

ISSUE PAPER

GO BACK TO THE WELL:

STATES AND THE FEDERAL GOVERNMENT ARE NEGLECTING A KEY FUNDING SOURCE FOR WATER INFRASTRUCTURE



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Water infrastructure is particularly vulnerable to flooding, because these systems are often sited near rivers or coastlines. As floods become more likely and sea levels rise, these complex systems will need to be built, or rebuilt, to adapt to future conditions and it will be costly. The St. Louis Metropolitan Sewer District's Grand Glaize Wastewater Treatment Plant was hit by flooding several times in recent years.

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EXECUTIVE SUMMARY

The funding gap for U.S. water infrastructure could exceed \$1 trillion. Many decades-old drinking water, wastewater, and stormwater systems do not meet existing environmental and public health standards. Even more systems will need to be modernized to continue to meet these standards. Furthermore, our water infrastructure was never designed for the impacts of climate change, including the increasing frequency of droughts and sea level rise, so many existing systems will need to be redesigned or relocated.

Congress established the Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) to provide states sustainable, long-term financial assistance to support communities' water infrastructure needs.¹ These funds have provided \$151.2 billion in financial assistance since their inception, but their full potential remains untapped.² This report describes actions that federal and state governments should take to more effectively leverage water infrastructure funding through State Revolving Funds (SRFs).³

To help close the funding gap, there must be increased federal financial support for SRFs. Second, states need to make use of their ability to issue SRF-backed loan guarantees to communities. This would enable communities to more easily and cheaply raise funds from private financial markets. Third, states should leverage additional funding for their SRF programs through the issuance of bonds, which is a low-cost way to increase their SRFs' financial capacity. Finally, Congress should grant states the flexibility to use newly generated funding for SRF grants or subsidized assistance.

These recommendations could help shrink the nation's water infrastructure funding gap in a way that's sustainable and equitable. It would also provide assistance for communities most in need, and help build the 21st century water infrastructure systems the entire nation needs.



America's drinking water, wastewater, and stormwater systems are vital to communities' well-being.⁴ But they are decades old and in need of a makeover in the next several decades. Legacy environmental and public health problems have been ignored for too long and many treatment plants need to be modernized or replaced.⁵ For example, in Flint, Michigan, in 2015, lead service lines contributed to a public health emergency.⁶ To simply meet and maintain existing health and environmental standards, the U.S. Environmental Protection Agency (EPA) estimates that the nation would need nearly \$745 billion.⁷ That breaks out to \$472.6 billion for drinking water and \$271 billion for sewage systems and stormwater.^{8,9}

And that price tag doesn't even include potential costs from the looming threat of climate change and the number of water systems that, as a result, will need to be re-engineered—and in some cases relocated—to cope with sea level rise, floods, and droughts. To adequately address the rising number of these incidents, the nation may need an additional \$448 to \$944 billion by 2050.¹⁰ Our water infrastructure is already suffering from these events. Between 1998 and 2014, the Federal Emergency Management Agency (FEMA) spent \$7.4 billion just to repair water and sewer infrastructure damaged by floods and coastal storms.¹¹

After Hurricane Ivan struck in 2004, Pensacola, Florida paid \$300 million to move an aging sewage treatment plant to a new location that was better protected from flooding and less vulnerable to sea level rise.¹² In 2012, Hurricane Sandy caused more than \$5 billion in damage to wastewater infrastructure in New York and New Jersey and hundreds of millions more was spent to make these systems less vulnerable to similar events in the future.^{13,14,15} Communities across the country will face the same challenges in the future. A study by Argonne National Laboratory and the University of California-Berkeley found that 162 wastewater treatment plants serving 10.4 million Americans are at risk of flooding with three feet of sea level rise. With six feet of sea level rise, the numbers increase to 394 wastewater treatment plants serving 31.6 million Americans.¹⁶

All told, the United States is facing a future bill for water infrastructure that is well in excess of \$1 trillion. And that raises the trillion-dollar question: "Where will these funds come from?"

NRDC has identified four actions that federal and state governments can take to help close the funding gap:

- Congress should triple appropriations for the Clean Water and Drinking Water State Revolving Funds from the current level of approximately \$2 billion to \$6 billion annually.
- States should make loan guarantees available to more easily and cheaply finance drinking water, wastewater, and stormwater projects.
- States should leverage additional funding for their SRF programs through the issuance of bonds.
- Congress should allow states that increase the funding of their SRFs to provide additional subsidized assistance in order to meet the needs of low-income communities and catalyze investments in projects that are currently underrepresented in SRF portfolios.

The SRFs are an obvious and underused vehicle for these critical investments. The federal government should provide additional financial support and states should contribute much more.

NRDC PAST WORK ON THE SRFs

Since the creation of SRFs, NRDC has recognized their importance in protecting water quality, the environment, and public health. We have also noted their important role in improving the performance and reliability of the nation's water infrastructure and have long advocated for more SRF funding.

In 2014, we published *Using State Revolving Funds to Build Climate-Resilient Communities*.¹⁷ This report examined innovative state-level SRF practices that encourage implementation of green infrastructure, flood risk reduction, and water efficiency measures—all of which help make water systems more resilient.

This report builds on those findings and describes how the federal government and states can more creatively employ SRFs to leverage the additional funding required to build safer, more dependable, and more resilient water infrastructure.

STATE REVOLVING FUNDS FOR WATER INFRASTRUCTURE: AN OVERVIEW

Congress established the CWSRF and DWSRF in hopes that they would provide states with a stable source of long-term funding to meet their communities' water infrastructure needs. All 50 states administer a CWSRF and a DWSRF.¹⁸ Each year, Congress appropriates funding for the SRFs. Between 2013 and 2017, it appropriated an average of \$1.41 billion for the CWSRFs and \$852 million for the DWSRFs.¹⁹ A study by the RAND Corporation showed that the federal government provided just 4 percent of annual funding for the nation's water utilities in 2014, based on data from various sources.²⁰

Even worse, most states do little to expand the financial capacity of their SRF programs. Instead, they settle for the incremental growth afforded by annual federal grants, their minimum state matches, and interest payments on outstanding loans.

The EPA allocates these funds to states through annual capitalization grants that are based on a needs assessment. In order to receive this federal funding, states must provide matches totaling 20 percent of their annual capitalization grant from the EPA.²¹ Collectively, these SRF grants are the largest source of federal water infrastructure funding.

States use the SRFs mostly to provide low-interest loans to communities. But the SRF programs were intended to be much more than a source of low-interest loans. That's why Congress allowed states to issue bonds through their SRF programs, enabling them to further increase the SRFs' financial capacity. Congress also allowed states to issue loan guarantees in order to provide credit assistance for water infrastructure projects, making it easier for communities to secure private financing.

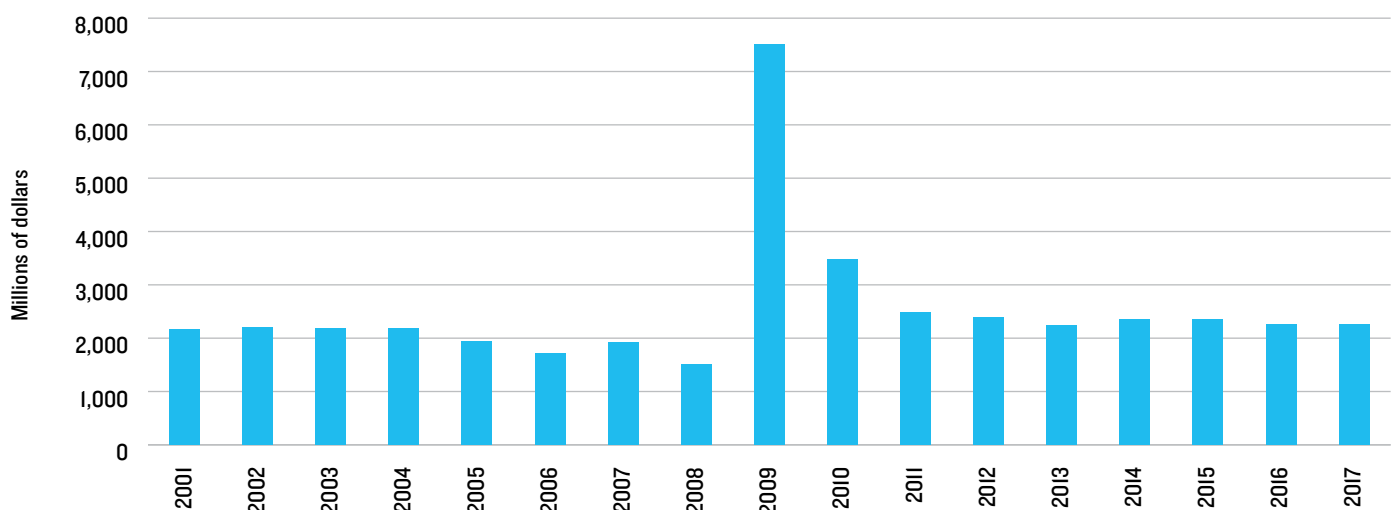
Communities submit applications for financial assistance from the SRFs. States score each application based on factors like population served and anticipated environmental or public health benefits.²² Given the available funding, states determine which communities will get assistance, and how much assistance they will receive. The vast majority of SRF assistance is administered in the form of low-interest loans.²³

Over the past several years, federal funding for water infrastructure has either remained stagnant or declined, without adjusting for inflation (see Figure 1). That means funding provided by state SRF programs is falling further behind the curve of mounting water infrastructure needs.^{24,25}

Even worse, most states do little to expand the financial capacity of their SRF programs. Instead, they settle for the incremental growth afforded by annual federal grants, their minimum state matches, and interest payments on outstanding loans. The interest payments account for approximately 2 percent of the repayments. This approach does not keep pace with the nation's water infrastructure needs (see Figure 2).

FIGURE 1: TOTAL FEDERAL CWSRF AND DWSRF APPROPRIATIONS (2001–2017)

Over the past several years, federal funding for water infrastructure has either remained stagnant or declined, and has hovered around \$2 billion annually. The notable exception was 2009, when the American Recovery and Reinvestment Act provided a short-term boost.



Source: Congressional Research Service

States are failing to provide all the funding that's possible to ensure safe, reliable, and resilient water infrastructure.

CONGRESS SHOULD TRIPLE ANNUAL APPROPRIATIONS FOR THE CLEAN WATER AND DRINKING WATER STATE REVOLVING FUNDS, INCREASING THEM FROM APPROXIMATELY \$2 BILLION TO \$6 BILLION

The federal government should increase its long-term commitment to the SRFs. This new funding should target a growing list of priorities that are currently underrepresented in the states' portfolios of SRF assistance, including:

- Still, the SRFs have provided \$151.2 billion to local communities since their inception.^{26,27} While this is a substantial amount of money, much more is needed. Federal funding certainly needs to increase, but states should also more effectively leverage the federal SRF dollars they already receive. SRF programs can do so much more than what they are currently doing, including:²⁸
- Provide low-interest or no-interest loans;
- Forgive all or a portion of loans, also known as subsidized assistance or additional subsidization;²⁹
- Provide loan guarantees to establish local revolving funds that are used for the same purposes as a state's CWSRF;³⁰
- Provide debt guarantees or municipal bond insurance to enable a community to get private financing at advantageous terms; and
- Issue state bonds that are deposited back into the SRF, thereby increasing the SRF's long-term financial capacity.

- Water infrastructure that is designed to address the increased risk of droughts, floods, sea level rise, and extreme weather events;
- Repairs for deteriorating water infrastructure and removal of lead service lines in economically disadvantaged communities;
- Water efficiency, water reuse, and water recycling;
- Green infrastructure and stormwater management;³⁵
- Source water protection to help prevent pollution and runoff from contaminating rivers, lakes, and reservoirs; and
- Reducing the amount of water that is wasted because of old, leaky water mains.

Underinvestment at the federal level and underutilization at the state level have left much of the SRFs' capacity untapped. As a result, states are failing to provide all the funding that's possible to ensure safe, reliable, and resilient water infrastructure.

Prior to taking office, President-elect Trump made an encouraging pledge to triple funding for water infrastructure from the current \$2 billion level to \$6 billion, but that has yet to happen.³⁶ In February, the Trump administration unveiled its proposed budget and infrastructure plans, both of which fall far short of his earlier promise. Instead, the administration's infrastructure plan overestimates private investors' interest levels in unprofitable projects, like building new water systems to replace those that were poorly sited and are now threatened by inundation from floods or coastal storms.³⁷ Private investors also will not see much profit from projects like removing lead service lines in low-income communities. President Trump's funding proposal falls 98 percent short of its own goal of raising \$1.5 trillion for roads, according to The Wharton School of The University of Pennsylvania.³⁸

Communities often rely on the SRFs to finance routine repairs and upgrades of aging water systems, rather than relying on thoughtful long-term financial planning and setting sustainable water, sewer, and stormwater fees to pay for these anticipated improvements. The heavy reliance on the SRFs for these expenses can leave states with little SRF support for more innovative projects like green infrastructure, water efficiency and reuse, and climate-resilient systems. States could also be using those funds to remove and replace lead water lines that endanger the health of 18 million Americans.³⁹

FIGURE 2: DIFFERENT STATE APPROACHES TO SRF FUNDING

INCREMENTAL GROWTH: A SIMPLE, BUT SUBSTANDARD, APPROACH

	(Federal Funding) Annual capitalization grant ³¹
+	(State Funding) Minimum 20% state match ³²
+	Loan and interest payments
Total SRF assistance the state makes available to communities	

ROBUST LONG-TERM GROWTH: LEVERAGING ALL CAPABILITIES

	(Federal Funding) Annual capitalization ³³
+	(State Funding) Minimum 20% state match ³⁴
+	Loan and interest payments
+	Revenues from the sale of leveraged bonds
+	Loan guarantees issued to support additional local financing
Total SRF assistance the state makes available to communities	

STATES SHOULD MAKE LOAN GUARANTEES AVAILABLE TO COMMUNITIES SO THEY CAN MORE EASILY AND CHEAPLY FINANCE WATER INFRASTRUCTURE

Currently, states do not use their SRFs to issue loan guarantees to water utilities, denying communities access to what should be a valuable financing tool. A loan guarantee serves the same purpose as someone cosigning a loan for an individual—providing a promise to repay the loan if the recipient defaults. SRFs can essentially cosign a community’s loan or bond sale, guaranteeing the debt and eliminating the risk of default for bondholders. By issuing loan guarantees, SRFs can use their solid financial positions to assure bondholders that their investments are safe. This can allow communities to secure financing at a significantly lower cost and, as long as they do not default, there is no financial cost to the SRFs. Also, if there is not enough SRF funding available to directly finance larger projects with low-interest loans, a loan guarantee from an SRF to a community would allow it to secure private financing at reduced interest rates, lowering its costs.

The CWSRFs and DWSRFs can issue loan guarantees for projects that would be eligible for SRF assistance.⁴⁰ The use of loan guarantees has been recognized by the EPA as a best practice for supporting green infrastructure.⁴¹ The EPA believes government-backed loan guarantees could play a bigger role financing water infrastructure and it considers them a core component of the agency’s implementation of the Water Infrastructure Finance and Innovation Act.⁴²

As of 2016, New York used its CWSRF to issue the one and only SRF-backed guarantee for \$24.3 million. That’s a miniscule 0.15 percent of the \$15.5 billion in assistance New York’s CWSRF has provided in its lifetime.^{43,44}

According to a Government Affairs Office (GAO) study,

“...the Environmental Financial Advisory Board recommended that EPA take an active leadership role in facilitating states’ use of the loan guarantees, particularly in funding environmentally innovative infrastructure projects. EPA regional officials we spoke with reported that, although state SRF programs have the authority to issue loan guarantees, the programs have not traditionally done so...”⁴⁵

The EPA’s Environmental Financial Advisory Board report referenced by the GAO found that for every dollar of CWSRF equity, \$3 to \$14 of guarantee capacity could be provided to green infrastructure projects. This would translate to \$6 billion to \$28 billion in additional green infrastructure funding capacity.⁴⁶ And loan guarantees don’t just apply to green infrastructure—all forms of water infrastructure could benefit from loan guarantees. The Environmental Financial Advisory Board chose to focus this analysis on green infrastructure because of the chronic lack of SRF support for these projects nationwide. But, states are currently refusing to take this major leap forward for funding.

Twenty-two states have not leveraged their SRF programs by issuing bonds and, among the states that have done so, most have done relatively little.

Loan guarantees do carry some risk for SRF programs, which are manageable. Before issuing a loan guarantee, SRF managers should take precautions similar to the ones they already take when issuing an SRF loan, to ensure that the risk of default is minimal and that the recipient is able to repay the debt.⁴⁷ This prudence would minimize the risk of default, just as it minimizes the risk of SRF loan defaults.

SRF-backed loan guarantees could be especially useful for low-income communities. These communities usually have poor credit ratings and their funding needs often surpass SRF capacity. These communities often can only borrow from private markets under unfavorable terms. For these situations, a debt guarantee from a state’s SRF could be the difference between repairing or improving their water systems, or having aged systems prone to failure and incapable of meeting minimum public health standards.

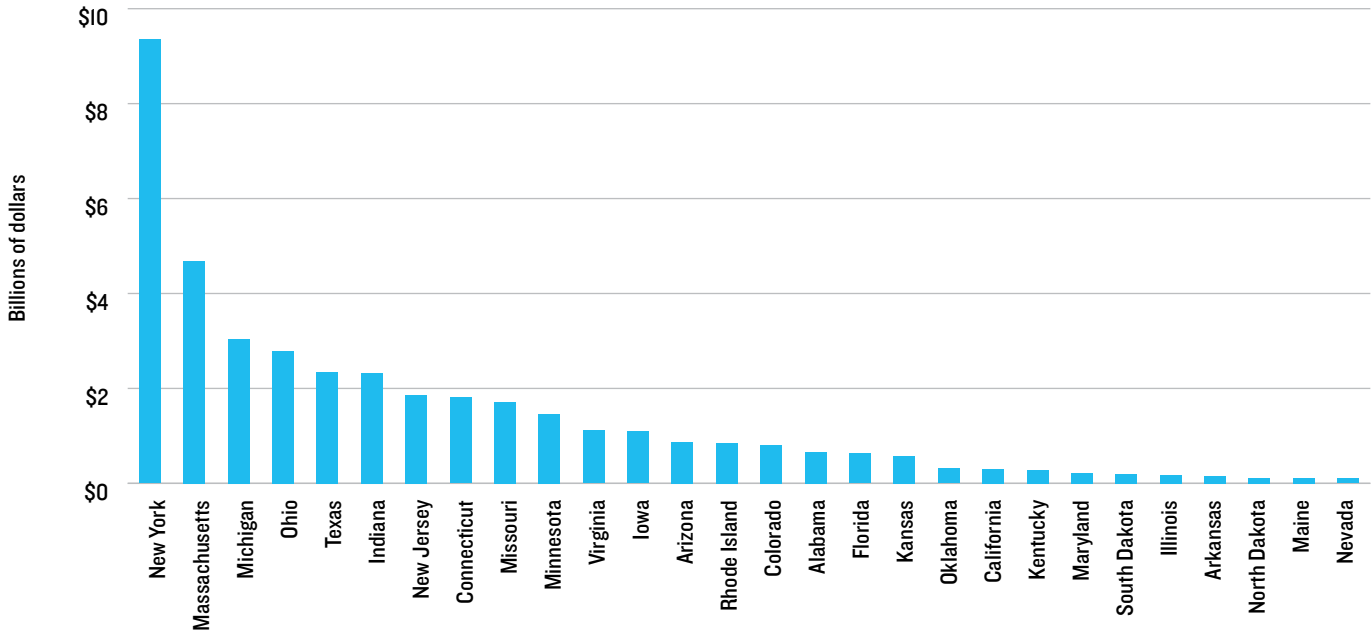
MORE STATES SHOULD LEVERAGE ADDITIONAL FUNDING FOR THEIR SRF PROGRAMS BY ISSUING BONDS

The sale of bonds is one of the easiest, fastest, and most common ways that states raise capital for infrastructure of all types. Selling bonds can also give SRFs a cash infusion at relatively low interest rates. Federal and state statutes allow SRF programs to issue bonds, deposit the proceeds in the SRF, and pay the debt service out of the SRF’s future revenues.

Yet, 22 states have not leveraged their SRF programs by issuing bonds and, among the states that have done so, most have done relatively little. The other 28 states have leveraged a total of \$51 billion in additional water infrastructure funding between 1989 and 2015 through their CWSRF (\$43 billion) and DWSRF (\$8 billion).^{48,49} (See Figures 3 and 4). Bonds represent the single largest source of state financing used to increase the financial capacity of their SRF programs (as opposed to annual state appropriations). Of the 28 states that have used bonding, just 12 are responsible for nearly 75 percent of the bond revenues generated (see Tables 1 and 3). Only New York, Massachusetts, Ohio, and Indiana have regularly leveraged their SRFs through the sale of bonds and steadily expanded the capacity of their programs.

FIGURE 3: TOTAL LEVERAGED CWSRF BONDING BY STATE (CONTRIBUTIONS IN EXCESS OF MINIMUM 20% MATCH)

Since the CWSRFs were established in 1987, twenty-eight states have leveraged \$43 billion through bond sales, increasing their CWSRF's financial capacity. As of the end of 2015, twenty-two states had done no bonding to expand the financial capacity of their CWSRF programs.

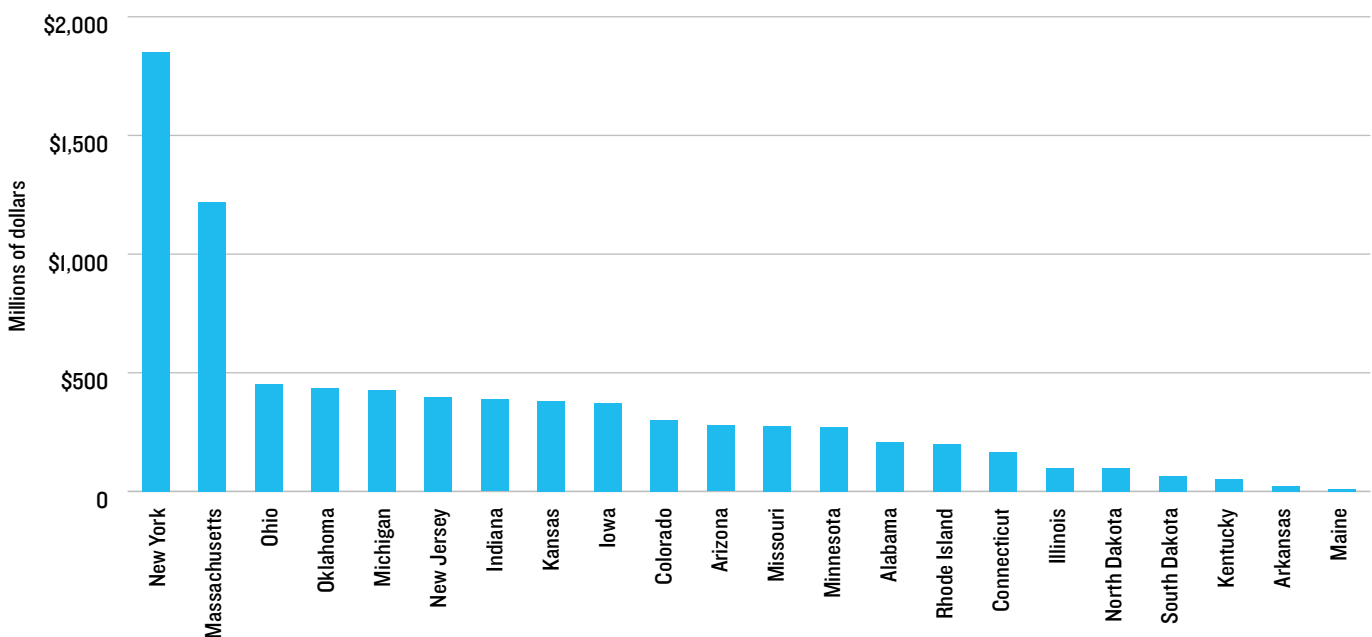


Source: EPA CWSRF data

Only New York, Massachusetts, Ohio, and Indiana have regularly leveraged their SRFs through the sale of bonds and steadily expanded the capacity of their programs.

FIGURE 4: TOTAL LEVERAGED DWSRF BONDING BY STATE (CONTRIBUTIONS IN EXCESS OF MINIMUM 20% MATCH)

Since the DWSRFs were established in 1996, twenty-two states have leveraged \$8 billion through bond sales, increasing their DWSRF's financial capacity. As of the end of 2015, twenty-eight states had done no bonding to expand the financial capacity of their DWSRF programs.



Source: EPA DWSRF data

But some of those 12 states have not leveraged their SRFs during the past ten years, while others have been more active during that period. Between 2006 and 2015, Virginia has increased its fund by an average of nearly \$74 million

per year (see Table 2). Other states, including Michigan and Kansas, expanded their DWSRFs in the past, but did relatively little between 2006 and 2015 (see Tables 3 and 4).

TABLE 1: 1989-2015: TOP STATES USING BONDS TO EXPAND THEIR CLEAN WATER STATE REVOLVING FUNDS		
State	Total Leveraged Bonding (1989-2015) (above 20% match)	Percentage of National Total
New York	\$9,350,116,049	23.40%
Massachusetts	\$4,690,734,385	11.74%
Michigan	\$3,048,780,000	7.63%
Ohio	\$2,781,473,342	6.96%
Texas	\$2,340,450,000	5.86%
Indiana	\$2,329,962,882	5.83%
New Jersey	\$1,864,085,000	4.66%
Connecticut	\$1,810,507,409	4.53%
Missouri	\$1,711,432,661	4.28%

TABLE 2: 2006-2015: TOP STATES USING BONDS TO EXPAND THEIR CLEAN WATER STATE REVOLVING FUNDS		
State	Average Annual Leveraged Bonding 2006-2015 (above 20% match)	Percentage of National Average 2006-2015
New York	\$279,614,601	17.24%
Massachusetts	\$192,651,587	11.88%
Ohio	\$164,499,191	10.14%
Michigan	\$114,262,500	7.05%
Indiana	\$105,355,391	6.50%
Connecticut	\$101,010,096	6.23%
Iowa	\$90,226,000	5.56%
New Jersey	\$86,122,500	5.31%
Virginia	\$73,719,500	4.55%

For the CWSRF, these tables show the states responsible for 75 percent of all funding states have leveraged through bonding up to the year 2015. Table 1 is for 1989-2015, going back to the CWSRF's inception. Table 2 is for 2006-2015, the most recent ten years of data analyzed. Some states, like Texas and Missouri, have used bonds in the past (see Table 1), but not as much in the last ten years (and do not appear on Table 2). Over the past ten years, Virginia and Iowa have been much more active (see Table 2).

Source: EPA CWSRF data

TABLE 3: 1998-2015: TOP STATES USING BONDS IN THEIR DRINKING WATER STATE REVOLVING FUNDS		
State	Total Leveraged Bonding (1998-2015) (above 20% match)	Percentage of National Total
New York	\$1,850,806,813	23.19%
Massachusetts	\$1,218,228,634	15.27%
Ohio	\$453,481,410	5.68%
Oklahoma	\$437,445,000	5.48%
Michigan	\$428,850,000	5.37%
New Jersey	\$397,445,681	4.98%
Indiana	\$387,253,455	4.85%
Kansas	\$380,905,000	4.77%
Iowa	\$374,080,147	4.69%

TABLE 4: 2006-2015: TOP STATES USING BONDS TO EXPAND THEIR DRINKING WATER STATE REVOLVING FUNDS		
State	Average Annual Leveraged Bonding 2006-2015 (above 20% match)	Percentage of National Average 2006-2015
New York	\$86,415,899	21.17%
Massachusetts	\$73,634,149	18.04%
Ohio	\$31,980,000	7.84%
Iowa	\$28,081,500	6.88%
Oklahoma	\$24,313,000	5.96%
New Jersey	\$22,614,568	5.54%
Indiana	\$20,783,242	5.09%
Arizona	\$14,849,125	3.64%

For the DWSRF, these tables show the states responsible for 75 percent of all funding states have leveraged through bonding up to the year 2015. Table 3 is for 1998-2015, going back to the DWSRF's inception. Table 4 is for 2006-2015, the most recent ten years of data analyzed. Some states, like Michigan and Kansas, have used bonds in the past (see Table 3), but not as much in the last ten years (and do not appear on Table 4). Over the last ten years, Arizona has been much more active (see Table 4).

Source: EPA DWSRF data



Selling bonds and depositing the proceeds in the SRFs has several advantages over other bonding initiatives:

- In general, SRFs can issue bonds at the discretion of the administering agency and the governor. Unlike for a public bond referendum, there is no need to seek voter approval. Unlike a typical state-issued bond, there is usually no need for legislative approval (see next bullet).
- The debt associated with issuing bonds against the SRFs has essentially no impact on the state budget. The funds are deposited in the SRF and the debt is paid out of the SRF from loan repayments. As long as the SRF does not over-borrow, the debt is sustainable.
- The SRFs can often borrow money more cheaply than the states responsible for their administration. SRFs generally have high credit ratings, independent of the states that administer them because of the low default rates on their loans, their robust finances, and decades-long financial histories. For example, if a state has a BBB credit rating, financing would generally be expensive. But that same state's DWSRF or CWSRF may have a AAA rating, and therefore can sell bonds and borrow on far more favorable terms.

CONGRESS SHOULD ALLOW STATES THAT EXPAND THEIR SRFs' FINANCIAL CAPACITY TO PROVIDE ADDITIONAL SUBSIDIZED ASSISTANCE

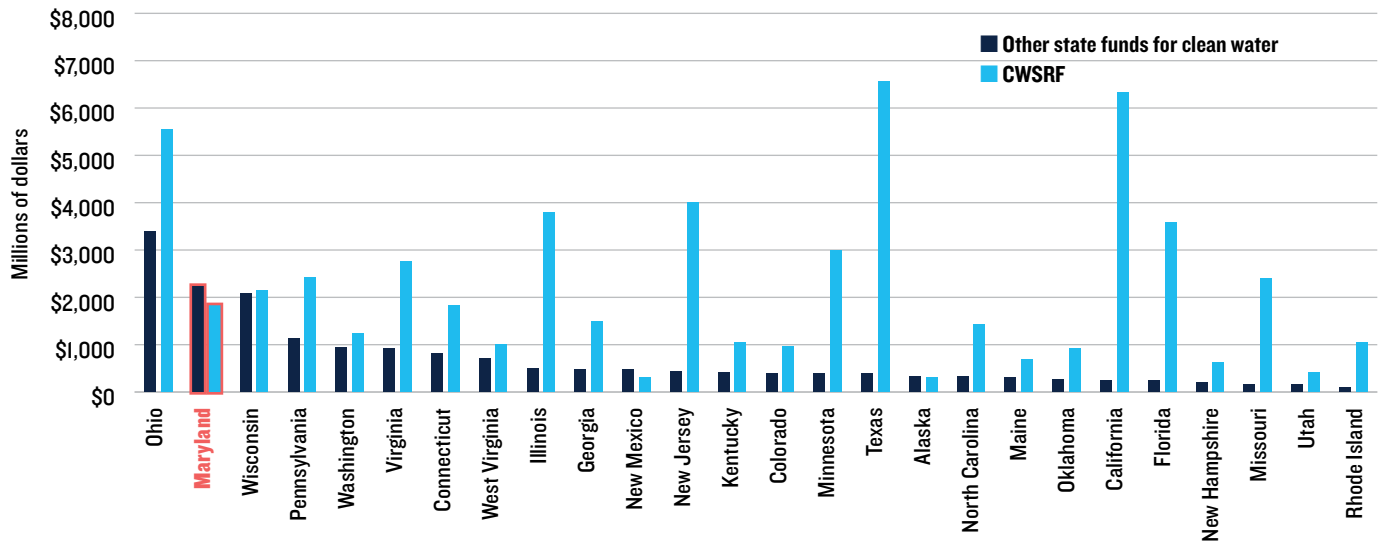
Federal law places a cap on subsidized assistance that may inhibit states from leveraging their SRFs' financial capital. The cap on subsidized assistance, which is set in statute at 30 percent of EPA's annual capitalization grant, was originally put in place to ensure that states did not give away too much funding in the programs' early years. During the early history of the program, giving away too much money as subsidized assistance could have undermined the long-term sustainability of the SRFs.

Now, the CWSRF has been in existence for more than two decades, and both are substantially better capitalized. Given the amount of funding already provided to SRF programs, their track record, and their overall capitalization, it makes little sense to cap the amount of subsidized assistance based on an annual Congressional appropriation. Instead, states should have a subsidized assistance cap that is based on how much funding they are contributing above and beyond their minimum 20 percent annual match. This change would allow states to provide more subsidized assistance and would provide an incentive to states to expand their SRFs' financial capacity. Such a change would require Congress to amend the SRF statutes.

Currently, states that want to provide more subsidized assistance than Congress allows have to create separate and somewhat duplicative state-financed water infrastructure programs. A handful of these state programs exceed the amount of assistance provided through those states' CWSRF or DWSRF (see Figures 5 and 6). Maryland's CWSRF program is a good example.

FIGURE 5: NON-CWSRF STATE FINANCING FOR CLEAN WATER (1988–2015)

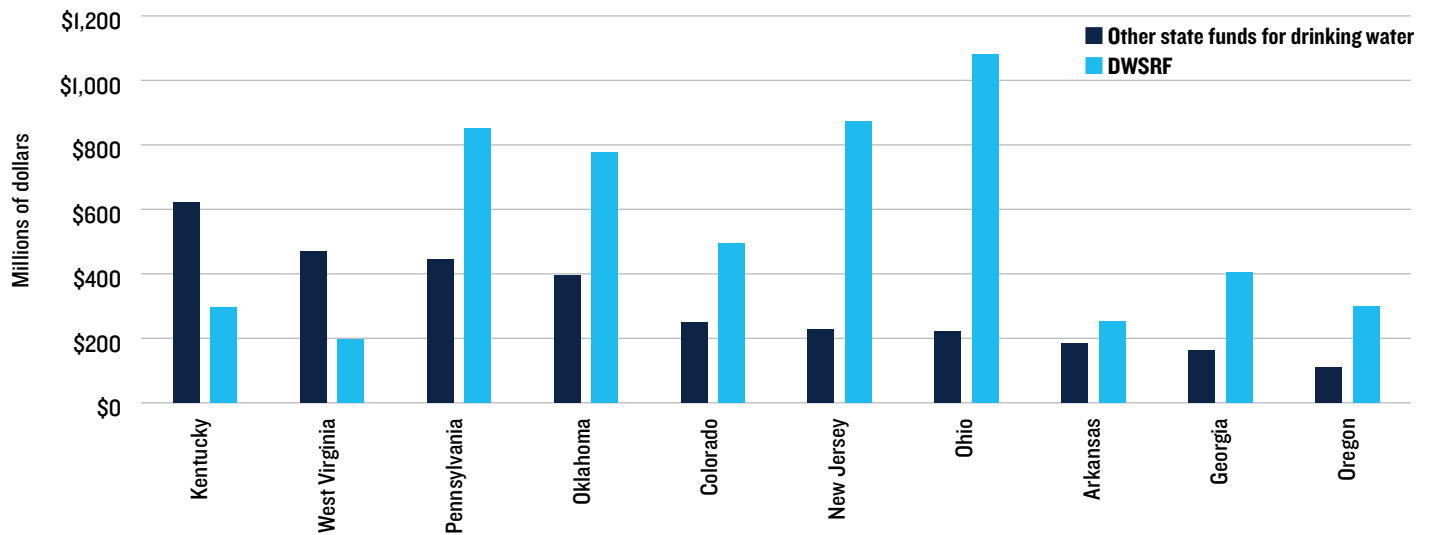
Some states are creating new water infrastructure funding, often financed through bonding, independent of their CWSRF programs. Most of the financial assistance provided is in the form of grants. Maryland is one state that has pursued this separate funding mechanism so it could distribute more assistance as grants, because the amount of such assistance it can provide through the CWSRF is limited by federal law, no matter how much additional funding capacity it has.⁵⁰



Source: EPA CWSRF data

FIGURE 6: NON-DWSRF STATE FINANCING FOR DRINKING WATER

As with the CWSRF, some states are creating new drinking water infrastructure funding, often financed through bonding, outside of their DWSRF programs. These somewhat duplicative programs are often implemented to circumvent the limits imposed by the federal cap on subsidized assistance.⁵⁰



Source: EPA DWSRF data

If states have the financial capacity to support more subsidized assistance and are committed to using their resources to that end, they should be allowed to do so through their SRF programs.

At the same time, these separate state-financed programs cannot take advantage of the SRFs’ inherent financial advantages. They miss the opportunity to take advantage of the SRF programs’ higher credit rating, which can be better than the state’s own credit rating and result in lower financing costs. If states have the financial capacity to support more subsidized assistance and are committed to using their resources to that end, they should be allowed to do so through their SRF programs.

WHO IS ELIGIBLE FOR SUBSIDIZED ASSISTANCE?

TABLE 5: THE CWSRF AND DWSRF BOTH OFFER SUBSIDIZED ASSISTANCE TO CERTAIN TYPES OF PROJECTS AND COMMUNITIES	
CWSRF⁵¹	DWSRF⁵²
Economically disadvantaged communities	Economically disadvantaged communities
Communities in which ratepayers will experience significant hardship if rate increases are needed to finance a project	Communities in which ratepayers will experience significant hardship if rate increases are needed to finance a project
Communities that pursue one of the following project types are eligible: <ul style="list-style-type: none"> ■ Stormwater mitigation, including green infrastructure ■ Water efficiency or reuse ■ Energy-efficient water infrastructure ■ The planning, design, or construction of sustainable projects 	Communities that pursue one of the following project types that should be made eligible. ⁵³ <ul style="list-style-type: none"> ■ Water efficiency or reuse ■ Source water protection ■ Removal and replacement of lead service lines ■ The planning, design, or construction of sustainable projects (The DWSRF does not currently allow subsidized assistance for the uses above. Eligibility should be expanded, such that it mirrors the broader eligibility rules of the CWSRF.)

By increasing the federal cap on subsidized assistance, more communities would be able to receive this assistance, and a wider array of projects that are underrepresented in SRF portfolios could be supported. The DWSRF does not currently allow subsidized assistance for the beneficial project types, but subsidized assistance under the DWSRF should be amended to more closely mirror the CWSRF eligibility criteria.

The cap on subsidized assistance may inhibit some states’ efforts to fully deploy their available SRF funds. Some communities may not be able to afford even a low-interest loan from an SRF.

According to the GAO study of SRF programs mentioned above, “In 2014, EPA data showed that state SRF programs held about \$16.9 billion in cash and cash equivalents, some of which was committed to loans, and some of which was not.”⁵⁴ An EPA report on DWSRFs in California, Connecticut, Hawaii, Missouri, and New Mexico found that between 2010 and 2013, these states’ DWSRFs left \$2.6 billion on the proverbial table.⁵⁵

Unallocated SRF funds can be a symptom of several problems. SRF funding can go unused when low-income municipalities cannot borrow even at the low interest rates the SRFs charge. These same municipalities may be unable to get subsidized assistance from the SRF because of the relatively small amount that states can make available. At the other extreme, more affluent communities may have the ability to self-finance their water infrastructure projects and, therefore, may not use the SRFs. Both result in unused SRF capacity.⁵⁶ If states have used their own funding to build that capacity, it doesn’t make sense to limit their ability to provide available and unused funding as subsidized assistance.

DWSRFs currently can only provide subsidized assistance to disadvantaged communities. DWSRFs should certainly continue to make subsidized assistance to disadvantaged communities the highest priority. However, states should also have the added flexibility to provide subsidized assistance to innovative projects that have obvious environmental, public health, and fiscal benefits to water utilities, but do not receive much DWSRF support, regardless of a community’s economic condition. These projects would include water efficiency, source water protection, and replacement of lead service lines. Doing so would mirror the subsidized assistance provisions of the CWSRF.

Congress should change the way the cap on subsidized assistance is calculated for states that consistently invest in their SRFs. It should be based on a 10-year rolling average of state SRF contributions, rather than a percentage of an annual federal grant.

Doing so would ensure that states who are expanding their SRF programs would have the ability to provide more subsidized assistance. Basing the amount of subsidized assistance on how much the SRFs expanded over the past ten years would ensure that it was sustainable. When this 10-year rolling average exceeds the current cap, states that have deliberately grown their SRFs should be allowed to disburse additional subsidized assistance to disadvantaged communities as well as to projects that are chronically under-funded by SRFs.

FIGURE 7: COMPARISON OF CAPS ON CWSRF ADDITIONAL SUBSIDIZATION

By calculating the subsidized assistance cap based on a 10-year rolling average of state CWSRF contributions, 20 states could choose to distribute much more funding as subsidized assistance (dark blue bars) than under the existing limits on subsidized assistance based on 30 percent of the annual EPA capitalization grant (light blue bars). Maryland has done some bonding through their CWSRF, but their 10-year average does not exceed the current federal cap.

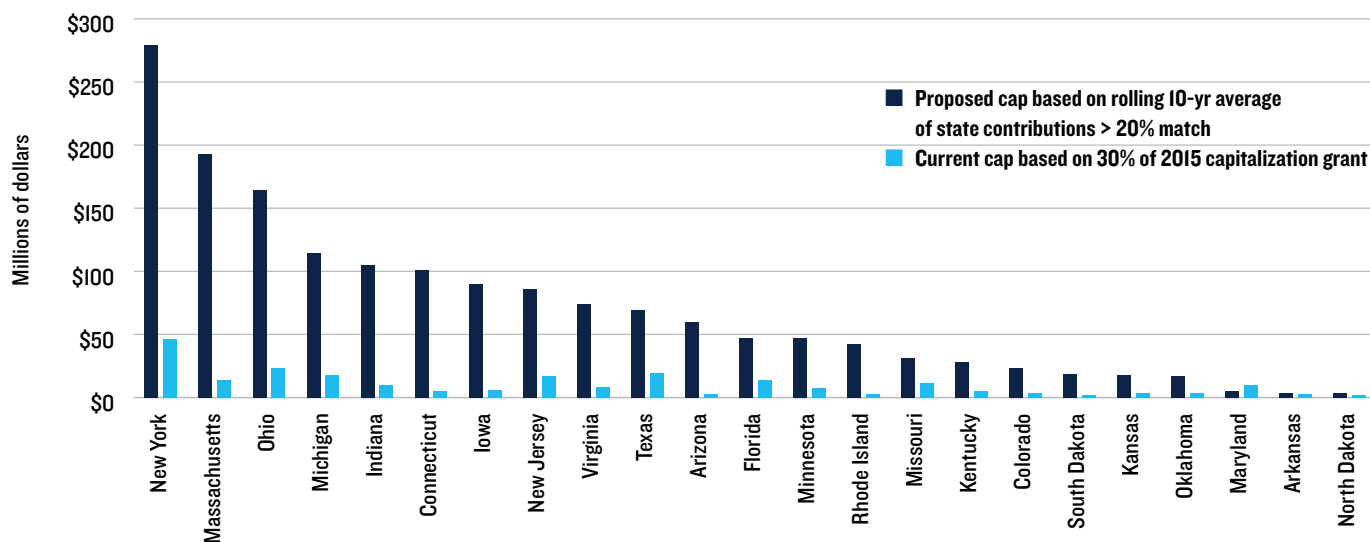
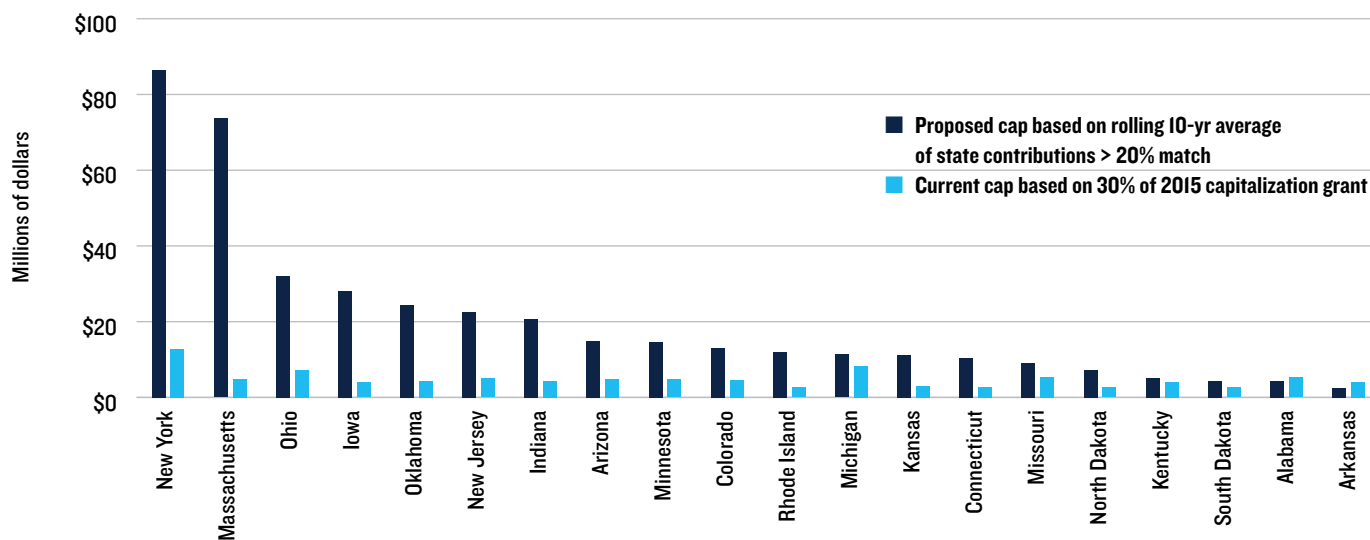


FIGURE 8: COMPARISON OF CAPS ON DWSRF ADDITIONAL SUBSIDIZATION

By calculating the subsidized assistance cap based on a 10-year rolling average of state DWSRF contributions, most of these states could choose to distribute much more funding as no-cost subsidized assistance (dark blue bars) than under the existing limits on no-cost subsidized assistance based on 30 percent of the annual EPA capitalization grant (light blue bars).



Congress should change the way the cap on subsidized assistance is calculated for states that consistently invest in their SRFs. It should be based on a 10-year rolling average of state SRF contributions, rather than a percentage of an annual federal grant.



In 2012, flooding and storm surge from Hurricane Sandy caused more than \$5 billion in damage to wastewater infrastructure in New York and New Jersey. In addition to repairs, hundreds of millions more was spent to make these systems less vulnerable to similar damage in the future. Long Island's Bay Park Sewage Treatment Plant (left) was knocked off line, resulting in raw or partially treated sewage being released for several weeks (right). Hundreds of sewage treatment plants are at risk of similar damage due to sea level rise. Three feet of sea level rise could inundate 162 wastewater plants serving 10.4 million Americans. Six feet of sea level rise could inundate 394 plants leaving 31.6 million Americans without wastewater treatment.

For states in which the 10-year rolling average is lower than the current cap, based on 30 percent of annual federal grants, would still govern. Three states would currently fall into this category.

Over the last 10 years, 20 states have together leveraged an average of \$1.68 billion per year with their CWSRFs, over and above their minimum 20 percent SRF match (see Figure 7).⁵⁷ Under current policies, these states have an average cap on additional subsidization of \$10.4 million per year. By basing the federal cap on subsidized assistance on a 10-year rolling average of state investments, that would increase to an average of about \$73.5 million per year. For states in which the 10-year rolling average is lower than the current cap, based on 30 percent of annual federal grants, would still govern. Maryland would currently fall into this category. States in this situation would keep their existing cap, but could increase their SRF contributions over time and then be able to distribute more subsidized funding.

For the DWSRF, 18 states have collectively leveraged an average of more than \$401 million per year between 2006 and 2015 (see Figure 8). These states currently have an average cap on additional subsidization of about \$4.9 million per year, which would increase to an average of \$22.3 million per year under the proposed alternative method of calculating the cap on subsidized assistance.⁵⁸ Arkansas and Alabama, in particular, have a history of

depositing bond receipts into their DWSRFs, but their 10-year average would not exceed their existing cap on subsidized assistance. States like these would retain their existing caps, but could raise additional funds and increase the amount of funding available, including subsidized assistance. (See A Quick Pathway to Increase SRF Financial Capacity and Subsidized Assistance section.)

Under this proposal, states that are building their SRFs' financial capacity would have the option to increase the amount of subsidized assistance they provide. These increased levels of subsidized assistance would be the maximum allowed—not a mandated amount. States could choose to provide all or a portion of the new cap as subsidized assistance and use the remainder for increased loans.

This increased subsidized assistance could incentivize states to use their SRFs as a source of revenue or security for state-issued bonds, the proceeds of which would be deposited back into the SRF to support water infrastructure projects.

A QUICK PATHWAY TO INCREASE SRF FINANCIAL CAPACITY AND SUBSIDIZED ASSISTANCE

Even states that have not regularly increased SRF contributions could benefit from this proposal in just a few years. For example, a state that received an annual \$25 million capitalization grant from the EPA would provide a minimum \$5 million match. If that state contributed an additional \$400 million over 10 years on the schedule shown in Figure 9, it would increase its SRF's overall financial capacity. Under this proposal, it would also be able to provide more subsidized assistance to eligible recipients and projects. That increased cap would be available, even if the additional investments stopped after 10 years. Figure 10 shows how the amount of subsidized assistance could increase over time in this scenario. If additional state contributions continued after year 10, the amount of subsidized assistance would continue to grow.

FIGURE 9: EXAMPLE—ANNUAL SRF FUNDING WITH ADDITIONAL STATE MATCH

A simple model of how a state might add \$400 million over 10 years to an SRF. Dark blue represents the annual EPA capitalization grant, Light blue represents the state's minimum 20 percent match, and the light green represents additional state contributions from bonding or direct appropriations. If additional state contributions continued past year 10, the amount of subsidized assistance would continue to grow.

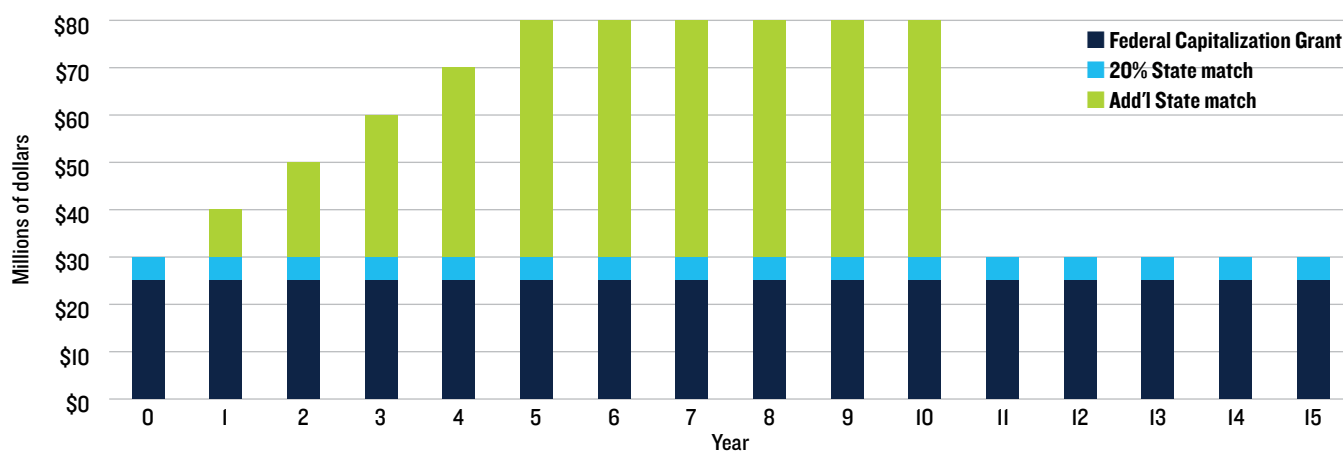
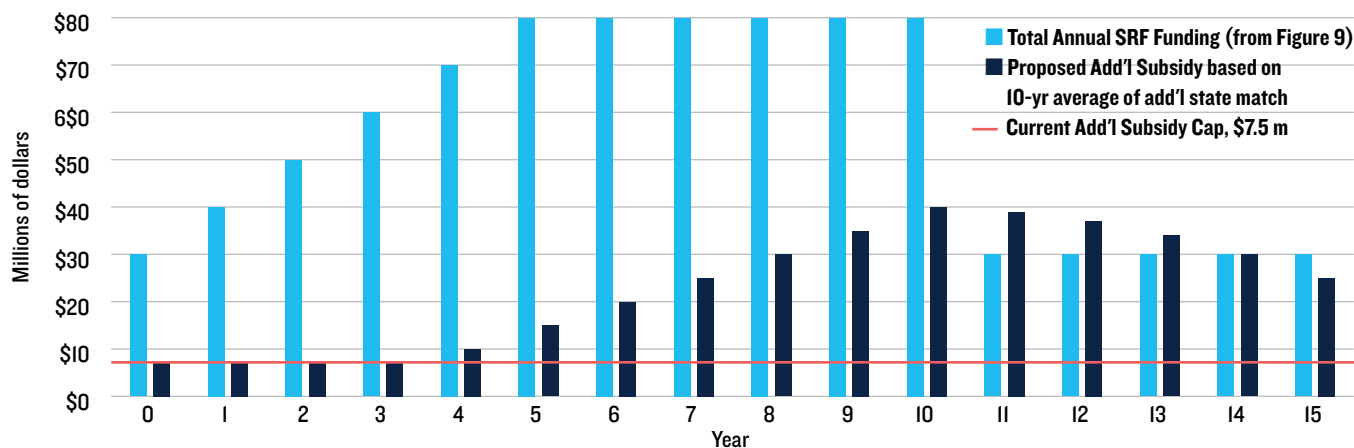


FIGURE 10: GROWTH OF ADDITIONAL SUBSIDIZATION CAPACITY WITH ADDITIONAL STATE MATCH

How an additional \$400 million (light blue bars) over 10 years could increase the amount of subsidized assistance a state provides through its SRF. Under NRDC's proposal, the cap on no-cost subsidized assistance would be based on a 10-year rolling average of state contributions that exceed the 20 percent minimum SRF match. States would have the option of using this cap, or the existing one, based on 30 percent of the U.S. EPA capitalization grant.



ENDNOTES

- 1 Congress established the Clean Water SRF in 1988 and the Drinking Water SRF in 1996.
- 2 All dollar figures in this report are actual dollars and are not adjusted for inflation.
- 3 For purposes of this report, “SRFs” refers collectively to the Clean Water and the Drinking Water State Revolving Funds. Where distinctions are made between these two funds, we use CWSRF and DWSRF to refer to the individual funds.
- 4 Wastewater systems collect the household and businesses sanitary wastes as well as industrial discharges, and sends these to a centralized treatment plant where pollutant levels are reduced to meet EPA standards before being discharged to a local river or the ocean. Stormwater systems collect rain and runoff from roads, driveways, and streets and conveys it to nearby bodies of water, usually untreated. Drinking water systems take water from a river, lake, or groundwater source, treat it to meet EPA health-based standards, and then deliver that water to homes, businesses, and industries.
- 5 American Society of Civil Engineers, *2017 Infrastructure Report Card*. <https://www.infrastructurereportcard.org/>.
- 6 Erik Olson and Kristi Pullen Fedinick, *What’s In Your Water: Flint and Beyond* (New York: Natural Resources Defense Council, 2016). <https://www.nrdc.org/media/2016/160628>.
- 7 EPA’s reports acknowledge that these are underestimates, due to incomplete survey responses and limitations in the survey methodology.
- 8 U.S. Environmental Protection Agency, *Clean Watersheds Needs Survey – 2012 Report and Data* (Washington D.C.: 2012). <https://www.epa.gov/cwns/clean-watersheds-needs-survey-cwns-2012-report-and-data>.
- 9 EPA, *Drinking Water Infrastructure Needs Survey and Assessment* (Washington, D.C.: 2018). https://www.epa.gov/sites/production/files/2018-03/documents/sixth_drinking_water_infrastructure_needs_survey_and_assessment.pdf.
- 10 National Association of Clean Water Agencies and Association of Metropolitan Water Agencies, *Confronting Climate Change: An Early Analysis of Water and Wastewater Adaptation Costs* (Washington, D.C.: 2009), p. ES-1.
- 11 *The Need for Flood Protection Standards* (New York: Natural Resources Defense Council, 2015). <https://www.nrdc.org/sites/default/files/NRDC-fema-assistance-grants-graphs.pdf>.
- 12 Studer Community Institute, *The Main Street Sewer Plant’s Downtown Legacy*, 2014, <http://wp.studeri.org/2014/01/main-street-sewer-plants-downtown-legacy>.
- 13 U.S. Department of Commerce, *Economic Impact of Hurricane Sandy*, 2013, <https://www.commerce.gov/news/fact-sheets/2013/10/economic-impact-hurricane-sandy>.
- 14 New York City Department of Environmental Protection, *NYC Wastewater Resiliency Plan-Climate Risk and Adaptation Study* (New York: 2013). http://www.nyc.gov/html/dep/html/about_dep/wastewater_resiliency_plan.shtml.
- 15 Natural Resources Defense Council, *New York’s Plan for Post-Sandy Wastewater Infrastructure Projects Doesn’t Go Far Enough to Promote Resilience*, 2013, <https://www.nrdc.org/experts/becky-hammer/new-yorks-plan-post-sandy-wastewater-infrastructure-projects-doesnt-go-far>.
- 16 Michel A. Hummel, Matthew S. Berry, and Mark T. Stacey, “Sea Level Rise Impacts on Wastewater Treatment Systems Along the U.S. Coasts,” *Earth’s Future*, 18 March 24 2018. <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1002/2017EF000805>.
- 17 Ben Chou, Becky Hammer, and Larry Levine, *Using State Revolving Funds to Build Climate-Resilient Communities* (New York: Natural Resources Defense Council, 2014). <https://www.nrdc.org/sites/default/files/state-revolving-funds-IP.pdf>.
- 18 Puerto Rico also manages a CWSRF and DWSRF. However, because of the unique financial circumstances of Puerto Rico, this report’s recommendations may not be applicable. We have therefore omitted Puerto Rico from the analysis.
- 19 DWSRF allotments to states can be found at <https://www.epa.gov/drinkingwatersrf/annual-allotment-federal-funds-states-tribes-and-territories>. CWSRF allotments to states can be found at <https://www.epa.gov/cwsrf/clean-water-state-revolving-fund-cwsrf-allotments-federal-funds-states>.
- 20 Debra Knopman et al., *Not Everything Is Broken: The Future of U.S. Transportation and Water Infrastructure Funding and Finance* (Santa Monica, Calif.: RAND Corporation, 2017), p. 29. https://www.rand.org/pubs/research_reports/RR1739.html.
- 21 See 33 U.S.C. Sec. 1382(b)(2) and 42 U.S.C. Sec. 300j-12(e).
- 22 States have a great deal of discretion in how they prioritize projects for assistance from their CWSRF and DWSRF. See 33 U.S.C. Sec. 1386(c) for the CWSRF and 42 U.S.C. Sec. 300j-12(b)(2) for the DWSRF.
- 23 Loan terms can be for up to 30 years under the CWSRF and 20 years under the DWSRF. Interest rates are always below the going market rate. Currently, SRF loans usually charge 2.0-2.5 percent interest.
- 24 A notable exception to this trend was in 2009, when the American Recovery and Reinvestment Act provided a short-term boost to federal funding.
- 25 Congressional Research Service, *Funding for EPA Water Infrastructure: A Fact Sheet* (2017). https://www.everycrsreport.com/files/20170712_R43871_4949bb10b97e9be68f88bace2733d2144912d5f1.pdf.
- 26 Since 1987, the CWSRF has provided \$118.7 billion to communities. U.S. EPA, *Clean Water State Revolving Fund*, <https://www.epa.gov/cwsrf> (viewed Feb 12, 2018).
- 27 Since 1996, the DWSRF has provided \$32.5 billion to communities. U.S. EPA, *How the Drinking Water State Revolving Fund Works*, <https://www.epa.gov/drinkingwatersrf/how-drinking-water-state-revolving-fund-works#tab-1> (viewed Feb 12, 2018).
- 28 For CWSRF, see 33 U.S.C. 1383(d) and for DWSRF, see 42 U.S.C. 300j-12(f).
- 29 States are allowed to provide additional subsidization to SRF applicants in the form of forgiveness of the principal and interest on SRF loans, grants, or negative interest rate loans. The amount that states can provide in additional subsidization is capped at 30 percent of a state’s annual share of congressional SRF appropriations.
- 30 Local revolving loan funds are not eligible for support from DWSRFs.
- 31 DWSRF allotments to states can be found at <https://www.epa.gov/drinkingwatersrf/annual-allotment-federal-funds-states-tribes-and-territories>. CWSRF allotments to states can be found at <https://www.epa.gov/cwsrf/clean-water-state-revolving-fund-cwsrf-allotments-federal-funds-states>.
- 32 See 33 U.S.C. Sec. 1382(b)(2) and 42 U.S.C. Sec. 300j-12(e).
- 33 DWSRF allotments to states can be found at <https://www.epa.gov/drinkingwatersrf/annual-allotment-federal-funds-states-tribes-and-territories>. CWSRF allotments to states can be found at <https://www.epa.gov/cwsrf/clean-water-state-revolving-fund-cwsrf-allotments-federal-funds-states>.
- 34 See 33 U.S.C. Sec. 1382(b)(2) and 42 U.S.C. Sec. 300j-12(e).

- 35 For purposes of this report, “green infrastructure” means projects that are designed to reduce stormwater flows and volumes through techniques that slow, retain, or infiltrate runoff.
- 36 Sharon Verbeten, “What Will the Trump Administration Mean for the Water, Wastewater Industry?” *Municipal Sewer & Water*, 24 January 2017. http://www.mswmag.com/online_exclusives/2017/01/what_will_the_trump_administration_mean_for_the_water_wastewater_industry.
- 37 The Brookings Institution, *The President’s Infrastructure Proposal Misses the Mark: Too Much Cynicism, Too Little Leadership*, 2018, <https://www.brookings.edu/blog/the-avenue/2018/02/13/the-presidents-infrastructure-proposal-misses-the-mark-too-much-cynicism-too-little-leadership/>.
- 38 Wharton School, The University of Pennsylvania, *The White House FY 2019 Infrastructure Plan*, 2018, <http://budgetmodel.wharton.upenn.edu/issues/2018/2/19/the-white-house-infrastructure-plan>.
- 39 Erik Olson and Kristi Pullen Fedinick, *What’s In Your Water: Flint and Beyond* (New York: Natural Resources Defense Council, 2016). <https://www.nrdc.org/media/2016/160628>.
- 40 For CWSRF, see 33 U.S.C. 1383(d) and for DWSRF, see 42 U.S.C. 300j-12(f).
- 41 U.S. EPA, *Financing Green Infrastructure: A Best Practices Guide for the Clean Water State Revolving Fund* (2015), p. 9. https://www.epa.gov/sites/production/files/2016-01/documents/final_gi_best_practices_guide_12-9-15.pdf.
- 42 See 81 FR 91822, *Credit Assistance for Water Infrastructure Projects*, EPA, December 19, 2016. <https://www.federalregister.gov/documents/2016/12/19/2016-30194/credit-assistance-for-water-infrastructure-projects>.
- 43 U.S. EPA, *Clean Water State Revolving Fund (CWSRF) National Information Management System Reports*. <https://www.epa.gov/cwsrf/clean-water-state-revolving-fund-cwsrf-national-information-management-system-reports>. The reports are hereinafter referred to as “EPA CWSRF data” or “EPA SRF data” when collectively referring to CWSRF and DWSRF data; U.S. EPA, *Drinking Water State Revolving Fund National Information Management System Reports*, <https://www.epa.gov/drinkingwatersrf/drinking-water-state-revolving-fund-national-information-management-system-reports>. The reports are hereinafter referred to as “EPA DWSRF data” or “EPA SRF data” when collectively referring to CWSRF and DWSRF.
- 44 U.S. Government Accountability Office, *State Revolving Funds: Improved Financial Indicators Could Strengthen EPA Oversight* (2015), p. 35. <https://www.gao.gov/assets/680/671855.pdf>.
- 45 *Ibid.*, p. 35.
- 46 U.S. EPA Environmental Financial Advisory Board, *Utilizing SRF Funding for Green Infrastructure Projects* (2014). https://www.epa.gov/sites/production/files/2014-04/documents/efab_report_srf_funding_for_greeninfra_projects.pdf.
- 47 *Ibid.*, p. 16.
- 48 U.S. EPA CWSRF data.
- 49 U.S. EPA DWSRF data.
- 50 Only states that have leveraged in excess of \$100 million are shown.
- 51 33 U.S.C. 1383(i)(1).
- 52 42 U.S.C. 300j-12(d).
- 53 Currently, only economically disadvantaged communities are eligible for subsidized assistance under the Safe Drinking Water Act (see 42 U.S.C. 300j-12(d)). The Clean Water Act allows subsidized assistance to economically disadvantaged communities as well as for green infrastructure, water efficiency, energy efficiency, and other projects that make water systems more resilient (see 42 U.S.C. 1383(i)(1)).
- 54 U.S. Government Accountability Office, *State Revolving Funds: Improved Financial Indicators Could Strengthen EPA Oversight* (2015), p. 32. <https://www.gao.gov/assets/680/671855.pdf>.
- 55 U.S. EPA, Office of Inspector General, *Unliquidated Obligations Resulted in Missed Opportunities to Improve Drinking Water Infrastructure*, (Washington, D.C.: 2014), p. 6. <https://www.epa.gov/sites/production/files/2015-09/documents/20140716-14-p-0318.pdf>.
- 56 Inefficient administration is also a factor, which was certainly the case with California’s DWSRF program. Ultimately, the state chose to move the DWSRF program to the California State Water Resources Control Board.
- 57 EPA CWSRF data.
- 58 EPA DWSRF data.