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Transportation and Climate
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Bay Area Regional Energy Network (BayREN) Water Upgrades Save Program

Final Report 2025

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Executive Summary

This final report for Bay Area Regional Energy Network (BayREN) Water Upgrades Save tells the story of an innovative water-energy nexus program and its effort to increase customer-side efficiency investment during a significant transition from drought-based emergency mandates to progressive portfolio-based usage objectives.¹

Water Upgrades Save (WUSave) was designed to remove customer participation barriers and make water conservation easy with a no-risk on-bill offer that eligible utility customers could accept.

The program began in 2010 as a series of three pilots, expanded to a regional service in 2019, and ceased operation in 2025. Based on the *tariff on-bill*² model used by electric utilities since 2002, the program enabled municipal water utilities to invest in customer-side efficiency by installing high efficiency toilets, showerheads, and aerators. Utility customers were able to install upgrades with little-to-no upfront cost — using a utility-approved on-bill charge that was lower than the estimated savings. In addition, the program provided turnkey project management for residential customers and program administration for water utilities.

Achievements. As the first tariff on-bill, also known as *Inclusive Utility Investment*, program in California, the program achieved several key milestones:

- **Water Savings and Satisfied Customers.** The WUSave program demonstrated the tariff on-bill approach can produce water savings and satisfied customers.
- **Senate Bill 564 — Water Bill Savings Act (2017).** The regional program was enabled by BayREN and the program administrator, Sonoma County Regional Climate Protection Authority, by advocating for and achieving passage of this act. The legislation embraced the tariff on-bill system, defined the system’s key elements, and made it possible for joint powers authorities to finance residential and business water efficiency improvements on a regional basis.
- **Regional Finance Service.** As set forth in SB 564, the program was able to provide a regional capital service in partnership with a joint powers authority, the Association of Bay Area Governments (ABAG). This service provided low-cost capital for municipal water utilities to invest in customer-side water efficiency upgrades using the tariff on-bill process without having to commit utility funds. The regional capital service was developed in response to pilot utility requests for an alternative to self-funding.

¹ The “Making Conservation a California Way of Life” framework was established by Executive Order B-37-16 in 2017 and adopted into law in 2018 with Senate Bill 606 and Assembly Bill 1668.

² Tariff on-bill, also known as Pay As You Save® or PAYS®, is a program design developed by the Energy Efficiency Institute of Vermont that has been used by electricity utilities since 2002.

- **Turnkey Affordability Support.** The program enabled utilities to use their rate setting authority and a voluntary fixed meter-based charge to help customers reduce their water, sewer, and water-heating costs with a turnkey service to install affordable high-efficiency products that produce more bills savings than project cost over the repayment period. For low-income households especially, the installation of warranted efficient products provided a long lasting mitigation against future utility cost increases.
- **Public Funds Repaid in Full.** Because “all public funds are reimbursed, ultimately by the private customer, with market rate interest and administrative fees,” the California Department of Industrial Relations waived the prevailing wage requirement for single family and multifamily projects.³ During a Request for Proposal (RFP) process to select program contractors, the program negotiated prices and secured customer protections including license, bonding, and insurance requirements. In addition, the waiver enabled multifamily property owners to use in-house staff or their established contractor vendor to install the upgrades.
- **Notification for successor customers:** BayREN demonstrated that a notice can be filed with a location’s property record to ensure notification to potential buyers of an upgraded location of program benefits and obligations, including on-bill charges. Successor customers who are renters receive notification from their landlord, who commits in the original customer agreement to provide the program notice during the successor customer rental process. This notification process protects the utility and successor customers.

History. The program began in 2010 as a U.S. Department of Energy funded pilot, then in 2014 and 2016 added two more self-capitalized pilots, which were administered by BayREN with California Public Utilities Commission (CPUC) funding. In 2017, SB 564 was passed to enable a joint powers authority to provide capital for a regional tariff on-bill program. In 2019, BayREN began developing a regional program to provide turnkey capital and installation services to the Bay Area’s 54 municipal water utilities. In 2021, the program enrolled its first utility and in 2022 a second utility.

Accomplishments. From 2020 to 2025, the WUSave regional program enrolled two Partner Utilities, completed one 18-unit multifamily and 63 single family projects, and performed 253 onsite assessments. Customer satisfaction ranged from 94 to 100 percent. Total capital invested was \$39,841. Total annual gallons saved were 317,678, annual therms saved were 9,183, and annual embedded energy in kilowatt-hours saved were 1,805. During its regional outreach, the program met with 19 retail water utilities and presented to 9 water wholesale agencies.

From 2010 to 2019, three pilots completed 584 multifamily unit and 247 single family projects. The first pilot, Windsor Efficiency PAYS[®], completed 247 single family projects, 50 of which also

³ California Department of Industrial Relations. October 4, 2021, Public Works Case No. 2020-015, Water-Energy Efficiency Improvements for Multifamily Homes, Association of Bay Area Governments.

installed outdoor upgrades, and 233 multifamily unit projects; its success was possible because of relatively high volumetric water and sewer rates, an effective water conservation manager, and the support of town leaders.

Challenges. The Bay Area municipal water sector includes 54 water utilities that range in size from a couple of thousand accounts to almost half a million. Water and sewer rates differ by eight-fold from lowest to highest, which means only 40 percent of municipal utilities have sufficient rates to deliver more bill savings than project cost. In addition, utility enrollment required multiple steps and time to brief staff, obtain team interest, coordinate with existing programs, and engage decision makers. Starting in 2023 the availability of State-funded free direct install indoor programs combined with the State’s transition to progressive portfolio-based objectives shifted utility focus from indoor upgrades to outdoor and water loss services.

Lessons Learned. Current and future tariff on-bill program implementers can benefit from these key lessons. Additional logistical lessons are included in the report.

- **Sufficient Volumetric Rates.** Tariff on-bill is designed to produce sufficient bill savings to pay for the utility’s investment at the customer’s location and leave the customer with significant net savings. Bill savings are realized from volumetric rates for usage. Tariff on-bill projects are more successful when they make no-upfront-cost offers that customers will accept. In WUSave, utilities with moderate or low volumetric rates or fixed sewer charges, which resulted in a copay requirement, struggled to make desirable offers to their customers compared to other state programs. It is important to assess whether the utility’s volumetric rates are high enough to provide sufficient customer savings from the utility’s efficiency investment to require no upfront customer payment, cover the on-bill charges that repay that investment, and leave the customer with significant net savings.
- **State Regulation Alignment.** State goals for usage reductions heavily influence utility priorities. From 2018 to the present, water efficiency regulations made a major shift from drought-based emergency mandates to progressive portfolio-based usage objectives. In that shift, residential indoor efficiency, the primary program service, was superseded as a utility priority by outdoor and water loss, which involve many variables that make estimating utility bill savings more difficult. Understanding the larger regulatory environment is important to strategically applying a tariff on-bill service.
- **Grant-Funded Competition.** Tariff on-bill provides an economic cornerstone for utility investment in customer-side efficiency. Additional funding sources, such as rebates or subsidies, can be used to improve the tariff on-bill customer offer by “buying down” the project cost, which increases the estimated bill savings. Currently, State grant funds are paying for free direct-install programs for residential indoor customers in direct competition with the WUSave program. There is an untapped opportunity to coordinate

these funding sources with tariff on-bill programs to expand project upgrades and serve more customers.

Achievements

During the past 15 years, the BayREN WUSave program attained several notable achievements including:

1. **Windsor Efficiency PAYS®**: The first pilot program proved that a tariff on-bill program could produce water savings and satisfied customers at a low utility and participant cost. The Town of Windsor was the perfect water utility to demonstrate the tariff on-bill system that pays for current investments at the upgraded location with a share of customers' future savings. Windsor had relatively high volumetric rates, an effective water conservation manager, and town leaders who encouraged the water utility to implement this promising resource efficiency approach.

According to a 2019 Process Evaluation report found “high levels of participant satisfaction and findings indicate that the program encouraged savings that would otherwise not have occurred.” The positive process evaluation and robust customer take-up rate demonstrate what is possible.

2. **Senate Bill 564, the Water Bill Savings Act**: The more recent WUSave programs were enabled by BayREN and the program administrator, Sonoma County Regional Climate Protection Authority, pushing for and achieving passage of this act. The legislation embraced the tariff on-bill system, defined the system's key elements, and made it possible for joint powers authorities to invest in water efficiency improvements in customers' homes and businesses. Participating water utilities made “the pledge of water enterprise revenue as security for the payment of the principal of, and interest and redemption premium on, bonds issued by the authority in the event that efficiency charges are insufficient for those purposes.” Since the bill was enacted, ABAG has funded WUSave partner water utilities for 10-year terms initially at 1 percent, and recently shifted to “market rate”, interest without any carrying charges or origination fees. These favorable rates helped to keep customer copayments lower than they otherwise would have been.
3. **Regional Finance Service**. As set forth in SB 564 — Water Bill Savings Act (2017), the program was able to provide a regional capital service in partnership with a joint powers authority, the Association of Bay Area Governments. This service provided low-cost capital for municipal water utilities to invest in customer-side water efficiency upgrades using the tariff on-bill process. The regional capital service was developed in response to requests from pilot program utilities to address challenges they encountered with self-funding.

4. **Turnkey Affordability Support.** The program enabled utilities to use their rate setting authority and a voluntary fixed meter-based charge to help customers reduce their water, sewer, and water-heating costs with a turnkey service to install affordable high-efficiency products that produce more bills savings than project cost over the repayment period. For low-income households especially, the installation of warranted efficient products provided a long lasting mitigation against future utility cost increases.
5. **Public Funds Repaid in Full.** Because “all public funds are reimbursed, ultimately by the private customer, with market rate interest and administrative fees,” the California Department of Industrial Relations waived the prevailing wage requirement for single family and multifamily projects.⁴ During a Request for Proposal process to select program contractors, the program negotiated prices for efficiency upgrades and secured customer protections including license, bonding, and insurance requirements. In addition, the waiver enabled multifamily property owners to use in-house staff or their established contractor vendor to install the upgrades.
6. **Capital Reconciliation Report.** To support the regional capital service, the program developed a detailed capital and project tracking process. The program’s Customer Relationship Management (CRM) database captured all scope-of-work and financial details for each project and provided a monthly reconciliation report tracking the project costs and fees, on-bill charges owed, and a utility repayment timeline. The reconciliation report provided monthly accounting to ABAG Accounting staff, utility billing administration staff, and the program team. See Attachment 4 — Reconciliation Report.
7. **Set prices for customer offers:** BayREN demonstrated how utilities could issue RFPs to establish set prices for efficiency upgrades used in customer offers and their installation by qualified contractors to standardize and lower the cost of retrofits. A set price known in advance improves the accuracy of cost effectiveness analyses. Lower prices for upgrades allow more to be installed without a customer copayment and eliminate the hassle for customers of shopping for the best price.
8. **Notification for successor customers:** BayREN demonstrated that a notice can be filed with a location’s property records to ensure notification to potential buyers of upgraded locations of program benefits and obligations, including on-bill charges. Successor customers who are renters receive notification from their landlord, who commits in the original customer agreement to provide the program notice during the successor customer rental process. This reliable notification process provides transparency that protects both the utility and successor customers.

⁴ California Department of Industrial Relations. October 4, 2021, Public Works Case No. 2020-015, Water-Energy Efficiency Improvements for Multifamily Homes, Association of Bay Area Governments.

Program Background

Water Upgrades Save began as a pilot to apply the Pay As You Save® (PAYS®)⁵ program design to the public water sector under a 2010 Better Buildings Neighborhood Grant from the U.S. Department of Energy. Funded by the American Reinvestment and Recovery Act (ARRA), the City of Los Angeles administered a \$30 million grant to test several pilot concepts at six locations throughout California, including a Sonoma County water sector pilot based on the PAYS® program. PAYS is an innovative program design developed in 1999 by the Energy Efficiency Institute of Vermont and used by electric utilities with \$50 million invested in more than 6,000 energy efficiency projects across 20 programs to-date.⁶ PAYS was the first tariff on-bill system, which is also known as inclusive utility investment (IUI).

In 2012, in partnership with the Sonoma County Regional Climate Protection Authority, the Town of Windsor launched Windsor Efficiency PAYS®, a pilot that provided indoor and outdoor water and energy efficiency upgrades for single family and multifamily residents. In 2013, the program became part of the newly founded Bay Area Regional Energy Network (BayREN), which is a coalition of the Bay Area's nine counties partnering to promote resource efficiency at the regional level, focusing on energy, water and greenhouse gas reduction. In 2014 the City of Hayward debuted a multifamily pilot called Green Hayward PAYS®, and in 2016 East Bay Municipal Utilities District (EBMUD) launched Water Smart On-Bill for multifamily and commercial customers that used a few but not all elements of the PAYS design.

By 2019, the three pilots had upgraded 584 multifamily and 247 single family dwellings and produced an average water bill savings of 30 percent for multifamily and 20 percent for single family participants.

In 2017, the California legislature passed Senate Bill 564 — Water Bill Savings Act authorizing joint powers authorities to invest in water efficiency upgrades for single family, multifamily, and commercial properties in the nine Bay Area counties.⁷ This bill enabled ABAG to become the capital provider for the regional program.

In 2019, BayREN published a Water Bill Savings process evaluation on the pilots with utility feedback, which supported expanding to a regional service.⁸ The report noted that “In addition to high levels of participant satisfaction, water districts and the current installation contractor are

⁵ Note: The PAYS program design is also known as *tariff on-bill* or *Inclusive Utility Investment* as designated by the California Public Utilities Commission in its 2020 Clean Energy Financing rulemaking (R. 20-08-022).

⁶ Energy Efficiency Institute PAYS® Status Report, 2022: https://www.eeivt.com/wp-content/uploads/2022/03/2022-PAYS-Status-Update_3_29_22.pdf

⁷ Senate Bill 564 — Water Bill Savings Act (2017): <https://legiscan.com/CA/text/SB564/id/1595990>

⁸ “Water Bill Savings Process Evaluation,” Grounded Research, February 15, 2019: https://www.bayren.org/sites/default/files/2022-05/Water_Bill_Savings_Process_Evaluation021519-FINAL.pdf — “This study is intended to assess the three existing programs and provide BayREN with information that can support the regional expansion of these efforts. — This document is based on interviews with participating customers, water districts¹, and contractors as well as a review of all available program databases and materials.”

also highly satisfied. The water districts are happy and state that the program does not require significant district resources to implement. Water districts see several benefits to participating, including water savings and the ability to engage customers—particularly multi-family owners who have not been reached by other programs.”

The evaluation sourced data from existing literature and surveys of, and interviews with, pilot participants and near participants (that is, individuals who expressed interest but declined the program). The process evaluation found that there was value in establishing a regional capital service; creating a central program administrator to ensure consistent services; collaborating with water utilities to expand their efficiency services; and serving single family and multifamily residential customers. These findings influenced the final regional program design.

In 2020, BayREN launched the regional WUSave program to serve the 54 Bay Area municipal water utilities. The City of Sebastopol water utility enrolled in spring 2021 and the City of Cloverdale enrolled in spring 2022. As of July 2025, Sebastopol had completed 53 single family and 18 multifamily dwelling units that produced an annual water savings of 291,238 gallons; Cloverdale had completed 10 single family projects that produce an annual water savings of 26,441 gallons. During its regional expansion, the program spoke with 19 retail water utilities and presented to 9 water wholesale agencies.

Each WUSave customer received an analysis of their project’s economic potential using a calculator that determined project cost and estimated utility bill savings from project upgrades. The higher the water and sewer rates, the higher the savings, which made volumetric utility rates the key factor in an attractive customer offer.

The program directly aligned with BayREN’s goals to: (1) build human and organizational infrastructure within local jurisdictions and (2) test innovative solutions to help local jurisdictions increase energy savings and reduce GHG emissions. Increasing urban water efficiency remains a State priority because it preserves water supply as the population grows, mitigates water shortages during droughts, and reduces energy need to move, treat, and heat water.

In January 2021, the program gave a presentation on tariff on-bill at the CPUC Clean Energy Financing Workshop (R.20-08-022) and in 2023–2024 the program participated in the CPUC Inclusive Utility Investment Equity Committee, which supported development of Investor Owned Utility tariff on-bill programs under the same rulemaking.

In July 2025, the BayREN governing board decided to suspend new utility and customer enrollments and ask the CPUC to approve closing the program by December 31, 2025. The decision was due to the program facing several significant challenges that prevented customer enrollment and achieving program designated savings goals, including the lack of new utility and

customer enrollments in 2023 and 2024 and several significant actions taken by the State regarding water usage and utilities.

Program Description

Municipal Water Utilities

WUSave offered water utilities an innovative means to invest in customer-side water conservation upgrades and encourage adoption of water and energy efficiency measures by residents and businesses.

The program was designed specifically to work with municipal utility business models throughout the Bay Area to address California’s mounting water supply and climate adaptation challenges.

WUSave provided turnkey services to homeowners, tenants, and landlords to install indoor and outdoor upgrades. These upgrades were paid for through an on-bill investment partnership with municipal water utilities and installed by program contractors. The program enabled utilities to provide a needed service without hiring new staff or raising capital.

The two Partner Utilities used WUSave to meet state and local policy goals, support underserved customers (low- and moderate-income customers and renters), produce water and energy savings on the customer side of the meter, and increase available water supply for new development.



Water Utility Customers



WUSave enabled municipal water utility customers to install eligible water efficiency upgrades with little-to-no upfront cost — using a utility-approved on-bill charge that was lower than the estimated savings — *so they started saving right away.*

Participating customers received the following assurances:

- Little-to-no upfront cost, no new debt, no credit check, and no lien.
- Monthly on-bill charge was lower than estimated savings.
- Participants paid only while they were a utility customer at the project location.
- Participants were guaranteed that failed measures would be repaired, or the payment obligation terminated.

Customers could install indoor upgrades (for example, high-efficiency toilets, showerheads, and aerators) and outdoor upgrades that support conversion to drought tolerant landscaping. All projects were evaluated to ensure the estimated savings exceeded the project cost leaving participants with a lower monthly bill. In addition, upgrades were installed by a qualified program contractor.

Program Upgrades

The program offered residential and commercial indoor upgrades for bathrooms and restrooms. Residential customers could choose the Basic Offer that included a high-efficiency toilet, showerhead, and aerators and recirculation pump for the most used bathroom in the home. In most cases, this offer was provided without a copay. Water customers could also elect to add upgrades for a second bathroom (Customer Choice), which typically requires a copay. In response to utility requests, an outdoor offer was developed in coordination with utility lawn conversion rebate programs to put the cost of drip irrigation components on-bill.

Table 1: Program Sectors and Services

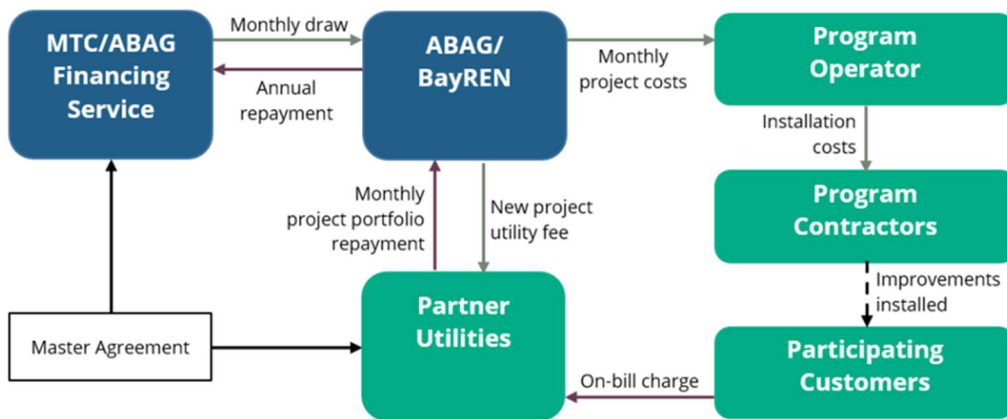
Sector		
Multifamily	Basic Package	Customer Choice
Public	Basic Package	Customer Choice
Business	Basic Package	Customer Choice
Single Family	Basic Package	Customer Choice

Indoor Upgrades (Basic Package ¹)	Outdoor Upgrades (Residential)
<ul style="list-style-type: none"> • A 1.06-gallon per flush or better toilet² • A high efficiency (typically 1.5-gpm) showerhead • A 1.0-gpm bathroom faucet aerator • A 1.5-gpm kitchen faucet aerator • Recirculation pump 	<ul style="list-style-type: none"> • Drip irrigation system components: <ul style="list-style-type: none"> • Weather-based irrigation controller • Irrigation pressure regulator • Drip system tubing/emitters
<p><small>1 - The Basic Package meets or exceeds requirements of the Water Conservation Act of 2009 (SB X7-7) and can help properties comply with the 2017 (single family) and 2019 (multifamily and commercial) time-of-sale requirements created by SB 407.</small></p> <p><small>2 - Program toilets must have a Maximum Performance (MAP) rating of 600 grams or more.</small></p>	<p><small>State standards for outdoor water conservation will be adopted by June 2022 per SB 606 (Hertzberg) and AB 1668 (Friedman).</small></p>

Program Partners

In coordination with its sister agency, the Metropolitan Transportation Commission (MTC), the Association of Bay Area Governments (ABAG) secured funding for the Program Finance Service. The Bay Area Regional Energy Network, an ABAG offering, and the Sonoma County Regional Climate Protection Authority (RCPA), a BayREN member and Program Lead, worked with municipal water utilities to enroll eligible water customers.

Figure 1: Program Partners and Roles



The Program Operator qualified projects and sent work orders to approved Program Contractors for final project scoping, installation, and close out. Together with BayREN, the Program Operator ran the Program on behalf of the enrolled water utilities and their customers, including overseeing sales and marketing, contractors, and providing project quality assurance and quality control.

Customers at participating project locations repaid project costs over time through a utility-approved efficiency charge on that meter location's water bill. The charge stopped at the end of the cost recovery term or if the equipment failed and could not be repaired. If the water utility customer moved from the location, the new water customer automatically assumes both the continued savings and remaining efficiency charge.

Partner utilities opting into the program signed a Master Agreement establishing the terms and conditions for how ABAG would provide program services to eligible customers, roles, and responsibilities for utilities to facilitate these projects, and requirements for utility repayment to ABAG for program services delivered to utility customers.

Innovations and Tools

The principal goal of a tariff on-bill program is to remove customer risk associated with program participation. This was done by shifting risk to the utility, contractors, and suppliers, who are each in a better position to handle the risk, and by ensuring that annually each project's estimated savings exceeded the customer's payments using precise field data, pre-negotiated costs, custom project calculators, a turnkey service, and a set of innovative tools.

Calculating Project Economics — Calculator Tools

Project calculators integrated field data (e.g., existing fixtures, occupants), conservative usage assumptions, pre-negotiated product and installation costs, and utility rates to determine a custom project offer for each prospective participant. Calculators were developed for residential, commercial, municipal, and outdoor offers.

The calculators ensured each project met the 80 Percent Rule: "The Participant's annual payments cannot exceed 80 percent of the estimated annual utility bill (i.e., water, sewer, natural gas, and electricity) savings obtained from installation of the upgrades based on a cost recovery period of no more than 80 percent of the useful life of the Improvement." See Attachment 2 — Project Calculator.

Expanding Program Offers — Requested Services

The program started with a residential indoor service, the Basic Offer, to upgrade the most used bathroom in a home or apartment. The indoor offer was eventually expanded to include commercial (e.g., office buildings, movie theaters), institutional, and municipal buildings. As new State regulations rolled out prospective utilities began to request services for outdoor (i.e., lawn conversion) and leak repair projects. An outdoor drip irrigation offer was developed and leak repair concept designs were developed in partnership with two water utilities. Each new offer required sector-specific research and had to meet the requirement that the on-bill charge maintain at least bill neutrality.

Understanding the Market — Utility Scorecard

To identify municipal utilities with good conditions for success, the program developed a utility scorecard tool that tracked applicable utility characteristics and ranked utilities using weighted criteria. The data collected included utility size, water and sewer rates, billing unit size, current utility rebates, and how sewer services were provided and billed (e.g., charged monthly as part of the water bill or a fixed annual cost applied to the property tax). By collecting these data, the scorecard enabled the program to analyze and prioritize utility outreach on prime conditions for success. See Attachment 5 — Utility Scorecard.

Results and Impact

The WUSave goal was to provide Bay Area municipal water utilities with a convenient tariff on-bill service, including turnkey customer services and utility investment capital, to help them expand their water efficiency services to residential, commercial, and municipal water customers with minimal staff time and budget. To evaluate the results, the program analyzed the *offer acceptance rate* (i.e., percent of customers receiving an offer who participated) and pre/post project install water usage data for Participants.

Offer Acceptance Rate

Of the 176 customers in the two regional Partner Utilities who received an onsite assessment and a project offer, nearly 45 percent completed a project. The most common reasons given for rejecting an offer were that customers found that the upgrade was simple and affordable enough to “do-it-themselves” or that they could not afford the copay.⁹

Table 2: Water Upgrades Save Offer Acceptance Rate

Project Status Category	Sebastopol	SEB %s	Cloverdale	CLO %s	Totals	Percent
Completed Project — Single Family	52	51.49%	10	23.81%	62	44.89%
Completed Project — Multifamily	17		0			
Received Assessment/Offer — No Project	65	48.51%	32	76.19%	97	55.11%
	134	100.00%	42	100.00%	176	100.00%

Partner Utility Performance Metrics

Analysis of Participant water and sewer usage data compared 12-months pre-install usage data with 12-months post-install usage data and yielded the following findings:¹⁰

⁹ In total the program performed 253 onsite assessments. Seventy-five of these customers received an onsite assessment but did not receive an offer for a variety of reasons including the water specialist determined the home was already efficient, the customer scheduled an assessment but missed the appointment, during the project opportunity discussion the customer decided they did not want to participate, and, occasionally a customer wanted upgrades the program did not provide (e.g., hot water heater upgrade).

¹⁰ “Sebastopol Water Upgrades Save Final Results Summary” and “Cloverdale Water Upgrades Final Results Summary,” EUtility Company, November 2025.

City of Sebastopol

- Total annual water usage by Participants decreased by 24.3 percent from ~4.89 million to 3.71 million gallons — a net reduction of 1,186,808 gallons (~1,586.6 CCF).
- At an approximate rate of \$7.50 per CCF, the annual net bill savings for Sebastopol is approximately \$11,900 across all accounts.

City of Cloverdale

- Total annual water usage by Participants decreased by ~9–10 percent from 571,771 to 520,010 gallons — a net reduction of 51,762 gallons (~69.2 CCF).
- At approximate rate of \$7.50 per CCF, the total annual bill impact from the net bill savings for Cloverdale is approximately \$519 across all accounts.

The combined annual usage decrease of 22.7 percent is comparable to usage reductions for electric and gas utility tariff on-bill programs for heating and building shell improvements¹¹ of 15 percent for electricity and 26 percent for gas cited in *Participant outcomes in residential Pay As You Save® programs*, published by Lawrence Berkeley Laboratory in 2024.¹²

In addition, Participant satisfaction was high: 94 percent in Sebastopol and 100 percent in Cloverdale.

Note, the City of Sebastopol’s volumetric water and sewer rates meant a typical customer’s estimated bill savings would exceed their project cost for the Basic Offer. However, the City of Cloverdale charges a fixed rate for sewer services so a reduction in sewer demand did not yield bill savings. As a result, based on Cloverdale’s volumetric water rates alone, the estimated bill savings were likely to require a customer copay, which reduced the number of interested customers who completed a project.

¹¹ “Across the programs, the projects consist of heating, ventilation, and air conditioning (HVAC) measures and weatherization (insulation and air sealing). Most projects in each program include HVAC measures such as heat pumps.” *Participant outcomes in residential Pay As You Save® programs*, Lawrence Berkeley Laboratory, 2024: <https://emp.lbl.gov/publications/participant-outcomes-residential-pay>

¹² *Participant outcomes in residential Pay As You Save® programs*, Lawrence Berkeley Laboratory, 2024: <https://emp.lbl.gov/publications/participant-outcomes-residential-pay>

Table 3: Performance Metrics for Regional Partner Utilities

Metrics	City of Sebastopol	City of Cloverdale
Program Term	2021 – 2025	2022 – 2025
Population	7,388	8,784
Residential Dwelling Units	3,266	3,353
Rates	Volumetric water and sewer	Volumetric water/fixed sewer ¹³
Projects — Single Family	53	10
Projects — Multifamily	1 complex: 17 dwelling units	NA
Onsite Assessments/Offers	134	42
Gallons Saved Year	291,238 gallons	26,441 gallons
Therms Saved Year	9,116 therms	67 therms
Embedded kWhs Saved Year ¹⁴	1,654 kWhs	151 kWhs
Toilets Installed	98	13
Showerheads Installed	89	9
Capital Invested	\$37,141	\$2,701
Customer Satisfaction Rating	94%	100%

Copay Findings

As noted previously, the program had two offers: Basic (most used bathroom; toilet, showerhead, aerators) and Customer Choice (most used bathroom, second bathroom). The Basic Offer was designed to provide a no-copay offer in utilities with sufficient water and sewer rates; the Customer Choice offer allowed customers who wanted additional services to take advantage of the turnkey installation service by paying a copay, which is the remaining project cost not covered by the estimated utility bill savings.

Participants. In Sebastopol, 30 percent of Participants (21) received no-copay Basic Offers and 70 percent of Participants (50) had Customer Choice projects with copays. Sebastopol’s volumetric water and sewer rates were sufficient to provide a no-copay Basic offer; however, many Participants appeared to value the turnkey service and voluntarily expanded their project scope despite the resulting copay.

In Cloverdale, where water rates were moderate and the fixed sewer rate did not reflect usage reductions, 100 percent of Participants (10) had copays.

¹³When the sewer charge is fixed, the sewer bill does not reflect savings from reduced usage, so sewer savings are not included in the customer’s estimated utility bill savings. These customers receive only water and water-heating bill savings, and their project offer usually requires a copay.

¹⁴ These embedded energy savings were obtained from the CPUC Water Energy Nexus Calculator 2.0 using annual gallons saved data.

<https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/energy-efficiency/water-energy-nexus-programs>

Customers Not Accepting Offers. Some customers who received an onsite assessment and a project offer, which included recommended fixture upgrades and estimated utility bill savings, did not proceed with a project. Note: The offer included a summary (or scope of work) of the upgrades, costs, utility bill savings, and the on-bill charge.

In Sebastopol, 68 percent of customers who did not accept the offer (44) received a no-copay offer; 23 percent (15) received an offer with a copay under \$100; and 6 percent (4) received an offer with a copay over \$100.

In Cloverdale, 28 percent of customers who did not accept the offer (9) received a no-copay offer; 16 percent (5) received an offer with a copay under \$100; and 56 percent (18) received an offer with a copay over \$100.

A key factor influencing these copay results was the relatively modest cost for products and labor. A Basic Offer (i.e., most used bathroom) project's out-of-pocket product and labor cost (before program fees) was under \$475; this affordable price point was based on program-negotiated costs for products and labor. Prospective customers received a detailed offer including a list of products and labor costs; with this information some customers may have deemed the out-of-pocket costs affordable and opted to do-it-themselves to avoid fees associated with the turnkey program service.

It is worth noting that in electric and gas utility tariff on-bill programs the equipment upgrades (e.g., HVAC) can cost \$10,000 or more, which enhances the value of being able to repay the project cost over time from bill savings, which are much larger than the savings offered by WUSave.

Pilot Programs (2010-2019)

During the pilot phase, two utilities, Windsor and Hayward, implemented the complete tariff on-bill program design. The third utility, East Bay Municipal Utilities District (EBMUD), made changes that removed tariff on-bill program design elements including significantly reducing the repayment term and not allowing the transfer of the on-bill charge to a successor customer at the project location. These changes removed key customer protections, creating conditions where participants might end up paying more than they saved during the shorter cost recovery term.

Of the three pilots, Windsor Efficiency PAYS[®] achieved the best results providing (1) multifamily customers with indoor upgrades; (2) single family customers with indoor and outdoor (i.e., lawn conversion) upgrades; and (3) commercial customers with outdoor upgrades including irrigation system retrofits and weather-based irrigation controller installation.

Windsor's success is due in large part to having an enthusiastic and knowledgeable staff champion who saw an opportunity to expand local water efficiency and advocated for the program

with elected officials and other utility staff, and a supportive Town Council member. In addition, the Town was able to provide its own capital and the pilot addressed Windsor’s interest in helping multifamily property owners install high-efficiency toilets and other conservation upgrades.

Table 4. Water Bill Savings Pilots 2010–2019^{15 16}

Features	Windsor Efficiency PAYS®	Green Hayward PAYS®	EBMUD WaterSmart On-Bill¹⁷
Customer Class	Single Family Multifamily	Multifamily	Multifamily Commercial
Eligible Upgrades	Toilets (1.06/gallons per flush) Showerheads/aerators <u>Single Family:</u> Drought-tolerant landscaping	Toilets (1.06/gallons per flush) Showerheads/aerators Weather-based irrigation controller Irrigation system repair Common area lighting Central hot water	Toilets (1.06/gallons per flush) Showerheads/aerators Weather-based irrigation controller <u>Commercial:</u> Improvements vary by customer
Timeline	2012–2015	2014–2019	2016
Multifamily	5 accounts, 233 units	6 accounts, 167 units	3 accounts, 89 units
Single Family	231 homes indoor 50 of these included outdoor	NA	NA
Pilot Operator	DOE Grant Team/BayREN	BayREN	EBMUD
Capital Source¹⁸	Self-funded — \$4 million Invested — \$442,810	Self-funded — \$1 million Invested — \$142,933	Self-funded — \$150,000 Invested — \$16,846

Financial Summary

In 2019, BayREN initiated the transition from a pilot to a regional program to serve municipal water utilities within its nine Bay Area county territory. Table 5 provides the annual program budgets for Administrative, Implementation, and Marketing activities with annual unspent totals and percents.

¹⁵ “Water Bill Savings Process Evaluation,” Grounded Research, February 15, 2019: https://www.bayren.org/sites/default/files/2022-05/Water_Bill_Savings_Process_Evaluation021519-FINAL.pdf

¹⁶ Note completed projects data in Table 3 are prior to October 2019; as of October 2019, completed multifamily units numbered 584 and single family projects numbered 247.

¹⁷ Note: East Bay Municipal Utilities District (EBMUD) made changes that removed tariff on-bill program design elements including significantly reducing the repayment term and not allowing the transfer of the on-bill charge to a successor customer at the project location. These changes removed key customer protections, creating conditions where participants might end up paying more than they saved during the shorter cost recovery term.

¹⁸ *Self-funded* means utility budget funds set aside as capital for the pilot; *invested* means the amount of the capital spent to install projects.

Table 5: Financial Summary for Regional Program¹⁹

Year	ADM	IMP	MEO	Total	Unspent \$	Unspent %
2019	\$ 9,000	\$ 798,385	\$ 166,720	\$ 974,105	\$ 121,033	12%
2020	\$ 11,000	\$ 740,900	\$ 268,800	\$1,020,700	\$ 48,831	5%
2021	\$ 11,000	\$1,092,206	\$ 205,850	\$1,309,056	\$ 58,696	4%
2022	\$ 6,257	\$ 942,532	\$ 352,233	\$1,301,022	\$ 74,307	6%
2023	\$ 11,000	\$1,201,688	\$ 273,404	\$1,486,091	\$ 195,495	13%
2024	\$ 7,699	\$1,122,912	\$ 545,320	\$1,675,931	\$ 438,884	26%
2025	\$ 7,930	\$1,135,310	\$ 653,534	\$1,796,774	TBD	

In 2019, 2023, and 2024, the program had higher than anticipated unspent funds.

In 2019, the program was setting up foundational program services. These services included securing ABAG approval for partnering with and providing capital to the program, obtaining legal approval for program contracts, creating capital tracking and project calculator tools, and issuing a Request for Proposal (RFP) for marketing consultant services. The RFP required only a portion of the available marketing budget, which left a surplus.

In 2023, the program budget received an additional \$56,820 in unspent 2022 funds and was configured to support additional utility enrollment and associated customer marketing activities. Utility outreach did not result in new Partner Utility enrollment so new customer outreach activities were not required. The program also experienced a change in a key consultant position that was vacated twice within a 12-month period, which required a detailed onboarding process that slowed implementation activities.

In 2024, the program budget was configured to support additional utility enrollment and associated customer marketing activities. Utility outreach did not result in new Partner Utility

¹⁹ ADM = Administration; IMP = Implementation; MEO = Marketing

enrollments despite active discussions with several large-to-medium water utilities with significant customer bases. In addition, in January 2024 Sebastopol hired a new City Manager; in December 2024 Cloverdale hired a new City Manager. During these transitions customer outreach in the Partner Utilities was paused. The program also experienced a third vacancy of the same key consultant position and again onboarded a new team member.

Challenges

While the pilot programs showed promise, the regional program encountered several key challenges that prevented it from enrolling larger utilities and scaling to a regional level.

Complex Water Sector

The Bay Area water sector is complex. “The Bay Area’s water systems are managed by a network of special districts, city and county agencies, and private companies. There are more than 100 water retailers and wholesalers in the region, serving residential, commercial, industrial, and agricultural users. Eleven major water agencies manage the water supply for the vast majority of urban users in the Bay Area,” according to a 2013 San Francisco Bay Area Planning and Urban Research Association (SPUR) report.²⁰

Of the more than 100 Bay Area water suppliers, 54 are public water utilities eligible for WUSave services according to the California Public Utilities Commission funding. The following describes water sector characteristics that affected the program’s performance.

Utility Size

Water utility territories range in size from micro-utilities ($\leq 2,100$ to 10,000 accounts) to medium-size utilities (between 10,000 and 40,000 accounts) to large utilities (40,000 to ~80,000 accounts) to extra-large utilities (80,000 to 150,000 accounts) to extra-extra-large utilities (over 150,000 accounts). Table 5 shows the percent of total residential water customers served by public utilities using housing unit data from Crexi and 2022 U.S. Census American Community Survey.

To secure access to, for example, 100,000 water customers, the program would have to enroll either one large utility, several medium utilities, or a group of medium and small utilities. Each utility enrollment requires a similar process regardless of utility size. The ability of the program to *scale* (i.e., reach more customers over a large geographic area) was very dependent on the size of prospective and Partner utilities.

²⁰ *Future-Proof Water: Where the Bay Area Should Get Its Water in the 21st Century*, SPUR, March 2013, San Francisco Bay Area Planning and Urban Research Association.

Table 6: Public water utilities categorized by housing units

Utility Size Categories	No. Utilities	SF+MF Units	Percent
Small utilities under 10K housing units	14	82,714	4%
Medium utilities 10K-40K housing units	28	661,381	29%
Large utilities 40K-80K housing units	7	417,186	19%
X-Large utilities 80K to 150K housing units	1	124,563	6%
XX-Large utilities >150K housing units	2	956,343	43%
	52	2,242,187	100%

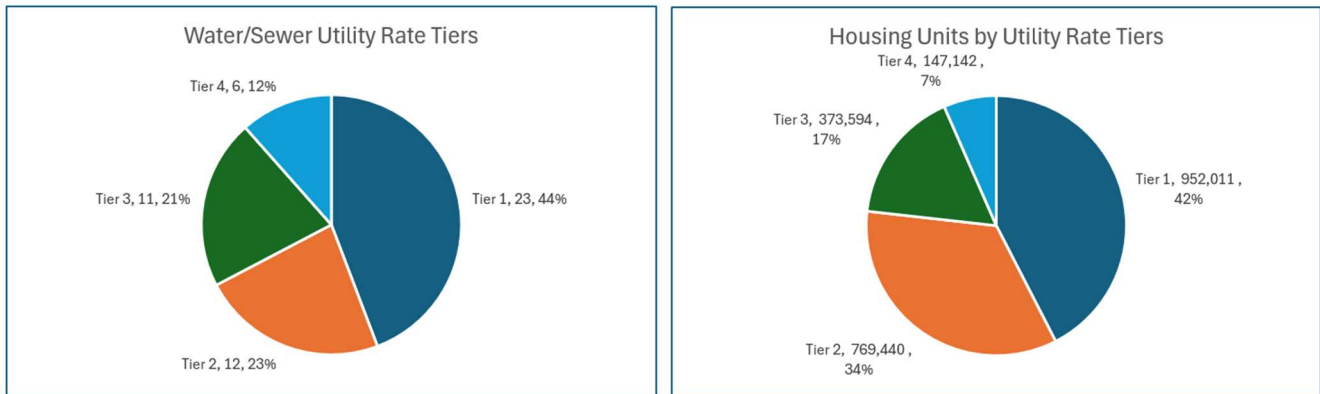
Water and Sewer Rates

Using field data collected during an onsite assessment, the program estimated water, sewer, and water-heating utility savings with the goal of producing a customer offer with little-to-no upfront cost. Volumetric rates for these utility services are critical to customers’ getting financial savings from their usage reduction. Higher utility rates mean more robust customer savings from efficiency upgrades. Across the nine Bay Area counties, the highest water/sewer rates are more than eight times the lowest combined rates for public water utilities.

The following charts show water/sewer rates organized into four tiers: Tier 1, Highest; Tier 2, High; Tier 3, Medium; and Tier 4, Low. The tiers are grouped by the estimated copay of a sample Basic Offer WUSave project.²¹

Utilities in Tier 1 are estimated to have no copay; Tier 2 copays from \$1 to \$99; Tier 3 copays from \$100 to \$199 and Tier 4 copays of \$200 or more. Figures 2 and 3 show the tiers by number of utilities and by housing units served by the utilities in each tier.

Figures 2 and 3: Public water and sewer utility rate tiers and housing units



²¹ These copay estimates are based on the Basic Offer: Most used bathroom replacing toilet, showerhead, and three aerators (bathrooms and kitchen) in a two-occupant residential unit.

Volumetric or Fixed Rates

“Most water utilities are public agencies that set rates to generate enough revenue to cover their costs. These costs have two major components: fixed and variable costs. Fixed costs do not vary according to the amount of water provided, such as payment of interest and principal on past infrastructure investments and insurance. Variable costs, by contrast, vary based on actual water use, such as purchasing water, electricity, and chemicals,” according to *Advancing Affordability through Water Efficiency*, Pacific Institute.²²

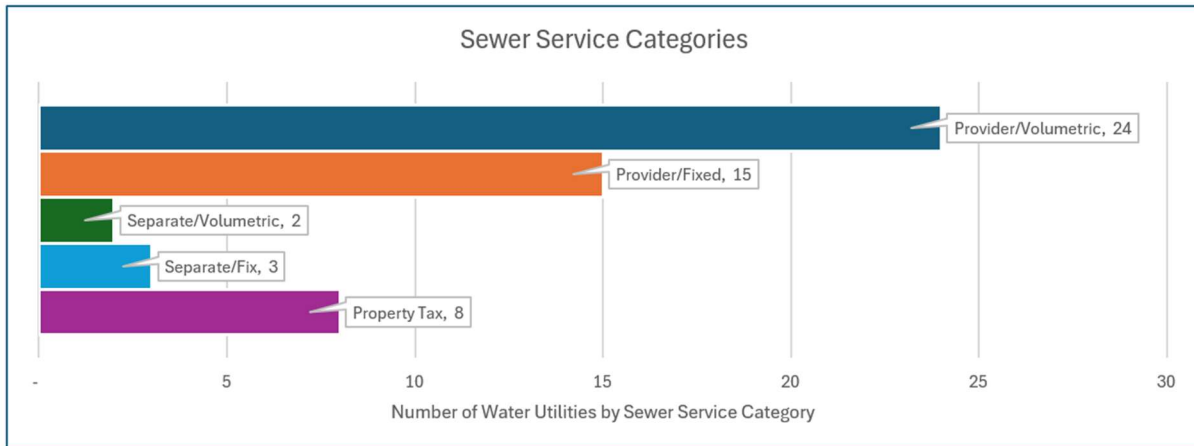
Variable or *volumetric* rates deliver direct customer bill savings based on the volume of water saved. Many public utilities provide both water and sewer services with volumetric rates. Some public utilities have fixed non-volumetric rates for sewer. Some public water utilities have a separate sewer provider that may use one of three billing options: Volumetric rates, fixed rates based on building type or pipe service size, or annual property tax fixed sewer charge.

Sewer bill savings comprise about one-third of the estimated bill savings used to pay for the project cost at the customer’s location over time. A fixed sewer rate means the reduced sewer use produced by the project will not result in customer bill savings unless the sewer service provider will provide an on-bill credit based on an estimate of a reduction in gallons entering the sewer system from efficiency upgrades. As shown in Figure 4, the 54 public water/sewer utilities fall into five volumetric/fixed cost categories:

1. **Provider, Volumetric:** Utility provides water and sewer services with volumetric rates for both;
this also includes five utilities with fixed sewer whose water rates are high enough to not require sewer savings for a no-copay offer
2. **Provider, Fixed:** Utility provides volumetric water and fixed charges for sewer services
3. **Separate, Volumetric:** Utility provides volumetric water; separate utility provides volumetric sewer
4. **Separate, Fixed:** Utility provides volumetric water; separate utility provides fixed charges for sewer
5. **Property Tax:** Utility or separate sewer provider assigns sewer charge to property tax

²² *Advancing Affordability through Water Efficiency*, Pacific Institute, September 2022: https://pacinst.org/wp-content/uploads/2022/09/WaterCostsWhitePaper_F.pdf

Figure 4: Public sewer service categories



Complex Project Economics

In the water sector, the utility bill savings included water, sewer, and water-heating (kWhs, therms). Across the 54 municipal water utilities, the water and sewer rates varied as much as eight times from lowest to highest. That meant customers would receive indoor offers with no upfront cost only from utilities with high volumetric water and sewer rates.

In the water sector the project cost for the residential indoor Basic Offer for a two-person household that included high-efficiency 0.80 gallon-per-flush toilet was around \$750. If the customer requested the same upgrade for a second bathroom the cost was around \$1,400. According to the WUSave Program Operator, the amount of a typical residential indoor project made some customers reconsider the benefit of using the on-bill charge to pay off the relatively modest project cost over time.

In contrast in the electric sector the Program Operator reported that the higher cost of HVAC equipment upgrades, which can range from \$10,000 to \$15,000, led electricity participants to be more interested in the option to repay the project cost over-time.

Lack of Available Research Resources

Unlike energy efficiency programs, which benefit from extensive databases and vetted measure libraries, the water conservation sector lacks comparable research infrastructure. This gap was particularly challenging given the program's need to confirm that estimated utility bill savings would pay for the cost of new measures. Without preexisting data or widely accepted methodologies, staff were required to invest significant time in research, which slowed the development of new offers.

Complex Utility Enrollment

Before water customers could participate in the program, their water and sewer utility had to become a Partner Utility and agree to administer the on-bill charge that enabled customers to use a portion of their utility bills savings to pay for project costs over time (i.e., the utility must enroll in the program before its customers could participate).

Utility enrollment included a series of milestones before executing a contract and launching services. The process started with engaging local leaders, such as City Council members, or key utility staff as internal champions. With champion support, the program convened meetings with utility management, water conservation, and billing department staff and applicable City committees to present the program, answer questions, and provide key documents for review. Utility lawyers and billing staff reviewed the program agreement, and key program documents. Any questions or requests were resolved. Then, guided by City or utility leaders, the program, master agreement, and rate and fee schedule were presented to the utility's governing board (e.g., City Council, Board of Directors) or equivalent decision-maker for approval. Then a series of onboarding meetings were convened with utility staff before launching the program to the public. See Table 6 for complete enrollment steps list.

The time it took to navigate these milestones depended on several factors. Small utilities have smaller staff, which tended to allow them to move more quickly through the process. Medium and large utility enrollment took more time because the process involved more internal stakeholders such as water conservation staff, utility supervisors, and legal and risk management teams reviewing and approving program agreements.

Table 7: Utility enrollment milestones

	Milestone
1	Engage utility champion(s) (utility staff, elected officials, City Managers)
2	Introduce program to utility staff
3	Introduce program to select Board committee(s)
4	Submit program agreement/rate schedule for legal review
5	Submit program agreement/rate schedule for risk management review
6	Submit billing function memo for billing administration review
7	Finalize any program agreement updates with ABAG legal
8	Prepare staff report for utility governing board
9	Present to utility governing board or City Council
10	Obtain utility governing board approval
11	Execute program agreement, adopt rate/fee schedule
12	Begin utility onboarding trainings

One versus Two Utility Enrollments

As noted above, many public utilities offer water and sewer services using a central billing system, which requires one utility enrollment process. However, other public utilities provide water service only and use a separate sewer provider to serve their customers. In those cases, two utility enrollments were required to provide service for a single customer base. Thirty-nine of the 52 public utilities provide both water and sewer, although nearly 40 percent (15) of these utilities have fixed sewer charges.

Utility Process Delays

The program encountered enrollment delays related to internal utility processes and capacity. Utility staff often reported having challenges with staffing levels and meeting priorities with limited resources. Examples of these delays include added time for:

- Turnover in the designated utility contact, which required time for the utility to hire a replacement
- Conservation staff review of memos for program integration, outdoor offer, and leak detection services
- Utility legal and risk management teams' review of the master agreement and rate and fee schedule, and their follow-up questions and requests
- Decision-maker confirmation (e.g., City Manager or conservation manager) of utility interest and enrollment timing

Billing Software Updates. The trend toward using Advanced Metering Infrastructure (AMI) has prompted some utilities to upgrade their financial and billing software to handle the detailed data produced by the WiFi meters. Several prospective utilities were in the process of updating or completely overhauling their financial software, which meant adding the on-bill function had to be postponed until the software upgrades were complete. In two cases, that wait was from one to two years.

Utility Staff Concerns

Despite utility leaders showing keen interest, utility conservation staff often had concerns, including:

- A belief that the program would increase conservation staff workload
- A belief that current utility programs were enough to meet utility needs
- A concern that the program would compete with existing utility programs
- A concern the on-bill charge processing would significantly burden billing staff

In fact, the program was designed to provide turnkey services that removed barriers to participation and expanded the utility’s conservation capacity.

Municipal Water Utility Status

While recovering from the impact of the 2020 COVID-19 epidemic, municipal governments faced a series of challenges. According to a recent SPUR article on the City of Oakland’s budget crisis, “Many U.S. cities are facing similar challenges, in part because of the lingering effects of the COVID-19 pandemic. Sluggish real estate markets, the shift to hybrid work that has reduced foot traffic and increased office vacancies in downtown centers; declines in business travel, tourism, and retail sales taxes; and other economic factors have dragged down local tax revenues. — The reality is that even before the pandemic, for many municipalities, revenue growth was not keeping pace with dramatically rising pension and insurance costs, and the tech and real estate boom, fueled by historically low interest rates, was slowing. From 2020 to 2023, many cities used American Rescue Plan Act (ARPA) funds to backfill budget gaps spurred by the pandemic, but these funds have dried up, and revenues haven’t returned at the levels expected.”²³

Navigating these economic trends dominated staff focus leaving less bandwidth to consider program services. Ways in which these trends manifested include frequent leadership changes,

²³ “What It Will Take to Close Oakland’s Structural Deficit, Part 1: How We Got Here,” SPUR, January 24, 2025: <https://www.spur.org/news/2025-01-24/what-it-will-take-close-oaklands-structural-deficit-part-1-how-we-got-here>

limited staff capacity to respond to program requests,²⁴ staff layoffs, budget reductions, and a focus on local economic priorities.

Changing State Regulations

In 2000, the North American Southwest entered an historic megadrought that continues today and was characterized as “the driest megadrought” in 1,200 years in a University of California — Los Angeles study.²⁵

In 2018, in response to the persistent drought, the State shifted from emergency drought mode, which set large but short-term reduction targets (e.g., 25%) to a gradual long-term approach known as the “Making Conservation a California way of life” regulatory framework, which requires water utilities to meet annual urban water usage objectives for residential indoor, residential and commercial outdoor, and water loss, including utility- and customer-side leaks.

The new regulatory framework sets water efficiency goals for every urban retail utility based their service area characteristics and provides the flexibility to “implement locally appropriate solutions,” according to the California State Water Resources Control Board.²⁶ The utility-specific water usage objectives decrease over time to provide an incentive to increase efficiency and stretch existing water supplies.

In addition, water utilities are allowed to aggregate demand reduction across residential indoor and residential and commercial outdoor usage to meet their Urban Water Usage Objective (UWUO) target. The aggregated usage approach and shift from deep short-term reductions to gradual long-term reductions lowered the pressure exerted by regulator targets.

However, the objectives allow enough per-capital water usage that a program review of Bay Area municipal UWUO reports showed that 20 of the 23 highest water rate utilities had already met their targets, creating little incentive for these utilities to ramp up water use efficiency efforts.

At the same time meter technology improvements, such as AMI meters that measure usage by the gallon and provide real-time usage tracking, have motivated many utilities to upgrade their billing systems to acquire the expanded meter capacity and track their water usage objective status. These billing system upgrades can take several years during which that addition of the line-item on-bill charge was not possible.

Note: During the WUSave program term, both Partner Utilities undertook water meter upgrade programs that replaced analog meters (many of which were older than their useful life) with smart

²⁴ Examples of program requests include review and approval of co-branded marketing materials, lists of customers “in good standing” who should be informed of program service, and post-install customer usage data for evaluation, verification, and monitoring analysis.

²⁵ “Rapid intensification of the emerging southwestern North American megadrought in 2020–2021,” *Nature Climate Change*, February 14, 2022: <https://www.nature.com/articles/s41558-022-01290-z>

²⁶ “Making Conservation a California Way of Life Factsheet,” California Water Boards: <https://www.waterboards.ca.gov/conservation/regs/docs/2024/fact-sheet-making-conservation-way-life-revised.pdf>

meter technology. Over time analog meters lose their ability to record low-flow water use; however, new smart meters can detect low-flow usage, which can cause a 3 to 5 percent increase in usage totals as a result of the increased accuracy.²⁷

Finally in recent years, retail water utilities have accessed State funding for free direct install residential indoor upgrades that duplicate the program offer (i.e., high efficiency toilets, showerheads, and aerators). If these same funds had been aligned with the tariff on-bill program to offset participant copays, the number of homes served had the potential to grow by 30 or more percent.

As a result of changing State regulations and grant programs, in early 2024, prospective utilities reported their residential indoor market (i.e., the primary program audience) was “saturated.” Instead, the water utilities were focused on the remaining efficiency opportunities in their water portfolio:

1. **Outdoor:** Services for residential and commercial lawn conversion programs that align with State urban water section priorities
2. **Leak Repair:** Services for customer-side leak repair from small leaks such as dripping faucets to large high-cost leaks such as underground service lines
3. **Indoor:** Services to upgrade bathrooms in commercial, municipal, and institutional buildings

In response to utility requests, the program:

- Developed an Outdoor Offer that could put the cost of drip irrigation system components on-bill when combined with a utility-sponsored lawn conversion square-foot rebate program;
- Added Leak Detection protocols to the program’s onsite assessment to inform customers and the utility of leak issues;
- Developed a Program Integration method to collaborate with and expand on existing utility conservation services;
- Provided a Billing Technical Factsheet that clearly outlined billing functions needed to apply an on-bill charge to a customer account; and
- Collaborated with prospective utilities to determine if a leak repair offer could be developed.

²⁷ Juan Wang, Jakobus E. van Zyl, Le Wen, Yongbo Li, Shuai Che, The impact of smart meter programmes on household water consumption: Evidence from New Zealand, *Journal of Behavioral and Experimental Economics*, Volume 118, 2025: <https://www.sciencedirect.com/science/article/abs/pii/S2214804325000771>

When evaluating new offers and measures, the program team faced a lack of accessible existing research. Unlike energy efficiency and electrification, which benefit from extensive official resources (e.g., CA Energy Efficiency Measure Data (eTRM) or Database of Energy Efficiency Resources [DEER]), no equivalent databases exist for water efficiency measures. As a result, each new offer required a time-intensive search for applicable measure-specific information across a range of resources.

Lessons Learned

As the program sunsets, it is critical to reflect on key takeaways that can inform future tariff on-bill programs. While the program faced unique challenges because of its innovative design, it also revealed valuable insights around effective engagement strategies and infrastructure needs. The lessons below distill those key insights into actionable, generalized takeaways.

- **Sufficient Volumetric Rates.** Tariff on-bill is designed to produce sufficient bill savings to pay for the utility's investment at the customer's location and leave the customer with significant net savings. Bill savings are realized from volumetric rates for usage. Tariff on-bill projects are successful when they make no-upfront-cost offers that customers will accept. In WUSave, utilities with moderate or low volumetric rates or fixed sewer charges, which resulted in a copay requirement, struggled to make desirable offers to their customers. It is important to assess whether the utility's volumetric rates are high enough to provide sufficient customer savings from the utility's efficiency investment to require no upfront customer payment, cover the on-bill charges that repay that investment, and leave the customer with significant net savings.
- **State Regulation Alignment.** State goals for usage reductions heavily influence utility priorities. From 2018 to the present, water efficiency regulations made a major shift from drought-based emergency mandates to progressive portfolio-based usage objectives. In that shift, residential indoor efficiency, the primary program service, was superseded as a utility priority by outdoor and water loss, which involve many variables that make estimating utility bill savings more difficult. Understanding the larger regulatory environment is important to strategically applying a tariff on-bill service.
- **Grant-Funded Competition.** Tariff on-bill provides the financial cornerstone for utility investment in customer-side efficiency. Additional funding sources, such as rebates or subsidies, can be used to improve the tariff on-bill customer offer by "buying down" the project cost, which increases the customer's estimated net bill savings. Currently, State grant funds are paying for free direct-install programs for residential indoor customers in direct competition with the WUSave program. There is an untapped opportunity to

coordinate these funding sources with tariff on-bill programs to expand project upgrades and serve more customers.

- **Participating customer satisfaction:** As the program designers intended, water utility customers who participated in the program appreciated the convenient turnkey service, giving the regional program high marks in customer surveys (94 to 100 percent satisfaction). In particular, they appreciated having access to vetted contractors, pre-set pricing, and custom assessments. Ultimately, water customers were not a barrier to program growth.
- **Effective customer messaging:** Effective customer messaging was a closely examined variable throughout the program. The most effective campaigns focused on drought impacts. However, this type of messaging was only viable during periods of emergency drought response. More consistently successful messages focused on tangible customer benefits — namely, bill savings and the low-effort customer enrollment process. Emphasizing financial and convenience-based benefits helped sustain interest beyond times of drought.
- **Regional capital service:** During the pilot phase (2010 to 2019) the three participating utilities provided their own funding to invest in customer-side water upgrade projects, see Table 1. A disadvantage to self-funding was that these funds were not available to the utility for other uses during the pilot.

In 2017 SB 564 — Water Bill Savings Act enabled a joint powers authority to facilitate a capital service for a regional tariff on-bill program serving the nine Bay Area counties. Later a 2019 Water Bill Savings Process Evaluation²⁸ found that among the pilots “the need to self-fund contributed to the slow ramp up even when the internal process to select self-funding went smoothly” and “the participating water districts expressed interest in a program that is regionally funded.” As a result, the report recommended “ABAG — secure the capital and allow access to participating water districts and customers across BayREN’s counties.”

The regional service included: (1) Acquiring affordable capital; (2) reporting approved on-bill charges and repayment durations to the Partner Utilities; (3) month-to-month tracking of project on-bill charges and capital balance owed to Partner Utilities and ABAG; and (4) monthly utility and ABAG reports including a Reconciliation Report from the program database, Finance Report with completed on-bill charge project information; and a Payment Summary with capital owed for current repayment period to serve as an internal utility receipt.

²⁸ “Water Bill Savings Process Evaluation,” Grounded Research, February 15, 2019: https://www.bayren.org/sites/default/files/2022-05/Water_Bill_Savings_Process_Evaluation021519-FINAL.pdf

Tracking, preparation, and proofing of these detailed capital tracking reports was time consuming and complicated given the process was required for multiple utilities. However, a key program accomplishment was the development of the monthly reconciliation report that provided all capital stakeholders with one dataset for tracking and reconciliation.

- **Utility champion value:** Utility enrollment benefited from engaging a utility champion who understood the program value and communicated and prioritized that value to his/her/their team members. These champions included City Councilmembers, City Managers, and Sustainability or Conservation Managers, as well as members of community climate committees. The more decision making power and influence the champion had with utility staff, the more effective the enrollment process was.

Even though the regional program was designed to provide a simple turnkey service for Partner Utilities and their customers, the needs, characteristics, and circumstances of prospective utilities varied widely. Smaller utility staff tended to have limited capacity to perform program responsibilities (i.e., apply on-bill charge, repay capital provider, advise on marketing) and respond to program requests (customer lists, data requests); while larger utility staff had to navigate lengthy multi-tiered decision-making processes to secure enrollment approval. The variety of circumstances and large number of prospective municipal water utilities (54) meant enrollment activities took a long time. For example, some discussions continued over four to five years without an enrollment.

These complexities highlight the need to identify and work with a champion at the prospective utility. Engaging an inside champion who can make the decision or advocate for utility enrollment with decision makers is critical to enrollment success.

- **Changes in local government leadership:** Many municipal water utilities are governed by elected bodies such as City Councils. Over time the governing body membership tends to change, which can affect how the program is valued as a community priority.
- **Billing system logistics:** The status of the utility finance and billing system software had a big impact on enrollment. Prospective utilities either used an older metering and billing system with large billing units (e.g., hundred cubic feet [CCF] equaling 748 gallons) or were in the midst of transitioning to new, more capable software platforms that can track usage by the gallon and time of day.

Some utilities with older billing systems said adding a line-item function would require staff time and costly IT programming. For newer systems, utilities said that, as part of a city-wide financial services upgrade across all municipal departments, billing administration would be the last department to deploy the upgrade (e.g., one to two years). Understanding the status of the utility billing system and any current or future upgrade plans can help identify utilities that are prepared to implement the on-bill charge function.

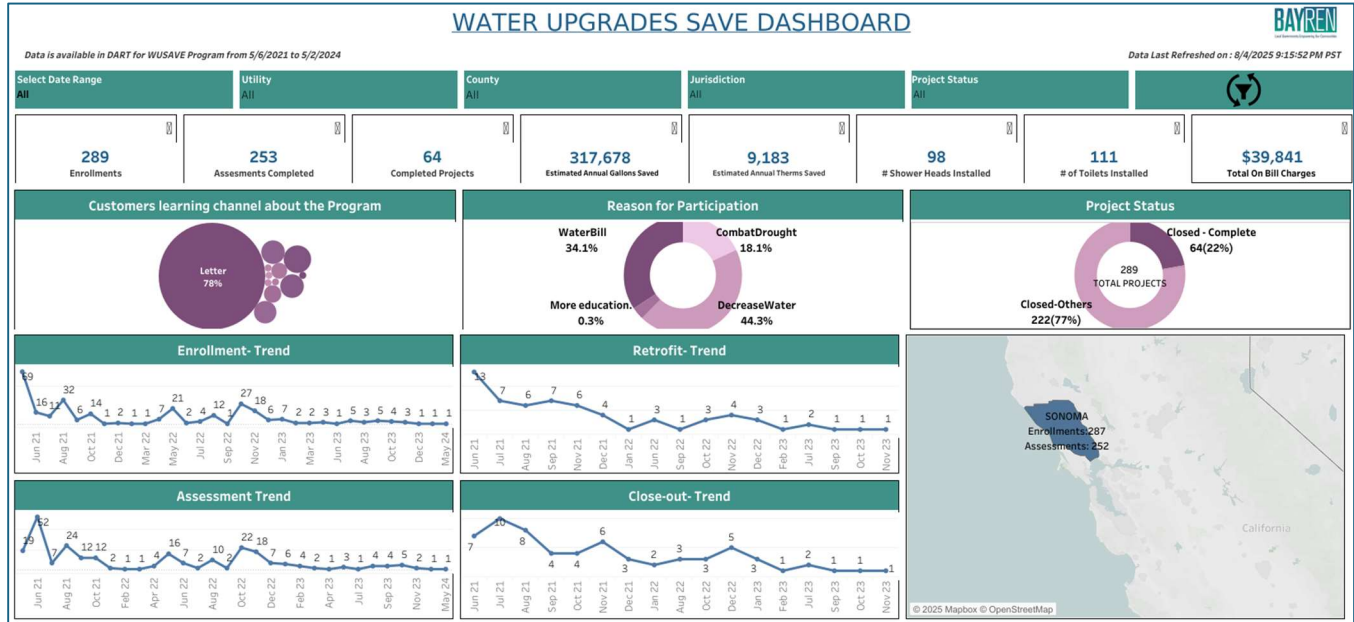
Regulatory Steps

On July 18, 2025, the BayREN governing board approved a proposal to immediately cease enrolling new utility or customer participants and to request CPUC approval to close the program, effective December 31, 2025.

BayREN informed Service List members (August 18), hosted a webinar (September 10), and filed a Program Closure Advice Letter with the California Public Utilities Commission (October 2025); the CPUC approved the program closure request on November 6, 2025.

Attachment 1 — Water Upgrades Save Metrics Dashboard

The BayREN Data Aggregation and Reporting Tool (DART) dashboard provides WUSave program metrics as of August 4, 2025.



Attachment 2 — Project Calculator

The project calculator used field data for existing indoor water fixtures (i.e., toilets, showerheads, and aerators) collected during the onsite assessment, household occupancy, and conservative usage assumptions to determine if a project would provide a net positive economic offer for the prospective customers. Each customer receiving an onsite assessment was given a project summary with the economic analysis and scope of work. Enclosed here is a screenshot from the project calculator for a two-person single family home replacing a 1.6 gallons-per-flush toilet with a high-efficiency 0.80 gpf unit, 1.5 gpm showerhead and bathroom aerators.

App Input Order	Values
Program Operator Fee	\$89.18
Utility Fee	\$60.89
Capital Fee	\$60.89
Admin Fee	\$29.96
Copay Requirement	\$0.00
Total On-Bill Charge	\$736.36
Estimated Savings Per Month	\$16.13
Customer Billing Period On-Bill Charge	\$6.14
Estimated Cost Recovery Period (Months)	120
Total Savings over Cost Recovery Period	\$1,935.89
Utility Payment to Contractor	\$495.43
Utility Payment to Program Operator	\$89.18
Estimated Utility Savings Per Billing Period	\$16.13
Total Project Estimated Water Annual Savings (gals)	5,927
Total Project Estimated Sewer Annual Savings (gals)	5,927
Total Project Estimated Gas Annual Savings (therms)	18
Total Project Estimated Electricity Annual Savings (KWH)	0.00
Annual Water Savings (\$)	\$39.70
Annual Wastewater Savings (\$)	\$122.58
Annual Gas Savings (\$)	\$31.31
Annual Electricity Savings (\$)	\$0.00
Total Program Cost (\$)	\$736.36
Estimated Net Savings per Billing Period (\$)	\$10.00

Attachment 3 — ABAG Financing Service

MTC Resolution No. 4394 established the ABAG Financing Service for the BayREN Water Bill Savings Program authorized by Senate Bill 564 — Water Bill Savings Act (2017).

Metropolitan Transportation Commission Administration Committee

October 9, 2019

Agenda Item 3b

MTC Resolution No. 4394 – \$1 million Loan for the BayREN Water Bill Savings Program

Subject: This item requests that the Committee authorize the referral of MTC Resolution No. 4394 to the Commission to authorize a loan of up to \$1 million for the Association of Bay Area Governments (ABAG) BayREN Water Bill Savings Program.

Background: In December 2018, MTC authorized a \$10 million operational advance for cash flow and liquidity to ABAG (MTC Resolution No. 4358). The advance was to manage the cash flow mismatch between contractor payments and grant reimbursement in the ABAG BayREN and Estuary Partnership programs. Assuming the Commission approves a proposed revision of MTC Resolution No. 4358, the operational advance will be extended for two years through December 2021.

Part of the proposed revision to MTC Resolution No. 4358 would authorize up to \$2 million for longer term loans to ABAG programs. The ABAG BayREN Water Bill Savings Program is requesting a loan of \$1 million to be used as startup funding for BayREN's new residential water saving program.

The loan would be secured by direct payment from the participating water utility. Basic proposed terms are:

- ABAG would sign a master participation agreement with a water utility;
- The water utility would perform outreach to its residential customers regarding the program;
- ABAG would reimburse the water utility for the device installation with funds drawn from the MTC loan;
- The customers would agree to pay an amortized cost through their regular water bills; and
- The utility would collect the amount due and forward monthly payments to ABAG.

Through the master agreement the utility would agree to pay amounts due to ABAG regardless of the residential customer payment. As such the ABAG repayment of advances made by MTC would be guaranteed by the water utility providing a fully secured loan.

Similar BayREN pilot programs in four utilities have seen residential water consumption reduced an average of 25%. BayREN staff believes

expanding the program will produce similar water and energy savings. BayREN staff hope to expand the program sufficiently to finance expansion and repay the initial MTC loan.

Issues: No Issues Identified

Recommendation: Staff recommends that the Committee refer MTC Resolution No. 4394 to the Commission for approval, to authorize a loan of up to \$1 million from the \$10 million ABAG cash flow advance as start-up funding for the ABAG BayREN Water Bill Savings Program, according to the terms set forth in Attachment A.

Attachments: Attachment A – Terms of the ABAG BayREN Loan
MTC Resolution No. 4394


Therese W. McMillan

ATTACHMENT A

Terms of the loan to ABAG related to the BayREN Water Savings Program are as follows:

- Amount of the loan up to \$1 million to be drawn for eligible projects.
- Projects will be eligible for funding pursuant to a master agreement between ABAG and the utility guaranteeing repayment, regardless of customer payment status.
- ABAG shall pay 1% on all drawn amounts for up to two years and the MTC market book rate for all amounts outstanding after two years.
- Utilities will provide BayREN staff with a monthly list reconciling outstanding projects, payments to date, and remaining balance.

Date: October 23, 2019
W.I.: 1152
Referred by: Administration

ABSTRACT

Resolution No. 4394

This resolution approves the terms and conditions to provide the Association of Bay Area Governments (ABAG) a loan of up to \$1 million for the ABAG BayREN Water Bill Savings Program.

Further discussion of the terms and conditions to provide ABAG a loan of up to \$1 million for the ABAG BayREN Water Bill Savings Program is contained in the Administration Committee Summary Sheet dated October 9, 2019.

Date: October 23, 2019
W.L.: 1152
Referred by: Administration

RE: ABAG BayREN \$1 million Loan

METROPOLITAN TRANSPORTATION COMMISSION
RESOLUTION NO. 4394

WHEREAS, MTC and ABAG executed a Contract for Services effective on May 30, 2017; and

WHEREAS, under the Contract for Services responsibility for ABAG financial services was transferred to MTC effective July 1, 2017; and

WHEREAS, in the process of administering ABAG finances, MTC determined that the volume of grants and contracts payable frequently exceeds the available cash to make timely payments and extended a \$10 million advance to meet cash flow needs

WHEREAS, MTC Resolution – 4385 Revised, authorized use of up to \$2 million for longer term ABAG loans; now, therefore, be it

RESOLVED that MTC authorizes a loan of up to \$1 million for the ABAG BayREN Water Bill Savings Program; and be it further

RESOLVED that repayment of all advances be secured in accordance with the terms and conditions listed in Attachment A; and be it further

RESOLVED the Executive Director or Chief Financial Officer is directed to set aside \$1 million from any available MTC undesignated reserve; and be it further

MTC Resolution No. 4394
Page 2

RESOLVED that ABAG will be charged 1% on drawn amounts for up to two years and the MTC market book rate thereafter, with no charge to be accrued on undrawn amounts.

METROPOLITAN TRANSPORTATION COMMISSION

Scott Haggerty, Chair

The above resolution was entered into by the Metropolitan Transportation Commission at a regular meeting of the Commission held in San Francisco, California on October 23, 2019.

Date: October 23, 2019
W.I.: 1152
Referred by: Administration

Attachment A
Resolution No. 4394
Page 1 of 1

Attachment A

Terms of the ABAG BayREN loan are as follows:

- Amount of the loan up to \$1 million to be drawn for eligible projects.
- Projects will be eligible for funding pursuant to a master agreement between ABAG and the utility guaranteeing repayment, regardless of customer payment status.
- ABAG shall pay 1% on all drawn amounts for up to two years and the MTC market book rate for all amounts outstanding after two years.
- Utilities will provide BayREN staff with a monthly list reconciling outstanding projects, payments to date, and remaining balance.

Attachment 4 — Reconciliation Report

WUSave projects and capital investment were tracked in detail in the Reconciliation Report, which was provided to Partner Utilities and ABAG each month.

What is the Reconciliation Report?

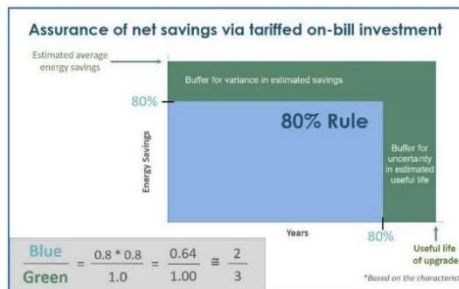
The Reconciliation Report provides financial data on Water Upgrades Save customer projects to track the flow of capital through the program system.

How data is collected. The Program Operator conducts an onsite inspection verifying water-use rates for existing fixtures (toilet gallons-per-flush, showerhead/aerator flow rates) and number of occupants.

Where the data is housed. The onsite data is automatically entered into a Customer Relationship Management (CRM) from which the Reconciliation Report is exported.

How Utility Bill Savings Estimate is calculated. The Operator enters this data into a utility bill savings calculator that estimates how many gallons of water will be saved after new upgrades are installed. The saved gallons are multiplied by the local water, sewer, and natural gas (water heating) rates over the 10-year cost recovery period to create a Utility Bill Savings Estimate.

How the Total On-Bill Charge is calculated. The maximum on-bill charge allowed is set at 80 percent of the utility bill savings estimate, as shown below.



How the Total Project Cost is calculated. The Total Project Cost includes the project installation cost and three fees: Capital, Administrative, and Utility.

Project Costs	Capital Fee	ABAG Administration Fee	Optional Utility Fee
Labor, materials, quality assurance, contractor oversight	Source capital, service administration	Administration services, reporting, expansion	Cost recovery options for utility administration
	The Program's Capital Fee is		2%
	The Program's ABAG Administration Fee is		1%
	The Utility requests a Utility Fee* of		X%

* Maximum Utility Fee that can be requested is 2% and is set at Utility's discretion.

How a project is approved. A project is eligible for Water Upgrades Save when the Total Project Cost is no more than 80 percent of the Utility Bill Savings Estimate.

Transparent data reporting. The Program CRM is the single data source for the Reconciliation Report. All calculations are applied to a key data set. All Program Partners receive the same Reconciliation Report each month. The one item not included in the report are utility payments received by ABAG, which are sent directly to the ABAG office.

Users Guide for Reconciliation Report

Partner Utility Summary Table

This table provides a complete overview of Partner Utility data to-date. **Rows 3 through 17.**

Column F – Row 2 through 16 provides data used in the *Exhibit E: Utility Payment Report* that accompanies each ABAG payment. The Partner Utility point of contact is in **Cell A16**.

ABAG Reconciliation Summary Chart

This table provides key data for ABAG reviewers to verify expended capital and utility payments due for the Partner Utility to-date. **Rows 19 through 28.** Column references are also provided for Year-To-Date totals.

The ABAG points of contact are on **Rows 31 through 32**.

Reporting Month Totals

Row 34 provides column totals for the current month at the top of each column for easier access.

Projects Prior to Reporting Month Totals

Row 35 provides column totals for the past months at the top of each column for easier access.

All Projects Totals

Row 36 provides column totals for all projects to-date at the top of each column for easier access.

	A	C	D	E	F
1	Project ID / GUID	Reporting Year	Reporting Month	Date Merge	Scheduled Utility Pr
2	City of <insert Partner Utility> Summary				
3	Sebastopol Master Agreement Terms			Date of Report Submitted	9/1/2022
4	Capital Fee	2.00%		Reporting Month	August 2022
5	ABAG Admin Fee	1.00%		File Name: <Utility Name>_2022-08	
6	RCPA Portion of ABAG Admin Fee	50.0%		New Projects: Reporting Month	0
7	Utility Fee	2.00%		Previous Projects: Previous Reporting Months	45
8	Utility Fee Paid Lump Sum Upfront	Yes		All Projects: New and Previous Reporting Months	45
9	Initial Cost Recovery Period (# of Billing Cycles)	60		New Projects: Customer recurring On-Bill Charges due for Report Month	\$0.00
10	Number of Billing Cycles/Yr	6		Previous Projects: Customer recurring On-Bill Charges due for Report Month	\$449.56
11	Due date for repayment to ABAG (net days from date the Reconciliation Report submittal date)	180		All Projects: Customer recurring On-Bill Charges due for Report Month	\$449.56
12				New Projects: Total On-Bill Costs for Cost Recovery	\$0.00
13				Previous Projects: Total On-Bill Costs with remaining Cost Recovery	\$26,973.40
14				All Projects: Total On-Bill Costs with remaining Cost Recovery	\$26,973.40
15				Projects with Active On-Bill Charges Due for Reporting Month	0
16	Partner Utility Point of Contact Name			Active On-Bill Charges due to ABAG for Reporting Month	\$0.00
17	Phone			Date Active On-Bill Charges due to ABAG	02/10/23
18	Current and Past Projects				
19	ABAG Reconciliation Summary Chart (C.Chen)	Enter number of months to go back here =>	0		
20		July Totals	August Totals	YTD totals	
21	Total On-Bill Project Costs	\$0.00	\$0.00	\$21,352.37	Column H
22	MTC Capital Fee (2%)	\$0.00	\$0.00	\$2,255.16	Column I
23	Administration Fee (1%) ABAG & RCPA	\$0.00	\$0.00	\$1,110.12	Column J
24	Utility Fee (2%)	\$0.00	\$0.00	\$2,255.15	Column K
25					
26	Total On-Bill Cost with Remaining Cost Recovery	\$26,973.40			
27	On-Bill Charges due to ABAG to Date	\$1,798.23			
28	Remaining Balance due to ABAG:	\$25,175.18			
29					
30					
31			ABAG Submittal Address:	Association of Bay Area Governments P. O. Box 45801 San Francisco CA 94145-0801	
32			ABAG Point of Contact #1:	Cindy Chen, Association of Bay Area Governments, Energy Programs Coordinator (415) 820-7373 cchen@bavareametro.aov	

Column Formulas

Row 38 shows the formulas used in each column using the column letters. The CRM is in Smartsheet, which uses a different formula process than Excel; when the report is exported the Smartsheet formulas are removed. Row 42 provides the formulas for reference during review.

Data Grouped with Colored Headers

Row 39 shows column headers, which are color coded to show groups of related data. An explanation of these data groups is provided below.

Columns A to G — Project ID Data — Dark Blue

Applicant ID	Reporting Year	Reporting Month	Reporting Month Reporting Year	Scheduled Utility Pmts Received	Odd Even Submittal Month
DB0FB99E-9C54-4DBD-830F-C0F1BC88ECD0	2022	January	January 2022		2 - Odd

Project ID data. Columns A to E provide project data with an ID that links the data to the CRM customer files. Column F is the estimated utility payment ABAG should receive for that month, Column G shows if the customer is billed in odd or even months on a two-month basis. A two-month billing period is the predominate model for retail utilities.

Columns H to N — Core Project Cost Data — Olive Green

Total Project Cost (H)	Project Capital Fee (I)	Admin Fee (J)	Project Utility Fee (K)	Recovery Period (Months) (L)	Number of Billing Periods (M)	Number of Payments per Yr (N)
\$792.19	\$152.18	\$74.97	\$152.18	120	60	6

Core Project Cost Data. Columns H to K provide the Total Project Cost data (project installation cost, 2% Capital fee, 1% Admin fee, and 2% Utility fee). Columns L to N provide the billing frequency and cost recovery term data used to calculate the monthly on-bill charge.

Columns O to Q — Capital Advance Data — Purple

J * \$CS6	If Yes, K	H + O + P
RCPA Portion of Total ABAG Admin Fee Paid Lump Sum (O)	Utility Fee Paid Lump Sum Up-front (P)	RCPA Finance Service Actuals (Q)
\$37.49	\$152.18	\$981.86

Capital Advance Data. These columns show the capital advance amounts included in the RCPA Finance Service Actual amount and Funding Request Letter. Column O shows the RCPA portion of the 1% Admin Fee (that is, 0.5%) that is paid upfront to RCPA to administer the capital flow to the Program Operator. Column P is the 2% Utility Fee that is paid upfront to the Partner Utility to cover on-bill charge set up and capital repayment administration. Column Q is the total RCPA Finance Service Actual applied to the projects included in the Reconciliation Report.

Columns R to Y — Total On-Bill Charge Payment Breakout — Medium Green

H + I + J + K	R / M	H + I + J + P	H + I + P	H	P	I	T - U
Customer Total On-Bill Cost due to Utility (R)	Customer Recurring On-Bill Charge (S)	Utility Total On-Bill Cost due to ABAG (T)	Total Capital due to MTC (U)	Total Project Costs due to MTC (V)	Utility Fee Paid Lump Sum Up-front due to MTC (W)	Total Capital Fee due to MTC (X)	Total ABAG Admin Fee retained by ABAG (Y)
\$1,171.52	\$19.53	\$1,171.52	\$1,096.55	\$792.19	\$152.18	\$152.18	\$74.97

Total On-Bill Charge Payment Breakout. Column R shows the Customer Total On-Bill Cost due to ABAG; Column S shows the recurring on-bill charge. The remaining columns provide breakouts for all the components in the utility repayment for each project.

Columns Z to AB — Utility ODD Month Core Data — Dark Orange

T / M ODD	Z * F	T - AA ODD
Util Monthly On-Bill Charge to ABAG - ODD Months (Z)	Scheduled Tot On-bill payment to ABAG - ODD Months (AA)	Scheduled Remaining Balance - ODD Months (AB)
\$19.53	\$39.05	\$1,132.47

Utility ODD Month Core Data. Most utilities use a two-month billing period which means some customers pay for two-months of use in odd months and others in even months. These columns track the estimated ABAG payments for ODD month customers.

Columns AC to AG — Utility ODD Month Breakout Data — Light Orange

U / M ODD	V / M ODD	W / M ODD	X / M ODD	Z - AC
Monthly On-Bill Charge due to MTC - ODD Months (AC)	Monthly Project Costs due to MTC - ODD Months (AD)	Monthly Util Fee Paid Up-front to MTC - ODD Months (AE)	Monthly Capital Fee due to MTC - ODD Months (AF)	Monthly On-Bill Admin Fee retain by ABAG - ODD Months (AG)
\$18.28	\$13.20	\$2.54	\$2.54	\$1.25

Utility ODD Month Breakout Data. These columns provide breakouts for all the components in the utility ODD month repayment for each ODD month project.

Columns AH to AJ — Utility EVEN Month Core Data — Medium Blue

T / M EVEN	AH * F	T - AJ EVEN
Util Monthly ON-Bill Charge to Abag - EVEN Months (AH)	Scheduled Tot On-bill payment to ABAG - EVEN Month (AJ)	Scheduled Remaining Balance - EVEN Month (AJ)
\$0.00	\$0.00	\$0.00

Utility EVEN Month Core Data. Most utilities use a two-month billing period which means some customers pay for two-months of use in even months and others in odd months. These columns track the estimated ABAG payments for EVEN month customers.

Columns AK to AO — Utility EVEN Month Breakout Data — Light Blue

U / M EVEN	V / M EVEN	W / M EVEN	X / M EVEN	AH - AK EVEN
Monthly On-Bill Charge due to MTC - EVEN Months (AK)	Monthly Project Costs due to MTC - EVEN Months (AL)	Monthly Util Fee Paid Up-front to MTC - EVEN Months (AM)	Monthly Capital Fee due to MTC - EVEN Months (AN)	Monthly On-Bill Admin Fee retain by ABAG - EVEN Mo (AO)
\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Utility EVEN Month Breakout Data. These columns provide breakouts for all the components in the utility ODD month repayment for each EVEN month project.

Attachment 5 — Utility Scorecard

To assess which municipal water utilities had favorable conditions for success, the program team designed a comprehensive utility scorecard to evaluate and rank water utilities based on a variety of factors that influence their suitability for enrollment.

This scorecard included key metrics and a weighted-scoring method to provide a holistic view of each utility. The scorecard was used to assess and compare Bay Area municipal utilities to identify utilities that were more likely to benefit from the program and therefore be good candidates for enrollment.

By using the utility scorecard, the program could make data-driven decisions that enhanced the effectiveness of its enrollment strategy. Here's how it worked:

1. **Data Collection:** The scorecard holds data on various utility characteristics and metrics, including housing stock size, combined water and wastewater rates, metering resolution, whether wastewater costs were volumetric or fixed, rate increase percentages, and rebate programs.
2. **Scoring and Weighting:** Each utility is scored based on the above mentioned metrics, with weights assigned to reflect the importance of each metric. These weights can be adjusted to test different scenarios and their impact on utility recruitment.
3. **Ranking:** Utilities are ranked based on their total score, allowing for a clear comparison of their enrollment potential.
4. **Targeted Outreach:** By focusing on utilities with the highest scores, the program could efficiently allocate resources toward those utilities whose customers were most likely to participate and benefit from the program.
5. **Continuous Improvement:** The scorecard is a dynamic tool that can be updated with new data, such as new rates, and weights adjusted to reflect changing market conditions and program priorities. This flexibility allowed the program to stay responsive and adaptive to the needs of the utilities and their customers.

Key Characteristics. The utility scorecard captured key characteristics that provide valuable insights into the market. These characteristics were crucial for understanding the unique aspects of each utility and their potential for successful enrollment in the program. These characteristics included:

1. **Municipal or private utility:** Program funding was dedicated to serving municipal water/sewer utilities.

2. **Volumetric or Fixed Water/Sewer Rates:** Utility bills are based on either the volume of water/sewer usage (volumetric rates) or a fixed charge regardless of usage. Customers of utilities with volumetric rates for water and sewer see the full value of their reduced usage reflected in a lower utility bill.
3. **Combined Water/Sewer Utility or Separate Utilities:** Many municipal utilities provide both water and sewer services, while some provide only water and rely on a separate utility to provide the sewer service. Utilities that offer water and sewer require one enrollment process to join the program; whereas areas served by separate water and sewer utilities required two enrollments to serve one customer base.
4. **Housing Stock:** Both the size and age of the housing stock affect the potential for installing water-saving upgrades. Housing stock factors and utility rates are among the highest weighted metrics in the utility scorecard because they indicate where the largest opportunity for customer enrollment exists.
5. **Utility Rebates:** Many utilities offer rebates for water-efficient appliances and fixtures. Existing rebates could be applied to a customer's project to reduce the cost and increase customer bill savings.