

**SUSTAINABLE WASTEWATER INFRASTRUCTURE:  
MEASURES TO PROMOTE RESILIENCY AND CLIMATE ADAPTATION AND MITIGATION**

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(117-13)

**REMOTE HEARING**  
BEFORE THE  
SUBCOMMITTEE ON  
WATER RESOURCES AND ENVIRONMENT  
OF THE  
COMMITTEE ON  
TRANSPORTATION AND  
INFRASTRUCTURE  
HOUSE OF REPRESENTATIVES  
ONE HUNDRED SEVENTEENTH CONGRESS

FIRST SESSION

APRIL 21, 2021

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Committee on Transportation and Infrastructure  
U.S. House of Representatives  
Washington, DC 20515

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APRIL 16, 2021

**SUMMARY OF SUBJECT MATTER**

TO: Members, Subcommittee on Water Resources and Environment  
FROM: Staff, Subcommittee on Water Resources and Environment  
RE: Subcommittee Hearing on “Sustainable Wastewater Infrastructure:  
Measures to Promote Resiliency and Climate Adaptation and Mitiga-  
tion”

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**PURPOSE**

On Wednesday, April 21, 2021, at 11:00 a.m. EDT, the Subcommittee on Water Resources and Environment will hold a hearing in the Rayburn House Office Building, Room 2167, and via Zoom, on sustainable wastewater infrastructure. The purpose of this hearing is to provide Members with additional information on policies and practices to encourage greater resiliency and sustainability of wastewater utilities in meeting the requirements of the Federal Water Pollution Control Act, more commonly known as the Clean Water Act. Witnesses will include representatives of academia, wastewater utilities, and other wastewater stakeholders who will testify on the benefits, capabilities, and considerations on the adoption of sustainable wastewater infrastructure practices.

**BACKGROUND**

America’s wastewater infrastructure is in significant need of increased financial investment, as detailed in the *Summary of Subject Matter* for the February 23, 2021, hearing of the Subcommittee, entitled “Building Back Better: The Urgent Need for Investment in America’s Wastewater Infrastructure.”

As a brief recap and update, according to the American Society of Civil Engineers (ASCE) *2021 Report Card for America’s Infrastructure*, the grade for wastewater treatment infrastructure has remained at a D+ since the 2017 report, and the new category of stormwater infrastructure has received a grade of D.<sup>1</sup> In addition, according to the most recent needs survey from the U.S. Environmental Protection Agency (EPA) (2012), communities have documented at least \$271 billion of investment over the next 20 years to bring their systems to a state of good repair; yet, as this assessment is almost a decade old, the current need may be higher.<sup>2</sup> However, the country’s urgent wastewater infrastructure needs also present a major opportunity to upgrade, modernize, and increase the efficacy and sustainability of the nation’s water-related infrastructure.

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<sup>1</sup> <https://infrastructurereportcard.org/infrastructure-categories/>.

<sup>2</sup> <https://www.epa.gov/cwns/clean-watersheds-needs-survey-cwns-2012-report-and-data>.

*SUSTAINABLE WASTEWATER INFRASTRUCTURE*

In 2011, the EPA approved a *Clean Water and Drinking Water Sustainability Policy* that called for “increasing the sustainability of water infrastructure in the U.S. and the communities it serves.”<sup>3</sup> This statement of policy establishes that “Federal investments, policies, and actions should support water infrastructure in more efficient and sustainable locations to best support existing communities, enhance economic opportunities, and promote affordable neighborhoods,” and highlights the importance of cost-effective, life-cycle planning, the efficient use of resources, the utilization of natural or green infrastructure systems, and addressing potential climate change impacts in achieving utility sustainability.<sup>4</sup>

In furtherance of its sustainability policy, the EPA has highlighted four factors for the “Path to Sustainable Water Infrastructure”: (1) water and energy efficiency, (2) asset management, (3) wastewater treatment clearinghouse, and (4) alternative technologies and assessment.<sup>5</sup>

*Water and Energy Efficiency*

Energy use can account for as much as 10 percent of a local government’s annual operating budget.<sup>6</sup> A significant amount of this municipal energy use occurs at water and wastewater treatment facilities. With pumps, motors, and other equipment operating 24 hours a day, seven days a week, water and wastewater facilities can be among the largest consumers of energy in a community—and thus among the largest contributors to the community’s total greenhouse gas (GHG) emissions.<sup>7</sup>

Nationally, the energy used by water and wastewater utilities accounts for 35 percent of typical U.S. municipal energy budgets.<sup>8</sup> Electricity use accounts for 25 to 40 percent of the operating budgets for wastewater utilities and approximately 80 percent of drinking water processing and distribution costs.<sup>9</sup> Drinking water and wastewater systems account for approximately 3 to 4 percent of overall energy use in the United States, equivalent to approximately 56 billion kilowatts, and a cost of \$4 billion, and resulting in the emissions of more than 45 million tons of GHGs annually.<sup>10</sup>

According to the EPA, utilities can reduce the economic costs and environmental impacts of wastewater treatment by improving the energy efficiency of wastewater facilities’ equipment and operations, by promoting the efficient use of water, and by capturing the energy in wastewater to generate electricity and heat.<sup>11</sup> Improvements in energy efficiency allow the same work to be done with less energy and cost. The EPA estimates that, by incorporating energy efficiency practices into their water and wastewater plants, municipalities and utilities can save 15 to 30 percent on their operating costs, saving thousands of dollars with payback periods (or the amount of time required to pay back the cost of the upgrade through potential cost savings resulting from the upgrade) of only a few months to a few years.<sup>12</sup> Improvements in water use efficiency reduce demand for water, which in turn reduces the amount of energy required to treat and distribute water.

Water and wastewater facilities around the country are also adopting renewable energy technologies, including combined heat and power, sludge digester methane use, solar panels installation, and wind turbines. For example, capturing the energy in wastewater by burning biogas from anaerobic digesters in a combined heat and power system allows wastewater facilities to produce some or all of their own electricity and space heating, potentially turning them into “net zero” consumers of energy.

Local governments can also reduce energy use at water and wastewater facilities through measures such as water conservation, water loss prevention, reduction of

<sup>3</sup> <https://www.epa.gov/sites/production/files/2016-01/documents/clean-water-and-drinking-water-infrastructure-sustainability-policy.pdf>.

<sup>4</sup> See id.

<sup>5</sup> <https://www.epa.gov/sustainable-water-infrastructure/building-sustainable-water-infrastructure>.

<sup>6</sup> See U.S. EPA, “Energy Efficiency in Water and Wastewater Facilities: A Guide to Developing and Implementing Greenhouse Gas Reduction Programs” (2013).

<sup>7</sup> See id.

<sup>8</sup> See id.

<sup>9</sup> See id.

<sup>10</sup> See id. See also, <https://www.epa.gov/sustainable-water-infrastructure/water-and-energy-efficiency-utilities-and-home>.

<sup>11</sup> See id. See also, <https://www.energy.gov/eere/slsc/wastewater-infrastructure>, which notes that, according to the U.S. Department of Energy, wastewater contains about five times more energy than is needed for its treatment in terms of untapped thermal energy, which can be captured and used to generate energy.

<sup>12</sup> <https://www.epa.gov/sustainable-water-infrastructure/energy-efficiency-water-utilities>.

stormwater into wastewater collection and treatment systems, and sewer system repairs to prevent ground water infiltration. Measures to reduce water consumption, water loss, and the creation of wastewater can lead to reductions in energy use, and result in savings associated with recovering and treating lower quantities of wastewater and treating and delivering lower quantities of potable public water.<sup>13</sup>

#### *Asset Management*

Asset management is a technique wastewater utilities can use to manage costs and make sure that planned maintenance can be conducted and capital assets (pumps, motors, pipes, etc.) can be repaired, replaced, or upgraded on time.

Asset management allows a utility to optimize management of infrastructure capital assets and minimize the total cost of owning and operating these assets while delivering the desired service levels. Many utilities use asset management to pursue and achieve sustainable infrastructure. A high-performing asset management program includes detailed asset inventories, operation and maintenance tasks, and long-range financial planning to cover operational, maintenance, and capital costs.<sup>14</sup>

#### *Wastewater Treatment Clearinghouse*

As required by section 4102 of the America's Water Infrastructure Act of 2018, EPA created a wastewater technology clearinghouse to provide utilities with information and resources on the cost-effectiveness and performance of innovative, alternative, and reuse technologies for wastewater.<sup>15</sup> As communities continue to invest in our nation's wastewater infrastructure, the clearinghouse is intended to help fill a critical information gap on adopted innovative, alternative, and reuse technologies that can inform local utilities on potential wastewater management alternatives, particularly for communities with small, midsize, and decentralized wastewater systems.<sup>16</sup>

#### *Alternative Technologies and Assessment*

The fourth element suggested by the EPA for greater sustainability is selecting the right solution to meet an identified wastewater need, including the evaluation of different alternatives, such as new technologies, an evaluation of centralized versus decentralized wastewater treatment systems, and the utilization of green infrastructure approaches to local water quality challenges.<sup>17</sup>

Section 502 of the Clean Water Act defines green infrastructure as "... the range of measures that use plant or soil systems, permeable pavement or other permeable surfaces or substrates, stormwater harvest and reuse, or landscaping to store, infiltrate, or evapotranspire stormwater and reduce flows to sewer systems or to surface waters."<sup>18</sup>

According to the EPA, green infrastructure can frequently provide a cost-effective, resilient approach to managing wet weather impacts that provides many community benefits.<sup>19</sup> While single-purpose gray stormwater infrastructure—conventional piped drainage and water treatment systems—is designed to move urban stormwater away from the built environment, green infrastructure—such as downspout disconnections, green roofs, bioswales, and green streets—reduces and treats stormwater at its source while delivering environmental, social, and economic benefits.<sup>20</sup>

Stormwater runoff is a major cause of water pollution in urban areas.<sup>21</sup> When rain falls on roofs, streets, and parking lots in cities and their suburbs, the water cannot soak into the ground. Stormwater drains through gutters, storm sewers, and other engineered collection systems and is discharged into nearby water bodies. The stormwater runoff carries trash, bacteria, heavy metals, and other pollutants from the urban landscape. Higher flows resulting from heavy rains also can cause erosion and flooding in urban streams, damaging habitat, property, and infrastructure.<sup>22</sup>

<sup>13</sup> See *id.* at 8.

<sup>14</sup> See <https://www.epa.gov/sustainable-water-infrastructure/asset-management-water-and-wastewater-utilities>.

<sup>15</sup> P.L. 115–270.

<sup>16</sup> See <https://ofmpub.epa.gov/apex/wfc/f?p=259:1:10842554757134>.

<sup>17</sup> See <https://www.epa.gov/sustainable-water-infrastructure/alternative-technologies-and-assessment-water-and-wastewater#green>.

<sup>18</sup> See Section 502(27) of the Clean Water Act.

<sup>19</sup> See <https://www.epa.gov/green-infrastructure/what-green-infrastructure>.

<sup>20</sup> See *id.*

<sup>21</sup> See *id.*

<sup>22</sup> See *id.* See also <https://www.nrdc.org/stories/green-infrastructure-how-manage-water-sustainable-way>.

Green infrastructure is designed to use vegetation, soils, and other elements and practices to restore some of the natural processes required to manage water and create healthier urban environments.<sup>23</sup> At the city or county scale, green infrastructure is a patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water. At the neighborhood or site scale, stormwater management systems that mimic natural systems can soak up and store water.

#### *Climate Resiliency*

In addition to the four factors identified by the EPA for sustainable wastewater infrastructure, a growing concern is the resiliency of water and wastewater utilities to extreme weather events and the challenges posed by changing climate conditions.

In 2017, a working group of water and wastewater experts, co-chaired by EPA, found that natural disasters are among the most significant risks to the nation's drinking water and wastewater infrastructure.<sup>24</sup> Those natural disasters include acute disasters related to extreme weather events, such as floods and hurricanes, and chronic hazards related to climate change, such as drought and sea level rise.

Similarly, a 2009 study by a global engineering company reported that failure to plan for the potential impacts of climate change may lead to loss of water and wastewater treatment services for homes, municipalities, and industry with consequences to human health and the economy.<sup>25</sup>

In January 2020, the U.S. Government Accountability Office (GAO) completed a study of the resiliency of water and wastewater utilities to climate change.<sup>26</sup> GAO recommended that: (1) EPA work with utilities to incorporate climate resilience into infrastructure projects, and (2) Congress should consider requiring that climate resilience be considered in planning for federally funded water infrastructure projects.<sup>27</sup>

#### *STATUTORY PROVISIONS RELATED TO SUSTAINABLE INFRASTRUCTURE*

In the past two decades, Congress has enacted several amendments to the Clean Water Act to promote the implementation of sustainable wastewater infrastructure.

In 2009, Congress enacted the American Recovery and Reinvestment Act (Recovery Act)<sup>28</sup> to stimulate the U.S. economy and address a range of other policy objectives. The Recovery Act provided \$4 billion for the Clean Water State Revolving Fund (SRF) for wastewater infrastructure projects. In addition, the Recovery Act authorized the so-called "green reserve," which required states to use not less than 20 percent of Recovery Act grants "to the extent there are sufficient eligible project applications . . . for projects to address green infrastructure, water or energy efficiency improvements or other environmentally innovative activities." The green reserve has been carried forward each year since 2009 through enactment in the annual appropriations bills for the Clean Water SRF.<sup>29</sup>

In 2014, Congress amended the Clean Water Act, to encourage further adoption of sustainable wastewater infrastructure practices by publicly owned utilities.<sup>30</sup> For example, Congress amended the requirements for utilities that receive funding from the Clean Water SRF to: (1) require that utilities certify they have selected alternatives that maximize the potential for efficient water use, reuse, recapture, and conservation, and energy conservation;<sup>31</sup> (2) require that utilities develop and implement a fiscal sustainability plan;<sup>32</sup> (3) allow states to offer financial incentives for the implementation of technologies to address water-efficiency, energy-efficiency, and sustainable projects;<sup>33</sup> and (4) authorize the expenditure of Clean Water SRF funds for projects to reclaim or recycle wastewater and stormwater, to implement water conservation, efficiency or reuse, to increase the resiliency of wastewater utili-

<sup>23</sup> See *id.*

<sup>24</sup> See Water and Wastewater Sector Strategic Roadmap Work Group, "Roadmap to a Secure and Resilient Water and Wastewater Sector" (2017).

<sup>25</sup> See CH2M Hill, Inc., "Confronting Climate Change: An Early Analysis of Water and Wastewater Adaptation Costs" (2009).

<sup>26</sup> U.S. GAO, "Water Infrastructure: Technical Assistance and Climate Resilience Planning Could Help Utilities Prepare for Potential Climate Change Impacts" (GAO-20-24).

<sup>27</sup> See *id.*

<sup>28</sup> Pub. L. 111-5.

<sup>29</sup> In fiscal year 2021, the green reserve required states to utilize "not less than 10 percent" of Clean Water SRF funds for "projects to address green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities". See Pub. L. 116-260.

<sup>30</sup> Pub. L. 113-121.

<sup>31</sup> Section 601(b)(13) of the Clean Water Act.

<sup>32</sup> Section 603(d)(1)(E) of the Clean Water Act.

<sup>33</sup> Section 603(i)(1)(B) of the Clean Water Act.

ties to extreme weather events and sea-level rise, and to reduce the energy consumption needs of wastewater utilities.<sup>34</sup>

In the 116th Congress, the Committee on Transportation and Infrastructure approved H.R. 1497, the Water Quality Protection and Job Creation Act of 2019, by voice vote, and similar legislation was passed by the House as part of H.R. 2, the Moving Forward Act. These bills would have reauthorized and increased the authorized level of federal appropriations for the Clean Water SRF program at levels more commensurate with local water infrastructure needs, as well as reauthorized several existing Clean Water Act grant authorities. In addition, these proposals would have extended the existing green infrastructure reserve;<sup>35</sup> established a new grant authority to promote increased resilience of wastewater utilities; established set-asides of federal resources for rural and small communities; codified set-asides for Indian tribes and U.S. territories; and included several provisions to address the cost of wastewater service to low-income customers and households. No further action was taken on these proposals in the 116th Congress.

#### WITNESSES

- Howard Neukrug, P.E., Executive Director, The Water Center at the University of Pennsylvania
- Kishia L. Powell, COO and Executive Vice President, D.C. Water
- Robert C. Ferrante, Chief Engineer and General Manager, Los Angeles County Sanitation Districts
- Kevin Robert Perry, FASLA, PLA, Fellow, The American Society of Landscape Architects
- Kim H. Colson, Director, Division of Water Infrastructure, North Carolina Department of Environmental Quality, *on behalf of the Council of Infrastructure Financing Authorities (CIFA)*
- Rebecca Hammer, Deputy Director of Federal Water Policy, Natural Resources Defense Council

<sup>34</sup> Sections 122 and 603(c) of the Clean Water Act.

<sup>35</sup> The Green Reserve in H.R. 1497/H.R. 2 would have required states, to the extent that there are sufficient projects or activities eligible for assistance, to utilize not less than 15 percent of their Clean Water SRF capitalization grant for projects to address green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities.



**SUSTAINABLE WASTEWATER INFRASTRUCTURE: MEASURES TO PROMOTE RESILIENCY AND CLIMATE ADAPTATION AND MITIGATION**

WEDNESDAY, APRIL 21, 2021

HOUSE OF REPRESENTATIVES,  
SUBCOMMITTEE ON WATER RESOURCES AND  
ENVIRONMENT,  
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE,  
*Washington, DC.*

The subcommittee met, pursuant to notice, at 11 a.m., in 2167 Rayburn House Office Building and via Zoom, Hon. Grace F. Napolitano (Chair of the subcommittee) presiding.

Members present in person: Mr. DeFazio, Mr. Garamendi, Mr. Stanton, Ms. Norton, Mr. Kahele, Mr. Rouzer, Dr. Babin, Mr. Graves of Louisiana, Mr. Westerman, and Miss González-Colón.

Members present remotely: Mrs. Napolitano, Mr. Huffman, Mr. Lowenthal, Mr. Malinowski, Mr. Delgado, Ms. Bourdeaux, Mr. Carbajal, Mr. Katko, Mr. LaMalfa, and Mr. Mast.

Mrs. NAPOLITANO. Good morning. I call this hearing to order.

Today's hearing will focus on sustainable wastewater infrastructure and measures to promote resiliency in climate adaptation and mitigation.

Let me begin by asking unanimous consent that the chair be authorized to declare a recess at any time during today's hearing.

And without objection, so ordered.

I also ask unanimous consent that Members not on the subcommittee be permitted to sit with the subcommittee at today's hearing and ask questions.

And without objection, so ordered.

As the chair of today's hearing, I will make a good-faith effort to provide every Member experiencing connectivity issues—and I just did—an opportunity to participate fully in the proceedings. Please let committee staff know as soon as possible if you are experiencing connectivity issues or technical problems.

It is the responsibility of each Member seeking recognition to unmute their microphone prior to speaking.

To avoid any inadvertent background noise, I request that every Member keep their microphone muted when not seeking recognition to speak. Should I hear any inadvertent background noise, I will request that the Member please mute their microphone.

And finally, to insert a document into the record, please have your staff email it to DocumentsT&I@mail.house.gov.

Now for my statement.

Today is a good day to do this. We will continue to discuss the need to renew the Federal commitment to fund our clean water infrastructure challenges.

In our first subcommittee hearing of this Congress, we discussed legislative proposals to close the gap between local wastewater and stormwater needs and current levels of Federal investment, as well as to ensure these critical investments are sufficient to help these communities address local water quality challenges.

The first of these proposals, approved by this committee last Congress, and ultimately approved by the House in H.R. 2, the Moving Forward Act, would have provided robust funding for the Clean Water State Revolving Fund known as SRF, but it ultimately stalled in the Senate.

This Congress I joined with Chairman DeFazio and Congressman Fitzpatrick in introducing H.R. 1915, the Water Quality Protection and Job Creation Act of 2021, a proposal that received unanimous support from the witnesses at our February hearing on “building back better.” The robust funding levels in this bipartisan proposal are critical to addressing the \$270 billion backlog over the next 20 years, according to the U.S. EPA, in wastewater and stormwater upgrades identified by States and our communities.

Similarly, in his American Jobs Plan, President Biden further stressed the importance of water and wastewater investment, not only for the number of jobs it will create, but also for how these investments in safe, efficient, and sustainable water infrastructure are critical to the health and the well-being of every American.

So let’s be clear: no one who has ever had a sewer backup in their community or home, or who has gotten sick from swimming in a contaminated river, lake, or beach, or who has questioned the safety and/or reliability of the water coming out of their faucet would ever say that water infrastructure is not infrastructure.

Tomorrow marks the 51st anniversary of Earth Day that is celebrated. In recognition of this anniversary, it is fitting we continue to focus on meeting our clean water infrastructure needs, but also highlight how the resilient and sustainable approaches we utilize to make this investment can both meet the goals of the Clean Water Act, but do so in a way that increases the overall protection of human health and the health of our environment.

At this moment we are witnessing generational changes in how wastewater utilities are meeting the wastewater challenges facing our Nation.

As our witnesses will testify, many communities are leading the way in increasing the resiliency and sustainability of the wastewater utilities.

From converting wastes to energy, to reducing greenhouse gas emissions of water utilities, to investing in natural and nature-based green infrastructure alternatives to relieve pressure on existing sewer systems, to recapturing and reusing wastewater and stormwater for both the nonpotable and drinking water needs of local communities, many utilities are leading by example on how to create the so-called utility of the future.

In fact, some communities have used the need to upgrade their wastewater infrastructure as an opportunity to reinvent them-

selves—using wastewater and stormwater practices to increase the livability of cities and suburbs, while also addressing local water challenges.

Today’s hearing is an opportunity to reveal and explore some of these innovative and cost-effective alternatives to traditional wastewater infrastructure solutions. We must research and invest in these technologies, and share the information on development and benefits amongst water agencies so that we are not reinventing the wheel.

Today’s hearing also presents us with the opportunity to discuss some of the challenges that are preventing wider awareness or utilization of these sustainable alternatives to address local water quality needs, especially in rural, Tribal, and economically disadvantaged communities.

As I mentioned earlier, we all know that the documented wastewater and stormwater needs facing our Nation are great and require a renewed and robust Federal commitment to help address them. However, the country’s urgent wastewater infrastructure needs also present a major opportunity to upgrade, modernize, and increase the sustainability of the Nation’s water-related infrastructure.

Of course, this presents a great challenge, and it is a great challenge, of how to both increase the Federal investment in wastewater infrastructure, and to make sure that these investments maximize the resiliency and sustainability of our wastewater utilities.

I look forward to continuing the discussion here this morning, and at this time, I am pleased to yield to my great colleague, the ranking member of the subcommittee, Mr. Rouzer, for any thoughts he may have.

[Mrs. Napolitano’s prepared statement follows:]

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**Prepared Statement of Hon. Grace F. Napolitano, a Representative in Congress from the State of California, and Chair, Subcommittee on Water Resources and Environment**

Today, we continue to discuss the need to renew the federal commitment to fund our clean water infrastructure challenges.

In our first subcommittee hearing of this Congress, we discussed legislative proposals to close the gap between local wastewater and stormwater needs and current levels of federal investment, as well as to ensure these critical investments are sufficient to help these communities address local water quality challenges.

The first of these proposals, approved by this committee last Congress, and ultimately approved by the House in H.R. 2, the Moving Forward Act, would have provided a robust funding for the Clean Water State Revolving Fund, but ultimately stalled in the Senate.

This Congress, I joined with Chairman DeFazio, and Congressman Fitzpatrick, in introducing H.R. 1915, the Water Quality Protection and Job Creation Act of 2021—a proposal that received unanimous support from the witnesses at our February hearing on “Building Back Better.”

The robust funding levels in this bipartisan proposal are critical to addressing the \$270 billion backlog over the next 20 years according U.S. EPA in wastewater and stormwater upgrades identified by the states and our communities.

Similarly, in his American Jobs Plan, President Biden further stressed the importance of water and wastewater investment—not only for the number of jobs that it will create, but also for how these investments in safe, efficient, and sustainable water infrastructure are critical to the health and well-being of everyday Americans.

Let's be clear—no one who has ever had a sewer backup in their community or home; or who has gotten sick from swimming at a contaminated river, lake, or beach; or who has questioned the safety or reliability of the water coming out of their faucet would ever say that water infrastructure is not infrastructure.

Tomorrow marks the 51st anniversary of Earth Day.

In recognition of this anniversary, it is fitting that we continue to focus on meeting our clean water infrastructure needs, but also highlight how the resilient and sustainable approaches we utilize to make this investment can both meet the goals of the Clean Water Act, but do so in a way that increases the overall protection of human health and the health of our environment.

At this moment, we are witnessing generational changes in how wastewater utilities are meeting the wastewater challenges facing our nation.

As our witnesses today will testify, many communities are leading the way in increasing the resiliency and sustainability of their wastewater utilities.

From converting wastes to energy to reducing greenhouse gas emissions of water utilities, to investing in natural and nature-based, green infrastructure alternatives to relieve pressure on existing sewer systems, to recapturing and reusing wastewater and stormwater for both the non-potable and drinking water needs of local communities, many utilities are leading by example on how to create the so-called "utility of the future."

In fact, some communities have used the need to upgrade their wastewater infrastructure as an opportunity to reinvent themselves—using wastewater and stormwater practices to increase the livability of cities and suburbs while also addressing local water challenges.

Today's hearing is an opportunity to reveal and explore some of these innovative and cost-effective alternatives to traditional wastewater infrastructure solutions. We must research and invest in these technologies and share the information on development and benefits amongst water agencies, so that we are not reinventing the wheel.

Today's hearing also presents us with the opportunity to discuss some of the challenges that are preventing wider awareness or utilization of these sustainable alternatives to address local water quality needs, especially in rural, tribal, and economically disadvantaged communities.

As I mentioned earlier, we all know that the documented wastewater and stormwater needs facing our nation are great and require a renewed and robust federal commitment to help address them.

However, the country's urgent wastewater infrastructure needs also present a major opportunity to upgrade, modernize, and increase the sustainability of the nation's water related infrastructure.

That is our challenge—how to both increase federal investment in our wastewater infrastructure, and to make sure that these investments maximize the resiliency and sustainability of our wastewater utilities?

I look forward to continuing that discussion here this morning.

Mr. ROUZER. Thank you, Chair Napolitano, for holding this hearing today. And thank you to our witnesses for being here to provide their experiences and thoughts on actions designed to encourage greater resiliency and sustainability of wastewater utilities. Specifically, we will hear how these can help in meeting the requirements of the Clean Water Act.

In particular, I would like to thank Mr. Kim Colson, director of the Division of Water Infrastructure in my home State, at the North Carolina Department of Environmental Quality. Mr. Colson is also the current president of the Council of Infrastructure Financing Authorities, so he is in a great position to provide insight on the needs of communities, not just from the State of North Carolina, but for the country.

In February—

Mrs. NAPOLITANO. Mr. DeFazio is on?

Mr. ROUZER. In February we held a hearing on the broader topic of replacing and updating our Nation's wastewater infrastructure. Today we are going to get a little more specific, and look at the energy challenges facing wastewater infrastructure.

It certainly makes sense for wastewater utilities to want to be as efficient and resilient as possible. According to the EPA, for many municipalities, drinking water and wastewater facilities are their largest users of energy, often consuming 30 to 40 percent of their energy totals.

EPA also notes that drinking water and wastewater operations account for 2 percent of the country's overall energy use. And it is fairly easy to see why. These facilities often use very large machinery, including pumps, drives, motors, and other equipment which operate 24 hours a day. Additionally, many facilities were designed and built in an era when energy costs were not as big a concern.

So clearly, it makes sense to discuss energy use at these facilities. EPA has noted that if municipalities incorporate energy efficiency practices into their water and wastewater plants, utilities can save 15 to 30 percent.

But you also have to consider the opportunity cost, especially for small municipalities. An important part of today's hearing is learning more about why a utility may not have an incentive to implement such measures.

In addition to wastewater utility energy use, we are also going to hear about resiliency and mitigation of natural disasters. As municipalities grapple with hurricanes, flooding, earthquakes, and other disasters, we need to think about this.

Today we are going to hear a lot about green infrastructure, referring to measures that use plant or soil systems or permeable surfaces to manage wet weather impacts. Under current Federal law, all Clean Water State Revolving Fund programs must use a portion of their Federal grant for projects that address green infrastructure, water and energy efficiency, or other environmental activities.

While these practices and technologies may very well benefit some communities, it is essential that these programs do not take a one-size-fits-all approach. Some communities, especially small and rural communities, may not have the means or the need to utilize these specific practices in their communities. Small and rural communities often have difficulty using the green infrastructure reserve and identifying projects in this category that can be successfully implemented in their communities. For example, while permeable pavement and other surfaces may be important to combat stormwater runoff in a large city, is it really the best use of funding for a community of the few thousand?

Now, this is not necessarily suggestive of an opinion, but just a question, I think, that needs to be answered. I also look forward to hearing more about these issues from our panel of experts here today.

Madam Chair, I yield back.

[Mr. Rouzer's prepared statement follows:]

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**Prepared Statement of Hon. David Rouzer, a Representative in Congress from the State of North Carolina, and Ranking Member, Subcommittee on Water Resources and Environment**

Thank you, Chair Napolitano, for holding this hearing, and thank you to our witnesses for being here today to provide your experiences and thoughts on actions designed to encourage greater resiliency and sustainability of wastewater utilities. Specifically, we'll hear how these can help in meeting the requirements of the Clean Water Act.

In particular, I'd like to thank Mr. Kim H. Colson, Director of the Division of Water Infrastructure at the North Carolina Department of Environmental Quality. Mr. Colson is also the current President of the Council of Infrastructure Financing Authorities (CIFA), so he is in a great position to provide insight on the needs of communities, not just from the State of North Carolina, but also for the country. Thank you for taking the time to appear here and provide your expertise today.

In February, we held a hearing on the broader topic of replacing and updating our Nation's wastewater infrastructure. Today we're going to get a little more specific and look at the energy challenges facing wastewater infrastructure.

It certainly makes sense for wastewater utilities to want to be as efficient and resilient as possible. According to the Environmental Protection Agency, for many municipalities, drinking water and wastewater facilities are their largest users of energy, often consuming 30 to 40 percent of their energy totals. EPA also notes that drinking water and wastewater operations account for two percent of the country's overall energy use. It is fairly easy to see why.

These facilities often use very large machinery, including pumps, drives, motors, and other equipment which operate 24 hours a day. Additionally, many facilities were designed and built in an era when energy costs were not a major concern. So, clearly it makes sense to discuss energy use at these facilities.

EPA has noted that if municipalities incorporate energy efficiency practices into their water and wastewater plants, utilities can save 15 to 30 percent. But you also have to consider the opportunity cost—especially for small municipalities. An important part of today's hearing is learning more about why a utility may not implement such measures.

In addition to wastewater utility energy use, we are also going to hear about resiliency and mitigation of natural disasters. As municipalities grapple with facing hurricanes, flooding, earthquakes, and other disasters, we need to think about this.

Today we are going to hear a lot about "green infrastructure," referring to measures that use plant or soil systems, or permeable surfaces, to manage wet weather impacts. Under current federal law, all Clean Water State Revolving Fund (CWSRF) programs must use a portion of their federal grant for projects that address green infrastructure, water and energy efficiency, or other environmental activities.

While these practices and technologies may benefit some communities, it is essential these programs do not take a "one-size-fits-all" approach. Some communities, especially small and rural communities, may not have the means or the need to utilize these practices in their communities.

Small and rural communities often have difficulty using the green infrastructure reserve and identifying projects in this category that can be successfully implemented in their communities. For example, while permeable pavement and other surfaces may be important to combat stormwater runoff in a large city, is it really the best use of funding for a community of a few thousand?

I look forward to hearing more about these issues from our panel of experts here today.

Mrs. NAPOLITANO. Thank you, Mr. Rouzer. At this time I am pleased to yield to our wonderful chairman of the full committee, Mr. DeFazio, for any thoughts he may have.

Mr. DEFazio. Thanks, Chair Napolitano, and thanks for holding this hearing. It is particularly auspicious that we are here the day before Earth Day to discuss the sustainability of the Nation's wastewater infrastructure.

I remember when the Willamette River in Oregon was an open sewer. It is now a source of drinking water, and it is a fabulous recreational amenity. And we are finally opening up my largest city down to the river with a fabulous new waterfront park, which will

be heavily utilized. But in the old days, you wouldn't have wanted to go down there.

Other parts of the country have a long way to go, but they have made some progress. In DC, they used to have signs saying if you made contact with the water or fell into the water, you needed to go to the hospital. It is not so bad today, but it is still nowhere near where it needs to be, or wants to be to turn the Potomac and the Anacostia into similarly fabulous recreational opportunities for the community, and fishing, and other things.

We have documented the needs through the EPA, \$270 billion over the next 20 years to bring the Nation's wastewater systems up to a state of good repair, and adequate resilience to deal with future events. That is \$14 billion per year, approximately.

And obviously, there is a question of can local communities do this on their own, and the answer is no. The Federal Government used to be a good partner. When I was a county commissioner, we got a 75-percent Federal match because polluted water does not observe either city, State, county, or even international boundaries. So it is a problem that needs to be dealt with, with a national strategy.

And as the ranking member pointed out, some of the ambitious programs to clean the water are burdens on small communities, and we need to partner with those communities and help them to meet these challenges. Last year, the appropriators, they put into the Clean Water SRF \$1.6 billion. That would be somewhere around 10 percent, 12 percent of the annual need. So we are nowhere near where we need to be.

We held the hearing in February, where we documented the fact that many local communities can't do this—again, especially small, rural, economically disadvantaged. They just don't have revenues. They don't have a sufficient number of ratepayers to bear the costs and the burdens. So if we remain committed, then the only way we can get there is with a new, robust Federal commitment to cleaning up our wastewater.

And at the same time as we do it, we have great opportunities to transform and modernize. We had testimony in the last Congress, in January or February, from a wastewater district in New Jersey that had to rebuild their system. Electricity is really expensive in New Jersey. They are capturing their methane—a horrendous greenhouse gas, way worse than CO<sub>2</sub>—to generate electricity, to run the plant, saving them a tremendous amount of money, and selling energy onto the grid.

So how about that? We are dealing with climate change, a horrible pollutant, methane. We are lowering costs for ratepayers. That seems like a win-win-win for everybody. And that is something that we should look at replicating as these systems are rebuilt.

Right now the EPA and the Department of Energy have shown that treatment of drinking water and wastewater is about 4 percent of our Nation's energy use. That is about \$4 billion, an average cost across the country. It results in 45 million tons of greenhouse gases, that is 10 million cars a year.

And there is way more methane in the wastewater and escaping from the wastewater than we need for the treatment, and as I said,

it could be trapped, and could become a generation for electricity, and reduce the destructiveness of the methane in the atmosphere. The EPA estimates that doing actions like this could save 10 to 40 percent of operating costs for utilities around the country.

The other issue is, of course, the resilience of these facilities. Severe weather events, floods, overtopping submerging systems, sea level rise, challenging systems in coastal areas. In 2020, the U.S. Government Accountability Office studied the resiliency of water and wastewater utilities, and one of their recommendations to us, to Congress, was that we should consider requiring that climate resilience be considered in the planning for any federally funded wastewater or water infrastructure projects.

We don't want to pour money into outdated, inefficient infrastructure, infrastructure that is not going to meet the challenges of the future. Instead, we need, as we do in surface transportation, we need to begin to build out a 21st-century wastewater/drinking water infrastructure to better meet the needs and the health of the American people and the economy.

With that, I yield back the balance of my time.

[Mr. DeFazio's prepared statement follows:]

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**Prepared Statement of Hon. Peter A. DeFazio, a Representative in Congress from the State of Oregon, and Chair, Committee on Transportation and Infrastructure**

Tomorrow is Earth Day, so it is fitting we are here to discuss innovative ways to address the resiliency and sustainability of our nation's wastewater infrastructure.

Today, we will continue to discuss the importance of robust investment in our nation's wastewater infrastructure, which, like so much of our nation's infrastructure, is in serious need of modernization. Specifically, today's hearing is an opportunity to explore in more depth some of the issues raised at our February hearing on the nation's clean water needs.

At that hearing, we underscored the consequences to everyday Americans from Congress's failure to invest in our water-related infrastructure systems.

As already noted, according to the most recent Environmental Protection Agency (EPA) Clean Water Needs Survey, states and communities have documented wastewater infrastructure needs of over \$270 billion over the next 20 years—which means that local communities have already identified over \$14 billion in specific wastewater infrastructure projects that need to be carried out every year for the next 20 years.

Yet, the last annual federal appropriation for the Clean Water SRF program was a fraction of that—about \$1.6 billion in fiscal year 2021.

We simply are not meeting our nation's wastewater infrastructure needs when we provide just a little more than 10 percent of the federal funds necessary to close the identified infrastructure gap.

We also learned at our Subcommittee hearing in February that local communities simply cannot address their wastewater infrastructure challenges on their own.

Too many communities, especially those that are small, rural, and economically disadvantaged, simply do not have the revenues and ratepayers to address these needs alone.

So, if we remain committed to cleaning up our nation's rivers, lakes, and streams, and if we remain committed to protecting human health and the environment, the only way we can get there is through renewing a robust federal commitment to addressing our wastewater infrastructure needs.

Yet, in the same way we are trying to transform and modernize our nation's highway system and move it out of the Eisenhower era, we have an equal opportunity to transform the way we invest in our nation's wastewater infrastructure network.

Both EPA and the U.S. Department of Energy have shown that approximately 3 to 4 percent of the nation's energy use is consumed by drinking and wastewater treatment facilities. This energy use is equivalent to 56 billion kilowatts annually—

costing roughly \$4 billion—and results in annual emissions of more than 45 million tons of greenhouse gasses. That’s the equivalent of about 10 million cars driven for a year.

Similarly, the Department of Energy estimates that wastewater contains roughly five times more energy than is needed for its treatment in terms of untapped thermal energy. Many utilities, including some of the witnesses here today, have demonstrated the potential to reclaim this untapped energy and reduce their overall energy costs as well as releases of greenhouse gasses.

EPA has also estimated that, by incorporating energy efficiency practices into water and wastewater utilities, municipalities can save between 15 to 40 percent on their operating costs, saving thousands of dollars and potentially paying for energy efficiency upgrades solely through cost savings in a matter of months to a few years.

Finally, a growing concern for many utilities is the resiliency of water and wastewater utilities to extreme weather events and the challenges posed by climate change. In 2020, the U.S. Government Accountability Office (GAO) completed a study of the resiliency of water and wastewater utilities to climate change and recommended that, among other things, Congress should consider requiring that climate resilience be considered in the planning for federally funded water infrastructure projects.

As this committee considers legislation to reinvest in our nation’s infrastructure, including our wastewater infrastructure, it is critical that these investments maximize the sustainability of our infrastructure.

It is foolish to keep pouring taxpayer dollars into outdated, inefficient infrastructure. Instead, we need to meet the climate challenge head-on by reducing emissions and building more resilient infrastructure.

We have an administration that wants to do just that—and put people to work at the same time—by enacting a large infrastructure package. In his American Jobs Plan, President Biden lays out an ambitious plan that create jobs and prioritizes investment in water and wastewater infrastructure.

Given the opportunity, we should not only direct investment toward getting our infrastructure into a state of good repair, but we should also focus on preparing our infrastructure for the next generation of challenges.

Thank you, Madam Chair, for holding today’s hearing. I look forward to hearing from the witnesses.

Mrs. NAPOLITANO. Thank you, Mr. Chairman.

I will now ask unanimous consent to add the testimony for the record from American Rivers.

And without objection, so ordered.

[The information follows:]

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**Statement of Gary Belan, Senior Director, Clean Water Supply Program, American Rivers, Submitted for the Record by Hon. Grace F. Napolitano**

On behalf of American Rivers’ 300,000 members and supporters, thank you for holding the hearing *Sustainable Wastewater Infrastructure: Measures to Promote Resiliency and Climate Adaptation and Mitigation*. American Rivers applauds the Committee for spotlighting the need for more federal infrastructure investment to stimulate the economy and meet clean water needs and requests that this written testimony be included in the official hearing record.

This moment in time offers a unique opportunity for Congress to put forth a new vision for water. The historic weather extremes we have experienced over the past two years, the pandemic and resulting economic challenges, have highlighted the importance clean water plays in our society and how critical it is that we invest in smart water infrastructure. The State Revolving Fund is one of the primary vehicles the federal government uses to support state water infrastructure, and when fully funded, it has historically helped to maintain water infrastructure. However, the Clean Water and Drinking Water SRF programs, as currently structured, are not accomplishing the large-scale improvements needed in water infrastructure to meet the twin challenges of climate change and economic and racial inequality. Large cities do not typically use the SRF programs, because they can more easily use the private bond market. When they do, they can monopolize the funds as they have more resources to develop proposals and work within the SRF application systems. Small communities do not have the capacity to take on a loan or they do not have

the staff capacity to even apply. Huge deficiencies in water infrastructure needs remain in communities across the country, the result of a historic lack of investment. Furthermore, natural infrastructure needs to be a core component of any infrastructure plan moving forward to help communities more quickly adapt to increasingly intense and regular weather extremes. The Clean Water and Drinking Water SRF programs continue to serve a vital purpose in supporting clean water infrastructure, and as such, the need to be fully funded and updated so that they can more effectively address these challenges.

We urge the Committee, and Congress as a whole, to direct more funding to both the Clean Water and Drinking Water State Revolving Funds, ensure that the Clean Water SRF incentivizes natural infrastructure practices, and both provide more options for communities with fewer resources to access SRF funds as grants. Climate change is impacting our water systems more significantly than ever and having up-to-date water infrastructure with natural infrastructure components are our best change at adapting to this new normal. Specifically, our recommendations are:

1. Support \$10 Billion for the Clean Water State Revolving Fund and \$10 Billion for the Drinking Water State Revolving Fund over the next five years, in order to ensure water infrastructure is repaired and maintained.
2. Require climate resilience be incorporated into the planning of all drinking and wastewater projects that receive federal financial assistance/support, including both SRF programs.
3. The green project reserve portion of the Clean Water SRF program should be increased to 20%, and water management strategies, like green infrastructure, should be given higher priority than energy efficiency measures.
4. Fund a national study to identify how broadly Clean Water SRF funds are being distributed to low-income communities and communities of color and how effective SRF funds have been at providing low-income communities needed clean water infrastructure.
5. Congress should change the Clean Water and Drinking Water SRF subsidization caps, and base it on a 10-year rolling average of state SRF contributions, instead of its current requirement of 30% of EPA's annual capitalization grant. This would increase the ability of cities with need to subsidize projects beyond the 30% cap while continuing to maintain a reasonable limit on subsidization to maintain the revolving fund nature of the SRF program.

#### U.S. WATER INFRASTRUCTURE IS CRUMBLING ... AND SO IS FUNDING

As the Committee is well aware, America's water infrastructure is at a crisis point. According to the American Society of Civil Engineers *Report Card on America's Infrastructure*, wastewater systems now receive a grade of D+ while stormwater infrastructure receives a D.<sup>1</sup> The nation's more than 16,000 wastewater treatment plants are steadily reaching their design capacities, while 15% have already reached or exceeded it.<sup>2</sup> With growing urban environments and populations, the number of wastewater treatment plants at or beyond capacity will steadily increase. Meanwhile, the impervious pavement and hard surfaces that cause stormwater pollution and flooding continue to grow. Between 1982 and 1997, urbanized land increased by 47 percent, while the nation's population grew by only 17 percent.<sup>3</sup> While sprawl growth appears to have slowed somewhat since 2000, it still appears to be growing.<sup>4</sup> This continued spread of pavement and hard surfaces continues to create billions of gallons of stormwater water, which not only causes its own pollution, but often causes sewer overflows as well.

At the same time, we continue to lose crucial elements of our natural clean water system—headwaters streams, wetlands, forests, and natural floodplains. Climate change is already making the problem worse, and scientists predict more frequent and severe droughts and floods as the planet warms.

Since 2002, federal clean water funding has declined significantly, leaving states and local governments to fill the gap. In 2005 states and municipalities spent \$82

<sup>1</sup>American Society of Civil Engineers, Report Card for America's Infrastructure, accessed online Apr 8, 2021 <https://infrastructurereportcard.org/>

<sup>2</sup>ibid

<sup>3</sup>Fulton, William, Rolf Penall, May Nguen, and Alicia Harrison. The Brookings Institution, Center on Urban and Metropolitan Policy, *Who Sprawls Most? How Growth Patterns Differ Across the U.S.* July 2001

<sup>4</sup>Barrington-Leigh, Christopher and Adam Millard-Ball, Proceedings of the National Academy of Sciences. *A century of sprawl in the United States.* July 7, 2015 <https://www.pnas.org/content/112/27/8244>

billion on sewers and drinking water.<sup>5</sup> By 2019, local governments invested a record \$125.5 billion in public water and sewer infrastructure, resulting in local governments being responsible for 95–98% of total water and sewer infrastructure spending.<sup>6</sup>

The pandemic and the resultant economic challenges have significantly impacted local investment in water infrastructure. The American Water Works Association (AWWA) and the Association of Metropolitan Water Agencies (AMWA) estimate that drinking water utilities will experience a negative financial impact of \$13.9 billion—or 16.9 percent—by 2021, due to revenue losses and increased costs as a result of the pandemic.<sup>7</sup> The National Association of Clean Water Agencies (NACWA) estimates the financial declines for wastewater utilities will be approximately \$16.8 billion, including a 20 percent drop in sewer revenues.<sup>8</sup>

Local funding is the primary revenue source for clean water infrastructure, and if it experiences a decline, it is likely we will see a resulting increase in water quality problems. Even before the pandemic we needed a national commitment to clean water infrastructure—the pandemic only exposed the need is greater and more urgent.

#### THE BENEFITS OF NATURAL INFRASTRUCTURE

Not only is more funding for water infrastructure needed, the funding needs to be directed towards more adaptable natural infrastructure. Natural infrastructure refers to a variety of practices that protect, restore, or mimic natural water systems. Examples include restoring or increasing urban trees to soak up and clean polluted stormwater and prevent flooding or protecting source water streams that provide drinking water to our communities. These climate resilient natural solutions efficiently safeguard and manage water in ways that improve quality of life—all at lower cost than traditional “gray” infrastructure.

Climate change has rapidly changed traditional precipitation patterns and is causing wide volatility. The National Climate Assessment, a federally supported and expert reviewed summarization of climate impacts in the United States, indicates that weather patterns are moving to more extremes across the country.<sup>9</sup> Since 1991, rainstorms have been increasingly more intense and have regularly been significantly above average. This increase in intensity has been greatest in the Northeast, Midwest, and upper Great Plains, where they are more than 30% above their mid-century average. Flood events have increased in the Midwest and Northeast where the most significant increases in rain amounts and intensity have occurred.<sup>10</sup> As climate change reduces snow packs and increases droughts, reservoirs as large as Lake Mead, the drinking water source for 30 million Americans, are drying up.<sup>11</sup> Building more dams, as Atlanta and many other metro areas are proposing, won’t work unless it rains (in the right place), and won’t address unsustainable water use. More severe storms are already increasing sewer overflows and flooding, and it is not physically or fiscally possible to enlarge underground stormwater tunnels enough to hold it all. Experts predict that these extreme hydrologic swings will only increase with global warming.<sup>12</sup>

To address these problems, we need more than just increased investment in water infrastructure; we need investment in natural infrastructure and we need it in the communities that have historically been left out of water infrastructure invest-

<sup>5</sup> Anderson, Richard, U.S. Conference of Mayors, *Local Government Investment in Water and Sewer, 2000–2015*. Accessed April 8, 2021 <https://bit.ly/2QaKNjy>

<sup>6</sup> Durr, Sara, The United States Council of Mayors, *Local Government Makes Record-High Investments in Public Water & Sewer Infrastructure*. November 26, 2019 Accessed April 14, 2021 <https://bit.ly/3djPC2V>

<sup>7</sup> American Water Works Association (AWWA) and Association of Metropolitan Water Agencies (AMWA), *The Financial Impact of the COVID–19 Crisis on U.S. Drinking Water Utilities* (AWWA, April 14, 2020), [https://www.awwa.org/Portals/0/AWWA/Communications/AWWA-AMWA-COVIDReport\\_2020-04.pdf](https://www.awwa.org/Portals/0/AWWA/Communications/AWWA-AMWA-COVIDReport_2020-04.pdf).

<sup>8</sup> National Association of Clean Water Agencies (NACWA), *Recovering from Coronavirus* (NACWA), [https://www.nacwa.org/docs/default-source/resources---public/water-sector-covid-19-financial-impacts.pdf?sfvrsn=98f9ff61\\_2](https://www.nacwa.org/docs/default-source/resources---public/water-sector-covid-19-financial-impacts.pdf?sfvrsn=98f9ff61_2)

<sup>9</sup> National Climate Assessment, *Precipitation Change*. Accessed on April 9, 2021 <https://nca2014.globalchange.gov/report/our-changing-climate/precipitation-change#intro-section-2>

<sup>10</sup> National Climate Assessment, *Heavy Downpours Increasing*. Accessed on April 9, 2021 <https://nca2014.globalchange.gov/report/our-changing-climate/heavy-downpours-increasing>

<sup>11</sup> James, Ian, *The pie keeps shrinking: Lake Meads low level will trigger water cutbacks for Arizona, Nevada*. AZCentral.com, Aug 15, 2020 <https://bit.ly/3255oIG>

<sup>12</sup> Kundzewicz, Z.W et al. “Freshwater Resources and Their Management.” *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry et al. Eds., Cambridge: Cambridge University Press, 2007. 173–210.

ments. Tackling America’s water infrastructure needs presents us with a unique opportunity to grow the economy and foster positive transformation in our communities. The solution is equitable investment and encouraged implementation of natural infrastructure. While investments in traditional or “gray”, infrastructure will be essential moving forward, natural infrastructure is a critical complement to protecting our drinking water and reducing sewer overflows, polluted stormwater, and community flooding.<sup>13</sup>

Gray water infrastructure that depends on pipes and treatment facilities to move stormwater, wastewater, and drinking water from one place to another can be affordably improved by investing in natural infrastructure. By protecting or mimicking natural water systems, we eliminate some of the strain on traditional infrastructure. For example, wetlands located in areas upstream of communities naturally absorb and hold floodwater; rain gardens in urban areas provide a similar function. These systems, which are cheaper to build than concrete pipes or holding ponds, retain and infiltrate water into the soil and take the burden off the existing piped water system.

We cannot eliminate engineered systems, such as pipes, treatment plants, and levees. Nor should we. They are important elements of our clean water system, and many are in desperate need of repair or replacement. But relying on fixed engineering solutions alone will not solve our future needs. Instead, we should optimize the mix of green infrastructure as a “first line of defense” complemented with state-of-the-art engineered technology.

To facilitate the use of natural infrastructure, climate resilience and risk should be considered and incorporated into projects that received federal financial assistance and funds. According to the GAO, such a federal requirement could influence the consideration of future climate risks industry practice within the drinking water and wastewater sector.<sup>14</sup> Furthermore, the GAO also found that incorporating climate resiliency into drinking water and wastewater projects would likely reduce future fiscal expenditures of the federal government and help enhance the resiliency of drinking water and wastewater infrastructure.<sup>15</sup>

Natural infrastructure strategies are an essential component to climate resiliency plans and are a valuable practice in the management of flood risks, build resiliency to drought, reduce urban heat island effects, reduce the energy needed for water treatment, amongst many other benefits.<sup>16</sup> By requiring climate resilience and risk assessment be incorporated into federally supported infrastructure projects, including through the SRF program, risks to and future costs of water management can be reduced.

#### STATE REVOLVING FUND AND GREEN PROJECT RESERVE

Funding for natural infrastructure has been built into the Clean Water State Revolving Fund program since 2009, when it was incorporated into the program as part of the American Recovery and Reinvestment Act of 2009. That bill appropriated \$4 billion to the Clean Water SRF program with the requirement that “to the extent there are sufficient eligible project applications, not less than 20 percent of the funds appropriated herein for the Revolving Funds shall be for projects to address green infrastructure, water or energy efficiency improvements or other environmentally innovative activities”<sup>17</sup> At that time the 20 percent set-aside, also referred to as the Green Project Reserve (GPR), was groundbreaking because it represented the first step in a much needed shift toward incentivizing more flexible, natural infrastructure solutions.

The Green Project Reserve has been a very successful program since its inception. Shortly after it was created, the 20 percent requirement was met by all 50 states, and 47 of them, including Puerto Rico, funded beyond the 20 percent requirement. These funds in turn generated thousands of jobs and other economic and environ-

<sup>13</sup> American Rivers, *Naturally Stronger* March 19, 2017 <https://medium.com/naturally-stronger>

<sup>14</sup> GAO, *Water Infrastructure: Technical Assistance and Climate Resilience Planning Could Help Utilities Prepare for Potential Climate Change Impacts*, January 2020, <https://www.gao.gov/assets/gao-20-24.pdf>

<sup>15</sup> *ibid*

<sup>16</sup> EPA, *Green Infrastructure and Climate Change: Collaborating to Improve Community Resiliency* August 2016, <https://bit.ly/3d6cH9o>

<sup>17</sup> United States Congress (February 17, 2009). American Recovery and Reinvestment Act, Public Law 111–5. Viewed April 11, 2021 <http://www.gpo.gov/fdsys/pkg/PLAW-111publ5/pdf/PLAW-111publ5.pdf>

mental benefits.<sup>18</sup> The resulting increase of projects was a result of states using the GPR as an opportunity to reach out to new Clean Water SRF applicants and fund new types of projects. The existence of the GPR encouraged many states to evaluate traditional projects and successfully identify existing natural infrastructure practices or opportunities to add natural infrastructure practices to traditional projects.<sup>19</sup> As a result, the EPA estimates that on average each green infrastructure project funded through the program reduces stormwater runoff by 22 million gallons and each water efficiency project is estimated to save over 200 million gallons per year.<sup>20</sup>

However, there are areas that continue to need improvement. Funding from the GPR tends to lean heavily towards energy efficiency programs. After its initial implementation, GPR funding consisted of approximately 38 percent energy efficiency projects compared to 18 percent natural infrastructure projects.<sup>21</sup> While energy efficiency is a critical environmental goal and there is a strong water-energy nexus, in many cases, it is not clear what direct water quality benefits, if any, were realized through these projects. We urge that federal clean water funds from the GPR not be used for basic energy efficiency purposes, so additional funds are utilized for natural infrastructure projects.

One reason natural infrastructure may be funded at lower levels may be because revenue streams to repay Clean Water SRF loans for natural infrastructure projects are not as readily available. Natural infrastructure is often used to supplement stormwater management, which typically does not have dedicated municipal funding, like the fee systems wastewater treatment plants have. Increasing subsidization or grant programs for natural infrastructure under the GPR, or establishing alternated loan payback requirements for them, are possible solutions.

The success of the Clean Water SRF Green Project Reserve over the years demonstrates its continued importance to the advancement of natural infrastructure, and it should not only continue to be funded, but increased to 20 percent.

#### STATE REVOLVING FUND AND LOW-INCOME COMMUNITIES

The State Revolving Fund programs play a crucial role ensuring water infrastructure in mid to small sized cities. The EPA estimates that between 1997 and 2018 approximately 35 percent of Drinking Water SRF funds were utilized by cities with a population of 10,000 or less.<sup>22</sup> In 2020, approximately 20 percent of Clean Water SRF funds were utilized by cities of 10,000 or less.<sup>23</sup> However, there are several challenges to paying for infrastructure in smaller to midsize cities, particularly ones that are experiencing a population decline. According to the GAO, midsize cities (populations from 50,000 to 99,999) cities with declining population had a higher poverty and unemployment rate and lower median income than cities with growing populations.<sup>24</sup> The GAO found that cities in this position have paid for water infrastructure needs through rate increases and have tried to set up customer assistance programs for those who can't afford the rate increases.

In some of these cases, the cities even used vacant land for natural infrastructure.<sup>25</sup> Cities in this situation are able to use the Clean Water and Drinking Water SRF programs to provide additional subsidies for water infrastructure needs, however there are limits to this approach, as funds often still require repayment. Furthermore, there is evidence that SRF funds are not equitably distributed across communities.<sup>26</sup> Several factors exist for why small or low-income communities are less likely to receive federal funding for water and wastewater infrastructure: communities with limited technical and financial capability find it difficult to apply for

<sup>18</sup>US EPA, *ARRA Clean Water State Revolving Fund, Green Project Reserve Report*, June 2012. [https://www.epa.gov/sites/production/files/2015-04/documents/arra\\_green\\_project\\_reserve\\_report.pdf](https://www.epa.gov/sites/production/files/2015-04/documents/arra_green_project_reserve_report.pdf)

<sup>19</sup> *ibid*

<sup>20</sup>US EPA, *Estimated Environmental Benefits Associated with ARRA-Funded Green Project Reserve Projects*. November 22, 2011. <https://bit.ly/2Rwbn3r>

<sup>21</sup>American Rivers, *Putting Green to Work: Economic Recovery Investments for Clean and Reliable Water*, 2009 Viewed April 15, 2021 <https://www.epa.gov/sites/production/files/2021-02/documents/us20.pdf>

<sup>22</sup>EPA, *Drinking Water State Revolving Fund 2018 Annual Report*. EPA 816-R-19-009, July 2019. Viewed April 15, 2019 <https://bit.ly/32hZ1BR>

<sup>23</sup>EPA, *Clean Water SRF Program Information National Summary, 1997-2020*.

<sup>24</sup>GAO, *Water Infrastructure: Information on Selected Midsize and Large Cities with Declining Populations*. GAO-16-785, September 2016. <https://www.gao.gov/assets/gao-16-785.pdf>

<sup>25</sup> *ibid*

<sup>26</sup>Balazs, Carolina and Isha Ray, *The Drinking Water Disparities Framework: On the Origins and Persistence of Inequities in Exposure*, April 2014. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4025716/>

funds (even when funds are designated for such places); smaller and lower-income communities face higher financial risk when securing loans of any type; and states may be hesitant to make investments in communities they think may compromise the viability of the SRF programs.<sup>27 28</sup>

While some of these factors have been identified, research has primarily focused on the Drinking Water SRF. Little analysis has been done on the Clean Water SRF to determine how equitable fund distribution and project implementation is across communities within cities that use these funds. This is largely due to the differences between drinking water and wastewater utility structures. Therefore, more research is needed to better identify how Clean Water SRF funds are being distributed, how and if they are impacting low-income communities, and how the program can be improved to ensure funds are better making it to communities with water infrastructure needs.

#### SRF AND SUBSIDIZED ASSISTANCE

In both the case of natural infrastructure and low-income communities, Drinking Water and Clean Water SRF funds are being utilized, but not to the extent that the funds are needed or available. Current federal law places a 30 percent cap on subsidization.<sup>29</sup> This cap was originally put in place to restrict states from giving away too much funding in the early years of the program. This would have undermined the sustainability of the SRF programs in their early years.<sup>30</sup> However, now that the SRF programs have been in place for over twenty years and are currently well capitalized, the cap as currently constructed is making it more difficult for natural infrastructure projects to be constructed and for lower-income communities to access funds. Instead of the 30 percent cap, states should instead have a subsidization cap based on the amount of funding they are contributing beyond their 20 percent annual match. Under current law, if a state wishes to provide a higher level of subsidized assistance than allowable, they have to create a separate state-financed water infrastructure program.<sup>31</sup>

There is an increasing need for access to water infrastructure financing for natural infrastructure and low-income communities, and the current grant programs available, while helpful, are insufficient for the need. The SRF program is an important and valuable addition to the sources of funding for natural water infrastructure and must continue to be improved to keep up with the need and circumstances of our time. The subsidization cap is still important to ensure the continued long-term viability of the SRF, particularly with the continued need for long-term water infrastructure funding. However, this cap may be inhibiting state efforts to fully deploy their SRF funds and restricting the ability to fully fund the need for natural infrastructure and reducing the impact for communities in most need.<sup>32</sup>

Congress should change the way the cap on subsidized assistance is calculated for states that regularly invest their SRF's. The cap should be based on a 10-year rolling average of state SRF contributions, instead of a set percentage based on annual federal funding. Doing this would assist states that are expanding their SRF programs, increasing their ability to provide subsidization, while still ensuring that the SRF remains sustainable into the future. Based on current state contributions and calculating the subsidized assistance cap based on a 10-year average would allow at least 20 states the ability to distribute significantly more funding as subsidized.<sup>33</sup>

#### CONCLUSION

This moment in time offers a unique opportunity for Congress to put forth a new vision for water. In much the same way that we need to invest in energy efficiency and low-carbon technologies to fuel our economy in the 21st century, we need suffi-

<sup>27</sup> Hansen, Katy, Environmental Policy Innovation Center, *Are SRF Allocation across communities equitable?* Viewed April 12, 2021 <http://policyinnovation.org/are-srfs-equitably-allocated-across-communities>

<sup>28</sup> Daley, Dorothy, Megan Mulling, Meghan Rubado, *State Agency Discretion in a Delegated Federal Program: Evidence from Drinking Water Investment*. Publius: The Journal of Federalism, Volume 44, Issue 4, Fall 2014, pgs 564–586. Published August 31, 2013

<sup>29</sup> United States Congress (June 10, 2014). Water Resources Reform and Development Act of 2014, Public Law 113–121. Pg 133 Viewed April 12, 2021 <https://www.govinfo.gov/content/pkg/PLAW-113publ121/pdf/PLAW-113publ121.pdf>

<sup>30</sup> NRDC, *Go Back to the Well: States and the Federal Government are Neglecting a Key Funding Source for Water Infrastructure*. IP:18–04–A, May 2018. Viewed April 9, 2021 <https://www.nrdc.org/sites/default/files/state-revolving-fund-water-infrastructure-ip.pdf>

<sup>31</sup> *ibid*

<sup>32</sup> *ibid*

<sup>33</sup> *ibid*

cient and innovative funding for water infrastructure. Both the Clean Water and Drinking Water SRF programs have been a bedrock of funding for water infrastructure, and the green reserve requirement within the Clean Water SRF has been an effective incentive for innovative and flexible approaches. The SRF programs are one of only a few legislative approaches to get water infrastructure funding to communities in need while providing funds for natural water infrastructure practices. But both the Clean Water and Drinking Water SRF's need further support and changes to ensure that the continue to be the strong pillar of water infrastructure funding they have been in the past.

American Rivers appreciates the House Transportation and Infrastructure Committee's consideration of our views.

Mrs. NAPOLITANO. Thank you, everybody. That was excellent, Mr. DeFazio. I think you covered it all. We will now proceed to hear from our witnesses, who will testify.

Thank you for being here, and much welcome to everybody. On today's panel we have Howard Neukrug, executive director of the Water Center at the University of Pennsylvania; Kishia Powell, COO and executive vice president, DC Water; Mr. Robert Ferrante, chief engineer and general manager, Los Angeles County Sanitation Districts; Kim Colson, director, Division of Water Infrastructure, North Carolina Department of Environmental Quality, testifying on behalf of the Council of Infrastructure Financing Authorities, CIFA; Kevin Robert Perry, fellow, American Society of Landscape Architects; and Rebecca Hammer, deputy director of Federal water policy, the Natural Resources Defense Council, NRDC.

And without objection, your prepared statements will be entered into the record. All witnesses are asked to limit their remarks to 5 minutes.

And Mr. Neukrug—am I pronouncing it right?

Mr. NEUKRUG. You got it the last time, you got it very well.

Mrs. NAPOLITANO. Welcome. If I murder it, I am not that good at names sometimes. Welcome, and you may proceed.

**TESTIMONY OF HOWARD M. NEUKRUG, P.E., EXECUTIVE DIRECTOR, THE WATER CENTER AT THE UNIVERSITY OF PENNSYLVANIA; KISHIA L. POWELL, P.E., CHIEF OPERATING OFFICER AND EXECUTIVE VICE PRESIDENT, DC WATER; ROBERT C. FERRANTE, CHIEF ENGINEER AND GENERAL MANAGER, LOS ANGELES COUNTY SANITATION DISTRICTS; KIM H. COLSON, DIRECTOR, DIVISION OF WATER INFRASTRUCTURE, NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, TESTIFYING ON BEHALF OF THE COUNCIL OF INFRASTRUCTURE FINANCING AUTHORITIES; KEVIN ROBERT PERRY, FASLA, FELLOW, AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS; AND REBECCA HAMMER, DEPUTY DIRECTOR OF FEDERAL WATER POLICY, NATURAL RESOURCES DEFENSE COUNCIL**

Mr. NEUKRUG. Well, thank you very much, Chairwoman, and thank you, Chairman DeFazio and Ranking Member, for your great opening statements. And good morning. Thank you for holding this important hearing on the role of sustainable wastewater infrastructure, and promoting resilient cities. I am Howard Neukrug, I am the executive director of the Water Center at Penn.

The Water Center is a nonprofit applied research arm of the University of Pennsylvania. Our primary purpose is to find solutions to the challenges facing our urban and rural water systems, the

watersheds that support them, and the communities that rely on them. Our work builds heavily on the concept of integrated water systems and the values of equity, justice, and community resilience.

America's water infrastructure requires significant renewal and upgrade. I think we all know about the American Society of Civil Engineers Report Card with grades of C-minus, D-plus, and D. Speaking as a professor from an Ivy League university, I can tell you that these are not good grades. These are the grades of systems that are highly vulnerable to partial or complete failure. This has to change. If America cannot afford to provide clean and safe water to all of its citizens, what nation can?

The last major Federal funding program for water infrastructure came with the Clean Water Act's Construction Grants program in the 1970s and 1980s. The program was a huge success, and improved our Nation's water quality dramatically. But much more needs to be done now.

Our vision is for fishable, swimmable, drinkable, accessible, attractive, and safe water that supports community health and sustainability, enhances economic opportunities, and promotes affordable and resilient neighborhoods. Our goal is to rebuild our Nation's water systems with new innovations and technologies that will take our 19th- and 20th-century infrastructure, which is what is in place today, and secure it for at least through the 21st century.

Today, the Nation's wastewater facilities are moving from being a major user of energy to a net-zero or even a net-positive energy facility. That is, water systems are generating enough energy in-house to not just run its operations independent of the energy grid, but enough to sell back excess to the community.

We are achieving this by reducing the amount of stormwater that infiltrates, or inflows, into our sewers. We are using more energy-efficient equipment and pumps. We are also investing in advanced digitization and artificial intelligence to better monitor and optimize our systems. And we are even producing renewable energy by using wind turbines, floating photovoltaic solar cells in our reservoirs, and optimizing methane gas generation and recovery and reuse.

We are also beginning to recover other resources from the waste stream: phosphorous, microplastics, carbon, rare earth materials, fertilizers, and even the thermal heat resident in water. And perhaps most significantly is the recovery of the water itself. We can now treat wastewater to a level appropriate for reuse, even to the level of direct potable reuse.

Increasingly, clean water utilities are becoming leaders of sustainability in their communities. This June, Philadelphia Water will hit a milestone, its 10th anniversary of the groundbreaking Green City, Clean Waters initiative. In just 10 years, Philadelphia has greened previously impervious land area sufficient to prevent 3 billion gallons a year of combined sewage overflow from entering its streams and rivers. But Philadelphia is just 25 percent of its way towards its ultimate discharge reduction goal, and the next 15 years will require an even greater influx of money and innovation.

In summary, the renewal and upgrade of our Nation's water infrastructure will be extensive and expensive. While great strides have been made to make the water sector more efficient, more resilient, more sustainable, and more equitable, still more resources are needed.

The Clean Water SRF has been a tremendous lifeline for all parts of our water sector, and thank you for that. But our water challenges will only continue to increase. An increase in Federal appropriations under the Clean Water SRF program would help bring the water sector and the country closer to 21st-century standards and our Nation's expectations for resiliency and sustainability.

So thank you for Congress' continued support of funding the SRF system. I look forward to a growing partnership, moving forward. And by working together we could ensure safe, reliable, and affordable water services for every citizen.

Thank you, this concludes my remarks.

[Mr. Neukrug's prepared statement follows:]

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**Prepared Statement of Howard M. Neukrug, P.E., Executive Director, The Water Center at the University of Pennsylvania**

INTRODUCTION

Good morning, Chairman DeFazio, Ranking Member Graves, and the Water Resources and Environment Subcommittee members. I am Howard Neukrug, Executive Director of the Water Center at Penn. The Water Center is a nonprofit applied research arm of the University of Pennsylvania. Our primary purpose is to find solutions to the challenges facing urban and rural water systems, the watersheds that support them, and the communities that rely on them. Our work builds on the concept of integrated water systems and the values of equity, justice, and community resilience.

I have worked in the water industry for over 40 years, my first job as a staff engineer for drinking water quality and treatment at Philadelphia Water and continuing with the utility as its Director of Planning and Technical Services, the Office of Watersheds founding Director, Deputy Commissioner for Planning and Environmental Services, and finishing my career as the utility's CEO and Water Commissioner. Philadelphia Water is a municipal water, wastewater, and stormwater utility serving over two million people in the Philadelphia metropolitan area with an annual combined (capital and operating) budget of over \$1 billion, 2000 employees, three drinking water treatment facilities, three wastewater resource, and recovery facilities, and over 6000 miles of water and sewer pipes.

I have served as the Chair of the American Water Works Association (AWWA) Water Utility Council and its Technical Advisory Group, co-founded the U.S. Water Alliance, and served on the boards of the Water Research Foundation, and the National Association of Clean Water Agencies (NACWA) boards. Each of these organizations has provided inspiration and a real learning experience for me. I mention this because I believe that our professional organizations are where you have the best opportunity to nurture new ideas and create the change that is so urgently needed for our nation's water infrastructure.

Since my retirement in 2016, in addition to founding the Water Center at Penn, I started an environmental consulting business (CASE Environmental LLC), was appointed a Professor of Water Practice at the University of Pennsylvania, and became the senior advisor of the Global Water Leader's Group and Chair of its Leading Utilities of the World CEO Network. I teach courses on "Global Water Business for the 21st Century" and "The Role of Water in Sustaining Resilient Cities."

Thank you for holding this critical hearing concerning Sustainable Wastewater Infrastructure and our efforts to promote resilient cities (and water systems) and climate adaptation and mitigation. I look forward to working with the subcommittee on its efforts to help address the growing challenges and needs brought on by a changing set of climate, economic and social realities.

## THE TIME IS RIGHT FOR INVESTMENT IN WATER INFRASTRUCTURE

It is a matter no longer up for debate—America’s water infrastructure systems—drinking water, wastewater, and stormwater—require significant renewal and upgrade. The American Society of Civil Engineer’s (ASCE) Report Card for Water (2021) gave our nation’s water systems grades of C–, D+, and D, respectively. Speaking as a professor from an Ivy League university, I can tell you that these are not good grades. These are the grades of systems that may be functional but are highly vulnerable to partial or complete failure at any time. This has to change. If America cannot afford to provide clean and safe water to all of its citizens, what nation can?

There are many reasons why the current state of disrepair has gotten to the point it has. But the first step to recovery is simply acknowledging the problem and its root causes: deferred maintenance, inadequate revenues through tariffs, aging facilities, increased regulations, emerging contaminants, and more frequent and intense natural and anthropogenic crises.

To help us on this path toward recovery, appreciation is growing by the water utility sector and the public that yes, we should be able to swim in the water and eat the fish AND live in an adaptive, resilient, and sustainable community. Perhaps the last time this kind of public interest has occurred on a wholesale level was during the 1970s and 1980s when pollution got so bad that the Clean Waters Act (CWA) was signed into law and the U.S. Environmental Protection Agency (EPA) was launched.

During that time, the CWA’s Construction Grants Program kicked in. It changed water resource protection and management completely in the U.S. by upgrading wastewater treatment systems. By the turn of this century, our nation’s wastewater treatment facilities were successfully treating much of the gross pollution of the 1970s. But much still needs to be done.

It is important to note that this last major push to clean up our nation’s waters came when the federal government supported the water sector through the provision of significant grant funding.

Today, the water sector is continuing its march toward new and innovative technologies designed to reduce costs, increase energy efficiencies, manage its existing asset base, address the next 50 plus years of a changing climate, and support sustainable and green communities. The goal? Fishable, swimmable, drinkable, accessible, attractive, safe, just, equitable, and affordable water that supports community health and sustainability, enhances economic opportunities and promotes affordable neighborhoods. But all of this requires the availability of more funding when revenues are falling due to more and more households finding themselves unable to pay the water bill.

## NEW ATTITUDES AND INNOVATION ARE CHANGING WATER RESOURCE RECOVERY

Despite the doom and gloom highlighted above concerning the state of U.S. water infrastructure, many significant innovations are gaining traction and are at various degrees of implementation throughout the U.S. and in the global water sector.

What is in a name? In the 1950s, they were called Sewage Treatment Plants (STPs); in the 1970s, they were Publicly Owned Treatment Works (POTWs); in the 1990s, Water Pollution Control Plants (WPCPs). Today they are being renamed as Water Resource Recovery Facilities (WRRF). Yes, they still treat sewage, are largely publicly owned, and still control pollution. But the mission has grown significantly.

For an industry that has been called the largest municipal user of electricity, more and more systems have become “Net Zero Energy” facilities. Through the availability of more energy-efficient equipment (think pumps and membranes) to strategic changes in utility operations and water and stormwater conservation, treatment facilities have been reducing electric demand for decades.

Add to this the innovations from the field of renewable energy—photovoltaic solar cells floating on reservoirs, methane gas generation, and recovery for use in cogenerating heat and electricity, and wind turbines. More and more utilities produce enough energy to manage their operations and sell the excess to nearby communities and industries.

Innovations are happening within all aspects of the treatment of what we once referred to as “waste” water; for example, the recovery and reuse of elements within the “waste” stream—phosphorous, microplastics, carbon, rare earth materials, and even the thermal heat resident within the water.

And perhaps the most significant innovation is in the recovery of the water itself. Most treatment plants in the U.S. and worldwide treat their wastewater to a level suitable for discharge into a nearby water body. Today, water-scarce areas are treat-

ing their wastewater to a level appropriate for reuse, even to the level of direct, potable reuse.

#### BLUE, GREEN AND GREY INFRASTRUCTURE ADDRESS MULTIPLE CLIMATE ISSUES

This June, Philadelphia Water will hit a milestone—its 10th anniversary of the groundbreaking Green City, Clean Waters initiative. In just ten years, Philadelphia has greened previously impervious land area sufficient to prevent 3 billion gallons a year of combined sewage overflow (CSO) into its streams and rivers. This was no easy task, but the benefits of green water systems throughout a city provide additional benefits including improving public spaces, reducing urban heat island effects, reducing GHG emissions, and creating a more livable and healthier environment.

I mention blue and grey infrastructure in the section title because all forms of water management are needed to successfully protect water resources and life and property from floods, droughts, and other water disasters.

The biggest concern of the Green Infrastructure “movement” has been that while there are many, many “co-benefits” to say, planting a tree or building a rain garden, the water sector has not, to date, gotten many “co-funders” to participate in the cost-side of these projects. A big thank you to Congress and the EPA for ensuring that there is the opportunity for a set-aside in the SRF funding formula to support green infrastructure.

Increasingly, clean water utilities are becoming leaders of sustainability in their communities. I urge Congress to explore incentives and remove barriers so that other entities—electric utilities, the health care industry, and agencies that represent our roads, housing, and even litter—can work more closely with the water utilities to create co-benefits through green infrastructure. The water sector needs Congress’ help in educating, incentivizing, and leveraging these groups to increase support of multi-faceted green solutions to water and other environmental challenges.

#### FUNDING AND POLICY CHANGES ARE NEEDED TO MEET 21ST CENTURY WATER CHALLENGES

Clearly there is controversy over the cause of climate change, but few would argue that there has been an historic shift in weather patterns that is showing no signs of letting up. Given that, it is my hope that Congress and the federal government will continue to work with the water sector to protect life and property from the risks of flood, drought, extreme storm events, and sea level rise. Perhaps no industry is better positioned to adapt its facilities AND the communities it serves, than the water sector. But while the water sector is making a lot of progress in building resiliency and sustainability, it can make more progress faster with more support.

What kind of support is needed?

Undoubtedly, the current state of the water industry is unacceptable. More funding is needed, but we are near the affordability limit of many American households, the principal source for water revenues. While great strides have been made to make the water sector more efficient, more resilient, more sustainable, and more equitable, still more resources are needed for the reasons described earlier. The Clean Water SRF has been a tremendous lifeline for all parts of the water sector. Thank you. But our water challenges will only continue to increase as will the urgency to address those challenges. So, I provide you with a short list of legislative actions that would be supportive of the health of our communities and the water environment:

- Increasing the general authorization level for federal appropriations under the CW SRF program to bring the water sector closer to 21st century standards and expectations
- Supporting water utility programs that assist low-income households to maintain water service
- Supporting SRF set-asides for:
  - Rural and small communities
  - Innovative environmental projects that promote sustainability and resilience, such as Green Infrastructure
- Providing funding to eliminate or minimize two legacy infrastructure challenges in the U.S.:
  - Combined sewer overflows
  - Lead service lines
- Increasing support for research to make water systems more efficient, resilient and sustainable

## CONCLUSION—WATER CAN UNITE US

Our nation's drinking water, wastewater, and stormwater infrastructure renewal and upgrade is extensive and expensive. But the broad support for improving our nations' water infrastructure, ensuring the safety of our drinking water and keeping our waterways clean gives me hope. Please take advantage of this rare common ground by providing the necessary funding to ensure that the U.S. can provide safe, reliable and affordable water services for every citizen. In doing so we will be able to move our nation's water infrastructure securely into the 21st century and increase our nation's resiliency and sustainability at the same time.

Thank you for Congress' continued support in funding the SRF system and I look forward to a growing partnership moving forward.

This concludes my introductory remarks. I would be pleased to answer any questions or provide additional material for the committee.

Mrs. NAPOLITANO. Thank you very much, Mr. Neukrug. Now I recognize Representative Norton to introduce Ms. Powell.

Ms. NORTON. Thank you, Madam Chair, for this important hearing, and for inviting our own chief operating officer of DC Water. I am pleased to introduce Kishia Powell, who has been the authority's chief operating officer since May of 2020. She is leading our authority's initiatives to develop water equity as a roadmap, and she is, importantly, leading measures to operationalize climate resilience.

She is well qualified as a graduate of the Clarence Mitchell School of Engineering. She is a professional engineer, and is vice president of the National Association of Clean Water Agencies.

We welcome Ms. Powell to this hearing.

Mrs. NAPOLITANO. Thank you, Ms. Norton.

Ms. Powell, you may proceed.

[Pause.]

Mrs. NAPOLITANO. You have got to unmute. Unmute. There you go.

Ms. POWELL. Thank you, Ms. Norton, for the introduction, and good morning and thank you, Chairs DeFazio and Napolitano, Ranking Member Rouzer, and all members of the subcommittee, for the invitation to testify before you today on behalf of DC Water, our board of directors, and CEO David Gadis on sustainable wastewater infrastructure.

My name is Kishia Powell, and I am the chief operating officer of DC Water, which provides essential drinking water and wastewater service to over 672,000 residents, schools, and businesses in the District, as well as wastewater treatment service for 1.6 million people across the District and neighboring communities in Maryland and Virginia. I also serve as vice president of the National Association of Clean Water Agencies, or NACWA, representing more than 330 public clean water utilities nationwide.

We commend the committee for focusing today's hearing on modernizing and replacing the country's aging water and wastewater infrastructure, which remains a pressing concern. In fact, adapting and improving infrastructure to meet changing climate trends may be the Nation's most glaring public works need. And we must not forget that no community is resilient without affordable, accessible water.

We also applaud the Biden-Harris administration for its demonstrated commitment to water infrastructure investment. Both the President's infrastructure proposal and his proposed budget to

Congress are historic, significant, and critical to protecting the health and well-being of every American. These investments reflect the critical role that water infrastructure will play in building back better and addressing climate change.

While the causes of climate change relate to air pollution, the impacts of climate change—increasingly volatile precipitation patterns, droughts, floods, intensifying storms, rising sea levels, and coastal erosion—are almost all related to water. And that means water utilities will be front and center in addressing these growing challenges.

Utilities nationwide are keenly aware that making their communities more resilient to climate change is also an equity and environmental justice issue. At DC Water, our belief is that we cannot achieve resilience without water equity, making sure that all communities are resilient in the face of a changing climate and, likewise, share in the economic, social, and environmental benefits of the systems we manage, and the infrastructure investments that are made.

At the heart of DC Water's efforts to modernize wastewater infrastructure is our DC Clean Rivers Program, a \$2.7 billion investment which uses both traditional gray and green infrastructure to reduce combined sewer overflow volume, flooding, and manage stormwater runoff. Yet even an investment of this scale can be susceptible to extreme events like the September 10th flash flood, where 3 inches of rain fell on the District over a 2-hour period, leaving more than 300 residents impacted by sewer backups and surface flooding.

These types of extreme storms are not unique to the DC region. They are occurring throughout the country with increasing frequency and intensity, straining public clean water utility infrastructure and threatening regulatory compliance.

More than a decade ago, NACWA and the Association of Metropolitan Water Agencies released a report detailing the potential impact of climate change and the estimated adaptation costs for critical water and wastewater facilities of between \$448 to \$944 billion through 2050. These costs underscore the importance of the committee's work on the recently introduced Water Quality Protection and Job Creation Act of 2021.

This timely bill authorizes substantially increased funding, including grants for wet weather and resiliency pilot projects, bridging the growing gap in the Federal cost share of water infrastructure, which is currently less than 5 percent. This funding will allow communities to maintain and improve local infrastructure, ensure water quality, support water equity, and protect public health.

But we are not only working to adapt to climate change. Clean water utilities around the country are also contributing to climate mitigation measures through renewable energy projects that achieve reductions in greenhouse gas emissions and, ultimately, contribute to carbon neutrality goals.

Thank you for this opportunity to testify before you and for the work you are doing on behalf of the public clean water sector. DC Water's motto is, "Water is Life." Today we urgently ask Congress to align funding levels with this basic truth, and ensure that water

infrastructure allocations are proportionate to or greater than other infrastructure sectors.

This concludes my testimony, and I would be happy to answer any questions the committee may have. Thank you.

[Ms. Powell's prepared statement follows:]

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**Prepared Statement of Kishia L. Powell, P.E., Chief Operating Officer and  
Executive Vice President, DC Water**

Good morning and thank you, Chairmen DeFazio and Napolitano, Ranking Member Rouzer, and all members of the Subcommittee for the invitation to testify before you today, on behalf of DC Water, our Board of Directors and our CEO David Gadis, on sustainable wastewater infrastructure.

My name is Kishia Powell, and I am the Chief Operating Officer of DC Water, which provides essential drinking water and wastewater services to over 672,000 residents, schools, and businesses in the District, as well as wastewater treatment service for 1.6 million people across the District and neighboring Maryland and Virginia suburbs. DC Water is proud to have provided these services without interruption during the COVID-19 pandemic.

I also serve as Vice President of the National Association of Clean Water Agencies, or NACWA, which represents more than 330 public clean water utilities nationwide, including DC Water. NACWA's public utility members are on the front lines of environmental and public health protection every day to ensure their communities have reliable and affordable clean water services.

I commend the Committee for focusing today's hearing on an increasingly urgent topic. No community is resilient without affordable, accessible water. Modernizing and replacing the country's aging water and wastewater infrastructure, is an increasingly important concern. In fact, adapting and improving infrastructure to meet changing climate, precipitation, and water use trends, may be the nation's most glaring public works need.

I also applaud the Biden-Harris Administration for its demonstrated commitment to water infrastructure investment. Both the President's infrastructure proposal and his proposed budget to Congress are historic, significant, and critical to protecting the health and wellbeing of every American. These investments reflect the critical role that water infrastructure will play in building back better and addressing climate change.

The reality is that climate change is all about water. While the *causes* of climate change relate to air pollution, the *impacts* of climate change—increasingly volatile precipitation patterns, drought, floods, intensifying storms, rising sea levels and coastal erosion—are almost all related to water. And that means water utilities will be front and center in addressing these growing challenges.

At the same time, utilities nationwide are keenly aware that making their communities more resilient to climate change is also an equity and environmental justice issue. In a recent discussion with our Board of Directors we discussed Water Equity and Resilience and acknowledged that we cannot achieve resilience without water equity—that intersection of water management, Equity and Resilience, making sure that all communities are resilient in the face of a changing climate and likewise share in the economic, social, and environmental benefits of the systems we manage and the infrastructure investments that are made. Our households that are most vulnerable to the impacts of climate change, are often low-income families of color, with many living in flood-prone areas and without the financial resources to afford the costs related to clean-up and restoration. This is where we see environmental justice and climate justice are inextricably linked and where opportunities for equitable approaches become evident and timely.

Utilities are already helping communities adapt to, and manage, extreme storm events, and DC Water is a national leader in this respect. However, these resilience measures often require costly new investments to protect and adapt the billions of dollars of public investment in water infrastructure already in the ground. This can create severe financial challenges for ratepayers, and particularly unjust and disproportionate impacts on low- and moderate-income customers.

CLIMATE ADAPTATION

At the heart of DC Water's efforts is our Clean Rivers Project, an ongoing effort to reduce combined sewer overflows (CSOs) to the District's waterways. DC Clean

Rivers is a \$2.7 billion infrastructure program designed to capture and treat wastewater during rainfalls before it reaches local waterways. The program's investments have already delivered a 90% reduction in system wide CSO volume for the Anacostia River, and an economic impact of 41,850 jobs (direct and indirect) over the life of the program, just to highlight a few benefits.

Clean Rivers uses both traditional gray, and green, infrastructure strategically around the city to reduce flooding and manage stormwater runoff, including increased precipitation from climate change. Yet even an investment of this scale can be susceptible to extreme events. As an example, an unusually intense rainstorm on September 10, 2020 dumped almost three inches of stormwater on the District over a two-hour period. The impact on the city's sewer infrastructure was immediate.

During this event, sewer and stormwater pumps throughout the system were pushed to their maximum pumping capacity. Within 25 minutes the new Anacostia Tunnel System filled to its capacity of 100 million gallons. The flow to our Blue Plains plant spiked and our new wet weather treatment facility was pressed into service. It too quickly reached capacity. Across the city, our existing sewers performed as designed but were insufficient to handle the amount of stormwater generated.

These types of extreme storms are not unique to the DC region—they are occurring throughout the country with increasing frequency and intensity, straining public clean water utility infrastructure and threatening regulatory compliance. In other jurisdictions, increased drought conditions are creating a different set of challenges for water and wastewater systems. In both cases, it will require a significantly increased investment to ensure safe, reliable, and compliant water supplies for all Americans.

These concerns are not new, but they are growing. More than a *decade* ago, NACWA and the Association of the Metropolitan Water Agencies (AMWA) released a report detailing the potential impact of climate change on wastewater and drinking water utilities. This report estimated the adaptation costs for these critical facilities to be between \$448 billion and \$944 billion through 2050. In the decade plus since that report, climate change has proven to be an even greater challenge to public clean water and drinking water utilities.

These costs underscore the importance of the Committee's work on the recently introduced Water Quality Protection and Job Creation Act of 2021, H.R. 1915. This timely bill authorizes substantially increased funding for the Clean Water State Revolving Fund (CWSRF), Sewer Overflow and Stormwater Reuse Municipal Grants, as well as grants for wet weather and resiliency pilot projects. I emphasize grants as they are particularly beneficial for struggling communities that cannot take on more debt financing to meet these challenges.

These funds are an important first step to bridge the growing gap in the federal cost share of water infrastructure, which is currently less than five percent. This funding represents a lifeline for communities to maintain and improve local infrastructure, ensure water quality, support water equity, and protect public health in the face of climate change.

#### CLIMATE MITIGATION

Clean water utilities around the country are also contributing to climate mitigation measures through renewable energy projects that achieve reductions in greenhouse gas emissions and ultimately help reach carbon neutrality goals. As the single largest power consumer in the District, DC Water's operations offer significant green energy potential from thermal energy recovery supplying 100% of our heating needs at HQO, our LEED Platinum certified headquarters, an estimated 13 MW of on-site combined heat and power at Blue Plains to solar project implementation and the potential to generate power from food waste. Systemwide, we have roughly a 200 MW equivalent of thermal energy in our sewers; something unique to us in the District and yet untapped.

DC Water's Blue Plains Advanced Wastewater Treatment Plant was the first project to use thermal hydrolysis in North America and was the largest such facility in the world when it was commissioned in October 2015. The clean, green renewable energy created through this process is enough to power one-third of the Plant's energy needs. Based on our GHG emissions modeling from 2007 to 2017, our Thermal hydrolysis process (Cambi/digestion/combined heat and power (turbines) project) reduced our carbon footprint by roughly  $\frac{1}{3}$ . More recently, the Authority has completed the installation of a solar lighting array to capture additional clean power, which could further reduce our reliance on the power grid.

Though DC Water's energy opportunities were identified several years ago, we recently reinvigorated our focus on developing an actionable project portfolio that aligns collaborators and expedites funding from investors, for the purpose of achieving the District's Carbon & Equity Goals. DC Water understands that implementation of innovative clean energy projects can result in operational savings and allow DC Water to invest those savings in other critical infrastructure needs while maintaining affordable rates.

#### CLOSING

In closing, I would like to thank the Committee again for the opportunity to testify before you today on this important issue and for the work you are doing on behalf of the public clean water sector.

At DC Water, our motto is 'Water is Life.' Today, we urgently ask Congress to align funding levels with this basic truth, and ensure that water infrastructure allocations are proportionate to, or greater than, other infrastructure sectors.

We in the public clean water sector firmly believe that this is the moment for Congress to act to address the nation's growing water infrastructure crisis and transform a generational problem into a multigenerational solution.

That concludes my testimony and, I would be happy to answer any questions the Committee may have.

Mrs. NAPOLITANO. Thank you very much, Ms. Powell, that is very good. We certainly do need to focus on aging infrastructure and the new methodology.

I am pleased to introduce Mr. Robert Ferrante, who is the general manager of L.A. County Sanitation Districts. The sanitation districts are an incredible leader in water recycling, food waste recycling, and alternative waste disposal opportunities, and I know them very well, I have visited them several times.

I thank you, Mr. Ferrante, for testifying today. You may proceed.

Mr. FERRANTE. Good morning, and thank you for that introduction, Chair Napolitano. Good morning also to Chair DeFazio, Ranking Member Rouzer, members of the subcommittee, and staff. My name is Robert Ferrante. I am the chief engineer and general manager of the Los Angeles County Sanitation Districts. It is my great pleasure to participate in this hearing this morning on behalf of the sanitation districts, and to speak to you about the important topic of climate resiliency and the role that wastewater agencies can play in it.

I would like to begin by stating my agency's support for H.R. 1915, the Water Quality Protection and Job Creation Act of 2021. We thank you for bringing this very important legislation forward.

As a matter of background, the sanitation districts were formed in 1923, and today we provide wastewater and solid waste services to about 5.6 million people, 78 cities, and unincorporated Los Angeles County. Many of our customers live in disadvantaged communities, and have been hit hard by COVID-19.

Our facilities are not waste treatment or disposal sites. They are resource recovery facilities that support the goal of a more circular economy. And over the last 50 years, the sanitation districts have been the Nation's largest producer of recycled water.

In recent years, the need, though, to develop additional local recycled water supplies and the need to seek out more greenhouse gas reductions has become more apparent than ever, as we experience the impacts from climate change.

With this as a backdrop, I would like to highlight two major projects that we have undertaken.

First, we are partnering with the Metropolitan Water District of Southern California, which serves nearly 19 million people through 6 southern California counties, on a regional recycled water project. Discussions for this project started in 2010. And in 2019, a \$17 million, 500,000-gallon-per-day demonstration facility began operation.

The potential full-scale regional project would produce up to 150 million gallons per day, or enough to serve 500,000 homes, or, in context with Metropolitan's supply need, about 10 percent of Metropolitan's water supply need for the southern California region. Purified water from the advanced treatment system would be delivered through 60 miles of pipeline to the region's groundwater basins, replenishing them, and also to two of Metropolitan's water treatment plants.

In November of the past year, the boards of directors of both agencies approved moving forward with the environmental review, preliminary engineering, and public outreach, which are anticipated to take 2 to 3 years. The project is estimated to cost \$3.4 billion, and while most of the cost will be paid by ratepayers, we will be looking for financing through Federal programs in order to help keep drinking water costs affordable for southern Californians.

The other project I would like to talk about is a food waste-to-energy project, and we have developed this—since we have both a solid waste and wastewater infrastructure, it really makes a lot of sense for us to be involved in this. It is a perfect fit for us. And California here, as many of you know, has an extensive set of State laws to support greenhouse gas mitigation, increased use of renewable energy, and diversion of waste, especially organic waste from landfills.

So we have embarked on a food waste diversion for codigestion at our main plant. And following 4 years of research and pilot testing, we have initiated the large program, working with a number of private haulers that are serving local cities, and we currently receive about 300 tons per day of food waste. And we have the potential to double that amount over the next few years.

And as I think Chairman DeFazio mentioned, and others, about generating additional gas and energy, we use that biogas in two ways. We use it at an onsite powerplant, making the whole treatment plant energy self-sufficient, and exporting power to the grid. And we also use that, and convert that gas into vehicle fuel, which displaces not only, of course—

Mrs. NAPOLITANO. Mr. Ferrante, would you mind wrapping up a little bit?

Mr. FERRANTE. Sure. It displaces fossil fuel use and avoided landfill gas emissions.

I hope these projects serve as good examples. And with that, I would like to thank the subcommittee for allowing me to testify. Thank you.

[Mr. Ferrante's prepared statement follows:]

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**Prepared Statement of Robert C. Ferrante, Chief Engineer and General Manager, Los Angeles County Sanitation Districts**

Good morning, Chairman DeFazio, Chairwoman Napolitano, Ranking Member Graves, and Ranking Member Rouzer, members of the Subcommittee and staff. My name is Robert Ferrante, and I am the Chief Engineer and General Manager of the Los Angeles County Sanitation Districts, where I have worked for 28 years. It is my great pleasure to participate in the hearing this morning on behalf of the Sanitation Districts to speak to you about the important topic of climate resiliency and the role that wastewater agencies can play in it. I would like to begin by stating my agency's support for H.R. 1915, the Water Quality Protection and Job Creation Act of 2021, which would authorize \$50 billion over five years for water infrastructure investments. We thank you for bringing this legislation forward. We appreciate your recognition of the critically important need for a strong federal commitment to invest in our Nation's clean water infrastructure, and that there are ways in which those investments can be put to work to not only protect water quality in our rivers, lakes and oceans, but also to help communities become more resilient to the effects of climate change.

BACKGROUND

The Los Angeles County Sanitation Districts were formed in 1923, and today consist of 24 independent special districts that provide wastewater and solid waste services to about 5.6 million people in 78 cities and unincorporated areas in Los Angeles County. Many of our customers live in disadvantaged communities and have been hit hard by COVID-19. To maximize efficiency and reduce costs, the 24 Sanitation Districts work cooperatively with one administrative staff headquartered near the City of Whittier. Each Sanitation District has a Board of Directors consisting of the mayor of each city served, and the Chair of the County Board of Supervisors for unincorporated territory. Each Sanitation District pays its proportionate share of administrative costs.

The Sanitation Districts protect public health and the environment through innovative and cost-effective wastewater and solid waste management, and, in so doing, convert waste into resources such as recycled water, energy, and recycled materials. Our facilities are not waste treatment or disposal sites, they are resource recovery facilities and support the goal of a more circular economy. In addition to managing about one-quarter of the County's municipal solid waste, we operate and maintain a regional wastewater collection system, that treats about half the wastewater in Los Angeles County. Collectively, the Sanitation Districts treat about 400 million gallons of water per day, which is enough to fill the Rose Bowl nearly five times a day. Over the last 50 years, the Sanitation Districts have been the nation's largest producer of recycled water. Our service area spans about 850 square miles, and to cover this large area, we have several distinct wastewater systems. Seventeen of the Sanitation Districts in the metropolitan Los Angeles area are served by a regional, interconnected system of facilities known as the Joint Outfall System (JOS). The JOS consists of seven wastewater treatment plants. Six upstream water reclamation plants (WRPs) capture low salinity, high-quality wastewater and produce a drought-resistant water resource: disinfected recycled water that is ready to use in a variety of applications without further treatment. Downstream, the Joint Water Pollution Control Plant, or Joint Plant, uses secondary treatment to treat two-thirds of the wastewater in the JOS along with the solids removed at the upstream plants.

The Sanitation Districts manage separate wastewater systems in the Santa Clarita Valley and the Antelope Valley. Each of these valleys is home to two WRPs that provide important sources of water for wildlife habitats and for municipal and agricultural reuse.

WATER RECYCLING

We embarked on our modern water recycling program in 1949 when it was determined that upstream water reclamation plants would allow us to both handle wastewater generated by the burgeoning post-war development in our service area, and to produce recycled water, which even then was anticipated to become a critical resource in our semi-arid and drought-prone climate. The Sanitation Districts' first water reclamation plant, Whittier Narrows, began operation in August 1962 and nearly every drop of recycled water produced by that facility has been put to beneficial use since then, mainly for groundwater replenishment and later also for irrigation of nearby urban parks and green areas. Whittier Narrows was the first plant in the nation to be built solely for the purpose of water recycling. We subsequently built other water reclamation plants, and these plants now collectively supply ap-

proximately 95 million gallons per day (or 100,000 acre-feet per year) of recycled water to over 900 sites through partnerships with over 30 local water suppliers for a variety of uses, including industrial use, agricultural use, groundwater replenishment, and landscape irrigation.

In recent years, the need to develop local recycled water supplies as a means to be more climate-resilient has become more apparent than ever as we experience impacts from climate change. These include drought, extreme weather events, earlier snow melt, and sea level rise. This includes impacts in northern California where water is transported to other parts of the State via the State Water Project, as well as impacts in the Colorado River Basin, which is another source of imported water for Southern California. Climate change is reducing the snowpack and affecting the timing of snow melt, both of which reduce water availability. Other factors driving interest in developing new recycled water projects include the need to plan for the possibility of a major seismic event along the San Andreas fault, which could disrupt imported water supplies for months and the extremely limited options for development of new sources of water.

#### REGIONAL RECYCLED WATER PROJECT

With this as a backdrop, I would like to highlight a major new project that we are partnering on with the Metropolitan Water District of Southern California, which serves nearly 19 million people in six Southern California counties. The Regional Recycled Water Project first began with early planning and a pilot project in 2010. A \$17 million, 500,000 gallon per day demonstration facility at the Joint Plant was approved in 2015 and began operation in October 2019. The potential full-scale regional recycled water program would treat about 180 million gallons per day in order to produce up to 150 million gallons daily, or enough to serve more than 500,000 homes. Purified water from the advanced treatment facility would be delivered through 60 miles of new pipelines to the region's groundwater basins, industrial facilities and two of Metropolitan's treatment plants. In November 2020, the boards of directors for both agencies approved moving forward with environmental review, preliminary engineering, and public outreach, which are anticipated to take two to three years.

This project, which could become the largest of its type in the world, will replenish local groundwater basins, and has the potential to pursue direct potable reuse by delivering the recycled water to two raw water treatment facilities operated by Metropolitan for incorporation into the wholesale water supply system. The State of California is currently working on the development of regulations for direct potable reuse, which are anticipated to be completed in 2023. This project would have the ability to produce roughly 10% of Metropolitan's annual water supply need and be a reliable new source especially when imported water is curtailed or cutoff by natural disaster or climate change. The Regional Recycled Water Project is estimated to cost \$3.4 billion, and while most of the cost will be paid for by the ratepayers, we will be looking for federal financing through programs such as the Clean Water SRF, WIFIA, Title XVI, and/or the Alternative Water Source Management Program, in order to help keep drinking water costs affordable for Southern Californians. All of these funding programs are essential not just to our project but for water recycling projects all over the country.

#### FOOD WASTE TO ENERGY PROJECT

I would now like to turn to another major initiative we are developing to turn some of the 4,000 tons per day of food waste generated in Los Angeles County into energy by using both our solid waste and wastewater infrastructure. California has an extensive set of state laws to support Greenhouse Gas (GHG) and Short-Lived Climate Pollutant (SLCP) mitigation, increased use of renewable energy and diversion of waste from landfills. Because the Sanitation Districts manage both solid waste and wastewater, food waste diversion for co-digestion at the Joint Plant was a project that makes perfect sense for us. Following research and pilot testing, a four-year demonstration project was conducted in partnership with the private company, Waste Management, in which up to 60 tons per day of preprocessed food waste slurry was injected directly into a test digester. Based on the success of the demonstration project, we have initiated a very large-scale codigestion program, and Phase I of an energy strategy for the additional biogas. We are developing a diversified set of sources for food waste slurries from private sector suppliers, as well as from our own food waste preprocessing facility installed at the Puente Hills Materials Recovery Facility in 2018. We currently receive about 300 tons per day of food waste slurry at the Joint Plant, and we have the potential to increase the amount accepted to about 600 tons per day.

The biogas is used in two ways. Some is sent to the Joint Plant's 20-megawatt power plant where the biogas is converted into electricity that runs the treatment plant, which is virtually self-sufficient. The remaining biogas is sent to a gas purification system to make fuel-grade renewable natural gas. The purification system can produce the renewable natural gas equivalent of 2,000 gallons of gasoline per day. This renewable natural gas is dispensed at the Sanitation Districts' nearby compressed natural gas (CNG) fueling station that is open to the public. By fueling cars, buses and trucks with renewable natural gas, this program produces a low carbon fuel that both reduces GHG/SLCP emissions through avoided landfill emissions and avoids fossil fuel use. We are still evaluating future options for use of the additional biogas that will be produced as the program grows, including production of additional renewable electricity for sale to the grid and injection of biogas into the natural gas pipeline system.

#### CONCLUSION

I hope that these projects can serve as examples of innovative projects that can be done right now at our nation's wastewater utilities to foster water resilience and to mitigate climate change by reducing GHG/SLCP emissions. These projects are converting wastewater treatment plants into resource recovery facilities where clean water, energy, vehicle fuel, and soil amendment are generated which supports a circular economy and reduces greenhouse gas emissions. H.R. 1915 and this Committee's leadership can assist the Sanitation Districts' and the nation's wastewater facilities achieve a more resilient and reliable future.

In conclusion, I thank the Subcommittee for the opportunity to be here today to share information about our projects. If you have any questions, I would be happy to answer them.

#### ATTACHMENTS

1. *Metropolitan Water District and Los Angeles County Sanitation Districts, "A New Source of Water for Southern California: Regional Recycled Water Advanced Purification Center," January 2021.*

[This document is retained in committee files and is available online at the House of Representatives Document Repository at <https://docs.house.gov/meetings/PW/PW02/20210421/112472/HHRG-117-PW02-Wstate-FerranteR-20210421-SD001.pdf>]

2. *Los Angeles County Sanitation Districts, "Food Waste Recycling," January 2021.*

[This document is retained in committee files and is available online at the House of Representatives Document Repository at <https://docs.house.gov/meetings/PW/PW02/20210421/112472/HHRG-117-PW02-Wstate-FerranteR-20210421-SD002.pdf>]

Mrs. NAPOLITANO. Thank you very much, Mr. Ferrante. Those are great projects, and I have visited most of them.

Mr. Colson, you are next. You may proceed.

Mr. COLSON. Thank you, Chairman DeFazio, Ranking Member Graves, Chairwoman Napolitano, and Ranking Member Rouzer, my name is Kim Colson, and I am director of the Division of Water Infrastructure for the North Carolina Department of Environmental Quality. I am also president of the Council of Infrastructure Financing Authorities, and today I am speaking on behalf of CIFA, whose members manage the Clean Water and Drinking Water State Revolving Funds. Thank you for engaging the SRF community in this important conversation about the future of the Clean Water SRFs.

The Clean Water SRFs provide a sustainable and perpetual source of funding for clean water infrastructure. Because the SRFs are subsidized loan programs, Federal and State funding is used over and over again to fund water infrastructure forever. We are still using the initial Federal investment in the Clean Water SRF from 1989.

The numbers tell an incredible story of success. In 2020, Congress provided \$1.6 billion in annual funding for the Clean Water

SRFs, but the SRFs were able to provide \$7.6 billion in assistance to communities, nearly five times the Federal appropriation. Over the life of the program, \$47 billion in Federal funding has generated \$145 billion in total investment in clean water infrastructure. Today, \$60 billion—\$15 billion more than the total Federal funding—remains revolving in the Clean Water SRFs for new loans. And those new loans are funding important water infrastructure projects that may never have been built with a conventional grant program.

Maintaining the integrity of the SRFs as a loan program is essential. Every dollar provided in principal forgiveness and grants is permanently removed from the SRFs, which means less funding for water infrastructure for future generations. These aspects are carefully considered at the State level.

The Clean Water SRFs are a national model for infrastructure investment, because States can customize their program within a broad Federal framework to meet diverse and often unique needs of their communities. Understanding the impact of Federal policies on these State-run programs is important to maintaining and strengthening the effectiveness of the SRFs.

Many States are focused on specific types of green projects, and some are more focused on small communities, depending on their State's specific situation. Energy efficiency projects are typically funded, as many utilities are exploring reducing their energy footprint and have established revenue streams to repay the loans. Water recycling projects are a priority in States where water scarcity is a major concern, such as California, Florida, and Texas. Stormwater projects, such as permeable pavement and roof gardens, can be a great solution in urban areas.

But these type of projects may not be the immediate priority in small communities, and I know our small communities in North Carolina are struggling just to maintain their infrastructure. More Federal mandates may have the unintended consequence of turning these proven, effective, State-run programs into a one-size-fits-all Federal program.

Small and rural communities like Tabor City, North Carolina, with a population of 4,000, face very different challenges than cities and urban centers like Los Angeles, California, with a population of 4 million. Large utilities are more likely to have the professional staff to comply with Federal mandates. Small communities are more likely to have to hire an outside contractor to comply, and can struggle with organizational and financial capacity. All treatment works, whether a significant overhaul or a simple pipe replacement, have the same Federal requirements under current law.

So on behalf of the borrowers, please consider how current and new Federal mandates might impact the communities we serve. Specifically, consider their capacity to comply, and the cost benefits.

In addition, please consider ways Federal policies can be implemented with State programs to meet the same Federal goals, just like the SRFs already do with environmental review.

Thank you again for your support, and for asking the SRF community our thoughts on the future of the Clean Water SRFs. Thank you.

[Mr. Colson's prepared statement follows:]

**Prepared Statement of Kim H. Colson, Director, Division of Water Infrastructure, North Carolina Department of Environmental Quality, testifying on behalf of the Council of Infrastructure Financing Authorities**

On behalf of the Clean Water State Revolving Funds (SRFs) across the nation, thank you for the opportunity to share the thoughts of the SRF community on measures to promote sustainable and resilient water, wastewater and stormwater infrastructure. My name is Kim Colson and I am the Director of the Division of Water Infrastructure for the North Carolina Department of Environmental Quality, which manages both the Clean Water and Drinking Water SRFs. Today, I am speaking on behalf of the Council of Infrastructure Financing Authorities (CIFA) whose members manage the Clean Water and Drinking Water SRFs in 48 states.

*The Clean Water SRFs are the nation's premier programs for funding water infrastructure that protects public health and the environment.* Since they were established by Congress more than 30 years ago, the Clean Water SRFs have funded more than 40,000 water infrastructure projects in communities around the country, providing clean water to support healthy ecosystems, livable communities and robust economies.

Although these proven programs have been around for more than three decades, the SRFs have evolved significantly during that time. Our portfolio of infrastructure has grown well beyond traditional brick-and-mortar wastewater treatment plants and sewer pipes to an array of innovative projects that are solving the most complex water challenges of our day. To help communities build water infrastructure that is sustainable and resilient, our programs offer a range of assistance, including engineering, environmental, project planning and accounting services.

The SRFs have also matured into sophisticated financial organizations. Each SRF develops their below-market interest rate, their criteria for affordability and additional subsidy, and their loan conditions based on the needs and priorities of their state. Each SRF employs a variety of tools to fund water infrastructure projects, including direct loans, purchase of debt, linked deposits, and additional subsidy in the form of grants and principal forgiveness. Several SRFs leverage their programs in the bond market, which requires additional finance expertise.

Today, SRFs are dynamic organizations that are responsive to the needs of their communities in a fast-paced, ever-changing world. Because they are state-run programs, SRFs can—and must—adapt quickly to meet multiple challenges, including natural disasters such as drought or hurricanes, health crises like the coronavirus pandemic, emerging contaminants such as PFAS, economic downturns that impact affordability and capital investment, and competition from incredibly low interest rates in the public finance market.

*SRFs fund an array of projects that promote sustainable and resilient water systems.* Under current law, Clean Water SRFs can fund a range of water infrastructure projects that build sustainability and resiliency, including wastewater treatment, water reuse and recycling, stormwater management, decentralized wastewater treatment, green infrastructure, energy efficiency, water conservation, agricultural best management practices, climate mitigation and adaptation measures, increased security and cybersecurity, environmental restoration and pollution prevention. The ability to fund this wide array of projects allows SRFs to support new initiatives, such as integrated planning.

A top priority for many SRFs is ensuring wastewater is treated to stringent water quality standards so it can be safely reused or returned to nature. Replacing leaky sewer pipes and rehabilitating old or outdated treatment facilities remain the most effective ways to maintain adequate levels of protection and prevent catastrophic crises that endanger public health or cause lasting, costly damage to the environment. However, more and more grey infrastructure projects are incorporating green technologies and approaches, either in whole or in part, to increase resiliency of water systems, water quality and water supply.

Here are a few pioneering projects recently funded by Clean Water SRFs to strengthen water sustainability and resiliency.

- The California Clean Water SRF funded expansion of 30 million gallons per day for the Orange County Water District Groundwater Replenishment System to be used as a new source of replenishment for the Orange County groundwater basin.
- The Rhode Island Clean Water SRF conducted a statewide climate vulnerability study to determine infrastructure projects that wastewater treatment facilities

need to undertake to mitigate the impact of flooding from rain and rising sea levels.

- The Arizona Clean Water SRF funded a forest management project in Flagstaff to protect against catastrophic wildfires that create the conditions for dangerous mudslides during monsoon season which cause significant impacts to water quality.
- The Minnesota Clean Water SRF, in partnership with the Barataria-Terrebonne National Estuary in Louisiana, funded implementation of pollution prevention practices to reduce nutrient runoff that flows down the Mississippi River to the sensitive coastal ecosystem.
- The Missouri Clean Water SRF funded construction of wastewater bio solids handling equipment in Webb City that produces fertilizer from nutrients in wastewater, which is applied mine-scarred land as part of a stabilization and habitat restoration project.
- The Kansas Clean Water SRF funded the purchase of equipment to plant cover crops to reduce nutrients in Wetmore.
- The Florida Clean Water SRF funded installation of solar facilities in Marianna, which reduced energy consumption by more than 90%. Loan repayments are funded with just two months of savings with the remaining ten months of savings available to maintain affordable rates.
- The Virginia Clean Water SRF, in partnership with The Nature Conservancy, funded the purchase of a conservation easement for 60,000 acres of forests, increasing protection for drinking water supplies as well as the natural habitat for more than 150 species of fish and mussels.

*The SRFs provide a sustainable, renewable, protected source of funding for clean water infrastructure—forever.* Since the program was created, federal funding of \$47 billion has generated a total investment of \$145 billion for clean water infrastructure. Because the SRFs are subsidized loan programs, nearly \$60 billion of state and federal funding remains revolving in the program today—\$13 billion more than the total amount provided over three decades of federal funding. All funds revolving in the SRFs are state funds.

Today, Americans are realizing the real-world benefits of establishing the Clean Water SRFs as revolving loan programs more than 30 years ago. In 2020, Congress appropriated \$1.6 billion in funding to the Clean Water SRFs but the SRFs were able to provide nearly \$7.5 billion in funding to communities—nearly five times the amount of annual federal funding. Thanks to Congress' foresight, water infrastructure projects are being built today that may never have been built if the SRFs were established as a federal grant program.

*SRF subsidize loans save money and keep utility rates affordable.* Savings from SRF subsidized loans allow utilities to improve wastewater and stormwater service while keeping rates affordable for consumers. While additional subsidy (grants and principal forgiveness) tends to be the focus of financial assistance provided by the SRFs, significant savings are already being generated through the SRF's below-market, subsidized interest rates.

In 2020, the average interest rate for a Clean Water SRF loan was 1.5% or about 50% of market rates. SRF subsidized loans, on average, cut interest payments in half and reduce the cost of infrastructure by \$180 million for every \$1 billion in loans. Additionally, investments in wastewater infrastructure can reduce the cost of operations. These combined savings can be passed onto consumers with more affordable utility rates.

*While SRFs provide a permanent, perpetual source of funding, more federal funding is needed to meet the growing need for clean water infrastructure.* According to the American Society of Civil Engineers (ASCE), the need for capital investment for water infrastructure was \$129 billion for 2019, while actual total spending on capital investment in water infrastructure was \$48 billion, leaving a gap of \$81 billion or nearly twice the amount of actual spending. If this trend continues, this gap is expected to grow to \$434 billion by 2029.

CIFA's members fully support increased authorizations and appropriations for the Clean Water SRF. However, some SRFs have expressed concern about their ability to meet the 20% state match requirement if funding is increased five-fold within the near future. Other SRFs have expressed concern about the ability to ensure the high-priority projects are funded if timelines remain the same or are shortened, as they were under the American Recovery and Reinvestment Act of 2009.

*Greater flexibility for the SRFs is also needed.* The Clean Water SRFs are effective because Congress allowed states to customize their program within a broad federal framework. This flexibility, which is a hallmark of the SRF state-federal partnership, has allowed SRFs to meet the diverse, and often unique, needs of communities across the nation—from urban centers, such as Los Angeles, California, with a pop-

ulation of nearly four million, to small communities like Tabor City, North Carolina, with a population of 4,000.

However, continued federalization of the Clean Water SRFs diminishes our ability to efficiently and effectively respond to the needs of our communities. Federal mandates, while incredibly well-intentioned, have had the unintended consequence of complicating the program, which discourages and slows the pace of investment in clean water infrastructure.

Increased federal mandates add complexity to program management. Unlike the bond market which provides financing only, SRFs shepherd projects through the project pipeline—from pre-development to planning and design through engineering and environmental reviews to procurement to construction. Hiring, training and retaining staff to implement, monitor and enforce compliance with the growing number of federal mandates is a challenge.

*The federal mandate for additional subsidy reduces the leveraging power of SRFs immediately and permanently reduces the source of recurring revenue for water infrastructure projects in the future.* Since 2010, Congress has required the Clean Water SRFs to use a percent of the annual capitalization grant for additional subsidy in the form of grants, principal forgiveness or negative interest loans. While additional subsidy is an important tool, SRFs believe it should only be used when absolutely necessary because it permanently reduces funding for water infrastructure in the future.

Additionally, there is an inverse relationship between additional subsidy and leveraging. SRFs can use the capitalization grant as security for a bond or pledge loan repayments to repay a bond. The more funding used for additional subsidy, the less funding that is available to leverage the program. Less leveraging results in fewer water infrastructure projects.

Current law allows SRFs to use up to 30% of the capitalization grant for additional subsidy for communities that meet affordability criteria and for certain projects, such as stormwater mitigation. Allowing each SRF to determine how much additional subsidy is necessary, up to this cap, ensures states are balancing the need to invest in water infrastructure today with the ability to meet future needs for water infrastructure. It also recognizes that many states provide significant funding for water infrastructure grant programs which are used to supplement projects funded by the SRFs.

*The federal mandate for green projects can displace other water infrastructure projects that provide greater protection for public health and the environment.* The current mandate, called the Green Project Reserve, requires SRFs to use at least 10% of the capitalization grant for water and energy efficiency projects, green infrastructure projects and other environmentally innovative activities. To meet the mandate, SRFs are encouraged by the U.S. Environmental Protection Agency to change their scoring, interest rates and additional subsidy criteria, which impacts the ranking and funding of projects that might be higher state priorities.

All SRFs fund green projects but not all green projects can qualify for loan. Utilities that implement water and energy efficiency projects have a revenue stream to qualify and repay a loan, and the energy efficiency projects often pay for themselves in lower operating costs. However, green infrastructure projects, such as installing permeable pavements or green roofs, often don't have a revenue stream to qualify and repay a loan.

Even with robust and concerted efforts to identify and fund green projects, SRFs may not be able to achieve the mandate, year-in-and-year-out. Take the recent experience of Oregon, which is at the forefront of funding innovative, sustainable green projects. In State Fiscal Year 2020, the Oregon Clean Water SRF executed a record number of loans and had more than \$6.8 million in green projects on their Intended Use Plan. However, none of those projects were ready to proceed to construction and, as a result, Oregon couldn't meet federal mandate for green projects in that fiscal year.

Additionally, transformational green infrastructure projects can take more time to develop and build than other projects, including both conventional wastewater projects and smaller green projects. Given the need to meet the green mandate annually and the urgency to disburse federal funding expeditiously, there is no incentive to pursue these large-scale, environmentally significant projects. When they are funded, credit toward the mandate is only allowed in the year when the loan was executed, not when funding is disbursed. For example, Oregon is financing a multi-year, multi-phased riparian restoration project along eight miles of creek near the City of Ashland. Funding for the project will be disbursed over 15 years but Oregon will only get credit for the project in the year the loan is executed.

Allowing SRFs to earn credit for green projects over multiple years or measuring funding for green projects over a rolling three-year average would ensure invest-

ment in green projects is recognized and transformational green projects are realized.

*Fewer federal mandates on SRF loan recipients can promote investment in sustainable and resilient water infrastructure.* According to a recent survey of the SRFs, the number one challenge to increasing investment in water infrastructure is the cumulative impact of all federal mandates. Today, federal mandates dictate the way communities select their engineer, the wages paid to mechanics and laborers on their construction project, and the materials and technologies used in construction of their project. None of these requirements existed a decade ago.

Too often, these one-size-fits-all federal mandates increase paperwork and process without providing additional protection for public health, the environment or taxpayer funds. Many federal mandates are duplicative of state requirements, creating twice the work without any significant additional benefit. Many federal requirements apply to projects funded by state funds.

Compliance with federal mandates increases the cost of water infrastructure, particularly for small communities who can least afford it. Many small and even some medium-sized communities don't have the professional staff to comply with the myriad of federal rules and requirements. As a result, communities are hesitant, even reluctant, to undertake investment in water infrastructure.

*The federal mandate requiring SRFs loan applicants to demonstrate compliance with federal prevailing wage laws is very prescriptive.* Paying the prevailing government wage for SRF funding water infrastructure is not an issue. Often, workers are paid more than the prevailing federal wage to be competitive with other construction projects, particularly in growing communities with robust economies. The problem is the prescriptive paperwork and process required to demonstrate compliance, even when workers are paid more than the federal prevailing wage.

The compliance burden is particularly onerous in states with a state prevailing wage law. In the 26 states and the District of Columbia that have a state prevailing wage law, SRFs, loan recipients and contractors must comply with two sets of compliance procedures, doubling the workload without providing any additional financial benefit for workers.

Adopting state prevailing wage laws for water infrastructure (which is routine for highway construction projects) and allowing compliance with state prevailing wage laws to be accepted in lieu of federal compliance procedures would alleviate the burden while maintaining fair wages for workers.

*The federal mandate requiring SRF loan recipients to use the federal procurement process for engineering services has a significant impact in some, but not all, states.* The Water Resources Development Act of 2014 requires SRF loan recipients that receive federal funding from the capitalization grant to use of the federal procurement process for selecting engineering services. Under the federal procurement process, engineers must be selected based solely on qualifications.

This federal mandate has little impact in about two-thirds of states that have a procurement process similar to the federal procurement process; these state laws are often referred to as a "mini" Brooks Act. However, this federal mandate has had a significant impact on SRF loan applicants in other states whose state procurement laws conflict with the federal requirements. For example, the Massachusetts SRF no longer funds engineering services with federal funds; two separate loan agreements are executed for the same project—one for engineering services funded by state funds and one for construction funded by federal funds.

*The federal mandate requiring SRF loan recipients to make specific certifications increases the cost of water infrastructure, especially for small and rural communities.* The Water Resources Development Act of 2014 mandates that all SRF loan recipients certify that they conducted a cost-and-effectiveness analysis and have selected the activity that maximizes the potential for water and energy efficiency. The law also mandates that all SRF loan recipients certify that they have developed a funding plan to maintain assets built using SRF funds and will implement water and energy conservation efforts as part of the plan.

While many large utilities can comply with these requirements using in-house staff, smaller communities must hire an outside consultant to meet these requirements which increases the cost of water infrastructure. Additionally, many small communities, particularly those with shrinking populations and limited revenue, lack the professional capacity to ensure continued compliance with the certifications. As a result, plans are often shelved shortly after construction is completed.

*States need a reliable source of funding to ensure robust participation in the Clean Watershed Needs Survey.* States, including many SRFs, are responsible for collecting data and documentation for the Clean Watershed Needs Survey but many don't have adequate financial resources or staff to dedicate to the effort. Allowing states

to use ½% of their capitalization grant would guarantee funding for participation in the survey.

*Small, rural, disadvantaged and underserved communities need technical assistance.* The Drinking Water SRF has the ability to use 2% of their annual capitalization grant to provide technical assistance to communities that serve a population of 10,000 or fewer. Providing the same financial resources for projects funded by the Clean Water SRF would provide significant assistance to communities that lack the professional resources to plan and build these important projects.

*Thank you again for the opportunity to share these thoughts with you.* The SRF community looks forward to working with you to strengthen the state-federal partnership that has proven its effectiveness in funding water infrastructure that protects public health and the environment.

If you would like more information about the SRFs or our policy recommendations, please visit [www.cifanet.org](http://www.cifanet.org) or [www.MoreProtectionLessProcess.org](http://www.MoreProtectionLessProcess.org), or contact our Executive Director, Deirdre Finn, at [dfinn@cifanet.org](mailto:dfinn@cifanet.org).

Mrs. NAPOLITANO. Thank you very much, Mr. Colson, that was very insightful.

Mr. Perry, you may proceed.

Mr. PERRY. Well, thank you, Chair Napolitano, Ranking Member Rouzer, and members of the subcommittee, for the opportunity to testify on the valuable work being done by landscape architects in the water and stormwater management space. My name is Kevin Robert Perry, and I am a licensed landscape architect and internationally recognized leader in successfully integrating stormwater management with high-quality urban design. I work as a senior landscape architect at Toole Design Group, and I am also the founder of Urban Rain Design, a small design studio based in both California and Oregon.

I am here today on behalf of the American Society of Landscape Architects, or ASLA, where I have been a fellow since 2017. ASLA believes that water quality is essential to our economy, communities, and environment. By working to protect it, our membership of landscape architects plays a critical role in sustainability and public health. Unsustainable development practices and continued expansion of paved surfaces increases stormwater runoff, carries pollutants into waterways, prevents groundwater recharge, and drastically reduces the landscape's ability to respond to everyday storm events, much less the current and future challenges of climate change.

While the United States has generally had success in protecting water quality, EPA research has found that nonpoint source pollution remains the leading cause of water quality problems.

This is where landscape architects are stepping up and playing a key role. We are at the forefront of developing innovative design strategies that promote sustainability, resiliency, and a balanced vibrancy between our built and natural environment. We plan and design nature-based systems that reduce the impacts of urbanization, integrate these solutions seamlessly into our cities and towns, and, in general, are a multifunctional design approach that allows for less destructive human relationship with the natural environment.

Landscape architecture practices also provide a key equity and environmental justice solution. One such practice is performing meaningful community engagement during the design and planning process. Often the communities that stand to benefit the most from our work are the low-income and racially diverse communities

that have been damaged by years of underinvestment and disinvestment. This includes communities located in small towns, large cities, and all areas in between. ASLA and its members are committed to utilizing our trade to directly improve the lives of underinvested communities.

Green infrastructure also leads to job creation. According to the national organization Green for All, a \$188 billion investment in stormwater management would generate \$265 billion in economic activity, and create nearly 1.9 million jobs. Furthermore, green infrastructure is good for small businesses, as many landscape architects work for or run their own small firms.

It is important to also know that green infrastructure can be implemented across a wide range of scale: resilient coastlines, riverfronts, regional parks, and interconnected green streets can be realized at the citywide scale, while rain gardens and a robust use of street trees can grace nearly any neighborhood space. With thousands of our schools, roads, parks, and other civic space infrastructure either breaking down or inefficiently designed, there is an incredible opportunity to boldly retrofit our built environment with long-lasting green infrastructure strategies.

And one avenue of green infrastructure that is starting to take root on the west coast is the design-build concept of the tactical green infrastructure. This unique student practitioner partnership identifies, designs, and constructs expedited green infrastructure projects within a couple of months, and directly involves the local community through the process. While originating in Oregon and California, we believe that a coordinated tactical green infrastructure program could be expanded to every State within the United States.

ASLA and its members appreciate the committee's support for legislation promoting green infrastructure, including the Water Quality Protection and Job Creation Act of 2021.

We also appreciate the committee's support for the Clean Water State Revolving Fund, and specifically the green project reserve, which mandates that at least 10 percent of funds are used by States for green infrastructure projects. Many landscape architecture projects would not be possible without the help of this program.

For these reasons, ASLA is supportive of increased funding to the Clean Water State Revolving Fund, making the green project reserve permanent, increasing its minimum percentage, and allowing funding for the long-term maintenance of green infrastructure projects.

With that, I would like to thank the committee for the opportunity to testify today.

ASLA looks forward to working with you and your colleagues to ensure that Congress leverages the field of landscape architecture when striving for its climate adaptation and sustainability goals. Thank you.

[Mr. Perry's prepared statement follows:]

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**Prepared Statement of Kevin Robert Perry, FASLA, Fellow, American Society of Landscape Architects**

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS AND URBAN RAIN DESIGN

Thank you Chair Napolitano, Ranking Member Rouzer, and Members of the subcommittee for the opportunity to testify on the valuable work being done by landscape architects in the water and stormwater management space.

My name is Kevin Robert Perry and I am a licensed landscape architect and an internationally recognized leader in successfully integrating stormwater management with high-quality urban design.

I work as a Senior Landscape Architect at Toole Design Group with a specific expertise in intertwining green infrastructure with innovative multimodal streetscape design. I am also the founder of Urban Rain Design, a small design studio based in both California and Oregon that specializes in using Tactical Green Infrastructure to rapidly implement simple, cost-effective, and beautiful public space stormwater projects.

I am here today on behalf of the American Society of Landscape Architects (ASLA), where I have been a Fellow since 2017.

ASLA believes that water quality is essential to our economy, communities, and environment. By working to protect it, our membership of landscape architects plays a critical role in community sustainability and public health.

Landscape architects address water quality through ecologically-based practices that help reduce or remove pollutants in urban, rural, and conservation areas. To help protect water quality and conserve valuable water resources, ASLA encourages planning, design management, and policies that are science-based, collaborative, creative, and equitable.

THE VALUE OF GREEN INFRASTRUCTURE

Ample clean water supplies are necessary to help preserve health, sustain quality of life, support economic stability, and maintain environmental quality.

Unsustainable development practices, poorly designed infrastructure, population growth, and other factors continue to threaten water quality and emphasize the need for the wiser and more creative use of resources. Urban sprawl and the expansion of paved surfaces increases volume and speed of storm flows, carries pollutants into streams, prevents groundwater recharge, and drastically reduces the landscape's ability to respond to everyday storm events, much less the current and future challenges of climate change.

In much of the country, especially in older cities and towns, stormwater is funneled into our wastewater systems. During intense rain events, these systems can become overwhelmed resulting in stormwater overflow being released into nearby waters—along with all of the untreated sewage, debris, pesticides, and anything else caught in the underground pipe system.

While the United States has generally had success in protecting water quality, EPA research has found that nonpoint source pollution, the type of water pollution I just described, remains the leading cause of water quality problems.

This is where landscape architects are stepping up and playing a key role. We are at the forefront of developing innovative design strategies that promote sustainability, resiliency, and a balanced vibrancy between our built and natural environment. By incorporating cost-effective and innovative green infrastructure methods into our projects, we plan and design landscaped-based systems that reduce the impacts of flooding, contain the movement of pollutants and other debris, help infiltrate stormwater on-site, increase biodiversity, and integrate these nature-based solutions seamlessly into our cities and towns.

In areas where drought and inadequate water supply is of top concern, green infrastructure may also be a viable solution, helping to replenish local groundwater reserves and recharging aquifers. We also promote and incorporate the use of sustainably-designed greywater systems and other water capture measures to help reduce the need for external water sources.

In general, the landscape architect's multi-functional, multi-purpose design solutions allows for a less destructive human relationship with the natural environment.

Landscape architecture practices also provide a key equity and environmental justice solution. One such practice is performing meaningful community engagement during the design and planning process. Often, the communities that stand to benefit the most from our work are the low-income and racially diverse communities that have been damaged by years of underinvestment and disinvestment. This includes communities located in small towns, large cities, and all areas in between. ASLA and its members are committed to utilizing our trade to directly improve lives

in underserved communities; and community engagement and green infrastructure can be important tools to aid in this effort.

Green infrastructure also leads to job creation. According to Green For All, a national organization working to build an inclusive green economy, a \$188.4 billion investment in stormwater management would generate \$265.6 billion in economic activity and create close to 1.9 million jobs. Furthermore, green infrastructure is good for small businesses, as many landscape architects work for or run their own small firms, as I have for nearly a decade.

#### GREEN INFRASTRUCTURE ACROSS SCALES

One of the greatest benefits of using green infrastructure is that it can be implemented across a wide range of scale and community contexts. Resilient coastlines/riverfronts, regional parks, and interconnected green transportation corridors can be realized at the large citywide-scale; while rain gardens, pervious paving, and a robust use of street trees can grace nearly any neighborhood-scale space. With thousands of our schools, roads, parks, and other civic space infrastructure either breaking down or inefficiently designed, there is an incredible opportunity to boldly retrofit our built environment with long-lasting green infrastructure strategies.

#### TACTICAL GREEN INFRASTRUCTURE

One avenue of green infrastructure that is starting to take root on the West Coast is the concept of Tactical Green Infrastructure. While many infrastructure projects can take years to be fully implemented, Tactical Green Infrastructure is a specialized design-build methodology that allows professional design practitioners, students, and/or volunteers to work together to identify, design, and construct expedited green infrastructure projects at public schools, parks, and even some street locations. These small-scale projects convert either existing paved or underutilized green space into highly functional rain garden landscapes within a couple of months—and directly involve the local community through the process. This kind of low-cost, effective, and quickly built Green Infrastructure can be a simple national model but with near-term and tangible results realized at the neighborhood level. While conceived in both Oregon and California, we believe a coordinated Tactical Green Infrastructure approach, led by landscape architects, has immense potential to expand throughout the United States.

#### THE WATER QUALITY PROTECTION AND JOB CREATION ACT OF 2021

ASLA and its members appreciate the committee's support for legislation promoting green infrastructure, including H.R. 1915—the Water Quality Protection and Job Creation Act of 2021, which would help states and local communities fund green infrastructure projects that protect water.

We are also appreciative of the committee's support for the Clean Water State Revolving Fund, and specifically the Green Project Reserve, which mandates that at least 10% of funds are used by states for green infrastructure projects. Since states and localities typically do not have their own funding mechanisms to keep their water infrastructure safe, up to date, and within the requirements of the Clean Water Act, many landscape architecture projects would not be possible without the help of this program.

For these reasons, ASLA is supportive of increased funding to the Clean Water SRF, as well as making the Green Project Reserve permanent and increasing its minimum percentage. To make projects even more sustainable and resilient, the Clean Water SRF should also be adjusted to allow for the funding of long-term maintenance projects as well.

#### CONCLUSION

With that, I thank the committee for inviting me to testify today. ASLA looks forward to working with you and your colleagues to ensure that Congress leverages the field of landscape architecture when striving for its climate adaptation and sustainability goals.

#### ADDENDUM

*Tactical Green Infrastructure: A Pacific Rim Superstudio* March 2021 (Brochure)

[This document is retained in committee files and is available online at the House of Representatives Document Repository at <https://docs.house.gov/meetings/PW/PW02/20210421/112472/HHRG-117-PW02-Wstate-PerryK-20210421-SD001.pdf>]

Mrs. NAPOLITANO. Thank you very much, Mr. Perry. It was very interesting, because there are several in my area that I have visited, and they are very nice. We move on to Ms. Hammer.

Ms. Hammer, you may proceed.

Ms. HAMMER. Thank you, Chair Napolitano, and good morning, Chair DeFazio, Ranking Member Rouzer, and members of the subcommittee. Thanks for the opportunity to testify today. My name is Becky Hammer, and I am the deputy director of Federal water policy for the Natural Resources Defense Council.

NRDC is an international, nonprofit organization working to protect public health and ensure a safe, sustainable environment for all people. And that includes clean water.

Everyone in America should have access to wastewater and stormwater infrastructure that works. No matter where they are located, these systems should provide communities with clean waterways, effective sanitation, and protection from urban flooding. That is not the reality for far too many people.

Across the country, polluted runoff and sewage degrade our sources of drinking water, while rainwater floods our streets and homes. And of course, climate change is only making matters worse, as Ms. Powell already described so vividly. And the impacts of failing infrastructure and our changing climate fall disproportionately on low-income communities and communities of color, who already bear the burden of unaffordable water and sewer costs.

In light of these threats, wastewater and stormwater systems must take steps to become more resilient and sustainable, as so many are already doing.

One of the best ways to do that is by using green infrastructure, which manages water by capturing it where it falls, using vegetation, soils, and permeable surfaces. Green infrastructure reduces stormwater volumes, leading to cleaner waterways, reduced wastewater treatment needs, less flooding, and increased groundwater supplies. It is adaptable, and it is cost effective.

And critically, unlike single-purpose, hard infrastructure that is designed solely to move stormwater away from the built environment, green infrastructure provides multiple benefits to communities. It helps build resilience to flooding and other climate impacts, and it also provides climate mitigation benefits by storing carbon and reducing energy demand. And because many of green infrastructure's benefits are hyper-local, project implementation can be geographically targeted to enhance equity and improve access to green space in underserved areas.

The Federal Government should use every tool at its disposal to encourage the use of green infrastructure, including the Clean Water State Revolving Fund's green project reserve, a significant source of funding for green infrastructure and water and energy efficiency projects that has, nonetheless, been underutilized. Since the establishment of the green project reserve in 2009, only 11 percent of total Clean Water SRF assistance has gone to green reserve projects, with less than 3 percent going to green infrastructure, specifically.

Up until now, the green project reserve has been enacted year to year in appropriations bills, and the amount allocated to it has

fluctuated over time. This approach makes potential applicants uncertain about whether the reserve will be available to support their projects in future years. This uncertainty depresses long-term demand for funds.

Congress can help the green project reserve function more effectively by codifying it in statute, making it a permanent and stable source of funding. Ideally, 20 percent of the annual SRF capitalization grant would be set aside for green projects.

Just as importantly, Congress should provide significantly more money for the Clean Water SRF, as a whole, at least the \$8 billion per year that is proposed in H.R. 1915. Our communities have hundreds of millions of dollars in need, with costs increasing, and the pandemic stressing utilities' finances. Increasing the total amount of Federal investment would make more funding available for all projects, including green projects.

At the same time, Congress should increase the proportion of that new funding that is provided as additional subsidization. In other words, grants and principal forgiveness. Additional subsidization is a lifeline for project applicants that cannot afford to take out a traditional, low-interest loan. But green projects compete for subsidy with projects that serve disadvantaged communities, and there isn't enough to go around.

Another barrier to the green project reserve is the fact that many potential project applicants simply aren't aware that it exists, while others lack the expertise to complete the application materials. Congress can reduce this obstacle by providing the States with more resources for outreach and technical assistance.

Of course, the green project reserve isn't the only mechanism available to promote sustainable water infrastructure. Congress should set up new grant programs to diversify funding options for water resiliency efforts. And it should require climate change information to be considered in the planning of all clean water infrastructure projects as a condition of providing Federal assistance.

Last, but certainly not least, Congress should establish a permanent, low-income water and sewer assistance program, and adopt other reforms to improve water affordability. This would allow utilities to implement resilience projects and other upgrades without imposing burdens on their low-income customers.

I would be happy to discuss any of these recommendations in more detail. Thank you.

[Ms. Hammer's prepared statement follows:]

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**Prepared Statement of Rebecca Hammer, Deputy Director of Federal Water Policy, Natural Resources Defense Council**

Chair DeFazio, Ranking Member Graves, Subcommittee Chair Napolitano, Subcommittee Ranking Member Rouzer, and members of the Subcommittee:

Thank you for the opportunity to testify today about the need to ensure the resilience and sustainability of our nation's clean water infrastructure. My name is Rebecca Hammer, and I am the deputy director of federal water policy for the Natural Resources Defense Council (NRDC). NRDC is an international, non-profit environmental organization working to protect the world's natural resources, improve public health, and ensure a safe and sustainable environment for all.

## SUMMARY OF TESTIMONY

Our nation is facing a moment of tremendous opportunity. As leaders in Congress and the administration propose new investments in America's infrastructure, we have a once-in-a-generation chance to meet the enormous financial need our wastewater and stormwater systems have accrued over the decades. Now is the time to think big: to provide every person in this country with first-class clean water infrastructure, to ensure the long-term viability of that infrastructure in a changing environment, and to lift up families and communities who struggle to bear the burden of unaffordable water and sewer costs. In my testimony, I will focus on the importance of promoting resilient, sustainable solutions as part of this increased investment, with a particular emphasis on multi-beneficial green infrastructure practices.

To achieve this goal, NRDC recommends:

- Making the Green Project Reserve (GPR) a permanent feature of the Clean Water State Revolving Fund (CWSRF) by codifying it in statute.
- Significantly increasing overall CWSRF funding to \$10 billion per year.
- Increasing the proportion of CWSRF assistance provided as additional subsidization.
- Providing more resources for outreach and technical assistance to potential GPR applicants.
- Requiring increased transparency around the effectiveness of the GPR.
- Taking additional actions beyond the GPR to promote sustainable and resilient clean water infrastructure, including:
  - Authorizing and funding new grant programs for clean water resiliency projects;
  - Adopting a low-income water and sewer assistance program and promoting equitable local rate structures;
  - Requiring climate change information to be considered in the planning of clean water infrastructure projects as a condition of receiving federal assistance; and
  - Requiring the Environmental Protection Agency (EPA) to adopt regulations fully implementing the green project provisions in the Water Resources Reform and Development Act (WRRDA 2014).

AMERICA'S WASTEWATER AND STORMWATER SYSTEMS FACE VULNERABILITIES THAT THREATEN THEIR ABILITY TO DELIVER CLEAN WATER, THRIVING COMMUNITIES, AND A HEALTHY ENVIRONMENT.

All people in America should have access to wastewater and stormwater infrastructure that works. No matter where they are located, these systems should provide communities with clean waterways, effective sanitation, and protection from urban flooding.

Yet in many areas, our nation's infrastructure is not up to the task of meeting those objectives. Pipes, septic tanks, and treatment facilities have exceeded their intended lifespans and are breaking down. Fifteen percent of wastewater treatment plants have already reached or exceeded their design capacity.<sup>1</sup> Stormwater systems are not capable of handling the increasingly vast quantities of runoff generated by sprawling development.

As a result, sewage spills foul our waterways, polluted stormwater degrades once-productive ecosystems, and rainwater floods our streets and homes. The American Society of Civil Engineers rated the nation's wastewater infrastructure a D+, and its stormwater infrastructure a D, in its 2021 infrastructure report card.<sup>2</sup>

Meanwhile, climate change is adding further stress to these systems. Heavy precipitation events and extreme storms are growing more frequent, increasing disruptive flood events in communities across the country. Our infrastructure is struggling to keep up. Most stormwater systems are designed to handle the "10-year" or "100-year" storm, concepts that climate change has rendered obsolete. Urban flooding already results in \$9 billion in damages each year, a figure that is certain to grow unless we take swift action to adapt and modernize our infrastructure.<sup>3</sup>

Increased flooding frequency also poses a threat to wastewater service. Wastewater treatment plants are typically located at low elevations and along coastlines,

<sup>1</sup>American Society of Civil Engineers, 2021 Report Card for America's Infrastructure: Wastewater, <https://infrastructurereportcard.org/wp-content/uploads/2020/12/Wastewater-2021.pdf>.

<sup>2</sup>American Society of Civil Engineers, 2021 Report Card for America's Infrastructure, <https://infrastructurereportcard.org/>.

<sup>3</sup>National Academies of Sciences, Engineering, and Medicine, Framing the Challenge of Urban Flooding in the United States (2019), <https://www.nap.edu/catalog/25381/framing-the-challenge-of-urban-flooding-in-the-united-states>.

which makes them particularly susceptible to floods and sea level rise. When tanks and pipes are inundated, these facilities can discharge raw sewage into nearby communities and waterways. In 2017, flooding from Hurricane Harvey caused 40 wastewater treatment facilities to become inoperable and led to the release of 23 million gallons of untreated wastewater.<sup>4</sup> Even smaller flooding events, if they occur more often, can impose significant costs, such as frequent pumping to keep parts dry and a reduced lifespan of components exposed to water. Worryingly, a recent study estimated that four million people in the U.S. could lose access to municipal wastewater services with 30 centimeters (around 1 foot) of sea level rise; this estimate rises to 31 million people if sea level rise reaches 180 centimeters (around 6 feet).<sup>5</sup>

On-site decentralized wastewater treatment systems, such as septic systems, are also threatened by climate change.<sup>6</sup> Higher temperatures, increased heavy precipitation events, and sea level rise affect the performance of these systems by reducing the volume of unsaturated soil and oxygen available for treatment, which may result in system failure.<sup>7</sup>

Changing precipitation is driving changes in water quality as well. As more intense precipitation leads to increased runoff, more stormwater pollution is washed into our waterways: sediments, nitrogen from agriculture, disease pathogens, pesticides, herbicides, and more. Combined sewer systems in cities such as Philadelphia and Richmond are already experiencing more frequent overflows as their treatment capacity is overwhelmed during large storms.<sup>8</sup> This pollution imposes steep costs on communities, including increased treatment costs for the two-thirds of America's drinking water that comes from rivers, streams, and lakes.

In some regions, climate change is also exacerbating water scarcity. Yet many wastewater and stormwater systems fail to adopt measures that could combat scarcity through wastewater recycling and stormwater capture for reuse.

The impacts of failing infrastructure and our changing climate often fall the hardest on low-income communities and communities of color. In many cities, historically redlined neighborhoods are exposed to a higher risk of flooding than other areas.<sup>9</sup> Black communities in Lowndes County, Alabama and Tribal communities in the Southwest have faced disproportionate challenges in access to sanitation. Making matters worse, low-income families and people of color often bear the heaviest burden of rising water and sewer costs.

In light of these threats, wastewater and stormwater systems must take immediate steps to become more resilient and sustainable so that they can continue to serve their communities effectively and affordably, now and in the future.

#### GREEN INFRASTRUCTURE CAN INCREASE THE RESILIENCE OF WASTEWATER AND STORMWATER SYSTEMS WHILE PROVIDING A WIDE ARRAY OF OTHER BENEFITS.

In the context of municipal water management, green infrastructure means mimicking nature by capturing rainwater where it falls. Practices that incorporate vegetation, soil, and permeable surfaces help to maintain and restore natural hydrology by infiltrating water into the ground, soaking it up with plants, and harvesting it for reuse. Green infrastructure practices include bioretention, trees, green roofs, permeable pavements, and cisterns. Landscape-scale practices such as wetland restoration and floodplain protection can function in tandem with smaller neighborhood-scale projects.

Green infrastructure reduces stormwater volumes and pollutant loads, leading to cleaner waterways, reduced wastewater treatment needs for combined sewer systems, reduced flooding, and increased groundwater recharge. Although still consid-

<sup>4</sup>Texas Commission on Environmental Quality, Sanitary Sewer Overflows from Hurricane Harvey, <https://www.tceq.texas.gov/response/hurricanes/sanitary-sewer-overflows>; Hurricane Harvey: Status Summary of Impacted Public Drinking Water and Wastewater Systems, <https://www.tceq.texas.gov/assets/public/response/hurricanes/hurricane-harvey-tracking-summary.pdf>.

<sup>5</sup>Michelle Hummel et al., "Sea Level Rise Impacts on Wastewater Treatment Systems Along the U.S. Coasts," *Earth's Future* (2018), <https://agupubs.onlinelibrary.wiley.com/doi/10.1002/2017EF000805>.

<sup>6</sup>See Sarah Kaplan, "Battling America's 'Dirty Secret,'" *Washington Post*, December 17, 2020, <https://www.washingtonpost.com/climate-solutions/2020/12/17/climate-solutions-sewage/>.

<sup>7</sup>Jennifer A. Cooper et al., "Hell and High Water: Diminished Septic System Performance in Coastal Regions Due to Climate Change," *PLoS ONE* (2016), <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0162104>.

<sup>8</sup>Frank Kummer, "The Secret Scourge of Climate Change? More Raw Sewage in Philadelphia's Waterways," *Philadelphia Inquirer*, September 13, 2019; Daniel Berti, "More Rainfall, A Consequence of Climate Change, Expected to Make Sewage Overflows Worse," *Virginia Mercury*, April 15, 2019.

<sup>9</sup>Kriston Capps and Christopher Cannon, "Redlined, Now Flooding," Bloomberg CityLab, March 15, 2021, <https://www.bloomberg.com/graphics/2021-flood-risk-redlining/>.

ered novel by some practitioners, green infrastructure practices have been in use for decades. They are proven and predictable technologies and should no longer be viewed as “alternative treatments” to hard or gray infrastructure. Rather, utilities should consider green infrastructure a core strategy for achieving their water quality, flood control, and public health objectives.

Because they are so varied and adaptable, green infrastructure practices are an extremely flexible tool. They can be integrated into nearly any development project, including surface transportation projects.<sup>10</sup> They can also be implemented in concert with traditional gray infrastructure approaches to enhance the sustainability of wastewater treatment and collection systems.<sup>11</sup> When full life-cycle costs are considered—including long-term operations and maintenance—green infrastructure is frequently more cost-effective than gray infrastructure.<sup>12</sup> As a result, it can reduce the costs of water quality compliance and flood control for communities and ratepayers.

Critically, unlike single-purpose hard infrastructure designed solely to move stormwater away from the built environment, green infrastructure provides multiple benefits for communities. The Environmental Protection Agency (EPA) has identified a wide range of environmental, social, and economic benefits provided by green infrastructure beyond its core stormwater management functions, including improved air quality, reduced urban heat island effect, wildlife habitat, energy efficiency, access to green space, reduced traffic noise, enhanced social interaction and recreation, improved community aesthetics, and reduced crime.<sup>13</sup>

Green infrastructure is a powerful tool for addressing climate change. Not only does it help communities adapt to the impacts of climate change by reducing flooding, augmenting groundwater supplies, and cooling the air, it also provides climate mitigation benefits by storing carbon and reducing energy demand.<sup>14</sup> Implementation of small-scale, distributed green practices can easily be scaled up or down when conditions change. This provides a key advantage over hard infrastructure, which is “locked in” after construction and not readily adaptable to new rainfall patterns.

Because many of green infrastructure’s benefits are hyperlocal, project implementation can be geographically targeted—through meaningful engagement with community members—to enhance equity and improve access to green space in underserved areas.<sup>15</sup> Finally, green infrastructure investment supports local, sustained jobs that boost regional economies.<sup>16</sup>

The federal government should use every tool at its disposal to promote and encourage the use of green infrastructure in wastewater and stormwater systems around the country.

#### THE CLEAN WATER STATE REVOLVING FUND’S GREEN PROJECT RESERVE IS AN IMPORTANT SOURCE OF FUNDING FOR GREEN INFRASTRUCTURE AND OTHER BENEFICIAL PROJECTS, BUT IT HAS BEEN UNDERUTILIZED.

The largest source of federal funding and financing for clean water infrastructure projects, including green infrastructure, is the Clean Water State Revolving Fund. Since its inception, the CWSRF has provided \$145 billion in assistance, most which has been in the form of low-interest loans.<sup>17</sup>

For its first two decades, the CWSRF did not fund many green infrastructure projects. According to the EPA, many states had “little or no history” of funding green projects because their programs focused on traditional infrastructure, or be-

<sup>10</sup> See NRDC, *After the Storm: How Green Infrastructure Can Effectively Manage Stormwater Runoff from Roads and Highways* (2011), <https://www.nrdc.org/sites/default/files/afterthestorm.pdf>.

<sup>11</sup> See World Bank, *Integrating Green and Gray: Creating Next Generation Infrastructure* (2019), <https://www.worldbank.org/en/news/feature/2019/03/21/green-and-gray>.

<sup>12</sup> Environmental Protection Agency, *Green Infrastructure Cost-Benefit Resources*, <https://www.epa.gov/green-infrastructure/green-infrastructure-cost-benefit-resources>.

<sup>13</sup> EPA Office of Research and Development, *Healthy Benefits of Green Infrastructure in Communities* (2017), [https://www.epa.gov/sites/production/files/2017-11/documents/green\\_infrastructure\\_healthy\\_communities\\_factsheet.pdf](https://www.epa.gov/sites/production/files/2017-11/documents/green_infrastructure_healthy_communities_factsheet.pdf).

<sup>14</sup> See Center for Neighborhood Technology, *The Value of Green Infrastructure: A Guide to Recognizing Its Economic, Environmental and Social Benefits* (2010), [https://www.cnt.org/sites/default/files/publications/CNT\\_Value-of-Green-Infrastructure.pdf](https://www.cnt.org/sites/default/files/publications/CNT_Value-of-Green-Infrastructure.pdf).

<sup>15</sup> See Megan Heckert (West Chester University) and Christina Rosan (Temple University), *Creating GIS-Based Planning Tools to Promote Equity Through Green Infrastructure* (2018), <https://www.frontiersin.org/articles/10.3389/fbuil.2018.00027/full>.

<sup>16</sup> See *Jobs for the Future*, *Exploring the Green Infrastructure Workforce* (2017), <https://mikenowak.net/wp-content/uploads/2020/01/Exploring-the-Green-Infrastructure-Workforce.pdf>.

<sup>17</sup> EPA, *Clean Water SRF Program Information: National Summary* (2021), <https://www.epa.gov/sites/production/files/2021-02/documents/us20.pdf>.

cause state law presented obstacles.<sup>18</sup> Then, in 2009, Congress passed the American Recovery and Reinvestment Act (ARRA). ARRA provided supplemental appropriations for the CWSRF and required that states allocate at least 20 percent of these new funds as a Green Project Reserve (GPR) for green infrastructure, water efficiency, energy efficiency, and other environmentally innovative projects. It also made GPR projects eligible for “additional subsidization” (grants, negative interest rate loans, or principal forgiveness).<sup>19</sup> Since 2009, Congress has extended the GPR in appropriations acts each year, though starting in FY2012 the requirement was reduced from 20 percent to 10 percent of the state’s annual CWSRF capitalization grant.<sup>20</sup>

The establishment of the Green Project Reserve led many states to fund green infrastructure projects with CWSRF resources for the first time. Over the past twelve years, the GPR has funded hundreds of these projects across the country—everything from urban reforestation and wetlands preservation to green roofs and roadway retrofits. Additionally, the GPR has supported energy efficiency and water efficiency projects that advance clean water objectives by upgrading the efficiency of pumps and motors, powering clean water facilities with renewable energy from on-site resources, and reducing both customer and facility water use. Decentralized wastewater treatment solutions in areas lacking access to sanitation are also eligible for the GPR in the “environmentally innovative” category.<sup>21</sup>

Overall, however, the CWSRF has been underutilized as a funding source for green projects. Since the establishment of the Green Project Reserve in 2009, EPA data indicate that only 11 percent of total CWSRF assistance has gone to GPR projects (\$8.6 billion out of \$78 billion), and less than 3 percent of total CWSRF assistance over that time period has gone to green infrastructure specifically (\$2 billion out of \$78 billion).<sup>22</sup>

Note that these proportions are not necessarily inconsistent with the requirement for each state to allocate 20 percent or (after FY2012) 10 percent of its annual capitalization grant to GPR projects. The amount of total CWSRF assistance that a state provides to applicants each year comes from a pot of money that includes not only the annual capitalization grant from the federal government but also state matching funds, loan repayments, leverage bonds, and investment earnings. Thus a state’s investment in GPR projects could surpass 10 or 20 percent of its capitalization grant while making up a smaller percentage of the overall assistance the state disburses to projects that year. The Congressional Research Service found that states allocated 26 percent of their capitalization grants to GPR projects between 2009 and 2016.<sup>23</sup>

Green infrastructure has received less CWSRF investment than other Green Project Reserve categories, despite the fact that green stormwater projects have been found to have “the most secondary benefits” of all GPR project types.<sup>24</sup> However, it is difficult to determine the exact allocation among the four GPR categories because of known data-quality issues in EPA’s GPR database. An EPA-sponsored study in 2013 found that the database includes inconsistencies, such as project costs being double-counted for projects that meet more than one of the GPR eligibility categories.<sup>25</sup> With that caveat, EPA’s database indicates that 37 percent of Green Project Reserve funds have gone to energy efficiency projects, 25 percent to water conservation projects, 22 percent to green infrastructure projects, and 16 percent to other environmentally innovative projects.<sup>26</sup>

Given their many benefits, why haven’t Green Project Reserve projects received more CWSRF funding? Several factors may contribute to their relatively small piece of the CWSRF pie. Many potential project applicants are not aware that GPR fund-

<sup>18</sup> EPA, ARRA Clean Water State Revolving Fund Green Project Reserve Report (2012), p. 8, [https://www.epa.gov/sites/production/files/2015-04/documents/arra\\_green\\_project\\_reserve\\_report.pdf](https://www.epa.gov/sites/production/files/2015-04/documents/arra_green_project_reserve_report.pdf).

<sup>19</sup> American Recovery and Reinvestment Act of 2009, P.L. 111–5 (123 Stat. 169).

<sup>20</sup> See Congressional Research Service, “Greening” EPA’s Water Infrastructure Programs through the Green Project Reserve (2016), <https://www.everycrsreport.com/reports/IN10540.html>.

<sup>21</sup> EPA, “2012 Clean Water State Revolving Fund 10% Green Project Reserve: Guidance for Determining Project Eligibility,” pp. 11–12, [https://www.epa.gov/sites/production/files/2015-04/documents/green\\_project\\_reserve\\_eligibility\\_guidance.pdf](https://www.epa.gov/sites/production/files/2015-04/documents/green_project_reserve_eligibility_guidance.pdf).

<sup>22</sup> EPA, Clean Water SRF Program Information: National Summary (2021).

<sup>23</sup> Congressional Research Service, “Greening” EPA’s Water Infrastructure Programs through the Green Project Reserve (2016).

<sup>24</sup> EPA & Major Partners’ Lessons Learned from Implementing EPA’s Portion of the American Recovery and Reinvestment Act: Factors Affecting Implementation and Program Success (2013), p. 45, <https://www.epa.gov/sites/production/files/2015-09/documents/lessons-learned-arra-green-project-reserve.pdf>.

<sup>25</sup> *Id.*, p. 19.

<sup>26</sup> EPA, Clean Water SRF Program Information: National Summary (2021).

ing is available to them and therefore do not apply.<sup>27</sup> Others may lack the expertise and resources to complete the application materials or decide that the hassle is not worth it for a small-scale green infrastructure project. The bigger utilities that look to the CWSRF for assistance still tend to focus on traditional hard infrastructure projects. And in some states, every project on the CWSRF project priority list receives funding each year, so integrating green elements into projects to qualify for GPR funds offers little benefit to applicants.

Under the existing Green Project Reserve requirement, states do not have adequate incentives to educate potential applicants about the benefits of green infrastructure projects and the availability of GPR funding, nor to assist them with their funding applications. The current 10 percent requirement only applies to the extent that a state receives “sufficient eligible project applications.”<sup>28</sup> EPA has interpreted this rule to require a “good faith solicitation effort” by the state to identify eligible GPR projects, but the state’s annual open solicitation for CWSRF projects is deemed to meet the requirement, even if the state does not conduct any outreach on the Green Project Reserve specifically.<sup>29</sup> This interpretation largely takes the burden off the state CWSRF program to actively solicit potential GPR projects. As a result, states often fail to meet the GPR requirement. For example, last year Florida fell short of the requirement because it did not receive sufficient project applications.<sup>30</sup> Oregon did not fund a single GPR project last year.<sup>31</sup> Missouri is three years behind on awarding its GPR dollars.<sup>32</sup>

Finally, the amount of funding that Congress requires states to allocate to the Green Project Reserve has fluctuated over time and has never been codified in statute, making potential applicants uncertain about whether GPR funds will be available for their projects in future years. This uncertainty depresses demand for CWSRF funds.

#### CONGRESS SHOULD TAKE ACTION TO MAKE THE GREEN PROJECT RESERVE FUNCTION MORE EFFECTIVELY.

A few key legislative reforms could help the Green Project Reserve live up to its potential as a robust funding source for green infrastructure and other beneficial projects that build community resilience.

##### *1. Congress should make the GPR permanent.*

First, Congress should end the process of inserting the Green Project Reserve requirement into annual appropriations bills and codify it permanently in statute. As described above, fluctuating federal mandates create uncertainty and depress demand for funding.

A statutory Green Project Reserve is needed to ensure that the state CWSRF programs have a continued mandate to fund green projects. As pre-2009 history shows, without the GPR requirement it is likely that fewer green projects will receive CWSRF assistance. Decades of implementation have proven that these projects offer significant benefits to utilities, ratepayers, the environment, and public health. Congress should affirm its durable support for them by writing the GPR into law.

The permanent requirement should be established at 20 percent of the capitalization grant at a minimum. As explained above, because states provide CWSRF assistance from a fund that includes other sources of income beyond the capitalization grant, GPR projects’ proportion of *total* assistance is lower than their proportion of the capitalization grant alone. In order to increase the percentage of overall CWSRF assistance for green projects beyond the small share they receive today, Congress should set the statutory requirement higher than the current level of 10 percent of the capitalization grant.

<sup>27</sup> See EPA, Financing Green Infrastructure: A Best Practices Guide for the Clean Water State Revolving Fund (2015), p. 3, [https://www.epa.gov/sites/production/files/2016-01/documents/final\\_gi\\_best\\_practices\\_guide\\_12-9-15.pdf](https://www.epa.gov/sites/production/files/2016-01/documents/final_gi_best_practices_guide_12-9-15.pdf).

<sup>28</sup> See Consolidated Appropriations Act 2021, p. 329, <https://www.congress.gov/116/bills/hr133/BILLS-116hr133enr.pdf>.

<sup>29</sup> See EPA, Procedures for Implementing Certain Provisions of EPA’s Fiscal Year 2012 Appropriations Affecting the Clean Water and Drinking Water State Revolving Fund Programs, p. 3, [https://www.epa.gov/sites/production/files/documents/final\\_fy12\\_srf\\_guidelines\\_1.pdf](https://www.epa.gov/sites/production/files/documents/final_fy12_srf_guidelines_1.pdf).

<sup>30</sup> Florida Department of Environmental Protection, CWSRF 2020 Annual Report, p. 13, <https://floridadep.gov/sites/default/files/CWSRF%20Annual%20Report%202020.pdf>.

<sup>31</sup> Oregon Department of Environmental Quality, Clean Water State Revolving Fund Annual Report, September 2020, p. 7, <https://www.oregon.gov/deq/wq/Documents/cwsrf-annual-report-2020.pdf>.

<sup>32</sup> Missouri Department of Natural Resources, Clean Water State Revolving Fund 2020 Annual Report, pp. 7, 9, <https://dnr.mo.gov/env/wpp/srf/documents/2021-02-02-fy-2020-clean-water-srf-annual-report-final.pdf>.

2. *Congress should significantly increase overall CWSRF funding.*

Second, Congress should authorize and appropriate significantly more money for the Clean Water State Revolving Fund as a whole. Increasing the total amount of federal investment would make more funding available for all CWSRF projects, including Green Project Reserve projects.

Our communities face a dire need for more resources. In 2012, the EPA estimated that we need to invest \$271 billion in maintaining and repairing our clean water infrastructure over the next twenty years just to meet current environmental and health standards—a figure that is now outdated and is almost certainly an underestimate.<sup>33</sup>

Infrastructure costs have risen steeply in recent decades as communities have worked to implement important water pollution control and flood mitigation projects. Yet according to Congressional Budget Office data, federal funding for water and wastewater utilities has decreased fourfold since 1980.<sup>34</sup> Per capita federal spending on water infrastructure has fallen from \$76 per person in 1977 to \$11 per person in 2014.<sup>35</sup>

As a result of this decline, state and local governments have been left to pick up the tab. A recent survey of stormwater utilities found that an estimated total of \$18–24 billion is spent annually by municipal governments on stormwater programs and infrastructure.<sup>36</sup> Only 30 percent of survey respondents indicated that they did not need funding beyond their existing budgets. The analysis estimated the annual stormwater funding gap to be \$8.5 billion.<sup>37</sup> Assessing the need more broadly, the Value of Water Campaign has estimated the annual funding gap for all water infrastructure (drinking water, wastewater, and stormwater) to be \$82 billion. If this need is left unaddressed, the gap will continue to grow; it could rise to as high as \$153 billion by 2040 as needs from prior years accumulate.<sup>38</sup>

On top of existing budgetary shortfalls, the COVID–19 pandemic has further stressed the finances of wastewater and stormwater utilities. The National Association of Clean Water Agencies has estimated that clean water utilities will lose billions of dollars in revenue due to declines in industrial and commercial water use and increased bill delinquencies from COVID–19 related job losses.<sup>39</sup> Finally, none of these need estimates include the amount needed to adapt to climate change, which utilities say could add hundreds of billions of dollars in additional water infrastructure funding needs through the middle of the century.<sup>40</sup>

Congress should fund the Clean Water State Revolving Fund at \$10 billion per year to help close the clean water investment gap. Although this would represent a large increase over current levels, the money would not go to waste. The Council of Infrastructure Financing Authorities' SRF Project Pipeline identifies over \$47 billion in specific clean water infrastructure projects across the country that could be commenced within the next two to three years if funding is provided.<sup>41</sup>

Significantly increasing federal funding for water infrastructure would not only support public health and the environment, it would also generate hundreds of billions of dollars in much-needed economic activity and create hundreds of thousands of jobs.<sup>42</sup> Research by BlueGreen Alliance has found that by investing \$105 billion

<sup>33</sup> U.S. Environmental Protection Agency, Clean Watershed Needs Survey 2012 Report to Congress, <https://www.epa.gov/cwns/clean-watersheds-needs-survey-cwns-report-congress-2012>.

<sup>34</sup> Congressional Budget Office, Public Spending on Transportation and Water Infrastructure, 1956 to 2014 (2015), <https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/49910-infrastructure.pdf>.

<sup>35</sup> *Id.*; see also Value of Water Campaign, The Economic Benefits of Investing in Water Infrastructure (2017), p. 5, [http://thevalueofwater.org/sites/default/files/Economic%20Impact%20of%20Investing%20in%20Water%20Infrastructure\\_VOW\\_FINAL\\_pages.pdf](http://thevalueofwater.org/sites/default/files/Economic%20Impact%20of%20Investing%20in%20Water%20Infrastructure_VOW_FINAL_pages.pdf).

<sup>36</sup> WEF Stormwater Institute, 2020 National Municipal Separate Storm Sewer System (MS4) Needs Assessment Survey Results, <https://wefstormwaterinstitute.org/programs/ms4survey/>.

<sup>37</sup> *Id.*

<sup>38</sup> Value of Water Campaign, The Economic Benefits of Investing in Water Infrastructure (2017), p. 2.

<sup>39</sup> National Association of Clean Water Agencies, Recovering from Coronavirus: Mitigating the Economic Cost of Maintaining Water and Wastewater Service in the Midst of a Global Pandemic and National Economic Shut-Down (2020), <https://www.nacwa.org/docs/default-source/resources--public/water-sector-covid-19-financial-impacts.pdf>.

<sup>40</sup> National Association of Clean Water Agencies & Association of Metropolitan Water Agencies, Confronting Climate Change: An Early Analysis of Water and Wastewater Adaptation Costs (2009), <https://www2.nacwa.org/images/stories/public/2009-10-28ccreport.pdf>.

<sup>41</sup> Council of Infrastructure Funding Authorities, S.A.F.E. Water Infrastructure Action Plan and SRF Project Pipeline (2020), available at <https://www.cifanet.org/economic-stimulus>.

<sup>42</sup> Value of Water Campaign, The Economic Benefits of Investing in Water Infrastructure.

over ten years, we could improve our drinking and clean water systems to a “B” grade and create 654,000 job-years across the U.S. economy.<sup>43</sup>

Alongside this large influx of funds, Congress should provide additional resources to EPA and the state CWSRF administrators so they can build capacity to handle the increased number of projects. Congress should also consider waiving at least a portion of the 20 percent state match requirement so that states are able to access these new resources. States that produce their 20 percent match by issuing bonds or using interest from a state infrastructure fund may not be able to ramp up their contribution quickly enough to meet the matching requirement for a much larger capitalization grant. Congress recognized this difficulty in 2009 when it waived the state match requirement for the supplemental funds provided in ARRA. It should do so again if a waiver would help get money out the door quickly.

3. *Congress should increase the amount of CWSRF funding provided as additional subsidization.*

Additional subsidization—grants, principal forgiveness, and negative interest loans—are an important source of CWSRF funding for project applicants that cannot afford to take out a normal low-interest loan. However, under current law, a state may not use more than 30 percent of the amount of its annual capitalization grant for additional subsidization.<sup>44</sup> While there is no statutory obligation for states to use any CWSRF funds for additional subsidization at all, annual appropriations bills since 2010 have imposed a minimum requirement; the FY21 Appropriations Act directed states to use 10 percent of their capitalization grant for this purpose.<sup>45</sup>

As a result, the availability of additional subsidization is quite limited. EPA’s 2019 CWSRF annual report states that additional subsidization made up only 4% of total assistance that year (\$260 million out of \$6.2 billion in total assistance).<sup>46</sup> This equates to 14% of the annual capitalization grant (\$260 million out of \$1.9 billion in federal capitalization).<sup>47</sup>

Green Project Reserve projects, including those proposed by underserved applicants, must compete for these scarce funds with all other projects that serve disadvantaged communities.<sup>48</sup> Communities struggling with affordability challenges must have access to additional subsidization in order to ensure that clean, safe water and protection from flooding are enjoyed by all people everywhere, not reserved as privileges for affluent jurisdictions. For example, unsewered communities in rural and low-income areas often cannot afford to fix their failing on-site systems without additional subsidization; this lack of accessible funding perpetuates an ongoing humanitarian crisis.<sup>49</sup>

Congress should increase the amount of CWSRF funding provided as additional subsidization so that both GPR projects and projects serving disadvantaged communities have access to the resources they need. At least 20 percent of the annual capitalization grant should be provided to disadvantaged communities as additional subsidization, and this minimum requirement should be written into statute rather than left to the vagaries of the annual appropriations process. In addition, Congress should raise the cap on additional subsidization beyond 30 percent to make more funds available for all eligible projects, including GPR projects. Raising the cap would allow states to decide for themselves how much subsidy to provide, commensurate with the need within their jurisdictions.

While deploying a higher percentage of funds through additional subsidization does decrease the proportion of the annual federal grant remaining to capitalize the states’ revolving loan funds, a big boost in overall CWSRF appropriations would ensure that the amount of money replenishing those funds remains steady or even increases in absolute dollar terms. Proving the workability of this approach, ARRA both increased the amount of money flowing to the CWSRF *and* required that at least 50 percent of the new funds be used as additional subsidization.<sup>50</sup>

<sup>43</sup> BlueGreen Alliance, *Water Works: The Job Creation Potential of Repairing America’s Water Infrastructure* (2020), <https://www.bluegreenalliance.org/resources/water-works-the-job-creation-potential-of-repairing-americas-water-infrastructure/>.

<sup>44</sup> 33 U.S.C. § 1383(i)(3).

<sup>45</sup> See Consolidated Appropriations Act 2021, p. 330.

<sup>46</sup> EPA, *Clean Water State Revolving Fund 2019 Annual Report: Building the Project Pipeline*, p. 7, [https://www.epa.gov/sites/production/files/2020-10/documents/2019\\_cwsrf\\_annual\\_report\\_9-10.pdf](https://www.epa.gov/sites/production/files/2020-10/documents/2019_cwsrf_annual_report_9-10.pdf).

<sup>47</sup> *Id.*

<sup>48</sup> 33 U.S.C. § 1383(i)(1).

<sup>49</sup> See Inga T. Winkler & Catherine Coleman Flowers, “‘America’s Dirty Secret’: The Human Right to Sanitation in Alabama’s Black Belt,” *Columbia Human Rights Law Review* (2017), <http://hrllr.law.columbia.edu/files/2018/01/IngaTWinklerCatherineCole.pdf>.

<sup>50</sup> American Recovery and Reinvestment Act of 2009, P.L. 111–5 (123 Stat. 169).

4. *Congress should provide more resources for outreach and technical assistance.*

When states fall short of the Green Project Reserve minimum requirement, it isn't because there are no possible green projects for communities to implement. According to the EPA, many potential GPR applicants are simply unaware of the funding opportunities available.<sup>51</sup>

States can address this knowledge gap through marketing and outreach, but they need resources in order to do so. Moreover, small and disadvantaged communities need technical assistance to develop projects and complete applications. This assistance requires resources as well. Congress should set aside more funding for states to build awareness and expertise among potential GPR applicants, with the goal of ensuring that no state ever falls short of its minimum Green Project Reserve requirement due to a lack of eligible project applications.

5. *Congress should increase transparency around the effectiveness of the GPR.*

With no publicly accessible centralized database of GPR projects, and state-level data available only sporadically on hard-to-find webpages, it is difficult to gather information on the results of the Green Project Reserve. Indeed, even the EPA does not seem to know what the program is achieving; the agency's own inspector general has faulted it for failing to assess the economic or environmental benefits of GPR projects.<sup>52</sup> No nationwide estimate of GPR benefits has been developed since a post-ARRA report ten years ago.<sup>53</sup> This dearth of information contributes to the lack of awareness, discussed above, that results in underutilization of the program.

Congress should require EPA to develop a routine process for collecting GPR data and reporting that data to the public. Such a requirement would improve EPA's ability to oversee, manage, and monitor this substantial investment of public funds. It would also be consistent with existing federal policies requiring agencies to assess the results of government programs.<sup>54</sup>

Better data transparency would arm communities across the country with information that could help them make the case for increased investment in green infrastructure on a cost-benefit basis. Half of the respondents in a nationwide survey of stormwater utilities indicated that they need access to more resources and technical information on the valuation of green infrastructure's benefits.<sup>55</sup> A new reporting requirement could be implemented with little burden on GPR recipients if Congress provides adequate resources for data collection and directs EPA to gather and aggregate the information itself.

CONGRESS SHOULD TAKE ADDITIONAL ACTIONS BEYOND THE GREEN PROJECT RESERVE TO PROMOTE SUSTAINABLE AND RESILIENT CLEAN WATER INFRASTRUCTURE.

The Green Project Reserve, while important, is not the only mechanism available to promote resilience measures in wastewater and stormwater systems.

Congress should authorize and fund new grant programs to diversify funding options for clean water infrastructure resilience projects. For example, legislation pending in the Senate would establish a Clean Water Infrastructure Resiliency and Sustainability Program providing grants to increase the resilience of publicly owned treatment works to natural hazards and cybersecurity threats.<sup>56</sup> The same bill would also establish a grant program for the construction, refurbishing, and servicing of individual household decentralized wastewater systems for low- and moderate-income households, helping to resolve ongoing human rights concerns and address climate vulnerabilities.<sup>57</sup> Last Congress, the Clean Water Through Green Infrastructure Act would have established grant programs for green stormwater control infrastructure,<sup>58</sup> and the Natural Infrastructure and Resilience Act would have

<sup>51</sup> EPA, *Financing Green Infrastructure: A Best Practices Guide for the Clean Water State Revolving Fund* (2015), p. 3.

<sup>52</sup> EPA Office of Inspector General, *EPA Needs to Assess Environmental and Economic Benefits of Completed Clean Water State Revolving Fund Green Projects* (2016), <https://www.epa.gov/sites/production/files/2016-05/documents/20160502-16-p-0162.pdf>.

<sup>53</sup> Eastern Research Group (for EPA), *Estimated Environmental Benefits Associated with ARRA-Funded Green Project Reserve Projects* (2011), [https://www.epa.gov/sites/production/files/2017-03/documents/estimated\\_environmental\\_benefits\\_report.pdf](https://www.epa.gov/sites/production/files/2017-03/documents/estimated_environmental_benefits_report.pdf).

<sup>54</sup> See EPA Office of Inspector General, *EPA Needs to Assess Environmental and Economic Benefits of Completed Clean Water State Revolving Fund Green Projects* (2016), p. 3.

<sup>55</sup> WEF Stormwater Institute, *2020 National Municipal Separate Storm Sewer System (MS4) Needs Assessment Survey Results*, <https://wefstormwaterinstitute.org/programs/ms4survey/>.

<sup>56</sup> *Drinking Water and Wastewater Infrastructure Act of 2021*, S. 914, 117th Cong. § 205 (2021), <https://www.congress.gov/117/bills/s914/BILLS-117s914is.pdf>.

<sup>57</sup> *Id.*

<sup>58</sup> *Clean Water Through Green Infrastructure Act*, H.R. 4266, 116th Cong. (2019).

made certain green infrastructure projects eligible for surface transportation block grant funding.<sup>59</sup>

Congress should also establish a permanent low-income water and sewer assistance program and promote local rate structures that equitably increase local revenues. Improving the affordability of water, wastewater, and stormwater service would allow utilities to implement resilience projects and other upgrades without imposing burdens on their low-income customers. Water and wastewater utility bills have increased at more than three times the rate of inflation over the past decade.<sup>60</sup> Yet as of 2016, the majority of water and wastewater utilities offered no customer assistance program.<sup>61</sup> Two recent COVID-19 relief bills provided some funding for a temporary low-income water and sewer assistance program at the Department of Health and Human Services, but a long-term program at higher funding levels is necessary in order to meet the nationwide need. Additionally, Congress should incentivize the adoption of equitable rate structures and other local affordability programs by making them eligible uses of CWSRF funds, providing increased technical support for such programs, directing additional funding incentives to states that take steps to promote such programs, and requiring states and utilities to report annually on key affordability metrics such as rate schedules and water shut-offs.

Next, Congress should require climate change information to be considered in the planning of all clean water infrastructure projects as a condition of providing federal assistance. The Government Accountability Office recommended this policy in a report last year after it was endorsed by a majority of experts.<sup>62</sup> By limiting future risk exposure, this requirement could save the federal government billions of dollars in post-disaster recovery financial assistance. It is critical that such a requirement be accompanied by technical support and the best available data. Most planning and design standards are currently based on outdated assumptions about the occurrence of extreme precipitation events, with many states relying on precipitation statistics that have not been updated in decades.<sup>63</sup> Some states, like Illinois, have taken it upon themselves to update their precipitation statistics and require their use for infrastructure design, but those states are the exception to the rule.<sup>64</sup> The federal government must not only provide state and local governments with updated statistics but also integrate future projections of rainfall so we can begin to design our stormwater and wastewater systems appropriately. Tools like EPA's CREAT will be critical in providing continuing support for assessing the impacts of climate change on water infrastructure.<sup>65</sup> Communities will rely on these systems into future decades; we must stop designing them for the conditions of the past.

Finally, Congress should require EPA to adopt regulations implementing the provision of the Water Resources Reform and Development Act (WRRDA) of 2014 directing CWSRF recipients to maximize water and energy conservation in all projects.<sup>66</sup> The interpretive guidance EPA has thus far provided for complying with this requirement largely repeats the language of the statute and does not provide specific criteria or guidelines for evaluating and incorporating cost-effective conservation practices. Enhancing the effectiveness of this cross-cutting requirement through meaningful regulations could have an impact comparable to an increase in the GPR itself.

Thank you for the opportunity to testify today. NRDC looks forward to working with the Subcommittee on solutions to strengthen the resilience and sustainability of our nation's clean water infrastructure.

<sup>59</sup> Natural Infrastructure and Resilience Act, H.R. 5871, 116th Cong. (2020).

<sup>60</sup> David Harrison, "Why Your Water Bill Is Rising Much Faster Than Inflation," *The Wall Street Journal*, March 15, 2018, <https://www.wsj.com/articles/who-is-paying-to-fix-outdated-water-and-sewer-systems-you-are-1521106201>.

<sup>61</sup> EPA Office of Wastewater Management, Drinking Water and Wastewater Utility Customer Assistance Programs (2016), [https://www.epa.gov/sites/production/files/2016-04/documents/dw-ww\\_utilities\\_cap\\_combined\\_508-front2.pdf](https://www.epa.gov/sites/production/files/2016-04/documents/dw-ww_utilities_cap_combined_508-front2.pdf).

<sup>62</sup> U.S. Government Accountability Office, Water Infrastructure: Technical Assistance and Climate Resilience Planning Could Help Utilities Prepare for Potential Climate Change Impacts (2020), <https://www.gao.gov/assets/gao-20-24.pdf>.

<sup>63</sup> Jim Morrison, "As Rainstorms Grow More Severe and Frequent, Communities Fail to Prepare for Risks," *Washington Post*, April 9, 2021, <https://www.washingtonpost.com/climate-environment/2021/04/09/climate-change-rainfall/>.

<sup>64</sup> See Tiffany Jolley, The Impact of Bulletin 75, Prairie Research Institute, University of Illinois, July 8, 2020, <https://blogs.illinois.edu/view/7447/2024148035>.

<sup>65</sup> EPA, Climate Resilience Evaluation and Awareness Tool (CREAT) Risk Assessment Application for Water Utilities, <https://www.epa.gov/crww/climate-resilience-evaluation-and-awareness-tool-creat-risk-assessment-application-water>.

<sup>66</sup> 33 U.S.C. § 1382(b)(13)(B).

Mrs. NAPOLITANO. Thank you very much, Ms. Hammer. We will now proceed with Member questions.

We want to thank all the witnesses for all the testimony, and the questions that will arise. We will use the timer to allow 5 minutes for each question from each Member. If there are additional questions, we may have additional rounds, as necessary and as time permits.

And I will recognize Mr. DeFazio for the first round of questions.

Mr. DEFAZIO. Thank you, Madam Chair.

To Ms. Hammer, who just testified to this, and Mr. Perry also, do you believe that we need a codified and explicit—and I think you have already answered this, but I want to get it fully on the record—program for green reserve?

And why would it have to be a separate program? Wouldn't States just utilize the SRF money to implement these sorts of programs? The Senate bill totally omits the green reserve.

So if each of you can answer that question, why it needs to be codified, it would be great.

Ms. HAMMER. Yes. Thank you, thank you for that question.

So, as I mentioned in my testimony, the fact that the green project reserve is not codified in statute has generated significant uncertainty amongst potential applicants who would be accessing those funds to carry out projects. And that depresses long-term [inaudible]. So if we put it into the statute, it will become a more reliable source of funding.

And part of the issue is that it takes a while to plan these projects. So if we are talking about a source of funding that may be available this year or maybe not, depending on what the Appropriations Committee puts into their bill that year, if I am someone who is thinking of carrying out a green infrastructure project, I might not be able to depend that that money is going to be there in 5 years when I need it.

And I think as history shows, before the green project reserve was adopted in 2009, when it is not there, these projects don't tend to get funded, because the resources aren't available.

Mr. DEFAZIO. OK, thank you.

Mr. Perry, do you want to—

Mr. PERRY. Absolutely. I definitely agree with Ms. Hammer. I am actually probably more well-versed in the design aspects, rather than policy.

But I can say, from one perspective, that I know that a lot of municipalities are really counting for a solid piece of funding to not only go through design and implementation, but it is really the maintenance end where you see a lot of communities very, very nervous about implementing green infrastructure at the wide, wide scale.

And so being able to, again, have a solid chunk of funding that is there and is permanent is, I think, critical for local communities to accept more widely green infrastructure approaches.

Mr. DEFAZIO. OK, thank you. And to Ms. Powell and Mr. Ferrante, if we have time, these innovative technologies that you have put in place, were these good, hard business decisions?

I mean, these have penciled out, saved the ratepayers money in the long term, and will be amortized in a relatively short period of time?

Ms. POWELL. Thank you for the question, Mr. DeFazio. Yes, and our team looks at the cost benefit, as well as other measures, when we are making decisions about projects that we will implement.

So, for instance, when we look at the implementation of solar projects, and when we looked at the implementation of thermal hydrolysis, the team looked at how much that would ultimately save our ratepayers, in terms of operating costs that we could then reinvest in other critical infrastructure investments.

Mr. DEFAZIO. Good. So—and to Mr. Ferrante, same question. Is there a real solid business case for these sorts of projects that penciled out in favor of the ratepayers?

Mr. FERRANTE. Thank you for the question. Yes, Chair DeFazio. Especially, I can talk about the—for example, the food waste recycling project definitely pencils out with respect to allowing our main wastewater treatment plant not only to be energy self-sufficient, to avoid having to pay the utility for all the power, but allowing us to export to the grid, to generate revenue from that way, and also to cost effectively generate—convert that gas into vehicle fuel, and allow not only our vehicles, other Government vehicles to be fueled by it, but it is also open to the public. So passing on that benefit to the public, and it is charged at the same rate as conventional natural gas, so it does pencil out for us, and the savings are passed on to our ratepayers. Thank you.

Mr. DEFAZIO. Just a quick question, and my time will have expired, but I assume the end product is a sort of a composted material. What do you do with that?

Mr. FERRANTE. So we have the actual solids that are digested. It is a material. We partner with private composters that take the material, they compost it with agricultural waste in most cases, and then they market that product. And it is used as a soil amendment for agricultural fields.

And also, some of it is actually sold to the general public, as well. But it is a product that is usable, and it displaces chemical fertilizers in terms of being used in agricultural fields.

Mr. DEFAZIO. Excellent. Thank you.

Thank you, Madam Chair. My time has expired.

Mrs. NAPOLITANO. Mr. Rouzer, you are next.

Mr. ROUZER. Thank you, Madam Chair, and I really enjoyed listening to the testimony of all of our witnesses. And this has been hinted at, or alluded to previously, but I think the fundamental question is, how do we make these infrastructure improvements and get the best value for the taxpayer and the ratepayer.

In fact, that is really the fundamental question for all things that Congress considers.

Mr. Colson, I know you, obviously, have great experience in this arena. And I just wanted to give you an opportunity to talk about what is taking place in North Carolina, as far as promoting sustainability and resiliency. We have some pretty good-sized cities in North Carolina, and we have some very small towns, as you alluded to in your testimony. So talk to us a little bit about what North Carolina is doing.

Mr. COLSON. Thank you for that question. In 2017, North Carolina developed a master plan to meet our water infrastructure needs. And it is not just funding goals, it is developing organizational capacity, developing financial capacity in our utilities, and that will lead to sustainable infrastructure and infrastructure management.

Part of that focus is also focusing on our small communities across the State. We have identified over 100 utilities that are really struggling financially with their water and sewer systems, and we have made a concerted effort to help those utilities become viable utilities, because that is so important in meeting their sustainability.

And we have also been focusing on changing our priority system as a result of our hurricanes that we have had, and trying to move some of the infrastructure out of the flood plains, and making it more flood resilient, as well. Of course, this changed significantly from 2007, when we were funding a lot of reclaimed water, because at that point we were in a drought. And of course, that is part of the benefit of the SRFs; we have that flexibility to adapt to these changing needs in our communities.

Mr. ROUZER. With all those small towns, can you talk a little bit about how—particularly any specific cases that come to mind—Federal mandates create additional cost complexity that really is unnecessary, in terms of achieving the end goal?

Mr. COLSON. Thank you for that question. All Federal mandates require paperwork to document that you are meeting the mandate. And, of course, for some of our projects, particularly in our small communities, if they have a gravity sewer system that simply needs to be replaced because it is broken, they have to fix it. The question is, do they have to document water efficiency and energy efficiency in a project, in infrastructure that uses no energy?

So that is an example of where the paperwork and the goal don't really quite match what is going on in the small communities.

Mr. ROUZER. Obviously, there is a strong incentive, I think, among most to move to green energy practices. Perhaps 10 years ago, 15 years ago, certainly 20 years ago you could make a, I think, a much stronger case for mandates if you want to look at it from that perspective. But today a lot of people are naturally trying to move that way anyhow. Do you want to comment on that a bit, and your observations, what you are seeing around the State and elsewhere?

Mr. COLSON. Sure. Recently we funded several energy-type projects at some of our urban areas. For example, the city of Raleigh, they recently did a similar project that Mr. Ferrante described, where they changed their digesters from aerobic to anaerobic generated methane.

Their particular case, they had a natural gas pipeline on their property. They came to an agreement with the natural gas company. They put the methane into the natural gas line, drew it back out in downtown Raleigh to power their bus fleet. And so that specific case study was developed at the local level, and the business case made sense, and we put \$50 million into that project. So that was a project where we far exceeded our green project reserve requirement.

One of the issues with the green project reserve is the next year we didn't have any projects that we closed on, so we didn't meet it, but we didn't get any credit for carryover from that significant investment from the year before.

Mr. ROUZER. Thank you.

Madam Chair, I note that my time has almost expired, so I yield back.

Mrs. NAPOLITANO. Thank you very much, Mr. Rouzer. I will begin the questioning from my side, and this is directed to Mr. Ferrante.

As many water agencies across the country and the globe are developing water recycling projects, your agency is rare for having 60 years of experience in water recycling. How has water recycling changed over the years, and how do you see this important water supply opportunity growing in the future?

How are water agencies across the globe sharing information on water recycling?

Mr. FERRANTE. Thank you. Thank you for that question, Chair Napolitano.

I will answer the first part first. With respect to water recycling, over the last 50 to 60 years, we have seen a fundamental greater understanding from the public with respect to water recycling. I think a big part of that is that we couldn't do these programs without public outreach, without not only tours of the facility so people understand and can have confidence in the treatment of the water that they are seeing, but also programs in schools for kids to learn about water recycling and the benefits of it to the environment. Those have been key things.

And obviously, we have seen, especially over the last 20 to 30 years, a strong demand, an increase in water recycling. And what is interesting is we have also seen the success of water conservation, especially over the last 15 to 20 years. And actually, our flows have dropped about 20 to 25 percent over the last 15 years. So it shows that the public is really understanding, when given the information, they understand water issues.

One other thing that we are having to do is balance water recycling with habitat protection, as well. We need to maintain the habitats in our local rivers and creeks, and we can't just take all that recycled water and reuse it without maintaining that habitat.

For the future I see continued partnerships. I talked about the Met project, and that is our main partner. But we are partnering with all of our local cities, groundwater basins, L.A. County Public Works out here, and more and more I am having discussions as a wastewater agency with water purveyors and stormwater entities, too, that we really are looking at water in a complete sense.

And obviously, the drought that is occurring in California is making a big impact on water resiliency. And I think water recycling needs to be, in these stressed areas, a core component of the portfolio, specifically so that you can bank water in good times and then use that water when the drought really hits and you don't get your allocations.

Mrs. NAPOLITANO. Thank you for that. I know that we used to say recycled water was toilet-to-tap, and we changed it to showers-to-flowers. And there is no new landfill in L.A. County. The city

has 4 million, and the county has 12 million, so it is a lot of people to recycle water.

Can you discuss the biodigesting program, and how do you recycle food waste?

Mr. FERRANTE. Yes, I can expand a little bit on that. That really started as a partnership and demonstration between us, as a wastewater treatment agency and a solid waste agency, with local, private, solid-waste haulers that are collecting from cities. They have franchise agreements with the cities to pick up their waste.

And also, here in California, there is regulation moving towards diversion of organics from landfills. So these municipalities have to comply with this requirement, in terms of diverting up to 75 percent of the organic waste from landfills.

And wastewater treatment plants, as Mr. Colson mentioned and others mentioned, we have anaerobic digesters, and we have excess capacity often that can be utilized. We have that infrastructure in place that can be utilized to take additional organic material. And food waste, in particular, is high in energy. It really translates into producing a great deal of digester gas that can be used beneficially.

And as I mentioned, we use it in a variety of ways, not only in our existing powerplant. It makes over 20 megawatts of energy, making our largest wastewater treatment plant completely energy self-sufficient. We sell some excess power into the grid, and we still have more to convert into pure natural gas, essentially, renewable natural gas for vehicle fuel. So that is the program kind of in a nutshell.

Mrs. NAPOLITANO. Thank you very much. I had a question for Ms. Hammer, but I will submit it in writing, because my time is up.

Mr. Babin, you are next, you may proceed.

[Pause.]

Mrs. NAPOLITANO. Mr. Babin?

VOICE. He is not here.

Mrs. NAPOLITANO. All right. Mr. Garamendi, you may proceed.

[Pause.]

Mrs. NAPOLITANO. Mr. Garamendi?

Mr. Garret Graves?

Mr. GRAVES OF LOUISIANA. Thank you, Madam Chair. Madam Chair, I have to commend the rhyming that you had going on in your line of questioning. If you evaluate your next career, perhaps a poet, or even a rapper would be a good path for you. Nice to see you.

I want to thank all the witnesses today. It has been very, very informative. And obviously, with all the recent discussion on infrastructure, this is a very important time for us to be very thoughtful about the Federal Government's role in infrastructure, how to improve the project development delivery process, how to properly prioritize projects, and, of course, there is always this discussion on balance of utilization, of green versus gray, how to use the best tool in the toolbox most effectively to achieve the best outcome.

One of the questions that I have asked myself a lot over the past few weeks is what I stated, "What is the Federal Government's role in infrastructure?" And certainly in this committee you can make an excellent case for: the Federal Government has a role in inter-

states, it has a role in the National Highway System, it has a role in dealing with waterways that traverse various States and serve as major navigation channels for international commerce.

When you get beyond there, the question starts getting a little bit more challenging. One of the things about the Federal Government's role in highways or interstates, for example, is that there is a user fee mechanism. You go and you pay a tax for every gallon of gas you buy. The more gas you burn, because you have an inefficient vehicle and you drive more miles, the more of a user fee you pay.

In the case of water systems, there is a similar user fee mechanism, but that is collected entirely at the local level. I am just curious, and please, don't—this isn't an attack on you, but I am just curious in your response, both the DC and the L.A. systems. Give me your pitch as to why this is a Federal responsibility for us to jump in and pay this whenever you have a user fee mechanism in place.

Maybe, Ms. Powell, I will start with you.

Ms. POWELL. Yes, and thank you for the question. We believe that one way for the Federal Government to partner with localities and local utilities is to increase the amount of funding for water infrastructure, because it is infrastructure, it supports the built environment, and it supports essential services in every community. And I think that someone said that no community can be without it.

Obviously, we are here in DC, and it can be seen as a national security issue if you don't have safe, clean drinking water and wastewater services because of the customers that we provide services to.

And I think that, again, the Federal Government providing the levels of funding that is consistent with other modes, other infrastructure sectors, is a start for us in DC. We believe that there should be a Federal fair share contributed to the infrastructure that was turned over to the District to manage, which was under-sized when it was turned over to the District. And that is something that we will be looking into more.

And then the last way I would say is to implement, in a sustainable way, a low-income water assistance program. As Ms. Hammer said, it is important for everyone to have access to safe, clean drinking water, and there are many that cannot afford it. There are some States that don't have enabling legislation for customer assistance programs. And we have a number of projects that we have to implement to be in compliance with Federal regulation. So it is important to make sure that we have funding to implement those projects without—

Mr. GRAVES OF LOUISIANA. Thank you. I want to make sure we have time for Mr. Ferrante to answer, as well. I just—I want to make note, I believe that Washington has one of the lowest rates in the Nation, in regard to water rates. And I am just not sure I understand this divorce between user fees and Federal Government investment.

Mr. Ferrante, I just have about 30 seconds left. Would you care to answer?

Mr. FERRANTE. Sure, just—

Mr. GRAVES OF LOUISIANA. And perhaps more specifically, why should people in Louisiana and Arkansas pay for L.A.'s water system?

Mr. FERRANTE. Sure. The issues we are facing with respect to drought covers more than just California. It covers the Southwestern United States. So it is really an interstate issue.

And obviously, with greenhouse gas emissions, the reductions that can occur in California benefit not only to the people on the east coast and Louisiana, but across the world. So it is a global issue. It is a national issue, at a minimum. So the reductions that we can achieve here and the reductions that they can achieve benefit us, as well. And that is why I think we could use user fees, but we want to use these moneys in an equal way and a uniform way across the country, attacking global issues or interstate issues, especially with respect to water and climate change.

Mr. GRAVES OF LOUISIANA. Thank you both for your answers.

Madam Chair, I want to thank you. I just think we need to be very thoughtful as we move forward in losing this alignment between ratepayers and infrastructure, because I think that you have incentives aligned. When you start divorcing it, there is no longer an incentive for people to be efficient with water usage and things like that. So I think, as we move forward, think about that. Thank you, I yield back.

Mrs. NAPOLITANO. Thank you, Mr. Garret Graves. It is interesting that you say that, because California has always been a donor State in many areas, so I kind of take exception to that.

Mr. GARAMENDI, you are on. You may proceed.

[Pause.]

Mrs. NAPOLITANO. Mr. Garamendi?

Mr. GARAMENDI. I have to find the right microphone here. Thank you.

Mr. Graves, you are at the outfall of the Nation's largest sanitation system, otherwise known as the Mississippi River. I am sure that you would want to have the upstream users delivering clean water into that system.

With regard to the issues, this is a question for Mr. Ferrante and Ms. Powell. The testimony thus far has indicated that these are very complex systems it takes a long time to engineer and to build. The current NPDES program is for a 5-year authorization, at which time the project is neither completed or probably even started. So I have introduced H.R. 1881, which would provide for a 10-year permit, rather than a 5-year permit.

So, Mr. Ferrante, is this useful to you in getting your projects built?

And the same question for Ms. Powell.

Mr. FERRANTE. Thank you for that question, Representative Garamendi.

Yes, the concept of providing the State with authority to issue a permit, but not only the authority, but the flexibility to issue a permit longer than 5 years, but not more than 10 years, is—

Mrs. NAPOLITANO. Mr. Westerman is next.

Mr. FERRANTE [continuing]. Something that makes sense. Our current system of permitting fails to recognize the life cycles of technologies. As I mentioned earlier, you know, the project that we

are involved in with Metropolitan has been in the planning stages for 10 years, construction will take up to 6 to 7 years. We are looking at the early 2030s. They are very complex.

But I do want to emphasize that extending the State's authority would not preclude revisions to a permit if new and important information were to be revealed impacting water quality standards. And I think that is important. We want to ensure the continued confidence and trust from the public that we serve, that the proper level of oversight is being provided, especially as we embark on new, advanced technologies and new, recycled water treatment systems.

Mr. GARAMENDI. Thank you. Ms. Powell, would you like to add, or just say that it is a great idea to have 10 years, rather than 5 years?

Ms. POWELL. Representative Garamendi, we support any tool or approach that allows for flexibility in meeting what are complex requirements in our permits as we work to implement the necessary improvements that are more expensive and more time-intensive to implement.

Mr. GARAMENDI. Thank you. We will continue to pursue H.R. 1881, and perhaps find it in additional legislation.

I want to go back to Mr. Ferrante and the discussions that you have had.

But first of all, a big shout out to what you have been able to accomplish. Indeed, California is in the midst of another drought. And I have often said that the fifth biggest river on the west coast or the Western Hemisphere are the sanitation plants in southern California. Probably 1 million acre-feet of water can be secured for southern California with the complete utilization of recycling. And the efforts made by the sanitation district and Metropolitan Water District is extraordinarily important to California, as it is to other Western States, and probably States in the East, such as Georgia, that also has periodic droughts and problems.

And so I want to just raise the issue that the programs that we are authorizing in this legislation must and should include recycling, as well as the capture of methane and gases from the sanitation facilities.

So the other piece of this for southern California is that there is a place to put the water, the recycled water, and that is in the underground aquifers of southern California, which, taken together, have a larger capacity than the largest reservoir, Shasta.

Mr. Ferrante, would you care to take a few moments to further comment?

And also, if you would pick up the chairwoman's long-held view that title 16 of the Reclamation Act provides money for recycling?

Mr. FERRANTE. Yes, thank you for the opportunity to comment on this. I think you have correctly pointed out, with respect to drought, especially in southern California, and people are starting to use the terms "mega-drought," and "permanent drought" for the way of looking at our current situation. That recycled water, it has got to be part of the core portfolio for the water systems here, probably throughout the southwest of California.

And specifically, it can be used, as you mentioned, with groundwater replenishment in order to be able to—I use the term "bank,"

or replenish those groundwater supplies during good years, when you have a little bit of excess, and then, when you have those years such as what we are potentially facing this year and in the next few years, where you are not going to get the allotments, especially for southern California, whether they be in the imported water—and I know some of our neighbor States are facing the issues with the Colorado River—when you don't get those allotments, then you can take that groundwater out, and hopefully make you resilient.

In our case, I mentioned earlier, you mentioned the Metropolitan project we are working on. That could supply 10 percent of the water need that Metropolitan usually provides. So that is a big part of it.

Switching gears, you mentioned the methane—

Mrs. NAPOLITANO. I am sorry, the time is up. Would you wrap it up—

Mr. GARAMENDI. Oh, thank you, Mr. Ferrante, thank you very much. I really look forward to working with you and with the chairwoman on the other piece of it, which is title 16, which does provide money for reclamation.

My final point is that it was Richard Nixon that decided that the Federal Government had a role in cleaning up our sanitation systems.

So with that, I yield back.

Mrs. NAPOLITANO. Thank you, Mr. Garamendi. I am asking in a bill to increase title 16 to \$500 million. That is how serious I am about it.

Mr. Westerman, you may proceed.

Mr. WESTERMAN. Thank you, Madam Chair, and thank you to the ranking member.

And Madam Chair, I just want to say again thank you for—what a privilege it was to work with you in the last Congress as ranking member on this subcommittee, and to be able to do the good work we did with WRDA and other issues, and I appreciate your continued efforts on this subcommittee.

Madam Chair, if you remember, I have talked to you about a project going on in my district that we were going to try to go see, but COVID interrupted that. But we have got an agriculture water utility in my district that takes nutrient-laden water from the Arkansas River.

They formed a crop irrigation district. And to participate in that, farmers stopped pumping water out of the Sparta aquifer, which is high-quality drinking water that serves six different States out of that aquifer, and they use the groundwater which—the crops actually act as a filter that cleans the water, takes the nutrients out, and releases clean water back into the Arkansas River, which eventually gets down to Representative Graves' district in the Mississippi River. And we know we have got issues with nutrient-laden water down there. So it is a real winner of a project.

And I know, Mr. Colson, in your written testimony you talked about an Orange County, California, project that was conserving groundwater. And my question to you is would you agree that this type of innovative utility project that EPA states—should this type of project be funded through SRF funding, regardless of whether public or privately owned?

Mr. COLSON. Thank you for that question. It is important to note that many of these projects are case-specific to the locality to meet a specific need, and utilities at the local level are developing the business case for these projects. And SRFs need to be flexible to meet these local needs. And that is what we are really focused on.

Mr. WESTERMAN. Yes, so it seems like, since it is accomplishing the purpose of cleaning water and conserving groundwater, it would be a great project for SRF funding.

And Mr. Colson, while I am talking to you, the methane you were talking about coming—or capturing that, how do you transport it?

Mr. COLSON. In that particular case, there was a natural gas pipeline that was already on the wastewater treatment plant property, and that pipeline went up through into downtown Raleigh. So there was a transportation mechanism already there that the utility was able to utilize. And of course, that really helped the business case for the utility to implement that type of project.

Mr. WESTERMAN. It was another instance of how a pipeline actually helps with the environment in safe and efficient transport of a biogas there.

And back to the idea of SRF, I want to just open this up for any of the witnesses, and ask if you know if any private entities are eligible for funding under the Clean Water State Revolving Fund. In the case of addressing source pollution and integrated watershed management, actually, they are eligible for that funding. But what can Congress do to encourage more private-sector action to protect critically designated groundwater aquifers, and reduce nutrients like the project I was talking about, where they enter the Mississippi River Basin?

And maybe also what about State-based nutrient trading programs? And I believe North Carolina has one of those.

Mr. COLSON. That is correct, North Carolina does have a nutrient trading program, and it is utilized by many of our municipalities to help protect our estuaries.

Mr. WESTERMAN. Would any other panelists like to address that?

Well, I am running short on time, so I—actually, I was in a hearing this morning on the Natural Resources Committee with the Indigenous People of the United States Subcommittee. I heard a testimony there, a witness answered a question by Mr. Young. And actually, when it was my turn to ask questions, I went back and had the witness restate the answer, because it was just so shocking. But she stated that, up in Alaska, in this one particular area, that the utility connection fee is \$350,000 to \$700,000 per home. And in asking her to explain that in more detail, she said a lot of it is the regulatory process that has to be gone through to actually build these projects, and connect them, which—you know, I am a professional engineer, I know we have got other engineers on the Zoom today. That cost is almost unbelievable. But the witness stated that is the actual cost.

Are there things we can do to relieve the regulatory burden, so that we can build out these much-needed water infrastructure projects, and do it with common sense and at a much lower cost?

[Pause.]

Mrs. NAPOLITANO. Your time is up, Mr. Westerman.

Mr. WESTERMAN. Well, if anybody would like to submit an answer to the record, I would much appreciate that.

And thank you, Madam Chair.

Mrs. NAPOLITANO. Thank you, sir.

Mr. Malinowski, you may proceed.

Mr. MALINOWSKI. Thank you, Madam Chair, and thanks to the witnesses. Like many other parts of the country, my district in New Jersey has been affected in recent years by harmful algal blooms. We have seen them in a couple of lakes in Morris County, Lake Hopatcong, Budd Lake, a bunch of smaller ponds. We expect they are going to reemerge this summer.

They have forced, in some cases, the temporary closure of lakes and ponds to recreation, to swimming, to boating, put an added strain on local economies that are dependent, particularly in the summer, on those activities. And of course, toxins from HABs can also harm drinking water treatment, also contaminate drinking water treatment facilities, as I am sure you are all aware.

The most recent WRDA bill that was signed into law—

Mrs. NAPOLITANO. Has Mr. Mast returned?

Mr. MALINOWSKI [continuing]. Created a demonstration program to detect, prevent, treat, and eliminate these HABs associated with water resources development projects. And New Jersey was designated as a focus area for the program, which is good news for us.

But there is a lot more work to be done. We know that both wastewater discharge and climate change are contributing factors, and we are working to address both of those in this committee.

Ms. Hammer, I wanted to see if you might be willing to address this question, and let us know what are some of NRDC's recommendations to Congress on how best to address the problem. What strategies should be adopted at the State and local level to treat outbreaks?

Are there any research gaps that still need to be closed?

What more can we do?

Ms. HAMMER. Thanks for the question. So we know that nutrient pollution is the primary driver of harmful algal blooms, and that nutrients come from both agricultural sources, like animal and mineral fertilizers, urban runoff, sewer system discharges, wastewater treatment facility discharges.

NRDC actually has a website dedicated to this issue that tracks how well States are monitoring algal blooms and reports that information to the public. So I would encourage anyone to check that out who is interested in how their State and local government are managing this issue.

As you said, we also know that climate change makes algal blooms worse, between rising temperatures, more intense precipitation.

In terms of solutions, a lot of things we are talking about today—green infrastructure can be a really important tool in reducing nutrient runoff from the urban environment. So can wetlands preservation, ensuring that wetlands are fully protected by the Clean Water Act, since wetlands can filter out the kinds of nutrients that cause algal blooms, as well as water conservation, making sure we are not withdrawing too much water from water bodies, because

when they get stagnant, that is one condition in which algal blooms can occur.

Congress can help with all of this by increasing funding for water infrastructure, especially green projects, so that communities can implement projects that reduce nutrient pollution.

Mr. MALINOWSKI. Great, thank you. So switching gears a bit, we all know that foreign adversaries of the United States use cyber operations to try to damage physical and digital infrastructure in our country. And earlier this year, as I know you are all aware, a water treatment plant in Oldsmar, Florida, was hacked. The intruders attempted to dramatically increase the amount of sodium hydroxide in the water treatment process. It was a near miss that could have proved catastrophic.

A lot of experts have testified to this, former assistant director Chris Krebs, cybersecurity experts from the FBI and other agencies. Every State has been a target, to some degree. In New Jersey, our statewide IT system faces, actually, millions of attempted cyberattacks every single day, according to our State Office of Homeland Security and Preparedness.

So I maybe pose this to some of the State and local representatives, and ask you all, how are you working to secure your systems against intrusions?

Do you have the personnel and resources you need?

Is there anything else that you would want to share with us, in terms of how the Federal Government can do more to help?

Ms. POWELL. Representative Malinowski, this is Kishia Powell, if I may.

DC Water certainly looked at the incident in Florida, and did another assessment on our systems. We are continuously monitoring. We are fortunate enough to have cybersecurity personnel that are constantly monitoring our systems, which are critical systems, and our distribution system and wastewater treatment process. That also takes additional funding to maintain that infrastructure, and to make sure that we are resilient against any potential attacks.

As the former commissioner of the city of Atlanta's Department of Watershed Management, I had to live through managing that system through the attack in early 2018 that the city of Atlanta experienced, so I would say that this is a very critical issue for all water and wastewater systems that certainly need to have the appropriate funding to make sure that we can not only hire the right people, but also have the right systems and security measures in place.

Mrs. NAPOLITANO. Mr. Malinowski, your time is up, sir.

Mr. MALINOWSKI. Thank you.

Mrs. NAPOLITANO. Thank you very much, Ms. Powell. We go on to Mr. Mast.

You may proceed.

Mr. MAST. Thank you, ma'am, Madam Chairwoman, I appreciate it.

This has been spoken about at length. I want to just reiterate the need to update the Clean Water State Revolving Fund. It is so important for so many different States across the country. It has been spoken about in length, and I just want to reiterate my support for

that, as well. I know we had a hearing back in February, I want to say, where we spoke quite a bit about this issue, as well.

I want to speak a little bit about leadership for our country at this point. And as we talk about water management, and our Federal agencies, let's talk about this a little bit at 30,000 feet. If I were to ask any of you, as our witnesses, to complete the sentence, could you complete it for me: Lead by ...

Go ahead.

Mr. FERRANTE. Lead by example.

Mr. MAST. Lead by example. Anybody disagree with that?

You think you would all complete that sentence in that way, "Lead by example"?

And here is where I am going with this. As the Federal Government looks at water management, whether it is wastewater, or whether it is algal blooms, or anything else, we have these siloed Federal agencies like the U.S. Army Corps of Engineers, or the EPA, or others, and we will have the EPA make statements and determinations and conduct studies that our own Federal agencies won't adhere to. That is a major problem. That is not leading by example. That is an example of the left hand not talking to the right hand.

And as I look at that as a situation, if we are going to have the EPA, and put all this these resources—and let the EPA go out there and say, "This needs to happen in this way, we do not recommend you, State, that you do this, or you, person with a farm or a ranch, that you do this, or you, person with a business, that you do this," how in God's name do we allow other Federal agencies to do what one of the other Federal agencies is telling everybody else not to do?

I don't really know why that is allowed to occur, but I would love to give—you are witnesses—a chance to sound off a little bit on that, as a statement, you know, I agree, I disagree, pound sand, whatever, you know. But if you would like to sound off on that, I would love to hear it, and have a little discussion on that.

[Pause.]

Mrs. NAPOLITANO. Unmute, please.

Mr. NEUKRUG. Thank you. Howard Neukrug from the Water Center at Penn and, you know, we are dealing with these issues everywhere, and you are absolutely right about the siloed activities that are going on at the agencies. And part of it is because the Clean Water Act and the Safe Drinking Water Act are siloed also, and they kind of created that kind of situation. Unfortunately, that siloing has gone down into the water utility.

But when you look at this, when you really look at this, it is bigger than that. You are not just looking at a silo, the issue of the day [audio malfunction] but you are really looking at a community, you are trying to figure out what is best for this community. There is only so much money, and there are so many priorities, and they differ from block to block and from neighborhood to neighborhood.

And I think the real secret here is how do we identify what the community needs, what their priorities are, and then how do we get the Federal Government agencies to assist those communities in what they need, whether it is a enforcement against an industry, or whether it is some funding, or whatever it may be. So it is a—

Mr. MAST. I would love to pause you right there. I think you said something extremely important that has to be the goal of Congress: What does the community need? How are we of the people, by the people, for the people?

And my time is running dry, but I think the important part of what you said there, one of the important parts of what you said there was—that I would read into in this way. No community needs the Federal Government to go out there and poison them.

I don't know of one community across this country that says, yes, I need the Corps of Engineers or some other arm of the Federal Government to come in and mess up a part of my community.

And with that I yield back, Madam Chairwoman.

Mrs. NAPOLITANO. Thank you, Mr. Mast, very much, for your testimony and your question.

Mr. Carbajal, you may proceed.

Mr. CARBAJAL. Thank you, Madam Chair.

Mr. Ferrante, as part of America's Water Infrastructure Act of 2018, Congress established a Drinking Water System Infrastructure Resilience and Sustainability Program at EPA. This was based on legislation I worked on called the Water Infrastructure Resilience and Sustainability Act, also known as WIRSA. The program's purpose is to help small drinking water systems make their infrastructure resilient to natural hazards, including those associated with climate change and extreme weather.

Do you believe it is important to also advance policies to ensure the Nation's wastewater infrastructure is similarly prepared to withstand the effects of climate change and extreme weather?

And what sort of resilience and adaptation challenges are you facing at your utility?

Mr. FERRANTE. Thank you for that question, and thank you for your leadership on the issue. And to answer your question is, absolutely, wastewater treatment plants and utilities need to be included.

We do have our own unique challenges when it comes to climate change, and we are seeing a number of impacts. I think some of the other speakers before talked about infiltration and inflow into sewer systems that occurs during rainfall events. And what we are seeing here, and even in southern California, we are seeing less rain, but when it rains, it rains very powerfully, very locally, and can inundate sewer systems.

And we have had also, even though our overall flow is down, as I mentioned before, because of water conservation, we are seeing some of these big storms can really tax our whole system. And that is one reason why we have really had to look at our overall capacity, as well. So there is a number of issues there.

And then, of course, we all know the number of people that live in coastal communities around not only in California, but around the country. And those areas are not only seeing, you know, potentially, the effects of sea level rise, but storm surges are becoming more and more significant. And when you now couple a flooding event, flooding a sewage pumping plant that is along the coast, now you have really created a bad problem and made it worse when you have mixed in, unfortunately, wastewater. So there are a number of activities.

We have started looking and doing our own assessments at our treatment plants. We are going to try and do our complete system here in the next couple of years, in terms of what we have to do. But by all means, if there could be an incentive and funding for wastewater utilities to do that, especially the smaller ones that don't have the expertise in-house to do it, that would be very helpful because, obviously, now these systems are so integrated, too, when you talk about recycled water, that it is not just the wastewater, it could be something that is a new supply and a recycled water, and leads to drinking water. So they are linked—

Mr. CARBAJAL. Thank you, Mr. Ferrante. I am trying to get in a second question.

Ms. Hammer, I represent a coastal district in California, and we have seen our fair share of extreme weather events due to climate change. Apart from addressing the climate crisis, what steps should wastewater systems be taking, steps to prepare their infrastructure and operations, to withstand the effects of climate change and extreme weather?

And two, can you discuss the importance of a standalone grant program for clean water resilience projects that you discussed in your testimony?

Ms. HAMMER. Thanks for the question. There is a lot that wastewater and stormwater utilities can be doing to build resilience to climate impact. You know, distributed green infrastructure throughout their service area is one way to reduce the amount of water that is entering the system, which can be incredibly helpful in combined sewer systems.

Of course, that is not going to solve every problem that faces wastewater utilities. A lot of wastewater treatment plants, as you know, are located in low-lying and coastal areas, because that is where they need to discharge their effluent. And so those facilities are extremely vulnerable to sea level rise. There was a study recently that showed how many millions of Americans could lose wastewater treatment with even a modest amount of sea level rise. So those facilities will need to consider longer term hardening their facilities, or, ideally, relocating them to higher ground.

In terms of a grant program, we strongly support the grant program that you have proposed that would enable utilities to take some of these measures. So thank you. Thank you for your support.

Mr. CARBAJAL. Thank you very much. I ran out of time, I yield back.

Mrs. NAPOLITANO. Thank you, Mr. Carbajal, we very much appreciate it.

Miss González-Colón, you are next. You may proceed.

Miss GONZÁLEZ-COLÓN. Thank you, Madam Chair. First of all, thank you for holding these continued hearings that are so vital for health, safety, and the future economic recovery of our communities. And I think wastewater management is an essential part and a component in developing the housing industry without which a community cannot survive, much less grow.

In that sense, extreme weather will impact wastewater infrastructure. Many treatment plants lie in flood risk areas and locations that will be at risk because of the sea level rise. And this, of course, requires that any infrastructure initiative consider there

will be conditions in the future on how those natural disasters that are periodic may now intensify.

In that sense, that is why, in our disaster relief bills in the past two Congresses, we included provisions to allow Build Back Better processes. And these must be part of any program, since by building to improve standards we can have an infrastructure that is more resilient and can handle emergency situations better.

And again, resilient does not mean that infrastructure is going to be indestructible, it is that we may recover fast about those emergency situations.

Just in the case of Puerto Rico, the main water utility, PRASA, in the aftermath of the disaster of 2017, the wastewater infrastructure suffered over \$680 million in immediate damages under FEMA emergency categories. An additional \$3.7 billion allocation for all water and wastewater operations has been announced by FEMA.

Of course, securing those priorities of the funding for the wastewater sector, especially for economically disadvantaged areas, needs the attention of this committee on where the money is going to come from. We must consider those communities that do not have the cash or the resources for matching, or even in-kind, in order to benefit from any infrastructure rebuilding initiative.

I think it is important that this committee have the testimonies of representatives of EPA, and the Army Corps of Engineers, and other Federal agencies that could actually oversee important infrastructure. There is many, many funds that have been approved by FEMA, by the Stafford Act in many instances, not just in hurricanes, earthquakes, flooding areas across the Nation. How those Federal agencies are managing with the local communities and with the local governments in order to maximize the resources that have been approved, and not having the same mistakes by investments that are not being resilient.

So in that sense, I think the expertise of people of the panel, I just can ask Mr. Colson, Ms. Powell, what will you say are the specific areas within the wastewater infrastructure that will increase Federal participation that will make the greatest impact?

I know we may not have the money for all. Which do you understand will make the big difference?

Ms. POWELL. This is Kishia—

Miss GONZÁLEZ-COLÓN. Whoever on the panel—Ms. Powell, Mr. Ferrante—

Ms. POWELL. Yes, this is Kishia Powell. I agree with everything that you said, and thank you for the question. It is critically important that, first, we protect our wastewater treatment facilities. Blue Plains is the largest advanced wastewater treatment plant in the world, and we are taking measures to protect that facility with a flood wall. We are making that investment with support and grant funding from FEMA.

It is also important that we protect the pump stations, and it is important that we invest in the sewers that convey flows to the treatment plant, and making sure that, where possible, we are providing additional capacity in our sewers. Much of the District's sewer system is a combined system, which happens to cover the most vulnerable communities in the District. And as I said, when

we had a major flash flood event, more than 300 homes were impacted by sewer backups and surface flooding.

So it is important that we make the investments to improve our wastewater infrastructure so that we don't have continued impacts to vulnerable communities, which are most often communities of color, and those that can ill afford the costs of cleanup and restoration.

Miss GONZÁLEZ-COLÓN. Thank you, Ms. Powell.

I know my time has expired, so I will submit the rest of my questions to the record. Thank you, I yield back.

Mrs. NAPOLITANO. Thank you, Miss González-Colón, and we will proceed with Mr. Stanton, followed by Mr. LaMalfa.

Mr. STANTON. Thank you very much, Madam Chair, for holding this important hearing about the need for innovative investments to ensure our wastewater infrastructure is resilient against the impacts of climate change.

The Southwest is rapidly changing and growing, and nowhere is it more evident than in my State of Arizona. In 2019, Arizona ranked third in population growth, with many of our communities growing significantly faster than the national average.

We are also facing extended drought and extreme heat, and last summer was Arizona's hottest on record. These facts make our water needs both serious and urgent. To sustainably welcome and provide for the millions of people who call our region home, we must invest in our water infrastructure and secure our water future. And those investments need to be partnerships, as well, partnerships at the local, State, and Federal level between urban, rural, and Tribal communities.

As the former mayor of Phoenix, I know firsthand that local leaders must be innovative when it comes to addressing our infrastructure and planning for our water future. And frankly, we can't afford the alternative. We know that the future of our residents and our economy depends on how well we anticipate, plan, and respond to our water-related challenges and the continuing impacts of climate change.

In Phoenix, we have long recognized the need to adapt to climate change, and this has only become more urgent in the last 20 years, as prolonged drought has taken a significant toll on the Colorado River, which supplies the city with nearly 40 percent of its water. As mayor, we established the Colorado River Resiliency Fund to set aside capital dollars specifically for investment in resiliency efforts along the Colorado River. This fund has not only ensured the city has the water supplies necessary to meet its growing needs, but that water will be available in uncertain times of drought and climate change.

Arizona has also led the way in the use of reclaimed water. The city of Phoenix reclaims wastewater and uses artificial wetlands to improve its quality after it leaves the plant. The Cities of Mesa and Chandler in my district, they partner with the Gila River Indian Community to reclaim wastewater and deliver it to the Tribe, where it is used for non-food-crop agriculture. For every 5 acre-feet delivered, Mesa and Chandler receive 4 acre-feet of Colorado River water that can be used to meet potable demands. The partnership has helped the Gila River Indian Community access additional

water, and at the same time, Mesa and Chandler benefit by converting reclaimed water into a potable supply.

These investments are necessary, but they are costly, especially for smaller communities that do not have the population base to support major investments at levels that are affordable. Local governments are doing their part, but now it is critical that, here in the Federal Government, we do our part to support and incentivize water reuse and recycling projects through robust investment in the Clean Water State Revolving Fund.

My first question is for Mr. Ferrante. How important is water reuse and recycling to ensuring our infrastructure is resilient and sustainable, particularly as we continue to experience prolonged drought in the Southwest and the Colorado River Basin?

Mr. FERRANTE. Thank you for that question. And I think I have mentioned it before, but I will reiterate it. I think the water recycling is a must as we move forward with respect to being resilient to climate change and the drought.

The last drought here a few years ago in southern California took the groundwater basins to near record-low levels. And that has significant impacts. Not only does it eat up whatever supply or buffer you had against a prolonged low period, but it increases pumping costs, makes pumping more difficult out of those groundwater basins, too. That affects a whole population, everybody across the board here.

So water recycling has to be a core endeavor. All of these systems are intertwined, too. southern California, as you are well aware, depends on the Colorado River, as well, as well as the State aqueduct system here, too. And all the recycling that we can do here means this region needs less of that water, and allows more of the water to stay locally. So it is a must, not only for our area, but also for the benefit of the overall Southwest region.

Mr. STANTON. Thank you so much. My time is up. I yield back.

Mrs. NAPOLITANO. Thank you, Mr. Stanton. And with that we will go to Mr. Katko, followed by Ms. Norton.

Ms. NORTON. Thank you, Madam Chair.

Mrs. NAPOLITANO. Mr. Katko is next. I am sorry, Ms. Norton, that was Mr. Stanton. Mr. Katko is next. Is Mr. Katko available?

Mr. KATKO. Yes, I am. Yes, I am. Thank you very much, Madam Chair, and thank you, all the witnesses, for joining us today.

Given the focus of this discussion on improving the efficiency, adaptability, and resiliency of our water utilities, I would like to hear from the panel on how the deployment of smart water technologies can help achieve these goals.

As we know, these tools can help utility operators rapidly identify inefficiencies, blockages, or potential water loss points across treatment collection and distribution systems. Additionally, expanding the deployment of innovative sensors can assist with the proactive identification of environmental hazards, as well as resiliency and risk mitigation efforts focused on long-term vulnerabilities.

Finally, these increased efficiencies and decreased costs on the provider side translate to real savings and more affordable water for ratepayers.

Lastly, I introduced the ARPA-H2O Act to expand Federal investments in innovative water technologies, and I look forward to working with the committee to continue advancing these priorities this year.

Mr. Neukrug, what successful use cases for smart water technologies have you observed in your research?

Mr. NEUKRUG. Well, thank you for that question. Certainly, we are looking at—and it is being installed all over the U.S. and the world right now—are automatic metering systems that give immediate response to homeowners to let them know if they have a leaky toilet, or there is too much water being used in the property. And you take that, and extend it out, as you indicated, to new sensors that can work in the distribution system to identify where leakage happens, and stop that pretty quickly.

So, you know, just from that area of the distribution system, you have an incredible ability to reduce costs, reduce water loss, and improve the overall health of the water.

You move further into the treatment plants, and you can also see that there is a lot of major activity happening with digitization of how you take all the different information you have, all the big data, what our utilities are collecting data on, on a minute-by-minute basis, and it is too much for anybody to be able to assess. You need some form of artificial intelligence to take this data, and put it down, and make it so that you can use this data properly, as things come up, and also to just have a record that things are going well.

So those are a few examples of the smart water systems. I love the new—my favorite is these pictures that I have from—particularly, from some of the Asian communities, where they are using floating solar cells, and using this, and they help protect the water supply because they prevent the evaporation of reservoirs, and water quality, and also producing the kind of electricity that we all need.

Mr. KATKO. Thank you very much.

Mr. Colson, have you observed similar use cases in your work with the Council of Infrastructure Financing Authorities?

Mr. COLSON. I have not personally worked with smart sensors. However, I know a lot of our utilities are using big data and artificial intelligence to analyze their situation.

I think, for a lot of our small systems, the challenge is conveying that information down to the local community, where a town manager is the town manager, but he is also the public works director. And that is a real challenge for them to understand the technology, but also take the risk of investing in that technology when there is uncertainty of the technology, and how long it will last.

Mr. KATKO. So what do we do, Mr. Colson, to try and bridge that gap, the educational knowledge gap on the local level?

Because to me, that is critically important for—and you are exactly right, a lot of these people wear several different hats as part of being in a town, and they can't understand it to the depth and extent that folks like you and Mr. Neukrug and others can. So what do we do in that regard?

Mr. COLSON. I think that is why resource agencies are so important in water infrastructure management, and in meeting our

water infrastructure needs. Agencies like Rural Water Association, our Environmental Finance Centers across the country, those are important aspects to helping the utilities and lifting them up so the utility itself can be resilient, so that the infrastructure they manage can be resilient.

Mr. KATKO. OK, thank you very much, gentlemen. I have many more questions, but my time is up, so I will yield back.

And Mrs. Napolitano, as always, it is wonderful to see you, my friend.

Mrs. NAPOLITANO. Thank you, my friend, and thank you for your questions.

I will now yield to Ms. Norton, followed by Mr. Lowenthal.

Ms. NORTON. Thank you, Madam Chair, for this very important hearing, and my first question is for Ms. Powell.

Your testimony—and I am quoting you—“Climate change is all about water,” it couldn’t be more true. And again, I am quoting you, “Water is life.” So this is so important, and as is this hearing focused on climate change.

In your testimony you mentioned that thermal energy in DC sewers is unique to the District, and yet is untapped, I guess, elsewhere. I wish you would elaborate on that. What are the advantages, what is the importance?

Ms. POWELL. Yes, ma’am, and thank you for the question, Ms. Norton.

Thermal energy in DC Water sewers is not unique to the District, but unique to DC Water in the district. As the single largest energy consumer in the District of Columbia, we sit on a significant amount of green energy potential. We are currently doing combined heat and power generation at the Blue Plains Advanced Wastewater Treatment Plant. We have implemented a first phase of solar projects, which, in turn, helps to reduce, through the DC Solar for All program, energy burden on vulnerable households. And we are looking at additional phases of solar at Blue Plains, as well as our other facilities.

And as part of our energy opportunities focus, which we reinvigorated at the start of the year, we are looking at many projects to utilize the thermal energy from our sewers and our wastewater treatment process. The headquarters building that I am sitting in right now is 100 percent supplied by thermal energy from the pump station that our headquarters is wrapped around, and we have identified more than 200—I believe 200—megawatts of thermal energy that exists in our sewers, should we be able to harness that and potentially use that in other areas of the District.

Ms. NORTON. Well, what the District is doing is a terrific example for the rest of the country in this regard.

I understand that ratepayers are currently paying 95 percent of the costs associated with this energy. What are the most effective steps we and the Congress can take to reduce the burden on ordinary customers?

Ms. POWELL. I think the work that the committee is doing now, as I mentioned, the legislation that is being considered to provide close to \$50 billion in funding for water and wastewater infrastructure, is a start. But I think we definitely need to make sure that there is more grant funding.

We also need to make sure that there is a Federal low-income water assistance program, because, even though DC's rates are moderately low, they are increasing, just as other utilities across the country. Every community has vulnerable households that still can't afford it. And we have to continue to make investments. Even though the investments that we are making in DC are cost-effective, and we are using any savings that are generated from our investments to reinvest in other critical infrastructure, we have to be mindful that it presents a burden on local ratepayers.

Ms. NORTON. Well, thank you for that response.

Ms. Hammer, you have noted, I think, quite correctly, that frequent flooding and heavy precipitation events pose a threat to wastewater service. In your opinion, what are the ways that public water systems like our own, for example, can prepare for these extreme weather events?

Ms. HAMMER. Thanks for that question. And just, you know, anecdotally, we have seen so many extreme weather events just here in the DC area. I live in Alexandria, Virginia, and we have had three 100-year storms, I think, in the last year, which is causing a lot of wastewater infrastructure and stormwater infrastructure problems.

Again, I would just emphasize the importance of deploying more distributed green infrastructure that can soak up the water before it hits the sewer system in the first place. It is incredibly cost effective, when you factor in the long-term operations and maintenance, compared to hard infrastructure. And it is also more scalable than hard infrastructure, which is really—once you build it, it is locked in, and it is not very adaptable to changing rainfall patterns.

Ms. NORTON. Thank you, Madam Chair. My time is virtually expired.

Mrs. NAPOLITANO. Thank you, Ms. Norton. And right now I should go back to Mr. LaMalfa, if he is available. Sorry, Mr. Lowenthal.

Mr. LaMalfa?

[Pause.]

Mrs. NAPOLITANO. Mr. LaMalfa?

I guess he is not on. Mr. Lowenthal, you are next—

Mr. LOWENTHAL. I am available, and it is good to see you, Madam Chair, and I want to thank you and all the witnesses for this very, very interesting hearing on wastewater, on building resiliency, and sustainable wastewater infrastructure.

And I also want to thank especially Mr. Ferrante talking about the importance of the Clean Water State Revolving Fund for infrastructure, and also the tremendous need for water recycling. My district in southern California is about half-and-half between L.A. County and Orange County. But I especially want to point out the leadership of Orange County in wastewater recycling. They have done a phenomenal job.

But I am interested in the prevention side. We are talking about the infrastructure, but I would like to know whether you are aware of what is getting into your wastewater, what is getting into our entire water stream. And that is the global crisis of and the failure of our recycling systems. And that is the plastic pollution, which is a crisis throughout the world now, and throughout our Nation.

You know that less than 8 percent of the products that we get are ever going into a recycling bin. And of that, only 3 percent actually gets put into new products. So the vast majority of our plastics end up in incinerators, and out in the ocean, in our wastewater. And so I am interested, do you see this problem?

And I have a bill. I work on the prevention side. How are we going to break free from plastic pollution, and how, instead of holding agencies like your agencies, and counties, and cities from doing recycling themselves, hold the producers accountable, in terms of extended producer responsibility projects? That is what I am working on, and I have a bill with Senator Merkley over in the Senate called the Break Free from Plastic Pollution Act.

The problems are—is that the growth we—you know, Senator Merkley keeps pointing out we are ingesting, from our water system or our food, about a credit card's worth of plastic into our system a week, all of us. That is the average now, studies are saying. A broken recycling system, microfibers from wet wipes are going into our—they are not supposed to be flushed, but they end up in our waste system. Plastics are breaking down into microplastics. They are all going into our water system and our wastewater system.

Let me just ask the panelists, are you aware of this problem, and is this an issue of concern for those dealing with wastewater?

I am talking about the prevention of this because I don't think that you should be the ones that are responsible for cleaning it up, either. But I want to understand how you are dealing with the issue of plastic and plastic pollution that is getting into our waste stream.

Mr. FERRANTE. I appreciate the question, and I guess I will try and answer it first here, but yes, we are concerned about microplastic pollution.

Our agency, as well as Orange County, is part of the Southern California Coastal Water Research Program, which conducts monitoring off the coast of southern California. It is called the Bight. And one of the assessments it has started doing is looking at plastic pollution that is in the ocean, in the sediments. And unfortunately, it is finding more and more of it getting into our oceans.

So we are concerned about it, and we are developing methods to be able to monitor the microfibers that you discussed to see its fate through our treatment plants. For the most part, we have filtration as our tertiary—or towards the end of our plants, and that does a good job of removing almost all of the microplastics.

But it is an issue of concern, and we do definitely support the producer responsibility that you are talking about, because, when you look at these issues across emerging contaminants and other issues, source control is, by far, the best and most efficient way to reduce pollution. By the time it comes to us, it comes in concentrations and mixed with other waste that make it very difficult to remove, whether it be microplastics or other things.

So source control is—and source reduction—with a producer responsibility, is definitely the way to go, and I will let somebody else expand on that.

Mrs. NAPOLITANO. I am sorry, Mr. Lowenthal, you are out of time.

Mr. LOWENTHAL. For now, I am out of time for now, but this issue is not going away.

Mrs. NAPOLITANO. You can put your questions in writing form for us, please.

Mr. LOWENTHAL. Thank you.

Mrs. NAPOLITANO. And next, Mr. Huffman, you may proceed.

Mr. HUFFMAN. Thank you, Madam Chair. I hope you can hear me on my cell phone here, I had some technical difficulties.

But this is a very important subject. I am glad you convened this hearing. And as we invest in wastewater infrastructure, I think it is important that we do that with an eye toward the 21st century, making sure we “build back better.” That needs to include the challenges of climate change. And we know that wastewater infrastructure has to be ready for sea level rise, as well as stronger, more frequent storms, flooding, and drought. Others have spoken to that.

The bipartisan Water Quality Protection and Job Creation Act, which I am very proud to cosponsor, would help us. It would reauthorize the Clean Water State Revolving Fund, and it includes many provisions to mitigate and respond to climate change. So I would like to ask Ms. Hammer, if I could start there, about the success that we have seen with green and nature-based infrastructure projects in helping manage stormwater, trapping pollutants before they can reach ecosystems like the San Francisco Bay.

And if you could, please, describe how these green and nature-based infrastructure projects support clean water, climate resilience, and how Congress can promote more of this.

Ms. HAMMER. Thanks for the question. Green infrastructure, of course, is kind of a catch-all term for a whole bunch of different practices, but they all work in more or less the same way, which is that they mimic nature by capturing rainwater where it falls, infiltrating into the ground, having it taken up by plants, or capturing it for reuse, which reduces the amount of runoff that is going into waterways, and recharges groundwater supplies, addressing a number of different climate impacts. And because so many of them use vegetation, they also store carbon and help reduce the carbon impacts of climate change, as well.

So the green project reserve and the Clean Water State Revolving Fund, is—we have been talking about that a lot today, it is such an important source of funding. Despite the fact that it has made up a relatively small proportion of Clean Water SRF assistance to date, I think we can do a lot better using that program to incentivize those projects by making it permanent, and also increasing the amount of additional subsidization that is available for those and other projects.

Mr. HUFFMAN. Thank you for bringing up the green reserves. And I want to ask Mr. Neukrug about that, as well.

More and more utilities are getting involved in renewable energy, producing enough to manage their own operations, sometimes even selling it, the excess, on the market. And in my district, in Healdsburg, I recently toured a photovoltaic project, where a 25-million-gallon wastewater pond now contains 11,600 solar panels, not only producing enough clean energy for the city of Healdsburg—not just the wastewater plant, but the city—but also

providing algae control, preventing algae from building up in that project.

Can you speak a little bit to how this green reserve is an important way to support innovation in wastewater, like what we are doing in Healdsburg?

Mr. NEUKRUG. Oh, it is so incredibly important. It is—you know, essentially, there is—we are prioritizing our environmental needs, because there is not enough money to do everything that we need to do. And having a green reserve is really incredibly important, because it is dealing with the innovation and the new types of systems that we want to put in place for the next 50, 100 years. This stuff has to last, we can't replace this every 10 years.

And with the uncertainty with climate, you want to do things that are a little bit more decentralized perhaps, so that you are not putting all your eggs in one basket. And just really simple examples here is this—when you look at the wastewater plants, and you look at the outfalls, and you realize that all these plants are going to have to be moved or maybe pumps added that are going to have to run continuously so you can pump the wastewater, the effluent higher than the ocean.

These are all serious concerns that are going to take a lot of money, and a lot of work together amongst everyone on this, everyone on this call, and many others in order for us to resolve that.

Mr. HUFFMAN. Yes. Thank you, Madam Chair, I yield back.

Mrs. NAPOLITANO. Thank you, Mr. Huffman, it is very nice of you to come on.

Mr. Kahele, you are next. You may proceed.

[Pause.]

Mrs. NAPOLITANO. Mr. Kahele?

Mr. KAHELE. Thank you, Chair, and I appreciate the opportunity to waive on to the committee hearing today on your agenda. I really appreciate that, and giving me this opportunity.

I am here because there is a major issue in my district and in the State of Hawaii as it relates to water and clean water. And that is our cesspools, and our very disturbing state of our water treatment facilities throughout the State of Hawaii. I think Hawaii, in many cases, can be viewed as the best example in a developed nation which has one of the worst sewage disposal and contamination problems that exist that affect our freshwater supply, our streams, and our nearshore environments.

And I appreciate the testimony of the testifiers today. It has a lot of great information here for me to take back to my district. In Hawaii, Chair, we have about 88,000 cesspools that still exist throughout the State. They discharge about 53 million gallons daily of raw, untreated sewage into the groundwater that ends up in our freshwater supply, our streams, our nearshore marine environments. We have AOCs from the EPA throughout Hawaii. We violate the Safe Drinking Water Act, the EPA's requirement to, I guess, get rid of large-capacity cesspools since 2005 that have been in existence in Hawaii. And it is a dire situation that we have.

So I am here to learn about what we can do in Hawaii to address this, and my question is to Ms. Hammer regarding your testimony. There is tremendous opportunity in this Congress to address America's infrastructure, including the needs of our wastewater.

As I just described, Hawaii has great wastewater needs, and we lead the country in the number of cesspools that exist throughout the Hawaiian Islands. In addition, we have wastewater treatment facilities that have not been maintained, and it is facing a crisis.

Can you talk a little bit about how, in Hawaii, we can address these problems, especially in rural communities like the Second Congressional District that do not have the ability to connect to sewer lines, or local geology like a shallow water table near coastal areas, like you mentioned earlier, make it difficult to upgrade?

Ms. HAMMER. Thank you for the question. Unfortunately, Hawaii is not the only place in this country where access to sanitation is a dire issue. We have also seen serious problems in Tribal communities in the Southwest, as well as communities in the Black Belt of Alabama.

There are technical solutions that are being developed. I would refer you to the work of Catherine Flowers, who is a true champion on this issue.

In terms of policy solutions, these are the kinds of problems that we see in rural areas, low-income areas that traditionally do not have the rate base to take out a traditional Clean Water SRF loan that they would then have to repay. It is very difficult for them for many reasons, which is one reason why it is so important to bring more additional subsidization and grants into the SRF program, so that we don't have a two-tier sanitation system in this country, where wealthy communities have functional infrastructure and small, rural, disadvantaged communities have cesspools that are failing.

So that would be my primary recommendation, is to make sure that more grant funding is available.

Mr. KAHELE. Thank you, that is something I will try and push for in this Congress.

With the remaining use of my time, Mr. Colson, my congressional district comprises eight of the main Hawaiian Islands, many, many small communities, former plantation communities. How can we make the Clean Water State Revolving Fund more flexible for small communities in my district?

Mr. COLSON. Thank you for that question. I think it is important to recognize the impact of Federal mandates on these small communities and in the SRFs to ensure that we can meet the needs of those small communities, and one of the aspects is technical assistance to ensure that they are able to, not just get the water infrastructure funded, but also to maintain and operate it, and to build the rates that they need to renew that infrastructure when it has reached its useful life.

Mr. KAHELE. Thank you, Chair.

Mrs. NAPOLITANO. Thank you, Mr. Kahele. That wraps up all the witness testimony.

[Pause.]

Mrs. NAPOLITANO. I am sorry, I have a problem, but I wanted to comment on a few things.

First of all, education of the public about what you are doing, and having them aware of how important it is that you are successful in getting funded, not only from the [inaudible] on things that you are talking about.

I understand that today California may be in drought again. So the Governor is going to make a statement, I understand. The Bureau of Reclamation is saying the 24-month projection of the Colorado River is dire. So we are in need of recycled water continuing to grow and help our agencies.

But I miss Earth Day. Mr. Ferrante; 2 years now we haven't had Earth Day, so I miss it.

And then maybe there might be some help for Mr. Kahele from you, into what lessons you have learned, what you can do.

But I really thank everybody.

I ask unanimous consent that the record of today's hearing remain open until such a time as all our witnesses have provided answers to any questions that may have been submitted to them in writing.

I also ask unanimous consent that the record remain open for 15 days for additional comments and information submitted by Members or witnesses to be included in the record of today's hearing.

And without objection, so ordered.

I would like to thank all our witnesses again for your helpful and informative testimony today, and I want to thank staff for all their help.

If no other Members have anything to add, the committee stands adjourned. Stay safe, everybody, and thank you very much.

[Whereupon, at 1:24 p.m., the subcommittee was adjourned.]

## SUBMISSIONS FOR THE RECORD

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### **Prepared Statement of Hon. Sam Graves, a Representative in Congress from the State of Missouri, and Ranking Member, Committee on Transportation and Infrastructure**

Thank you, Chair Napolitano and Ranking Member Rouzer, for holding this hearing, and thank you to our witnesses for being here.

Communities continue to face shifting challenges and increasing costs related to wastewater infrastructure.

To address this, they may look to incorporate water conservation and energy efficiency practices to reduce energy costs at wastewater treatment plants.

We will also discuss the challenges communities face in responding to extreme weather events and how wastewater facilities can improve their resiliency to endure such events and maintain their critical operations.

I understand these challenges well. In my home state of Missouri, we experienced devastating floods in 2019—dangers that continue to threaten many of the same areas.

However, as we discuss policies to address these challenges, it is important to keep in mind that small and rural communities may face differing sets of circumstances and have difficulties implementing programs that work well in urban areas. So, flexibility in programs, permitting, and meeting regulatory requirements is important.

I look forward to hearing more from our panel of experts here today about these issues and solutions that can address the unique needs of different communities.

I yield back.

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### **Prepared Statement of Hon. Eddie Bernice Johnson, a Representative in Congress from the State of Texas**

Thank you, Chairwoman Napolitano for holding today's hearing to continue our engagement in an in-depth exploration of the potential policies and practices that would allow our nation to increase the resiliency and sustainability of our wastewater utilities. Investing more substantially in our wastewater infrastructure system would also provide a vehicle for our nation to more easily meet the requirements of the Clean Water Act. I would like to thank our outstanding witnesses for testifying today, and my colleagues on the Water Resources and Environment Subcommittee for working to address the critical issues before us. Beyond a doubt, all Americans need to have access to clean water, and making substantive improvements to our nation's wastewater systems would benefit not only our nation's need for clean water but also provide tremendous environmental benefits to our planet overall.

Certainly, the need to improve our wastewater treatment systems and stormwater infrastructure is clearly an urgent one. Indeed, as evidenced by the American Society of Civil Engineers 2021 Report Card for America's Infrastructure, the grade for wastewater treatment infrastructure has remained at a D+ for the last four years, while the new category of stormwater infrastructure has received a grade of D.

Moreover, according to the most recent needs survey from the U.S. Environmental Protection Agency conducted nearly 10 years ago, communities nationwide have documented at least \$271 billion of investment over the next 20 years to bring their systems to a state of good repair. However, although these figures and environmental evaluation appear discouraging, we know that we have an opportunity to make significant improvements to our wastewater systems, and thereby augment our energy efficiency. One item that I believe needs to be incorporated into a model for improving our wastewater systems is to adopt renewable energy technologies.

These “green” technologies are indispensable to our nation’s effort to increase efficiency while simultaneously decreasing energy costs and environmental footprint.

In the Dallas-Ft. Worth area, local governments are making major investments in critical wastewater and stormwater infrastructure. Over the next two years the city of Dallas will invest approximately \$270 million on wastewater infrastructure, replacing miles of wastewater pipes and making tens of millions of dollars in upgrades to the city’s two wastewater treatment plants. In addition, the city has embarked on an ambitious \$34 million plan to extend water and wastewater infrastructure to unserved portions of the city, many of which are in my district. The unserved areas program will increase equity across Dallas’ water and wastewater systems and provide service to all residents. And in addition to local efforts to fund this critical infrastructure, we need to ensure that federal dollars are being adequately invested as well.

I want to again thank you, Madam Chair, for holding today’s hearing. I am pleased that our subcommittee is working to increase funding for the Clean Water State Revolving Loan Fund and to reauthorize the WIFIA Loan Program. And I am looking forward to expanding even beyond those proposals and augmenting federal investment in this critical area to serve the water needs not only of my constituents, but of Americans across the United States.

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**Statement of Patricia Sinicropi, Executive Director, WateReuse Association, Submitted for the Record by Hon. Grace F. Napolitano**

Thank you for providing the opportunity to submit written testimony on Sustainable Wastewater Infrastructure: Measures to Promote Resiliency and Climate Adaptation and Mitigation. I submit this testimony today on behalf of the WateReuse Association and its members to highlight the importance of water reuse and recycling in building resiliency and strengthening America’s infrastructure.

WateReuse is a not-for-profit trade association for water utilities, businesses, industrial and commercial enterprises, non-profit organizations, and research entities that advocate for water recycling. WateReuse and its state and regional sections represent nearly 250 water utilities serving over 60 million customers, and over 200 businesses and organizations across the country. The WateReuse Association’s mission is to engage its members in a movement for safe and sustainable water supplies, to promote acceptance and support of recycled water, and to advocate for policies and funding that increase water reuse.

Water reuse, also known as water recycling, is the process of intentionally capturing wastewater, stormwater, saltwater or graywater and cleaning it as needed for a designated beneficial freshwater purpose, such as drinking, industrial processes, irrigation, groundwater replenishment, and watershed restoration. The fundamental principle of water reuse is using the right water for the right purpose, everywhere and all the time. By advancing water reuse, we protect and enhance the environment while helping communities build resilience to climate change.

Across the country, water, wastewater, and stormwater managers have shown that water recycling is often a central feature in innovative, integrated approaches to solving water management challenges, including challenges brought on by climate change. In the West and South, the integration of water recycling has often been driven by water supply challenges and the need for drought-resilient supplies. Elsewhere in the country, in the Pacific Northwest, and in cities such as Chicago, Atlanta, and New York, water recycling has been used to help manage stormwater, address water quality challenges, and relieve overburdened combined sewer-stormwater management systems. Water reuse is also helping communities along our coasts manage sea level rise and saltwater intrusion by replenishing depleted coastal aquifers.

Some important examples of how communities and businesses are turning to water reuse to ensure stronger and more resilient supplies include:

- By 2035, the City of Los Angeles expects to recycle 100% of its water supplies and reduce its reliance on costly imported water from the Colorado River.
- Truckee Meadows Water Authority in Reno is planning 13-mile pipeline to provide 1.3 billion gallons of recycled water annually to the Tahoe-Reno Industrial Center, home to Tesla, Switch and Google, and ensure 20,000 jobs remain in Nevada.
- The Hampton Roads region of Virginia, home to the largest concentration of military and naval installations, plans to recycle 100% of its effluent through an aquifer recovery system to prevent rising sea levels from threatening inundating the entire region.

These are just some of the countless examples of how water recycling is becoming an essential ingredient in efforts to preserve American jobs, businesses and communities as the country adapts and builds resilience to fight climate change.

In order to *promote resiliency and climate adaptation and mitigation*, WateReuse strongly urges Congress to substantially increase investments in each of the following programs in FY 2022, through both the annual appropriations process and through an infrastructure package:

- Pilot Program for Alternative Water Source Grants;
- Title XVI—WIIN Water Reclamation and Reuse Competitive Grants Program;
- Sewer Overflow and Stormwater Reuse Municipal Grants Program; and
- Clean Water State Revolving Fund Program.

Investment in water reuse builds communities that are modern, sustainable and stable—ready for families to flourish and businesses to grow. We urge Congress to act swiftly to provide communities the tools and resources they need to modernize their infrastructure, build resilience, and protect the environment and public health.

Thank you for considering our testimony. Please do not hesitate to reach out the WateReuse Association’s Policy Director, Greg Fogel, at [gfogel@watereuse.org](mailto:gfogel@watereuse.org) with any questions.

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**Letter of May 19, 2021, from Jeffrey Soth, Legislative and Political Director,  
International Union of Operating Engineers, Submitted for the Record by  
Hon. Peter A. DeFazio**

MAY 19, 2021.

Hon. PETER DEFAZIO,  
2134 Rayburn House Office Building,  
Washington, DC 20515.

Hon. SAM GRAVES,  
1135 Longworth House Office Building,  
Washington, DC 20515.

Hon. GRACE F. NAPOLITANO,  
1610 Longworth House Office Building,  
Washington, DC 20515.

Hon. DAVID ROUZER,  
2333 Rayburn House Office Building,  
Washington, DC 20515.

DEAR CHAIRS AND RANKING MEMBERS,

We were deeply disappointed to see the attack on Davis-Bacon prevailing wages launched by the representative of the Council of Infrastructure Financing Authorities at your recent subcommittee hearing on water infrastructure, “Sustainable Wastewater Infrastructure: Measures to Promote Resiliency and Climate Adaptation and Mitigation.” The International Union of Operating Engineers submits the following statement to correct the hearing record and respond to serious errors in testimony submitted by the representative of the Council of Infrastructure Financing Authorities (CIFA).

The International Union of Operating Engineers (IUOE) represents 400,000 working men and women in North America, thousands of whom build and maintain water, wastewater, and other critical infrastructure throughout the United States. Members of the IUOE perform millions of hours of work annually building wastewater systems financed by the Clean Water Act-State Revolving Fund program. Stationary engineers of the IUOE also maintain and operate wastewater systems in private and public settings across the nation. The IUOE is also a longstanding member of the nation’s largest, oldest water-infrastructure advocacy coalition, the Water Infrastructure Network.

#### INTRODUCTION

The Davis-Bacon Act celebrated its 90th anniversary in March, and, unfortunately, the attacks—like the one launched by CIFA on the law—have taken much the same form in that long history. First, CIFA dismisses the impact of the law on blue-collar construction workers’ livelihoods. Prevailing wage, they say, “. . . is not an issue.” Next, they argue that administrative compliance is so burdensome that the ends are hardly justified by the means. According to CIFA, “The problem is the prescriptive paperwork and process required to demonstrate compliance . . .”

Contrary to CIFA’s argument that payment of prevailing wages “is not an issue,” cheating on prevailing wages is rampant. In fiscal year 2017, the United States Department of Labor assisted over 7,780 workers to obtain back wages for violations of federal prevailing wage laws, totaling over \$29 million in recovered wages. In April, the Attorney General of Pennsylvania sued in the “largest prevailing wage criminal case on record—under Pennsylvania prevailing wage law and across the United States under federal law.” Moreover, all these violations were prosecuted in an environment where enforcement has been deprioritized. Between 1975 and 2004, the number of DOL investigators decreased by fourteen percent while the number of businesses covered by FLSA rose by more than 100%. And at the end of January 2021, the Wage and Hour Division’s overall headcount was at 794 investigators, down from more than 1,000 employed during the Obama years. Clearly, prevailing wage is very much “an issue.” Please do not allow CIFA and other opponents of the Davis-Bacon Act to dismiss its importance to the livelihoods of construction workers and the quality of construction owned by the public.

If prevailing wage laws increased labor and administrative costs without having any other effects, the costs would be passed through to governments in the form of higher total project costs. Yet the most thorough review of the literature on the subject concluded that the most “comprehensive studies have found that the impact [of prevailing wage standards] is not statistically significant” on total construction costs. (EPI\_Report.pdf [actvw.org])

#### ADMINISTRATION OF THE DAVIS-BACON ACT

##### *Awarding Agencies*

CIFA provides no evidence to support the position that compliance with prevailing wage laws is “very prescriptive.” Furthermore, the administrative requirements of the Act are critical to the prevention of fraud against government agencies and necessary to ensure that government contractors do not profit by failing to pay the minimum wage—the wage floor—to which construction workers are entitled. It is worth noting that the submission of certified payrolls through the Davis-Bacon Act serves as the only additional protection afforded taxpayers against kickbacks, misclassification, and unauthorized workers on public projects.

The costs of complying with the Davis-Bacon Act are minimal for both awarding agencies and contractors. The “administrative burden” for an awarding agency associated with prevailing-wage compliance is negligible. The steps required of an agency are not a mystery. They are simple and straightforward. They are as follows:

1. Obtain wage rates (beta.SAM.gov/Wage Determinations)
2. Insert legal requirement and wage rates in contracts (requests for proposals, bid documents, and contracts)
3. Condition contracts on the acceptance of requirements
4. Collect certified payroll on payments to workers on a weekly basis
5. Keep certified payroll records for three years

##### *Contractors*

Not only is the administration of prevailing wages straightforward and elementary for an awarding agency, compliance for contractors of the public agency cannot be fairly described as burdensome. In fact, collection of the data required for prevailing-wage compliance is required of all employers, without regard to whether they are a beneficiary of federal construction assistance and required to report on the Davis-Bacon Act. All employers must keep records about the hours their employees work each day, their rate of pay, the deductions from a worker’s wages, payment date, and more. Virtually these same records are required for prevailing wage reports.

Further, different efforts, most notably a DOL rulemaking in 2008, have streamlined the process for complying with the Davis-Bacon Act. For example, during the 2008 rulemaking, the Bush Administration reduced the amount of information contractors are required to submit. The DOL estimates that it might take clerical staff 55 minutes for a first-time filer to complete collection of the required information.

That estimate includes time for reviewing the Department of Labor’s instructions, searching existing data sources, gathering the data needed, and completing and reviewing the collection of information. Again, this estimate includes tasks that a payroll clerk would be required to perform for other obligations under federal law, most notably IRS and overtime requirements. The Bush Administration’s Department of Labor found that commenters “did not believe that the current process was a public burden or endangered worker privacy.”

## ANALYSES OF COMPLIANCE AND TOTAL CONSTRUCTION COSTS

Two state-based studies shed light on the question of compliance costs, and they both provide evidence to support the contention that costs are negligible. In fact, in many cases the marginal administrative costs associated with prevailing wage compliance are more than offset by the economic benefits associated with the law.

In 2015, the Wisconsin Legislative Fiscal Bureau estimated that the administrative costs associated with the state's prevailing wage law amounted to \$358,000 and 4 full-time equivalent jobs (Horton, 2015). This amounts to an "administrative burden" of 15 cents per household in Wisconsin.<sup>1</sup> However, between July 1, 2013 and June 30, 2015, the Division of Equal Rights staff resolved 299 construction wage complaints and recovered over \$4.03 million in unpaid wages for workers—or \$2 million per year, a return on investment of \$5.63 per dollar spent on administrative costs (DWD, 2015).<sup>2</sup> Furthermore, the nonpartisan budget office determined that, if Wisconsin repealed its prevailing wage law, the workload of staff conducting prevailing wage investigations and ensuring compliance would be "absorbed to meet other required duties."

Furthermore, a 2013 fiscal and policy note from the Maryland Department of Legislative Services found that the prevailing wage caseload in Maryland could be handled "with existing enforcement resources." The Maryland Department of Labor, Licensing, and Regulation did not need to hire additional staff to administer prevailing wage standards on school construction projects, even when the volume of projects increased (MD DLS, 2013). This suggests that prevailing wage standards do not impose a significant administrative cost burden beyond the usual enforcement and compliance requirements associated with state and local government.

If CIFA's argument was accurate, then the regulatory burdens and paperwork requirements associated with Davis-Bacon would discourage contractors from bidding on public construction projects. However, of the 18 peer-reviewed academic studies on prevailing wage laws since 2000, 15 find that they have no effect on the total costs of traditional public works construction projects, such as roads, schools, municipal buildings, and clean water and sewer projects (Stepick & Manzo, 2021).

In addition, there have been four peer-reviewed studies since 2012 that empirically examine the effect of prevailing wage standards on the overall level of bid competition. All four of these studies, which collectively evaluate data on more than 2,000 bid proposals, find that prevailing wage standards do not reduce the number of bidders on public construction projects (Stepick & Manzo, 2021). In fact, "the cost-reducing effect of increased bid competition is stronger on projects covered by the prevailing wage policy" (Onsarigo et al., 2020).

## CONCLUSION

The Davis-Bacon Act continues to play a key role in the lives and livelihoods of America's construction workers. Representative Fiorello LaGuardia (R-NY), on the House floor in 1931 as the body passed the Davis-Bacon Act, said, "... all that the bill does ... is to protect the Government as well as the workers, in carrying out the policy of paying decent wages on Government contracts."

In conclusion, the administrative costs to comply with the Davis-Bacon Act are minimal, required by other workplace laws, and have actually been reduced since the advent of electronic recordkeeping. Further, these reporting requirements are central to the law, safeguarding the wages and benefits of construction workers and protecting the public from corruption and fraud.

Please do not hesitate to reach out to the International Union of Operating Engineers should you need technical assistance on the nation's 90-year labor standard for federally assisted construction, the Davis-Bacon Act.

Thank you for your consideration.

Sincerely,

JEFFREY SOTH,

*Legislative and Political Director, International Union of Operating Engineers.*

<sup>1</sup>There are 2.36 million households in Wisconsin (Census, 2021). \$358,000 divided by 2,358,156 households is 15 cents per household.

<sup>2</sup>\$4.03 million in construction wages recovered over two years divided by \$358,000 in administrative costs over two years equals \$5.63 in recovered wages per dollar spent administering the law.

**Letter of May 20, 2021, from Sean McGarvey, President, North America's Building Trades Unions, Submitted for the Record by Hon. Peter A. DeFazio**

MAY 20, 2021.

Hon. PETER DEFAZIO,  
*Chairman,*  
*Committee on Transportation and Infrastructure, U.S. House of Representatives,*  
*Washington, DC 20515.*

Hon. SAM GRAVES,  
*Ranking Member,*  
*Committee on Transportation and Infrastructure, Washington, DC 20515.*

DEAR CHAIRMAN DEFAZIO AND RANKING MEMBER GRAVES:

During the April 21st Subcommittee on Water Resources and the Environment hearing, "Sustainable Wastewater Infrastructure: Measures to Promote Resiliency and Climate Adaptation and Mitigation," testimony submitted to the Subcommittee levied several attacks against the integrity of the Davis-Bacon Act, displaying a clear misunderstanding of the intent of a law that enjoys clear, broad, bipartisan support among the Members of the Transportation and Infrastructure Committee, as well as the full House. On behalf of the over 3 million skilled craft professionals that comprise North America's Building Trades Unions (NABTU), I write to strongly reject the claims unfortunately placed before the Subcommittee, which amounted to nothing more than baseless attacks on a framework designed for the protection of construction workers and their families.

As you know, the Copeland Act, 40 U.S.C. §3145, helps enforce the Davis-Bacon Act by requiring contractors on covered projects to submit weekly certified payroll reports (CPR) to the government to ensure compliance with prevailing wage requirements. Such reporting and monitoring on the part of the contracting agencies is critical because the Davis-Bacon Act does not give construction workers the right to sue in court to recover unpaid wages. Any erosion of this mechanism is an erosion of the wages and benefits of blue-collar workers in the construction industry. For this reason, the Committee must reject the recommendation of the Council on Infrastructure Financing Authority (CIFA) to eliminate such vital safeguards.

In the testimony submitted to the Subcommittee, a CIFA representative urged members to do away with federal reporting requirements on projects assisted with State Revolving Loan funds because Davis-Bacon compliance "is not an issue." This claim describes a world where every single contractor plays by the rules. We unfortunately know this is not true, no matter how strong our desire for it to be true is.

Data from the U.S. Department of Labor's Wage and Hour Division (WHD) shows that construction is a "high-violation" industry. GAO-21-13 at 17 (Dec. 2020). The misclassification of workers as independent contractors and craft misclassification on federally assisted construction projects is rampant. In fact, five days after the testimony, WHD recovered \$500,851 in back wages and benefits for sixty-eight workers who were short-changed by subcontractors on federally assisted construction projects. Not long after that, a group of construction workers performing work on the U.S. Department of Education Building won a settlement award of \$250,000 that included back pay and damages. Two days before the hearing, WHD recovered \$91,116 in back wages and benefits for seventy-nine workers who were paid less than what they were legally required to be paid under prevailing wage laws. These examples, in just the second half of April 2021, are but three of countless examples our members can point to where the payment of prevailing wages was indeed "an issue."

The CIFA representative also argued that the process of preparing and submitting certified payroll reports is overly burdensome, and that the burden is even greater for contractors who operate in states with state prevailing wage laws. Considering the advances in technology since the enactment of the Copeland Act in 1934, not only is the submission of CPRs critical, but it is a rather simple and straightforward process typically managed through payroll software. And the data collected in CPRs is not much different than the data responsible contractors already collect for their daily logs. It is important to note here that the 27 state prevailing wage laws currently in effect vary a great deal with respect to scope of coverage and, contrary to CIFA's suggestion, such laws will not automatically apply to federally assisted projects. For example, Maryland and Colorado's state prevailing wage laws do not apply to contracts for construction that receive federal funding or that are otherwise covered by the Davis-Bacon Act. *See, e.g.,* Colo. Rev. Stat. § 24-92-201 *et seq.*; MD Code State Fin. & Proc. § 17-202(b)(2).

The Copeland Act's reporting requirements work as a deterrent against dishonest contractors because CPRs can serve as the basis for federal prosecution. Section 3145(b) of the Act provides that falsification of a certified payroll may amount to a criminal violation under 18 U.S.C. §1001, that can result in a fine, up to 5 years in prison, or both. The falsification of payrolls can also be grounds for a lawsuit under the False Claims Act, 31 U.S.C. § 3730. Accordingly, reporting requirements protect construction workers on federal and federally assisted projects, as well as the taxpayer from instances of fraud and abuse.

While the hearing did address many important questions, our members simply cannot allow misleading claims and attacks against a foundational standard to go unanswered. A strong, bipartisan majority of the Committee understand the importance of the Davis-Bacon Act to construction workers across the nation. As you move forward in crafting a bold, broad, and robust infrastructure package, I look forward to working with you and other strong supporters of Davis-Bacon on the Committee to ensure the consistent application of prevailing wage standards.

Sincerely,

SEAN MCGARVEY,  
*President, North America's Building Trades Unions.*



## APPENDIX

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### QUESTIONS FROM HON. DAVID ROUZER TO DEIRDRE FINN, EXECUTIVE DIRECTOR, COUNCIL OF INFRASTRUCTURE FINANCING AUTHORITIES

*Question 1.* Rebecca Hammer, in her written testimony for the hearing, testified that “The Council of Infrastructure Financing Authorities’ SRF Project Pipeline identifies over \$47 billion in specific clean water infrastructure projects across the country that could be commenced within the next two to three years if funding is provided.” Please explain how CIFA came up with that number.

*ANSWER.* CIFA has identified an estimated \$47 billion in potential clean water infrastructure projects along the continuum of project development, from defining the need to design and engineering to groundbreaking. Not all of the projects are ready to “commence” or proceed to construction within the next two to three years.

In anticipation of potential stimulus funding in the aftermath of the coronavirus pandemic, CIFA developed the S.A.F.E. Water Infrastructure Action Plan, an advocacy initiative to Save, Accelerate, Fill and Expedite water infrastructure projects through the Clean Water and Drinking Water SRF Project Pipelines. Below is an excerpt from the Action Plan explaining the development and scope of the SRF Project Pipelines.

“SRFs used a variety of tools to develop their S.A.F.E. SRF Project Pipeline, including current year plans and project lists, multi-year plans and project lists (up to five years), a survey of utilities for new projects, increased funding for current projects, and the addition of other known projects, such as projects that applied but didn’t receive funding, projects on planning lists, and projects in utilities’ capital improvement plans.

The SRF Project Pipeline has some “shovel-ready” projects but doesn’t focus exclusively on projects that are ready for construction. Because the coronavirus may cause periodic, localized economic shutdowns over the next several years, the S.A.F.E. Water Infrastructure Action Plan focuses on projects along the entire spectrum of water infrastructure, from concept to construction. Allowing funding to be invested over the next two to three years will provide potential borrowers with the confidence to increase investment in water infrastructure, even during the uncertain times that lie ahead.”

*Question 2.* Rebecca Hammer, in her written testimony for the hearing, testified that “For its first two decades, the [Clean Water State Revolving Fund (CWSRF)] did not fund many green infrastructure projects.” Why is that?

*ANSWER.* The U.S. Environmental Protection Agency (EPA) didn’t start reporting data on green projects in the National Information Management System (NIMS) until the federal mandate for the Green Project Reserve was established in 2009. Before then, it’s likely that green projects, such as water and energy efficiency projects, were classified as grey infrastructure.

Additionally, the U.S. Environmental Protection Agency (EPA) required SRFs to develop a business case to make the case for eligibility of some potential green projects. As a result, eligibility for the Green Project Reserve has evolved since 2009 and some projects eligible today may not have been captured in early reporting.

To determine a more accurate accounting of SRF funding for green projects, nearly 24,000 loan agreements executed prior to 2009 would have to be reviewed and potentially reclassified. Given changes in eligibility for the Green Project Reserve over the last decade, loans executed since 2009 may also need to be reviewed to ensure all green projects are captured.

However, CIFA believes it is more important to focus on the last decade rather than the first two decades, particularly more recent trends which indicate significant and sustained growth in funding for green projects.

According to the Clean Water Benefits Reporting System (CBR) as reported in National Information Management System (NIMS), SRFs invested \$1.61 billion in green projects in 2020, up from \$66 million in 2009 when EPA first started meas-

uring investment for green projects. In total, SRFs have funded more than \$8.6 billion in green projects since 2009.

Growth in some project categories is especially significant. Before 2009, the SRFs funded 100 water reuse projects; since 2009, SRFs funded 250 water reuse projects, an increase of 250%. Of the 301 loans closed for stormwater projects since 2017, 141 or 47% were green stormwater projects, accounting for 43% of funding for stormwater during the same timeframe.

CIFA believes funding for green projects will continue to grow based on continued education about the benefits of green projects and the evolving priorities of states and communities.

*Question 3.* Rebecca Hammer, in her written testimony for the hearing, said “Green infrastructure has received less CWSRF investment than other Green Project Reserve (GPR) categories, despite the fact that green stormwater projects have been found to have ‘the most secondary benefits’ of all GPR project types.” Please explain why this is the case.

*ANSWER.* According to NIMS, SRFs closed more loans for green infrastructure projects than for energy or water efficiency projects in 2020 (33 green infrastructure projects, 29 energy efficiency projects and 29 water efficiency projects). That same year, SRFs provided more than \$1.61 billion for green projects, including 32% for energy conservation, 30% for environmentally innovative projects, 26% for green infrastructure, and 10% for water efficiency.

Decisions about investment in water infrastructure are impacted by multiple factors, including the responsible party, financial eligibility, and cost of operations and maintenance as well as primary and secondary environmental benefits. Generally, the determining factors for green infrastructure projects are more complex than for energy and water efficiency and environmentally innovative projects.

**Responsible party.** Water and energy efficiency projects are typically infrastructure improvement projects for wastewater or reuse treatment facilities and conveyance systems, all of which are managed by a utility.

Conversely, green infrastructure projects are more likely to be built throughout a community and various units of local government may be responsible for managing the infrastructure. Roads departments are more likely to be responsible for installing permeable pavements and bioswales (vegetative ditches used to channel and filter stormwater). Facilities departments are more likely to be responsible for installing green roofs and cisterns in publicly owned buildings, such as libraries and courthouses, which offer limited opportunity. Parks departments are more likely to be responsible for building rain gardens in publicly owned open spaces and recreation areas.

**Financial eligibility.** To qualify for an SRF loan, a borrower must identify a dedicated source of revenue to repay the loan. Wastewater, water reuse and stormwater utilities have a revenue stream of user fees to repay SRF loans.

Conversely, identifying a dedicated source of revenue for green infrastructure projects can be more challenging, particularly in communities without a stormwater utility. In those communities, green infrastructure projects must often compete with other community priorities and projects for local funding.

**The cost of operations and maintenance.** Water and energy efficiency projects can reduce the cost of operations, which provides a financial incentive for infrastructure investment. Often, energy conservation projects pay for themselves, which allows utilities to maintain affordable user rates. Water reuse projects can also meet growing demand, reducing the demands on potable water which can also help to maintain affordable rates.

Conversely, green infrastructure projects, which require routine maintenance to maintain their effectiveness, can actually increase the cost of operations and maintenance. As noted by Kevin Robert Perry, witness representing The American Society of Landscape Architects, “it’s really the maintenance end where you see a lot of communities very nervous about implementing green infrastructure at the wide scale.”

Congress should consider a broader measure of investment in green projects, including investments by private sector entities which are not eligible for funding under the Clean Water SRF.

*Question 4.* Rebecca Hammer, in her written testimony for the hearing, said that “states often fail to meet the [Green Project Reserve (GPR)] requirement.” Please explain why this is the case.

*ANSWER.* Since 2009, Congress has provided \$21.3 billion in federal funding to the Clean Water SRF. During the same timeframe, SRFs have funded \$8.6 billion in green projects, 40% of total federal funding.

Meeting the requirement for the Green Project Reserve is based solely on the number of eligible loans closed within each fiscal year. This restrictive, short-term measure captures a snapshot in time but doesn't provide a complete and comprehensive representation of SRFs' funding of green projects.

Alternatively, if compliance was based on cumulative funding of green projects since the Green Project Reserve was established, all states exceed the requirement, many by more than double. (See state-by-state chart in question 10.) Measuring compliance over multiple years would also incentivize large, transformational green projects that take time to develop and years to construct.

The ability to close loans for eligible green projects can vary significantly from year-to-year based on a variety of factors, many of which are outside the control of the SRFs. For example, three SRFs, mentioned in the written testimony, didn't meet their Green Project Reserve for various, valid reasons.

- Despite a record number of applications, the Oregon SRF didn't close any loans on eligible applications because the green projects weren't ready to proceed to construction within the fiscal year. The expectation is that these projects will move forward in future years.
- The Florida SRF received both their 2019 and 2020 capitalization grants in fiscal year 2020, which doubled the federal mandate within one fiscal year. According to their Annual Report, "Because the 2019 capitalization grant was received in FY 2020, the requirements for the 2019 grant were to be met in FY 2020. Because sufficient projects to meet the green requirement were not submitted during the fiscal year, this requirement was not met. Additional green projects will be solicited in FY 2021 and we anticipate this shortfall will be made up in FY 2021."
- According to the Missouri SRF Annual Report, "The two projects that were identified as GPR on the 2019 IUP did not close due to project delays. Once these projects close, the GPR requirements for FFY 2018, 2019, 2020 capitalization grants will be met. With FFY 2021 IUP, the Department will increase utilization of the Green Project Reserve by offering Water Quality Incentive Grants for green infrastructure."

*Question 5.* Rebecca Hammer, in her written testimony for the hearing, said that "Congress should require [the Environmental Protection Agency (EPA)] to adopt regulations implementing the provision of the Water Resources Reform and Development Act (WRRDA) of 2014 directing CWSRF recipients to maximize water and energy conservation in all projects." What would be the effects of such a requirement?

*ANSWER.* According to a survey of SRFs, the cumulative impact of federal requirements is the biggest impediment to increasing investment in water infrastructure. More prescriptive regulation will only exacerbate the current inefficiency and ineffectiveness of one-size-fits-all federal mandates.

For example, the current Water and Energy Conservation Certification, enacted in 2014, requires all SRF loan recipients to evaluate the cost to build, maintain and replace the project and select the "project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation." While well-intended, this certification is simply not applicable to many projects funded by the Clean Water SRFs.

- Water conservation, which is intended to reduce consumption of drinking water, is largely impractical for clean water infrastructure whose primary purpose is to collect and clean wastewater and stormwater runoff.
- Energy conservation is impossible to achieve in many clean water projects, such as replacing pipes, restoring wetlands, and rebuilding sewer systems that use gravity, not man-made power.
- Conversely, many communities pursue clean water projects with the singular purpose of water reuse and energy conservation. Requiring a water and energy efficiency certification is required but unwarranted for these projects, which are specifically designed to achieve, and even exceed, the fundamental goal of the federal mandate.

Developing prescriptive regulation for one-size-fits-all federal mandates will increase the cost of water infrastructure, especially for small, rural and disadvantaged communities which are the vast majority of borrowers of the Clean Water SRFs.

*Question 6.* While resiliency and sustainability practices and technologies may benefit some communities, it is essential these initiatives do not take a "one-size fits all" mandated approach. Some communities, especially small and rural communities, may not have the means or the need to utilize these practices in their communities. What can be done to ensure that small and rural communities are provided flexibility in implementing resiliency and sustainability practices and technologies, as appropriate, in their communities?

*ANSWER.* Recognizing the needs, challenges and limitations of small communities is essential to developing a realistic, relevant and sustainable plan to build resiliency, including environmental, professional and financial resiliency.

The vast majority of Clean Water SRF borrowers are small, rural and disadvantaged communities whose priority is providing basic, affordable wastewater and stormwater services. In 2020, Clean Water SRFs closed 1,601 subsidized loans; nearly two-thirds of those loans (1,056 or 66%) went to communities with a population of 10,000 or fewer and more than half of those loans (862 or 54%) went to communities with fewer than 3,500 people.

One-size-fits-all federal mandates set unrealistic expectations for these small communities. The vast majority of projects in small communities are pipe replacement and minor rehabilitation projects, most of which offer extremely limited opportunities for increasing water and energy efficiency. Many of these small communities don't have full-time professional staff to manage their utility, let alone adopt the federal procurement process to hire an engineering firm or implement a complex, long-term environmental resiliency and fiscal sustainability plan.

Clean Water SRFs provide significant support to small borrowers, from pre-planning through loan close-out. Relief from one-size-fits-all mandates would allow SRFs to customize support for small communities to foster resiliency, including environmental, professional and financial resiliency.

*Question 7.* Are more water infrastructure projects being built today under the CWSRF program that may never have been able to be built if the program was established as a Federal grant program instead of a revolving loan program? Please explain.

*ANSWER.* The Clean Water State Revolving Funds are a national model for infrastructure investment. Federal funding is used to capitalize the loan programs, creating a permanent, recurring, resilient source of revenue for water infrastructure projects.

Grants are one-time; loans are forever. While federal funding for grants is used only once, federal funding for loans is used over-and-over again, providing a protected and sustainable source of funding for future water infrastructure projects in perpetuity.

Early capitalization grants for the Clean Water SRFs have been recycled at least once and used to build projects that may never have been built if federal funds were used for one-time grants. Since the program was created, Congress has provided \$47 billion in federal funds to capitalize the Clean Water SRFs. Today, nearly \$60 billion of state and federal funding remains revolving in the program—\$13 billion more than three decades of federal funding.

*Question 8.* Only some states leverage their existing state revolving fund (SRF) programs. How can Congress incentivize states to better leverage Federal SRF funds and invest more state dollars in water infrastructure?

*ANSWER.* It's important to note that decisions to leverage the SRFs may be made by the Governor, the Legislature or other state office or official, not the SRFs.

Eliminating the requirement to provide state match for federally mandated additional subsidy may incentivize leveraging. Currently, SRFs that leverage must borrow funds to match federal funding that they are then required to provide as grants and grant-equivalents. Because loan repayments are used to repay bonds, requiring state match for mandated additional subsidy is a disincentive for leveraging.

Eliminating federal mandates on state funds may incentivize greater contributions of state funds, including through leveraging. Currently, these federal mandates apply to projects funded exclusively with state funds, increasing the cost of water infrastructure projects:

- Davis Bacon, which requires mechanics and laborers to be paid the federal prevailing wage and has very prescriptive compliance requirements.
- American Iron and Steel, which requires projects funded by the SRFs to use iron and steel from U.S. manufacturers.
- Water and Energy Efficiency Certification, which requires all borrowers to certify that they evaluated the cost to build, maintain and replace the project and selected the "project or activity that maximizes the potential for efficient water use, reuse, recapture, and conservation, and energy conservation."
- Fiscal Sustainability Plan, which requires borrowers who are building treatment works to certify that they have a financial plan to maintain assets funded by the Clean Water SRF loan.

*Question 9.* In what ways have Federal mandates, particularly on SRF loan recipients, and continued federalization of the CWSRF had the unintended consequence of diminishing the program's ability to efficiently and effectively respond to the

needs of local communities, complicating the program, and dissuading greater investment in water infrastructure? What improvements would help local communities respond more efficiently and effectively?

*ANSWER.* Federal mandates increase the administrative cost of water infrastructure for all communities, requiring many small borrowers to increase their loan amounts to ensure adequate funding for compliance.

In many cases, federal mandates are duplicative of state law. For example, the federal mandate for Davis Bacon, which requires SRF borrowers to pay the federal prevailing wages to mechanics and laborers, is duplicative of state prevailing wage laws in 26 states and the District of Columbia. Paying the federal wage is not the problem because many contractors must pay more than the federally mandated wages to attract skilled workers, particularly in communities with robust economies and tight job markets. The primary issue is the very prescriptive paperwork and processes to demonstrate compliance with Davis Bacon. In states with state prevailing wage laws, compliance is double the work without any known benefit to workers.

In other instances, federal mandates conflict with state law. For example, the Massachusetts Clean Water SRF no longer funds engineering services with federal funds because of the federal mandate requiring the use of the federal procurement process for these services. Instead, the Massachusetts SRF issues two loans—one funded by state money for engineering and one funded by federal funds for construction. In other states, borrowers simply don't pursue funding for engineering from the Clean Water SRF because of the federal mandate for procurement of engineering services.

Increased federalization of the Clean Water SRFs also erodes the creative problem-solving needed to address today's complex water challenges. The Clean Water SRFs became one of the most effective programs for infrastructure investment because states could customize their programs to meet the needs and priorities of their communities. One-size-fits-all mandates diminish the flexibility and adaptability that made the Clean Water SRFs so effective.

Additionally, more SRF staff must be dedicated to ensuring compliance with federal mandates, leaving fewer resources to support the development of new water infrastructure projects.

*Question 10.* Do small and medium communities have the professional staff to comply with the myriad of Federal SRF mandates? What can be done about this?

*ANSWER.* Small communities with a population of fewer than 10,000 often don't have a full-time professional staff to manage capital projects. Often, these communities must hire staff or contract with consultants to ensure compliance with the increase in federal mandates, adding to the administrative cost of water infrastructure on communities that can least afford it.

Communities with populations of 10,000 to 100,000 are more likely to have professional staff to manage a capital project. However, smaller communities within this range can also struggle with attracting and retaining professional staff, including directors, operators, accountants and customer service staff.

Restoring flexibility within the Clean Water SRFs to determine loan requirements, instead of one-size-fits-all federal mandates, will ensure small and medium communities are considering the financial and environmental factors that are most appropriate for their water infrastructure projects.

*Question 11.* You noted in your written testimony that some SRFs have expressed concern about their ability to meet the 20 percent state match requirement if funding is increased five-fold within one year. Can you explain why this match requirement could be a problem?

*ANSWER.* Clean Water SRFs provide state match in a variety of ways. Depending on a state's economic recovery from the coronavirus pandemic, states that rely on annual appropriations may have a challenge matching significant increases in appropriations. Mandated additional subsidy may also pose a challenge for SRFs that use bond proceeds for state match, because loan repayments are needed to repay bonds.

States, such as California, have issued short-term debt, which must be repaid with interest earnings from loans, to generate state match. Given the extremely low interest rate environment experienced in recent years, loan prepayments, combined with a generous policy of additional subsidy, interest earnings have been impacted. California has also issued loans with a local match component to generate state match. Unfortunately, also due to the very low interest rate environment, borrowers have not been willing to participate in the local match portion of the SRF program.

*Question 12.* You noted in your written testimony that other SRFs have expressed concerns about the ability to fund the best projects, if timelines remain the same or are shortened, as they were with the American Recovery and Reinvestment Act of 2009. Please explain.

*ANSWER.* The American Recovery and Reinvestment Act of 2009 (ARRA) required SRFs to close loans on “shovel ready” construction projects within 18 months or lose funding.

Typically, SRFs have two years to apply for the annual capitalization grant and five years to spend the funding. Under ARRA, the use-it-or-lose-it condition, combined with a shortened timeframe, created a rush to close loans that favored larger infrastructure projects. The restriction to fund only “shovel-ready” projects also displaced other projects throughout the SRF Project Pipeline, allowing some projects to “jump the line” for funding. The combination of these federal mandates, while well-intentioned, upended the SRFs’ proven process for determining priorities for funding water infrastructure projects.

*Question 13.* You noted in your written testimony that the Federal mandate requiring SRF loan applicants to demonstrate compliance with Federal prevailing wage laws is very prescriptive, and creates a significant compliance and paperwork burden, without providing any additional financial benefit for workers. Would you explain how allowing compliance with equivalent state laws in lieu of Federal compliance procedures could alleviate state burdens while maintaining fair wages for workers?

*ANSWER.* Under federal law, borrowers of the Clean Water SRFs, including loans fully funded by state monies, are required to pay the federal prevailing wage to mechanics and laborers for the job classification in the county of the construction project, known most commonly as Davis Bacon. The SRFs, borrowers, contractors and subcontractors must perform prescriptive paperwork and processes to demonstrate compliance with the federal mandate. Borrowers, contractors and subcontractors in 26 states and the District of Columbia must also demonstrate compliance with state prevailing wage laws, in addition to federal law.

Paying the federal wage rate is not the primary issue. For the vast majority of projects, contractors and subcontractors must pay workers more than the federal prevailing wage rate to attract skilled workers, particularly in communities with robust economies and competitive job markets. The most common complaint is the very prescriptive federal procedures and paperwork required by the U.S. Department of Labor (DOL) to demonstrate compliance with Davis Bacon.

Below are a few examples from EPA’s 2017 Guide for SRF Compliance with Davis Bacon:

- Loan recipients must collect weekly payroll reports from contractors and subcontractors.
- Loan recipients must review evidence of fringe benefit contributions claimed by contractors and subcontractors.
- Loan recipients must interview construction workers to confirm the correct wages were paid.
- If a wage for a particular job in a particular county isn’t published, contractors must request a wage determination from DOL, a process called conformance, which can take up to 30 days.
- Contractors may be disqualified for having an inaccurate federal prevailing wage, even if the wage changed during the bid period.
- SRFs must conduct inspections and spot-check payroll reports collected by loan recipients.

CIFA has three specific recommendations to reduce paperwork and process while maintaining prevailing wages for workers.

- The DOL could adopt state prevailing wages for heavy construction (majority of water projects), which they routinely do for highway construction.
- The DOL could consider compliance with state prevailing wage laws as demonstration of compliance with Davis Bacon, eliminating the duplication of paperwork and process.
- EPA could allow States to develop compliance procedures to demonstrate compliance with Davis Bacon, just like States have done for environmental compliance since the programs were established. States develop the State Environmental Review Process (SERP) to comply with National Environmental Policy Act (NEPA).

*Question 14.* The use of green infrastructure is becoming much more accepted on a widespread basis today as compared with five or ten years ago. Is there really a need for a “green” set-aside mandate with the Clean Water SRF today?

ANSWER. Funding for green projects will continue to grow, with or without the federal mandate, because these projects are state and local priorities.

As noted previously, 40% of federal funding since 2009 has been spent on green projects eligible under the Green Project Reserve. As evidence that a mandate isn't necessary, the Drinking Water SRF, which doesn't have a mandate, used 14% of their federal funds since 2009 on eligible green projects.

### Green Project Reserve for the Clean Water SRF

| State          | Federal Funding since 2008 | Spending on Green Projects | %    |
|----------------|----------------------------|----------------------------|------|
| Alabama        | \$ 235,958,500             | \$ 43,808,913              | 19%  |
| Alaska         | \$ 126,121,800             | \$ 26,861,443              | 21%  |
| Arizona        | \$ 142,447,100             | \$ 40,476,351              | 28%  |
| Arkansas       | \$ 137,939,900             | \$ 198,723,531             | 144% |
| California     | \$ 1,509,112,307           | \$ 2,051,670,442           | 136% |
| Colorado       | \$ 169,344,400             | \$ 46,288,996              | 27%  |
| Connecticut    | \$ 258,521,800             | \$ 35,649,893              | 14%  |
| Delaware       | \$ 103,252,400             | \$ 100,514,706             | 97%  |
| Florida        | \$ 715,349,493             | \$ 236,163,068             | 33%  |
| Georgia        | \$ 374,964,216             | \$ 311,458,609             | 83%  |
| Hawaii         | \$ 163,088,800             | \$ 67,743,334              | 42%  |
| Idaho          | \$ 103,252,400             | \$ 131,875,350             | 128% |
| Illinois       | \$ 954,463,933             | \$ 314,966,571             | 33%  |
| Indiana        | \$ 508,606,048             | \$ 621,510,310             | 122% |
| Iowa           | \$ 294,674,200             | \$ 130,180,072             | 44%  |
| Kansas         | \$ 190,453,500             | \$ 85,701,073              | 45%  |
| Kentucky       | \$ 268,585,200             | \$ 62,622,640              | 23%  |
| Louisiana      | \$ 239,430,500             | \$ 36,684,426              | 15%  |
| Maine          | \$ 163,319,600             | \$ 80,690,046              | 49%  |
| Maryland       | \$ 510,421,657             | \$ 216,489,252             | 42%  |
| Massachusetts  | \$ 716,522,029             | \$ 140,677,580             | 20%  |
| Michigan       | \$ 907,431,252             | \$ 233,160,195             | 26%  |
| Minnesota      | \$ 398,426,165             | \$ 149,335,778             | 37%  |
| Mississippi    | \$ 186,500,093             | \$ 19,981,710              | 11%  |
| Missouri       | \$ 603,702,512             | \$ 236,607,038             | 39%  |
| Montana        | \$ 103,252,400             | \$ 27,376,031              | 27%  |
| Nebraska       | \$ 107,626,700             | \$ 52,857,503              | 49%  |
| Nevada         | \$ 103,252,400             | \$ 44,900,863              | 43%  |
| New Hampshire  | \$ 217,636,900             | \$ 69,498,053              | 32%  |
| New Jersey     | \$ 1,053,501,973           | \$ 141,788,838             | 13%  |
| New Mexico     | \$ 111,076,700             | \$ 42,979,820              | 39%  |
| New York       | \$ 2,753,037,314           | \$ 397,612,493             | 14%  |
| North Carolina | \$ 352,199,248             | \$ 148,484,429             | 42%  |
| North Dakota   | \$ 103,926,700             | \$ 85,773,132              | 83%  |
| Ohio           | \$ 1,226,374,893           | \$ 295,019,116             | 24%  |
| Oklahoma       | \$ 170,457,300             | \$ 74,155,749              | 44%  |
| Oregon         | \$ 238,382,700             | \$ 43,945,073              | 18%  |
| Pennsylvania   | \$ 835,963,728             | \$ 158,030,647             | 19%  |
| Rhode Island   | \$ 141,607,900             | \$ 30,651,118              | 22%  |
| South Carolina | \$ 212,081,670             | \$ 42,909,865              | 20%  |
| South Dakota   | \$ 103,252,400             | \$ 12,723,217              | 12%  |
| Tennessee      | \$ 306,571,400             | \$ 119,457,472             | 39%  |
| Texas          | \$ 923,051,700             | \$ 325,840,020             | 35%  |
| Utah           | \$ 110,905,500             | \$ 22,452,523              | 20%  |
| Vermont        | \$ 106,526,700             | \$ 38,792,107              | 36%  |
| Virginia       | \$ 431,900,531             | \$ 192,568,905             | 45%  |
| Washington     | \$ 367,033,331             | \$ 115,470,269             | 31%  |
| West Virginia  | \$ 329,262,879             | \$ 45,098,026              | 14%  |
| Wisconsin      | \$ 570,537,777             | \$ 387,221,250             | 68%  |

## Green Project Reserve for the Clean Water SRF—Continued

| State             | Federal Funding since 2008 | Spending on Green Projects | %   |
|-------------------|----------------------------|----------------------------|-----|
| Wyoming .....     | \$ 103,252,400             | \$ 19,030,389              | 18% |
| Puerto Rico ..... | \$ 284,720,041             | \$ 51,553,042              | 18% |
|                   | \$ 21,349,282,990          | \$ 8,606,031,277           | 40% |

QUESTIONS FROM HON. PETER A. DEFazio TO REBECCA HAMMER, DEPUTY DIRECTOR OF FEDERAL WATER POLICY, NATURAL RESOURCES DEFENSE COUNCIL

*Question 1.* During the hearing, we heard testimony that wastewater utilities may benefit from a legislative change to the existing National Pollutant Discharge Elimination System (NPDES) permitting framework. Currently, all Clean Water Act NPDES permits, including permits for wastewater utilities, are authorized for up to five-years in duration. The goal of five-year permits is to ensure both that Clean Water Act permits are appropriately tailored to address local water quality impairments, and to ensure the incorporation of state of the art pollution control techniques and discharge standards. This ensures that permittees are held to the highest standard possible for reducing the discharge of pollutants that may impair our nation's waters and endanger human and environmental health.

*Question 1.a.* Do you agree that NPDES permits should be extended from five year up to ten years for all municipal wastewater utilities?

*ANSWER.* No. Municipal wastewater utilities discharge an enormous amount of water pollution. More than 16,000 publicly owned wastewater treatment plants in the United States discharge 34 billion gallons of wastewater every day. Weakening Clean Water Act requirements for these dischargers would have significant consequences, allowing them to operate for a decade or more under pollution control standards that have long since become outdated. Such a change could put public health and environmental safety at risk.

The five-year limit on NPDES permits is an essential part of the Act's design that should not be altered. A key premise of the statute is that, as environmental science and technology advance over time, the nation will make steady progress on reducing water pollution. The Act requires EPA and the states to gather new information and develop new pollution control plans on a regular basis. For example, EPA must revisit the national technology-based standards applicable to specific categories of discharges and classes of pollutants every 1 to 5 years; EPA must periodically publish new information about pollution reductions attainable through wastewater treatment; states must review and consider modification of their water quality standards at least once every 3 years; states must assess water quality in all their waterways and develop lists of impaired water bodies not meeting water quality standards every 2 years; and states must develop pollution reduction targets (Total Maximum Daily Loads) for impaired waterways on an ongoing basis, based on the results of their biannual water quality assessments.

Each of these recurring obligations affects the terms of dischargers' pollution control permits. The Clean Water Act requires each NPDES permit to include technology-based effluent limitations, based on up-to-date pollution control methods, and water quality-based effluent limitations, designed to ensure compliance with local water quality standards. The five-year permit term was specifically chosen by the framers of the Act to ensure that permits reflect the most current information about control technologies and receiving water conditions.

The Act's legislative history reflects the centrality of the five-year limit on permit terms as a linchpin of this scheme.<sup>1</sup> In 1985, when Congress rejected a proposed amendment to extend the term limit for certain NPDES permits to ten years, Senator Lautenberg emphasized that "the 5-year permit term plays an important role in improving water quality," and "a 10-year permit provision could result in less stringent pollution control of toxic pollutants."<sup>2</sup>

Proponents of this change have claimed that ten-year permits would not lead to adverse environmental consequences because they could be modified to include new

<sup>1</sup>"In order to be absolutely certain that these [pollution] control techniques represent the latest state of the art, they will be reviewed and upgraded every 5 years." 117 Cong. Rec. 38797 (Nov. 2, 1971).

<sup>2</sup>131 Cong. Rec. S8080-04 (June 13, 1985).

requirements if necessary during the lengthened permit term. However, permit modifications are only allowed under certain circumstances and are discretionary on the part of the permitting authority.<sup>3</sup> As a result, a permit would not necessarily have to be updated in the middle of the permit term even if significant changes occurred in the receiving water or new information came to light about the impact of the discharge. There is no fail-safe mechanism in current law to protect waterways from the harmful impacts of ten-year permits.

Not only would this proposed change have a damaging effect on water quality, it would also shut the public out of the permitting process for long stretches of time. Members of the public deserve to have a say regarding how much pollution is dumped into waterways that they live near, use recreationally, or depend on for drinking water. It is only when NPDES permits are issued or renewed that the public has the opportunity to weigh in on the terms and limitations applying to pollution dischargers, or to seek judicial review of those permit terms if they are not legally sufficient. Doubling the length of permit terms would cut these opportunities for public input in half.

*Question 1.b.* Will increasing the time length of permits make it easier for wastewater utilities to meet the goals of the Clean Water Act?

*Question 1.c.* Are you aware of any correlation between wastewater utility construction schedules and NPDES permit lengths that would justify extending permits terms from five-years up to 10 years?

*ANSWER to b. and c.* Organizations representing regulated municipalities have claimed that extending NPDES permit terms is necessary because project construction timelines for clean water infrastructure can extend beyond five years. This has always been the case, and the framers of the Clean Water Act were aware when they drafted the statute that permit terms would not always align with infrastructure project timetables. They decided nonetheless that permit limits must be updated every five years. With water quality worsening across the country, the need for frequent review of permit conditions is no less now than it was in the 1970s when the Clean Water Act was enacted.

The organizations advocating for this change in the law have provided no specific examples of infrastructure projects that have been prevented or abandoned because of the current five-year permit term. Rather, this rationale seeks to take advantage of Congress's desire to promote infrastructure investment in order to roll back pollution dischargers' regulatory requirements.

Even if the regulated community's concerns are taken at face value, existing mechanisms already exist to address those concerns. The EPA's Environmental Appeals Board has ruled that NPDES permits may include compliance schedules that extend beyond the five-year term of the permit if allowable under state law.<sup>4</sup> This option provides a means to account for the reality of construction timelines while also ensuring that the permit itself will be updated on a regular basis.

Supporters of this proposal also emphasize the administrative costs associated with seeking a permit renewal every five years. While the permit renewal process may be time-consuming in some states, the environmental and public health benefits of frequently reviewing pollution discharge standards more than justify the administrative expense. Cost concerns should not be addressed by weakening safeguards, but rather by providing increased resources. The expenses that utilities incur renewing their permits every five years could be offset by increases in federal water infrastructure funding for municipalities, such as the increased authorizations proposed in H.R. 1915. Moreover, Congress could make the permit reissuance process faster and more efficient by providing more resources to state permitting agencies.

<sup>3</sup> EPA regulations state that a "permit *may* be modified, revoked and reissued, or terminated for cause." 40 C.F.R. § 122.41(f) (emphasis added). The use of the word "may," rather than "shall," means that reopening and modifying a permit is discretionary, not mandatory. Another section of the NPDES rules confirms this, stating that the permitting authority "*may* modify or revoke and reissue the permit" if it determines that cause exists. 40 C.F.R. § 122.62 (emphasis added). Courts have consistently confirmed this reading of the statute and regulations: "The language of both CWA section 402 and 40 C.F.R. § 122.62 make it clear that the EPA [or other permitting authority] is not required to modify any NPDES permit." *Texas Mun. Power Agency v. EPA*, 836 F.2d 1482, 1486 (5th Cir. 1988).

<sup>4</sup> 13 E.A.D. 714 (2008). See also EPA, Memo from James Hanlon, EPA Office of Wastewater Management, to Alexis Strauss, EPA Region 9, "Compliance Schedules for Water Quality Based Effluent Limitations in NPDES Permits" (May 10, 2007) ("Any compliance schedule that extends past the expiration date of a permit must include the final effluent limitations in the permit in order to ensure enforceability of the compliance schedule as required by CWA section 502(17) and 40 C.F.R. § 122.2 (definition of schedule of compliance).").

*Question 1.d.* Last Congress, the Committee also received information related to certain states allowing existing NPDES permits, including industrial and major NPDES permits, to be “administratively extended” beyond their statutory limit of five years.

*Question 1.d.i.* In your view, are administratively extended permits consistent with either the goals or the legal requirements of the Clean Water Act?

*ANSWER.* NPDES permits that are administratively extended past their expiration dates are a rampant problem. Often referred to as “zombie permits,” administratively extended permits frustrate the intent of the Clean Water Act to ensure that permits are regularly updated on a five-year basis to reflect changing conditions. The effect of extended permits is functionally the same as the potential effect of establishing ten-year permits: dischargers operating under outdated standards that in many cases are known to be inadequate to protect public health and the environment. Under these lax requirements, dischargers utilize inferior pollution control technology and escape the stricter pollutant limits that would be triggered if their permits were renewed. Moreover, extended permits deprive members of the public of their statutory right to voice concerns about insufficient controls on pollution entering local waterways.

According to EPA, approximately 15,000 facilities were covered by expired permits at the end of FY2017, the last time the agency published nationwide permit status data.<sup>5</sup> A quarter of individually permitted major facilities were operating under expired permits.<sup>6</sup> In some parts of the country, more permits are expired than current, and many such permits have been expired for multiple permit cycles. These include permits for heavily polluting facilities like coal-burning power plants.

EPA has concluded that administratively extended permits do “not contain terms and conditions based on the most recent standards, in effect delaying prospective environmental improvements to the nation’s waters and possibly continuing deleterious effects” where conditions have changed.<sup>7</sup> The agency took steps toward addressing this problem in a proposed 2016 rule which would have designated certain expired permits as proposed permits and allowed EPA to take appropriate action on them, but following the administration change in 2017, the agency unfortunately dropped the proposal.

Congress should consider enacting legislation to curb lengthy administrative extensions of NPDES permits. Providing additional resources to state agencies could help them clear up their permit backlogs. Additionally, Congress should adopt new statutory requirements—or direct EPA to develop new requirements by rule—that would ensure EPA regional offices and state permitting agencies take action on all expiring and/or expired NPDES permits in a timely fashion.

*Question 1.d.ii.* How does extending municipal wastewater utility permits to ten years potentially affect your concerns with administratively extended permits?

*ANSWER.* The pervasive problem of extended permits exacerbates the potential negative effects of ten-year permits. In states that already routinely fail to renew their permits on time, there is no reason to believe that ten-year permits would not also be administratively extended alongside other kinds of permits. If a ten-year permit is extended following its expiration date, the discharger could end up operating for more than a decade without updated pollution control requirements—potentially 15 to 20 years or more.

This concern is another important reason why the Clean Water Act should not be amended to allow the issuance of ten-year permits for any category of discharger.

*Question 2.* Is there anything else you would like to add or elaborate from your testimony or the discussion during the hearing?

*ANSWER.* My written testimony stated that the Council of Infrastructure Financing Authorities’ SRF Project Pipeline identifies over \$47 billion in specific clean water infrastructure projects across the country that could be commenced within the next two to three years if funding is provided. However, CIFA’s Project Pipeline includes some potential projects that extend beyond the two-to-three-year timeframe.

<sup>5</sup> EPA, Permit Status Report for Non-Tribal Major Individual, Minor Individual, and Non-Stormwater General Permit Covered Facilities—End-of-Year FY2017, [https://www.epa.gov/sites/production/files/2017-12/documents/final\\_fy17\\_eoy\\_non-tribal\\_backlog\\_report\\_card-sum.pdf](https://www.epa.gov/sites/production/files/2017-12/documents/final_fy17_eoy_non-tribal_backlog_report_card-sum.pdf).

<sup>6</sup> EPA, Permit Status Report for Non-Tribal Individual Major Permits—End-of-Year FY2017, [https://www.epa.gov/sites/production/files/2018-01/documents/final\\_fy17\\_eoy\\_non-tribal\\_backlog\\_report\\_card.pdf](https://www.epa.gov/sites/production/files/2018-01/documents/final_fy17_eoy_non-tribal_backlog_report_card.pdf).

<sup>7</sup> EPA, Fact Sheet: NPDES Permit Backlog Reduction (2016), <https://www3.epa.gov/npdes/pubs/factsht.pdf>.

In CIFA's own words, the tools states used to compile the pipeline included "current year plans and project lists, multi-year plans and project lists (up to five years), a survey of utilities for new projects, increased funding for current projects, and the addition of other known projects, such as projects that applied but didn't receive funding, projects on planning lists, and projects in utilities' capital improvement plans."<sup>8</sup>



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<sup>8</sup>Council of Infrastructure Funding Authorities, S.A.F.E. Water Infrastructure Action Plan and SRF Project Pipeline (2020), available at <https://www.cifanet.org/economic-stimulus>.