



GREEN

BOND

Fiscal Year 2019-20

REPORT

Table of Contents

1) Introduction

2) Water Enterprise Green Bond Impact Report

- a) Green Bond Proceeds
- b) Project Environmental Impacts Aligned with United Nations Sustainable Development Goals
- c) Case Study: Regional Groundwater Storage and Recovery Project

Appendix A: State, City and SFPUC Regulations, Policies and Programs

Appendix B: SFPUC Green Bond Program

Appendix C: Response to COVID-19

Appendix D: SFPUC Climate and Social Inclusion Impacts Aligned to the United Nations Sustainable Development Goals

Appendix E: Green Bond Verification Report



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 2045.

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 State and local laws and regulations, 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 \$2.1 billion in certified green bonds across its three enterprise utilities: Water, Wastewater, and Power. Impacts from the projects financed by bonds include increased water storage, application of green infrastructure to manage stormwater, and upgrades to renewable energy generation facilities.

In addition to providing project impact information, this report seeks to highlight associated project co-benefits and describe the context in which climate and social inclusion informs the SFPUC's capital planning decisions. This report reflects activities through June 30, 2020.



Water Enterprise Green Bond Impact Report

Water Enterprise green bonds issued to date have been used to fund the Water System Improvement Program (WSIP). The WSIP is a \$4.788 billion program consisting of 87 capital projects to repair, replace, and upgrade critical portions of the Regional and Local Water System. These projects were designed to meet specific objectives, which include:

- 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.

The program consists of 87 projects - 35 local projects located within San Francisco (Local Program) and 52 regional projects (Regional Program). [WSIP Quarterly Reports](#) provide a detailed update on the status of the projects in each WSIP region: San Joaquin, Sunol Valley, Bay Division, Peninsula, San Francisco Regional and San Francisco Local. The reports also identify critical issues that SFPUC staff and management are addressing to keep the program on budget and on schedule. The current forecasted date for overall program completion is December 2021.

Local Program

The WSIP Local Program includes 35 projects (excluding 5 Water Supply Projects) that are located within the city limits of San Francisco and only benefit City residents and businesses. (As of July 1, 2011, management and implementation of the Water Supply Projects were transferred from the WSIP Local Program to the Water Enterprise Capital Improvement Program.) These projects, which are typically smaller in size than the larger Regional Projects, include improvements to existing in-City distribution pipelines, storage reservoirs/tanks, pump stations, and miscellaneous facilities.

Regional Program

The Regional Program includes 52 projects that benefit both San Francisco residents and the 27 Wholesale Customers. These projects, which are typically much larger and located mostly outside San Francisco limits, are referred to as “Regional Projects.” They include a wide variety of improvements such as upgrades to and the addition of new treatment, transmission (pipelines, tunnels, pump stations), and storage (dams and reservoirs) facilities spread over seven different counties (Tuolumne, Stanislaus, San Joaquin, Alameda, Santa Clara, San Mateo, and San Francisco). The cost of the Regional Projects is incorporated in the rates paid by both Retail Customers and Wholesale Customers. The Regional Program is further divided into the following categories of projects:

- **San Joaquin Regional Projects:** These projects are designed to improve water delivery reliability by augmenting three existing transmission pipelines that transmit the Hetch Hetchy water supply across the San Joaquin Valley and enhance water quality by building the Tesla Disinfection Facility, a new advanced disinfection/treatment facility for the SFPUC’s largest source of supply.

- **Sunol Valley Regional Projects:** The projects within this region are designed to address delivery and seismic vulnerabilities associated with the delivery of Hetch Hetchy water through the Sunol Valley and water originating from the Alameda Watershed. Projects include the construction of a new Calaveras Dam, a fourth Alameda Siphon, a new Irvington Tunnel, in addition to the existing tunnel, and other connecting large-diameter pipelines, as well as upgrades to the existing Sunol Valley Water Treatment Plant and San Antonio Pump Station. All these facilities are within or near the Calaveras Fault influence zone.
- **Bay Division Regional Projects:** The projects within this region address the seismic vulnerability of the four Bay Division Pipelines, which transmit the blend of Hetch Hetchy and Sunol Valley water across the San Francisco Bay to the Peninsula and serve a large number of Wholesale Customers. The projects in this region address the crossing of the Hayward Fault and system vulnerability associated with the proximity of the San Andreas Fault; and add system redundancy and operational flexibility.
- **Peninsula Regional Projects:** The projects within this region are generally designed to address facility seismic vulnerabilities and meet water quality and delivery goals for the Crystal Springs, San Andreas and Pilarcitos Reservoirs. Projects include the construction of a new Crystal Springs Bypass Tunnel and large-diameter pipelines, as well as upgrades to the existing Harry Tracy Water Treatment Plant, the Pulgas Balancing Reservoir, and the Lower Crystal Springs Dam. All these facilities are located within the San Andreas Fault influence zone.
- **San Francisco Regional Projects:** The projects within this region include the seismic retrofit of the Sunset and University Mound Terminal Reservoirs, and a groundwater storage and recovery project. The two reservoir projects are located within the City but can be used to supply water back to the Northern Peninsula, which can benefit the Wholesale Customers. The groundwater project includes improvements in both San Mateo and San Francisco counties.
- **Support Projects (formally System Wide Region):** In July 2011, the System Wide Region was renamed as Support Projects. These projects include (1) system security upgrades, which involves the development and integration of security components at critical water system facilities, (2) the PEIR, which was prepared in compliance with CEQA to identify and analyze potential programmatic environmental impacts of the proposed system improvements, (3) the Watershed Environmental Improvement Program, which consists of conservation easements and/or fee title purchase of property from willing landowners to permanently protect Alameda Creek Watershed lands, (4) the Bioregional Habitat Restoration project (formerly Habitat Reserve Program), which is intended to provide a coordinated and consolidated approach to compensate for habitat impacts that would result from the implementation of the WSIP projects in the San Joaquin, Sunol Valley, Bay Division and Peninsula Regions of the Regional Water System, (5) Vegetation Restoration of WSIP Construction Sites, which was added to the Program in March 2014 to provide maintenance, monitoring and reporting of onsite habitat restoration installed at the various WSIP construction sites, and (6) Regional Program management.

Project Spending Details

The tables below provide project spending details on WSIP projects funded or refinanced by the following bond issuances of the Water Enterprise of the Public Utilities Commission of the City and County of San Francisco:

- Water Revenue Bonds Series 2016 C (Green Bonds)
- Water Revenue Bonds Series 2017A (Green Bonds)
- Water Revenue Bonds (Refunding) (Green Bonds) Series 2017D
- Water Revenue Bonds (Refunding) (Green Bonds) Series 2017G
- Water Revenue Bonds (Refunding) (Green Bonds) Series 2019A

The proceeds have been allocated to finance or refinance projects within the WSIP and Sustainalytics determined that all WSIP projects are eligible to be financed with green bonds. See Appendix B: WSIP Bond Proceeds.



Lake Merced Pump Station: Pump Building No. 1.

Green Bond Proceeds

Water Revenue Bonds Series 2016 C As of June 30, 2020

Project	Project Number	Estimated Use of Proceeds	Prior Year Spending	19-20 Spending	Total Expended	Remaining
Bond/Commercial Paper Expense	CUW30001	\$3,084,618	\$5,960,983	-	\$5,960,983	-\$2,876,365
Adit Leak Repairs	CUW35701	19,471,358	-	-	-	19,471,358
Regional GW Storage & Recovery	CUW30103	9,752,541	9,752,541	-	9,752,541	-
New Irvington Tunnel	CUW35901	3,534,658	-	v-217,275	-217,275	3,751,933
Upper Alameda Creek Filter Gallery	CUW35201	1,856,862	1,203,961	208,910	1,412,871	443,991
Seismic BDPL @ Hayward Fault Ph 2	CUW35302	3,181,724	2,142,608	-1,482,253	660,355	2,521,369
Lower Crystal Springs Dam Improvements	CUW35401	-	1,092	-	1,092	-1,092
New Crystal Springs Bypass Tunnel	CUW35601	170	170	-	170	-
Alameda Siphon #4	CUW35902	74,987	19,471,358	-	19,471,358	-19,396,371
Security Systems Upgrades	CUW36302	1,225,367	178,318	-	178,318	1,047,049
HTWTP Long Term Improvements	CUW36701	35,659,426	33,505,436	-	33,505,436	2,153,990
Peninsula Pipeline Seismic Upgrade	CUW36702	1,109	6,794	-	6,794	-5,685
BDPL Reliability Upgrade - Tunnel	CUW36801	83,385,032	81,724,603	-	81,724,603	1,660,429
BDPL Reliability - Pipeline	CUW36802	42,522,804	42,028,411	-1	42,028,410	494,394
Crystal Springs Ps & Cs - SA PI	CUW37101	11,682	377,889	-	377,889	-366,207
San Joaquin Pipeline System	CUW37301	-	10	-	10	-10
Rehab Existing San Joaquin Pipelines	CUW37302	-	1,673	-	1,673	-1,673
Calaveras Dam Replacement	CUW37401	32,848,192	15,450,469	7,476	15,457,945	17,390,247
San Antonio Backup Pipeline	CUW37403	41,041	1,672	-	1,672	39,369

Project	Project Number	Estimated Use of Proceeds	Prior Year Spending	19-20 Spending	Total Expended	Remaining
BDPL No 3 & 4 Cross Connection	CUW38001	-	1,818	-	1,818	-1,818
SVWTP Expansion/ Treated Water Reservoir	CUW38101	-	477	-	477	-477
Tesla Treatment Facility	CUW38401	-	212	-	212	-212
Habitat Reserve Program	CUW38802	18,914,745	18,986,032	-1	18,986,031	-71,286
SFPUC/EBMUD Intertie	CUW38901	173	173	-	173	-
Mitigation Planning	CUW38804	1,155,323	-	-	-	1,155,323
Program Environmental Impact Report	CUW38801	66,883	-	-	-	66,883
Program management Services – WSIP	CUW39201	-	199,315	-199,315	-	-
Vegetation Restoration WSIP Sites	CUW38803	32,940	-	-	-	32,940
Watershed Env. Improvement Program	CUW39401	-	677,865	-	677,865	-677,865
Bay Division Pipeline Upgrade	CUWBDP01	-	587,397	-	587,397	-587,397
Peninsula Water System Improvements	CUWPWI01	-	2,371,396	-	2,371,396	-2,371,396
San Joaquin Water Sys Improve Projects	CUWSJI01	-	151,115	-	151,115	-151,115
Sunol Valley Water System Improvements	CUWSVI01	-	977,271	-	977,271	-977,271
Total		256,821,634	235,761,059	-1,682,459	234,078,600	22,743,034

*Negative amounts reflect accounting reallocations.

Water Revenue Bonds Series 2017 A
As of June 30,2020

Project	Project Number	Estimated Use of Proceeds	Prior Year Spending	19-20 Spending	Total Expended	Remaining
Regional Groundwater Storage & Recovery	CUW30103	\$11,831,464	\$11,831,464	-	\$11,831,464	-
Harding Park Recycled Water Project	CUW30204	-	34	-	34	-
Recycled-Water Project-Eastside	CUW30205	19,703	19,703	-	19,703	-
Lake Merced Pump Station Upgrade	CUW30901	630,939	630,939	-	630,939	-
Sutro Res – Rehab/ Seismic Upgrade	CUW33701	23,855	23,855	-	23,855	-
Upper Alameda Creek Filter Gallery	CUW35201	-	264,536	-	264,536	-264,536
Seismic BDPL @ Hayward Fault Ph 2	CUW35302	4,345,357	4,345,357	-	4,345,357	-
Lower Crystal Springs Dam Improvements	CUW35401	-	1,140	-	1,140	-1,140
New Irvington Tunnel	CUW35901	4,792,673	4,792,673	-	4,792,673	-
Security Systems Upgrades	CUW36302	2,069,680	2,069,680	-	2,069,680	-
HTWTP Long Term Improvements	CUW36701	18,158,415	18,158,415	-	18,158,415	-
Peninsula Pipeline Seismic Upgrade	CUW36702	321,836	321,836	-	321,836	-
BDPL Reliability Upgrade - Tunnel	CUW36801	1,282,153	1,282,153	-	1,282,153	-
BDPL Reliability – Pipeline	CUW36802	259,886	259,886	-	259,886	-
Crystal Springs Ps & Cs – SA PI	CUW37101	51,297	51,297	-	51,297	-
San Joaquin Pipeline System	CUW37301	163,320	163,320	-	163,320	-
Rehab Existing San Joaquin Pipelines	CUW37302	-	259	-	259	-259
Calaveras Dam Replacement	CUW37401	73,965,437	73,965,437	-	73,965,437	-1
San Antonio Backup Pipeline	CUW37403	83,650	83,650	-	83,650	-
Crystal Springs PI #2 Replace (In City)	CUW37801	-	663	-	\$663	-663
BDPL No 3 & 4 Cross Connection	CUW38001	-	1,240	-	1,240	-1,240

Project	Project Number	Estimated Use of Proceeds	Prior Year Spending	19-20 Spending	Total Expended	Remaining
SVWTP Expansion/ Treated Water Reservoir	CUW38101	-	552	-	552	-552
Tesla Treatment Facility	CUW38401	-	1,616	-	1,616	-1,616
Habitat Reserve Program	CUW38802	2,349,645	2,349,645	-	2,349,645	-
Vegetation Restoration WSIP Sites	CUW38803	21,163	21,163	-	21,163	-
Baden and San Pedro Valve Lot	CUW39101	-	2,674	-	2,674	-2,674
Watershed Environmental Improve Program	CUW39401	532,628	532,628	-	532,628	-
Bay Division Pipeline Upgrade	CUWBDP01	1,589,685	1,589,685	-	1,589,685	-
Peninsula Water System Improvements	CUWPWI01	2,098,561	2,098,561	-	2,098,561	-
San Joaquin Water Sys Improve Projects	CUWSJI01	490,141	490,141	-	490,141	-
Sunol Valley Water System Improvements	CUWSVI01	878,913	878,913	-	878,913	-
Total		125,960,401	126,233,113	-	126,233,113	-272,715

*Negative amounts reflect accounting reallocations.

**Water Revenue Bonds (Refunding) (Green Bonds) Series 2017D
As of June 30,2020**

Project	Project Number	Refunded by 2017D
WSIP Financing Costs	CUW30001	\$6,186,666
Lake Merced Water Level Restoration	CUW30101	76,065
San Francisco Groundwater Supply	CUW30102	5,861,124
Regional Groundwater Storage & Recovery	CUW30103	11,662,612
Recycled Water Project - Westside	CUW30201	224,619
Harding Park Recycled Water Project	CUW30204	397,958
Recycled-Water Project- Eastside	CUW30205	403,721
Lake Merced Pump Station Upgrade	CUW30901	2,337,855
East/West Transmission Main	CUW31501	28,069
Forest Hill Pump Station Upgrade	CUW32001	1,112,242
Forest Knolls Pump Station Upgrade	CUW32101	7,470
Mclaren Park Pump Station Upgrade	CUW32301	5,353
Sutro Res - Rehab/Seismic Upgrade	CUW33701	11,590,033
Le Grande Pump Station Upgrade	CUW33801	45,522
Upper Alameda Creek Filter Gallery	CUW35201	1,142,093
Seismic BDPL @ Hayward Fault Ph 2	CUW35302	17,176,100
Lower Crystal Springs Dam Improvements	CUW35401	815,302
New Crystal Springs Bypass Tunnel	CUW35601	20,647
Sunset Res - Upgrade/Rehab North Basin	CUW35801	17,096
New Irvington Tunnel	CUW35901	57,937,418
Alameda Siphon #4	CUW35902	631,907
Structural Rehab (Roof) - Pulgas Phase 3	CUW36103	181,583
Existing Dechlor Mods- Pulgas Phase 5	CUW36105	89,584
Installation of SCADA System PH II	CUW36301	249,506
Security Systems Upgrades	CUW36302	2,120,548
Lawrence Livermore Water Quality Improve	CUW36401	10,107

Project	Project Number	Refunded by 2017D
HTWTP Long Term Improvements	CUW36701	20,044,784
Peninsula Pipeline Seismic Upgrade	CUW36702	8,758,742
BDPL Reliability Upgrade - Tunnel	CUW36801	35,714,358
BDPL Reliability - Pipeline	CUW36802	7,502,792
Crystal Springs Ps & Cs - SA PI	CUW37101	36,587,850
U Mound Res - Upgrade (North Basin)	CUW37201	147,093
San Joaquin Pipeline System	CUW37301	1,618,466
Rehab Existing San Joaquin Pipelines	CUW37302	96,453
Calaveras Dam Replacement	CUW37401	48,044,405
San Antonio Backup Pipeline	CUW37403	14,976,671
Crystal Springs PI #2 Replace (In City)	CUW37801	6,524,771
San Andreas #3 Pipeline Installation	CUW37901	53,518
BDPL No 3 & 4 Cross Connection	CUW35301	1,330,315
SVWTP Expansion/Treated Water Reservoir	CUW38101	12,423,360
Tesla Treatment Facility	CUW38401	2,208,334
San Antonio Pump Station Upgrade	CUW38601	14,076
Habitat Reserve Program	CUW38802	17,745,619
Vegetation Restoration WSIP Sites	CUW38803	585,228
SFPUC/EBMUD Intertie	CUW38901	80,161
Baden and San Pedro Valve Lot	CUW39101	86,134
Watershed Environmental Improve Program	CUW39401	687,129
Other WSIP Projects	--	26,780
Total		335,588,236

**Water Revenue Bonds (Refunding) (Green Bonds) Series 2017G
As of June 30,2020**

Project Name	Project Number	Refunded by 2017G
WSIP Financing Costs	CUW30001	\$495,370
Lake Merced Water Level Restoration	CUW30101	5,683
San Francisco Groundwater Supply	CUW30102	150,924
Regional Groundwater Storage & Recovery	CUW30103	394,643
Recycled Water Project - Westside	CUW30201	27,564
Harding Park Recycled Water Project	CUW30204	48,825
Recycled-Water Project- Eastside	CUW30205	47,845
Lake Merced Pump Station Upgrade	CUW30901	254,280
Forest Hill Pump Station Upgrade	CUW32001	135,593
Sutro Res – Rehab/Seismic Upgrade	CUW33701	1,010,822
Le Grande Pump Station Upgrade	CUW33801	5,586
Upper Alameda Creek Filter Gallery	CUW35201	37,483
Seismic BDPL @ Hayward Fault Ph 2	CUW35302	1,451,902
Lower Crystal Springs Dam Improvements	CUW35401	99,659
New Irvington Tunnel	CUW35901	6,441,819
Alameda Siphon #4	CUW35902	77,519
Structural Rehab (Roof) – Pulgas Phase 3	CUW36103	22,283
Existing Dechlor Mods- Pulgas Phase 5	CUW36105	10,993
Installation of SCADA System PH II	CUW36301	30,618
Security Systems Upgrades	CUW36302	183,153
HTWTP Long Term Improvements	CUW36701	681,830
Peninsula Pipeline Seismic Upgrade	CUW36702	228,439
BDPL Reliability Upgrade - Tunnel	CUW36801	3,610,135
BDPL Reliability – Pipeline	CUW36802	834,831
Crystal Springs Ps & Cs – SA PI	CUW37101	3,364,069
U Mound Res – Upgrade (North Basin)	CUW37201	18,050

Project	Project Number	Refunded by 2017G
San Joaquin Pipeline System	CUW37301	99,222
Rehab Existing San Joaquin Pipelines	CUW37302	10,081
Calaveras Dam Replacement	CUW37401	851,556
San Antonio Backup Pipeline	CUW37403	1,391,486
Crystal Springs PI #2 Replace (In City)	CUW37801	788,021
San Andreas #3 Pipeline Installation	CUW37901	6,567
BDPL No 3 & 4 Cross Connection	CUW35301	157,346
SVWTP Expansion/Treated Water Reservoir	CUW38101	1,517,992
Tesla Treatment Facility	CUW38401	244,012
Habitat Reserve Program	CUW38802	1,865,984
Vegetation Restoration WSIP Sites	CUW38803	32,319
SFPUC/EBMUD Intertie	CUW38901	9,837
Baden and San Pedro Valve Lot	CUW39101	10,570
Watershed Environmental Improve Program	CUW39401	73,839
Other WSIP Projects	--	15,865
Total		26,744,612




















Water Revenue Bonds (Refunding) (Green Bonds) Series 2019A
As of June 30,2020

Project Name	Project Number	Refunded by 2019A
Forest Knolls Pump Station Upgrade	CUW32101	\$9,650
Mclaren Park Pump Station Upgrade	CUW32301	6,916
Sunset Res - Upgrade/Rehab North Basin	CUW35801	22,085
Lawrence Livermore Water Quality Improve	CUW36401	13,057
Bdpl No 3&4 Cross Connection	CUW38001	1,744,840
San Antonio Pump Station Upgrade	CUW38601	18,358
Vehicle Service & Facility Upgrade	CUW30301	6,172
Summit Res Rehab/Seismic Upgrade	CUW30701	2,794
Lincoln Way Transmission Line	CUW31201	3,012
Mount Davidson Pump Station Upgrade	CUW32401	435
Palo Alto Pump Station Upgrade	CUW32501	900
Sky View/Aqua Vista Pump St Upgrades	CUW32601	5,888
Forest Knolls Tank Rehab/Upgrade	CUW33001	5,919
Mount Davidson Tank Rehab/Upgrade	CUW33301	289
Stanford Heights Res Rehab/Upgrade	CUW33401	6,117
Standby Power Fac Various Locations	CUW35501	1,159
Hwtwp Phase 3	CUW36603	1,911
Bond/Commercial Paper Expense	CUW30001	9,166,636
Hs Ch County Expense Claim	NA	1,241
Lake Merced Water Level Restoration	CUW30101	176,600
San Francisco Groundwater Supply	CUW30102	14,081,939
Regional Groundwater Storage & Recovery	CUW30103	21,231,931
Recycled Water Project	CUW30201	290,174
Harding Park Recycled Water Project	CUW30204	514,145
Recycled Water Project - Eastside	CUW30205	529,103
Lake Merced Pump Station Upgrade	CUW30901	3,165,312

Project	Project Number	Refunded by 2019A
East/West Transmission Main	CUW31501	36,260
Forest Hill Pump Station Upgrade	CUW32001	1,440,834
Sutro Res - Rehab/Seismic Upgrade	CUW33701	16,804,090
Le Grande Pump Station Upgrade	CUW33801	58,808
Upper Alameda Creek Filter Gallery	CUW35201	1,938,123
Seismic Bdpl @ Hayward Fault Ph 2	CUW35302	25,108,430
Lower Crystal Springs Dam Improvements	CUW35401	1,054,983
New Crystal Springs Bypass Tunnel	CUW35601	26,672
New Irvington Tunnel	CUW35901	77,819,684
Alameda Siphon #4	CUW35902	816,442
Structural Rehab (Roof) - Pulgas Phase 3	CUW36103	234,578
Existing Dechlor Mods - Pulgas Phase 5	CUW36105	115,729
Installation Of Scada System Ph li	CUW36301	322,324
Security Systems Upgrades	CUW36302	3,082,496
HtwtP Long Term Improvements	CUW36701	33,809,324
Peninsula Pipeline Seismic Upgrade	CUW36702	15,082,622
Bdpl Reliability Upgrade - Tunnel	CUW36801	49,576,450
Bdpl Reliability - Pipeline	CUW36802	10,074,720
Crystal Springs Ps & Cs-sa PI	CUW37101	52,277,372
U Mound Res - Upgrade (North Basin)	CUW37201	190,022
San Joaquin Pipeline System	CUW37301	2,533,233
Rehab Existing San Joaquin Pipelines	CUW37302	132,416
Calaveras Dam Replacement	CUW37401	84,520,102
San Antonio Backup Pipeline	CUW37403	21,334,584
Crystal Springs PI #2 Replace (In City)	CUW37801	8,485,386
San Andreas #3 Pipeline Installation	CUW37901	69,138
SVWTP Expansion/Treated Water Reservoir	CUW38101	16,078,187
Tesla Treatment Facility	CUW38401	2,972,943







Project	Project Number	Refunded by 2019A
Habitat Reserve Program	CUW38802	24,311,999
Vegetation Restoration Wsip Sites	CUW38803	931,843
Sfpuc/Ebmud Intertie	CUW38901	103,556
Baden And San Pedro Valve Lot	CUW39101	111,272
Watershed Environmental Improve Program	CUW39401	934,326
Total		503,395,531



















Project Impacts Aligned with the United Nations Sustainable Development Goals (SDGs)


















Project Name	Project Number	UN SDGs ²	Project and Environmental Impact Description	California Environmental Quality Act
Watershed and Environmental Improvement Program	CUW39401	 	Proactively manage, protect and restore environmental resources affected by Water System Improvement Program operations.	Program Environmental Impact Report
Baden & San Pedro Valve Lots Improvements	CUW39101	 	Implement structural upgrades to ensure operational flexibility in the event of an emergency, impacting a service population of 890,000.	Mitigated Negative Declaration
SFPUC/EBMUD Intertie	CUW38901	 	Improve water delivery and supply reliability to City of Hayward, a population of 160,000.	Program Environmental Impact Report
Vegetation Restoration of WSIP Sites	CUW38803	 	Restore and re-vegetate habitat areas temporarily impacted by construction at Water System Improvement Program sites to pre-construction condition.	Program Environmental Impact Report
Bioregional Habitat Reserve Program	CUW38802	 	Coordinate and consolidate approach to preserve, enhance, restore, or create about 2,350 acres of various habitats.	Program Environmental Impact Report
Program Environmental Impact Report	CUW38801	     	Analyze the environmental impact of the entire Water System Improvement Project.	Program Environmental Impact Report
Tesla Treatment Facility	CUW38401	  	Improve sustainable infrastructure by combining ultraviolet (UV) water treatment with a chemical treatment, impacting 2.7 million customers.	Final Environmental Impact Report








¹For more project information, including environmental impacts, budget and schedule, please see [WSIP Quarterly Reports](#)



























²Developed in consultation with SFPUC senior management and [ICMA Green and Social Bonds: A High-Level Mapping to the Sustainable Development Goals](#); SDG impacts have not been verified by a third-party.

Project Name	Project Number	UN SDGs ²	Project and Environmental Impact Description	California Environmental Quality Act
SVWTP Expansion/Treated Water Reservoir	CUW38101		Increase water supply to 160 million gallons per day, impacting 2.7 million customers.	Final Environmental Impact Report
San Andreas #3 Pipeline Installation	CUW37901		Installation of water pipeline to San Francisco service area of 890,000. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.	Final Environmental Impact Report
Crystal Springs PI #2 Replace (In City)	CUW37801		Improve seismic reliability of a pipeline delivering water to the San Francisco Peninsula. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.	Final Environmental Impact Report
San Antonio Backup Pipeline	CUW37403		Increase operational flexibility and delivery reliability during climate and seismic emergencies, impacting 2.7 million customers. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.	Final Environmental Impact Report
Calaveras Dam Replacement	CUW37401		Replace a seismically-vulnerable old dam with a new dam, including a fish ladder that supports and restores native aquatic resources. Dam provides water supply to 2.7 million customers.	Final Environmental Impact Report
Rehab Existing San Joaquin Pipelines	CUW37302		Establish a program of routine maintenance to ensure water delivery reliability to the entire San Francisco Peninsula, impacting 2.7 million customers. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.	Mitigated Negative Declaration

Project Name	Project Number	UN SDGs ²	Project and Environmental Impact Description	California Environmental Quality Act
San Joaquin Pipeline System	CUW37301	 	<p>Improve delivery reliability and provide operational flexibility during maintenance activities or unplanned outages resulting from seismic or extreme weather, impacting 2.7 million customers. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.</p>	Final Environmental Impact Report
University Mound Res - Upgrade (North Basin)	CUW37201	  	<p>Upgrade supply and delivery reliability to a San Francisco reservoir supplying about 25% of the City's tap water.</p>	Categorical Exemption
Crystal Springs/San Andreas Transmission Upgrade	CUW37101	 	<p>Improve water supply reliability between two reservoirs holding 28.7 billion gallons of water on the San Francisco Peninsula.</p>	Final Environmental Impact Report
BDPL Reliability- Pipeline	CUW36802	 	<p>Upgrade seismic and delivery reliability to the pipelines delivering San Francisco Peninsula's main source of water, impacting 2.7 million customers. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.</p>	Final Environmental Impact Report
BDPL Reliability Upgrade - Bay Tunnel	CUW36801	   	<p>Upgrade seismic and delivery reliability to the tunnel connected to San Francisco Peninsula's main source of water, impacting 2.7 million customers, while avoiding negative impact on biodiversity, Water transmission is largely gravity fed requiring minimal fossil fuel consumption.</p>	Final Environmental Impact Report
Peninsula Pipeline Seismic Upgrade	CUW36702	 	<p>Ensure seismic and supply reliability of pipelines on the San Francisco Peninsula, including preparedness for pipeline ruptures from landslides. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.</p>	Final Environmental Impact Report
HTWTP Long Term Improvements	CUW36701	  	<p>Improve seismic and delivery reliability for the water treatment plant for San Francisco Peninsula's sole source of emergency water.</p>	Final Environmental Impact Report

Project Name	Project Number	UN SDGs ²	Project and Environmental Impact Description	California Environmental Quality Act
Security Systems Upgrades	CUW36302	 	Establish necessary security features to protect important water service delivery systems.	Program Environmental Impact Report
Installation of SCADA System Ph II	CUW36301	 	Establish a common software platform to monitor flow and pressure in key locations in the City of San Francisco.	Categorical Exemption
Existing Dechlor Mods - Pulgas Phase 5	CUW36105	  	Ensure safe drinking water for Peninsula residents	Program Environmental Impact Report
Structural Rehab (Roof) - Pulgas Phase 3	CUW36103	 	Protect water quality and delivery reliability for Peninsula residents.	Mitigated Negative Declaration
Alameda Siphon #4	CUW35902	 	Provide redundancy to ensure continued water service to 2.7 million customers in case of major weather or seismic event.	Mitigated Negative Declaration
New Irvington Tunnel	CUW35901	 	Guarantee water service to 2.7 million customers in four Bay Area counties within 24 hours of a major weather or seismic event. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.	Final Environmental Impact Report
Adit Leak Repairs	CUW35701	 	Upgrade supply and delivery reliability for water reservoir serving the Peninsula region.	Program Environmental Impact Report
New Crystal Springs Bypass	CUW35601	 	Guarantee water service to more than 1 million people in San Mateo and San Francisco counties within 36 hours of a major weather or seismic event.	Final Environmental Impact Report

Project Name	Project Number	UN SDGs ²	Project and Environmental Impact Description	California Environmental Quality Act
Lower Crystal Springs Dam Improvements	CUW35401		Guarantee water service to more than 1 million people in San Mateo and San Francisco counties within 36 hours of a major weather or seismic event.	Final Environmental Impact Report
BDPL No 3&4 Cross Connection	CUW35301		Seismic and supply reliability improvements to ensure delivery of water impacting 2.7 million customers. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.	Mitigated Negative Declaration
Alameda Creek Recapture Project	CUW35201		Recapture an estimated annual average of 7,178 acre feet of water to maintain water supply while protecting native fish populations.	Draft Environmental Impact Report
Regional Groundwater Storage and Recovery	CUW30103		Store 7.5 years of drinking water supply to use in drought years impacting 2.7 million customers.	Final Environmental Impact Report
Bay Division Pipeline Upgrade	CUW36802		Enhance delivery reliability of pipeline that delivers water to ratepayers on San Francisco Peninsula, impacting 2.7 million customers. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.	Program Environmental Impact Report
Forest Hill Pump Station Upgrade	CUW32001		Modernize existing mechanical and electrical systems with seismic upgrades to reliably deliver drinking water to San Francisco customers, impacting a service population of 890,000.	Categorical Exemption
Harding Park Recycled Water Project	CUW30204		Construct infrastructure to produce and deliver recycled water to irrigate 163 acres of public golf course greens.	Final Environmental Impact Report

Project Name	Project Number	UN SDGs ²	Project and Environmental Impact Description	California Environmental Quality Act
Lake Merced Pump Station Upgrade	CUW30901	 	Modernize mechanical and electrical systems with seismic upgrades to reliably deliver drinking water to over 60% of San Francisco ratepayers.	Categorical Exemption
Lake Merced Water Level Restoration	CUW30101	  	Maintain lake levels for the City of San Francisco's emergency source of water.	Program Environmental Impact Report
Le Grande Pump Station Upgrade	CUW33801	 	Modernize existing mechanical and electrical systems with seismic upgrades to reliably deliver drinking water.	Categorical Exemption
Recycled Water Project - Westside	CUW30201	   	Conserve water supplies by transitioning to recycled water for non-drinking purposes.	Final Environmental Impact Report
Recycled Water Project - Eastside	CUW30205	   	Serve about 2 million gallons per day of high quality recycled water for non-potable uses such as irrigation and toilet flushing.	Program Environmental Impact Report
San Francisco Groundwater Supply	CUW30102	   	Add groundwater to San Francisco's water supply to support reliability in the event of droughts and emergencies, impacting a service population of 890,000.	Final Environmental Impact Report
Seismic Upgrade of BDPL at Hayward Fault	CUW35302	 	Improve seismic and supply delivery reliability for the pipeline responsible for delivering water to the San Francisco Peninsula, impacting 2.7 million customers. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.	Final Environmental Impact Report
Sutro Res - Rehab/Seismic Upgrade	CUW33701	  	Structural upgrades to ensure the water supply and reliability for San Francisco, impacting a service population of 890,000.	Categorical Exemption
BDPL No 3&4 Cross Connection	CUW38001	 	Seismic and supply reliability improvements to ensure delivery of water impacting 2.7 million customers. Water transmission is largely gravity fed requiring minimal fossil fuel consumption.	Mitigated Negative Declaration

Case Study: Regional Groundwater Storage and Recovery Project

A Regional Approach to Drought Protection

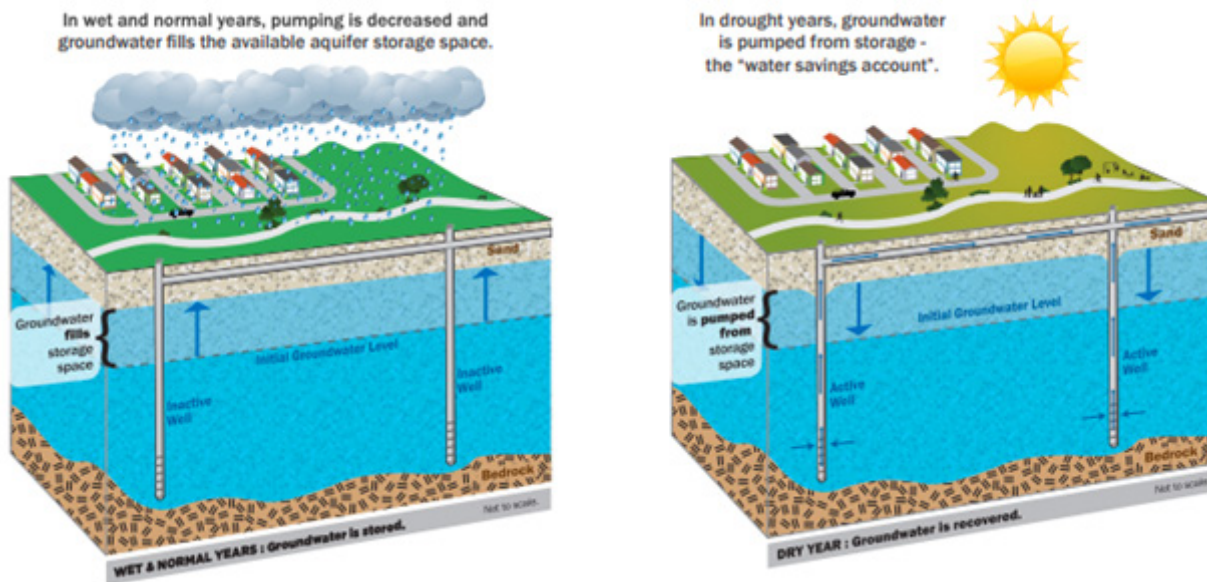
The Regional Water System includes a blend of surface water from Hetch Hetchy Reservoir in Yosemite National Park and five Bay Area reservoirs located in Alameda and San Mateo counties. During periods of drought, the surface water supplies can be severely impacted, which puts the reliability of water supply for the Regional Water System at risk. The Regional Groundwater Storage and Recovery Project (RGSR) coordinates the management of surface water and groundwater supplies to successfully meet drought year water supply needs for the Regional Water System. As one of the Water System Improvement Program (WSIP) projects, it will provide additional dry-year water supply and help achieve the WSIP level-of-service goals to increase water delivery reliability and to meet customer water supply needs during droughts and emergencies.

How the RGSR Project Works

Groundwater is a vital local source of drinking water. Locally, groundwater from the Westside Basin has been used for drinking water supply by Colma, South San Francisco, San Bruno, and Daly City for the past 100 years. Some groundwater basins can be managed to store water when it is plentiful and provide a critical supplemental supply of water during droughts. The RGSR accomplishes this by providing surface water in-lieu of groundwater pumping during normal and wet years to allow the basin to accumulate natural recharge and store additional water supply. This type of management is called conjunctive use and is made possible by the geology of the southern Westside Basin.

Through a regional partnership with California Water Service Company (serving South San Francisco and Colma), and the cities of Daly City and San Bruno, the RGSR will balance groundwater and Regional Water System water supply to increase drought year water supplies. During wet and normal years – when water is plentiful – water from the Regional Water System will be delivered to the Partner Agencies. This will reduce the Partner Agencies' need to pump groundwater and thus allow the basin to accumulate natural recharge and store water for future use. Over time, this reduction in groundwater pumping will result in a water savings account of up to 61,000 acre-feet of water – a volume equivalent to that of Crystal Springs Reservoir. The water will be stored underground in the south Westside Basin aquifer until it is needed during a drought or emergency.

The project is completing and testing the first 13 of up to 16 deep groundwater wells to extract stored groundwater during drought periods for use as a regional water supply. The extraction of water during a drought is the recovery portion of this project. This protected groundwater supply will help augment the Regional Water System supply over a 7.5-year drought.



Monitoring and Planning

For more than 10 years, the SFPUC has worked with neighboring groundwater users to monitor water quality and supply levels. The Westside Basin Groundwater Monitoring Program will continue as the SFPUC implements new groundwater projects. Monitoring ensures groundwater use will not exceed long-term sustainable levels.



Ultimate Goal

The RGSR, along with the SF Groundwater Project, will help ensure that we meet the continuous demand for high quality drinking water now, in a drought, and well into the future. These projects demonstrate our commitment to responsible, ethical, and sustainable management of our most precious resource, our water.

Appendix A: State, City and SFPUC Legal, Regulatory, Policies and Programs

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 identified 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 2045.
- 100% Renewable Energy: Switch all electricity in San Francisco to renewables by 2025.
- Green Bonds: Issue more green bonds to finance infrastructure and capital projects.

⁴ For a comprehensive list of California Climate Change Legislation, Regulations and Executive Orders, see <https://www.climatechange.ca.gov/state/mandates.html>

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 the 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 the 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.

San Francisco Public Utilities Commission

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.⁴

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](#).

⁴ For information about SFPUC's Investor Relations and Financial Reports, see: <https://www.sfwater.org/index.aspx?page=164>

- [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, Social and Sustainability Bonds: A High-Level Mapping to the Sustainable Development Goals” (June 2020). See Appendix A: SFPUC Program Impacts Aligned to the United Nations Sustainable Development Goals (SDGs) and Appendix C: SSIPP Green Bond Funded Project Impacts aligned with the United Nations Sustainable Development Goals (SDGs).



Appendix B: SFPUC Green Bonds Program

Since 2015, the SFPUC has issued more than \$2.1 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.

Project Environmental and Climate Impact Details

In 2008, the San Francisco Planning Commission certified WSIP as adequately fulfilling the requirements of the California Environmental Quality Act (CEQA). 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 C: WSIP Green Bond Funded Project Impacts Aligned with the United Nations Sustainable Development Goals (SDGs).


Appendix C: Response to COVID-19 and SFPUC Climate and Social Inclusion Impacts Aligned to the United Nations Sustainable Development Goals (UN SDGs)

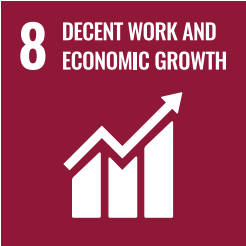








The SFPUC has stayed committed to providing necessary services throughout the COVID-19 pandemic. Some examples of this commitment include:

- Emergency Commercial and Residential Assistance including 15-35% discounts on water, sewer and Hetchy Power bills for those who have lost income due to the COVID-19 pandemic as well as halting service shutoffs².
- \$35 million in savings for municipal customers of Hetch Hetchy Power, the SFPUC's 100% greenhouse gas free electricity source.
- Installation of 12 new drink tap stations in some of the most vulnerable communities. The decision to install drink taps in these neighborhoods evolved from conversations with Covid Task Force representatives from each of the communities.

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

UN SDG	SFPUC Program Impact
 <p>4 QUALITY EDUCATION</p>	<p><u>Education</u>: The SFPUC is committed to preparing the next generation of environmental stewards and continuing to engage with existing generations to prevent pollution and sustain our natural resources. The SFPUC believes that everyone has a role to play in maintaining the environment and is proud to empower its service area communities with the resources needed to do it.</p>
 <p>5 GENDER EQUALITY</p>	<p><u>Small Business Opportunities</u>: The SFPUC is dedicated to <u>increasing women in the construction trades</u>. The 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 SFPUC is also proud to be a member of the Tuolumne Community Collaborative, group of more than 25 entities including education institutions, local contractors, professional services 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. Through the program, participants study construction industry best practices, experience hands-on training, learn construction safety, and receive project-specific worker certifications.</p>
 <p>6 CLEAN WATER AND SANITATION</p>  <p>14 LIFE BELOW WATER</p>	<p><u>The Water System Improvement Program</u>: The Water System Improvement Program (WSIP) is a \$4.8 billion dollar, multi-year capital program to upgrade the SFPUC’s regional and local water systems. The program will deliver capital improvements that enhance the SFPUC’s ability to provide reliable, affordable, high quality drinking water in an environmentally sustainable manner to 2.7 million people in the greater Bay Area. The program consists of 87 projects - 35 local projects located within San Francisco and 52 regional projects, spread over seven counties from the Sierra foothills to San Francisco. The current forecasted date to complete the overall WSIP is December 2021.</p> <p><u>The Sewer System Improvement Program</u>: The Sewer System Improvement Program (SSIP) is a 20-year citywide investment to upgrade our aging sewer infrastructure to ensure a reliable, sustainable and seismically safe sewer system now and for generations to come.</p>
 <p>7 AFFORDABLE AND CLEAN ENERGY</p>	<p><u>Power</u>: For 100 years, the San Francisco Public Utilities Commission (SFPUC) has been generating greenhouse gas-free hydropower as Our City’s full-service, publicly owned electric utility. This clean Hetch Hetchy Power energizes our schools, MUNI, street lights, City Hall, SFO Airport, the Zoo, and other civic institutions and private facilities. In 2016, Our City launched CleanPowerSF, a community choice aggregation program, to introduce even more renewable energy from sources like wind and solar to the electric grid. Today, CleanPowerSF powers more than 376,000 San Francisco residents and businesses.</p>

<p>United Nations Sustainable Development Goals</p>	<p>SFPUC Program Impact</p>
 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>	<p><u>Workforce Development</u>: As one of the City’s largest employers, the SFPUC is fostering a skilled and diverse local workforce that manages water, power and sewer operations and is connected to the communities we all call home. SFPUC’s workforce development programs connect local youth and adults with learning, apprenticeship, job training, employment, and business opportunities. These programs support a strong, inclusive, local economy and a skilled, diverse, local workforce for today and tomorrow.</p> <p><u>Social Impact Partnership Program</u>: The SFPUC views its capital projects as investments – in the future of its facilities, services and its communities. As the SFPUC upgrades its systems and operations, private sector partners join the SFPUC in being a good neighbor to the communities affected by the operation and improvement of water, wastewater, and power services. By including community benefits criteria in our Requests for Proposals (RFP) with anticipated contracts of \$5 million or more, SFPUC provides its contracting community with an opportunity to earn extra points during the bidding process for their demonstrated commitment to community benefits and environmental justice. Social Impact Partners— professional services and construction firms in fields such as engineering, architecture, resource management and technology— provide resources and opportunities in the communities where SFPUC operates and provides services. These commitments include direct financial contributions, volunteer, and in-kind donations to local schools and nonprofits.</p>
 <p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	<p><u>The Water System Improvement Program</u>: The Water System Improvement Program (WSIP) is a \$4.8 billion dollar, multi-year capital program to upgrade the SFPUC’s regional and local water systems. The program will deliver capital improvements that enhance the SFPUC’s ability to provide reliable, affordable, high quality drinking water in an environmentally sustainable manner to 2.7 million people in the greater Bay Area. The program consists of 87 projects - 35 local projects located within San Francisco and 52 regional projects, spread over seven counties from the Sierra foothills to San Francisco. The current forecasted date to complete the overall WSIP is December 2021.</p> <p><u>The Sewer System Improvement Program</u>: The Sewer System Improvement Program (SSIP) is a 20-year citywide investment to upgrade our aging sewer infrastructure to ensure a reliable, sustainable and seismically safe sewer system now and for generations to come.</p>
 <p>10 REDUCED INEQUALITIES</p>	<p><u>Environmental Justice and Land Use</u>: The SFPUC works hard everyday to provide fundamental environmental benefits through water, power and sewer services. The SFPUC recognizes there are challenges to providing these services as some parts of our community face a greater burden than others due to the location of facilities in their neighborhoods. SFPUC works with these communities to understand their needs and lessen the effects caused by operations. The SFPUC is proud to be the first public utility in the nation to develop an Environmental Justice Policy which guides efforts to support environmentally healthy and safe communities where we live, work, learn and play. As part of its mission, the SFPUC also maintains and preserves more than 590,000 acres of land to protect our natural resources and critical infrastructure. The SFPUC often has the opportunity to use land for more than one purpose and when possible, the SFPUC partners with local leaders to support innovative uses which benefit the environment and enhance the quality of life for the SFPUC’s service area residents.</p>

United Nations Sustainable Development Goals	SFPUC Program Impact
 <p>10 REDUCED INEQUALITIES</p>	<p>Neighborhood Revitalization: From Tuolumne County, to San Francisco, to the Peninsula, the SFPUC is especially committed to providing opportunities in the neighborhoods most impacted by its water, power and sewer operations. As SFPUC upgrades its facilities and executes the Agency’s capital projects, it ensures these efforts support public health, jobs, learning and education opportunities in these communities. SFPUC is proud of leveraging the work done every day to create spaces and programs that help to make these neighborhoods a better place to live, work and play.</p>
 <p>11 SUSTAINABLE CITIES AND COMMUNITIES</p>  <p>12 RESPONSIBLE CONSUMPTION AND PRODUCTION</p>  <p>13 CLIMATE ACTION</p>  <p>15 LIFE ON LAND</p>	<p>Power: For 100 years, the San Francisco Public Utilities Commission (SFPUC) has been generating greenhouse gas-free hydropower as Our City’s full-service, publicly owned electric utility. This clean Hetch Hetchy Power energizes our schools, MUNI, street lights, City Hall, SFO Airport, the Zoo, and other civic institutions and private facilities. In 2016, Our City launched CleanPowerSF, a community choice aggregation program, to introduce even more renewable energy from sources like wind and solar to the electric grid. Today, CleanPowerSF powers more than 376,000 San Francisco residents and businesses.</p> <p>The Water System Improvement Program: The Water System Improvement Program (WSIP) is a \$4.8 billion dollar, multi-year capital program to upgrade the SFPUC’s regional and local water systems. The program will deliver capital improvements that enhance the SFPUC’s ability to provide reliable, affordable, high quality drinking water in an environmentally sustainable manner to 2.7 million people in the greater Bay Area. The program consists of 87 projects - 35 local projects located within San Francisco and 52 regional projects, spread over seven counties from the Sierra foothills to San Francisco. The current forecasted date to complete the overall WSIP is December 2021.</p> <p>The Sewer System Improvement Program: The Sewer System Improvement Program (SSIP) is a 20-year citywide investment to upgrade our aging sewer infrastructure to ensure a reliable, sustainable and seismically safe sewer system now and for generations to come.</p>

WATER CRITERIA OF THE CLIMATE BONDS STANDARD VERIFICATION LETTER

Issuing Entity: The San Francisco Public Utilities Commission

Kind of engagement: Assurance Engagement

Period engagement was carried out: September 1st 2016 to September 29th 2016

Approved verifier: Sustainalytics US Inc.,

Contact for engagement: 24 School Street, Suite 803, Boston, MA, 02108, U.S.A.

Engagement team leader: Vikram Puppala, vikram.puppala@sustainalytics.com +1 647 317 3694

Professional team member: Ankita Shukla, ankita.shukla@sustainalytics.com +1 416 861 0403

Scope:

The San Francisco Public Utilities Commission (“SFPUC”), has engaged Sustainalytics to review and verify that SFPUC’s green bond meets the requirements for the Water Criteria of the Climate Bonds Standard. The proceeds of the bond will finance the projects under the Water System Improvement Program (“WSIP”). The WSIP program includes a total of 87 projects of which the following large projects were prioritized for assessment as they comprise a significant portion of the WSIP program budget.

- 35201: Alameda Creek Recapture Project
- 37401: Calaveras Dam Replacement
- 37402: Calaveras Reservoir Upgrades
- 35401: Lower Crystal Springs Dam Improvement
- PWI - WSIP Closeout – Peninsula Region (new project 2016)
- 38801: Programmatic Environmental Impact Report (EIR)

The rest of the projects were concluded to have insignificant sensitivity to current and future climate impacts over their operational lifetimes.

Criteria

A. Water Criteria of the Climate Bond Standard

B. Adaptation Theme

1. Allocation - *all criteria*
2. Governance - *all criteria*
3. Diagnostic Assessment - *all criteria*
4. Adaptation Plan - *all criteria*

Please find details of Alliance for Global Water Adaptation’s (AGWA) Assessment in Schedule 2.

Issuing Entity's Responsibility

SFPUC is responsible to provide information and documents relating to:

- The details concerning water allocation and availability
- The governance process for water entitlements and allocation, management systems, and conflict resolution mechanisms
- The details concerning the diagnostic assessment conducted
- The details concerning the adaptation plan produced

Independence and Quality Control

Sustainalytics, a leading provider of ESG and corporate governance research and ratings to investors, conducted the verification of SFPUC's green bond, issued to finance eligible projects included in its Water System Improvement Program ("WSIP"), and provided an independent opinion informing the conformance of the green bond with the Water Criteria of the Climate Bonds Standard. Sustainalytics relied on the assessment conducted by Alliance for Global Water Adaptation to provide this opinion. Sustainalytics makes all efforts to ensure the highest quality and rigor during its assessment process and enlisted its Sustainability Bonds Review Committee to provide oversight over the assessment of the bond.

Verifier's Responsibility

The work undertaken as part of this engagement included conversations with relevant SFPUC management and staff and the review of relevant public and internal documents to assess the following:

- Conformance of SFPUC's green bond with the Water Criteria of the Climate Bonds Standard;
- Conformance with the criteria under the Adaptation Theme: Allocation, Governance, Diagnostic Assessment, and Adaptation Plan;
- Conformance with the Internal Processes & Controls requirements;
- Conformance with Reporting Prior to Issuance requirements.

Basis of the Opinion

Sustainalytics conducted the verification in accordance with the Climate Bond Standard Version 2.0 and with International Standard on Assurance Engagements 3000 – Assurance Engagements other than Audits or Reviews of Historical Information.

Sustainalytics has relied on the assessment, information and the facts presented by Alliance for Global Water Adaptation with regards to the bond's compliance with Climate Bond Standards. Please find details of Alliance for Global Water Adaptation's (AGWA) Assessment in Schedule 2.

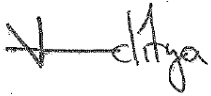
Sustainalytics is not responsible for any aspect of the projects referred to in this opinion and cannot be held liable if estimates, findings, opinions, or conclusions are incorrect. Thus, Sustainalytics shall not be held liable if any of the information or data provided by SFPUC and/or AGWA that is not correct or complete.

Restriction on Distribution and Use of Report

This report along with the information provided is for the use and publication of SFPUC and Climate Bond Standard Board only and not for the use of any other external parties.

Opinion

Based on the assessment of SFPUC's green bond under the Water Criteria of the Climate Bonds Standard, nothing has come to Sustainalytics' attention that causes us to believe that, in all material respects, SFPUC's green bond, issued to finance eligible projects included in the Water System Improvement Program, is not in conformance with the Water Criteria of the Climate Bonds Standard Pre-Issuance Requirements. Sustainalytics believes that the Nominated Projects and Assets will address vulnerabilities of the SFPUC's water supply to climate change and other factors and will contribute to ensure the long-term reliability of the regional water system.



Vikram Puppala
September 29th, 2016
215 Spadina Ave, Suite 300,
Toronto ON M5T 2C7, Canada

Schedule 1A: Water Criteria of the Climate Bonds Standard

<p>Selection of Nominated Projects:</p>	<p>1.1 Statement on the environmental objectives of the bond</p> <p>1.2 Nominated Projects meet the Climate Bonds criteria</p> <p>1.3 Document a list of Nominated Projects and Assets</p> <p>1.4 Confirmation that Nominated Projects and Assets will not be nominated to other Climate Bonds</p> <p>1.5 Confirmation that Net Proceeds of the Green Private Placement shall not be greater than the value of the Nominated Projects and Assets</p>
<p>Internal Processes and Controls</p>	<p>2.1.1 Tracking of proceeds</p> <p>2.1.2 Managing of unallocated proceeds</p> <p>2.1.3 Earmarking funds to Nominated Projects and Assets</p>
<p>Reporting Prior to Issuance</p>	<p>3.1.1 Investment area of Nominated Projects and Assets</p> <p>3.1.2 Intended types of temporary investments of unallocated proceeds</p> <p>3.1.3 Approach of Verifier</p> <p>3.1.4 Whether periodic assurance engagement will be undertaken</p>

Schedule 1B: Conformance to the Water Criteria of the Climate Bonds Standard

Procedure Performed	Factual Findings	Error or Exceptions Identified
<p>Verification of requirements specified under Selection of Nominated Projects</p>	<p>1.1 The objective of the bond is to primarily use proceeds to finance the projects under the Water System Improvement Program (“WSIP”)</p> <p>1.2 The projects meet the minimum scoring requirements outlined in the Phase 1: Engineered Water Infrastructure under the Water Criteria of the Climate Bonds Standard (Schedule 2).</p> <ul style="list-style-type: none"> • Allocation: 17 of 17 (100 percent) • Governance: 12 of 15 (80 percent) • Diagnostic assessment: 23 of 24 (96 percent) • Adaptation plan: High pass <p>1.3 The Nominated Projects include all projects (87) under the WSIP program from the following were prioritized for assessment.</p> <ul style="list-style-type: none"> • 35201: Alameda Creek Recapture Project • 37401: Calaveras Dam Replacement • 37402: Calaveras Reservoir Upgrades • 35401: Lower Crystal Springs Dam Improvement • PWI - WSIP Closeout – Peninsula Region (new project 2016) • 38801: Programmatic Environmental Impact Report (EIR) <p>1.4 SFPUC’s management confirms that the projects shall not be nominated to other Climate Bonds.</p> <p>1.5 SFPUC’s management confirms that the net proceeds of the bond shall not be greater than the value of the projects.</p>	<p>None</p>
<p>Verification of requirements specified under Internal Processes and Controls</p>	<p>2.1.1 SFPUC’s management confirms that proceeds will be segregated and tracked in a systematic manner and will be exclusively used to finance Eligible Projects.</p>	<p>None</p>

	<p>2.1.2 SFPUC’s management confirms that all net proceeds will be immediately used (i.e. allocated at issuance) to finance the Eligible Projects. There will not be any unallocated Net Proceeds.</p> <p>2.1.3 SFPUC’s management has confirmed that the proceeds from the bond will be immediately used for the repayment of debt originally raised for the Nominated Projects.</p>	
<p>Verification of requirements specified under Reporting Prior to Issuance</p>	<p>3.1.1 The bond’s offer letter confirms that the proceeds of the transaction will primarily be used to finance the projects under WSIP. These fall under the Water Criteria of the Climate Bonds Taxonomy.</p> <p>3.1.2 The bond’s offer letter confirms that all net proceeds will be immediately used (i.e. allocated at issuance) to finance the WSIP projects.</p> <p>3.1.3 The bond’s offer letter confirms that an approved third party verifier has been appointed to confirm the bond’s conformance with pre-issuance requirements of the Water Criteria of the Climate Bonds Standard.</p> <p>3.1.4 The bond’s offer letter confirms that an approved third party verifier will conduct post-issuance assurance exercise within a year’s time to reaffirm conformance of the bond with the Water Criteria of the Climate Bonds Standard.</p>	<p>None</p>

Schedule 2: Assessment of SFPUC Bond under the Water Criteria of the Climate Bond Standard

Please find details of Alliance for Global Water Adaptation's (AGWA) Assessment in attached file.

Adaptation Assessment

Projects prioritized in this assessment:

- 35201: Alameda Creek Recapture Project
- 37401: Calaveras Dam Replacement
- 37402: Calaveras Reservoir Upgrades
- 35401: Lower Crystal Springs Dam Improvement
- PWI - WSIP Closeout – Peninsula Region (new project 2016)
- 38801: Programmatic Environmental Impact Report (EIR)

The following items related to nominated assets and projects criteria that are currently under development. They are therefore deemed unallocated proceeds at this stage and will be assessed in detail in subsequent reporting:

- 38802: Bioregional Habitat Restoration project
- 38803: Vegetation Restoration of WSIP Construction Sites
- 39401: Watershed Environmental Improvement Program (WEIP)

These projects are defined in precis at two sites:

<http://sfwater.org/index.aspx?page=978>

<https://sfwater.org/modules/showdocument.aspx?documentid=8444>

A spreadsheet has been attached with an additional list of items that, after assessment, we conclude have insignificant sensitivity to current or future climate impacts over their operational lifetimes. This spreadsheet details the reasons for their limited sensitivity.

Please note that many of these components of the issuance are seismic upgrades, and this certification makes no assessment as to utility of these upgrades for reducing or eliminating seismic risk. The Climate Bond Standard, including the Water Criteria, targets issues around climate change impacts and mitigation, and all components of the issuance have been subject to this frame of reference.

The regional watersheds relevant to this scoring:

- Peninsula
- Upper Tuolumne
- Alameda

Sectional scoring:

1. Allocation: 17 of 17 (100 percent)
2. Governance: 12 of 15 (80 percent)
3. Diagnostic assessment: 23 of 24 (96 percent)
4. Adaptation plan: 5 of 5 (100 percent)

Disclaimer

All rights reserved. No part of this verification letter may be reproduced, transmitted or published in any form or by any means without the prior written permission of Sustainalytics.

This verification letter is for information purposes only and Sustainalytics will not accept any form of liability for the substance of the opinion and/or any liability for damage arising from the use of this verification letter and/or the information provided in it.

As the verification letter is based on information made available by the client, Sustainalytics does not warrant that the information presented in this verification letter is complete, accurate or up to date.

Nothing contained in this verification letter shall be construed as to make a representation or warranty, express or implied, regarding the advisability to invest in or include companies in investable universes and/or portfolios. Furthermore, this verification letter shall in no event be interpreted and construed as an assessment of the economic performance and credit worthiness of the bond. The issuance and the outcome of the green bond is outside the scope of this engagement.

The client is fully responsible for ensuring its commitments` compliance, implementation and monitoring.

SUSTAINALYTICS

Sustainalytics is the largest independent provider of sustainability research, analysis, and services to investors. We serve over 250 institutional investors which include some of the world's largest asset owners and asset managers. Through over 20 years of experience serving the responsible investment (RI) market, we have gained a reputation for providing high-quality ESG research solutions and excellent client service.

Sustainalytics is headed by seasoned professionals in the field of business, finance, and sustainability, with a wealth of experience in the Responsible Investment area. After more than 20 years of local experience and expertise in the Responsible Investment (RI) market Sustainalytics has developed a comprehensive understanding of trends and best practices and a solid process to assist organisations in integrating ESG considerations into their policies and strategies. We have worked with some of the world's financial institutions including pension plans, investment managers and banks providing customised support to help them achieve their RI objectives. Clients include ABN AMRO, APG, BBVA, BNP Paribas, Deutsche Bank, ING Bank, Lombard Odier, Lloyds Bank, Triodos Bank, UBS and over 250 other financial institutions and organisations.

Sustainalytics now has a staff of 250 employees globally, including over 120 analysts, with operations in Amsterdam, Boston, Bucharest, Frankfurt, New York, Paris, London, Singapore, Sydney, Timisoara, and Toronto, and representation in Brussels and Washington DC.



In 2015, Sustainalytics was named the Best SRI or Green Bond Research Firm by GlobalCapital. In December 2014, for the third year in a row, Sustainalytics was named best sustainable and responsible investment research firm in the Independent Research in Responsible Investment (IRRI) Survey, conducted by Thomson Reuters and SRI-CONNECT.



Our Team

Michael Jantzi, CEO

More than 200 staff members, including over 120 analysts with multidisciplinary and industry expertise

Shareholders: ABN AMRO MeesPierson, Michael Jantzi and senior staff, Mooncrest Holdings Limited, PGGM, Renewal Partners, Silver Box Holdings Limited and Triodos

Board Members:
Else Bos, CEO, PGGM

Alan Broadbent, CEO, Avana Capital Corporation

Melissa Brown, Partner, Daobridge Capital

Michael Jongeneel, COO and Managing Director, Triodos Investment Management

Mike Musuraca, Managing Director, Blue Wolf Capital Partners LLC

Glen Saunders, Treasurer and Board member, Principles for Responsible Investment (PRI)

Our Offices

Offices in Amsterdam (Headquarters), Boston, Frankfurt, London, New York City, Paris, Singapore, Timisoara, and Toronto. Representative offices in Bogotá, Brussels, Bucharest, Copenhagen and Washington D.C.

Our Clients

Our 250+ clients worldwide include financial institutions, asset managers, mutual funds, pension funds, private companies, international organizations and academic networks