onsite non-potable water reuse is an emerging practice seen in several cities across the country where different sources of water are collected, treated, and reused onsite for different non-potable purposes. These treatment systems are generally quite small and contained within an individual building or group of buildings. There will also need to be a separate plumbing system in buildings to segregate potable and non-potable water. Systems can be either publicly or privately owned and operated by dedicated staff or through contract operations. Many public utilities are closely involved in these projects as they are an effective way to reduce demand for both centralized wastewater and drinking water services, as well as help manage wet weather

[4] Additional information can be found through the National Blue Ribbon Commission for Onsite Non-potable Water Systems (https://watereuse.org/educate/national-blue-ribbon-commission-for-onsite-non-potable-water-systems) and EPA's Office of Research and Development (https://www.epa.gov/water-research/onsite-non-potable-water-reuse-research).

flows. All capital costs for these projects at both publicly and privately-owned facilities are eligible for CWSRF financing.

Environmental Restoration

The reuse of water for habitat protection and restoration. This is typically accomplished through the reuse of municipal wastewater.

Environmental restoration projects are pursued with the primary purpose of rehabilitating sensitive environments and habitats. This is commonly done for wetlands restoration and can help meet wastewater facility discharge requirements and provide other project co-benefits. This practice can help restore ecosystems that are vulnerable to water withdrawals and may otherwise dry up. In addition, wetlands provide natural treatment to wastewater removing nitrogen, metals, and other pollutants before reaching a river or other waterbody. Natural systems provide not just an alternative treatment method, but valuable wildlife habitat and locations for outdoor recreation. All capital costs for these projects are eligible for CWSRF financing.

Industrial Reuse

The reuse of water for industrial uses including cooling tower water, boiler feed water, or as part of other industrial processes. This can be done through a "purple-pipe" system with recycled municipal wastewater and/or onsite reuse of industrial process waters for additional uses.

Industrial reuse can be similar to landscape irrigation but may require different levels of treatment depending on the end-use, as some industrial and manufacturing processes require very high-quality water. End users are varied and include power generation facilities, data centers, manufacturing facilities, oil and gas operations, and other industrial activities. An example of industrial reuse is the Edward C. Little Water Recycling Facility managed by the West Basin Municipal Water District in California. This facility produces recycled water at five different qualities for several uses including cooling tower water and boiler feed water[5]. All capital costs for these projects are eligible for CWSRF financing.

Loudoun Water serves more than 2 MGD of reclaimed water to data centers in Ashburn. The water is used to cool servers, providing stability to the hardware underpinning America's digital economy.

Loudoun Water in Northern Virginia has received multiple CWSRF loans to finance recycled water projects that provide cooling water to more than 40 data centers
Photo courtesy of Loudoun Water

[5] Additional information can be found through the West Basin Municipal Water District: https://www.westbasin.org/water-supplies/recycled-water/facilities/.

Drivers and Benefits of Water Reuse

Understanding the drivers and benefits that lead a community to pursue water reuse is important for a CWSRF program to properly evaluate projects. There are frequently multiple drivers that influence how a community approaches a potential water reuse project. In addition, there are other potential benefits not mentioned here including restoring wetlands and other sensitive habitats as well as broader community sustainability goals relevant to water reuse.

Drought Mitigation and Developing New Water Supplies

The most common driver for water reuse is the threat of water scarcity from drought and the desire to reduce demand for potable water supplies. Because the source water for most water reuse projects is municipal wastewater, water reuse enhances a community's resilience to climate change and drought because the availability of a local supply of wastewater is less dependent on variations in the local climate compared to traditional surface or groundwater supplies. In addition, because wastewater is locally sourced, communities practicing water reuse will be less dependent on imported sources of water. This is especially important for communities in California and other western states that rely on water from the Colorado River Storage Project or the Central Arizona Project where water is transported large distances compared to recycled water that a community has a greater level of control over.

Having a local and climate-resilient supply of water through reuse also provides greater certainty in cost as the cost of water reuse is less dependent on the availability of natural supplies. For example, imported potable water sources from the Metropolitan Water District of Southern California, which supplies water to 26 different agencies serving 19 million people, have consistently risen in cost over the past decade[6] to the point where potable reuse and other alternative water sources is increasingly becoming more competitive in cost. In addition, the cost of potable reuse may be more stable since those costs are less suspectable to drought and the uncertain availability of natural supplies. If these trends continue, water reuse may allow communities and businesses to be better equipped to manage the future costs of water supply.

During times of drought, there are often restrictions placed on the use of potable water and first among those restrictions are often landscape irrigation and other similar uses. In 2015 during the height of the 2011-2017 California drought there was a mandated statewide 25 percent reduction in potable urban water usage with higher restrictions in some localities[7]. However, recycled water was exempted from these restrictions. Without available recycled water, such restrictions can be detrimental to public spaces such as public parks as well as some businesses. While many large water users are able to implement conservation measures, use restrictions will eventually negatively impact the core business activities of industrial users. In this case, the use of recycled water can be especially important to maintain the continuity of business operations and economic activity while not further stressing limited potable water supplies.

[6] Metropolitan Water District of Southern California. FY 2020-21 an FY 2021-22 Budget and CY 2021-2022 Rates and Charges. Accessed on March 22, 2021. http://www.mwdh2o.com/WhoWeAre/Management/Financial-Information/Pages/default.aspx#tab2.

[7] Executive Order B-36-15. (2015). State of California.

Protection of Groundwater Supplies

Due to the impacts of sea level rise along with increased groundwater extraction, many coastal communities are experiencing saltwater intrusion into sensitive groundwater aquifers. For coastal communities that rely on groundwater for current water supplies as well as storage of water, saltwater intrusion poses a serious threat to water supply sustainability. However, high quality recycled water can be used to create a saltwater intrusion barrier. This is accomplished through injection wells to create a barrier between fresh groundwater and saltwater by ensuring that there is sufficient pressure from freshwater to prevent the intrusion of saltwater.

The creation of a saltwater intrusion barrier is often done as part of an indirect potable reuse system where a portion of the purified recycled water is used to create a barrier while also replenishing the aquifer with water that will be extracted for use at a later time. One of the most prominent examples of this is the Orange County Water District's Groundwater Replenishment System which produces 100 million gallons per day (MGD) of purified recycled water. Of this amount, 35 MGD is used for a saltwater intrusion barrier with the rest used to replenish the aquifer[8]. In this case, the driver for pursuing water reuse is not just the development of new water supplies but the protection of existing supplies. Without the creation of a saltwater intrusion barrier, water in the existing aquifer may become unsuitable for potable use without expensive and energy-intensive treatment to remove salts.

Overcoming Challenges in Pricing Recycled Water

A common challenge for many utilities when establishing a water reuse program is how to recover costs through user rates and properly pricing recycled water[†]. This is especially difficult in communities with low potable water rates or working with end-users reluctant to use a different water source. To counteract this, utilities can build a market for recycled water with customer charges below the cost of service and increase those rates over time as a program matures. The CWSRF can help in this process through flexible repayment structures to allow for lower repayments as a recycled water program matures with higher repayments later as rates approach the cost of service. This provides utilities the ability to build a financially sustainable water reuse program while still meeting loan repayment obligations. When communities and CWSRF programs work together, the inherent flexibility of the CWSRF can assist utilities in the development of water reuse programs.

[†]American Water Works Association. (2019). Water Reuse Cost Allocations and Pricing Survey. American Water Works Association. Denver, CO.

Management of Wastewater and Stormwater Discharges

Aside from providing a new water source, another benefit of water reuse is the reduction or in some cases complete elimination of a wastewater discharge. This benefit is especially important for communities facing restrictions on wastewater discharges. For example, communities in south Florida are under significant statutory pressure to reduce and eventually eliminate ocean outfalls for wastewater discharges. New or expanded ocean outfalls for sanitary sewage discharges are not allowed in many areas of south Florida and

[8] Additional information can be found through the Orange County Water District: https://www.ocwd.com/gwrs/the-process/.

there are also requirements for many utilities to reuse 60 percent of their wastewater by 2025[9]. This is leading many utilities in Florida to look for new users of recycled water as well as pursue potable reuse options to reduce discharges and protect coastal ecosystems.

In another example, the Hampton Roads Sanitation District (HRSD) in southeast Virginia is planning their Sustainable Water Initiative for Tomorrow (SWIFT) program in large part to eliminate wastewater discharges into the Chesapeake Bay. Through SWIFT, HRSD will inject purified water from their wastewater treatment facilities into the underlying aquifer rather than through surface discharges into the Chesapeake Bay. This will greatly reduce nutrient loadings into the Bay and enable communities to more cost-effectively manage discharges and meet nutrient reduction targets imposed by the Chesapeake Bay Total Maximum Daily Load. While SWIFT will certainly enhance local water supplies by replenishing groundwater, the need to better manage nutrients is the primary driver and it has been estimated that SWIFT will result in millions of dollars in savings for the entire region[10].

In terms of stormwater management, stormwater capture and use can reduce runoff from buildings and other impervious surfaces while offsetting potable water demand. This is beneficial to communities struggling with combined sewer or sanitary sewer overflows due to inflow and infiltration issues or combined sewer systems. These projects can also help communities comply with municipal separate storm sewer permits by decreasing and better managing runoff. Many cities and municipalities have stormwater fees in place to encourage the onsite treatment of stormwater at buildings, and in many cases property owners meet requirements through green infrastructure and other strategies to encourage the natural infiltration of stormwater into the soil. However, stormwater capture and use can serve the dual purpose of providing better management of stormwater at the source while reducing demand for potable supplies at the same time. This can be accomplished through simple systems to collect stormwater for landscape irrigation or infiltration for the purposes of aquifer recharge while larger neighborhood-scale or centralized systems can reduce the impact of stormwater on existing wastewater collection and treatment systems.

Relationship of Water Reuse to Water Conservation

In many CWSRF programs, water reuse is often included under the umbrella of water conservation projects. This is due to several factors including the initial statutory language for the Green Project Reserve that referred to “water or energy efficiency improvements” where water reuse was included under water efficiency in subsequent guidance documents. While water reuse and water conservation both decrease demand for potable water, there are significant distinctions between the two including the drivers and benefits associated with water reuse that are detailed in this document. To better distinguish between the two types of projects, CWSRF programs may benefit from having project evaluation criteria and other policy statements that account for these differences.

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[9] Florida Statute § 403.086(9) (2019).

[10] Additional information can be found through the Hampton Roads Sanitation District: https://www.hrsd.com/swift/.

Reduction in Energy Demand

A phrase that is commonly used when describing a water reuse project is “fit-for-purpose”. This refers to the concept of supplying water to an end user at the needed level of quality for its intended purpose. Because many applications of water do not require potable water, the needed level of quality may be below potable standards. This is certainly true for landscape irrigation and many industrial uses of water. In terms of water reuse there may be significant cost and energy savings in supplying non-potable water compared to potable water due to differences in treatment costs. This increase in cost is associated with the “overtreatment” of water where water is treated beyond a level that is needed. There are also additional energy and cost savings from water reuse if traditional water supplies are located far from end-users and require significant energy demand for conveyance.

These cost savings are especially true for communities with high potable water costs and energy demand including communities that rely on desalination or imported water sources. For example, one study focused in California found that the treatment required for most forms of non-potable reuse used over five times less energy than some sources of imported water while treatment for potable reuse requires three times less energy[11]. This decrease in energy demand results in significant cost savings and greenhouse gas reductions. The energy required and associated costs for non-potable reuse varies widely depending on the conveyance needs, but this example is illustrative of the potential energy savings and why a community may choose to pursue water reuse.

This is what we work for day in and day out—to provide a high-quality, reliable water supply to 2.5 million people in our service area. Total production will be enough water for 1 million people when the expansion is completed. The GWRS is vital to combatting climate change and sustaining Orange County’s water supplies and its thriving economy.

OCWD President Vicente Sarmiento

The Orange County Water District (OCWD) in California is receiving a $186 million CWSRF loan, among other sources of financial capital, to finance the final expansion of its Groundwater Replenishment System (GWRS)

Photo courtesy of OCWD

[11] Raucher, R.S. and G. Tchobanoglous. (2014). The Opportunity and Economics of Direct Potable Reuse. WateReuse Research Foundation. Alexandria, VA.

Historical Support for Water Reuse in the CWSRF

Data on the financial performance of every CWSRF program is collected on an annual basis through the CWSRF National Information Management System (NIMS) and includes the total amount of assistance provided by a CWSRF program as well as the types of projects funded. The definitions of the different types of projects are largely based on the different categories used in the Clean Watersheds Needs Survey (CWNS). In terms of water reuse, the most relevant category is Recycled Water Distribution. This category is specific to the costs associated with the conveyance of recycled water and does not include the associated treatment costs necessary for water reuse. Therefore, the total assistance provided to water reuse projects by the CWSRF program is likely understated. The most recent available data show that just over $1.6 billion in assistance has been provided to recycled water distribution projects. This amount to slightly more than 1 percent of overall CWSRF assistance. However, the amount of support has risen over the last several years (**Figure 2**).

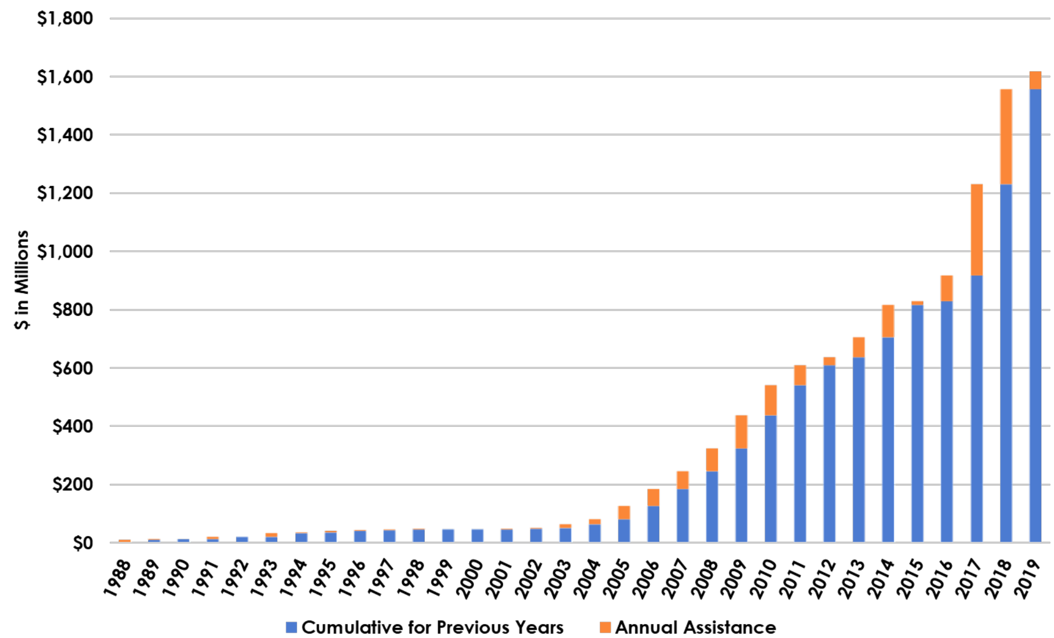


Figure 2. Annual CWSRF Assistance for Recycled Water Distribution
Note: The large increase in 2017 and 2018 is primarily due to an influx of state funding for California's Water Recycling Funding Program (see page 13 for more detail)

Since the inception of the CWSRF program, 26 state programs have provided assistance for recycled water distribution projects. **Figure 3** shows the states that have reported assistance to recycled water distribution projects as of 2019. The majority of this assistance has been provided by Arizona, California, Florida, Nevada, and Texas amounting to nearly 90 percent of total assistance. However, there are states like Hawaii and Georgia that have seen increases in the last several years. As the practice of water reuse matures and expands to new regions of the country, the overall amount of water reuse assistance from the CWSRF program is expected to increase along with the geographic diversity of projects.

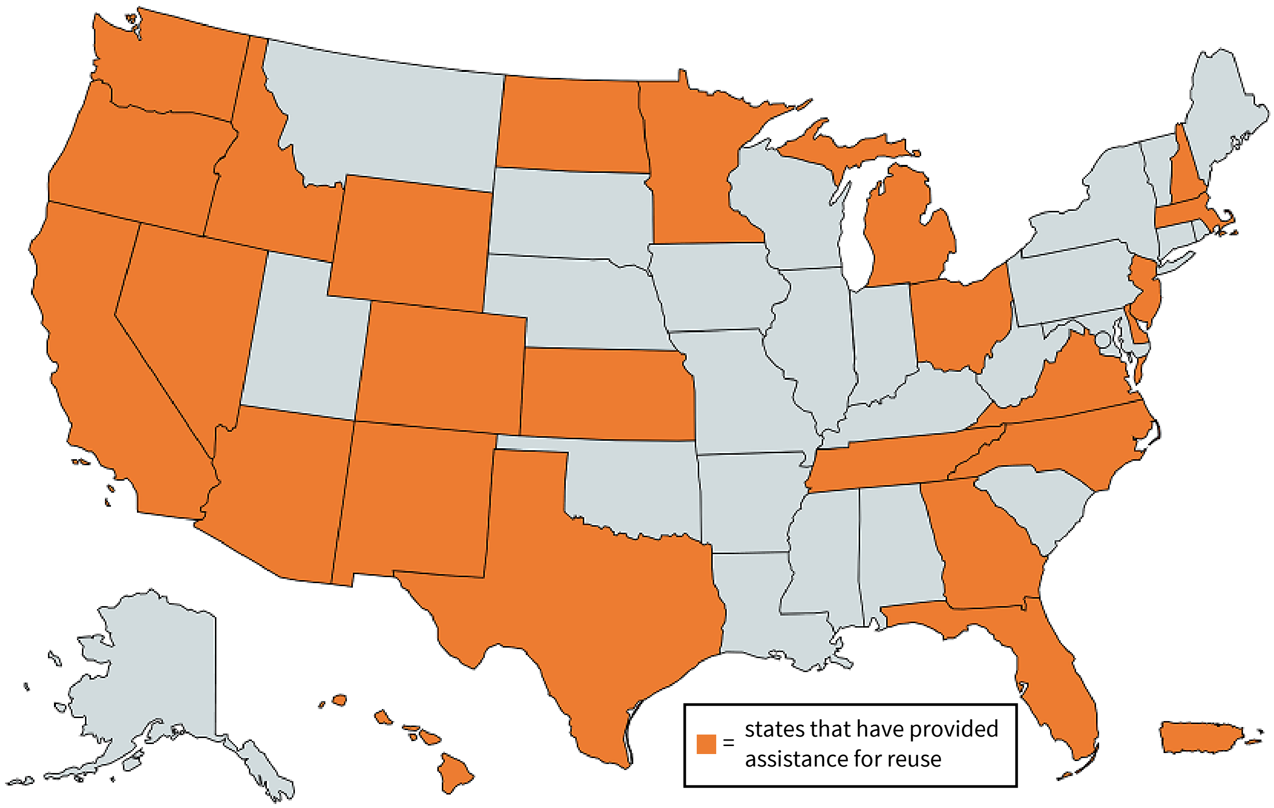


Figure 3. CWSRF Programs That Have Provided Assistance for Recycled Water Distribution Projects

EPA regularly collects information on the performance of the CWSRF program and individual loans in NIMS and the Clean Water Benefits Reporting (CBR) System and is updating its definition of water reuse to align with the definition in the CWNS so it is inclusive of additional treatment for the purpose of water reuse. In addition, the CWSRF National Program is updating its NIMS and CBR reporting systems for greater consistency and functionality[12].

Pure Water Monterey (CA) potable reuse facility

[12] A cumulative account of CWSRF support for water reuse from each state and additional information on the reporting systems has been summarized as part of the Water Reuse Action Plan and is found here: https://www.epa.gov/sites/production/files/2020-07/documents/action_2.6.2a_milestones_4_and_5_cwsrf_reuse_assistance_final_061220_508_0.pdf .

Selected State Practices and Policies

Across the 51 unique CWSRF programs, states have adopted practices and policies to encourage and incentivize projects that meet the specific priorities of a state. These practices and policies vary and include lower interest rates and other advantageous financing terms for certain types of projects, additional subsidization including principal forgiveness, supplemental planning assistance, coordination with other funding sources, and setting goals in policy statements. The following summary of selected state practices, policies, and programs targeted at water reuse is not exhaustive and other states also have effective policies supporting water reuse. A later section provides information on priority setting systems for the selection of projects.

Arizona

The Arizona CWSRF Program has previously incentivized qualifying Green Project Reserve (GPR) projects by offering loan forgiveness for up to 20 percent of eligible project costs or through 0.30% reduction in interest rates. Water reuse, including graywater and condensate reuse, is specifically included in Arizona's GPR criteria. Reductions in interest rates is a common strategy that many states use to incentivize certain types of projects or promote other sustainable or innovative practices.

California

California has a Water Recycling Funding Program (WRFP) with the sole purpose of financing water reuse projects in the state. This program received $625 million through Proposition 1 bond funding in 2014 for loans and grants for planning and construction. Loans from this program are administered through the CWSRF program and utilize many of the same processes. In addition, many water reuse projects are co-funded through grants and loans provided at 1 percent interest through the CWSRF. There are also separate criteria for the WRFP that give priority to potable reuse projects over non-potable reuse projects. As of April 2020, 36 projects received financing with over $221 million in grants and almost $900 million in CWSRF loan financing. While it is unlikely that many other states will implement a water reuse focused program at this scale, it is a good example of coordinating other state funding sources to leverage CWSRF resources.

Financial incentives including interest rate reductions, additional subsidization, and state administered grant programs are a common strategy that states use to incentivize certain types of water quality projects such as water reuse.

Hawaii

The Hawaii CWSRF Program has both a short- and long-term goal of promoting sustainable projects including water reuse. In addition, water reuse is given distinction from other water conservation projects, while in many other states water reuse and conservation are included in a single category of projects. While both types of projects share similar goals, distinguishing water reuse from water conservation acknowledges the differing drivers and benefits that can encourage communities to pursue water reuse.

Nebraska

The Nebraska CWSRF Program offers Project Planning Activities and Report grants for communities of 10,000 or less with financial hardship. These grants have been available in the past to any municipality "to investigate low-cost options for achieving compliance with the Clean Water Act, to encourage wastewater reuse, and conducting other studies for the purpose of enhancing the ability of communities to meet the requirements of the Clean Water Act". Funds are not currently available for this purpose, but communities can submit applications for future consideration.

Oklahoma

The Oklahoma CWSRF Program includes a statement of support for water reuse in both their short- and long-term program goals. The program also has a goal of supporting the Oklahoma Water for 2060 Initiative. This initiative includes several recommended actions related to water reuse including identifying successful projects and opportunities for water reuse to support the overall goal of using no more fresh water in 2060 than was used in 2010. The cost of water reuse infrastructure was identified as a constraint to future reuse opportunities and the CWSRF program can help address these cost concerns. Such initiatives can serve as a catalyst for spurring innovation in a CWSRF program, improving coordination in water resources management across state agencies, the utility sector, and even the private sector.

Texas

For communities that apply for or receive any state financial assistance over $500,000, the Texas Water Development Board requires the development and submission of a water conservation plan. Water reuse can be incorporated into these plans as an element for reducing water demand. Similar requirements help ensure that communities receiving CWSRF assistance are considering the long-term sustainability of water resources when planning infrastructure improvements.

In 2013 Texas created the State Water Implementation Fund for Texas (SWIFT) program to fund projects in its state water plan. SWIFT was initially established through a fund transfer from Texas's "rainy day fund" but was later leveraged through the issuance of revenue bonds. SWIFT provides low-interest loans for water supply projects and operates much in the same way as the CWSRF program. Water reuse projects are eligible, and SWIFT can be used to co-fund projects with the CWSRF program. Special consideration in SWIFT is given for rural communities, agricultural water conservation, water conservation, and water reuse projects.

Utah

The Utah CWSRF Program has set a goal of allocating at least 10 percent of its capitalization grants to water reuse projects. This is notable because while Utah has yet to report any assistance for recycled water distribution projects, this policy statement sends a signal to potential borrowers that water reuse is now a priority in Utah for CWSRF support.

Pure Water San Diego (CA) potable reuse demonstration facility

Cost and Effectiveness Analysis

The Water Resources Reform and Development Act of 2014 amended the Clean Water Act to make modifications to the CWSRF program. One new provision is a requirement that all public entities receiving CWSRF assistance conduct a study on the cost and effectiveness of the processes, materials, techniques, and technologies used in a proposed project. In addition, recipients are required to select "to the maximum extent practicable, a project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation" while taking cost into account. These evaluations are collectively referred to as a cost and effectiveness analysis and the evaluation is considered an eligible cost for CWSRF assistance on the condition that a certification of completion is provided before any assistance is awarded for final design or construction. While it is at the state's discretion on how to certify completion, and most states allow self-certification, clear requirements ensure that analyses are comprehensive and lead to tangible benefits.

While the details of any cost and effectiveness analysis will depend on the site-specific conditions of the potential borrower, there are common themes to be considered. A 2015 document prepared by Stratus Consulting[13] outlines a framework for an analysis that includes the following elements:

1. Identify the objective of the proposed project and problem it is intended to solve.
2. Establish the baseline scenario to compare alternatives (likely the initially planned project).
3. Identify alternative approaches or additional project elements for efficiency enhancements and water reuse to evaluate the feasibility in meeting the initial project objectives.
4. Quantify the costs and benefits for the alternative approaches.
5. Develop a lifecycle analysis and return-on-investment analysis.
6. Incorporate qualitative metrics that cannot be easily quantified (e.g., social benefits).
7. Compare the alternative project approaches and/or elements to identify the optimal project approach.

This approach is just one option of many, but the basic framework of conducting a holistic analysis of potential project alternatives that incorporate water reuse will meet the intent of the required cost and effectiveness analysis. CWSRF programs are required to confirm that all public entities receiving CWSRF assistance meet this requirement and should also look to ensure that the analyses are robust in their scope and being thoughtfully considered by potential borrowers. Without these analyses, communities may rely on traditional project approaches and not consider more innovative measures such as water reuse to meet project objectives and provide additional benefits in a more cost-effective way.

[13] Stratus Consulting, Inc. (2015). Guidelines for Assessing the Cost and Effectiveness of Efficiency, Reuse, and Recapture Projects for the Clean Water State Revolving Loan Fund. https://www.nrdc.org/resources/guidelines-assessing-cost-and-effectiveness-efficiency-reuse-and-recapture-projects-clean.

State Project Priority Systems

All states use project priority setting systems to rank and evaluate potential projects. The criteria used in these systems vary widely from state to state but generally include water quality benefits, public health considerations, compliance with state and federal regulations, and the financial need of a community. In addition, most states have criteria tailored to the specific water quality priorities for their state to further refine the ranking of projects beyond the most important factors. This can include criteria for the protection of selected waterbodies or to target specific sources of pollution. The criteria are then applied to potential projects based on the information included in a submitted application. States generally fund projects in the order they are ranked with bypass provisions related to readiness to proceed to ensure that CWSRF funds are committed in a timely and expeditious manner.

Many states have criteria in their project priority systems that focus on water reuse projects. While these criteria often have a small value compared to other criteria, they can still have a measurable effect on the ranking of projects if the system is properly designed. For example, if a priority setting system has 500 available points and criteria accounting for water reuse is only worth 10 of these points, it is unlikely that a project qualifying for these points will change its ranking. However, a system with 100 available points and 10 points from water reuse is more likely to result in a change in ranking for projects that includes a water reuse element. When considering revisions to a state's project priority system it is important to ensure that criteria have a noticeable effect on project ranking, while preserving the importance of priorities relating to water quality and public health that the CWSRF program was designed to address.

When designed correctly, a state project priority system ensures that water quality benefits and other state priorities are paramount in evaluating projects while still rewarding innovative practices. CWSRF programs can use their priority systems to clearly communicate a state's goals for water quality infrastructure including the most important sources of pollution (e.g., point or nonpoint source), important waterbodies, and possible other goals including resiliency of water supplies. Therefore, priority systems that are organized in an easily understandable format and featured prominently in program websites or other materials that CWSRF programs are an effective tool to engage potential borrowers.

One of the core strengths of the CWSRF program is the ability of a state to prioritize projects based on its unique priorities and water quality goals. In terms of water reuse, the states that have funded the largest number of water reuse projects generally have priority systems specifically designed to evaluate or incentivize water reuse. The following examples of selected states incorporate water reuse directly into their project priority systems.

Alabama

The Alabama CWSRF Program has a comprehensive project priority system that factors in several different sustainability criteria. Included in this system are criteria related to graywater and wastewater recycling, agricultural reuse, industrial reuse, and groundwater recharge. Stormwater and nonpoint source criteria also incorporate water reuse. Many of these criteria are additive and projects incorporating water reuse can get credit for multiple categories.

California

The California CWSRF Program project priority system gives all projects a "primary score" related to the purpose of a project (e.g., corrective action) and the impacted resource (e.g., drinking water source). Water reuse is included in the "primary score" and there are also additional points available for projects that eliminate a discharge or increase the local supply of drinking water. These criteria can be applied to water reuse projects and are examples of how to design criteria to account for the range of benefits that water reuse provides.

Florida

The Florida CWSRF Program priority system is largely based on the primary component of a project (e.g., eliminating a public health hazard) and water reuse is included with extra points available if the project replaces an existing or proposed demand for water. In addition, bonus points are available for projects that eliminate an ocean outfall. In this case, a prominent state priority on ocean outfalls is being incorporated into their priority system in a way to incentivize water reuse.

Kansas

The Kansas CWSRF Program priority system does not include any rating criteria specific to water reuse. However, the Director of the Bureau of Water has the authority to add additional priority points for projects that address zero discharge or water reuse in water-stressed areas. Therefore, the state has flexibility to address water reuse in their priority system if conditions warrant it, such as during periods of drought where water-stressed areas are looking to develop new drought-resilient water supplies.

Nevada

In the Nevada CWSRF program, for projects classified as necessary to increase reliability, treatment for water reuse is rated the highest and is separate from recycled water distribution which is given fewer points. Having separate ratings for treatment and distribution recognizes that water reuse will frequently necessitate treatment beyond what is required in a discharge permit.

Oklahoma

The Oklahoma CWSRF Program priority system gives the highest priority to projects that address a human health threat, but other projects related to compliance with permit limits include water reuse. In this case, even though water reuse projects are not necessarily specifically designed to meet a discharge permit, projects are given comparable priority. Oklahoma provides additional points to water reuse projects and specifically includes engineering and planning studies for potable reuse.

Texas

The Texas CWSRF Program priority system awards a substantial number of priority points for projects that allow systems to avoid higher levels of treatment through water reuse or eliminating a discharge. This type of criterion can incentivize communities to look towards water reuse as an alternate method to meet discharge requirements rather than invest in additional treatment.

Additional Project Evaluation Criteria to Consider

When looking to properly evaluate water reuse projects compared to more traditional water quality projects, CWSRF programs may want to consider supplementary evaluation criteria. While the details of any additional criteria will depend on the specific needs of a state, there are some general categories of criteria to consider:

1. **Volume of Water Produced**

   One measure of the impact of a water reuse project is the volume of water that would be added to existing supplies. This can represent the volume of current demand for traditional water supplies that will be displaced or the volume and future demand to be met through the implementation of a water reuse project. To account for smaller communities, this metric could be adjusted to represent the percentage of overall water demand.

2. **Nutrient and Pollutant Removal**

   States commonly have nutrient and pollutant removal metrics in place for wastewater treatment projects, but the removal of nutrients and other pollutants in water reuse is not just from treatment but also the elimination of some or all discharges. Creating this flexibility in criteria to account for nutrient and pollutant reduction from decreased discharges makes clear that the overall project outcome is evaluated in addition to metrics specific to treatment. This is an especially important metric in situations where water supply is not the primary driver of a water reuse project.

3. **Decrease in Discharges to Treatment Facilities**

   This type of metric is useful for evaluating the impact of stormwater capture and onsite water reuse projects that decrease influent into a wastewater treatment facility and reduce the potential for combined sewer overflows. These metrics account for a decrease in needed capacity for collection and treatment and can be coordinated with similar metrics for green infrastructure and other stormwater criteria.

4. **Drought Resilience and Supply Reliability**

   While this metric is similar to the Volume of Water Produced, there are some distinct differences. Because recycled water is considered a local and drought and climate-resilient water source, the volume of water produced is largely independent of the availability of natural supplies. This will create additional value for projects that can be qualitatively captured in a priority system to account for the enhanced security and certainty for future water supplies. In addition, there can be a metric for aquifer recharge to account for mitigating land subsidence and the preservation of groundwater supplies including the prevention of saltwater intrusion in coastal communities through a saltwater intrusion barrier.

5. **Environmental Enhancement**

   This metric addresses either the primary purpose of a water reuse project (e.g., environmental restoration) or the indirect environmental benefits of improved in-stream flows downstream of a drinking water intake due to decreased demand for freshwater withdrawals. Impacts include habitat conservation and recreational benefits. However, this metric may need to account for decreases in wastewater discharges that can negatively impact flows downstream of a discharge.

These are just a few of many potential metrics for evaluating the impacts of a potential water reuse project. The purpose of such metrics is not to prioritize a water reuse project over other types of projects, but to ensure that a state's priority system captures all of the relevant characteristics of any proposed project. If the available criteria in a priority system are not comprehensive, innovative projects may be passed over in favor of projects that are simply "business as usual". In addition, communities look to a state's project priority system criteria to guide their decision-making processes in the types of infrastructure projects to prioritize and be reluctant to pursue water reuse or other innovative strategies if they believe that the state does not view those types of projects as a priority.

Additional Resources

- Piper, S. (2014). *Development of Methodologies to Evaluate the Environmental, Financial and Social Benefits of Water Reuse Projects*. U.S. Bureau of Reclamation. Denver, CO.
- Stanford, B.D., S. Ishii, G. Johns, M. Hadjikakou, and S. Khan. (2018). *Comprehensive Analysis of Alternative Water Supply Projects Compared to Direct Potable Reuse*. The Water Research Foundation. Alexandria, VA.
- More information can also be found through the *2012 Guidelines for Water Reuse* and *2017 Potable Reuse Compendium* from EPA.

The citizens of Wichita Falls fully embraced the direct potable reuse project that successfully sustained them through the new drought of record. Citizens had seen the direct benefits of a potable reuse project and were eager to continue having a permanent project as part of the City's overall Water Resource Management Strategy. When the IPR project was brought online in 2018, it was met with great fanfare and once again, public support.

The City of Wichita Falls in Texas received an award as an Exceptional Project as part of EPA's Performance and Innovation in the SRF Creating Environmental Success (PISCES) program for their project to convert their temporary direct potable reuse system to a permanent indirect potable reuse system.

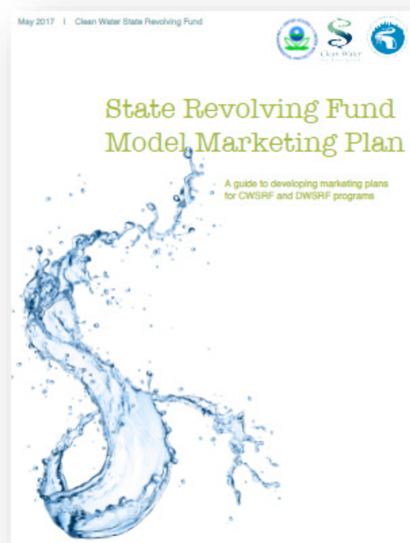
Marketing and Outreach

As CWSRF programs begin to further integrate water reuse into their programs, they likely need to adjust their marketing and outreach strategies to reach new borrowers. In many cases, wastewater utilities that are the traditional borrowers of CWSRF programs are also producers of recycled water. However, in some cases, and especially for potable reuse, drinking water utilities that are not traditional borrowers of the CWSRF program also implement water reuse programs that are eligible for CWSRF assistance. These potential borrowers may not have previously engaged with the CWSRF program and would benefit from special outreach to inform them of the eligibilities and benefits of the program.

Outreach to Industry Associations

To reach out to borrowers about potential water reuse projects, there are trade organizations such as the WateReuse Association that represent utilities across the country that practice water reuse. In addition, there are local chapters in Arizona, California, Colorado, Florida, Nevada, Texas, and the Pacific Northwest (Idaho, Oregon, and Washington). There are also annual conferences both at the national and regional level that provide opportunities to reach out to potential borrowers. The American Water Works Association and the Water Environment Federation are other organizations that are also engaged in water reuse through their membership and specialty events, and are effective partners in reaching potential borrowers.

States like California and Oregon have developed marketing plans that detail goals and strategies for expanding program awareness and reaching new markets. In addition, Oklahoma has developed a marketing plan that includes themes that will highlight different aspects of the program throughout the year. Water reuse and water efficiency is one theme highlighted during the summer months when the climate in Oklahoma is most arid. These marketing plans help guide the development of fact sheets, brochures, and other materials tailored to specific audiences. For example, Arizona has developed a fact sheet dedicated to water reuse that can be used to reach out specifically to practitioners including utility staff and consulting engineers. Effective outreach materials are relatively easy to develop and can go a long way to educating potential borrowers about the CWSRF program during conferences and other outreach events.

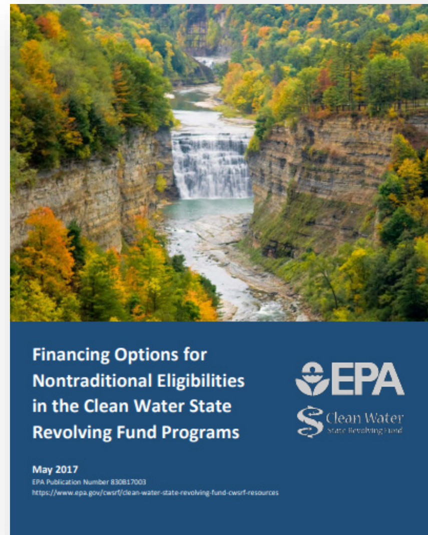


To help CWSRF programs develop their own marketing plans, EPA released a model marketing plan in 2017[14] that includes worksheets and templates to help programs set goals and objectives, identify stakeholders, assess their programs, conduct surveys, analyze feedback and implement program changes, measure success, and implement communications activities. This model plan is designed to be flexible so states can adapt to meet their specific needs and use it to develop materials and strategies to target specific audiences.

[14] A copy of this document is available upon request at CWSRF@epa.gov.

Innovative Financing Strategies

One of the important features of the CWSRF program is its flexibility in how state programs provide financial assistance. Since the program's inception, this flexibility has allowed states to develop innovative financing strategies to meet the needs of projects and borrowers beyond traditional wastewater treatment. Many of these innovative financing options are detailed in the 2017 report *Financing Options for Nontraditional Eligibilities in the Clean Water State Revolving Fund Programs*[15]. While the majority borrowers for water reuse will be municipal utilities that utilize loan structures similar to those for traditional wastewater treatment projects, there are some types of water reuse practiced at a smaller scale that could benefit from innovative financing strategies.



Pass-Through Lending

Onsite water reuse systems are typically developed on a building or neighborhood scale and, aside from municipal buildings, are generally privately owned. While these projects are eligible for CWSRF financing, when there is significant demand from eligible borrowers it may be burdensome for CWSRF staff to enter into an individual assistance agreement for each specific project. Fortunately, there are available financing mechanisms in place to reach borrowers in a more efficient manner. A good example is pass-through lending in which the CWSRF enters into a single loan agreement with a separate government agency which then provides smaller loans to individual borrowers (**Figure 4**). In this case, a CWSRF program provides a loan to a city or other government entity which then provides loans to individual property owners looking to implement onsite water reuse systems. The small loans are then repaid to the government entity which then repays the larger loan back to the SRF. This allows the final borrowers to work directly with their local government who they are more familiar with while reducing the administrative burden on the CWSRF program.

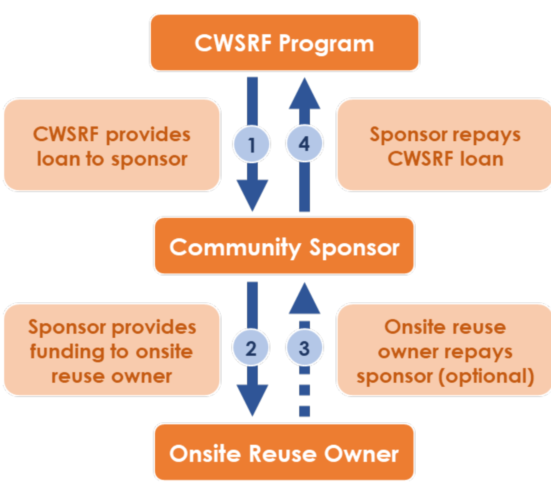


Figure 4. Pass-Through Loan Structure

Aside from onsite water reuse, some agricultural reuse or even industrial reuse systems can benefit from a pass-through loan structure. In the case of centralized water reuse for landscape, agricultural, or industrial purposes, there will need to be connections or other equipment in place at the end user to properly use recycled water. To facilitate the adoption of reuse, pass-through lending and similar structures are a useful mechanism to assist end-users to finance any necessary capital improvements. In this case, the CWSRF loan could go to a water reuse utility or municipality which then approaches potential end-

[15] This document is found on the CWSRF National Program website: https://www.epa.gov/cwsrf/financing-options-nontraditional-eligibilities-cwsrf.

users with a below-market interest loan. Increasing the number of end-users with the necessary equipment to use recycled water will help develop a customer base for non-potable water reuse.

San Francisco Public Utilities Commission Onsite Water Reuse Grant Program

The San Francisco Public Utilities Commission (SFPUC) has established an On-site Water Reuse Grant Program to reduce water usage by collecting, treating, and using alternate water sources including rainwater, stormwater, graywater, foundation drainage, air conditioning condensate, and blackwater for non-potable uses such as toilet flushing, irrigation, and cooling tower makeup. To receive a grant, there are eligibility thresholds based on the amount of potable water that a system is designed to replace. SFPUC can provide up to $1 million for systems designed to replace at least 3 million gallons of SFPUC water per year. This type of local program is an excellent example of the types of water reuse programs that a CWSRF program can support with pass-through lending with additional subsidization to support grant programs. The New York City Department of Environmental Protection has a similar program to reduce the amount of municipal wastewater entering New York City's combined sewer system.

More information can be found through the San Francisco Public Utilities Commission: https://sfwater.org/index.aspx?page=686.

Linked-Deposit Financing

One type of pass-through loan structure is also known as linked deposit financing where instead of partnering with another government agency, a CWSRF program partners with banks or other private financial institutions. In this case, a CWSRF program purchases a reduced-rate certificate of deposit. The financial institution then loans out the deposited funds (at a slightly lower interest rate) to individuals for smaller-scale water quality projects. Many states have used linked deposit programs to fund septic system replacements, agricultural best management practices, or environmentally friendly forestry equipment. Similar to partnering with a local government entity, linked-deposit allows borrowers to work with local financial institutions that they have a long-standing relationship with. This enables the CWSRF to reach new borrowers more efficiently.

Sponsorship Lending

In addition to pass-through loans in which the final borrower provides repayment, there is also the possibility of states using sponsorship programs to fund projects. Sponsorship lending is similar in structure to a pass-through loan, but the final borrower does not repay their loan. In this case, the primary borrower is usually a utility and in exchange for funding the sponsored project they receive a discount on their interest rate from the CWSRF. Because of the discounted interest rate, the sponsored project can be funded as a grant-equivalent project at no, or minimal, cost to the sponsoring utility (An example of how a sponsorship project works is seen in **Figure 5**). Traditionally, sponsorship lending has been used for nonpoint source projects that have difficulty identifying a source of repayment. The same may be true for some onsite reuse projects and sponsorship may be an attractive option for public buildings that incorporate an educational or public outreach component to provide additional benefits.

CWSRF programs are continuously developing new and innovative financing mechanisms to support the wide variety of water quality projects that states and communities undertake. While most water reuse projects can be financed with loans similar to those for traditional wastewater utility projects, new water reuse applications are being continually developed that will benefit from alternative financing structures. By utilizing the inherent flexibility in the CWSRF, state programs can enable communities to pursue projects that produce the greatest benefit to the greatest number of people. As the CWSRF program continues to evolve, new mechanisms may be developed, and states should continually investigate how these mechanisms can be applied to water reuse and other water quality projects.

	Loan Amount	Interest Rate (r)	Total Repayment Over 20 Years
CWSRF Loan	$1,000,000	3.8%	$1,463,707
CWSRF Loan with Sponsored Project	$1,393,442	0.3%	$1,463,707

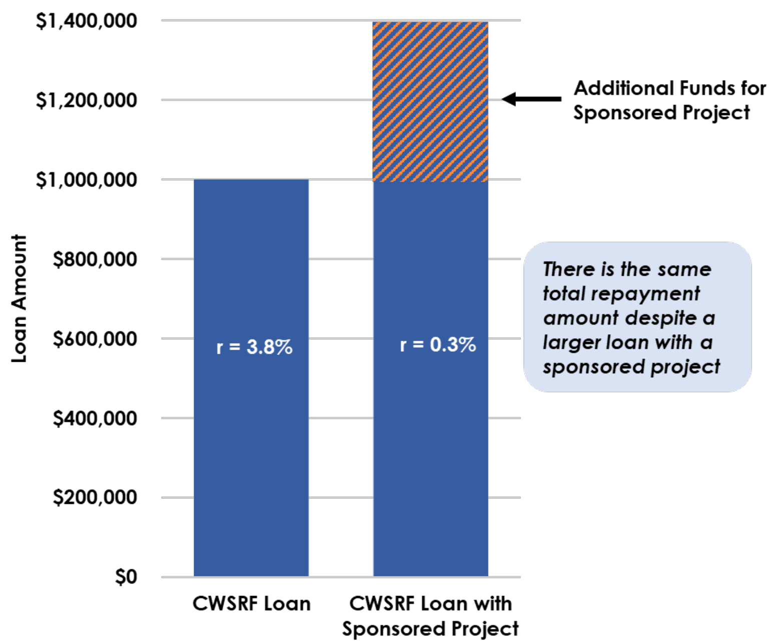


Figure 5. Sponsorship Loan

Hawks Prairie Ponds and Recharge Basins (LOTT Clean Water Alliance, WA)

The Future of Water Reuse in the CWSRF

The strategies communities develop to manage their water resources have changed dramatically over the past several decades with advancements in water conservation, resource recovery, and other sustainable management practices. These changes have been driven by increasingly scarce freshwater resources and the need to reduce discharges of pollutants to restore and protect important water bodies. As a result, municipal wastewater, stormwater, and other waste streams are no longer viewed strictly as "waste" but as resources that have value. This value comes from the recovery of energy, recovery of resources such as phosphorus, and the recovery of water to be used for other beneficial purposes. This more holistic approach to water resources management is sometimes referred to as a "One Water" approach and represents an integrated management strategy where the line between wastewater and drinking water is becoming more indistinct and less important.

As communities continue to shift to a more integrated approach to water resources management, water reuse is expected to be a significant part of that shift. With this change comes a need for financial resources and the CWSRF programs are well positioned to provide financial assistance to communities looking to establish or expand a water reuse program. The CWSRF program was designed with flexibility to allow states to tailor their program to meet the unique needs of its communities. This flexibility includes the ability to support water reuse projects to address all types of water quality challenges. It is important that communities are aware of this flexibility and that CWSRF programs be ahead of the curve on the adoption of new technologies and practices, so they are ready to support unique and innovative projects.

Although the CWSRF program is just one of many sources of financial capital for infrastructure projects, the CWSRF has the ability to use financial incentives and other programmatic incentives to encourage the adoption of water reuse and other types of resource recovery. These incentives are an important tool that states have to support water quality priorities and encourage innovation while providing needed financial support to communities. EPA will continue to provide guidance and support to the CWSRF programs to advance environmental goals as well as disseminate important information on advancements in water treatment and management strategies. The Water Reuse Action Plan is just one example of this and will serve as an important forum for states and other stakeholders to come together, share experiences, and ultimately chart a path forward for sustainable water management.

For more information about the CWSRF please contact us

United States Environmental Protection Agency
Clean Water State Revolving Fund Branch
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Washington, DC 20460
CWSRF@epa.gov
http://www.epa.gov/cwsrf

Office of Water | April 2021 | EPA Publication 832B21001

Appendix A: Additional Resources

- EPA, Clean Water State Revolving Fund Program – Includes up to date information on program guidance and requirements, contact information, and other available resources: http://www.epa.gov/cwsrf
- EPA, *Financing Options for Nontraditional Eligibilities in the CWSRF* – Includes information on how varied types of financial assistance available to the CWSRF program can be deployed to fund program eligibilities: https://www.epa.gov/cwsrf/financing-options-nontraditional-eligibilities-cwsrf
- EPA, *Overview of Clean Water State Revolving Fund Eligibilities* – Includes information on the types of projects eligible for CWSRF assistance at the national level: https://www.epa.gov/cwsrf/overview-clean-water-state-revolving-fund-eligibilities
- EPA, Water Reuse Action Plan (WRAP) – Includes up-to-date information on the progress of WRAP actions and milestones: https://www.epa.gov/waterreuse/water-reuse-action-plan
- EPA, *2012 Guidelines for Water Reuse* – Includes discussion of regional variations of water reuse, advances in wastewater treatment technologies relevant to reuse, best practices for involving communities in planning projects, and other factors that will allow expansion of safe and sustainable water reuse: https://www.epa.gov/waterreuse/guidelines-water-reuse
- EPA, *2017 Potable Reuse Compendium* – Supplements the *2012 Guidelines for Water Reuse* to inform current practices and approaches in potable reuse, including those related to direct potable reuse: https://www.epa.gov/ground-water-and-drinking-water/2017-potable-reuse-compendium
- U.S. Bureau of Reclamation Title XVI Program – Reclamation's primary program for funding for the planning, design, and construction of water recycling and reuse projects in partnership with local government entities: https://www.usbr.gov/watersmart/title/index.html
- WateReuse Association – Trade organization representing utilities and practitioners of water reuse. Includes resources on state regulatory developments and utility engagement: https://watereuse.org/
- The Water Research Foundation – Includes resources on recent developments in technical research for water reuse applications: https://www.waterrf.org/research/topics/reuse

Appendix B: Sources for State Policies and Programs

Alabama

- Form 340: Clean Water State Revolving Fund Preapplication: http://adem.alabama.gov/DeptForms/Form340.pdf

Arizona

- SFY 2020 Clean Water Intended Use Plan: https://www.azwifa.gov/component/edocman/2020-cw-iup-and-ppl/viewdocument/219

California

- Policy for Implementing the Clean Water State Revolving Fund: https://www.waterboards.ca.gov/drinking_water/services/funding/documents/srf/dwsrf_policy/final_policy_1219.pdf
- Recycled Water Projects Receiving a 1% Financing Commitment through the Clean Water State Revolving Fund: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/water_recycling/docs/1percent_wrd_projects.pdf
- Water Recycling Funding Program: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/water_recycling/
- Water Recycling Funding Program Guidelines: https://www.waterboards.ca.gov/water_issues/programs/grants_loans/water_recycling/docs/wrfp_guidelines.pdf

Florida

- Request for Inclusion on the CWSRF Priority List: https://floridadep.gov/sites/default/files/62-503_200%2830%29_RFI.pdf

Hawaii

- Amendment 2 to the Intended Use Plan for State Fiscal Year (SFY) 2021 and Federal Fiscal Year (FFY) 2020 Appropriation: https://health.hawaii.gov/wastewater/files/2020/12/IUP_SFY_2021_amend_2.pdf

Kansas

- Final Project Priority System for the Kansas Water Pollution Control Revolving Loan Program – State Fiscal Year 2020: https://www.kdheks.gov/muni/download/2020.Final.ProjectPrioritySystem.pdf

Nebraska

- Clean Water & Drinking Water Intended Use Plan – State Fiscal Year 2021: http://deq.ne.gov/Publica.nsf/xsp/.ibmmodres/domino/OpenAttachment/Publica.nsf/ACF2FFC89E7DDC71862585AF004FBE1A/Attach/20-017%20-%20SRF2021%20Intended%20Use%20Plan.pdf

Nevada

- Nevada CWSRF Project Priority List Ranking Criteria: https://ndep.nv.gov/uploads/water-financing-srf-wastewater-docs/CWSRF_Priority_List_Ranking_Criteria.pdf

Oklahoma

- 2020 Intended Use Plan: http://www.owrb.ok.gov/financing/loan/pdf_loa/cwsrfiups/2020CWSRF-IUP.pdf
- Oklahoma Water for 2060: https://www.owrb.ok.gov/2060/

Texas

- Intended Use Plan – SFY 2021 Clean Water State Revolving Fund: http://www.twdb.texas.gov/financial/programs/CWSRF/doc/SFY2021/SFY2021_CWSRF_IUP.pdf
- State Water Implementation Fund for Texas: http://www.twdb.texas.gov/financial/programs/SWIFT/index.asp
- Texas Water Development Board – Water Conservation Plans: https://www.twdb.texas.gov/conservation/municipal/plans/index.asp
- "TWDB approves more than $1.9 billion in SWIFT financial assistance": https://texaswaternewsroom.org/pressreleases/2018-07-26_swift_totals.html

Utah

- State Revolving Fund Intended Use Plan – FY20: https://documents.deq.utah.gov/water-quality/financial-assistance/intended-use-plan/DWQ-2020-006808.pdf