

GREEN BOND REPORT

San Francisco Public Utilities Commission

POWER ENTERPRISE | FY 2018-19



San Francisco
Water
Power
Sewer

POWER
ENTERPRISE

Services of the San Francisco Public Utilities Commission

Moccasin Powerhouse Reservoir

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Kirkwood Powerhouse

INTRODUCTION

The San Francisco Public Utilities Commission (SFPUC) is a department of the City and County of San Francisco. In 2008, San Francisco set an ambitious goal to reduce greenhouse gas emissions by 25% below 1990 levels by 2017, by 40% below 1990 levels by 2025, and become carbon neutral by 2050.

These goals impact all San Francisco departments, including the SFPUC, and influence operating and capital investment activities. The SFPUC operates within the City of San Francisco as well as the State of California and is governed by several ambitious laws and regulations at the State and City level, as well as policies and programs within the SFPUC, created to achieve additional climate and social inclusion goals.

The SFPUC views green bonds as an important tool to help meet these goals and finance low-carbon, climate-resilient infrastructure. Since issuing its first green bond in 2015, the SFPUC has sold more than \$1.4 billion in certified green bonds for all three of its enterprise utilities: Water, Wastewater, and Power. Impacts from the bonds to date include increased water storage, upgrades to renewable energy generation facilities and the use of green infrastructure to divert stormwater from treatment plants.

In addition to providing project impact information, this report seeks to highlight associated co-benefits as well as describe the context in which climate and social inclusion informs the SFPUC's capital planning decisions. This report reflects activities through June 30, 2019.



Holm Powerhouse

1. State and City Regulatory Context

State of California

The State of California has enacted legislation, regulations and executive orders that put the State on course to achieve significant greenhouse gas reductions while also addressing the impacts of climate change. Described below are selected state-level mandates related to the environment and climate that impact the SFPUC's capital planning.

- California Environmental Quality Act (CEQA): Established in 1970, CEQA requires that all projects proposed by state and local agencies undergo an environmental impact review and to avoid or mitigate environmental impacts.
- Assembly Bill 32, the Global Warming Solutions Act of 2006: State Law created to reduce the State's greenhouse gas emissions to 1990 levels by 2020 and to 80% below 1990 levels by 2050.
- Assembly Bill 2800: Requires the California Natural Resources Agency to create a Climate-Safe Infrastructure Working Group, and for state agencies to consider the current and future impacts of climate change when planning, designing, building, operating, maintaining, and investing in State infrastructure.

In August of 2018, California State Treasurer John Chiang signed the [Green Bond Pledge](#), making California the first state to pledge to use 'green' financing to combat climate change.

City and County of San Francisco

San Francisco has long been a leader in the fight against climate change. As of 2017, the City has successfully reduced emissions by 36% compared to 1990 levels, surpassing its 25% target. As part of the Global Climate Action Summit in 2018, Mayor London Breed announced the following climate goals:

- Zero Waste: Reduce waste generation by 15% and landfill disposal by 50% by 2030.
- Decarbonizing Buildings: Net-zero carbon buildings in San Francisco by 2050.
- 100% Renewable Energy: Switch all electricity in San Francisco to renewables by 2030.
- Green Bonds: Issue more green bonds to finance infrastructure and capital projects.

San Francisco's leadership further strengthened the City's commitment to climate action in 2019 when the Board of Supervisors unanimously approved the Climate Emergency Resolution 160-19, aligning San Francisco's climate goals with the Paris Agreement by limiting global warming to 1.5°C above pre-industrial levels.

In addition to the activities described above, the Mayor and Board of Supervisors have led two initiatives described below that require SFPUC capital planning to include climate and social inclusion:

- [Local Hire Ordinance](#) was adopted in December of 2010 by the San Francisco Board of Supervisors. The ordinance requires that local residents perform a minimum 30% of trade hours and 50% for apprenticeship hours and is one of the strongest pieces of legislation in the country to promote the employment of local residents on locally sponsored projects.
- [Guidance for Incorporating Sea Level Rise into Capital Planning](#) also now takes place as part of the City's Capital Planning Review process. All City projects now undergo a sea-level vulnerability assessment and must respond to anticipated consequences through redesign or relocation. SFPUC staff actively participated in the Mayor's Sea Level Rise Coordinating Committee and Working Group to develop the Sea Level Rise Guidance. The objective is to work with other City agencies towards a more holistic, integrated and coordinated response to climate change.

*Mountain Tunnel*

2. San Francisco Public Utilities Commission

Overview

The SFPUC provides retail drinking water and wastewater services to the City of San Francisco, wholesale water to three Bay Area counties (Alameda, San Mateo and Santa Clara), and green hydroelectric and solar power to municipal departments and retail electric customers. Headquartered in San Francisco, the SFPUC has approximately 2,500 employees working in seven counties and has a combined annual operating and capital budget of over \$2 billion. The SFPUC is comprised of three utility enterprises:

- **The Water Enterprise** serves more than 2.7 million people and is responsible for managing the transmission, treatment, storage and distribution of potable water to the City of San Francisco and 27 water agencies in three Bay Area counties – San Mateo, Santa Clara and Alameda.
- **The Wastewater Enterprise** serves San Francisco residents and operates three treatment plants for sewage and stormwater treatment as well as maintains nearly 1,000 miles of combined sewer and stormwater lines.
- **The Power Enterprise** provides green hydroelectric power to municipal customers in San Francisco. The Power Enterprise also operates CleanPowerSF, a program that enables the City to purchase cleaner power on behalf of local residents and support local jobs, stable energy prices and clean energy infrastructure.

Financial Policies

The San Francisco City Charter requires the SFPUC to exercise prudent financial stewardship of SFPUC assets by establishing “rates, fees and charges at levels sufficient to improve or maintain financial condition and bond ratings at or above levels equivalent to highly rated utilities of each enterprise under its jurisdiction, meet requirements and covenants under all bond resolutions and indentures..., and provide sufficient resources for the continued financial health (including appropriate reserves), operation, maintenance and repair of each enterprise, consistent with good utility practice.”

To serve the financial objectives and parameters established by the Commission, the SFPUC has established a [10-Year Financial Plan](#) as well as [Debt Management Policies and Procedures](#) for debt financings associated with the Water, Wastewater and Power Enterprises. In addition, the SFPUC maintains a [Fund Balance Reserve Policy](#), a [Debt Service Coverage Policy](#), and a [Capital Financing Policy](#). Last, the [Debt Policy of The City and County of San Francisco](#), established by the Controller’s Office of Public Finance, summarizes the City’s existing debt policies and formally establishes them for all future debt.¹

¹ For information about SFPUC’s Investor Relations and Financial Reports, see: <https://www.sfwater.org/index.aspx?page=164>

Environmental, Social, and Governance Policies and Programs

With the useful life of capital assets typically extending 30 years or more, climate mitigation and adaptation criteria are included in the SFPUC's capital planning and project selection process. Described below are SFPUC-level policies and programs that contribute to capital planning decisions informed by climate adaptation and/or mitigation and social inclusion.

The activities below have been organized into three categories: environmental, social, and governance (ESG):

Environmental

- [Community Choice Aggregation](#): CleanPowerSF is San Francisco's Community Choice Aggregation program. Administered by the SFPUC Power Enterprise, CleanPowerSF is a not-for-profit program launched in 2016 with a mission to provide San Francisco electricity customers with the choice of having their electricity supplied from clean, renewable sources at a competitive price. CleanPowerSF is now serving over 376,000 San Francisco customers with 90% renewable energy. Prior to CleanPowerSF, electricity accounted for 29% of the City's greenhouse gas emissions. Now, that total has dropped to 11%.
- [GoSolarSF](#): GoSolarSF is administered by the SFPUC Power Enterprise and provides incentives to help CleanPowerSF and Hetch Hetchy residential and business electric customers install solar panel systems. Together these systems produce 19.9 megawatts of renewable solar electric power.
- [Water Enterprise Stewardship Policy](#): The purpose of the Water Enterprise Environmental Stewardship Policy is to establish a long-term management policy for natural resources associated with the operation of the water system within the Tuolumne River, Alameda Creek, and Peninsula watersheds.
- [Green Infrastructure](#): Green infrastructure projects divert stormwater from the sewer system while beautifying San Francisco's neighborhoods, providing ecological function and urban habitat, and contributing to bike and pedestrian friendly design. Green infrastructure technologies include rain gardens, permeable pavement, and rainwater harvesting systems. The SFPUC has completed 272 Green Infrastructure projects which diverts 63 million gallons of stormwater from the sewer system annually.
- [OneWaterSF](#): The objective of OneWaterSF is to optimize the use of finite water and energy resources with community and ecosystem needs, creating a more resilient and reliable future for the SFPUC.

Social

- [Community Benefits](#): The SFPUC's Community Benefits Program focuses on Workforce Development, Education, Art, Environmental Justice/Land use, Neighborhood Partnerships, and Small Business Opportunities. The SFPUC is the first utility in the nation to adopt a [Community Benefits Policy](#).
- [Social Impact Partnership Program](#): The SFPUC is the first public utility in the country to implement a social impact program that advances corporate social responsibility as a part of its competitive bidding process. If awarded a contract, pre-identified "Community Benefit Commitments" become a binding contract term that must be delivered at no cost to the City. To date, these commitments have supported scholarships for college students, mentorship for middle-school

students, internships for youth and young adults, child care for working parents, mentorship for small businesses, urban greening and access to healthy food. Since 2011, 74 contracts have included commitments totaling \$34 million in financial, volunteer and in-kind contributions.

Governance

- [SFPUC Commission](#): The SFPUC Commission consists of five members, nominated by the Mayor and approved by the Board of Supervisors. Their responsibility is to provide operational oversight in areas such as rates and charges for services, approval of contracts and organizational policy. Seat 1 of the commission is reserved for a member with experience in environmental justice policy and an understanding of environmental justice issues.
- [Citizens' Advisory Committee](#): The Citizens' Advisory Committee (CAC) provides recommendations to the General Manager of the SFPUC, the Commission itself and the San Francisco Board of Supervisors regarding the agency's long-term strategic, financial and capital improvement plans. Comprised of 17 appointees, the CAC includes a member appointed by the mayor who represents a regional or statewide environmental organization and a member appointed by the President of the Board of Supervisors who represents an environmental justice organization.
- [2020 Strategic Plan](#): In August 2016, the SFPUC Strategic Planning Steering Committee identified Environmental Stewardship as one of six goals to guide its work through the year 2020. Within Environmental Stewardship, the 2020 Strategic Plan specifies the goal to sustainably manage the resources entrusted to its care to ensure environmental and community health. This includes the following objectives:
 - Sustainably manage natural resources and physical systems to protect impacted people, water, land and ecosystems.
 - Develop, coordinate and communicate a comprehensive and consistent approach to mitigate and adapt to climate change.
 - Be resource efficient in all business operations.
 - Investigate the feasibility of implementing an environmental management system.

United Nations Sustainable Development Goals

With increased interest in the United Nations Sustainable Development Goals (SDGs) among investors and other stakeholders, impacts from SFPUC projects financed by Green Bonds are also aligned with several (SDGs). To determine project impact, the SFPUC relied on the International Capital Market Association (ICMA) “Green and Social Bonds: A High-Level Mapping to the Sustainable Development Goals” (June 2019). See Appendix A: SFPUC Program Impacts Aligned to the United Nations Sustainable Development Goals (SDGs) and Appendix C: Power Project Environmental Impacts Aligned with UN Sustainable Development Goals (SDGs).



Moccasin Reservoir, Powerhouse and Penstocks

3. SFPUC Green Bond Program

Since 2015, the SFPUC has issued more than \$1.4 billion in green bonds to finance Water, Wastewater, and Power capital projects that advance climate change mitigation or adaptation, making the SFPUC one of the largest municipal issuers of green bonds in the United States. In 2017, the SFPUC was recognized by the Climate Bonds Initiative at its annual conference for being the first issuer worldwide to sell bonds under its water criteria. In 2018, the SFPUC became among the first signatories of the Green Bond Pledge. In 2019, the combined green bond programs of the City of San Francisco and the SFPUC were recognized as a global leader in the C40 report [Cities100](#). Finally, the SFPUC was awarded the 2019 US Municipal Green Bond of the Year by Environmental Finance.



The SFPUC adheres to the International Capital Market Association's Green Bond Principles four core components:

- **Use of Proceeds:** The SFPUC issues Green Bonds to finance projects with clear environmental benefits. Project categories include sustainable water and wastewater management, climate change adaptation and renewable energy.
- **Process for Project Evaluation and Selection:** San Francisco's numerous policies and programs described herein ensure sustainable capital planning and project selection. Further, the SFPUC engages third-party verifiers to validate selected projects meet the required criteria. As part of the certification process, the SFPUC retained Sustainalytics to provide third-party verification that the bonds are aligned with the Climate Bonds Initiative.
- **Management of Proceeds:** The SFPUC records Green Bond proceeds in separate capital project funds available only to eligible projects. Non-eligible projects cannot access proceeds generated from green bonds.
- **Reporting:** The SFPUC publishes annually a project spending and management of proceeds report for each green bond issued throughout project construction. Beginning with the FY 2018-19 reports, in addition to project spending, the reports will also include project impacts as well as additional information in connection with the climate and sustainability activities of the SFPUC.

4. Power Enterprise Green Bond Impact Report

On May 20, 2015 the SFPUC issued Power Revenue Bonds, Series 2015A (Green Bonds) which generated \$30,200,000 in project fund proceeds. The SFPUC self-certified the green bonds. The purpose of designating the bonds as Green Bonds was to communicate to investors the environmentally beneficial projects as outlined in the Power Revenue Bonds Official Statement. Proceeds funded the following project areas:

- Hetch Hetchy Project hydroelectric generation facilities
- Other renewable energy projects, such as biomass and biowaste, solar and wind
- Energy conservation projects, such as energy-efficient streetlights.

The reconstruction or replacement projects funded by the 2015 Series A Bonds involve generation components of the hydroelectric facilities of the Hetch Hetchy Project which produces 100% greenhouse gas-free electricity. The majority of these funds were earmarked for a project to rewind generators at the Moccasin Powerhouse, one of three hydroelectric powerhouses operated by the SFPUC.

In early 2016, the SFPUC retained Sustainalytics to review a partial reallocation of green bond proceeds to include additional eligible projects, see Appendix D: Green Bond Verification Report.

Green Bond Spending Details

The proceeds from the green bond issuances are separately tracked and allocated to designated eligible projects. Spending by bond and eligible project is detailed in Appendix B: Power Bond Proceeds.



Appendix A: SFPUC Climate and Social Inclusion Impacts Aligned to the United Nations Sustainable Development Goals (SDGs)



SDG 4: Quality education

Ensure inclusive and equitable quality education and promote lifelong learning opportunities

SFPUC Program: [Education](#)

Impact:

- SFPUC partners with community organizations, local school districts and city departments to teach youth about science, technology, engineering and math (STEM) and the role they can play to sustain our natural resources. Through ecoliteracy programs and field trips, students experience the outdoors and learn about STEM careers while gaining a greater appreciation for the environment. Since 2012, SFPUC has partnered with 216 schools and organizations on 11 education programs serving over 77,000 youth.
- SFPUC provides [special curricula](#) and resources like [Big Ideas](#), a book providing teachers with a guide to teach Grades K-12 about SFPUC's water, power and sewer systems or [The Story of Poo](#), an animated video following a six-year old girl from San Francisco who learns about what takes place after she flushes the toilet.
- SFPUC and partners hold [classroom presentations](#) providing more than 2,500 kids with the opportunity to learn about how SFPUC systems operate and what they can do to conserve our natural resources.
- Through the SPARK Program, SFPUC staff and private sector partners serve as mentors to socio-economically disadvantaged students, volunteering more than 600 hours to collaborate with them on STEM projects while helping them explore real career opportunities.
- The [College Hill Learning Garden](#) provides children in primary school with an interactive garden equipped with curriculum-based tools. Since 2016, the Garden has partnered with 28 schools and organizations serving over 2,400 youth.



SDG 5: Gender equality

Achieve gender equality and empower all women and girls

SFPUC Program: [Small Business Opportunities](#):

Impact:

- SFPUC partners with the National Association of Women in Construction and the Women’s Business National Council to host the Annual Women in Construction Exposition. The Expo provides multiple benefits to attendees, from supporting women in the construction industry by sharing information on pre-apprenticeship programs to beginning a career in the industry. Other advantages include strengthening professional skills, growing successful companies and navigating the contract bidding process. Through the Expo, participants also have the opportunity to learn about construction opportunities with the SFPUC.
- SFPUC is a member of the Tuolumne Community Collaborative, group of more than 25 entities including education institutions, local contractors, professional service firms, and government agencies that support a pipeline of local workers in the construction industry. The Collaborative features a Pre-Apprenticeship Construction Training Program, and it recently celebrated an inaugural all-female class.



SDG 6: Clean water and sanitation

Ensure availability and sustainable management of water and sanitation for all

SFPUC Program: [Water System Improvement Program \(WSIP\)](#)

Impact:

- Water system provides water supply, treatment and distribution services to 890,000 residents in San Francisco and to 1.8 million wholesale customers in surrounding Bay Area communities
- Improve the system to provide high-quality water that reliably meets all current and foreseeable local, State, and Federal requirements.
- Reduce vulnerability of the water system to damage from earthquakes.
- Increase system reliability to deliver water by providing the redundancy needed to accommodate outages.
- Provide improvements related to water supply/drought protection.
- Enhance sustainability through improvements that optimize protection of the natural and human environment.

SFPUC Program: [Sewer System Improvement Program \(SSIP\)](#)

Impact:

- Wastewater system provides sewer and stormwater collection and treatment services to 890,000 residents in San Francisco.
- Provide a reliable and resilient system that can respond to catastrophic events. Ensuring treatment of flows within 72 hours of a major earthquake.
- Integrate green and grey infrastructure to manage stormwater and minimize flooding. Reducing stormwater impacts on neighborhoods and the sewer system.
- Provide benefits to impacted communities by alleviating odors and other impacts while providing both economic and job opportunities.
- Modify the system to adapt to Climate Change. Building facilities with climate change design criteria to respond more effectively to the rising sea level and other impacts.
- Achieve economic and environmental sustainability. Reusing and conserving the by-products of our wastewater and stormwater treatment systems.
- Maintain ratepayer affordability. Keeping customer bills less than 2.5% of an average household income for a single-family residence.



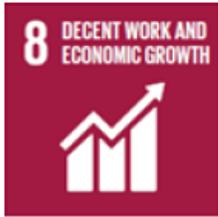
SDG 7: Affordable clean energy

Ensure access to affordable, reliable, sustainable and modern energy for all

SFPUC Program: [Power](#)

Impact:

- The Power system serves 80% of the electricity consumed in San Francisco with minimum 90% renewable energy.
- Hetch Hetchy Power is San Francisco's full-service, publicly owned electric utility. As SFPUC drinking water flows downhill from Yosemite to the Bay Area, SFPUC harnesses the natural force of gravity to generate 100% greenhouse gas-free hydroelectric power.
- CleanPowerSF is San Francisco's official Community Choice Energy program which buys electricity from renewable sources like solar and wind, and puts that clean electricity on the power grid.



SDG 8: Decent work and economic growth

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

SFPUC Program: [Workforce Development](#)

Impact:

- 1,400 local young people participate in [work-based learning opportunities and industry-related internships](#).
- The [Project Learning Grant](#) partnerships with 25-30 local community organizations provide youth with work-based learning opportunities related to water, power and sewer.
- Opened in 2013, the [Contractor's Assistance Center](#) is a free community resource that provides local, small businesses with the tools and resources to adequately get access to, compete for, and perform on the many contracting opportunities that come from SFPUC.
- SFPUC's Sewer System Improvement Program and Water System Improvement Program are possible through [project labor agreements](#) (PLAs). These are formal agreements with local labor unions which ensure that local workers and residents impacted by these capital projects have access to construction training and job opportunities. Over the years, PLAs have brought thousands of critically needed jobs to San Francisco, while building healthier, more reliable water and sewer systems. SFPUC's PLAs help to:
 - Provide access to a study supply of skilled union workers
 - Pay family-sustaining prevailing wages and benefits
 - Harmonize safety protocols at work sites
 - Create careers in construction
- Project Pull, a paid internship program, pairs local high school students and incoming college freshmen with City staff who introduce them to job skills and technical careers. Since its inception in 1996, the program has provided more than 1,500 students with summer employment. Since 2012, students from the area of Southeast Treatment Plant, District 10, have had paid jobs and mentorships from the SFPUC and private engineering firms working on our SSIP through the [SSIP Cityworks Internship Program](#).
- Through [CityBuild Academy](#), an 18-week citywide construction program, SFPUC trains and connects local workers to job opportunities with our capital programs, creating more than 1,000 placements since 2006. Program participants are also able to access CityBuild's Women Leadership and Mentor Group.
- As a founding member of [BAYWORK](#) – a consortium of 29 water and wastewater Bay Area agencies—SFPUC collaboratively holds career fairs for hundreds of students and job seekers while providing workshops that keep existing workers up-to-date on skills and industry trends.

SFPUC Program: [Social Impact Partnership Program](#)

Impact:

- The SFPUC is the first public utility in the country to implement a social impact program that advances corporate social responsibility as a part of its competitive bidding process.
- For Requests for Proposals valued at \$5 million and above, firms can receive up to 5 points (out of 100) for what they are willing to give-back to the local community in the areas of education, environmental justice, workforce and small business development and social innovation.
- To date, these commitments have supported scholarships for college students, STEM mentorship for middle-school students, paid internships for youth and young adults, pre-job barrier removal like providing child care, small business mentorship, and supporting urban greening and access to healthy food.



SDG 9: industry, innovation and infrastructure

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

SFPUC Program: [Water System Improvement Program \(WSIP\)](#)

Impact:

- Water system provides water supply, treatment and distribution services to 890,000 residents in San Francisco and to 1.8 million wholesale customers in surrounding Bay Area communities
- Reduce vulnerability of the water system to damage from earthquakes.
- Increase system reliability to deliver water by providing the redundancy needed to accommodate outages.
- Provide improvements related to water supply/drought protection.
- Enhance sustainability through improvements that optimize protection of the natural and human environment.

SFPUC Program: [Sewer System Improvement Program \(SSIP\)](#)

Impact:

- Wastewater system provides sewer and stormwater collection and treatment services to 890,000 residents in San Francisco.
- Provide a reliable and resilient system that can respond to catastrophic events. Ensuring treatment of flows within 72 hours of a major earthquake.
- Integrate green and grey infrastructure to manage stormwater and minimize flooding. Reducing stormwater impacts on neighborhoods and the sewer system.
- Modify the system to adapt to Climate Change. Building facilities with climate change design criteria to respond more effectively to the rising sea level and other impacts.
- Achieve economic and environmental sustainability. Reusing and conserving the by-products of our wastewater and stormwater treatment systems.
- Maintain ratepayer affordability. Keeping customer bills less than 2.5% of an average household income for a single-family residence.



SDG 10: Reduce Inequalities

Reduce inequality within and among countries

SFPUC Program: [Environmental Justice and Land Use](#)

Impact:

- SFPUC’s [Environmental Justice Policy](#) affirms and commits to the goals of environmental justice to prevent, mitigate, and lessen disproportionate impacts of SFPUC activities on communities. The SFPUC is the first public utility in the nation to adopt an Environmental Justice Policy.
- Located on six-acres of SFPUC land, [Hummingbird Farm](#) makes affordable produce available to communities disproportionately impacted by SFPUC operations. The farm services as a community hub, providing a space for individuals of all ages and abilities to participate in farming, educational activities and cultural celebrations.
- Through the [Urban Watershed Stewardship Program](#), SFPUC partners with the City’s Community Challenge Grant program to provide grants that support community projects that harvest and use rainwater, remove impervious surfaces, or implement green stormwater management facilities. Since the program’s inception in 2009, SFPUC has removed more than 20,000 square feet of impervious concrete; planted more than 70 trees and 5,500 plants; installed cisterns capturing 25,000 gallons of rainwater; and engaged the community to provide more than 5,300 volunteer hours.

SFPUC Community Benefits Program: [Neighborhood Revitalization](#)

Impact:

- Based in the historic Bayview Hunters Point Neighborhood, the [Southeast Community Facility Commission](#) provides guidance to the SFPUC and the San Francisco Board of Supervisors regarding strategic, financial and capital improvement plans, programming and operations for the Southeast Community Facility and Greenhouses. Southeast Investments have included:
 - 1,400 young people participate in internships and other work-based learning opportunities each year
 - Access to clean drinking water at three public schools in the neighborhood.
 - Nearly 50 contractors have completed a green infrastructure construction training program.



SDG 11: Sustainable Cities and Communities

Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

SFPUC Program: [Power](#)

Impact:

- The Power system serves 80% of the electricity consumed in San Francisco with minimum 90% renewable energy.
- Hetch Hetchy Power is San Francisco's full-service, publicly owned electric utility. As SFPUC drinking water flows downhill from Yosemite to the Bay Area, SFPUC harnesses the natural force of gravity to generate 100% greenhouse gas-free hydroelectric power.
- CleanPowerSF is San Francisco's official Community Choice Energy program which buys electricity from renewable sources like solar and wind, and puts that clean electricity on the power grid.

SFPUC Program: [Water System Improvement Program \(WSIP\)](#)

Impact:

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SFPUC Program: [Sewer System Improvement Program \(SSIP\)](#)

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SDG 12: Responsible Consumption and Production

Ensure sustainable consumption and production patterns

SFPUC Program: [Power](#)

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SDG 13: Climate Action

Take urgent action to combat climate change and its impacts

SFPUC Program: [Power](#)

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SFPUC Program: [Water System Improvement Program \(WSIP\)](#)

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SFPUC Program: [Sewer System Improvement Program \(SSIP\)](#)*Impact:*

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- Modify the system to adapt to Climate Change. Building facilities with climate change design criteria to respond more effectively to the rising sea level and other impacts.
- Achieve economic and environmental sustainability. Reusing and conserving the by-products of our wastewater and stormwater treatment systems.
- Maintain ratepayer affordability. Keeping customer bills less than 2.5% of an average household income for a single-family residence.



SDG 14: Life below water

Conserve and sustainably use the oceans, seas and marine resources for sustainable development

SFPUC Program: [Water System Improvement Program \(WSIP\)](#)

Impact:

- Water system provides water supply, treatment and distribution services to 890,000 residents in San Francisco and to 1.8 million wholesale customers in surrounding Bay Area communities
- Provide improvements related to water supply/drought protection.
- Enhance sustainability through improvements that optimize protection of the natural and human environment.

SFPUC Program: [Sewer System Improvement Program \(SSIP\)](#)

Impact:

- Wastewater system provides sewer and stormwater collection and treatment services to 890,000 residents in San Francisco.
- Provide a reliable and resilient system that can respond to catastrophic events. Ensuring treatment of flows within 72 hours of a major earthquake.
- Integrate green and grey infrastructure to manage stormwater and minimize flooding. Reducing stormwater impacts on neighborhoods and the sewer system.
- Modify the system to adapt to Climate Change. Building facilities with climate change design criteria to respond more effectively to the rising sea level and other impacts.
- Achieve economic and environmental sustainability. Reusing and conserving the by-products of our wastewater and stormwater treatment systems.
- Maintain ratepayer affordability. Keeping customer bills less than 2.5% of an average household income for a single-family residence.



SDG 15: Life on land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation and halt biodiversity loss

SFPUC Program: [Power](#)

Impact:

- The Power system serves 80% of the electricity consumed in San Francisco with minimum 90% renewable energy.
- Hetch Hetchy Power is San Francisco's full-service, publicly owned electric utility. As SFPUC drinking water flows downhill from Yosemite to the Bay Area, SFPUC harnesses the natural force of gravity to generate 100% greenhouse gas-free hydroelectric power.
- CleanPowerSF is San Francisco's official Community Choice Energy program which buys electricity from renewable sources like solar and wind, and puts that clean electricity on the power grid.

SFPUC Program: [Water System Improvement Program \(WSIP\)](#)

Impact:

- Water system provides water supply, treatment and distribution services to 890,000 residents in San Francisco and to 1.8 million wholesale customers in surrounding Bay Area communities.
- Improve the system to provide high-quality water that reliably meets all current and foreseeable local, State, and Federal requirements.
- Reduce vulnerability of the water system to damage from earthquakes.
- Increase system reliability to deliver water by providing the redundancy needed to accommodate outages.
- Provide improvements related to water supply/drought protection.
- Enhance sustainability through improvements that optimize protection of the natural and human environment.

SFPUC Program: [Sewer System Improvement Program \(SSIP\)](#)

Impact:

- Wastewater system provides sewer and stormwater collection and treatment services to 890,000 residents in San Francisco.
- Provide a reliable and resilient system that can respond to catastrophic events. Ensuring treatment of flows within 72 hours of a major earthquake.
- Integrate green and grey infrastructure to manage stormwater and minimize flooding. Reducing stormwater impacts on neighborhoods and the sewer system.
- Provide benefits to impacted communities by alleviating odors and other impacts while providing both economic and job opportunities.
- Modify the system to adapt to Climate Change. Building facilities with climate change design criteria to respond more effectively to the rising sea level and other impacts.
- Achieve economic and environmental sustainability. Reusing and conserving the by-products of our wastewater and stormwater treatment systems.
- Maintain ratepayer affordability. Keeping customer bills less than 2.5% of an average household income for a single-family residence

Appendix B: Power Bond Proceeds

Power Bond Series 2015 A
As of June 30, 2019

Project	Estimated Use of Proceeds	Prior Year Spending	FY 18-19 Spending	Remaining
Hydroelectric Powerhouse Controls Upgrade	\$437,288	\$30,635	\$1,779	\$404,874
Kirkwood Penstock Rehabilitation	1,227,712	1,227,712	544,359	(544,359)
Moccasin Penstock Rehabilitation	2,667,000	1,405,397	21,004	1,240,599
Mountain Tunnel Hydroelectric Conveyance	11,332,000	9,454,175	1,115,859	761,966
Oil Containment Upgrades for Holm & Kirkwood Hydroelectric Facilities	2,800,000	811,645	253	1,988,102
Other Powerhouse Projects - Holm Unit 2	13,000,000	2,439,420	6,577,771	3,982,809
Grand Total	\$30,200,000*	\$15,368,985	\$8,261,025	\$ 7,833,991

**Budget in excess of project fund deposit to come from other funding sources*

Appendix C: Power Project Environmental Impacts Aligned with UN Sustainable Development Goals (SDGs)

Project Name	Project Number	United Nations Sustainable Development Goals	Environmental Impact Description	California Environmental Quality Act (CEQA)
Hydroelectric Powerhouse Controls Upgrade	10014086	  	<p>This project will improve the reliability and efficiency of a 90 megawatt hydroelectric plant which provides about 430 gigawatt hours of energy per year. This project will overhaul a two-unit hydroelectric plant, upgrading the electrical motors, and the supporting components and auxiliary systems of the hydroelectric plant with new technology. The expected annual generation following the project is 460 gigawatt hours of energy per year, an increase of about 30 gigawatt hours or 7 percent. Water that flows through this hydroelectric plant serves 2.7 million water customers in the Bay Area.</p>	<p>Categorical Exemption</p>
Kirkwood Penstock Rehabilitation	10014085	  	<p>Kirkwood Penstock is a water conveyance system that provides a dual purpose; water conveyance for a 123 megawatt hydroelectric plant, and a water supply conveyance for 2.7 million customers in the Bay Area. This project will improve the reliability of the water conveyance system by monitoring natural ground movement and provide for replacement parts to reduce return-to-service times in the event of failure.</p>	<p>Categorical Exemption</p>
Moccasin Penstock Rehabilitation	10014088	  	<p>Moccasin Penstock is a water conveyance system that provides a dual purpose; water conveyance for a 90 megawatt hydroelectric plant, and a water supply conveyance for 2.7 million customers in the Bay Area. This project will improve the reliability of a nearly 100 year old pipe, replacing sections of pipe that are likely to fail.</p>	<p>Categorical Exemption</p>
Mountain Tunnel Hydroelectric Conveyance	10014113; 10014114	  	<p>Mountain Tunnel is a water conveyance system that provides a dual purpose; water conveyance for a 90 megawatt hydroelectric plant, and a water supply conveyance for 2.7 million customers in the Bay Area. This project will improve the reliability of the tunnel. The hydroelectric plant fed by Mountain Tunnel produces about 430 gigawatt hours of energy per year.</p>	<p>Mitigated Negative Declaration</p>

Project Name	Project Number	United Nations Sustainable Development Goals	Environmental Impact Description	California Environmental Quality Act (CEQA)
Oil Containment Upgrades for Holm & Kirkwood Hydroelectric Facilities	10014078	  	<p>This project will upgrade the water treatment system at two hydroelectric plants to ensure storm water and process water releases are in compliance with the California State Water Quality Standards.</p>	<p>Categorical Exemption</p>
Other Powerhouse Projects - Holm Unit 2	10014075	 	<p>This project will improve the reliability and efficiency of a 93 megawatt hydroelectric unit which provides about 360 gigawatt hours of energy per year. This project replaces supporting components and auxiliary systems of the hydroelectric plant with new, more efficient technology. The expected annual generation following the project is 370 gigawatt hours of energy per year, an increase of about 10 gigawatt hours or 3 percent.</p>	<p>Categorical Exemption</p>

REVIEW OF SFPUC'S GREEN BOND REALLOCATION OF FUNDS

May 10th, 2016

San Francisco Public Utilities Commission (SFPUC) has engaged Sustainalytics to review the reallocation of its Series A Power Revenue Bonds (Green Bonds) funds from the rewind of hydropower generators at the Moccasin Powerhouse to the Mountain Tunnel Rehabilitation Project and Penstock¹ Rehabilitation Projects.

Background

In 2015, SFPUC issued its Series A Power Revenue Bonds (Green Bonds) with proceeds amounting to 32,025,000 USD. The purpose of designating the bonds as Green Bonds was to enable investors to invest in “environmentally beneficial projects”, also referred to as “Green Projects”, as outlined in the Power Revenue Bonds Official Statement (“Official Statement 2015”).² Such projects include:

- i) Hetch Hetchy Project hydroelectric generation facilities;
- ii) Other renewable energy projects, such as biomass and biowaste, solar and wind, and;
- iii) Energy conservation projects such as energy efficient streetlights.

The reconstruction or replacement projects expected to be funded by the 2015 Series A Bonds all involve generation components of the hydroelectric facilities of the Hetch Hetchy Project which produces greenhouse gas-free electricity. The majority of these funds were earmarked for a project to rewind generators at the Moccasin Powerhouse, part of the Hetch Hetchy Project. The Hetch Hetchy Project is composed of three hydroelectric powerhouses: the Moccasin Powerhouse, which includes a small, in-line hydroelectric unit, the Kirkwood Powerhouse and the Holm Powerhouse. The Moccasin Powerhouse relies on gravity-driven water flowing downhill from the Hetch Hetchy reservoir via Mountain Tunnel and the Moccasin Penstocks. The Kirkwood Powerhouse relies on the Kirkwood Penstock immediately preceding the powerhouse that conveys water to its hydropower generation facilities (see map Appendix A).

¹ Penstocks are conveyance pipes which transport water to powerhouses in SFPUC's Hetch Hetchy Project.

² Power Revenue Bonds Official Statement 2015.

Reallocation of Use of Proceeds Funds

In 2016, SFPUC determined that Mountain Tunnel was in need of urgent, critical repair and should thus be prioritized over the reconstruction or replacement of powerhouse generators in order to ensure the continued supply of water and electricity to SFPUC's customers. The SFPUC further determined that the penstocks are likewise in need of immediate repair and therefore is planning to reallocate Green Bond proceeds from generator repair to the Mountain Tunnel Rehabilitation Project and the Penstock Rehabilitation Projects.

Environmental Impact of Mountain Tunnel and Penstocks Rehabilitation Projects

Through consultation with Sustainalytics and through the provision of supporting documents, SFPUC confirmed that Mountain Tunnel and Penstocks Rehabilitation projects have undergone a Categorical Exemption Analysis, which demonstrated that the project would not result in adverse environmental effects. The Planning Department of the City of San Francisco determined that this project is categorically exempt under the California Environmental Quality Act (CEQA) Section 15301, Class 1 (Existing Facilities). Class 1 includes minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use. Projects would be conducted in compliance with applicable federal, State, and local regulations and under contractual provisions prohibiting work in violation of applicable regulations and plans.

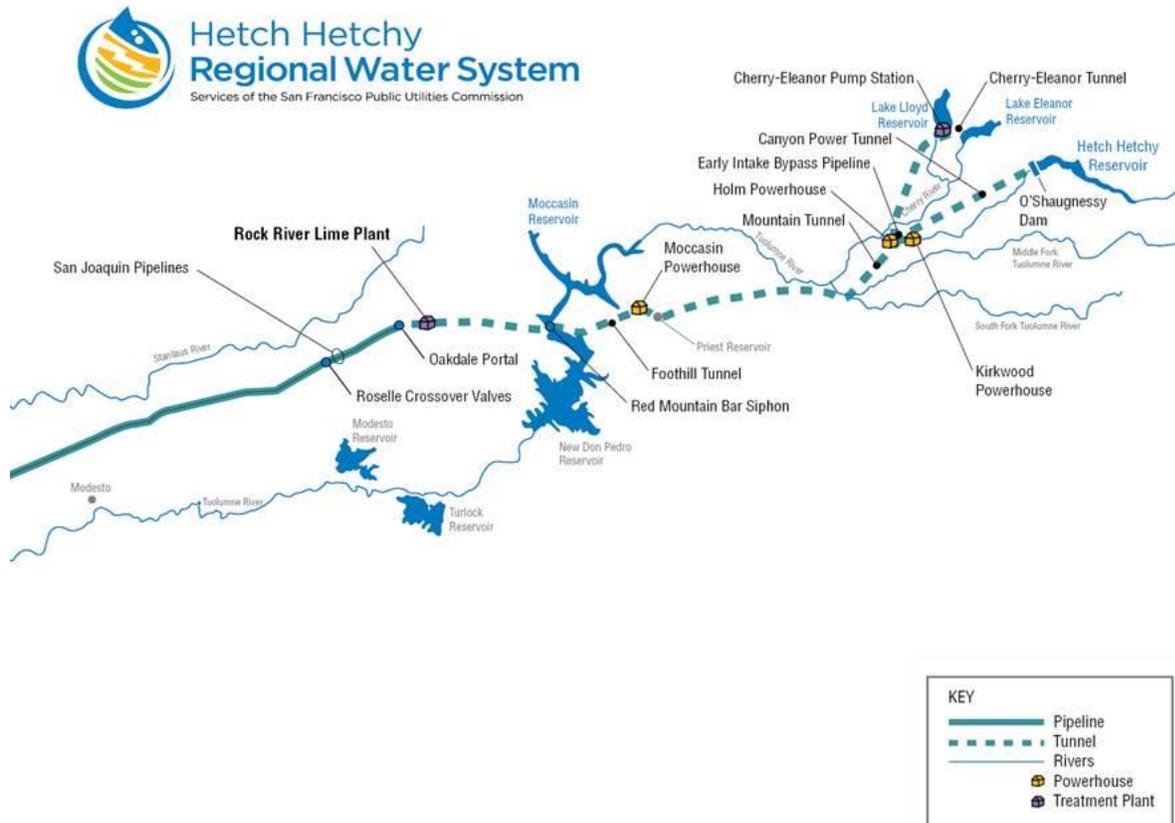
The outcome of this assessment is as follows:

- Mountain Tunnel and Penstocks Rehabilitation projects are considered to be a vital component to the overall function of the Hetch Hetchy Power System;
- Sustainalytics reviewed the relevant project documents and had conversations with relevant SFPUC team members to confirm the low environmental impact of the Mountain Tunnel project;
- The reallocation of Green Bond proceeds to the Mountain Tunnel and Penstock Rehabilitation Projects, from generator repair, helps to achieve the same objective of enabling the Hetch Hetchy Power system to continue to produce renewable energy, free of GHG emissions;
- It is reasonable to conclude that the Mountain Tunnel and Penstock Rehabilitation Projects are in line with the description of "Green Projects" in the Official Statement and that proceeds can therefore be allocated to its rehabilitation.

Conclusion: Based on our assessment of SFPUC's description of "Green Projects" in its Official Statement 2015, and on a review of the environmental impacts of both the Mountain Tunnel and the Penstock Rehabilitation Projects, Sustainalytics has concluded that the reallocation of Green Bond proceeds from their originally planned use to the Mountain Tunnel Rehabilitation Project and the Penstock Rehabilitation Projects are in line with the intended impact of the Series A Power Revenue Bonds and will enable investors to fund environmentally beneficial projects.

It should be noted that the Green Bond Principles 2015 state that "the cornerstone of a Green Bond is the utilization of the proceeds of the bond which should be appropriately described in the legal documentation for the security". Full alignment with the Green Bond Principles 2015 would mean allocating proceeds to projects in the categories explicitly described in the Official Statement 2015. Nonetheless, the reallocation is, as stated above, in line with the intended impact of the use of proceeds.

Appendix 1: Map of Hetch Hetchy Regional Water System



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