



*BAY AREA REGIONAL ENERGY
NETWORK (BAYREN) 2022 ANNUAL
REPORT*

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Spotlight Story: Avoiding a Cut-and-Paste Approach to Equity

In 2021 BayREN took steps to define equity in terms that aligned with our mission and work. For BayREN, equity means addressing systemic barriers to energy efficiency and electrification, especially for and in collaboration with, equity priority communities and those who disproportionately face energy burdens, climate impacts, and are underrepresented in policy and decision-making. This definition was incorporated into BayREN's adopted 2025 Strategic Plan¹, which outlines potential actions to integrate equity more intentionally throughout the portfolio.

In 2022, advances were made in several identified areas of the Strategic Plan. Specifically, this was a highlight year for communications and outreach work in Spanish and Chinese. BayREN partnered with major Spanish- and Chinese-language media companies, including Univision, Telemundo, and KTSF, to reach a wider audience, form trust, and create name-brand recognition. By collaborating with these media outlets, we were able to communicate the importance of energy and water efficiency in ways that align with cultural values. This approach recognizes the variety of cultures, languages, and people in our region, and elevates the importance of avoiding a "cut-and-paste" approach derived from English-language messaging.

To further these and other equity-related initiatives, an equity retreat was held for staff to identify clear, implementable next steps. Three working groups emerged from the retreat, focusing on communications, language, and regional initiatives. The groups jumpstarted their work in late 2022 and will continue their efforts through 2023.

¹ <https://www.bayren.org/sites/default/files/2022-04/BayREN%20Strategic%20Plan%202025.pdf>

Executive Summary

The Bay Area Regional Energy Network (BayREN), a regional collaboration between the Association of Bay Area Governments (ABAG) and the nine San Francisco Bay Area counties, has implemented a comprehensive portfolio of resource efficiency programs, focusing on energy, water and greenhouse gas emission reductions since 2013. This report highlights notable accomplishments of BayREN and our partner agencies in 2022, the tenth year of program implementation. For the past decade, these programs have offered rebates, direct funding, and technical assistance to help renters, property and business owners, realtors, and local governments improve buildings' energy efficiency and reduce their carbon footprint, while also helping to build the green workforce. Critically, BayREN's programs also help to advance the state's goals of doubling energy efficiency in existing buildings by 2030 and reducing emissions from existing buildings by at least 40 percent below 1990 levels by 2030.

As acknowledged in a recent ABAG resolution,² BayREN's 10 years of accomplishments benefit the entire Bay Area. Since 2013, BayREN has saved the Bay Area the amount of energy used by 47,357 homes, provided more than \$66 million in incentive payments to residents, and avoided 156 million tons of carbon emissions. Initially approved as a pilot, in 2019 BayREN became a permanent energy efficiency program administrator. Successes include becoming the first program administrator to offer fuel substitution measures; a long-standing partnership with Rising Sun Center for Opportunity (Rising Sun) to support Green House Calls, an innovative "earn and learn" program that trains local youth to provide residents with no-cost energy and water efficiency services; and the launch of Water Upgrades Save, a water efficiency program that saves water, energy, and money.

Our accomplishments during 2022 demonstrate that BayREN continues to break barriers with innovative energy program design, which enable us to more effectively serve the audiences that are most in need of equitable energy improvements. For instance:

- The Green Labeling program received a Department of Energy (DOE) Home Energy Score (HEScore) Partner innovation award for successfully building and expanding a voluntary HEScore program that added an innovative electrification check list as part of the report.
- The Bay Area Multifamily Enhancements (BAMBE) program modified the incentive structure to encourage energy efficiency measures with health, heat resilience and/or bill reduction benefits in overburdened communities.
- The Resilient Libraries Network Pilot, part of the Codes & Standards program, launched with the goal of transforming libraries into Community Resilience Centers.

² <https://www.bayren.org/sites/default/files/2023-01/ABAG%20Resolution%20No%203%202023%20BayREN%2010th%20Anniversary%20v1.pdf>

As we complete our first decade of program implementation, I could not be prouder of the multitude of BayREN accomplishments. Starting small, we have now been recognized on the local, regional, state and national levels as an effective Program Administrator. And we are just getting started! With increased awareness and funding opportunities for climate programs, BayREN is well positioned to build on our successful organizational structure to offer more holistic and expanded programs to the residents and businesses in our region. The green future is bright!

- Jennifer Berg
Portfolio Administrator
BayREN

- The Single Family program reached new audiences through partnerships with Spanish and Chinese language media channels.
- BayREN's Business FLEXmarket program launched to support energy efficiency upgrades in small commercial buildings in disadvantaged communities.

BayREN also formed three equity working groups focusing on: communications, language, and new regional efforts. The groups emerged from an equity retreat attended by BayREN member agencies that focused on better integrating equity throughout the program portfolio as well as internal operations.

While BayREN continues to celebrate 10 years of program implementation and innovation, we are confident that the next 10 years will be a valuable opportunity to make the Bay Area a greener and more resilient community, and that programs offered by BayREN will persist in helping to make e significant progress towards reaching California's aggressive climate goals.

Program Success: Energy and Water Savings, Code Compliance, and Technical Assistance

BayREN's programs had remarkable accomplishments:

BayREN's residential programs served more than 3,861 single family households and over 1,700 multifamily units, resulting in 5.22 gross gigawatt-hours (GWh) and 257,775 gross therms saved, with 1.21 GWh of the electricity savings coming from fuel substitution measures for the Single Family program.

Through the Single Family program, 162 contractors performed 3 or more projects that included decarbonization measures, a 363% increase from 2021. 44 new contractors were recruited into the program to serve households that speak languages other than English.

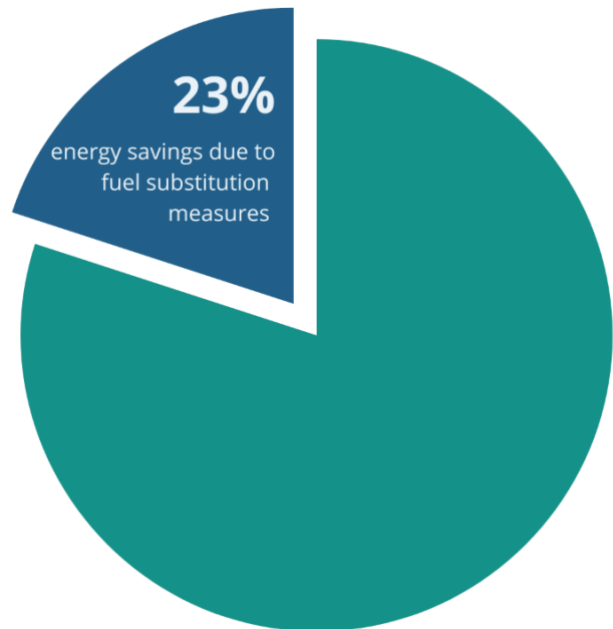
The partnership between Rising Sun's Green House Calls Program and BayREN's Single Family program also resulted in significant energy and water savings. More than 1,160 underserved households received free Energy Savings Toolkits, resulting in a tracked energy savings equivalent to an annual reduction of 575,128 kWh of electricity and over 1.8 million gallons of water. Additionally, with the launch of the pilot Climate Careers, the program provided learning and career opportunities for 28 underserved youth who served as Energy Specialists, with 18 of them being placed into Clean Economy externships. These externships involved 13 partner organizations, including BayREN implementers, Redwood Energy, and others.

The Multifamily program continued its success and completing upgrades in 1,755 units, totaling 20 projects that received more than \$1.38 million in incentives.

The Green Labeling program had a record-breaking year and had 4,349 electrification checklists completed, provided nearly 5,200 single family homes with Home Energy Scores and paid over \$1 million in rebates to Assessors, making it the most successful program year for both program participation and rebate disbursement. Additionally, the program certified 24 appraisers, a 9% increase from 2021, and 128 realtors.

The Water Upgrades Save program completed 58 projects that resulted in net annual savings of 9,124 therms and 295,639 gallons of water.

The Codes & Standards program provided 30 trainings and held four remote forums with over 730 and 740 attendees respectively. 421 local government staff (98% of all staff training attendees) indicated an increase in knowledge of energy code requirements and best practices for code compliance in post-training surveys. 61 jurisdictions received energy policy assistance and 45 jurisdictions adopted and implemented reach codes or energy policies, a 309% increase from 2021.



BayREN's 2022 residential programs resulted in 5.22 gross gigawatt-hours (GWh) saved, with 1.21 GWh (23%) due to fuel substitution measures.

The BayREN Business FLEXmarket was launched in November 2022, and quickly subscribed 21 projects, exceeding the entire Q4 rebate budget of \$500,000. The projects are anticipated to complete in 2023.

BayREN will continue to build on the success of the programs in 2023 and beyond.

Gauging our Impact

In 2012, the California Public Utilities Commission (CPUC) issued Decision (D.) 12-11-015 providing the criteria upon which Regional Energy Networks (REN) programs are evaluated.³ As a REN, BayREN also helps to make state policy objectives (i.e., reducing GHG emissions and increasing energy savings) practical at the local level by conducting three overarching services, referred to as BayREN's Value Pillars:

1. BayREN builds human and organizational infrastructure within local jurisdictions so that Bay Area communities are better able to save energy and reduce greenhouse gas emissions.
 - BayREN is suited to serve in this capacity because of the member's connections to local jurisdictions and their understanding of what is needed by local governments and their communities.
2. BayREN obtains energy savings locally while also supporting local difficult to serve populations.
 - Local governments have a deep understanding of the needs of their communities. Based on the member's (i.e., local government's) assessment of the needs in their communities, they have identified populations that are in need of additional support, and they are designing program activities to better target these populations.
3. BayREN tests innovative solutions that have the potential to help local jurisdictions increase energy savings and reduce greenhouse gas emissions.
 - The innovative solutions tested by BayREN have emerged from discussions with local governments and thus represent local needs. These innovative solutions are wholly designed and implemented by the BayREN members, which are themselves local governments, to fill gaps that the members (local governments) feel exist.

In 2020 as part of the Annual Budget Advice Letter, BayREN submitted value metrics and measurements within these Value Pillars that demonstrate BayREN's impacts in reducing GHG emissions and increasing energy savings, as well as many non-energy benefits. These metrics are focused measurements, intended to detail the value that BayREN provides to the State. 2022 is the second year that BayREN reported on these metrics. BayREN was able to meet goals in all three pillars as described in the Value Metrics section of this report.

A key component of BayREN is that the organization is uniquely positioned to provide a multitude of benefits through local government levers – local relationships, communication channels, processes, data, and community members that can be tapped by BayREN members. These levers, different for each

³ The criteria are: 1. Activities that utilities cannot or do not intend to undertake; 2. Pilot activities where there is no current utility program offering, and where there is potential for scalability to a broader geographic reach, if successful; and 3. Pilot activities in hard-to-reach markets, whether or not there is a current utility program that may overlap. Note this criterion was reiterated in D.19-12-021 and expanded the utility programs to also include CCA programs.

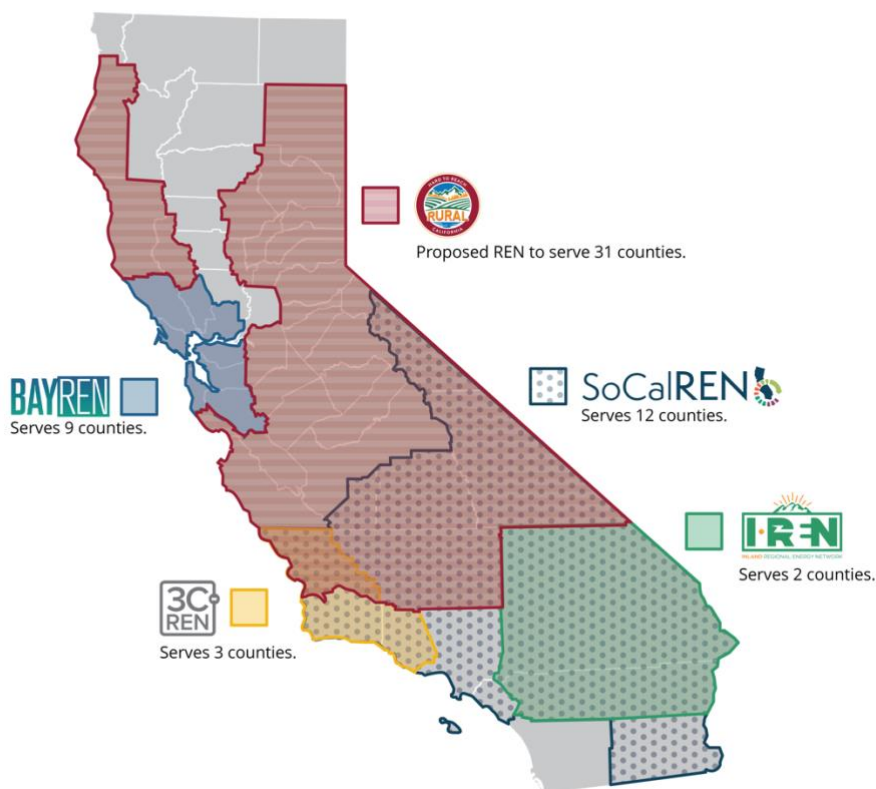
program, are enabled because BayREN is organized around a representative agency from each of the nine Bay Area counties.

Spotlight Story: Filling Gaps with Regional Energy Networks

In 2013, the California Public Utilities Commission (CPUC) approved the applications of the Association of Bay Area Governments for the BayREN, and the County of Los Angeles for the Southern California REN (SoCalREN), establishing RENs as emerging program administrators in California. RENs were initially approved as pilots as the Commission needed more time and data to determine if the REN model would be successful. In 2019, the CPUC removed the pilot designation, making RENs a permanent part of the energy landscape. Indeed, two more RENs have since been approved – the Tri-County REN (3C-REN) and the Inland REN (I-REN) – and there is a pending application for a fifth (RuralREN). These local government coalitions now reach a population of over 27.5 million people, and collaboration between RENs can only grow their existing success.⁴

In 2022, the RENs came together to lay the groundwork for a new statewide coordination group: California REN (CalREN). The goal of CalREN is to build on lessons learned and work cohesively towards a clean energy future. By working collaboratively, the RENs can magnify the cost-effective use of ratepayer funds by pooling internal resources to increase program offerings to all of California. Regular coordination between program administrators will also help to identify where best to serve customers and fill gaps. Additionally, through collective strategies and coordinated outreach to stakeholders, CalREN can positively influence opinions and perceptions about RENs. CalREN hopes to build a long-term sustainable model for coordination and find innovative ways for RENs to continue to work together.

California's Regional Energy Networks



⁴ Joint cooperation memoranda detail how coordination occurs in areas of geographic overlap. A sample coordination strategy is for RENs to cross-promote programs that exist in one REN that do not exist in the other.

Portfolio Overview

Residential Sector

BayREN's three residential programs seek to provide an affordable and feasible pathway for underserved communities to benefit from ratepayer programs, rebates and financing to make homes more energy-efficient, healthier, and resilient. The Green Labeling program has the added goal of educating real estate professionals about the attributes of a "green" home.

Single Family Home+

The Single Family Home+ program (Home+) provides a variety of service offerings to single family homeowners and renters including rebates for qualifying measures, an online energy evaluation, no-cost energy efficiency kits, in-home education, and direct install services. A central part of this program is free energy advising from accredited building performance professionals (Energy Advisors) that work hand-in-hand with customers through the entirety of their energy retrofit project. The Energy Advisors provide unbiased advice, education about the co-benefits of energy efficiency, support with contractor selection, and installation best practices. Program participants work with Home+ participating contractors who are trained in building science, and who are well versed in maximizing energy savings and non-energy benefits, including positive health impacts. Energy Advisors also refer customers to other complementary programs that may be more appropriate. Apart from rebates, the Energy Advisor service is rated highly valuable by program participants.

Green Labeling

The Green Labeling program builds on BayREN's work in the single family market by focusing on additional market actors: real estate professionals and HEScore Assessors. Targeted trainings are provided to realtors, appraisers, and lenders to increase their ability to understand, market and evaluate energy efficient and green homes. Through this program, HEScore Assessors are provided training on the Department of Energy's HEScore and are eligible for a rebate for each subsequent score conducted. The goal of the program is to establish integrated, standardized, and aligned green labeling to increase awareness and transparency of residential energy information, thereby supporting and increasing energy savings in the Single Family program.

Bay Area Multifamily Enhancements Program

The Bay Area Multifamily Building Enhancements (BAMBE) program design aims to engage multifamily property owners who are sensitive to the barriers of participating in a rebate program and helps them plan and undertake upgrades. BAMBE offers no-cost technical assistance and rebates for multiple-measure energy upgrade scopes that save a minimum percentage of the whole building's energy usage. The program continues to offer a Clean Heating Pathway, which launched in 2020 and provides incentive adders, technical assistance, and phased gas elimination plans for participants with scopes of work that include at least one electrification measure and no gas-to-gas measure improvements. Through the Clean Heating Pathway, the program seeks to address barriers to electrification in the multifamily sector which include insufficient electrical capacity, high material and labor costs, and contractor unfamiliarity with heat pump technology.

Since 2013, BAMBE has provided first priority to properties that meet one or more of the following criteria: contains less than 100 units; is deed restricted or unsubsidized affordable housing; has a resident ownership structure such as a homeowners' association (HOA) or co-op; or is located within a

disadvantaged community. Over the years, BAMBE has continued to deepen its emphasis on breaking down barriers to program access by prioritizing underserved and overburdened property types. In 2022, staff also prepared for modifications in the incentive structure intended to encourage energy efficiency measures with health, heat resilience and/or bill reduction benefits in overburdened communities. This change, along with a new participation pathway that provides a higher level of project management support to small, independently owned properties, will launch in 2023.

Commercial Sector

Small and Medium Business Commercial

In 2022, the pandemic continued to adversely impact the Bay Area's Small and Medium Business (SMB) sector. Many SMB decisionmakers continued to prioritize operational aspects that aided economic recovery over energy efficiency and renovations. To overcome pandemic related challenges and expand the pool of vendor-driven projects, the BayREN Business program pivoted away from a single-implementer model and began redesigning the program to use multiple energy efficiency contractors or "Aggregators" through Recurve Analytics' (Recurve) FLEXmarket. The program design for the BayREN Business FLEXmarket was finalized and re-launched in late November 2022. The BayREN Business FLEXmarket quickly had a full pipeline.

Cross-Cutting Sector

Codes & Standards

The Codes and Standards program helps Bay Area local governments to increase energy performance of buildings by improving energy code compliance and increasing adoption of local energy policies. The program also serves as a bridge between local governments and the California Energy Commission to ensure that the voice of local governments is heard when state policies are developed.

Water Upgrades Save

This innovative water-energy nexus program provides turnkey utility investment and project installation services to Bay Area municipal water utilities seeking to offer their customers easy access to water-related utility bill savings. It is the first tariff on-water bill program in California. In 2022, Water Upgrades Save began serving City of Cloverdale residential customers; completed its first City of Sebastopol multifamily project; added two new upgrades to the program; developed offers for municipal, institutional, and commercial water customers; and refined its water utility recruitment campaign. Designed to provide centralized utility investment capital and program administration to participating water utilities, this program has influence in multiple markets, including renters and low-income households, and offers customers a simple and attractive path to install water-saving technologies.

2022 Programs

Single Family Home+

The Home+ program contributes to the overall BayREN mission by reaching underserved populations, specifically moderate-income single family households, defined as households that are above income-qualified program thresholds and below median income, and households whose primary language is not English. With the launch of several local, statewide and federal programs to address the moderate income population, BayREN has either referred households that are eligible to these programs such as the Home Energy Savings program with MCE, or integrated rebates into the package that are offered

such as BlocPower’s programs in Oakland, Menlo Park, and San Jose as they consolidated public and private financing. Additionally, with the expected launch of the Technology and Equipment for Clean Heating (TECH) and Self Generation Incentive Program (SGIP), both of which have moderate income adders, and the state’s Equitable Building Decarbonization Program, and the federal Inflation Reduction Act (IRA) upfront discounts, BayREN’s Home+ role will likely evolve to leverage Energy Advisors to help direct people to the programs that suit them best.

The Home+ program continues to offer an electrification pathway that allows eligible customers to receive incentives for switching from natural gas fueled space heating, water heating, clothes dryers and cooking appliances to cleaner, highly efficient electric alternatives. Due to partnerships with local Community Choice Aggregators (CCAs) and the launch of the statewide TECH, the program has seen a 246% increase in electrification measures (from 656 to 1,611) and subsequent doubling of kWh savings (2.51 GW to 5.07 GW) compared to 2021. StopWaste (as the Alameda County BayREN member) continued to administer the Mid-stream Heat Pump Water Heater project designed to increase the use of heat pump water heaters (HPWH) in the region.⁵ This effort and the seamless coordination with Home+ for enrollment and rebate processing resulted in a 127% increase in heat pump water heaters installed (from 373 in 2021 to 845 in 2022).

<p>2022 Focus (Home+)</p> <ul style="list-style-type: none"> - Reached local difficult-to-serve customers - Collaborated with local partners on regional outreach - Prioritized engagement with Spanish and Chinese Media 	<p>Achievements:</p> <ul style="list-style-type: none"> • \$5.07M in rebates dispersed • 3,861 homes upgrades • 8,463 measures installed • 2,057 Green House calls
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Energy Benefits (Home+)

In 2022, more than 3,861 homes made 8,463 energy efficiency and electrification improvements through the Home+ program, resulting in incentive payments of over \$5 million. Additionally, 2,057 single family homes were upgraded with direct install and energy efficiency kit measures such as faucet aerators, high efficiency showerheads, LEDs, and advanced power strips. Participants saved a total of 5.1 gross gigawatt-hours (GWh) and 160,775 gross therms, with 1.21 gross GWh attributed to fuel substitution measures.

Non-Energy Benefits (Home+)

The Home+ program offers an Energy Advisor service, which operates as an impartial help line and directs residents to resources, whether Home+ or other complementary programs. Energy Advisors responded to 5,270 inquiries and made 1,314 referrals to complementary programs in 2022.

⁵ The Mid-stream HPWH program launched in May 2020 and provides incentives to contractors who install HPWHs in eligible homes in territories covered by Marin Clean Energy and East Bay Community Energy, including Marin, Napa, Solano, Contra Costa, and Alameda.

Gaps Being Filled (Home+)

Home+ continued to address local difficult to serve populations in the following ways:

- Building awareness of BayREN and its rebates through ads and feature interviews on Chinese and Spanish media. These resulted in 4,318,138 impressions with Telemundo, 3,689,151 from Univision and 705,645 from KTSF. In collaboration with these channels, BayREN also recorded several interviews and feature segments that provided an in depth explanation of the benefits of making energy efficiency and electrification improvements, including two 6 minute segments on Telemundo's Acceso Total show featuring a contractor and a chef cooking on induction, one 24 minute interview on Univision's Contigo highlighting the BayREN Home+ program and six 8-minute interviews with KTSF's Business and Lifestyle show on various energy and health related topics.
- Hosting one induction workshop in Cantonese and one in Spanish with local chefs that were simulcast online. BayREN was able to leverage the celebrity status of collaborator Martin Yan to garner earned media opportunities with Chinese radio in separate 30-minute Cantonese interviews and hour-long Mandarin interviews broadcast throughout the Bay Area. BayREN partnered with local media personality Glorybella Orellano to host the Spanish workshop and leveraged her existing brand to promote induction cooking.
- Partnering with Rising Sun, a local nonprofit organization that employs local youth to conduct basic home energy assessments and install energy and water saving fixtures, to complete 2,057 "Green House Calls". This year, for the first time ever, the assessments were completed both in-person and virtually via an online survey and follow-up call. If conducted in-person, residents received energy efficient devices in real time, having them installed in the moment. If conducted virtually, residents received a customized energy efficiency kit through the mail. The energy and water savings equate to an annual reduction of 575,129 kWh of electricity, 8,735 therms of heat, and 1,817,852 gallons of water. The partnership focuses on underserved audiences, resulting in 39% of respondents coming from households where a non-English language is spoken and 69% (893/2,412) of respondents identifying as either low income or moderate income.
- Collaborating with programs like BlocPower and Peninsula Clean Energy's Home Upgrade program, who focus on serving moderate income households. These programs leveraged the BayREN rebates and contractor base among other incentives and financing to provide no or low-cost direct installation of measures.

Local Government Levers (Home+)

The local governments that comprise BayREN have been utilizing their credibility, partnership building capacity and access to data to promote the program. For Home+, our county partners were able to send letters on local government letterhead to underserved audiences (moderate income and languages other than English) to inform them of program offerings. Often, these letters included mentions of complementary programs such as Green House Calls, and promoted relevant webinars, including Spanish language events.

The anticipated launch of several state and federal energy efficiency and electrification programs has also increased demand for trained and vetted contractors to install these measures. To help facilitate this market development, the local counties have increasingly focused their efforts on contractor

outreach and education through communications and events that augment the workforce. The counties have continued to build relationships with the local contractor and trade associations in their jurisdiction but have also sent mailers promoting events that provide information on all the upcoming incentive programs to every eligible contractor in their county. Some counties are also engaging training centers and community colleges to inform their curriculum and create pathways to careers with our participating contractors through job fairs and guest lectures.

Future Opportunities (Home+)

BayREN Value Pillar 1: Building Organizational & Human Infrastructure

BayREN will continue to work with other program partners, especially the Mid-stream HPWH program and TECH initiative to conduct outreach to manufacturers and distributors. Currently, these parties are participating in an Energy Star Manufacturers Action Council program to provide online trainings to installers. BayREN also recognizes the need to provide information about programs and technical trainings in different languages, and is working with cities and counties to engage with community-based organizations to organize events that address this need especially in Spanish and Chinese.

BayREN has also determined that there is a great need for a trained workforce as several participating contractors have indicated that they are unable to hire in order to grow their capacity. The program will continue to engage with job training providers, educational institutions and workforce development organizations to create pathways into energy efficiency and electrification careers. Since most training programs have focused on a pathway into single trades, often in commercial, industrial or new home construction, we will support the development of trainings that fit the multi-disciplinary nature of most home energy upgrades. There was also a great need expressed by the contractors for support trades, such as electricians and raters who do not officially enroll in the Home+ program but provide services necessary to complete projects, especially for electrification. BayREN will explore how to facilitate those connections through outreach to specialty trades.

BayREN Value Pillar 2: Serving Local Difficult to Serve Populations

With state (TECH and SGIP) and federal (IRA) incentive programs designed to include low- and moderate-income adders for participation as well as individual CCA programs offering direct install for these same populations (MCE Home Energy Savings, PCE Home Upgrade) and even municipal bulk upgrade programs (BlocPower in East Bay, Menlo Park, and San Jose), BayREN's role will evolve to serve as an information source to direct people to the relevant programs. Because many of these programs layer in Home+ rebates, connect to financing and other private capital, and/or offer additional non-energy services, it is often best to direct moderate income homeowners to this simpler path.

BayREN also recognizes that there continues to be a gap in resources available in different languages. Beyond translation of materials, there is often a lack of media coverage and contractors who can provide service in a language other than English. BayREN will continue to prioritize outreach in Spanish, Chinese and Vietnamese through media outlets with paid ads and feature interviews. We will also continue to engage with local community-based organizations to reach contractors that are embedded in these communities to assist them with on-boarding into the Home+ program and identifying relevant training opportunities.

BayREN Value Pillar 3: Testing Innovative Solutions

BayREN will continue to collaborate with the new state and federal programs to integrate the application process for contractors. As more details about the IRA HEEHRA program emerges, BayREN will strive to minimize the work and confusion that is often associated with the layering of several programs.

The program will also focus on highlighting and replicating the innovative solutions that have been developed by our contractors, such as using a loaner gas water heater to bridge the time necessary to upgrade wiring sufficient for a heat pump water heater in an emergency replacement situation. Furthermore, the development of the 120V plug-in heat pump water heaters offers another potential solution for emergency replacement.

Spotlight Story: Induction Cooking is for Everyone!

In many households, the kitchen is the heart of the home, and BayREN recognizes the importance of making it an enjoyable and safe place for everyone. At the beginning of 2022, BayREN increased its induction cooktop rebate, from \$300 to \$750, to help homeowners and renters make the switch. Compared to cooking with gas, induction is proven to be safer, more efficient, and more precise; the appeal of induction is best understood through live demonstrations. 2022 marked the beginning of an increased effort to showcase the versatility of induction cooking through events featuring a variety of cuisines and cultures. BayREN partnered with local legends including Chef Zacarias Martin from Los Molcajetes Bar & Grill, celebrity Chef Martin Yan, and Chef Rachelle Boucher to explore and highlight diverse cuisines, including Cantonese, Jalisco-style Mexican, and more. The chefs showed us that induction cooking is compatible across many techniques that require high heat, such as wok cooking, and low heat for simmering sauces. Through these demos, audience members learned how to fry fish in traditional Hong Kong-style and make Mexican desserts for winter holidays.

Beyond the precision and efficiency of induction cooking, it can also be a healthier and safer alternative to cooking with gas. The audience marveled in awe when Chef Zacarias Martin proved that he could place a napkin on the cooktop surface without fear of burning. During his demonstration, Chef Yan explained that gas cooktops can contribute to poor indoor air quality, especially when not properly ventilated. Through these demonstrations, BayREN aimed to show people from diverse backgrounds that induction cooking is for everyone, and that rebates make the technology accessible to a much wider audience!

Spotlight Story: Creating Opportunities for Future Energy Leaders

In 2022, Rising Sun continued to advance its mission to build career pathways for economic equity and climate resilience by developing an externship component for its existing Climate Careers Program. Climate Careers is an empowerment program that employs young people to provide energy efficiency services and help residents lower their household energy consumption. Last year, youth who successfully completed Rising Sun's Climate Careers summer program were matched with up to 140 hours of additional paid work experience with organizations in related fields. Rising Sun partnered with 13 organizations including BayREN, GRID Alternatives, Redwood Energy, the East Oakland Collective, and others, to place 18 youth in externships to develop additional skills and expose youth to additional employment pathways.

Hy Ly and Alicia Pang were two youth Energy Specialists who completed their externship programs with Redwood Energy, a collaborative, innovative firm that works closely with development teams on all-electric, 100% solar offset designs. Hy and Alicia supported multiple projects and worked on case studies for the commercial retrofitting guidebook, promoted electrification to developers, recorded data for project databases, and gained exposure to different types of energy storage methodologies applicable to the residential sector. They also gained knowledge of HVAC systems and skills in collaboration and communication in a team setting.

As the importance of immediate climate solutions continues to grow, Rising Sun remains a key leader in expanding a much needed “green collar” workforce while providing valuable opportunities for future climate and energy leaders.

Green Labeling

In California, improving the energy efficiency of existing residential buildings is an urgent priority for state, regional and local governments. Making significant and lasting reductions in residential energy use requires sustained, multifaceted interventions to motivate the public to invest in energy efficiency and other green home improvements. In support of goals to improve the energy efficiency of existing buildings, BayREN’s Green Labeling program is helping to build capacity by training real estate professionals to understand the benefits of an energy efficient home. By understanding these benefits, agents can effectively market green homes at the time of sale and communicate with their clients about the benefits of energy efficient upgrades in addition to cosmetic improvements to a home. The program is also promoting and scaling mechanisms (e.g., the DOE’s HEScore) that make home energy assets ⁶ transparent.

The Green Labeling program encourages energy efficient investments at significant moments—the time of a home’s sale, before a major renovation, or as a starting point to a homeowner’s energy efficiency journey. Making these investments at critical points in time will have a long-term effect on both the buildings and the larger community.

2022 Focus (Green Labeling)	2022 Achievements
<ul style="list-style-type: none"> - Increased electrification recommendations - Enrolled assessors in underserved counties - Returned to in-person real estate trainings 	<ul style="list-style-type: none"> - 50 Assessors enrolled - 5,168 homes scored - 4,349 electrification checklists - \$1.08M incentives paid

Gaps Being Filled (Green Labeling)

While homeowners may know that their house is drafty or uncomfortable, they may not know exactly where to begin to make energy efficiency improvements, or how their home compares to similar ones.

⁶ HES evaluates the assets of a home (appliances, insulation, windows, etc.) to determine the efficiency of a home.

The HEScore is as a low-cost tool to close this information gap. While full energy audits can provide a wealth of detailed information, the cost and length of time to complete can be a barrier to wide scale adoption. Audit reports also do not provide for an easy to understand, direct comparison between homes like the HEScore offers with its 1 to 10 scale. The HEScore and report can be useful when buying or selling homes as a comparison tool or to identify improvements that can be made before embarking on a home renovation. Other than by BayREN, HES is not offered in the Bay Area.

The Green Labeling program's electrification checklist fills a gap in training the current workforce on newer electrification technologies and what makes a house a good fit for the switch from gas to electric appliances. Collection of information both through the HEScore and the electrification checklist provides accurate information about the Bay Area's housing stock that can help inform policy and how best to target homes for efficiency upgrades.

Piloting of Activities (Green Labeling)

In August 2020, the Green Labeling program launched an electrification checklist as an addendum to the HEScore. This pilot was developed in response to the State's efforts to decarbonize buildings and Assessors' interest in learning more about electrification. To complete the checklist, Assessors collect additional data points that relate to the home's readiness for electrification such as electrical panel capacity, stove and dryer fuel types, and information about the location of the hot water heater. Based on this data Assessors are trained on what makes a home a "good" or a "great" fit for electrification recommendations. If the checklist is completed, the Assessor receives a \$50 bonus incentive per home.⁷ The City of Berkeley made the electrification checklist a mandatory part of its Building Emissions Savings Ordinance (BESO).

A report highlighting the first 17 months (August 2020 to December 2021) of the electrification checklist was published in March 2022.⁸ This report analyzed over 4,000 checklists. Highlighted trends include an overall increase in electrification and decrease in natural gas recommendations to homeowners and a greater likelihood of Assessors recommending electrification measures over natural gas when completing a checklist compared to those who did not. The report also gleaned helpful information on the housing stock, including panel sizes, locations of water heaters, and appliance fuel types to help Assessors understand when single-measure or whole-home electrification may be appropriate.

In 2022, Assessors completed electrification checklists with 84% of HEScores. The total number of checklists collected is now over 9,000. Trends continue to show an increase in recommendations for heat pumps and induction cooking, with induction cooking rising to the third most common recommendation in the program. Additionally, homes that received an electrification checklist were significantly more likely to be recommended for induction stoves and heat pump heating/cooling, water heating, and clothes drying than those that did not receive a checklist. The electrification checklist will continue to be offered as an optional addendum to the HEScore through BayREN.

⁷ On January 15, 2022, the incentive was decreased to \$50 per home.

⁸https://www.bayren.org/sites/default/files/2022-03/BayREN%20Electrification%20Checklist%20Report_03.07.2022.pdf

Local Government Levers (Green Labeling)

The Green Labeling program utilizes local governments for outreach and relationship building. As the audience for the HEScore largely overlaps with the Home+ program, local governments discuss the HEScore at homeowner workshops. The program also relies on local governments for communication and partnership with local associations of realtors. This relationship building is useful in finding co-hosts for real estate trainings and helps to develop local realtors as BayREN stakeholders who may inform their clients about HES, Home+ rebates, or other BayREN programs.

Additionally, the Green Labeling program works closely with jurisdictions who have or are considering using HEScore as part of a mandatory ordinance, such as the City of Berkeley's BESO and the City of Piedmont's existing building reach code, on how the Score can help them achieve their goals. As such, there is ongoing collaboration with the BayREN Codes and Standards program.

Future Opportunities (Green Labeling)

BayREN Value Pillar 1: Building Organizational & Human Infrastructure

In 2022, the Green Labeling program continued to build the capacity of real estate professionals to accurately value and market energy efficiency in single family homes through trainings and partnerships. In addition to increasing the number of participating Assessors by 47%, from 34 in 2021 to 50 in 2022, and continuing a core offering of popular real estate trainings and developing new trainings that meet market demand while deepening engagement by creating opportunities to have real estate professionals return to BayREN for more information. The program continues to foster existing relationships – with both Assessors and home inspectors – to increase the number of HEScores and improve accessibility in all nine Bay Area counties. In 2022, an HEScore bootcamp was held in Sonoma County, targeting potential Assessors in Napa, Marin, and Sonoma counties where there are fewer Assessors who serve the region and/or have business addresses in one of those counties. The program successfully enrolled six new Assessors across five companies in those targeted areas. Most of those Assessors have begun conducting scores.

BayREN Value Pillar 3: Testing Innovative Solutions

In 2022, the Green Labeling program continued to test the HEScore as an effective tool for increasing energy transparency in single family homes. As a result, the program received the Department of Energy HEScore Partner innovation award in 2020 and 2023 for successfully building and expanding a voluntary HEScore program in the nine-county San Francisco Bay Area, with over 17,000 scores performed since 2015. In 2023, the Green Labeling program intends to increase the uptake of the HEScore and look for opportunities to improve the Score and HEScore Report to provide more value as a voluntary informational tool, but also potentially for building code applications.

Spotlight Story: Rebuilding Relationships Post Covid

In 2022, the Green Labeling program returned to in-person real estate trainings, with the first since 2020 held at the Sonoma Clean Power Advanced Energy Center in Santa Rosa. To mark the special occasion and further immerse the 20 attendees into the topic of energy efficiency and electrification, real estate agents received a tour of the center, highlighting heat pump technologies that they learned about in class, listened to a Home+ contractor give a brief presentation about home electrification, and ended the two-day training with an induction cooking demonstration and delicious food from one of our chef partners, Rachelle Boucher. Real estate agents had a chance to connect with BayREN staff and the

training team in a new way and the excitement in the room was palpable. One real estate agent even checked out an induction hob from Sonoma Clean Power to try at home. After several years of virtual training, this event highlighted the importance of relationship building and hands-on experiences in creating market transformation.

Bay Area Multifamily Enhancements Program

The BAMBE program contributes to the overall BayREN mission by reaching multifamily communities that are often underserved by traditional programs such as those in small (less than 100 unit) or owner-occupied multifamily (MF) buildings. Since 2020, the program has used a set of targeting criteria to ensure the prioritization of multifamily property types that energy efficiency programs have not served well in the past. A property meets the targeting criteria if it:

- Contains less than 100 units
- Is a deed-restricted or unsubsidized affordable property (Unsubsidized Affordable Housing (“UAH”, aka Naturally Occurring Affordable Housing (NOAH))
- Has a resident ownership structure such as a Homeowners’ Association (HOA) or co-op
- Is located within a disadvantaged community (determined by the AB 1550 Low-Income Communities map)

Properties that do not meet at least one of these criteria are put on a waitlist and admitted into the queue periodically if there is availability in the pipeline.

In addition, the program offers a zero net carbon (ZNC) pathway for multifamily buildings. Through the administration of the Clean Heating Pathway (CHP), the program seeks to address barriers to electrification in the multifamily sector which include insufficient electrical capacity, high material and labor costs, and contractor unfamiliarity with heat pump technology.

2022 Focus (BAMBE)	2022 Achievements (BAMBE)
<ul style="list-style-type: none"> - Prioritized difficult to serve communities - Supported the launch of Bay Area Healthy Homes Initiative - Assisted participants with cash flow issues through phased incentives - Completed first round of UAH stakeholder engagement 	<ul style="list-style-type: none"> - Completed 20 projects - 1,755 units upgraded receiving more than \$1.38M in incentives - 0.85 gross GWh and 87,000 gross therms saved

Energy Benefits to Customers (BAMBE)

The BAMBE program has maintained its popularity since inception in 2013 with over 45,000 units upgraded, totaling over 600 projects. In 2022, 20 projects were undertaken, representing 1,755 upgraded units, receiving more than \$1.38 million in incentives, leading to 0.85 gross GWh and 87,000 gross therms saved.

Non-Energy Benefits to Customers (BAMBE)

BAMBE provides no-cost technical assistance and complimentary referrals for projects that do not meet our criteria. In 2022, 150 properties with 10,145 units submitted interest forms. Of those, the program provided technical assistance to 91 projects (6,555 units) including 6 projects (135 units) that have already reserved a rebate and are in construction. An additional 17 projects (889 units) were deemed ineligible and referred to the BayREN Home+ program or other multifamily programs like MCE, PG&E, or local energy watch programs. Finally, 29 projects (2,192 units) were unresponsive and are no longer considered active leads. Additionally, two participants received financing technical assistance.

Gaps Being Filled (BAMBE)

BAMBE's targeting criteria, described above, ensures that technical assistance and rebates are prioritized to those multifamily communities that have struggled to access energy efficiency programs due to program design and delivery. **In 2022, 100% of completed projects met at least one targeting criteria, and 65% met multiple criteria.**

Local Government Levers (BAMBE)

BayREN member agencies, viewed as trusted messengers, conducted program outreach using available data. In 2021 and 2022, BayREN worked with two county public health agencies, and the Bay Area Air Quality Management District (BAAQMD) to secure a \$2 million grant that will be used to launch the Bay Area Healthy Homes Initiative (BAHHI). BAHHI will leverage the BAMBE program to improve indoor air quality for families over-burdened by air pollution as well as those with family members living with asthma.

Future Opportunities (BAMBE)

BayREN Value Pillar 2: Serving Local Difficult to Serve Populations

Unsubsidized Affordable Housing ("UAH", aka NOAH) buildings have not been well served by multifamily energy programs because programs have had difficulty identifying them, and owners have fewer resources to engage and pay out-of-pocket costs associated with upgrade projects. The issue of identification stems from the lack of a consistent definition and data. Through pilots with San Mateo and Alameda Counties, the BAMBE program engaged UAH renters and owners to gain insight that helped BayREN and other programs better identify and serve the owners and residents of UAH.

We found that UAH renters/residents often are long term, having lived in their units for many years. They often live in multi-generational homes that may be overcrowded and share a sense of community with their neighbors. These renters may be undocumented and fear the presence of government programs aimed at upgrading their properties that could lead to displacement or eviction.

UAH buildings are often in need of maintenance and repairs outside of the traditional project scopes provided by energy programs. Some of these issues include faulty plumbing and electrical infrastructure, inadequate ventilation leading to mold, and water intrusion issues through the building envelope.

We integrated what we learned from these listening sessions into our incentive redesign and intend to keep the lines of communication open so our program can serve the needs of UAH residents, owners, and buildings.

BAMBE staff was part of a team that was selected along with only four others nationally to receive technical assistance on energy equity for renters from the American Council for an Energy Efficiency

Economy (ACEEE). Using a combination of primary and secondary research, ACEEE developed a toolkit containing customized policy recommendations on how to promote and retain affordability when upgrading and electrifying rental housing.⁹ The program has shared this toolkit with local governments and intends to integrate some of the learnings from this project.

BayREN Value Pillar 3: Testing Innovative Solutions

BayREN established a partnership with Sonoma Clean Power (SCP) in 2021 intended to help overcome a substantial barrier to electrification – insufficient and aging electrical infrastructure. Through this partnership, in 2022, Sonoma Clean Power and BAMBE teed up three projects for panel upgrade incentives in SCP’s service territory. This partnership is a pilot, and BAMBE hopes to continue to utilize similar partnerships to enable electrical upgrades throughout a wider service territory in the future.

Spotlight Story: Redesigning BAMBE’s Incentive Structure

In 2022, the BAMBE program put significant effort into completely redesigning its incentive structure to be more equitable by providing substantially increased incentives for measures that positively impact residents by:

- Increasing indoor air quality in areas with high asthma rates
- Increase building resilience to high heat events by improving the building envelope and provide cooling through heat pump HVAC systems
- Lower utility bill in areas with high housing burdens

The program developed an accompanying public facing map that clearly show census tracts that qualify for increased incentives of adders.¹⁰

Small and Medium Business (SMB) Commercial

BayREN Business, the Small and Medium Business (SMB) Commercial Program, began 2022 with a priority focus on hard-to-reach (HTR) and SMB in disadvantaged communities (DAC). SMBs are a local and difficult to serve (LDTs) population. BayREN recognizes SMBs if they meet one of two criteria:

- less than 50,000 square feet in size
- use less than 500,000 kWh per year and use less than 250,000 therms per year

A business is considered HTR if it is geographically located in a DAC and meets one of the criteria below:¹¹

- Language: Primary language spoken is other than English
- Size: Has less than ten employees and/or classified as “Very Small” (customers whose annual electric demand is less than 20 kW or whose annual gas consumption is less than 10,000 therms)

⁹ <https://www.aceee.org/toolkit/2022/11/energy-equity-renters-toolkit>

¹⁰ The map is linked here:

<https://slipstreaminc.maps.arcgis.com/apps/instant/lookup/index.html?appid=95f9ade124d745f5add7323e93cbfb9c&find=401%2520Vernon%2520St%252C%2520Oakland%252C%2520CA%252C%252094610%252C%2520USA>

¹¹ Definition per CPUC D.18-05-041 page 46.

- Leased or rented facilities – Investments in improvements to a facility rented or leased by a participating business customer

Alternately, if a business is located outside of a DAC, it must meet all three criteria above to be qualified as a HTR business.

2022 Focus (SMB)	2022 Achievements (SMB)
<ul style="list-style-type: none"> - Offered rebate kickers for HTR businesses - Secured access to meter data - Targeted hard-to-reach and disadvantaged communities - Continued to deploy a performance-based approach to serving SMB 	<ul style="list-style-type: none"> - Testing innovative performance-based models to engage SMBs - Re-launched as BayREN Business FLEXmarkt - 26 Participating Aggregators

BayREN Business FLEXmarkt is piloting the use of pay-for-performance (P4P) incentives to engage Aggregators to serve the SMB sector. A performance-based model aligns rebate amounts with actual energy usage over 12 months and offers several benefits. First, a performance-based approach provides SMB participants with the ability to obtain energy savings with lower or no upfront costs. Next, Aggregators can offer flexible solutions that shield the customer (and ratepayers) from paying for expected savings that fail to materialize. Also, it encourages maximizing savings from a holistic set of measures. Lastly, because the post-retrofit monitoring period is 12 months, this model leads to sustained energy savings.

Deploying the P4P design through Recurve’s FLEXmarkt has additional benefits. First, the FLEXmarkt is existing; providing a shortened start-up time and reduced initial cost for BayREN. Next, rather than relying on a single implementer, Recurve’s FLEXmarkt works with many Aggregators that each have their own business models and measures. While traditional bidding and contracting processes are challenging for some Aggregators to participate in traditional incentive programs, the FLEXmarkt removes many of the barriers to Aggregator participation. Several of the BayREN Business FLEXmarkt Aggregators are themselves small businesses. Allowing for a diversity of implementers helps to better meet the diverse needs of SMB.

Accessing metered data is essential for the BayREN Business FLEXmarkt. Obtaining data was a protracted process throughout 2022 due to administrative processes. Therefore, in order to launch without more delays, the BayREN Business FLEXmarkt launched without full access to meter data using a deemed approach and a plan to switch to P4P approach when the meter data became available. Data became available shortly after launch and all the projects were redirected back to a P4P approach. BayREN Business FLEXmarkt is leveraging the same data used by PG&E’s Market Access Program, which also operates on the FLEXmarkt, creating data consistency across programs.

To catalyze interest in serving SMB sector, the BayREN Business FLEXmarkt offered high incentives to Aggregators for a limited time. The high incentives included a 3x multiplier for SMB and a 7x multiplier for HTR SMB. Per the BayREN Business Implementation Manual, upon the reservation of 40 percent of the incentive budget, these high incentives would be re-evaluated and potentially lowered.

The BayREN Business FLEXmarket re-launched in Q4 of 2022. BayREN and Recurve issued a joint press release on November 15, 2022 and conducted a kickoff webinar for Aggregators on November 30, 2022. On December 21, 2022 - only about three weeks later - Recurve notified the program that the pipeline was full.

With feedback from Aggregators, Counties, and other stakeholders, additional changes are planned to the BayREN Business FLEXmarket in early 2023. The proposed changes include revising eligibility criteria to better target the micro and small businesses BayREN is intended to serve; reducing incentive levels to serve more businesses; deleting or tightening all self-attested criteria; and ensuring systems to track the incentive budget are in place. Aggregators have indicated they have adjusted their business models to serve this sector and have many more SMB and HTR SMB.

Energy Benefits to Customers (BayREN Business FLEXmarket)

The BayREN Business FLEXmarket did not have complete projects in 2022, thus there are no energy savings to report for 2022.

Non-Energy Benefits to Customers (BayREN Business FLEXmarket)

The BayREN Business FLEXmarket did not complete projects in 2022. Through the BayREN website, nearly 100 businesses have expressed interest in learning more about the BayREN Business FLEXmarket. The BayREN Business FLEXmarket consultant vetted the leads and referred them to other energy efficiency and financing programs when they were a better fit.

Gaps Being Filled (BayREN Business FLEXmarket)

Despite the unforeseen challenges, the BayREN Business FLEXmarket was able to fill gaps in 2022. Specifically, as PG&E's direct-install program closed in August 2022, BayREN Business FLEXmarket became the only SMB program remaining in the Bay Area.

Local Government Levers (BayREN Business FLEXmarket)

As part of an initial push to recruit Aggregators, three BayREN Counties conducted outreach to local contractors, some participated in PG&E local government partnerships in the past.

Future Opportunities (BayREN Business FLEXmarket)

BayREN Value Pillar 2: Serving Local Difficult to Serve Populations

The BayREN Business FLEXmarket has a focus on HTR SMBs. In 2022, BayREN joined Recurve's FLEXmarket. Instead of relying on a single implementer, the BayREN Business FLEXmarket had access to multiple Aggregators, with various skillsets and sector-focus. Further, the BayREN Business FLEXmarket introduced incentive rates, such as HTR kickers, to entice not only participants, but also new Aggregators into the BayREN Business FLEXmarket. The BayREN Business FLEXmarket received one HTR SMB project submission in its first batch of projects.

BayREN Value Pillar 3: Testing Innovative Solutions

Common to large and industrial commercial sectors, the P4P approach is novel to the SMB market. As such, in the future, the BayREN Business FLEXmarket will continue to test – and refine – the P4P approach to this market segment.

In discussions with local Community Choice Aggregators (CCAs), one CCA has indicated interest in working with the BayREN Business FLEXmarket to pilot incorporating electrification measures and incentives into its future program. This idea will be further explored in.

Codes & Standards

The Codes & Standards (Codes) program works directly with local governments and their staff. This program contributes to the overall BayREN goal of GHG reductions and energy savings by supporting Bay Area local governments to more effectively and efficiently develop and implement state and local energy codes and policies. As part of this work, the Codes program aims to increase the knowledge that local government building department staff have of the California Energy Code and relevant reach codes, and to improve their ability to enforce these codes by sharing best practices and providing resources. In addition, the Program supports and enables local government staff efforts to draft and adopt local energy policies and reach codes through a variety of mechanisms. Finally, the Program works to connect local and state efforts, so that local staff are aware of work occurring at the state level, and state agencies are aware of challenges and opportunities at the local level. BayREN’s relationships with local governments puts us in a unique position to work with local government building departments and energy policy staff.

2022 Focus (Codes & Standards)	2022 Achievements (Codes & Standards)
<ul style="list-style-type: none">- Developed and offered Reach Code Newcomers Webinar Series- Updated training curriculum and resource materials to the 2022 Energy Code- Offered first hybrid forum since the pandemic	<ul style="list-style-type: none">- 734 forum participants- 744 training participants in 30 trainings- 5 working groups- 45 jurisdictions adopted reach codes

Gaps Being Filled (Codes & Standards)

BayREN’s Codes program has several activities underway, all designed to fill gaps that our local government members have identified. For example, our trainings are almost exclusively for local building department staff and are designed to recognize and address their constraints. Each training is relatively short (60-90 minutes) and focuses on best practices and approaches that attendees can use to make the most out of available time. In 2022, we updated our training curriculums and resource materials from the 2019 Energy Code to the 2022 Energy Code. In addition, we added one new course on “Residential Load Calcs and Duct Design for Building Departments.”

Another gap addressed in 2022 was the need for improved permitting processes for HPWHs. BayREN continued collaboration with the statewide TECH initiative authorized under Senate Bill (SB) 1477, and

particularly the Permitting Pilot Program, on this issue. BayREN and TECH collaborated with Bay Area local government staff and other stakeholders to develop resources intended to smooth and shorten the permitting process for HPWH. Those resources were posted on the BayREN and TECH websites during 2022 and are currently being tested by local governments.

The Program also continued to host quarterly forums, which provide information for local government staff on new or current topics of interest, as well as opportunities for different stakeholders to connect and share their perspectives. These fill a gap by providing information and networking opportunities for local government staff to support them in their efforts to develop, adopt, and implement policies and ordinances related to energy use and greenhouse gas emissions. The events are free and open to all, and in addition to local government staff, attendees regularly include staff from state and regional agencies, building professionals, energy consultants, and others with an interest in the topic, creating opportunities for connection and cross-education.

Forums provide information about energy-related topics of interest to local government staff and help build their knowledge of these issues, the opportunities they provide, and their complexities. The number of attendees at BayREN Forums has been steadily increasing, and in 2022, the average number of attendees at each forum increased to over 180 participants. Forum topics this year were:

- Heat Pumps for Water and Space Heating: From the Technical to Real World Experience
- Connecting Housing and Energy: Implementing Energy Efficiency and Electrification in Multifamily Buildings
- Performance Standards: A Tool to Decarbonize Buildings
- Decarbonizing Rental Housing While Protecting Tenants

Another gap that was filled was a need for introductory information about reach codes. Local government staff requested this at a meeting in late 2021, and in 2022, BayREN worked together with the Statewide Investor-Owned Utilities' Reach Code Program to develop a five-part webinar series to fill this need. The 90-minute webinars were offered in January, February, March, April, and September and averaged over 100 attendees per session. This effort highlights the BayREN's responsiveness to our local governments as well as the strong collaborative relationship BayREN has with PG&E.

The Codes program also provides the following resources and services, which are aimed at the gaps summarized below:

- Municipal ZNE/ZNC Technical Assistance – This program provides free engineering technical assistance to local governments interested in completing a ZNE/ZNC municipal building project, helping them minimize energy use and find opportunities for renewables to provide that energy. The program is designed to inform local government staff about how to develop ZNE/ZNC projects in order to encourage adoption of ZNE/ZNC policies and provide opportunities for local governments to lead by example. In 2022, this program assessed and provided recommendations for 10 buildings.
- Energy Policy and Reach Code Working Group – Local government staff have the opportunity to come together every other month to hear about new resources related to energy policies and connect with each other to compare notes and learn from peers. Staff from 30 Bay Area jurisdictions attended at least one of these meetings in 2022.

- Permit Guides and Assistance Sheets – These are short guides which can be used as a handout at the counter (permit guides) or as a quick reference for building department staff (assistance sheets), on topics where a need has been identified.
- Electronic Tools – The ePermit Tool educates project applicants about common types of projects such as re-roofing, water heater replacement, and window replacement. The CodeCycle Tool provides electronic plan-checking for commercial lighting projects as well as assistance for building inspectors.

Local Government Levers (Codes & Standards)

The main local government lever used in the Codes & Standards Program in 2022 continued to be the relationships that county members have with local government Sustainability, Public Works, and Building Department staff. These relationships allow for two-way communication, so that local government needs can be communicated directly to BayREN, and staff can be informed of offerings relevant to them.

Future Opportunities (Codes & Standards)

BayREN Value Pillar 1: Building Organizational & Human Infrastructure

In 2023, BayREN plans to further improve the value of its Regional Forums for local government staff by returning to a hybrid format for all Forums. Using the lessons learned from the hybrid forum held in the third quarter of 2022, our goal is to continue offering a high-quality virtual event while also providing the opportunity for attendees to come in person so that they can also benefit from in-person interactions and networking.

Another area BayREN intends to focus on 2023 is improving the energy use and reducing the greenhouse gas emissions from existing buildings. In addition to supporting local government staff as they consider potential policy initiatives related to existing buildings, BayREN plans to expand and improve the resources available on its website and through other venues.

BayREN is also working towards expansion of electronic tools to assist with and improve permitting. Together with numerous other partners, BayREN is collaborating on two grant applications to the Department of Energy led by the California Energy Commission to expand and test two existing electronic permitting tools: SolarAPP+ and CodeCycle. If the grants are awarded to these projects, they have the potential to significantly change and improve the permitting process for many kinds of projects.

Spotlight Story: Aligning Equitable Building Decarbonization Efforts

The Bay Area has been a leader in advancing innovative energy policy with approximately 40 jurisdictions adopting some form of all electric or electric preferred reach code for new residential construction in the last few years. BayREN's Codes & Standards Program provides forums and resources for cities and counties interested in adopting reach codes. Additionally, BayREN has recently expanded our programs with electrification measures designed to support the shift to building decarbonization in existing buildings, particularly in multifamily and single-family homes. BayREN is also a supporting partner of the Switch is On Campaign, a statewide effort to raise awareness and support the transition to all electric buildings led by the Building Decarbonization Coalition.

To meet the needs of all 109 Bay Area jurisdictions, BayREN currently provides incentives and rebates for high efficiency gas appliances, though the incentive amount was significantly reduced as what the implementation of gas measures. While BayREN understands and supports the shift to all electric buildings, we also recognize the need to balance and manage the tensions between moving customers to all electric and serving homeowners and renters who cannot afford or easily implement electrification measures. For our customers who need to stay with gas appliances due to cost or other technical barriers, we ensure that they have access to the most efficient gas appliances possible. As these barriers decrease, BayREN will end residential rebates for gas appliances.

BayREN's efforts are aligned with both state and regional efforts to transition our new and existing buildings to all-electric. The California Air Resources Board (CARB) mandated that by 2030, water heaters and furnaces will need to be zero-emission appliances. The Bay Area Air Quality Management District (BAAQMD) recently amended Building Appliance Rules 9-4 and 9-6 to establish zero-NOx point of sale emissions standards for small space and water heating systems. The amendments will take effect in 2027-2031 depending on the size and type of system.

These amendments and state mandates are aligned with BayREN's efforts and our goal to equitably end residential rebates for natural gas appliances. BayREN plans to continue to coordinate with BAAQMD to both help inform their efforts and to ensure that our timeline to end rebates for residential natural gas appliances provides consistency and certainty for the Bay Area market as we transition to zero emission appliances for all.

Spotlight Story: Creating Stronger Communities Through Libraries

Libraries have always been vital community hubs for learning and development. As temperatures continue to rise and climate hazards become more prevalent in the Bay Area, libraries can also serve as integral locations to help the community stay safe during these increasingly common extreme weather events. To aid in the development of these community resources, BayREN, in partnership with the Bay Area Climate Adaptation Network (BayCAN) and the American Society of Adaptation Professionals (ASAP), launched a pilot initiative in November 2022 to develop a network of energy efficient and resilient local libraries. The initiative, also known as the Resilient Libraries Network, aims to reduce energy use of selected local libraries and transform them into Community Resilience Centers (CRCs) to deliver resources based on local needs before, during and after natural hazard-related events.

Six Bay Area libraries were selected to participate, with priority given to branches that will serve communities who are most impacted by climate change. The participant list includes:

- Marin County Free Library branches in Fairfax and Novato
- East Palo Alto Library
- Biblioteca Latinoamericana Library in San José
- Oakland Public Library's West Oakland and 81st Avenue Branches

The pilot program provides free engineering technical assistance and recommendations for participating libraries through the Codes & Standards Programs Zero Net Energy/Zero Net Carbon Technical Assistance Program for energy upgrades needed to improve the buildings' efficiency, resilience, and ability to provide cooling and clean air. With the assistance of partners BayCAN and ASAP, the pilot also intends to identify potential funding sources that the libraries can leverage in order to implement the

recommendations. The pilot will conclude at the end of 2023, and BayREN will document and share lessons learned to inform future programs.

Water Upgrades Save

In California, the pumping, heating, and treatment of water accounts for 20 percent of electricity and 30 percent of non-power-plant natural gas demand. Known as the *water energy nexus*, this combined resource opportunity is the subject of CPUC rulemakings designed to explore how energy savings can be captured through water conservation to inform efficiency program design.

Water Upgrades Save is a regional water energy nexus program based on three pilots conducted over the ten years. The Program facilitates utility investment in customer-side efficiency improvements by providing municipal water utilities with project capital and managing program funding, marketing, customer enrollment, project installation, and customer service while giving utilities the power to decide which customers to target and how much to reduce demand. The capital for this program is not ratepayer funds, but rather is pursuant to a loan agreement with ABAG.

Water utilities can use the Program to meet state and local policy goals, support LDTS customers including renters, manage water supply, and produce water and energy savings on the customer side of the meter. The Program can be customized to supplement or replace current water conservation efforts to best meet each municipality’s needs.

Water Upgrades Save helps water managers:

- Access low-cost capital and turnkey services
- Manage water supply and meet state regulations
- Improve affordability and reduce the risk of nonpayment and bad debt
- Give customers a water efficiency tool that does not rely on incentives or upfront cost

2022 Program Focus	2022 Achievements
<ul style="list-style-type: none"> - Expanded residential services - Expanded upgrade choices - Developed non-residential offers 	<ul style="list-style-type: none"> - 49 Single Family Projects - One 19-unit Multifamily Project - Expanded upgrade offer - Developed non-residential customer offers

Gaps Being Filled (Water Upgrades Save)

BayREN’s Water Upgrades Save program is designed to bridge the gap between current and future water efficiency targets mandated by state legislation, whose goal is to “make water conservation a California way of life.” In 2022, the Program launched customer services with its second partner utility installing single-family indoor upgrades and providing the primary water conservation service for the community. The Program also started its multifamily enrollment campaign, which enables property owners and managers to reduce operating costs while improving their property. The regional program

uses lessons learned from three pilots to address utility needs for a third-party finance service, a turnkey customer service that does not require utility administration, and the ability to scale water efficiency outcomes to meet new state and local targets.

Regional Program Activities (Water Upgrades Save)

Using the authority granted in SB 564 — Water Bill Savings Act (2017), the Program established the funding, process, and agreements needed to implement the regional project finance service with its fiscal partner, the ABAG. The program's completed milestones include launching services for City of Cloverdale residential customers; completing the program's first multifamily project in the City of Sebastopol; adding two new upgrades to the program; developing offers for municipal, institutional, and commercial water customers; and refining its water utility recruitment campaign. The Program, which started as a pilot in three communities, is now being scaled regionally and is poised to provide a model for a statewide approach.

Local Government Levers (Water Upgrades Save)

In 2022, the Water Upgrades Save program used the following local government levers:

- Local government relationships with municipal and other water utilities to promote the program. Program onboarding meetings with Partner Utilities, enrollment meetings with East Bay Municipal Utilities District, and introductory meetings City of Petaluma, City of Palo Alto, and Diablo Water District.
- The Program appears in the *2022 Estuary Blueprint* report published by the San Francisco Estuary Partnership, in which the Program is featured in Task 17-2 under Water Conservation Actions.

Future Opportunities (Water Upgrades Save)

BayREN Value Pillar 1: Building Organizational & Human Infrastructure

As utility enrollment grows, Water Upgrades Save will increase local government organizational and human infrastructure by providing a turnkey investment and project installation service that enables utilities to meet their increasing water conservation targets with minimal staff and budget, freeing utility resources for other important needs.

BayREN Value Pillar 2: Serving Local Difficult to Serve Populations

Because Water Upgrades Save is part of the water service and not a consumer loan program, it lowers or removes the upfront cost barrier and requires no new debt for participating water customers. Both property owners and renters can participate. Single family, multifamily, and forthcoming municipal, institutional, and commercial customers receive utility bill savings right away and use a portion of the savings to pay off the project costs over time, thus decreasing the customer's household or business utility costs while increasing the value of the property with new efficiency upgrades.

Future opportunities include establishing long-term strategies for scaling finance service capital to meet program demand.

BayREN Value Pillar: 3 Testing Innovative Solutions

Customer water conservation programs traditionally are operated by water utility staff, rely on incentives, and require participating customers to cover any remaining installation cost. This makes water conservation results dependent on utility staff capacity, limited incentive funding, and the customer's ability to pay the remaining post-incentive costs to purchase and install an efficiency upgrade.

As a regional water energy nexus program, BayREN's Water Upgrades Save facilitates utility investment in customer-side efficiency improvements by providing municipal water utilities with project capital and managing program funding, marketing, customer enrollment, project installation, and customer service while giving utilities the power to decide which customers to target and how much to reduce demand.

Water Upgrades Save utility customers install water efficiency improvements using a utility-approved on-bill charge that is significantly lower than the estimated savings — so the customer begins saving right away.

New proactive state and local water goals in development through 2027 create an opportunity for additional water/energy savings from customer-side water efficiency projects. Water Upgrades Save provides an on-water-bill financing mechanism that addresses the traditional barriers to water conservation programs, helps utilities prepare for stricter state conservation goals, and enables water customers to reduce utility costs while improving their premises.

Future opportunities include expanding eligible upgrades (such as leak detection/repair) and coordinating services with other water and energy efficiency programs.

Spotlight Story: Leading with Customer Satisfaction

Water conservation is a way of life for Californians, and BayREN's Water Upgrades Save program aims to help maintain a commitment to conservation through dry and wet climate cycles. The program makes water conservation accessible to everyone by reducing barriers to participation. One way to conserve water at home is to install water efficient fixtures, and the program makes it easy with a turnkey service. Since the program's launch in May 2021, residents in the participating cities of Sebastopol and Cloverdale have benefited from new water-efficient fixtures and have given the program high marks for customer satisfaction. Although currently available in only these two cities, producing happy customers is critical to the success of the program, as BayREN plans to expand to future utilities.

With 57 single family and one 19-unit multifamily projects completed, participants have good things to say about the program. Using a five-point customer satisfaction score with "1" being very unsatisfied and "5" being very satisfied, participants gave a 4.7 overall satisfaction rating across 8 metrics including product quality (4.5/toilet, 4.0/showerheads, and 4.5/bathroom and kitchen aerators), professionalism (4.8), assessment scheduling (4.8), customer enrollment (4.7), water technician (4.8), and contractor (4.9). As one Sebastopol customer put it: "I'm so glad Sebastopol did this to help us reduce our usage. I've told all my neighbors about it." BayREN hopes to carry this positive customer satisfaction to more Bay Area communities.

Energy Savings and Expenditures

In 2022, BayREN administered two resource programs within the Residential Sector that have reported energy savings: The Home+ and BAMBE programs. The Home+ program is a deemed program utilizing approved Statewide (SW) workpapers for all savings values. The BAMBE program is a hybrid custom and deemed program utilizing EnergyPro Lite (EPL) to model custom project energy savings and deemed values when applicable. Both residential programs reported fuel substitution savings as reported by the Commission-approved Cost Effectiveness Tool (CET). The SMB Commercial Program did not have any completed projects in 2022.

TABLE 1: NET ENERGY SAVINGS

Electricity and Natural Gas Savings and Demand Reduction (Net)	Annual Energy Savings (kWh)	Lifecycle Energy Savings (kWh)	Peak Demand Savings (kW)	Annual Natural Gas Savings (Therms)	Lifecycle Natural Gas Savings (Therms)
Home+	4,186,326	51,603,473	220	79,865	975,777
BAMBE	604,234	5,824,430	150	45,512	607,455
BAMBE Clean Heating Pathway	434,077	5,247,432	9	1,293	16,434
SMB Commercial	-	-	-	-	-
Total Portfolio Savings	5,224,637	62,675,335	379	126,670	1,599,666

TABLE 2: 2022 NET ENERGY SAVINGS AND ADOPTED GOALS (PORTFOLIO; NON-CODES & STANDARDS)

Electricity and Natural Gas Savings and Demand Reduction (Net)	GWh	MW	MMTherms
2022 Total Installed Portfolio Savings	5.22463692	0.37919	0.12666957
Adopted Goals (D.21-09-037)	10.984334	0.79	0.129685
Percentage of Goal Attainment	48%	48%	98%
Fuel Substitution Goal Reduction	-	-	-
Goals Less Fuel Substitution Goal Reduction	10.984334	0.79	0.129685

TABLE 3: 2022 NET ENERGY SAVINGS AND ADOPTED GOALS (PORTFOLIO, EXCLUDING COMMERCIAL; NON-CODES & STANDARDS)

Electricity and Natural Gas Savings and Demand Reduction (Net)	GWh	MW	MMTherms
2022 Total Installed Portfolio Savings	5.22463692	0.37919	0.12666957
Adopted Goals (D.21-09-037)	6.384434	0.185	0.116005
Percentage of Goal Attainment	82%	205%	109%
Fuel Substitution Goal Reduction	-	-	-
Goals Less Fuel Substitution Goal Reduction	6.384434	0.185	0.116005

Savings by End-Use

TABLE 4: 2022 ANNUAL NET SAVINGS BY END-USE

End-Use Category	kWh	% of Total	kW	% of Total	Therms	% of Total
Appliance or Plug Load	306,125.53	6%	2.80	1%	(0.86)	0%
Building Envelope	38,288.39	1%	93.98	25%	33,169.76	26%
HVAC	2,168,347.29	42%	110.14	29%	23,545.46	19%
Service and Domestic Hot Water	1,673,564.92	32%	12.77	3%	23,150.60	18%
Whole Building	1,038,310.78	20%	159.50	42%	46,804.61	37%
Total Portfolio Savings	5,224,636.92	100%	379.19	100%	126,669.57	100%

Environmental Impacts

Environmental impacts¹² are shown in Table 3. These results are generated by the CET. The CET is designed to calculate energy efficiency program cost-effectiveness. Although emissions data are available through the CET, D.12-11-015 does not direct BayREN to track emissions.

TABLE 5: ENVIRONMENTAL IMPACTS (TONS OF AVOIDED EMISSIONS)

Annual Results	Annual CO2 (tonnes)	Lifecycle CO2 (tonnes)	Annual NOx (tonnes)	Lifecycle NOx (tonnes)
Total Portfolio	1,546.08	17,979.36	1.03	12.65

¹² Environmental Impacts are Net Annual and Lifecycle Tons of Avoided Emissions.

Expenditures

NOTE: COLUMN OR ROW TOTALS MAY NOT SUM EXACTLY DUE TO ROUNDING TO THE NEAREST DOLLAR.

TABLE 6: 2022 PROGRAM EXPENDITURES

Program Name	Filing Program Budget	Operating Program Budget	Percent of Portfolio Budget	2022 Program Expenditures
Home+	\$9,672,446	\$11,065,669	37%	\$10,134,038
Green Labeling	\$1,301,750	\$2,187,838	5%	\$2,114,374
BAMBE	\$6,901,930	\$5,252,057	26%	\$2,951,888
SMB Commercial	\$3,822,347	\$3,181,838	15%	\$1,008,558
Codes and Standards	\$1,841,850	\$1,859,855	7%	\$1,602,899
Water Upgrades Save	\$1,577,750	\$1,570,816	6%	\$1,447,430
EM&V	\$1,046,586	\$1,046,586	4%	\$188,068
Total Portfolio	\$26,164,659	\$26,164,659	100%	\$19,447,255

TABLE 7: 2022 PROGRAM EXPENDITURES BY CATEGORY

Program Name	Admin	Marketing	DINI	Incentives	EM&V	Total Program Expenditures
Home+	\$711,708	\$1,303,208	\$3,167,143	\$4,951,979	\$0	\$10,134,038
Green Labeling	\$66,476	\$137,949	\$830,199	\$1,079,750	\$0	\$2,114,374
BAMBE	\$477,650	\$224,119	\$1,933,520	\$316,600	\$0	\$2,951,888
SMB Commercial	\$262,483	\$97,210	\$648,864	\$0	\$0	\$1,008,558
Codes and Standards	\$184,975	\$0	\$1,417,924	\$0	\$0	\$1,602,899
Water Upgrades Save	\$101,667	\$323,387	\$1,022,376	\$0	\$0	\$1,447,430
EM&V	\$0	\$0	\$0	\$0	\$188,068	\$188,067
Total Portfolio	\$1,804,959	\$2,085,873	\$9,020,026	\$6,348,329	\$188,068	\$19,447,255

Metrics

Value Metrics

BayREN's Value Metrics are based upon three overarching services referred to as BayREN's Value Pillars - to better track the unique value BayREN provides to the region and to the state. BayREN established its Value Metrics as indicators to establish a baseline for the first reporting year (2021). The Value Pillars, Value Metrics, and 2022 achievements are provided by sector below.

BayREN Value Pillars

As a regional energy network, BayREN helps to make state policy objectives (i.e., reducing GHG emissions and increasing energy savings) practical at the local level by conducting three overarching services:

- BayREN builds human and organizational infrastructure¹³ within local jurisdictions so that Bay Area communities are better able to save energy and reduce greenhouse gas emissions.
- BayREN obtains energy savings locally while also supporting local difficult to serve populations.¹⁴
- BayREN tests innovative solutions that have the potential to help local jurisdictions increase energy savings and reduce greenhouse gas emissions.

¹³ The CPUC uses the term capacity building, which is similar to "building human and organizational infrastructure." BayREN uses this alternative term since we have been unable to identify a specific CPUC definition for capacity building, and therefore are unable to identify whether or not these activities align. Note that the utilities have conducted some capacity building activities in prior years under their local government partnerships, but these activities are currently limited (and are constrained by IOU directives).

¹⁴ The term "underserved" is similar in nature to the phrase "local difficult to serve populations" used in this document. The CPUC is considering defining the term "underserved," and the ultimate definition may or may not align with the populations that are difficult to serve in BayREN's region. As such, BayREN uses an alternative term, local difficult to serve, to specifically define Bay Area populations that have been defined as underserved by the Bay Area local government members.

BayREN Value Metrics

Portfolio Level – All Sectors

Metric Description	2022 Achievements
Number of water utilities offering programs with BayREN on-bill mechanism	1
Amount of regional funds allocated to support water/energy projects	<p>\$1,000,000 in capital funding approved.</p> <p>\$10,842.14 in projects funded with ABAG program funding in 2022.</p> <p>Cumulative funding to date is \$36,912.54</p>
Number of realtors and appraisers green certified (e.g., “National Green Certified Real Estate Professionals”)	<p>Realtors certified: 128</p> <p>Appraisers certified: 24</p>
Number of local lenders trained	0
Percent of local lenders trained who report an increase in knowledge about energy efficiency financing options	0
Water Energy Nexus Program Pilot used regionally to meet State water goals.	Metric expected to be met in five years (2025). Mid-pilot evaluation to assess implementation and share lessons learned planned for 2023 or 2024.
Water Energy Nexus Program Pilot able to report energy and water program metrics data using agreed upon protocols.	Metric expected to be met in five years (2025). Mid-pilot evaluation to assess implementation and share lessons learned planned for 2023 or 2024.

Residential Sector

Metric Description	2022 Achievements
Number of trained contractors who have performed 3+ projects of decarbonization measures	162
Number of single-family moderate income (SFMI) households served	1,175
SFMI kWh saved	280,863.85
SFMI kW saved	7.46
SFMI therms saved	7,944.12
Multifamily small and/or owned-occupied buildings served (i.e., LDTS)	55 (all) 55 (LDTS)
Multifamily small and/or owned-occupied tenant units served (i.e., LDTS)	1,755 (all) 1,755 (LDTS)
MF small and/or owner occupied (i.e., LDTS) kWh saved	564,355.09 (In Unit) 473,995.69 (Common Area)
MF small and/or owner occupied (i.e., LDTS) kW saved	86.69 (In Unit) 72.81 (Common Area)
MF small and/or owner occupied (i.e., LDTS) therms saved	25,439.80 (In Unit) 21,364.81 (Common Area)
Zero Net Carbon (ZNC)/Clean Heating Pathway innovative solution pilot ready to scale	Metric expected to be met in three years (2023). Mid-pilot evaluation to assess implementation and share lessons learned planned for 2023.
Regional pilot mechanism(s) to make energy assets transparent at time of sale are institutionalized	91

Commercial Sector

Metric Description	2022 Achievements
Small-to-medium business (SMB) customers served	0
SMB kWh saved	0
SMB kW saved	0
SMB therms saved	0
SMB Pay-for-performance (P4P) pilot ready to scale	Metric expected to be met in five years (2025). Mid-pilot evaluation to assess implementation and share lessons learned planned for 2023.

Codes & Standards

Metric Description	2022 Achievements
Count of jurisdictions that adopt and implement reach codes or energy policies	45
Count of jurisdictions that use BayREN guides and tools for code compliance	7
Count of jurisdictions with staff who attend a BayREN energy code training	56
Count of local government staff who indicate an increase of energy code requirements and best practices for code compliance	421
Percent of local government staff who indicate an increase in energy code requirements and best practices for code compliance	98%
Count of jurisdictions with staff who attend a BayREN forum	60
Count of respondents who indicate they increased their energy policy knowledge	261
Percentage of respondents who indicate they increased their energy policy knowledge	92%
Count of respondents who indicate forum expanded their energy efficiency networks (helping to build relationships that will enable future energy policy work)	182
Percent of respondents who indicate forum expanded their energy efficiency networks (helping to build relationships that will enable future energy policy work)	64%

D.18.05.041 Metrics

2022 BayREN metrics are provided in the Annual Report Excel Template. This section discusses some of the approaches and assumptions used to develop the metrics by sector.

Residential Sector

For the following residential metrics, BayREN used data provided by PG&E:

Home+:

- Percent of participation relative to eligible population
- Percent of participation in disadvantaged communities
- Percent of participation by customers defined as “hard-to-reach”
- Average electric and gas usage per household

BAMBE:

- Percent of participation relative to eligible population (by property)
- Percent of square feet of eligible population participating (by property)
- Percent of participation in disadvantaged communities
- Percent of participation by customers defined as “hard-to-reach”
- Percent of benchmarked multi-family properties relative to the eligible population
- Percent of benchmarking by properties defined as “hard-to-reach”
- Average electric and gas usage per unit

PG&E has not historically tracked and reported the number of unique units treated through programs that work with multifamily customers. PG&E will use unique premise and account IDs as a proxy for total units in the multifamily segment until a study provides more accurate information about the multifamily building stock in PG&E's service area. For now, we believe the number of unique premise and account IDs provides the closest estimate of the number of units. All other data are derived from BAMBE's internal tracking database(s) and outputs from the 2022 Annual Claims submission submitted in the CPUC's California Energy Data and Reporting System (CEDARS).

Commercial Sector

The program had no installed projects or claimed savings in 2022.

Codes and Standards Sector

Several metrics from D.18-05-041 are assigned to REN Codes and Standards Programs, and are reported below, along with additional metrics. BayREN, together with the Tri-County Regional

Energy Network (3C-REN), proposed new and modified metrics and indicators for Codes and Standards in the September 2020 ABAL, as allowed by D.18-05-041. These revised metrics are in the Annual Report Excel Template and are detailed below.

Reach Code Adoption

The Decision states that the number of local government reach codes implemented is a joint IOU and REN effort. As such, the IOUs will be reporting on adoption of reach codes throughout the state in their metrics filings, which includes BayREN's numbers. We highlight the adoption of reach codes within the Bay Area during each building code cycle:

- Bay Area jurisdictions that adopted one or more reach codes during the 2016 code cycle.
- Bay Area jurisdictions that adopted one or more reach codes for the 2019 code cycle.

Participation in Forums

In addition to the approved metric of the number and percentage of jurisdictions with staff participating in an Energy Policy Forum, we also use the metric of the total number of attendees. In 2022, there were:

- Number of organizations with staff participating in an Energy Policy Forum.
- Percent of jurisdictions with staff participating in an Energy Policy Forum.
- Total number of attendees participating in an Energy Policy Forum.

Jurisdictions Receiving Energy Policy Technical Assistance

This metric calls for the number and percent of jurisdictions receiving energy policy technical assistance. BayREN offers this type of assistance through the compliance and policy support activities described above. (Note that this number does not include additional types of assistance such as answering questions and providing information to jurisdiction staff.)

- Number of organizations directly engaged in Codes & Standards activities.
- Percent of jurisdictions engaged in Codes & Standards activities.

Buildings Receiving Enhanced Compliance Support

Several BayREN Codes activities support code compliance for individual buildings.

- Buildings in the Bay Area receiving enhanced compliance support.

Increase in Closed Permits

BayREN in collaboration with 3C-REN proposed to remove this metric in the 2020 ABAL Filing(s). This is due in-part to the difficulty of obtaining and tracking permit data across hundreds of jurisdictions. In 2019, the program explored how we might structure a project designed to address permit closure rates and concluded: 1) this would be very difficult to do in a measurable way, and 2) would not be an efficient way to achieve the mission of increasing building energy savings through improved code compliance and energy policies.

Appendices

Appendix A: BayREN Programs for 2022¹⁵

CEDARS ID	Program Name	Date Added	Date Removed
BayREN02	Multifamily Building Enhancements Program	1/1/2013	
BAYREN02-A	Multifamily Building Enhancements Program – Clean Heating Pathway	1/1/2020	
BayREN03	Codes and Standards Program	1/1/2013	
BayREN04	Water Upgrades Save	1/1/2013	
BayREN05-A	Evaluation, Measurement & Verification (EM&V)	1/1/2017	
BayREN06	SMB Commercial Program	1/1/2019	
BayREN07	Green Labeling Program	1/1/2019	
BayREN08	Single Family Home+ Program	1/1/2019	
BayREN01	Single Family Home Upgrade	1/1/2013	12/31/2018
BayREN04-1	Multifamily Capital Advance	1/1/2013	12/31/2018
BayREN04-2	Commercial PACE	1/1/2013	12/31/2018

Appendix B: California Energy Data and Reporting System (CEDARS) Annual Report Template (Microsoft Excel)

BayREN’s 2022 CEDARS Annual Report Template is available publicly online via:

- CEDARS (<https://cedars.sound-data.com/>)
- BayREN (https://www.bayren.org/sites/default/files/2023-05/BayREN_2022_Annual_Report_Template_v5.6_Final.xlsx)

¹⁵ In 2019, BayREN updated program offerings to align with BayREN’s Business Plan.