

OneWaterSF | 2020

The Power of OneWaterSF



City Hall during Pride Week

August 2020



San Francisco
Water Power Sewer

Services of the San Francisco Public Utilities Commission

A Note About Our 2020 Cover Image

At the heart of San Francisco's Civic Center Plaza stands the iconic City Hall building designed in the Beaux-Arts style honoring the City's architectural heritage. In 2015, City Hall marked its centennial anniversary with major upgrades to usher in the next 100 years. This milestone was preceded by a multi-year energy and water retrofit partnership between the SFPUC and the City Administrator's Office which enabled City Hall to achieve LEED Certification and upgrade the exterior façade lighting.

The new fully-customized high-efficiency LED lighting solution dramatically illuminates the building in brilliant colors. Advanced lighting controls allow for specially programmed color sequences to occur during events and holidays. Energy savings compared to the previous Metal Halide solution are estimated at a minimum 50% energy reduction, 12 times longer bulb life expectancy, and a 70% savings in lighting costs.

This same year, City Hall became the oldest building in the United States to achieve LEED Platinum Certification for Existing Buildings: Operations and Maintenance (LEED - EBOM). These efforts demonstrate the City's environmental leadership by showcasing sustainable concepts and technologies. Projects like these truly highlight the Power of OneWaterSF.





San Francisco from Golden Gate Heights

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A scenic landscape featuring a large, dark tree in the foreground on the left, a calm lake in the middle ground, and a mountain range in the background under a clear blue sky. The scene is bathed in soft, natural light, suggesting a sunrise or sunset.

A Letter from the General Manager of the SFPUC, Harlan L. Kelly, Jr.

When we first set out to define One Water for the SFPUC in 2016, we established the OneWaterSF Vision and Guiding Principles. We then tested our Guiding Principles by supporting different initiatives that reflected the vision and purpose of OneWaterSF. We allowed OneWaterSF to grow organically, not burdened by directives and bureaucracy, but as an effort that relied on a cultural commitment centered around our Guiding Principles and on the ability of our staff to form partnerships across traditional boundaries within the organization. In a short time, we began to see OneWaterSF transform from a new way of doing business to how we do business as our staff identified and developed projects and programs to further the OneWaterSF Vision.

Earlier this year, we began thinking about the Power of OneWaterSF. What is it about OneWaterSF that makes our work better? How does OneWaterSF impact our ratepayers and connect with our customers? As we began discussing this, we were confronted with both the global coronavirus (COVID-19) pandemic as well as global demonstrations confronting racial injustice in our society. For the SFPUC, these events further highlight the importance of providing reliable, safe, and affordable utility services to our customers. As the social and economic impacts of current events become increasingly apparent, we feel the significance of our responsibility to serve as a partner in our communities, able to adapt to a changing environment. OneWaterSF helps us do that.

During these challenging times, the Power of OneWaterSF is more relevant than ever. We see it through the resiliency and creativity of our staff as we transitioned to new workplace approaches while ensuring that essential services continue to be delivered to our customers. We see it in the series of emergency response measures that we have developed to provide relief to our customers. And we see the Power of OneWaterSF through our community benefits and social impact programs that bolster the social, economic, and environmental fabric of our communities.

As we look ahead, we are reminded that some of the key principles of OneWaterSF will be central to meeting the challenges we face. Our future will be better because OneWaterSF requires us to strengthen our bonds, look holistically at our priorities, and take a leadership position on addressing change. While the future may hold many uncertainties for managing our precious resources, OneWaterSF creates a framework for planning that considers flexibility, innovation, and technology so that we approach future changes and challenges with understanding and imagination.



Harlan L. Kelly, Jr.
HARLAN L. KELLY, JR.

The Vision and Approach of OneWaterSF

Traditional water and energy resource management takes a linear “resources in, waste out” approach. This approach fails to recognize the synergies and resource potential across water, wastewater, and energy boundaries. In contrast, OneWaterSF is an integrated planning approach that allows us to think differently about resource management. By collaborating across traditional boundaries, we can identify opportunities to better utilize our resources through reuse and resource recovery.

With OneWaterSF we take a more holistic view of our work so that we can optimize resources, create more opportunities for innovation and collaboration, and identify more ways in which we can adapt to future changes. When individual projects and ideas are connected together through OneWaterSF, their outcomes are more powerful than if the work is done in silos. Taking this approach benefits our customers and the communities we serve.

Our Vision and Guiding Principles serve as the foundation for advancing OneWaterSF. By establishing this foundation and recognizing that OneWaterSF is not a destination or goal to be met but rather an approach to how we do business, we have seen its implementation happen organically across the organization and become part of the way we work at the SPFUC.

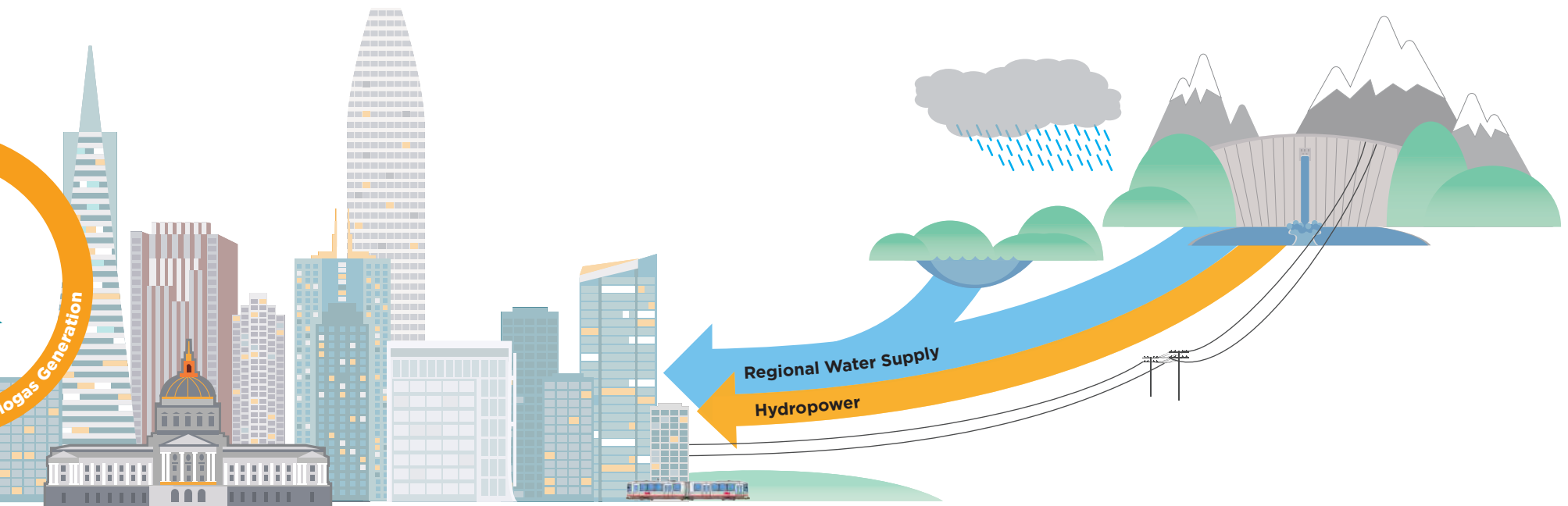
OneWaterSF Vision

With our OneWaterSF approach, San Francisco will optimize the use of our finite water and energy resources to balance community and ecosystem needs, creating a more resilient and reliable future.



OneWaterSF Guiding Principles

- 1 Match the right resource to the right use.
- 2 Look holistically at our water, wastewater, and power systems to develop programs, policies, and projects that provide multiple benefits.
- 3 Plan for variable outcomes and build in flexibility to adapt to future changes.
- 4 Develop projects and programs that conserve resources and promote ecosystem health, including the health and quality of our watersheds, San Francisco Bay, and the Pacific Ocean.
- 5 Work across traditional boundaries within our organization to foster collaboration that results in the efficient use of our water, wastewater, energy, and financial resources.
- 6 Engage our communities to foster awareness and collaboration around OneWaterSF.
- 7 Pursue partnerships with other agencies, the private sector, and other stakeholders to generate new and creative ideas.
- 8 Pilot state-of-the-art technologies, and test new approaches to develop new business practices.



The Accomplishments of OneWaterSF

Since OneWaterSF was launched in 2016, there have been many initiatives across the organization that have advanced the OneWaterSF Vision. Last year, as we recognized the shift from OneWaterSF as a new way of doing business to how we do business, we took the opportunity to review our work and highlight some of our OneWaterSF accomplishments. This year, we are continuing that tradition by recognizing the positive outcomes that OneWaterSF brings to all areas and aspects of our work. We see these benefits not only in innovative approaches to water and energy resource management, but also how we manage our financial resources, how we integrate community benefits into our projects and programs, and how we serve as a partner in the community.

Successfully tested
2,075 SAMPLES
to demonstrate that the
PureWaterSF
advanced water
treatment system
reliably produces
high quality water



Deployed new automated
water meter technology

estimated to **SAVE**
48 MILLION
gallons per year

by notifying residential
customers about leaks



INSPECTED
210 MILES of
sewer pipelines

and **replaced over 11 miles**
to continue providing **reliable**
wastewater service to
San Francisco



Now in its 4th year,
CleanPowerSF
has helped our ratepayers
save over **\$11 million**

Recognized as a
GLOBAL LEADER
in green bond
programs, SFPUC
was awarded the
2019 US Municipal
Green Bond of the Year by
Environmental Finance



Distributed over
7,300
water saving
devices across
the City, including
aerators, showerheads,
and spray nozzles



Since 2011, our **Social Impact Partnership Program** has resulted in **\$34 MILLION**

in financial, volunteer, and in-kind contributions to support scholarships, mentorships, and internships

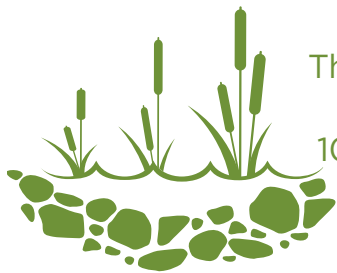
Replaced **19 water-cooled ice machines** at a hotel in downtown San Francisco which will result in **CONSERVING 900,000 GALLONS** of water per year



Received Water Research Foundation's

Outstanding Subscriber Award

for our significant contributions to **innovative research on direct potable reuse**



The **Stormwater Management Ordinance** celebrated its 10th anniversary by **capturing and managing** more than **180 MILLIONS OF GALLONS** of

stormwater using green infrastructure in 2019

Formally launched the **Green Infrastructure Grant Program** by providing

\$2 MILLION IN FUNDING

to stormwater capture projects at **3 San Francisco schools**



Received the **ENVISION GOLD AWARD** for the new headworks facility at the Southeast Treatment Plant **recognizing sustainable excellence in civil engineering projects**

PLATINUM LEVEL CERTIFICATION achieved for our **BIOSOLIDS MANAGEMENT SYSTEM**

for the 4th consecutive year



Over the past **3 YEARS**, City facilities have **saved more than \$130 MILLION** in energy costs by using **City-owned renewable energy sources**

The Power of OneWaterSF

The Power of OneWaterSF is about synergy. That is, taking individual ideas, projects, and accomplishments beyond the sum of their parts to add value in new and multiple ways. The collaboration that is innate to OneWaterSF helps connect individual actions and bridge ideas together. This connection is essential to building and creating a bigger impact than if we did our work in silos. The result is identifying more creative and innovative ways of solving problems and managing resources, and providing better outcomes for our customers and the environment.

In this year's brochure, we highlight The Power of OneWaterSF by showcasing projects that have become more impactful than their initial scope. Initiatives that are developed through a OneWaterSF lens move beyond accomplishing standard objectives into delivering innovative benefits to a variety of groups. By creating pathways for technology and innovation, engaging with our customers and the communities we serve, and taking a holistic view of resource management, we are able to amplify the impact of projects to provide multiple benefits.

Tuolumne River near Tioga Pass





The Power of OneWaterSF

SFPUC Water Bank Account

The Guiding Principles of OneWaterSF encourage us to develop and implement programs, policies, and projects that conserve resources and promote ecosystem health. In many cases, collaboration with others both in and outside of the SFPUC can further enhance these multiple benefits. Such is the case with the SFPUC's Water Bank agreement with the Turlock and Modesto Irrigation Districts. By partnering with local irrigation districts and coordinating internally between the staff in the SFPUC's Water and Power Enterprises, we were able to implement innovative strategies that support the Vision and Guiding Principles of OneWaterSF.

Passed in 1913, the Raker Act authorized the SFPUC to begin developing a water storage network on the Tuolumne River. Prior to the City of San Francisco making water rights filings and developing the Hetch Hetchy System, the Turlock and Modesto Irrigation Districts established water rights on the Tuolumne River. They built the original Don Pedro Dam in 1924. In the late 1960s, the City of San Francisco partnered with the irrigation districts to develop the New Don Pedro Dam and Reservoir. As part of this partnership, the Water Bank was established, which allows the SFPUC to pre-release required flows to the irrigation districts. The Water Bank account gives the SFPUC access to 570 thousand acre-feet of potential storage, allowing for operational flexibility in releasing water to the local irrigation districts. This operational flexibility comes from the ability to deposit water in Water Bank during wet years for future use during dry years.



Kirkwood Powerhouse



Lake Eleanor



The Water Bank agreement not only allows the SFPUC to meet its release requirements to the local irrigation districts, but provides additional storage for our drinking water supply in dry years. During one of the most intense droughts in California’s history, from 2011 to 2015, the SFPUC was able to leverage the Water Bank in conjunction with extraordinary conservation in such a way that customers did not experience any water shortages. Because of the additional storage afforded by the Water Bank, the SFPUC was able to successfully weather this extreme drought. In addition to the water security and reliability benefits, Water Bank also gives us flexibility to optimize power generation. When there is room in the Water Bank, the SFPUC can generate electricity and have that water get captured in the Water Bank. This means that the SFPUC does not have to balance power generation with water supply security.

In working across traditional boundaries, looking holistically at our water and power systems, and pursuing partnerships, we can see how the Water Bank speaks to the Power of OneWaterSF.



Mocassin Powerhouse

The Power of OneWaterSF

Bay Corridor Transmission and Distribution Project

For over 100 years, the SFPUC has been generating greenhouse gas-free hydropower for San Francisco. This clean power energizes schools, MUNI, street lights, City Hall, SFO Airport, the Zoo, and other civic institutions and private facilities. Combined, clean power programs implemented by the Power Enterprise provide more than 70% of the electricity consumed in San Francisco. The Bay Corridor Transmission and Distribution (BCTD) project was created in support of SFPUC Power Enterprise’s long-term business plan of expanding electric service to its existing and future customers. The Power of OneWaterSF has helped this project expand beyond its original scope to increase the magnitude of benefits that it can provide.

The BCTD project involves constructing a 75-megawatt SFPUC-owned transmission and electrical distribution facility along the Bayside of San Francisco that will be publicly owned and operated. The need for the system was initially identified to provide a redundant power supply to the SEP to increase the reliability of the plant, which provides wastewater treatment to the majority of the City. As the project developed, the project team determined that the project

had the opportunity to expand clean power to additional customers in the southeast part of the City. As a result, the system will serve not only the SEP, but also Bruce Flynn pump station, and new re-development areas in the Mission Bay, Dogpatch, Hunters Point, and Visitation Valley neighborhoods.

With the Power of OneWaterSF, this project has expanded from having project-specific benefits to being a project with multiple benefits that increases overall reliability. Neighborhoods, including those with affordable housing units, served by this project will see faster connection times and better rates as compared with the existing power service provided by the private utility. By expanding the city-owned power distribution network, the BCTD project will increase the overall percent of clean energy consumed within San Francisco, while simultaneously decreasing costs for customers.

BCTD Project construction in Mission Bay



Southeast Treatment Plant



The Power of OneWaterSF

Alameda Watershed Lands

Protecting the quality of our drinking water means maintaining the health of the watershed lands that surround our reservoirs. At the SFPUC, we take an integrated and holistic approach to watershed management that not only protects water quality, but also creates opportunities to engage with the communities we serve through public education and environmental stewardship. When we take this approach, we see the Power of OneWaterSF in action.

The Alameda Watershed in the East Bay contains two important drinking water reservoirs: San Antonio Reservoir and Calaveras Reservoir. The SFPUC's primary watershed management goal in the Alameda Watershed is to maintain and improve source water quality to protect public health and safety. We accomplish this through a variety of strategies for protecting and managing land that drains into our surface water reservoirs. One strategy is purchasing land in the watershed to protect it from development. This allows us to carefully manage activities on the land to protect the quality of water draining from the land to adjacent reservoirs, while also preserving sensitive habitats. An example of this watershed management strategy was the recent purchase of the Wool Ranch property in 2019. Wool Ranch was a private 787-acre agricultural ranch parcel draining directly into the Calaveras Reservoir. By purchasing this land, the SFPUC was able to expand the protected watershed areas that drain into Calaveras Reservoir and enhance the health of the Alameda Watershed lands as a whole.

Alameda Watershed





The Guiding Principles of OneWaterSF help us look beyond our primary watershed management activities in the Alameda Watershed to find opportunities to include our Community Benefits Program goals and our Water Enterprise Environmental Stewardship policies into watershed activities. These efforts facilitate partnerships with the communities we serve to enhance service to our ratepayers and develop the environmental stewards of tomorrow to build a future workforce. Supported by these programs, the Sunol AgPark was established in 2006 as a collaborative farm to serve as a model for integrating sustainable farming practices with environmental and community benefits. It has supported up to eight onsite farmers annually, and more than 7,000 students have visited the AgPark to learn how sustainable farming practices benefit watershed health.

The SFPUC is also beginning construction on an interpretive center in the Alameda Watershed. The Alameda Creek Watershed Center will offer educational opportunities and connect to future regional trail systems that will provide interpretive and recreational opportunities. These educational opportunities can be aligned with State science curriculum and foster in our students a deeper understanding of the connection between watershed health, the environment, and water quality.

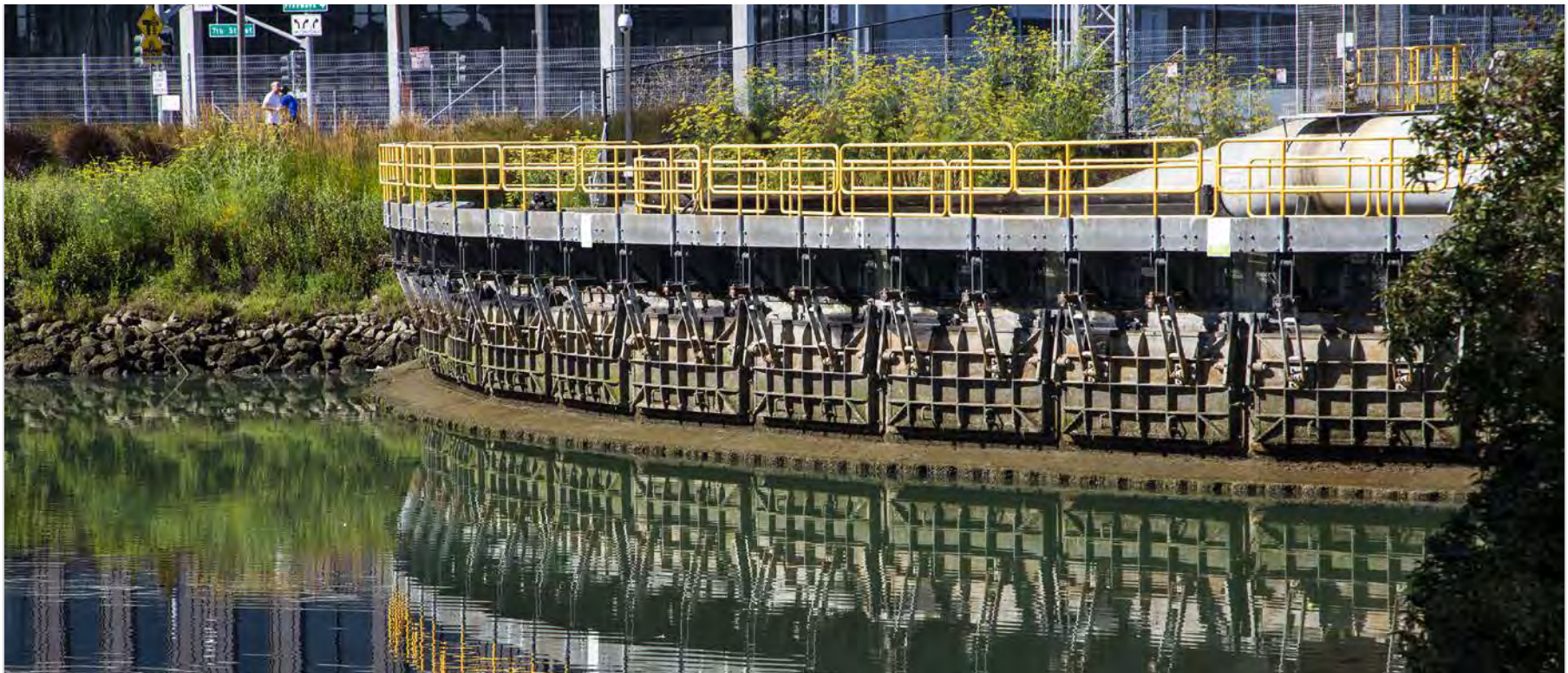
Deer at Sheep Camp Creek, Sunol Watershed



SFPUC Green Bond Program

A cornerstone of OneWaterSF is to optimize the use of finite resources to balance community and ecosystem needs and create a more resilient and reliable future. To help optimize financial resources, the SFPUC has turned to green bonds to ensure that our projects are not only low-carbon and climate resilient but also expand our base of bondholders to impact investors that support SFPUC's mission.

The SFPUC's Green Bond Program has received international recognition for its best practices. Since 2015, the SFPUC has sold more than \$2 billion in certified green bonds to help finance projects, making it one of the largest municipal issuers of green bonds in the United States. Building on the success of financing the Water System Improvement Program, the SFPUC is now shifting focus to the Sewer System Improvement Program, a 20-year, \$7 billion investment, to improve the City's aging sewer system. This focus is already bringing public recognition to the SFPUC, and resulted in the SFPUC receiving the 2019 US Municipal Green Bond of the Year by Environmental Finance.



Combined Sewer Discharge Rehabilitation and Backflow Prevention Project

Green bond certification and reporting require a comprehensive understanding of the multiple benefits of SFPUC's projects across traditional boundaries within the utility. Beyond recognizing more traditional environmental benefits of our projects and programs, such as water supply reliability and sustainable energy, SFPUC's green bond certification and reporting shines a light on many co-benefits, including:

- Partnerships with community groups and school districts to support lifelong learning through curriculum development, classroom presentations, and hands on experiences such as learning gardens and volunteer opportunities.
- Gender equality and supporting small business opportunities through partnerships with the National Association of Women Construction Workers and Women's Business Council.
- Measurable social impacts like being the first public utility in the country to implement a Social Impact Program that advances corporate responsibility as part of the competitive bidding process.

Identifying the broader benefits of the work we are doing under our Green Bond Program has also allowed the SFPUC to align project benefits with the United Nations Sustainable Development Goals (SDGs). With increased interest in the SDGs from investors and other stakeholders, this alignment allows us to continue to attract more investors which can lead to lower borrowing costs and savings to our ratepayers.





Homes in south San Francisco

The Power of OneWaterSF

Automated Leak Detection Program

One of the Guiding Principles of OneWaterSF speaks to multiple benefits. By looking holistically at our systems and processes, OneWaterSF pushes us to develop and implement programs, policies, and projects that provide multiple benefits. The Power of OneWaterSF is that these benefits are not just realized at the SFPUC, but also among our ratepayers. The SFPUC's Automated Water Meter Program (AWMP) and Leak Alert Program are perfect examples of how the Power of OneWaterSF can provide benefits to our ratepaying customers.

From 2010 to 2015, the SFPUC underwent the significant process of replacing aging, manual-read water meters throughout San Francisco with automated water meters that report hourly water consumption. Prior to AWMP, meters were manually read on a bi-monthly schedule and leaks were difficult to identify and fix. With the AWMP, the SFPUC realizes the benefits of greater reading accuracy and reduced costs associated with manually reading water meters. But customers also benefit from AWMP; this technology provides hourly data that allows customers to better understand their baseline water use and provides timely leak detection.



Once AWMP was in place in 2015, the SFPUC ran a pilot courtesy leak alert project that checked metering data for leaks each Saturday and mailed a postcard alerting the customer to the suspected leak. In September 2017, the SFPUC migrated to an expanded, more automated notification program. This Leak Alert Program currently notifies our single-family, small multi-family, and irrigation customers when there has been three days or more of continuous water use of at least 7.5 gallons per hour. This pattern of use oftentimes signals that there is a leak occurring. Compared to the pilot project, this Program checks data for leaks each day and notifies customers of a potential leak by sending an email, text, phone call, and letter to the customer. The Leak Alert Program, as it is currently configured, is estimated to save approximately 27.8 million gallons of water per year across single-family accounts, and an additional approximately 20.2 million gallons per year across small multi-family accounts. By implementing cutting edge technology and analyzing large volumes of data, we are able to harness the Power of OneWaterSF to directly benefit our customers. The Leak Alert Program provides multiple benefits by helping our customers save money on their water bills and reducing the amount of water use in San Francisco. The SFPUC is currently studying continuous water use patterns at commercial, industrial, and institutional properties to develop thresholds to identify potential leaks and expand the leak alert program to these customers.

The Future of OneWaterSF

As we look to the future, we know that many resource management challenges lie ahead. Drought is an ongoing threat to our water supply, the regulatory landscape continues to evolve, and climate uncertainties will test our systems. Past approaches used for resource planning will not necessarily fit tomorrow's circumstances.

OneWaterSF calls for us to address future challenges with innovation and by leveraging new technologies to benefit resource management and our customers. When we do this, we see the Power of OneWaterSF in action. We see this through the accomplishments we've made in water savings with our Leak Alert Program. Through the use of cutting-edge technology, we've been able to expand our efforts to analyze large volumes of data to identify potential leaks, communicate with our customers, and partner with them to help save millions of gallons of water while also helping them save money on their water bills.

OneWaterSF compels us to collaborate and uncover the potential for creating multiple benefits. The outcomes of collaboration are evident in the holistic approach we are taking in the Alameda Watershed where we look beyond our primary watershed management goal of water quality protection to also identify opportunities to engage with the communities we serve. Engaging with youth and community members allows us to increase water literacy and create a sense of stewardship and awareness about each person's role in protecting water quality. The long-term benefits of engagement for resource protection, community recreation, and education represent the Power of OneWaterSF.

Finally, the Power of OneWaterSF has been demonstrated here at the SFPUC in our commitment, and willingness, to change how we work. OneWaterSF has grown organically within the organization; it is not seen as an additive to our work, but rather at the core of our work. By stretching across boundaries within our organization, we're able to bring new energy and imagination to address the most critical and complex challenges we face. The future of OneWaterSF calls on us to continue inspiring each other to share bold ideas, pursue creative solutions, and seek synergies that add value to our work in new ways.







OneWaterSF

August 2020