BAYREN 2019
PROCESS EVALUATION

CALMAC Study ID: BAR0006.01

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Contents

Executive Summary

The San Francisco Bay Area Regional Energy Network (BayREN) is a network of nine member counties in the Bay Area. BayREN was established in 2012 under the California Public Utility Commission (CPUC) decision D.12-11-015 as a pilot, and over the past seven years, the BayREN members have come together to offer energy efficiency programs and services to the region.

Under a recent decision (D.19-12-021) the CPUC authorized the continued operation of RENs. As BayREN enters this next phase of energy efficiency programs, the members enlisted Grounded Research to support their effort to improve the overarching operation and focus of BayREN's portfolio of energy efficiency services.

The evaluation team conducted a multi-level developmental evaluation that concentrated on BayREN as an organization (not on specific programs). This research provided BayREN members with rapid, real time feedback to support BayREN's adaptation to California's dynamic energy efficiency environment (i.e., changing regulations and goals, new players, Investor Owned Utility (IOU) program offerings that will be shifting as third parties are brought on by the IOUs). The specific objectives of the evaluation were to help BayREN members:

- Ensure that they continue to meet the CPUC directives to the RENs
- Continue to advance towards BayREN's stated vision within the Business Plan (i.e., *to help the State meet aggressive goals related to climate change)*
- More effectively deliver the suite of BayREN programs

The evaluation was conducted in two stages: (1) Gathering and reviewing information to provide external evaluator feedback to BayREN, and (2) Interactive efforts to guide BayREN members as they considered their responses to the Stage 1 recommendations. The findings from our review of the regional network and our interactive efforts to help BayREN move forward are presented below.

The Regional Network (Stage 1)

BayREN has a unique governance structure built on a model of holacracy. This model establishes clear roles and accountabilities so that decisions can be made quickly, allowing the organization to be flexible and innovate. BayREN is constrained by three criteria given to the RENs in the initial authorizing decision; but notably, because of the unique mission of the RENs (specifically to involve local governments more directly in administering energy efficiency programs), the CPUC does not require RENs to meet the same cost-effectiveness requirements as the IOUs, allowing more latitude in the types of activities that BayREN can conduct.

BayREN's core strength is the member's connection to local governments and local jurisdictions. The benefits of BayREN's approach include the ability to: incorporate local leadership; account for the very different needs of 110 jurisdictions; leverage local outreach and resources from communities; and integrate energy efficiency programs with local efforts to balance energy efficiency, demand response and electrification policies to support a clean energy future. Based on feedback from representatives of cities served by the nine member counties, local jurisdictions desire:

- More information to help the cities understand and utilize existing energy efficiency programs (all programs, not just the BayREN programs)
- Energy efficiency-specific marketing and outreach for their communities
- Technical assistance –generally beyond just energy efficiency in support of electrification and zero net carbon efforts—to support both the local governments and the community as a whole
- Energy efficiency rebates or project funding and support

The evaluation team also found that while there is continued support for BayREN (and recognition that they provide valuable services), the specific value proposition of BayREN isn't clear to some actors outside of BayREN (i.e., some stakeholders and some cities).

Based on the information collected to support this evaluation effort, the evaluation team recommends:

- **Continuing to enhance connections to local jurisdictions** – This will enable better information sharing, extended research of BayREN services, and also amplify the impacts to help BayREN more effectively meet both city and BayREN goals. BayREN already has some connections and shares information with cities, but these processes can be augmented to strengthen the network. We recommend establishing additional ways to get information to cities (e.g., a quarterly webinar, or community-level information that can be shared with local governments in a form that can immediately be placed on a website or in a local newsletter). We also recommend trying to better understand local needs associated with climate action planning and how BayREN may be able to provide support, such as assisting with projects and providing data to help local governments meet their local sustainability objectives.

- **Fortifying BayREN's administrative and program network by building up internal support systems and communication channels** – BayREN should strengthen their centralized administration to support the nine members and six programs. BayREN should also bifurcate this support to help members that have different needs. For example, members with established versus diffuse communication networks tend to require very different levels of support (e.g., when all of the cities within a county have sustainability leads that attend a regular county meeting it requires a different level of support than when communication with city staff occurs in a more ad hoc fashion). To strengthen internal communications with the programs, BayREN should also build program-to-county connections by: holding internal annual program meetings for BayREN members to introduce any program changes and each program's annual goals; intentionally considering each county and whether there should be county-specific goals for each program; and ensuring that programs are finding ways to tap into member networks where it makes sense.

- **More clearly laying out BayREN's value to the state** – As part of this process, the evaluation team worked closely with the BayREN members to define the value of the organization and start to determine the right metrics for demonstrating the value that BayREN provides to the state. This is an ongoing effort. The section below describes the current status and next steps (and recommends additional discussion with the CPUC in this area).

BayREN Moving Forward (Stage 2)

Overall, the two-stage evaluation effort was designed in a manner that enabled BayREN's quick response to feedback. The evaluation team positioned information from Stage 1 so that the BayREN members could be part of an interactive process to surface and test ideas to help BayREN move the organization forward in Stage 2.

To start to clarify BayREN's value, the evaluation team looked both at the role that the RENs have been asked to play by the CPUC, as well as what BayREN is actively doing. Based on this, the team developed an Overarching Value Construct for BayREN's consideration. This value construct builds on the fact that BayREN is working to bridge a gap between resource-constrained local governments and state policy objectives. Specifically, BayREN helps to make state policy objectives practical by providing three overarching services (also referred to as BayREN's value pillars in this document):

1. BayREN builds human and organizational infrastructure within local jurisdictions
2. BayREN obtains energy savings by supporting populations where it is otherwise difficult to get savings
3. BayREN tests innovative solutions that have the potential to help local jurisdictions support efforts to increase energy savings and reduce greenhouse gas emissions.

These three pillars aim to provide an overarching structure to help BayREN more clearly convey their value. Additionally, these pillars seek to guide BayREN in future decision making around programs and resources. We note that these three pillars do not necessarily capture all possible areas of BayREN value.

BayREN has already started to revisit and clarify their program objectives and logic models to position their programs to better align with the future needs of the State of California. In Q1 of 2020, the evaluation team will help BayREN revise their program theory and logic models to ensure that they are clear and that they call out the local government levers that make the BayREN programs unique. The evaluation team will also be working with the

BayREN programs to develop additional metrics (and the data collection needed to support these metrics) so that BayREN can more clearly demonstrate their full value to the state. The starting roadmap for the development of additional BayREN metrics is provided in the final section of this report, *Metrics for the Future*.

Introduction and Background

BayREN provides energy efficiency programs to households and commercial buildings within the nine San Francisco Bay Area counties.[1]

BayREN was established in 2012 as authorized by D.12-11-015. Within that decision, the CPUC allowed for the creation of Regional Energy Networks (RENs) and directed RENs to deliver:

1. Activities that utilities cannot or do not intend to undertake

2. Activities in hard-to-reach markets, whether or not there is a current utility program that may overlap

3. Activities where there is no current utility program offering, and where there is potential for scalability to a broader geographic reach, if successful

As of January 2020, California has a total of three RENs[2]—two of which were established in 2012 and one of which was approved and established in 2018. Among the current RENs, BayREN is at a unique place in their evolution. In the first two years, BayREN developed their programs and processes. Over the course of the next five years, BayREN built their internal knowledge of the CPUC system, internal and member staff and knowledge, and the BayREN network all while growing the BayREN programs. As of January 2020, BayREN is at a point where it is able to evaluate their role in an everchanging marketplace. This report represents a look at BayREN (the organization), the local jurisdictions that BayREN serves, and how BayREN fits in within the broader context of their partners and the state's policy goals.

Study Overview

BayREN enlisted Grounded Research to support the members in their efforts to improve their portfolio of energy efficiency programs.

The Grounded Research evaluation team conducted an evaluation that reflected on the organization, their history, and the context of energy programs in 2020. The specific objectives of the evaluation were to help members:

- Ensure that BayREN continues to meet the CPUC directives to the RENs

- Continue to advance towards BayREN's stated vision within the Business Plan (i.e., *to help the State meet aggressive goals related to climate change)*

- More effectively deliver the suite of BayREN programs

This evaluation was conducted as a multi-level developmental evaluation. The multi-level term refers to the evaluation team's review at three levels: the BayREN network; the members' connections to local jurisdictions; and BayREN's place within the broader context of partners and policy goals. (See Figure 1.) Throughout the evaluation effort, the team considered these three perspectives and points-of-view.

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[1] The counties are: San Francisco, San Mateo, Santa Clara, Alameda, Contra Costa, Napa, Sonoma, Solano, and Marin. BayREN excludes households within the city of Palo Alto as all electric and gas utilities are provided by the local municipal utility.
[2] SoCalREN was established with BayREN in 2012. Tri-county REN (3-C REN) was established in 2018.

Figure 1. Multi-level Evaluation

Regional Network	• The internal regional network includes the Association of Bay Area Governments (ABAG) and the member representatives for each of the nine (9) counties, the program leads, and program implementers
Local Jurisdictions	• Local jurisdictions represent the 101 city and town local governments (LGs) and the nine counties, and the residents and businesses in the communities that these LGs serve
Partners and Policy Goals	• The partners and policy level includes the CPUC, PG&E, CCAs and other external stakeholders as well as the current energy policies in California

The evaluation was designed using a developmental framework (refer to Patton 2008 for a summary of differences between traditional and developmental evaluation).[3] The evaluation was set up to facilitate real-time, or close to real-time, feedback to BayREN members and staff thus facilitating a continuous development loop. The evaluation integrated the process of gathering and interpreting data, framing issues, surfacing and testing model developments in conjunction with the BayREN members and staff throughout 2019.

This evaluation was conducted in two stages:

1. Stage 1: Gathering and reviewing information to provide a look at BayREN from an independent evaluator
2. Stage 2: Interactive efforts to understand and guide BayREN in response to Stage 1 recommendations

The results of this two-stage evaluation are presented in two chapters within the body of this report—one chapter for each stage.

Methods

This report draws on seven data collection efforts shown in the table below.

Table 1. Overview of Data Collection

Data Collection Activity	Description
Review of Materials	Review of BayREN materials including BayREN's Business Plan, implementation plans, Joint Cooperation Memos and Opening and Reply Comments to the Administrative Law Judge's *Ruling Seeking Comment on Future of Regional Energy Networks*.
Review of EESTATs Data	Analysis of the program year 2017 (PY17) and PY18 Excel file of metrics (downloaded from the EESTATs website) to assess how BayREN performed in PY18 (the last full year of metrics prior to drafting this report) compared to PY17 performance.
In-depth Interviews	Interviews and informal discussions with multiple representatives from the nine BayREN members. In addition, throughout the evaluation period we had multiple discussions with BayREN program staff and implementers (Single Family, Multi-family, Codes & Standards and Water Bill Savings Program; commercial program

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[3] Patton, Michael Quinn. 2008. *Utilization-Focused Evaluation, 4th Edition.* Sage Publications, Inc. Thousand Oaks, California. (Exhibit 8.2, page 285).

Data Collection Activity	Description
	representatives were not included since this program was in the process of being re-bid).
Discussions with the CPUC and Other Stakeholders	Discussions with PG&E, select CCAs and CPUC representatives. We interviewed one representative each from the CPUC, PG&E and a CCA, and also had informal follow up discussions with representatives of these groups throughout 2019.
Observation of BayREN Meetings	Observation of seven BayREN meetings. This included a meet-and-greet with the Bay Area CCAs, multiple (3) BayREN Coordinating Circle meetings, and multiple (3) regional forums hosted by BayREN.
Data Collection from Local Jurisdictions	Two county-wide group discussions, an online survey, in-depth interviews, and informal feedback from local jurisdictions (i.e., cities). Across the nine counties served by BayREN, we received some form of feedback from about 40% of the cities (approximately 41 of 101 cities across the 9 counties, see *Appendix C: Data Collection from Local Jurisdictions* for details).
Workshops	Two (interactive) working sessions with BayREN members during Coordinating Circle meetings (September and November 2019).

Study Limitations and Notes

The major limitation for this study is that our research looked broadly at the BayREN network and organization. We did not systematically review each individual program nor specific program data, tasks that typically occur within process evaluations. However, given the focus of this research, individual review was not needed. (Additional work in this area is planned for 2020.)

Since this was conducted as a BayREN process evaluation, we also did not attempt to collect data or characterize the other California RENs. The findings in this document are specific to BayREN and do not have any comparisons among the three RENs.

Key Definitions

To help the reader, below we provide select definitions of key terms used in this evaluation.

BayREN member agencies – The nine county agencies that have contracts with ABAG to perform BayREN activities.

Co-benefits – In this document, we define co-benefits as the additional benefits *that accrue to the local communities* because of the BayREN activities. (We also refer to these as local government outcomes within our metrics work.)

Compliance Metrics – Metrics that the CPUC requires from all program administrators. They include measurements such as kWh, kW and therms from the BayREN suite of programs. These metrics apply to only some of BayREN's programs.

Human and Organizational Infrastructure – Human and organizational infrastructure refers to staff, policies, or processes/systems within local government that are built through the implementation of BayREN programs and services (and would be expected to exist even if a specific BayREN intervention no longer existed).

Leveraged Funds – Funding from outside (non-CPUC) sources to create more holistic activities and/or activities that reach beyond what would be possible with just the CPUC funding source. (We list the leveraged funds in Table 9. The CPUC funding of BayREN enabled these funds.)

Local Government Levers – Local government levers are local relationships, communication channels, processes, data and community members that can be tapped into by BayREN members.

Overarching Value Construct – The Overarching Value Construct is a framework that enables BayREN to more clearly describe the value of their efforts to the state in filling the Gap (see next definition).

The Gap – The "gap" refers to the area that includes "activities that utilities cannot or do not intend to undertake." For BayREN (and this report), we define the gap as the difficulty local governments have in supporting complex statewide energy policy needs. BayREN conducts activities that fill this gap (and specifically activities that the utilities cannot or do not intend to undertake.)

Value Metrics – Metrics that help demonstrate the value that BayREN provides beyond what is captured by the compliance metrics. These are a new type of metric that Grounded Research is proposing based on significant input from BayREN members. These would include measurements that demonstrate movement towards the BayREN value pillars.

Value Pillars – The value pillars refer to the description of BayREN's primary value (beyond energy savings).

The Regional Network (Stage 1)

BayREN is a regional energy network comprised of the nine counties in the Bay Area: Sonoma, Napa, Solano, Marin, Contra Costa, Alameda, San Francisco, San Mateo and Santa Clara. As part of our evaluation effort, Grounded Research explored and documented the communication between the BayREN member agencies, the local jurisdictions within the nine counties, and stakeholders for the purpose of providing BayREN with recommendations on potential actions to strengthen these connections.

The BayREN Organization

BayREN brings together local government representatives to engage them in designing and implementing energy efficiency programs. Their regional system of governance is based on a holacracy model that engages local government members and allows for flexibility. This structure also enables BayREN to accommodate local needs, which vary across the nine counties. Overall, the organization has evolved to one in which the members feel heard and in which they are an active part of the governing and implementation process.

The local network behind BayREN (and BayREN's connection to the community) is one of BayREN's core strengths. While BayREN's structure is solid, some of the existing linkages need to be enhanced to better support members and serve local jurisdictions. In addition, some of the programs appear to be underutilizing the BayREN network.

BayREN is organized around a representative agency from each of the nine counties (the BayREN members) all of which have a common purpose – providing a sustainable energy future and helping their communities become more resilient. The organization is led by the Association of Bay Area Governments (ABAG, the program administrator) and the representative of ABAG works directly with the other BayREN members.
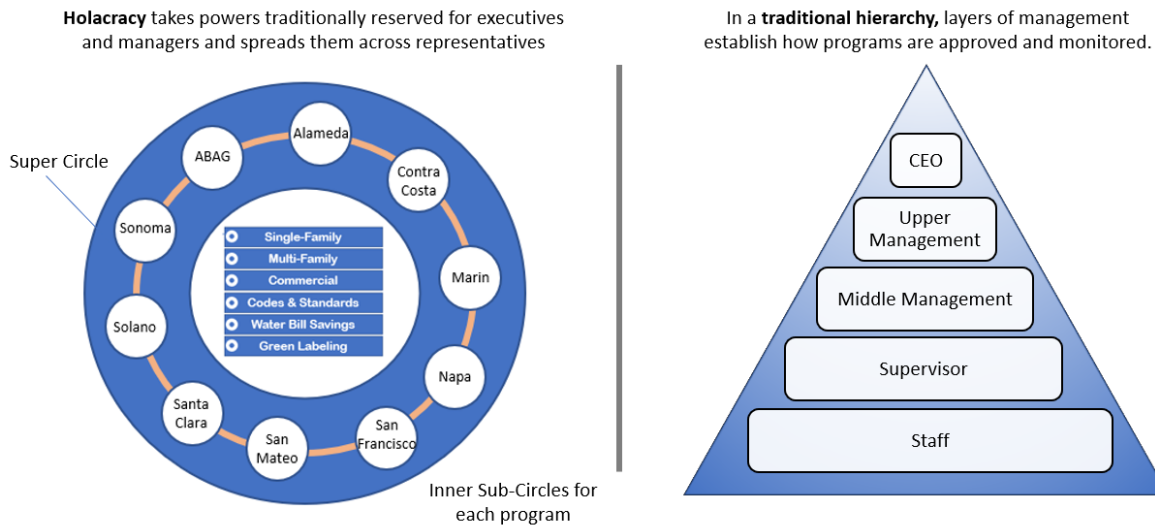
In 2016, BayREN chose to move to holacracy to enable clear roles and formal processes of communication and decision making. In a holacracy, "power is distributed throughout the organization, giving individuals and teams more freedom to self-manage, while staying aligned to the organization's purpose" (https://www.holacracy.org/what-is-holacracy). This model establishes clear roles so that decisions can be made quickly, allowing the organization to be flexible and innovate. As shown in the figure below, unlike in a traditional structure, it spreads power across the member organizations. As such, holacracy ensures that the members (i.e., local government representatives) are directly involved in administering BayREN's energy efficiency programs and share in the program direction, the program design, and key program and organizational decision making.

Operationally, BayREN's holacracy is made up of "circles" of people (also sometimes referred to as committees). BayREN as an organization has many different circles. These circles can form and disband as needed.[4] BayREN has one large circle for the full set of member agencies (the Coordinating Circle) and one Program Circle (sub-circles of the Coordinating Circle) for each of the current programs (Single family, Multi-family, Commercial, Codes & Standards, Water Bill Savings, and Green Labeling[5]).

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[4] Holacracy is one of the best known and fully specified types of self-management structures, having grown from the self-management organizational movement in the 1970's and eventually codified in mid-2000's with a "Holacracy Constitution" followed by core rule sets to use when managing an organization with this approach. Within self-managed organizations (like those following holacracy), members share accountability for the work, authority over how goals are met, discretion over resource use, and ownership of information and knowledge related to the work. Sources: Ethan Bernstein, John Bunch, Niko Canner, and Michael Lee. Beyond the Holacracy Hype. Harvard Business Review, July-August 2016 Issue. Accessed on 3/15/19 from https://hbr.org/2016/07/beyond-the-holacracy-hype and https://www.holacracy.org/backstory.

[5] Green Labeling is a newer program and is coordinated within the Single-family circle.

Figure 2. Overview of Holacracy (v. Hierarchy)

Holacracy takes powers traditionally reserved for executives and managers and spreads them across representatives

In a **traditional hierarchy,** layers of management establish how programs are approved and monitored.

Member-to-Member Coordination

BayREN members are county governments or public agencies chosen to represent the counties. All were required to sign a Memorandum of Understanding (MOU) that established that the agency has energy efficiency expertise and the resources to provide BayREN services to the jurisdictions in their counties. The member agencies all represent the county and the local governments and community members within the county. There are ten BayREN members: ABAG and the nine counties or organizations chosen to represent the counties. Among the nine county members, seven are county governments and the remaining two are public agencies (i.e., Sonoma's Regional Climate Protection Authority (RCPA) and Alameda's StopWaste/Energy Council).

All of the members are part of the Coordinating Circle, which meets monthly as a group (with every other meeting held in-person in locations rotating throughout the region) to coordinate BayREN's activities. Within these meetings, the members help each other and share information across the county representatives. The members identified this sharing of information as one of the benefits of the structure, allowing them to learn from each other, share best practices, and pull some of the less advanced counties along. These meetings also include a facilitator and secretary.

Table 2. Roles within BayREN's Holacracy management - Overarching

Group Meeting	General Roles	Details and BayREN Specific Responsibilities
Coordinating Circle	Member Representative (a.k.a. Cross Link)	Each county lead agency and ABAG designate one person Represents their agency's context within BayREN
	Facilitator	Upholds meeting rules
	Secretary	Records action items; interprets governance records
	Program Leads	Note that Program leads attend meetings to share information (and can propose items to be voted on) but are not voting members or decision-makers

The member representatives (a.k.a. the cross links) play different roles within their organization. For the seven counties represented by county staff, the cross link may sit within the county's Public Works Department, Sustainability Departments, or in Waste Management and Recycling. Those in public agencies, such as Sonoma's

RCPA or Alameda's StopWaste, also bring their own areas of expertise. As such, each person brings a unique perspective to the regional group.

Each member (or county's) structure is also unique, and thus the contacts and methods of contacts between the BayREN members and their county's local jurisdictions are different. The coordination with local jurisdictions within a county is discussed under the *Connections to Local Jurisdictions* section below.

Program[6]-to-Member Coordination

Individual programs (such as the Single-family program, Codes program, etc.) are managed by a lead agency (one of the members) *elected* by the Coordinating Circle (i.e., all member agencies). The lead agency must have the capacity to manage the program on behalf of the region since the lead is responsible for directly managing the priorities, staff and budget for the program. The program lead and members collaborate through program committees (represented by the smaller Program Circles) that typically meet monthly. Each member agency[7] is invited to participate in all of the program committees.[8] Each program also has one Program Representative (to represent county members), who is elected by the Program Circle. The Program Representative ensures that the county needs are considered and negotiates the individual needs of the counties if there are disparate needs. This individual plays a "checks-and-balance" role to ensure that the program is meeting county needs.

Table 3. Roles within BayREN's Holacracy management – Program Specific

Group Meeting	Program-specific Roles	Details and BayREN Specific Responsibilities
Program Circle(s) or Program Committee	Program Lead (aka, Lead Link or lead agency)	Each program has one Program Lead, who is elected by the Program Circle Assigns resources, roles, priorities for program
	Program Representative (a.k.a. Rep Link)	Each program has one Program Representative, who is elected by the Program Circle This individual negotiates the individual needs of the counties if there are disparate needs. This individual also plays a "checks-and-balance" role to ensure that the program is meeting county needs. If the issue (tension) cannot be resolved, the Rep Link reports the tension to the Coordinating Circle
	County Representative for Each Program	Each agency is invited to participate in the program committees. They can use multiple staff to represent the agency (given the time commitment). Participation is not required, and counties may choose not to participate in program committees that aren't actively addressing their county needs (e.g., the Water Bill Savings pilot originally included cities only in two counties).

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[6] Note that this actually refers to each of the sub-programs.

[7] Communication is from member agencies to the cities and towns that they represent to ensure efficient communication channels. All of the 101 cities and 9 counties do not participate directly.

[8] The county representative can be different individual staff from the member agency. That choice (who represents and brings information back to the county) is up to the agency.

Needs Identified by Members

The members identified that internal coordination is strong with very few issues. According to the members, the system of governance adopted in 2016 has allowed them to be nimble and quickly make decisions about programs and priorities so that they are better able to meet the needs in the region. However, some members noted that it can be tough for a small county to cover the multiple program committees (e.g. Napa or Solano have fewer human resources than larger counties). A few members also described wanting more support on outreach strategies for their communities as well as a desire for more information-sharing on what has been successful in other counties. Two mentioned that in the past, an annual kick-off meeting for each program has helped members stay up to date on changes to the programs (although not all programs held these). This is particularly important for individuals that coordinate with multiple programs. Some also mentioned that it's hard to build a relationship to the local jurisdictions (and their local agencies such as the Building Department or Public Health Departments) because they don't have enough information to share on a regular basis. (Note that we discuss this more in the next section.)

Overall, the members recognize that local governments have different needs, which can lead to a fragmented or patchwork solution to a problem. They felt that the ability to coordinate regionally (through BayREN) allows them to offer stronger regional solutions that would otherwise not occur, or not be as effective due to the patchwork nature of typical local government decision making.

Connections to Local Jurisdictions

Based on feedback from the local jurisdictions that are served by BayREN, there are four areas where cities identified a need for additional support: (1) more information for the local governments about available programs and services; (2) marketing BayREN programs directly to community members; (3) additional technical assistance to both city staff and to others in the community such as contractors and multi-family building owners; and (4) direct rebates or project funding. Finding ways to communicate more to local jurisdictions can improve the network.

The evaluation team also collected information directly from local jurisdictions to better understand the communication channels and the needs of the cities and towns.

Member-to-Local Jurisdiction Coordination

BayREN serves 101 cities/towns and the unincorporated areas within 9 counties, for a total of 110 jurisdictions. Within the BayREN member-to-local jurisdiction connections, some counties coordinate directly with sustainability coordinators or staff in each city through established channels: Marin, San Mateo and Alameda have monthly sustainability meetings for all of the jurisdictions in the county. These connections are shown in the figure below (in green). Sonoma also has a monthly meeting, but at a different level (i.e., through a monthly board meeting of the RCPA member organizations since each of the cities has a representative that sits on the RCPA board). Other counties such as Napa and Contra Costa have more informal channels. Within these counties with informal channels, members reflected on the fact that they have a hard time getting some cities to pick up the phone because cities are often short on staff.

In select cases, there are also connections directly between the program leads and specific government departments. For example, the Codes and Standards program lead sometimes directly coordinates with city building departments that request training and/or communicates directly through their regional forum that serves all of the jurisdictions.

Figure 3. BayREN Members and Member Connections
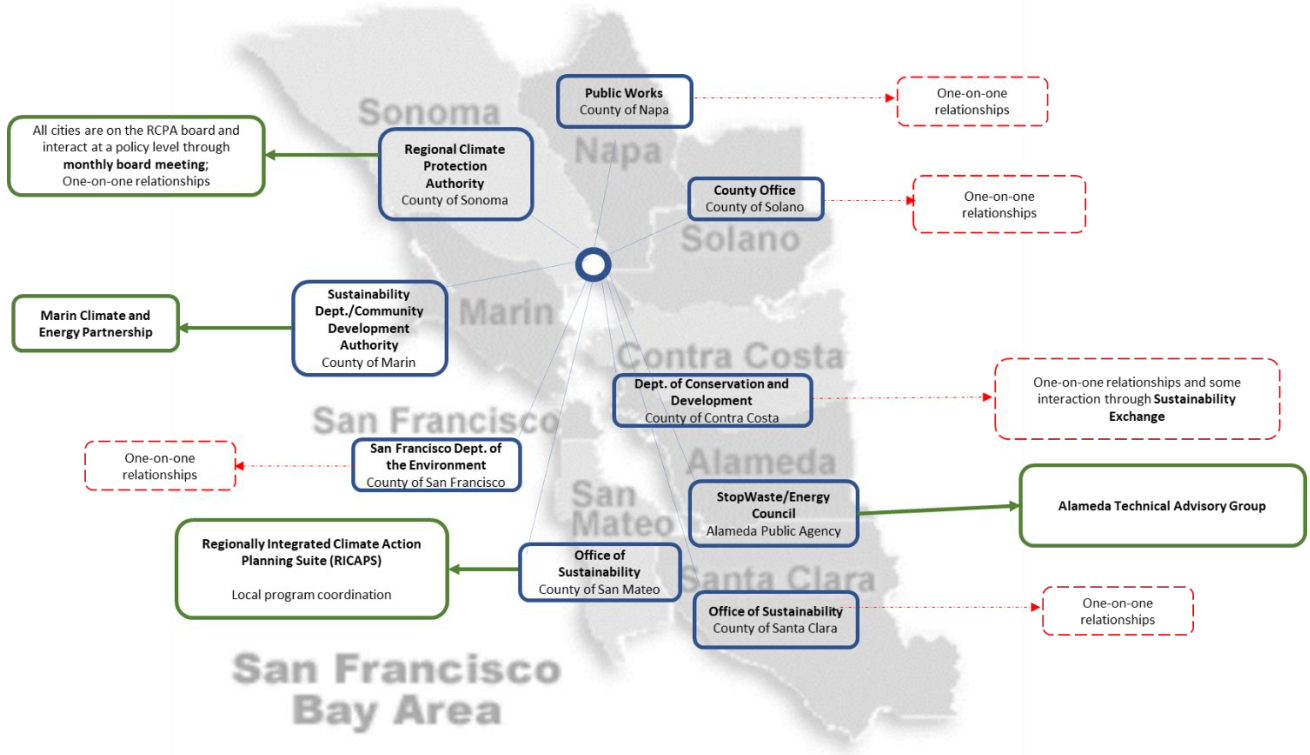
The primary BayREN connections to local jurisdictions are shown in the figure above, but each of the nine members also communicates to their local jurisdictions and local government agencies through existing interactions within a county. Through these existing channels, they are able to discuss and share information about BayREN programs. The opportunities for members to connect to cities vary, but several opportunities to tap into these existing relationships have been identified by BayREN members and the BayREN programs (see table below).

Table 4. Local Government Departments and Agencies, and the Related BayREN Opportunities

Type of agency	Examples of how they are working together…
Sustainability Departments/Coordinators (some of whom sit within Public Works or Planning)	BayREN representatives work with sustainability coordinators through county-level meetings. Sustainability coordinators oversee sustainability-related goals and climate action plans, where they exist, so they work directly with BayREN to understand how BayREN may help serve the needs of the cities and how the Sustainability Departments may provide BayREN specific outreach to the community. They also regularly attend BayREN forums to explore regional topics.
Waste Management (within Public Works)	BayREN representatives have worked through waste management staff to insert information into waste-related bills (usually at the county level).
Water Agencies	BayREN's programs offer opportunities to work directly with water agencies. BayREN's Water Bill Savings program is designed to coordinate with water agencies, although not all local jurisdictions are good candidates for this program.

Type of agency	Examples of how they are working together…
Building Departments	The Codes and Standards program seeks to serve buildings departments. BayREN offers training, tools and other support directly to building departments.
Department of Health and Human Services	BayREN has been actively working with health agencies to identify opportunities to coordinate with this group—specifically regarding air quality and asthma-related work. They are in the process of establishing a referral process through public health agencies that will help BayREN identify community members in need of BayREN's services (who otherwise might not be served by energy saving programs).
City/Transportation Agencies	BayREN members have a connection to local and regional transportation related agencies and are working to coordinate EV-related programs.
Education	Some of the member representatives attend education-related meetings (e.g., environmental education coalition in Napa) to describe BayREN opportunities with meeting attendees, but this connection is more limited.

Based on the evaluation team's communications with 41 of the 101 local jurisdictions, local jurisdictions (or cities) currently fall into one of three categories:

- Active engagement: Interactions through BayREN's Codes and Standards offerings[9] or community workshops

- Light engagement: Interaction with BayREN through member representative, perhaps some limited outreach

- No engagement: No direct interaction with BayREN members or programs

Those cities that describe themselves as more actively engaged generally have participated in the Codes and Standards training or forums, or they have hosted a workshop for BayREN to present information to the community. While the BayREN network with local governments is a strength of the organization, there is a need for additional linkages since some cities do not have any current connection to BayREN. In most cases, the BayREN member is working to engage cities within their county but may not have found a good connection point within a particular city.

Notably, BayREN has not emphasized branding of the network[10], but rather it has built on the name and reputation of the members within BayREN. As such, cities are sometimes more familiar with the member organization than BayREN. Cities rely on the member representative to proactively provide them with information. As mentioned above, for some counties, there are existing forums that allow the BayREN member representative to interact with cities on a regular basis (e.g., San Mateo's Regionally Integrated Climate Action Planning Suite, Marin's Climate and Energy Partnership, Alameda's Technical Advisory Group, or Sonoma County's RCPA board); however, for the other counties where there is not an existing forum, interactions are primarily one-on-one as opportunities arise.

Feedback from Local Jurisdictions (i.e., Needs Identified by Cities)

While cities often do not have the staff or resources to take on more work, they are interested in helping their communities take advantage of what BayREN has to offer as long as it is not too time consuming for them. According to one city that is resource constrained, they have been trying to schedule trainings for building inspectors, but they "can't even put staff time towards nailing down a training." As such, BayREN will need to be proactive and fit

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[9] According to the 2018 Annual Report, 55 jurisdictions utilized one or more of the Codes and Standards offerings.
[10] Note that this is important for future research efforts since those affected by the program may or may not identify the offerings and interactions as representing BayREN.

activities into the cities' needs and time constraints. Some of the more active cities offer their own programs or have other local initiatives to encourage the community to save energy, such as the Cleaner Contra Costa Challenge (through a grant from the Bay Area Air Quality Management District (BAAQMD)), where partner cities have a sustainability action platform that provides households and businesses with information about how to save energy. These types of activities are an opportunity for the BayREN member agencies to easily engage with their jurisdictions. For those cities not engaged, when we asked about a list of options of possible future BayREN support for local governments, many did not respond but one stated that "this list assumes a much higher level of engagement in energy issues than we have. The only thing of interest is technical support on saving energy in municipal buildings." We note that most of the suggestions offered below are by cites that have some level of engagement. Those that have no engagement were unlikely to have responded to our interview request (although at least one responded by email after a second request).

Based on the discussions with cities, their needs fell into four categories of requests[11]:

1. More information to help the cities understand and utilize existing energy efficiency programs (all programs, not just the BayREN programs)
2. Energy efficiency-specific marketing and outreach for their communities
3. Technical assistance –generally beyond just energy efficiency in support of electrification and zero net carbon efforts—to support both the local governments and the community as a whole
4. Energy efficiency rebates or project funding and support

Each of these four categories of requests is described below.[12]

1. More Information to Help the Cities Understand and Support Existing Programs

While all cities were generally aware of BayREN's work in the area of energy efficiency, many were not knowledgeable about what programs BayREN offers or how they differ from the PG&E, Community Choice Aggregator (CCA) or Energy Watch programs.[13] The level of knowledge about BayREN's offerings tended to vary based on their level of engagement with the BayREN member representative, with almost all expressing that they interacted with the member representative's organization (e.g., the county, or RCPA or StopWaste) and "didn't really know much about or interact with BayREN.[14]" Several were aware of a changing landscape and expressed a strong desire (and need) to better understand the differences between BayREN and Energy Watch programs. (We acknowledge that for some counties the representative is the same person for both BayREN and Energy Watch, and that Energy Watch programs are transitioning in 2019-2020.) Others expressed that while they would like to understand BayREN's offerings better, they generally send interested individuals to the member representative to learn more, so the cities aren't that concerned about not understanding the details of BayREN's offerings.

Even for cities that are actively engaged, some felt that they don't have as much information as they would like. According to one, BayREN information is shared at a "board-member level" because their cities are represented in

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[11] We note that cities outlined these needs based on their understanding of BayREN (and were not usually aware of BayREN offerings).

[12] The information below is a cumulative list that was developed over the course of the discussions with a sample of cities. This research does not represent a quantitative effort to understand the extent of interest in each of these areas. BayREN would need to conduct a follow-up survey (of a smaller list of possible options) to understand the extent of interest in each of these areas. Some of these suggestions may have only been offered by one city.

[13] Based on 33 survey responses (some from multiple individuals within the same city or county), respondents tend to be most familiar with CCA efforts (5.3 average on a 7-point scale where 7 is 'very familiar') and the Energy Watch programs (4.9). They were less familiar with BayREN programs (4.7) and "PG&E programs generally" (4.5).

[14] See earlier text about BayREN not emphasizing branding.

the organizations that lead the BayREN efforts (e.g., RCPA), but the information doesn't always get to the level of the City Manager or staff within the city that could share that information with the community.

Cities mentioned the following needs in this area:

- *Understanding specific BayREN opportunities* – Cities requested help understanding the opportunities BayREN offers, make more accessible the contacts for BayREN programs, and ways for the cities to have more active engagement with the BayREN through county forums or one-on-one communications.

- *Understanding the landscape* **–** Cities requested help understanding the breadth of programs available from all organizations including PG&E, MCE, Energy Watch organizations, CCAs, cities (i.e., a clearinghouse function).

The cities' suggestions for enhancing engagement between BayREN and the city representatives included the following (in no particular order):

- *A brief presentation by BayREN staff to senior City staff or City Council*

- *City-specific information about BayREN projects in their jurisdiction* proactively provided twice a year (e.g., July and January) **–** This is currently provided to cities when they request it from BayREN and is seen as valuable in its current form. However, one city expressed that this is not valuable because they can't use it due to the "1515 Rule," (that is, they can't access full customer data because of privacy rules regarding the small number of businesses in some segments) so they are missing baseline information to fully use the information from BayREN.

- *A 15-30-minute webinar quarterly* where city staff can find out what is going on at BayREN and get information that would be valuable for them to share with their community

- *More BayREN presence in the county* (especially for cities and towns that aren't as engaged) **–** BayREN should present at more county or city meetings with Department of Conservation, Public Works and Planning Departments.

- *A strategy meeting for the cities* to talk about what their needs are, identify gaps, and collaborate on pilots on a regional level **–** The example given was past heat pump water heater collaboration through Energy Watch.

- *Networking assistance and additional opportunities to network with other cities* (a role within the Energy Watch helped fill in the past but cities indicate is no longer funded) **–** One city specifically mentioned it would be great to have an Energy Efficiency Program Forum between active counties and less engaged counties (e.g., Alameda/Contra Costa Forum between MCE, BayREN, CCAs and PG&E to get them all in same room). This is a role that the Energy Watch filled in the past. "New staff members could learn who does what and BayREN could also lead to coalition building to see where they agree and disagree."

- *More staff for cities* through BayREN taking on an intern or Civic Spark fellow **–** While some cities have benefitted by PG&E funding their Civic Spark fellow through the older local government partnership program, the PG&E funding for this effort is going away (and some cities have not been able to take advantage of the fellows). According to one city, BayREN could take on a fellow that could help multiple cities. One respondent suggested that the Council of Governments (COG) in Southern California offers a model for this.

- *Highlights about "cities at the forefront"* with an eye towards helping other cities replicate the efforts **–** This could be shared through a newsletter or phone call.

2. Marketing and Outreach to Community

The cities felt that they offer valuable channels to get the word out to their communities; however, their efforts would have to be limited and streamlined because of their low available resources. When we directly asked one group (with 9-10 cities in the meeting) about how much the cities want to partner on outreach – versus BayREN

doing marketing and outreach for them – they expressed that they wanted to know when BayREN was doing outreach so that they could complement BayREN's efforts, but they don't necessarily need to know about or partner on every BayREN outreach effort. Local events appeared to be the best place to coordinate, and many were not aware of BayREN's past efforts attending events in their cities (even though BayREN had attended the specific events mentioned by a city). One city indicated that they have held workshops and would like a better sense of whether people are following up. There is generally agreement that the following would be very useful:

- *Pre-made Outreach* – Cities would like language that they can put in eNewsletters and copy-and-paste-able links to new information/outreach that they can just send to their webmaster. This should be "turnkey" for their community and ideally would be provided quarterly. This is generally best sent to some form of a champion within the city (rather than direct to a communications team) because the city needs to have someone buy-in to the content and legitimacy of BayREN as an organization.

One suggestion was met with mixed feelings:

- *Co-branded materials* – Some cities were open to co-branding to make the BayREN programs feel more like city programs. This was a concept that some cities were very interested in, but at least one thought it was better for BayREN to put out the materials because the city would not feel comfortable putting their logo/colors on the programs and/or they would have difficulty getting approval to do so.

Some expressed a need for:

- *Materials translated into Spanish and other language[15]s* – For some communities, such as San Pablo, outreach in Spanish is critical, and they need in-language materials. For other cities like Milpitas, they would benefit from materials in multiple languages, and identified that in-language materials is a gap. This included both general outreach to residents and businesses as well as to contractors.

Some cities also offered specific comments on the value of various potential channels:

- *Workshops or other residential outreach* – Some cities expressed that they traditionally have done energy efficiency workshops with BayREN and could do more workshops. One expressed that the city is tired of putting together community workshops where nobody shows up and suggested that BayREN could work with Meals on Wheels to get out information or attend events and festivals. Another indicated that "only doing one workshop per year doesn't keep the programs top of mind," and suggested that BayREN should have a bigger presence in the city on a more regular basis, perhaps through pop-ups and movie nights.

- *Permit counter and permitting activities* – Cities want to reach residents and contractors at the right times, and some felt that intercepting residents and contractors at the permit counter (and helping encourage people to come to the counter because they sometimes don't) would be useful. For some cities that require contractors to have a local business permit, they could use that process to reach out to the contractors. Another city mentioned having a handout with rebate-information at the counter that contractors can take and share with their customers.

- *Chamber of Commerce* – One city mentioned that the Chamber of Commerce or the economic development person within a city is good way to contact small and medium businesses.

3. Technical Assistance (EE and Beyond)

Several cities also expressed a need for technical support with many of the types of support mentioned going beyond energy efficiency. Several cities mentioned that they are thinking about the next version of their Climate Action Plans (CAPs) and tend to need development support, including assistance understanding new technologies like renewables

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[15] BayREN does translate some materials. Some cities were not aware of this offering.

and batteries. Respondents noted that it "doesn't make sense for cities to be doing this on their own so some centralized group that can help all cities would be greatly appreciated."

Cities specifically mentioned the following (again, in no particular order):

- *Assistance with updating CAPs* – A few of the cities indicated that they could use assistance updating their CAP. Many of the past CAPs are old – pre-dating BayREN.

- *AB 802 and benchmarking support* – A couple of cities mentioned the need for support for benchmarking, with one city directly mentioning AB 802.[16]

  o One city was looking for BayREN and other regional partners to help with audits/benchmarking at the time of sale. Another is hoping to extend the state level benchmarking program down to smaller buildings and add in an auditing component. A third wanted support for energy and water benchmarking and auditing of small and medium business to align with city ordinances.

  o Related to AB 802 support, according to one city, all multi-dwelling units have to disclose energy usage but city (and building owners) don't know what to do. "If BayREN can help educate multi-dwelling units, that would be a great help." They suggested step-by-step materials in English and Spanish that the city can pass out, or a co-branded letter, in English and Spanish, that the city will send out to all their buildings; information about the rebate programs could also be included. Note that a few cities that were directly asked about AB 802 this were unfamiliar with it or any requirements for the city.

  o Another city mentioned that they find the benchmarking portal difficult to use and would like BayREN's help so they could do a more effective job benchmarking.

- *Information on electrification and fuel switching* – Several cities expressed that they need help understanding the implications of electrification or fuel switching on their communities. The cities don't understand what it would take, and what the implications of electrification would be. They need technical support to understand the costs and impacts so that they can make policy decisions. Information that could help them answer questions such as "What would this mean to the community? How would it change construction costs?" One city wanted "a better understanding of how to reduce natural gas" and two cities referred to Boulder Comfort 365[17] as an example program. Another city indicated that they are working with their local CCA on electrification and would not want to have overlapping assistance.

- *Help institutionalizing energy efficiency* – Several cities also mentioned the need for technical support to institutionalize energy efficiency (or precursors to electrification). One mentioned needing help to track projects and help guide conservations and decisions regarding EE and electrification. The respondent gave an example of a city designing a new municipal building and trying early in the process to get the city's project manager to consider an all-electric design. But a later follow up made it appear to be past the time to intervene with design, which was frustrating. According to the respondent, "Even with an adopted policy and program, getting it institutionalized takes a lot more effort." We note that this comment referred specifically to projects in municipal buildings.

- *Additional codes support such as step-by-step Title 24 information and Spanish-language resources* – Some cities expressed a desire for step-by-step material to educate building owners and contractors about what to do to meet Title 24. They desire "information to walk people through the process." One mentioned the challenge of Title 24, i.e. "no one is enforcing" and that this is particularly bad in disadvantaged communities. According to the cities, the trainings are good, but the cities need help with materials that they can give to

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[16] AB802 (Williams) requires benchmarking of all commercial and multifamily buildings over 50,000 square foot with the California Energy Commission maintaining information and disclosure of benchmarked buildings.

[17] We think this may refer to Boulder's Comfort365 program (https://bouldercolorado.gov/climate/comfort365).

residents and contractors to extend the value of the training beyond the day of the training. Some also felt that there is a challenge educating building owners and contractors about how to get your project into the Home Energy Rating System (HERS) registry, and that they wanted help translating the HERS registry and the ePermit tool into Spanish. "HERS registry needs to be in Spanish, and people need help with access to a computer." For one city, the ePermit tool needs to be in Spanish because 60% of their population is Spanish speaking.

- *Additional ZNE support* – One city mentioned that they would like to see a robust Zero Net Energy (ZNE) retrofit program for commercial buildings that provides technical assistance and subsidies for projects. (BayREN already offers support for ZNE through their Codes and Standards offerings.)

4. Rebates and Project Funding

In addition, a couple of cities mentioned the need for direct capital assistance (that is, rebates for equipment or money to support program efforts), such as support for installing more EV charging stations in the city, electrification-programs, rebates for air sealing and insulation, or more funding for energy efficiency (generally). We note that BayREN does offer some rebates. Cities answered based on their understanding of BayREN, and generally were not well informed about BayREN's current rebates.

To support electrification, one city felt that they needed more rebates to support the installation of air sealing and insulation in communities with historic underinvestment in the housing stock. The city expressed that these measures are critical prior to installing larger electrification-related items like heat pumps. They also mentioned the need for panel upgrades, especially in older homes. Another expressed wanting an incentive program that focuses on panel upgrades first to support electrification in the communities and then allows adding insulation to homes as that is the energy efficiency measure that the city is most interested in.

The City of San Francisco mentioned that the timing of making design decisions and identifying funding to support higher efficiency buildings is critical. They work to braid multiple efforts and funding sources, and would need someone from BayREN at the table earlier on to help them understand what money is available and could be committed to energy efficiency when they go into retrofit the existing housing stock (working with the Association for Energy Affordability (AEA), LIWP, San Francisco city funding for windows and others).[18] For them, after-the-fact rebates are not helpful.

We note that while these efforts can enable energy savings and GHG reductions at some level, the needs of the cities often relate to electrification, decarbonization of buildings, resiliency, and other areas that are tangential to the traditional energy efficiency programs funded by ratepayers.

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[18] Note that AEA doesn't currently work directly with San Francisco Department of Environment on BayREN multi-family projects.

Connections to the CPUC, PG&E and CCAs

BayREN has a strong and very positive relationship with both PG&E and CPUC staff. However, while there is continued support for BayREN (and recognition that they provide valuable services), the specific value proposition of BayREN isn't clear to some outside parties. BayREN's original role was partially defined by the three authorizing criteria, but the CPUC directives did not provide a clear indication of what the outcomes should be or how BayREN's accomplishments would be measured (that is, there was no stated ruler by which to assess the success of a REN). In 2018, BayREN put forth a new vision, which is emerging amidst a changing landscape.

BayREN in Context: The Landscape

Grounded Research conducted an analysis of the landscape surrounding the BayREN organization and network. This included understanding the origin of the RENs (and BayREN in particular), and the changes that have occurred since BayREN's inception in 2012. The three bullets and the figure below summarize the landscape surrounding BayREN.

CPUC Directives to the RENs – BayREN was established in 2012 under D.12-11-015. In this Decision, the CPUC directed the RENs to: (1) fill gaps that the investor-owned utilities (IOUs) are not serving; (2) develop programs for hard-to-reach markets; and (3) pilot new approaches to programs that may have the ability to scale and offer innovative avenues to energy savings. Currently, these three directives essentially define the role (very broadly) that BayREN plays. We note that while the CPUC gave RENs these three broad areas, they did not provide a clear indication of what was expected or how the CPUC would measure RENs success in these areas. (We presume that they expected that each REN would put this forth given their specific focus.)

BayREN's Vision from the Business Plan – As BayREN looks to the future, the organization seeks to align with state and local policies, serve the Bay Area communities and reach their stated vision, which the BayREN Business Plan describes as follows:

> *The BayREN is a critical part of the solution for the state's reliable and sustainable energy future that considers water, greenhouse gases, and resiliency. By uniting and coordinating multiple efforts at a regional level, and delivering these integrated solutions, the BayREN will help the State meet our aggressive goals related to climate change.* [19]

This vision points to a BayREN role that is both broad and integrated across state and local energy-related needs.

The Changing Landscape – Since the establishment of BayREN the landscape has changed: additional community-choice aggregators (CCAs in addition to MCE) have been established; and the CPUC, when approving the program administrators' (PA) Business Plans, directed the IOUs to innovate by outsourcing 60% of their portfolios to third-parties, and focus more on cost-effectiveness resulting in significant reductions in PG&E's Energy Watch programs. More recently, there has also been a greater statewide focus on decarbonization and electrification, including a CPUC Decision[20] that now allows for fuel substitution in energy efficiency programs.

The figure below depicts some of the biggest changes.

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[19] From BayREN's Business Plan page 1.12 Figure 1.2.
[20] D.19-08-009

Figure 4. The Changing BayREN Landscape

CPUC directive to RENs and MCE (PG&E's LGP program already established)
BayREN established
2012

Programs Change Focus; Budgets Cut
Business Plans for Rolling Portfolio approved, CPUC directs IOUs to outsource more programs to 3Ps and improve cost-effectiveness, leading to a more focused LGP program.
Defintion of HTR is changed
2018

CPUC Seeks Information on REN Value and Progress
Feb/March - Questions raised by CPUC re RENs in ALJ's ruling seeking comments on the future of RENs resulting in D.19-12-021.
2019

2014-2017
New Players
Additional CCAs established
Sonoma Clean Power (2014); SVCE (2016); EBCE (2016); SJCE (2017)

2019
Decarbonization and Electrification More important
Jan. - CPUC instituted a new rulemaking on building decarbonization (R.19-01-011).
Aug.- Three-prong test modified

Present

In 2019, an ALJ Ruling sought comments on the value of the RENs. A wide array of comments was submitted by stakeholders, and based on the ALJ's review of the comments, CPUC staff have informally asked BayREN (and all RENs) to explicate the value that they provide to the energy efficiency portfolio. CPUC staff have also asked BayREN to recommend additional metrics or indicators that will allow BayREN to demonstrate this value. While a recent decision (D.19-12-021) authorized the continued operation of RENs and removal of pilot status, there is still a need to describe each REN's value and develop metrics to demonstrate this value (discussed more below).

Coordination with the CPUC and External Partners

BayREN has a strong and very positive relationship with both PG&E and CPUC staff. Both understand BayREN's value and programs; however, according to CPUC staff, it is difficult to judge the success of BayREN's efforts. Moreover, at the ALJ level, the CPUC sought comments regarding the RENs and specifically asked, "What unique value do RENs bring, if any, compared to CCA or LGP programs?" While these questions apply to all RENs—not just BayREN—there appears to be a need to clearly describe both BayREN's role *and* successes. Based on the comments from stakeholders, there is a lot of support for RENs, but there is also a need to better explain each REN's role.

According to both PG&E and CPUC staff, BayREN is specifically able to assist customers that PG&E is unable to help because many projects (and needs) are not cost-effective. PG&E's LGP program is evolving, and as it changes, there are activities that PG&E conducted in the past that they are no longer planning to undertake due to the restrictions.

BayREN has regular meetings with PG&E (their fiscal agent) to ensure a general level of coordination, but the program-to-program meetings are more sporadic, primarily because of the turnover of PG&E staff and PG&E programs. In general, both PG&E and BayREN reported a good level of communication and that additional coordination would require additional resources without a lot of additional benefit.

BayREN also maintains a robust level of communication with MCE. They meet regularly with MCE and have recently worked to ensure that their multi-family programs are both complementary and coordinated in their implementation. They also collaborate on several innovative efforts, such as work on heat pump water heaters (HPWH).

BayREN has also reached out to the newer CCAs to start to determine the best ways to coordinate. In May 2019, BayREN held a "meet-and-greet" with CCAs and BayREN is seeking to coordinate more as CCAs become more established. Based on informal discussions with some of the CCAs that overlap with BayREN, in mid-2019 many were

not aware of BayREN's specific role (although they knew about the organization and their focus on energy efficiency). One of the CCAs also expressed that they are skeptical that BayREN has the technical expertise to play a strong role in specific energy-efficiency related areas where they may need support, such as the installation of HPWHs (although they expressed that the BayREN member leading this effort, StopWaste has the expertise).

Going forward BayREN will continue to complete an annual Joint Cooperation Memo (JCM) with PG&E and will initiate a process of completing a JCM with MCE and any other CCA that receives funding from the CPUC. This revised process was directed by the CPUC in D.19-12-02.

Recommendations

Overall, the process evaluation findings support recommendations to fortify BayREN's internal administrative and program network structure, to continue to build up connections to local jurisdictions, and to more clearly lay out BayREN's value to the state.

Continue to enhance connections to local jurisdictions

BayREN already has some connections and information sharing with cities, but these processes can be further enhanced.

Notably, many of the needs identified by cities—such as requests for technical assistance or policy support—can be accommodated through BayREN's existing program offerings. However, BayREN should seek to connect and engage communities even more so that the cities know what BayREN has to offer. In support of this, we recommend that BayREN:

- *Build up the communication channels to cities* **–** This will enable better information sharing, extended research of BayREN services[21], and also amplify the impacts to help BayREN more effectively meet both city and BayREN goals. BayREN should provide more information from BayREN to the 110 jurisdictions to help cities understand the services available through BayREN programs. This should include establishing additional ways for getting information to cities (e.g., a webinar quarterly, or community-level information that can be shared with local governments in a form that can immediately be placed on a local government's website or in a local newsletter). Notably, as programs become even more targeted, marketing and outreach for the community will also need to be more targeted and the general communication channels need to be streamlined.

- *Track CAPs and/or sustainability and resilience goals of local jurisdictions* **–** We also recommend proactively trying to better understand local needs associated with each city's climate action planning. This may include opening communications between the BayREN member and each of their local jurisdiction's community's climate action planning process. While BAAQMD is often thought of as the major supporter of the CAPs[22], BayREN is also an important actor and can provide some CAP support, such as additional project support and/or county-specific project data on greenhouse gas reductions due to BayREN projects. We note that this type of CAP support would be sporadic (not all at once) since the cities tend to have varying timelines for updating their CAPs or related sustainability goals (and not all cities even have a CAP). BayREN's current regional effort on HPWH and electrification already support these goals.[23]

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[21] Even if a city is well positioned to do this work, they may not be resourced to.

[22] This support may have stopped by 2020.

[23] Some counties have structures already set up to do this (RICAPS, StopWaste, RCPA, MCEP) so good to look to them for examples and to understand how best to support.

Fortify BayREN's internal administrative and program network

To help BayREN increase coordination and communication both internally and with local partners, we recommend strengthening cross-program[24] administrative help within BayREN and bifurcating that support to help members with different needs. We also recommend strengthening program-to-county communications.

- *Build up ABAG's centralized support for programs and members* so that member and program representatives can do more, reach more cities and people within these cities, and achieve more

  - BayREN should strengthen their centralized administrative help to support the nine members and six programs. This may include ensuring that BayREN information, new programs, or successes are communicated through the member representatives to their local jurisdictions. For example, rather than having each county create their own webinars or outreach materials about new program features, the centralized staff person can help create and distribute materials to all member representatives so that they have easily accessible materials to help them build up relationships with local jurisdictions. The members could co-brand or otherwise tailor the regional materials to best fit with their jurisdictions. We note that the member representative to local jurisdiction connections are important and, in fact, these connections are the central tenant of the BayREN structure and should be maintained and enhanced. The centralized administrative help should support member representatives—not directly communicate to local jurisdictions.

  - Additional centralized support should occur at two levels (one to help members with less formal communication channels and one to help those with stronger communication channels). This bifurcation will enable BayREN to help members with different needs. For example, members with established versus diffuse communication networks tend to require very different levels of support (e.g., cities within a county that have sustainability leads who attend regular county meetings require a different level of support than cities where communication with city staff occurs in a more ad hoc fashion). This will be particularly important as BayREN programs become more targeted and require more specific links to communities (such as moderate-income) or specific departments (such as public health agencies).

- *Strengthen program-to-county connections (specifically communication and coordination with the counties' member representatives)*

  - This could include: holding annual program meetings to inform the BayREN member counties about program changes and annual program goals, intentionally discussing program-specific goals for each county[25], and ensuring that all programs find ways to tap into member representative networks where relevant to ensure that they are utilizing the unique levers that the BayREN network provides to the programs.

In addition, BayREN should continue to coordinate with PG&E, MCE and CCAs since this will also be critical for maintaining a strong network.

More clearly lay out BayREN's value to the state

Given the changing landscape, the current discussions between RENs and the CPUC, and the state policy objectives, we recommend that BayREN further define their role. Specifically, we recommend that they:

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[24] Cross-program refers to help that cuts across all six BayREN programs.
[25] We note that county-specific goals will not be needed for all counties, but programs should at least intentionally think about each individual county once per year before establishing their program goals.

- *Define BayREN* in terms of what the BayREN portfolio is trying to accomplish rather than defining it by the three CPUC directives, which provided only a broad direction (and an indication of what is not wanted, e.g., duplication with others)
    - BayREN should define two to five key areas where they provide unique value to the state (i.e., BayREN value pillars). Once these are established, BayREN should develop "value metrics" that speak to BayREN's unique value. Note that this is the work that is described in the next section of this report.

As part of this process evaluation, the evaluation team worked closely with the BayREN members to explicate the value of the organization and start to determine the right metrics for demonstrating the value that BayREN provides to the state. This is an ongoing effort. The initial steps for this process are described under Stage 2 below.

The next chapter lays out a roadmap for BayREN's 2020 work in this area. It also offers recommendations for the types of metrics that could help to describe BayREN's value. In addition to this work, we recommend ongoing discussions with the CPUC to ensure that BayREN is continues to meet the needs of the state.

BayREN Moving Forward (Stage 2)

The evaluation team used the information from Stage 1 to inform Stage 2. In Stage 2, the BayREN members were part of an interactive process to surface and test ideas about the core value that BayREN provides to the state.

To start to clarify BayREN's value, the evaluation team looked both at the role that the RENs have been asked to play by the CPUC, as well as what BayREN is actively doing. The evaluation team presented several possible options to BayREN members to get their initial feedback and narrow the description of BayREN's value. Through an iterative process with the BayREN members, the evaluation team developed a proposed Overarching Value Construct for BayREN's reflection (and potential future adoption).

This section of the evaluation report reflects a proposed model as a recommendation from the evaluation team. The evaluation team expects that BayREN will adopt some elements and drop or revise others. Adopted element(s) may show up in BayREN's future annual reporting, metrics submissions and future revisions to BayREN's Business Plan and programs.

Defining BayREN's Overarching Value

BayREN is working to bridge a gap between resource-constrained local governments and state and local policy objectives related to energy efficiency and greenhouse gas reductions. Specifically, BayREN helps to make state policy objectives practical by providing three overarching services (also referred to as BayREN's value pillars):

1. *BayREN builds human and organizational infrastructure within local jurisdictions*
2. *BayREN obtains energy savings[26] through the support of populations where it is otherwise difficult to get savings*
3. *BayREN tests innovative solutions that have the potential to help local jurisdictions*

The Overarching Value Construct is intended to describe how BayREN supports the key objectives of the state. It shows the big picture, connects the pieces, and sets up BayREN's operational level (i.e., roles, program decisions, etc.). It is designed to allow BayREN to more clearly convey their value. Specifically, this Overarching Value Construct seeks to make visible the threads between the state policies that the BayREN efforts support, the local resources and benefits, and key program (or organization) strategies.

Introduction to the Value Construct

The Overarching Value Construct has three components: the anchors (i.e., state policy as the north star, local governments as the foundation), the gap[27] within which BayREN sits, and the value pillars that describe the role of BayREN. Each of these parts is described below. The proposed Overarching Value Construct also builds on BayREN's *primary* strengths as expressed through this process evaluation,[28] which include:

- *Connections to counties and communities* – BayREN allows for direct access to each county via the county (or member) representative that sits on BayREN's Coordinating Circle. This member representative serves as a bridge to the local jurisdictions within their county. The county representative also provides a network through which to access local levers and other outside resources (see description of "local levers" below).

- *Regional governance and program implementation models that allow for flexibility and adaption to the needs of the individual county (and the local jurisdictions that they represent)* – The BayREN model allows for customization for both smaller and larger population areas (for example offering Codes & Standards forums,

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[26] And the related reductions in greenhouse gas emissions.
[27] The gap refers to "activities which IOUs cannot or do not intend to take."
[28] BayREN has several other strengths noted by members, such as being seen as a trusted agent. Our evaluation effort did not collect information in this area.

training, reach codes, or software depending on the city), while also facilitating coordination and information sharing between counties (and the local jurisdictions they represent).

We present the Overarching Value Construct in the figure below. This graphic is described more within this section.

Figure 5. Overarching Value Construct
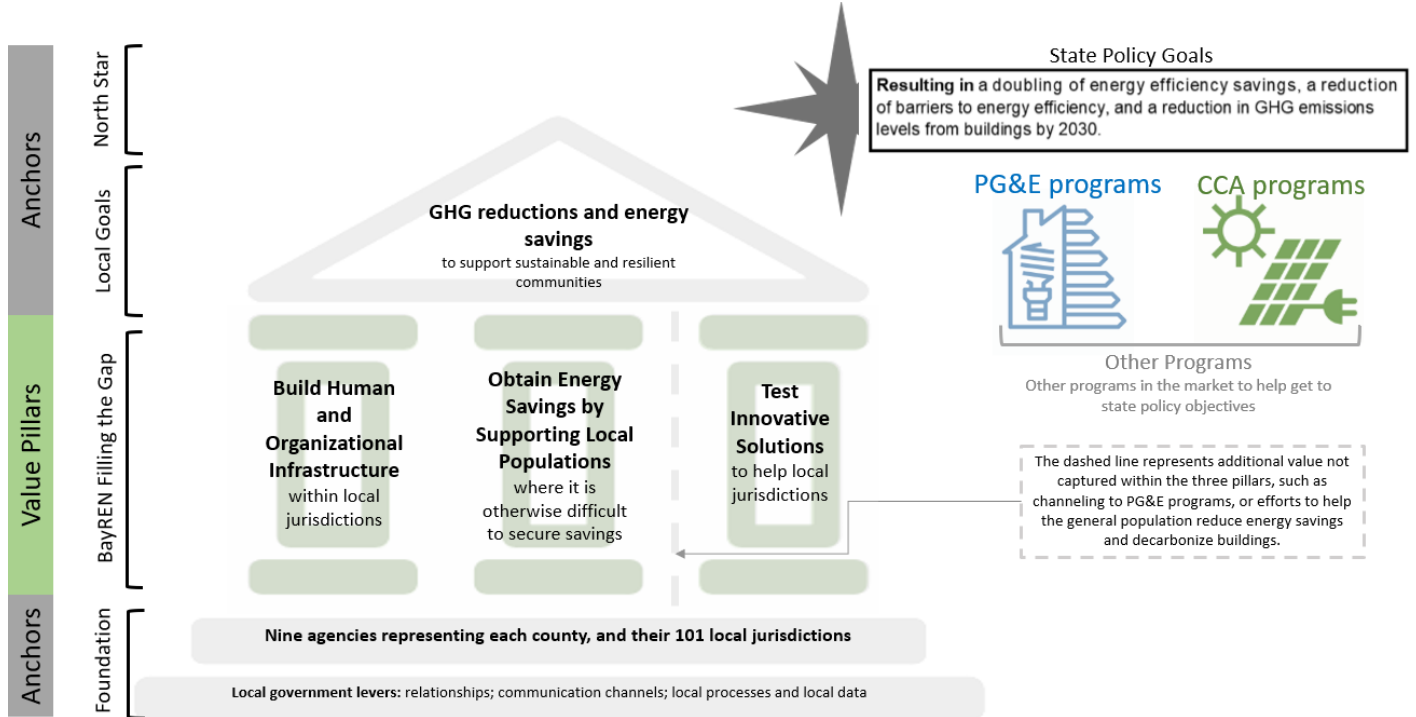
The Anchors

The state and local anchors provide stability to the Overarching Value Construct. At their **foundation**, BayREN's Overarching Value Construct builds on the structure of the local governments/communities. The local governments have common goals (of GHG reductions and energy savings) but limited resources. At the top, state policy goals provide the **North Star** (i.e., the ultimate guide for the energy efficiency space).

State Policy Goals as the North Star

The relevant state goals are laid out in the 2019 California Energy Efficiency Action Plan (adopted December 11, 2019).[29] In this document, the California Energy Commission (CEC) has consolidated their past action plans to form a comprehensive roadmap for achieving the state's energy efficiency and building decarbonization goals. The CEC describes nine major legislative and executive orders signaling the state's priorities for GHG reductions (AB 32, SB 350, AB 802, SB 1414, SB 100, etc.). These are summarized by the CEC in the three circles in the figure below, specifically: (1) Doubling energy efficiency savings by 2030, (2) Expanding energy efficiency in low-income and disadvantaged communities, and (3) Decarbonizing buildings. The overall goal is doubling energy efficiency savings, a

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[29] The action plan, developed through numerous workshops throughout the state and incorporating comments from other state agencies, companies, nonprofits and the public, will be updated every other year. (https://ww2.energy.ca.gov/business_meetings/2019_packets/2019-12-11/Item_06_2019%20California%20Energy%20Efficiency%20Action%20Plan%20(19-IEPR-06).pdf viewed January 18, 2020)

reduction of barriers to energy efficiency, and a reduction in GHG emission levels from buildings. This CEC document also describes the role of local governments as "partners" to the state.

Figure 6. State Policy Goals (adopted Dec 11, 2019) as North Star[*]
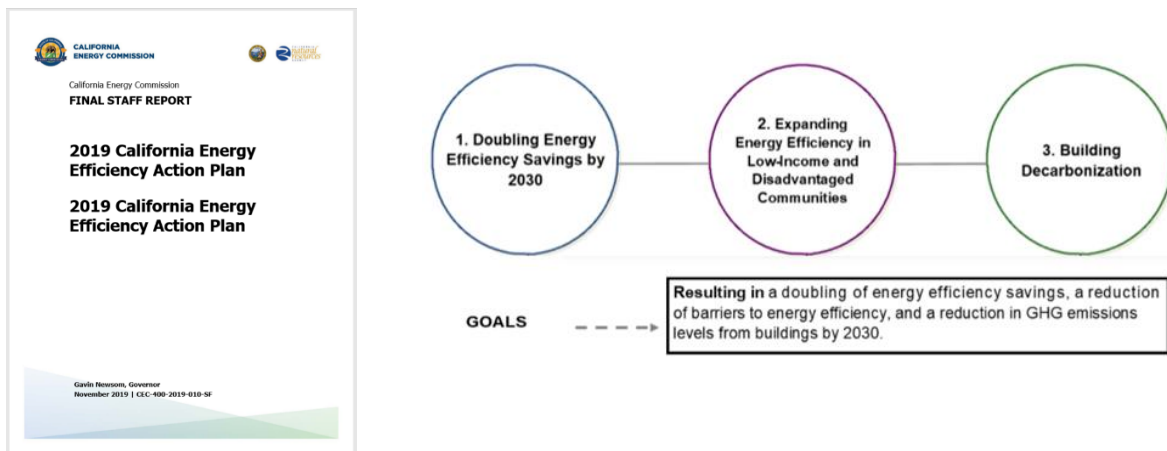
*The figure above is used as a summary figure for California's energy efficiency and building decarbonization goals. We note, however, that there are complementing environmental goals in other areas, such as the state's water goals, which are described in the California Water Action Plan (2016) and Executive Order B-37-16, and the state transportation goals. BayREN considers these as well and uses all of the goals to help guide their efforts.

Local Jurisdiction Goals and the Local Foundation

Local jurisdictions—in particular the 110 local jurisdictions served by BayREN—are the foundation of BayREN's value construct. These local governments have common goals around reducing GHG emissions in their communities to enable a sustainable and resilient future. While there are differences across local jurisdictions, in general, local governments have authority over planning, development, municipal and community activities that can significantly affect greenhouse gas emissions[30], and thus need to play a role in meeting state goals. This is why the CPUC saw the need for involving local governments more directly in administering energy efficiency programs through the REN model.

As described in our Stage 1 research, local governments (both through the BayREN member representatives and through connections to the 110 local jurisdictions) offer unique relationships, communication channels, existing local programs and processes, data, and community members that can be tapped into by the members. These include (but are not limited to):

- Existing relationships, with
  - Public Works Departments and sustainability staff
  - Building departments
  - Assessor departments
  - Local Government (LG) agencies, such as the Municipal Water Agencies and Public Health agencies
  - Elected and appointed officials
  - Affordable housing agencies and other community-based organizations
  - Community Choice Aggregators (CCAs)
  - California Air Resources Board (CARB) and other state departments
- Communication channels such as waste management or tax mailings, local events, existing websites, etc. These allow for communication to trade allies, businesses, property owners or residential customers.

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[30] ww3.arb.ca.gov/cc/local government/localgovernment.htm

- Existing local government programs such as
  - Green business programs
  - Small business finance assistance
- Networks such as
  - Local Government Sustainable Energy Coalition (LGSEC)
  - Bay Area Climate Adaptation Network (BayCAN)
  - Urban Sustainability Directors Network (USDN)
  - Joint Venture Silicon Valley (JVSV)
- Processes, such as
  - Permitting
  - Annual business license processes
  - Processes creating local energy policies
  - Climate action plan processes
  - Processes to connect with homeowners at the time-of-sale or provision of other homeowner-facing services, such as earthquake retrofits linked to energy efficiency retrofits
- Data
  - GHG inventory data from BAAQMD
  - Consumption Based Inventory Data from UC Berkeley
  - County Public Health Data
  - Permitting information (and permit desk interactions)
  - Parcel data/property data
  - County assessor data
  - Housing and transportation data from ABAG
- Community members including youth populations

We refer to these as "local government levers." These are resources that can be readily utilized in BayREN programs because of the BayREN model.

In addition to these local government resources, BayREN is also able to tap into outside funding sources that are available to local governments and other organizations, but that are less likely to be leveraged by IOUs (e.g., grants from BAAQMD). We document some of the coordination with outside funding sources in Table 9 and Table 10.

The Gap - Defining the Need that BayREN Seeks to Fill[31]

BayREN is instructed fill a gap not filled by the IOUs (and now, CCAs). Through discussions with BayREN, the "gap" that they seek to fill is the difficulty local governments have in supporting complex statewide energy policy needs.

PG&E has energy efficiency efforts that focus on the most cost-effective opportunities. PG&E also offers low-income energy efficiency programs to serve lower income populations. The efforts of PG&E (and the third parties that they oversee) focus on specific populations and measures and tend to be short-term projects. PG&E (and their third party) programs are limited in what they are able to accomplish given the restriction to maintain a portfolio with a TRC that is greater than 1.0, resulting in a focus on activities with the most immediate and easily measurable energy impacts.

Community Choice Aggregators (CCAs) are also working to support state policy goals. Several CCAs, under the jurisdiction of their own boards, are pursuing electrification goals. However, these focus on a smaller geographic area

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[31] Note that the CPUC also wants to ensure that there is no duplication of efforts between IOUs, CCAs, and the RENs. The RENs work with the IOUs (and will work with MCE and other CCAs in the future) to complete and file a Joint Cooperation Memo (JCM) that ensures that there is no duplication of efforts.

than BayREN which can lead to fragmented efforts, and not all of the CCAs include support for energy efficiency programs.

As such, there is a gap between the aggressive state goals, and the ability of the market and Program Administrators (PAs) (such as PG&E and the CCAs) to meet these goals. BayREN counties are positioned to augment existing efforts and help meet the needs of local governments as they seek to reduce greenhouse gas emissions in their jurisdictions.

As described in BayREN's Business Plan, BayREN provides a regional solution that better connects to local communities and conditions than is typically possible from a large utility. In addition, BayREN provides services across the entire Bay Area—providing a regional approach that smaller programs cannot match. BayREN's structure as a collaboration of nine counties makes them uniquely able to make connections to the 101 local governments in the Bay Area[32].

The Value Pillars

To clarify BayREN's value, the evaluation team looked both at the role that the RENs have been asked to play by the CPUC, as well as what BayREN is actively doing. Overall, we found that there are three central ways in which BayREN seeks to fill the aforementioned need:

1. BayREN builds human and organizational infrastructure within local jurisdictions
2. BayREN obtains energy savings through the support of populations where it is otherwise difficult to get savings
3. BayREN tests innovative solutions that have the potential to help local jurisdictions

We refer to these as BayREN's value pillars. Each of these is defined further below. We also note that while these three pillars capture the *main* value, they do not necessarily capture all possible areas of BayREN value (e.g., channeling customers to PG&E program or serving the general population within their region).

Building Human and Organizational Infrastructure

BayREN builds human and organizational infrastructure within local jurisdictions (often referred to as capacity building)[33] so that these local governments are able to better meet the state and local energy efficiency and GHG reduction goals. Building human and organizational infrastructure refers to the fact that after the BayREN intervention, the change that is left behind has the ability to lead to savings in the future.[34] Examples of activities in this category include:

- Training and supporting local government staff including building departments, health agencies, public works or sustainability staff so they are able to encourage and support energy efficiency within their local jurisdiction

- Educating trade allies that serve the region, such as training of HVAC contractors or plumbers so that they are better equipped to serve the community's decarbonization or electrification needs with the local jurisdiction

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[32] Specifically, the cities and towns, so number does not include the 9 county local governments that serve as the conduit to the cities and towns.

[33] Capacity building is the process by which individuals and organizations obtain, improve, and retain the skills, knowledge, tools, equipment and other resources needed to do their jobs to a greater capacity (larger scale, larger audience, larger impact, etc.). In this case, BayREN is building capacity that will facilitate energy efficiency and GHG emission reductions.

[34] This is beyond "second-year savings" from any project that may occur. For example, when a building official is trained and changes their practices, they have the ability to affect additional buildings/projects each year, so the investment is compounded over time.

- Helping to develop and support reach codes or policies that affect the community as a whole (i.e., community infrastructure) that can lead to long-term and consistent savings in additional buildings each year

- Providing tools for local government staff to use, such as software tools (e.g., CodeCycle) that help ensure savings from each new project submitted to a building department

- Including youth in programs to provide job skills

- Building networks for information sharing and collaboration between agencies and local jurisdictions so that individuals within these agencies and local governments (who oversee decisions that can either support or limit savings) change their behaviors to more actively support energy efficiency and GHG emission reductions

We categorize these activities as efforts that help to build human and organizational infrastructure within local jurisdictions in order to support the achievement of deeper energy savings and greenhouse gas emission reductions within the community. The building of human and organizational infrastructure may occur within the local government, within a specific market that serves the community, and/or within the community as a whole.

Obtaining Energy Savings by Supporting Populations where it is Difficult to Get Savings

BayREN attempts to reach populations that are not well served by existing programs because the types of programs offered do not provide cost-effective savings within their homes or businesses (e.g., air conditioning programs in areas with few cooling needs), or their existing offerings are not easily attainable by these groups of customers. While these populations do not always meet the CPUC's current definition of hard-to-serve[35], it is difficult to obtain savings within these groups.

Some of these populations that are targeted by BayREN's programs include:

- Single-family moderate income
- Renters
- Multi-family NOAH buildings (i.e., naturally occurring affordable housing with low-income families living in a certain percentage of the building, also known as "unintended low-income")
- Small and medium businesses
- Households and businesses within disadvantaged communities

BayREN's single family program is one example of a BayREN program design that targets a population that is difficult to serve. As detailed in the Business Plan, BayREN targets moderate income households, defined as having incomes between $48,000 and $125,000, and includes both homeowners and renters. In the Bay Area, this represents 34% of owner-occupied homes and another 30% of all single-family rentals. A 2016 American Council for an Energy-Efficient Economy (ACEEE) study[36] found that of 66 California Energy Efficiency programs analyzed, there was a large gap in services particularly for the moderate-income population. With increased cost-effectiveness requirements for the IOUs, it is unlikely that this large population of ratepayers would be served without the BayREN program.

Several of these populations, including multi-family and low- to moderate-income residential, as well as small commercial, were identified by the CPUC in D.12-11-015 as "needing all the help they can get to achieve successful energy efficiency savings." While the CPUC has decided not to expand the criteria for RENs to include "underserved" customer segments since "underserved" has not been adequately defined, these populations appear to sit within the

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[35] This is especially true since the change in HTR definition in D.18-05-041 after which BayREN, by definition, did not have HTR markets given the geographic exclusion.
[36] Marti Frank, Evaluation + Strategy for Social Innovation and Seth Nowak, American Council for an Energy-Efficient Economy. 2016. "Who's Participating and Who's Not? The Unintended Consequences of Untargeted Programs." ACEEE Conference.

gap that is not currently being served by PG&E and other program administrators. There is an ongoing discussion with the CPUC about the definition of "underserved." This document does not weigh in on that discussion.[37]

Note that the populations described here are not those within the hard-to-reach (HTR) definition set by the CPUC as BayREN has little to no HTR using the CPUC definition.[38] This evaluation does not attempt to address the disconnect between HTR and the populations served by BayREN; but we note that BayREN is having these discussions with the CPUC and stakeholders. However, this value pillar comports with the information in D.18-05-041, which says:

> The Commission has grappled with defining hard-to-reach, or the closely related and often interchangeably used term "underserved," since as early as the late 1990's. (See, e.g., D.00-07-017, at 79, and D.01-01-060 at 4, 9 and 29; and D.01-11-066, at 3, 6-7.) The Commission's primary concern at that time was that the utility programs were not making progress in expanding program reach into the customer segments that had historically not participated in ratepayer-funded energy efficiency programs at the level of their representation as ratepayers. The Commission also recognized that "underserved" or "hard-to-reach" are not static terms, and that a particular customer or market-segment, once targeted for program participation, is no longer underserved relative to others that program administrators have yet to target. (See D.18-05-041, at page 44.)

For the purposes of this document, we describe this group as "populations where it is difficult to get savings" and we make the case that regardless of whether the HTR definition is expanded, this is a population that falls within the gap since to reach state policy goals, it will require all populations within a local jurisdiction (not just those with cost-effective projects). On their own, local governments are not able to support populations where it is difficult to get energy savings. BayREN programs seek to obtain savings within populations where it has historically been difficult to garner those savings.

Testing Innovative Solutions

Over the past seven years, BayREN has actively tested various solutions for obtaining more energy savings and has begun to scale some of these pilots up to the region. These activities have bubbled up from local government discussions and needs.

These efforts are aligned with the CPUC directive to "pilot activities where there is no current utility program offering, and where there is potential for scalability to a broader geographic region." The original language from the CPUC directive goes on to state that "In this case, the concept would be to test program delivery that is different or unique, for potential to be scaled up to a statewide approach delivered either by RENs and/or by utilities in the future." In particular, BayREN's current efforts that fall into this category include:

- *Water Bill Savings Program* - The BayREN Water Bill Savings program is an on-bill financing program that is a joint effort of Bay Area cities and counties, and their water agencies, to provide a unique on-bill program that allows municipal water utility customers to pay for improvements through a monthly charge attached to their meter with little to no up-front costs. After piloting this effort in three cities for several years, BayREN is now beginning to scale it to the region.

- *Green Labeling* - The Green Labeling program enables market recognition of the value of a green home during real estate transactions. It offers Department of Energy's Home Energy Score program, assessment

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[37] Note that as we explore which populations BayREN wishes to target, we will work with BayREN to document that these populations are underserved.
[38] Hard to reach is clarified as following Resolution G-3497's definition but including disadvantaged communities as defined by CalEPA's CalEnviroScreen 3.0 in the geographic criteria.

incentives, and real estate sector education. BayREN tested this effort under the single-family program and is now offering this as a full-scale program that can serve the region (and beyond).

- *Regional Heat Pump Water Heater Program Design Initiative* **-** With a BAAQMD Grant, BayREN (led by StopWaste and in partnership with the City of Palo Alto and Sonoma Clean Power) is working to establish uniform program design that can be supported by local energy providers and demonstrate Bay Area's political will to scale up the HPWH market. This work includes designing a midstream incentive for HPWHs, engaging local energy providers (CCAs and Publicly Owned Utilities), engaging HPWH supply chain actors, supporting workforce education, and cross-promoting with other complementary programs. The connections alone are helping to facilitate this work.

- *Decarbonization Pathways within Multi-family and Single-Family Programs[39]*

  o Within the Single-family program, BayREN is layering program incentives with the midstream incentives noted above, promoting decarbonization-related trainings to contractors, and working with other programs (such as the Codes and Standards program) to establish options that will help move toward a sustainable energy future.
  o Within the Multi-family program, BayREN is establishing a Clean Heating Pathway designed for properties that wish to demonstrate climate leadership by deeply reducing the carbon emissions from energy use in their buildings. This effort is working to educate multi-family property owners about zero net carbon options.

The specific innovative solutions supported by BayREN may vary over time, but in general this category of activities supports forward-looking solutions that can contribute to state goals. Note that the types of metrics for an activity in this category would be different than for a typical program. We discuss the metrics for this area more below.

Metrics for the Future

BayREN is in the process of setting up metrics that will complement the ones that the CPUC currently requires from all program administrators. These metrics will allow BayREN to more clearly demonstrate the organization's value in helping to achieve the state's goals. This is an ongoing effort, with additional work planned for Q1 2020.

BayREN is working to adopt an evaluation approach that both reports on the metrics that the CPUC requires from all program administrators, while also reporting additional BayREN-specific metrics that clearly articulate the measurable value that BayREN provides to ratepayers, the Bay Area communities and the state.

For the purposes of this write up, we define three types of metrics for BayREN, including:

- *Compliance Metrics* – These are the metrics that the CPUC requires from all program administrators. They include measurements such as kWh, kW and therms from the BayREN suite of programs. These metrics apply to only some of BayREN's programs.

- *BayREN Value Metrics* – These are the metrics that help demonstrate the value that BayREN provides beyond what is captured by the compliance metrics. These are a new type of metric that Grounded Research is proposing based on multiple discussions with BayREN members. These would include measurements that demonstrate movement towards the three value pillars: 1) improving human or organizational infrastructure within local governments, 2) obtaining energy savings from specific populations where it is difficult to get savings, or 3) advancing innovative solutions beyond what is being done through other IOU efforts.

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[39] Note that this area is also tied to the bullet above.

- *Key Performance Indicators (KPIs)* – These are measurements that can be used to evaluate the success of a program in terms of meeting objectives for performance. This may include measurements such as conversion from marketing efforts, numbers of individuals trained, or number of rebates per county.

This section covers a high-level evaluability-type assessment of BayREN's portfolio with respect to the first two categories of metrics. In this section we review the extent to which the programs and portfolio are responding to the compliance metrics and have the ability to be evaluated under the aforementioned value pillars in a reliable and credible fashion, as well as recommendations for data collection to support future metrics.

In 2020, Grounded Research plans to assist BayREN by ensuring that the organization and the programs lay out the theory (with strong links that show that the theory is plausible), have appropriate baselines, and that they are tracking the right information to demonstrate the organization's value. Given the timing of this report (early 2020), the recommendations below are anticipated to be used prospectively, that is, for the 2020 reporting year.

To the extent possible, future work will also assist the BayREN program leads in ensuring that they have KPIs that will help manage BayREN programs and program implementers.

Required CPUC Compliance Metrics

BayREN reports on slightly over 100 compliance metrics annually. There are five categories of compliance metrics shown in the table below.

Table 5. Annual Compliance Metrics

Metric category	Portfolio	Single Family	Multi-family	Commercial
Energy Savings *(kWh, kW, therms for gross/net savings and annual/lifecycle savings)*	✓	✓	✓	✓
GHG reductions *(metric tons of CO2 avoided)*	✓	✓	✓	✓
Levelized Costs *($/kWh, $/kW, $/therms for both PAC and TRC tests)*	✓	✓	✓	✓
Penetration *(varies by market)*		✓	✓	✓
Average lifecycle savings per participant		✓		

BayREN also has a robust Codes & Standards (C&S) program. The compliance metrics for this area cover energy savings (which BayREN does not claim), reach codes (which are a joint metric with PG&E and are reported by PG&E) and PG&E's Advocacy work (which BayREN does not do). BayREN plans to begin providing information on one C&S metric in the future. According to PY18 filed metrics document, this metric (percentage increase in closed permits for building projects triggering energy code compliance), is one where BayREN expects to test the ability to report on compliance by setting up a subprogram that works with a small number (1-3) of local jurisdictions that are both interested in increasing their permit closure rates and willing to work with BayREN.[40]

Assessment of BayREN's PY18 Filed Metrics

BayREN is fully complying with the metrics required by the CPUC. There are only a few missing items (e.g., target information) and some values may need to be updated. By looking at the metrics that BayREN reports for compliance, we found that:

- The PY18 levelized energy costs were lower than what BayREN targeted in their annual CPUC metrics table

   o The PY18 portfolio spent less than BayREN had targeted to obtain each saved kWh or therms

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[40] Grounded Research will revisit whether this should be a metric for the future. It may be a difficult and expensive option.

- o The PY18 levelized energy costs for kWh were lower in PY18 than in PY17 (46% lower), while the levelized energy cost for therms were slightly higher in PY18 than in PY17 (5% higher)

- The PY18 BayREN portfolio did not meet their energy savings goals

  - o The portfolio brought in 75% (electric net) and 80% (therms net) of the targeted first year savings and ~86% of the targeted lifecycle electric savings

- There are a few metrics that appear to have unrealistic targets

  - o Specifically, the multi-family targets should be revisited since BayREN overachieved on some and underachieved on others

Appendix A: Tracking for Compliance provides the details for each of the points above.

Recommendations for Compliance Metrics

We have only a few recommendations for BayREN to consider within their next set of compliance metrics. BayREN should:

- Revisit several of their multi-family targets (common area natural gas savings, percent of square foot by property, percent of participation by property, and lifecycle ex-ante kW net per property) to ensure that they reflect realistic goals

- Review two of the DAC targets that appeared out of line (first year net kW and lifecycle gross kW targets were set very low)

Grounded Research will work with BayREN throughout Q1 2020 to ensure that information in the compliance metrics is complete, targets seem reasonable, and that notes are provided where appropriate. We expect to pay close attention to the commercial metrics as this will be the first time that BayREN includes them in any filing.

These recommendations are also summarized in Table 11 at the end of this section.

Proposed BayREN Value Metrics

In addition to reviewing the compliance metrics, Grounded Research has also started to work with BayREN to determine what data should be tracked to more clearly demonstrate BayREN's value in helping to achieve the state's goals. Each pillar requires a different level of information as the value is assessed through different populations and methods. The current value pillars (and their respective levels) are:

1. Building Human and Organizational Infrastructure within Local Communities for Long-term Energy/GHG Reductions *(this metric is rolled up to the county or jurisdiction level)*

2. Obtaining Energy Savings by Supporting Populations Where it is Difficult to Get Savings *(this metric is specific to the market being served)*

3. Testing Innovative Solutions *(this metric is at the solution level)*

Note that BayREN considers these values an important foundation to obtaining energy savings in either the short-term or long-term. For the areas where savings will not start to accrue immediately, a critical part to showing value now is to clearly spell out the theory of change for how and why the BayREN activities support the state's energy goals. The theory of change is described more below for those readers who are unfamiliar with this terminology.

> *"**Theory of Change** is essentially a comprehensive description and illustration of how and why a desired change is expected to happen in a particular context. It is focused in particular on mapping out or "filling in" what has been described as the "missing middle" between what a program or change initiative does (its activities or interventions) and how these lead to desired goals being achieved. It does this by first identifying the desired long-term goals and then works back from these to identify all the conditions (outcomes) that must be in place (and how these related to one another causally) for the goals to occur."*

*…"Through this approach the precise link between activities and the achievement of the long-term goals are more fully understood. This leads to better planning, in that activities are linked to a detailed understanding of how change actually happens. It also leads to better evaluation, as it is possible to measure progress towards the achievement of longer-term goals that goes beyond the identification of program outputs. (*https://www.theoryofchange.org/what-is-theory-of-change/*)"*

Below, for each of the three pillars, we review the information in BayREN's existing reporting that could support the pillar, while also providing examples of the types of data that we believe would help demonstrate value for each pillar.

1. Building Human and Organizational Infrastructure within Local Jurisdictions

Activities under this pillar focus on increasing the human and organizational infrastructure within local governments (i.e. increasing ability for jurisdictions, particularly small ones, to engage in energy efficiency). Within BayREN's portfolio, much of this effort occurs in the Codes and Standards program, but there are also other portfolio cross-cutting efforts that work to achieve this endpoint. Additionally, some program efforts may seek to build infrastructure within the region so that they can better serve local jurisdictions.

High-Level Evaluability Assessment

Based on a quick review of the available information and data, BayREN already collects much of the information that would be needed to demonstrate the value being provided in this area. However, BayREN needs to more clearly articulate the theory of change behind these efforts. While the Codes and Standards program has an existing logic model, it should more directly identify the local levers and local outcomes of helping to build local government infrastructure. The written documentation behind the logic model should seek to lay out the theory of change *for each of the program's core activities*.

In 2020, Grounded Research will more systematically assess the available data (by program and for the portfolio as a whole), help revise existing logic models for the programs (and cross-cutting portfolio efforts), document the supporting theory of change that accompanies the models, and give targeted recommendations so that BayREN collects key information in 2020. However, as a starting point for the 2020 work, the table below provides some examples (or a roadmap) for collecting data to support this pillar.

Recommendations for Data Collection and Documentation to Support Targeted Metrics for this Value Pillar

BayREN should define the core activities that help build human and organizational infrastructure within jurisdictions. They should then lay out how the activity supports change, what the expected outcomes are, and why the activity is needed. They should also continue to explore what local infrastructure is needed and what gaps or barriers exist. Below is an example of how BayREN may want to document metrics for this pillar. The information in the table is subject to change as we work more closely with the BayREN members to update the information.

Table 6. Proposed Documentation for Building Human and Organizational Infrastructure – Example Only

Core Activities (program in which the activity takes place)	Theory of Change (examples to be updated through meetings with BayREN)			Metric Data		
	How the activities support change	Expected distal outcome(s)	Why the activity is needed	Details	Details by county	Details by jurisdictions
Forums (Regional) (C&S)	Connects and builds relationships between state, regional, and local stakeholders and represents local concerns to allow them to share best practices and learn about new policies, and programs that can lead to energy savings within their jurisdictions	Participation in a forum provides direct learning about specific things. (These learning or information-sharing outcomes should be collected for each specific forum.) Indirectly (or distal from the direct program activities) these would lead to changes in policies, behaviors or program participation that would support savings.	This information is difficult for local jurisdictions to access and understand how to use within their jurisdiction. Information is limited.	X forums	X counties	X jurisdictions
Training – code compliance training (C&S)	Enables local building department staff to understand requirements and easily identify what they need to do to enforce codes so that the expected savings accrue	Building departments have higher code compliance rates that lead to more savings than would have occurred in the absence of the training.	Code changes are often numerous, difficult to understand, and hard to check in the field. Building Depts are often understaffed and unable to enforce all policies	X trainings	X counties	X jurisdictions
Enhanced Compliance Support (C&S)	Work with local building department staff to help them enforce the energy code through the use of the CodeCycle software tool	Building departments have higher code compliance rates that lead to more savings than would have occurred in the absence of the training.	Building officials do not have time to enforce energy efficiency codes because they need to focus on health and safety issues. This tool quickly identifies where code compliance is not met.	CodeCycle software tool in use	X counties	X jurisdictions
	Etc.					
	Unique counties or jurisdictions served				X Unique counties (% of 9)	X Unique jurisdictions (% of 101 cities)
	*Number of activities in which a unique county or jurisdiction participates					[Create table]

These recommendations are also summarized in Table 11 at the end of this section.

We note that some of the efforts that fall within this value pillar will be cross-cutting,[41] such as the building of staff positions and knowledge within counties and within local jurisdictions as individuals move between government entities. In several cases, BayREN programs (and funding) allowed counties or local jurisdictions to build up human resources (and staff knowledge about energy, energy efficiency, and related efforts). In interviews, member representatives reported both the ability to add staff, and the movement of trained and knowledgeable staff to other local jurisdictions. Staff who were trained by the member representatives and moved to other cities have subsequently helped to deepen the network of knowledge within the new local government. Specifically, five counties provided direct evidence of this occurring:

- *San Francisco* – Hired 4 FTEs as a result of the BayREN commitment and will probably bring another one on as the budget grows through 2025.
- *Santa Clara County* – Hired 2 FTEs as a result of the BayREN commitment.
- *Contra Costa County* – Hired 1 FTE in the Department of Conservation and Development (and previously multiple part-time positions), which was started with ARRA money but able to grow with both recycling and BayREN money. Contra Costa County was also able to grow other positions, such as a sustainability coordinator funded with general funds, due to the commitment by BayREN.
- *San Mateo* – BayREN was critical in establishing San Mateo County's Office of Sustainability. It accelerated the office's growth. One staff person grew out of ARRA, and then two more were added in the 2014-2016 timeframe so overall, hired 3 FTEs with the support of the BayREN programs. One of the BayREN people went to Daly City and one to San Mateo, enabling information to then reside within these cities.
- *Marin County* – From a combination of all EE efforts, including BayREN, two jurisdictions within Marin County have added staff (in addition to the county staff).
- *Sonoma County* – Hired one full time Program Manager for the Water Bill Savings Program (WBSP)

2. Supporting Populations Where it is Difficult to Obtain Energy Savings

Value within this pillar can be captured by clearly describing the different populations served by BayREN as well as the savings associated within those populations. A significant part of the BayREN Business Plan's intention is to create better access to energy efficiency programs for all ratepayers, in particular those underserved (i.e., audiences that have various barriers to taking energy efficient actions) by current utility offerings.

High Level Evaluability Assessment

BayREN collects and reports information on the overall number of customers served by each program (for example, total single-family or total multi-family buildings and units) but they don't collect the information to describe and report on the specific populations that BayREN believes are difficult to serve through other California programs. For example, while BayREN reports the number of single-family homes served, they designed their single-family program to target and serve moderate income and renter populations and yet the program does not currently record or report if these segments are being served.[42]

BayREN has conducted a market assessment to understand the number of single-family moderate-income in their region. In addition, in 2019, the program started to voluntarily collect information on whether those served were moderate income through one of their outreach channels (Rising Sun Center for Opportunity). However, there needs to be a more systematic effort to document barriers and collect data. While we acknowledge that it can be challenging to ask for income information, it may be possible to obtain income information categorically (e.g., asking if the household makes between $48,000 and $125,000), or estimating income levels through a proxy mechanism (e.g., estimating average income level in a zip code). Alternatively, this type of information could be collected through a quick follow up

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[41] That is, they will not fall within a program.

[42] This applies to the program prior to collecting data for this evaluation report. The program has since shifted to more actively tracking information for the targeted population.

survey. Similar target-specific information should also be collected for groups within the multi-family or commercial populations based on the target that is chosen for those programs.

Recommendations for Data Collection and Documentation to Support Targeted Metrics

BayREN should define the key target audiences for each program and track information by specific target audiences. The table below shows an example of how we suggest that this information can be captured; the chart will be updated in early 2020. Besides some of the basic data shown below, additional metrics could include penetration into the targeted population (at this point, the table just shows the numbers, not a penetration).[43]

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[43] While there are multiple interventions within any program and indicators that the program is performing as expected, these key performance indicators/KPIs (e.g., conversions or marketing efforts such as engagements of communities through workshops, touches by an energy advisor, toolkits handed out, etc.) would be tracked at the program level as a KPIs and not rise up to the metric level. Grounded Research will work with staff in 2020 to give targeted recommendations so that the BayREN programs understand and agree with the metrics and KPIs specific to their programs, and know what data to collect.

Table 7. Proposed Documentation for Supporting Populations Where Difficult to Obtain Energy Savings – Example Only

Theory of Change *(examples to be updated through meetings with BayREN)*			Metric Data				
Targeted population *(program in which the population is targeted)*	**Barrier to taking energy efficiency actions**	**Intervention(s) to overcome barrier**	**Estimated number of households in BayREN region**[**]	**Details/Number of dwellings reached** *(potentially annual and cumulative)*	**Details by county**	**Details by jurisdictions**	**Savings (kWh/kW and therms)**
Single-Family Moderate Income (SFMI) *(Single Family)*	• Other priorities for what they spend their money on. • Do not know what to do	Door-to-door intervention to raise awareness; handholding and guidance through projects by Energy Advisors	725,000 *(from BayREN SFMI Study)*	Numbers reached	X counties	X jurisdictions	Subset of SF
Single-Family Renters	• Renters believe it is not worth doing anything because they are renters • Renters don't want to rock the boat with their landlord; fear that property improvement will lead to a rent increase						
NOAH MF* *(Multi-family)*			TBD	Numbers reached	X counties	X jurisdictions	
Etc.							
Unique counties or jurisdictions served					**X Unique counties**	**X Unique Jurisdictions**	

*These are market rate apartments with at least X% of households that are low-income and meet the requirements for a CARE customer.

** If a REN asserts that a program serves an underserved market, it must present "concrete data and analysis" to justify this position (D.18-05-041, at page 47).

These recommendations are also summarized in Table 11 at the end of this section.

3. Testing Innovative Solutions

The last value pillar describes the innovative solutions to support local jurisdictions efforts to secure more savings either directly or indirectly. BayREN currently has several efforts that fall into this value pillar (as described earlier), including:

- Water Bill Savings Program
- Green Labeling
- Regional Heat Pump Water Heater Program Design Initiative
- Decarbonization Pathways

Metrics for an "innovative solution" are very different than those for a typical program, which may look at numbers reached and/or savings. While there is no specific CPUC guidance on metrics for this REN directive, two existing CPUC documents may provide some insights. Specifically, the Emerging Technologies Protocol and the more recent work on a Market Transformation Framework provide a starting point.

In 2006, California created the Emerging Technologies (ET) protocol[44] because of the absence of specific energy/demand goals and the longer lead time required to introduce new solutions directly into the market. It is a flexible protocol that ensures a minimum level of evaluation rigor so that stakeholders know that the effort is on track to achieve longer-term objectives. Portions of the protocol are helpful to consider when measuring BayREN efforts within this value pillar. Perhaps the most relevant part of the protocol is "investigating the underlying concepts and developing models to advance understanding of some aspect of a program, project or phenomenon." That is, laying out the theory of change and having a model of where change may occur is important in determining appropriate metrics for this value pillar.

More recently (2019), California adopted a stage gate approach for the development and deployment of efforts that seek to transform a market. Within the Adopted Market Transformation (MT) Framework (D.19-12-021), stage gates "describe critical decision-making points and expected activities at each stage" and define a process that is "designed to reduce and manage the risk inherent in undertaking market transformation initiatives." The MT framework describes the development phase (a phase that includes a pilot effort that moves through two stage gates) as including "identification of a market adoption baseline, creation of a logic model, and establishment of progress metrics" as well as defining success criteria for the pilot effort.[45]

Metrics for BayREN's innovative solutions may be a mix of the ET protocol and MT stage gate approach. That is, the theory of change can point to where the progress metric(s) should occur while the stage gate identifies success criteria that points to a scaling up of the solution.

High-Level Evaluability Assessment

BayREN currently tracks several valuable pieces of information for these innovative solutions (and they should continue to track this information), but the current information is not indicative of why the innovation is needed (i.e., the theory of change), whether the implementation effort is on track (i.e., progress metrics), and what success criteria are for demonstrating that the solution is scalable (or has been regionally scaled). BayREN should clearly lay

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[44] California Energy Efficiency Evaluation Protocols: Technical, Methodological, and Reporting Requirements for Evaluation Professionals. April 2006

[45] The MT framework includes seven stages and three phases. Phase 1 (concept development) has two stages, Phase 2 (program development) has two stages, and Phase 3 (market deployment) has three stages. The framework includes multiple deliverables for each stage. For example, stage 3 (strategy development) includes market characterization studies, pilot testing plans that include evaluation plans and success criteria. We do not include information on all phases and stages as they are not as relevant for BayREN consideration.

out this information within a single 'package' on a solution so that it is easily available for any interested stakeholder and can be used by BayREN to track success.

Recommendations for Data Collection

For efforts within this pillar, BayREN should describe the "solution," why it is needed, the change that is expected to occur because of BayREN's intervention, and the stages for scaling it to the entire region.[46] Additionally, for each of these innovative solutions, BayREN should describe when the effort began and the timeline for each stage. BayREN would then report annually or twice/year about where they are in the process (updating the stages as needed). An example of the type of information that should be documented is shown in the table below. Note that this is an example only. We expect that this example will change as we work with the BayREN program lead for the WBSP.

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[46] We do not seek to limit the scaling beyond the BayREN region, but for purposes of tracking to the metrics, this geographic area is appropriate.

Table 8. Proposed Documentation for an Innovative Solution – Example Only
(using Water Bill Savings Program)

Solution Name:	Water Bill Savings Program	
Description of the solution and why it is believed that this solution is needed	New proactive state and local water goals (for 2023-2027) will create an opportunity for additional water/energy savings from customer-side water efficiency projects. Water agencies will need new programs to reach these goals and there is an opportunity for a regional solution that can reduce energy use while saving water. BayREN's on-bill water efficiency program and the regional project financing service will create a new mechanism for obtaining water-related energy savings (i.e., a mechanism that does not rely on energy-ratepayer dollars). Water agencies will participate because it helps their customers install water efficiency improvements with no up-front cost — using a utility-approved on-bill charge that is significantly lower than the estimated savings — so the customer begins saving right away.	
Theory of what will occur over time based on the pilot intervention	Water agencies will support water savings (that also save energy) using an on-bill financing mechanism that (ultimately) does not rely on CPUC-funded customer rebates.	
Starting year/date/status	2012 Trial 2020 Regional design phase [Design phase will be followed by rolling out program/ramping up participation/etc.]	
BY YEAR	**Success Criteria***	**Information that speaks to quality of intervention (i.e., usefulness)***
First year	Funding mechanism set	Level of funding; review of agreement
Expected +1-year accomplishment(s) *(cumulative)*	X of 66 jurisdiction participating "stand up the program in these jurisdictions" (i.e., get it established for future participation)	By jurisdiction: X units/locations served (for SF, for MF) X energy savings X water savings
Expected +2-3-year accomplishment(s) *(cumulative)*	Y of 66 jurisdiction participating "stand up the program in these jurisdictions"	By jurisdiction: X units/locations served (for SF, for MF) X energy savings X water savings
Expected +4-5-year accomplishment(s) *(cumulative)*	Program is used to meet new state water goals 2022-2025 Z jurisdictions	By jurisdiction: X units/locations served (for SF, for MF) X energy savings X water savings X dollars paid out/repaid***

Other notes: Program may want to call out leveraged funding, etc.

*These may change year to year.
**Some of the information on the right may need to be collected through evaluation.
***Example of new information that could be added over time.

Below is an example graphic that BayREN could create to quickly describe each innovative solution. This is a timeline that includes multiple milestones over two years with possible outputs. This is an example only; the final version for each solution may be different.

Figure 7. Example Timeline Graphic
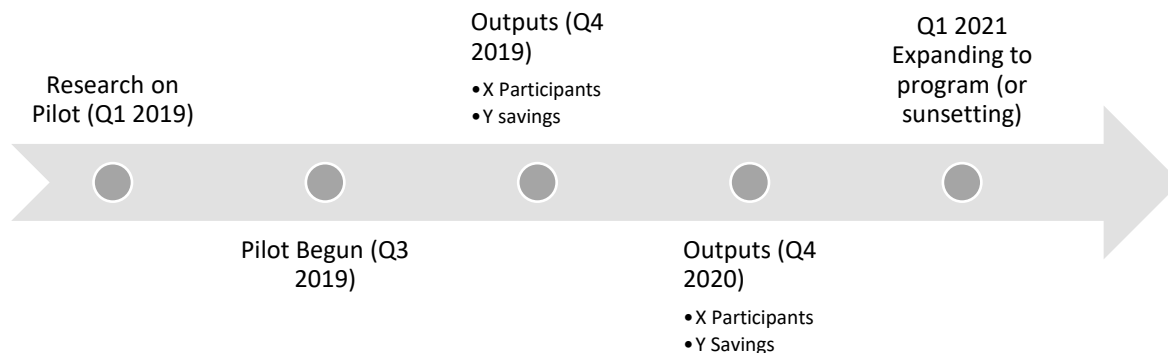
These recommendations are also summarized in Table 11 at the end of this section.

Additional Tracking and Reporting to Convey BayREN Value

In addition to the value metrics above, there is additional information that might help to demonstrate BayREN's broader value. BayREN may want to consider also tracking and reporting on: (1) co-benefits to local communities and (2) the funds that are leveraged by BayREN to expand their efforts. We describe possible options for reporting co-benefits and on leveraged funds below.

Co-Benefits

We define co-benefits as the additional benefits **that accrue to the local communities** from energy efficiency activities. This can take a variety of forms. Energy efficiency programs can have substantial economic development and quality-of-life impacts on communities including creating jobs, increasing property values, enhancing the comfort and health of residents, and generating discretionary income. BayREN may choose to estimate the value of the community impacts using current community tracking systems, county property values sources among others and, where needed, evaluation activities.

Based on the current suite of BayREN programs, we suggest BayREN consider the following benefits:

- Water resource benefits (the reduction in a customer's water costs associated with reduced water consumption)
- Productivity benefits (the reduction in a customer's cost to maintain equipment due to installation of energy efficient equipment)
- Health benefits (the reduction in a customer's sick days or medical costs due to installation of energy efficient equipment)
- Asset value benefits (the improvement in the value of an asset such as a home due to performance and functionality improvements in the dwelling equipment[47])
- Comfort benefits (the reduction in noise or thermal swings due to installation of energy efficiency measures)

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[47] The Business Plan refers to increases in property values, which is represented by this non-energy benefit. Other possible non-energy benefits mentioned in the Business Plan include business retention and neighborhood enhancement, but we have not seen any studies monetizing the value of these benefits.

Note on footnote#40 – how should we account for potential harm to renters from increased prop values?

These co-benefits require additional research to obtain values. We recommend that BayREN consider whether it is worthwhile to pursue. We note that BayREN already has a value for the number of jobs induced from their efforts, but we are uncertain how easy it is to obtain this value annually.

In addition, there may be non-monetary items that BayREN may wish to track such as support provided for local government climate action plan implementation, reach code adoption and GHG reduction goals.

Leveraged Funds

In addition to the benefits captured above (including benefits to the local governments), BayREN leverages funding from outside sources to create more holistic activities and/or activities that reach beyond what would be possible with just the CPUC funding source. This is a benefit that accrues to all involved.

Below is a table of current leveraged resources and a description of efforts made possible with BayREN support (and CPUC funds to support BayREN). We recommend that BayREN maintain something similar as new opportunities for leveraged funding and coordinating activities enter the BayREN portfolio.

Table 9. Leveraged Funds (Through ABAG)

LEVERAGED FUNDING SOURCE	Details	Magnitude of Resource *where available*
OUTSIDE GRANTS *Outside grants, non-CPUC, used by or provided directly to BayREN*		
DOE SMCB Grant (BRICR)	BRICR (BayREN Integrated Commercial Retrofits): U.S. Department of Energy grant used to support innovative approaches to assessing the Small to Medium Commercial Buildings (SMCB) at scale for accelerating, targeting and delivering EE to this sector. ABAG is the winner of the Grant and SF Department of Environment is the lead agency. This will help the BayREN SMB program with targeting those in need. The tool developed under this grant is supporting the BayREN redesigned commercial program. (See BayREN Business Plan page 3.29 Database of building characteristics.)	$2.8M
MTC/ABAG	Funding for regional Water Bill Savings Program. This is a line of credit that can be used for funding projects (to complement BayREN's investment in the administrative part of the investment).	$2M capital fund
Bay Area Air Quality Management District Grant	To expand services and fund heat pumps. BayREN received a grant to address the barriers to greater market adoption of energy efficient Heat Pump Water Heaters. Central to this effort is the leveraging of the BayREN multifamily program, as well as partnerships with Bay Area CCAs to set up a regional incentive program. Some CCAs and other agencies also got grants (SVCE, San Jose, County of Marin); all grantees (of a total of $4.5 million that funded 15 regional public agencies) are working together on this initiative. This included several of the BayREN members (e.g., San Francisco Department of Environment, Contra Costa County, Marin County, Sonoma RCPA).	$400K
Bay Area Air Quality Management District Grant	BayREN has been talking to the BAAQMD about a small pilot that will cover EV charging station projects for six properties. There has been a delay since the source of the funds (federal) has been delayed. The plan is that if the pilot is successful, that BayREN could get a lot more of the funds towards this effort.	Q3 2020 estimated $150,000

Table 10. Leveraged Funds (Coordination with BayREN, Direct to BayREN Members)

LEVERAGED FUNDING SOURCE	Details
BAYREN COORDINATION WITH OTHER REGIONAL FUNDING	
CEC Grant for MF	Grant ($1M) from CEC for understanding tools and options for better designs. This is a grant to StopWaste, the program lead for BayREN's Multi-family program.
Green and Healthy Homes Initiative (GHHI)	Grant from Marin Community Foundation ($450K) to brings together MCE, Health and Human Services/Health services division, and some community groups that do senior living and independent living to braid multiple services together (including BayREN funded services) into HHS efforts. (HHS staff are funded by their division.)

LEVERAGED FUNDING SOURCE	Details
BAYREN COORDINATION WITH OTHER REGIONAL FUNDING
CEC Grant	CEC grant ($275K) to resilient neighbors to do a 5-week training on how to lighten their carbon footprint. Each time the Resilient Neighbors representatives are out in the neighborhood they are offering information about BayREN programs. Used county and BayREN staff to develop materials. Community groups do outreach and promote BayREN programs.
Bay Area Air Quality Management District Grant/Marin County General Fund	Original fund total of $256,000 with half ($128K) from BAAQMD and half from Marin County ($128K). As Marin County promotes this program, they also promote the BayREN programs. Bringing in money that also drives people to BayREN programs. (Note that Marin County informed BayREN's Energy Advisors of this resource.) A couple CCAs (SVCE, San Jose) also received similar grants. The idea is that all work together.
Bay Area Air Quality Management District Grant/ Marin County General Fund	Applicable to all nine counties. BAAQMD funds available for removal and replacement of wood burning fireplaces. There were two buckets of money – one for all applicants in BAAQMD territory and a second bucket focused on applicants in High Impact Residences (HIRs). Marin also layered on a fireplace replacement effort onto BayREN's Home Upgrade Program. Marin County received funding from BAAQMD to incentivize fireplace removal, and combined outreach with the BayREN Home Upgrade program (being offered at the time of the grant) to allow for a more expansive residential offering to their residents, resulting in increased energy efficiency and reduced greenhouse gas emissions. Rebate is $325 for removal and *replacement* of a wood burning device. Rebate is $250 for removal and *retirement* of a wood burning device.
Technical Grant (GHHI)	For Contra Costa, technical Grant through GHHI to help develop a business plan for health/energy program. In partnership with MCE (MCE as lead), the County Health Department, and Department of Conservation & Development (DCD) was awarded a Green and Health Homes Initiative (GHHI) Technical Assistance Grant (Phase I), which assisted in developing a business plan for a comprehensive home-based asthma program. The County, through the Health Department, has been awarded another Technical Assistance Grant (Phase II) through GHHI. The Phase II portion of the grant is being led by the County Health Department in partnership with both MCE and DCD staff. This next phase will assist in researching the feasibility of how the State Health Care billing system could potentially provide long-term funding that could be leveraged with other funding sources (i.e. energy efficiency and/or air district). There are ongoing discussions with the single-family program for potential funding.
Advanced Energy Rebuild Napa Program	Homeowners that are rebuilding after the 2107 and 2018 fires are eligible for up to $17,500 in rebates through the California Advanced Home Program. Additionally, these homeowners can access BAAQMD funding for adding electric technologies. The BAAQMD grant to MCE was for $1,000,000. BayREN contributed $25,000 in 2018 and will be contributing another $25,000 this year for a total of $50k for technical assistance. MCE is also contributing $50k for technical assistance. Homeowners had to pull permits by the end of 2019 to be eligible for the programs. Sonoma also has Advanced Energy Rebuild program: https://sonomacleanpower.org/programs/advanced-energy-rebuild.
Metropolitan Transportation Commission (ABAG)	Federal funding provided for EV programs is currently provided to MTC. In the next funding cycle, some of the funds will be earmarked for BayREN to layer onto the existing multifamily and single-family programs. The amount will be in the $250,000 to $500,000 range.

Summary of Recommendations: Roadmap for 2020 Metrics Work

We summarize the recommendations from the *Metrics for the Future* section in the table below. This will serve as the roadmap for the evaluation team's 2020 work with BayREN.

Table 11. Summary of Recommendations

Metric	Recommendations
CPUC Compliance Metrics	Revisit a few MF targets (e.g., percent of participation relative to eligible population by property) and two of the DAC targets
BayREN Value Metrics	
Building Infrastructure	Lay out the theory behind the change as well as choose at what level (county or local jurisdiction) to provide details
Obtaining Energy Savings by Supporting Populations Where Difficult to Get Savings	Clearly define the sub-populations being targeted and why they are targeted (i.e., the theory), determine the estimated total number in each sub-population to help understand penetration, and ensure that the data tracking can easily separate savings into the sub-populations
Testing Innovative Solutions	Clearly document the rationale behind the innovative solution (e.g., why solution is needed, theory of change), as well as the various stages that will help achieve the end point, and the timing of each stage
Other	• Consider whether and how to track other impacts as described in the Business Plan (i.e., jobs, economic impacts) • Consider whether and how to track certain monetary benefits not already captured in savings (e.g., water resource benefits, health benefits) • Maintain a table of leveraged resources • Report at the level of the county, and potentially city where it makes sense

Appendix A: Tracking for Compliance

All information included in this Attachment came from the annual metrics Excel files downloaded from the CPUC EEStats website.

Based on our review of the PY18 metrics, there are several key points for BayREN to consider.

- **The PY18 BayREN portfolio cost less than targeted to obtain each saved kWh or therms**
  - For TRC cost per kWh or per therm:
    - The portfolio cost per energy savings were lower than the PY18 target set by BayREN
    - The single-family (SF) program cost per energy savings were half or less of the targeted costs
    - The multifamily (MF) program cost per therm savings were higher than targeted

Table 12. PY18 BayREN TRC Levelized Energy Costs
(2018 as % of target values below 100% represent reduction in costs)

Area	$/kWh				$/therm		
	Target	2018 value	2018 as % of Target		Target	2018 value	2018 as % of Target
Portfolio	$0.28	$0.26	94%		$2.78	$2.18	78%
Single Family	$0.85	$0.31	37%		$3.03	$1.29	43%
Multi-family	$0.26	$0.21	81%		$2.57	$2.74	107%

- **BayREN reduced their kWh per-unit costs between 2017 and 2018**
  - BayREN garnered electric savings at a much lower cost in 2018 than in 2017 but the cost to obtain therm savings went up slightly

Table 13. PY17 and PY18 BayREN Portfolio Levelized Energy Costs

	PY17	PY18	Change from PY17
TRC $/kWh	$0.56	$0.26	46% lower
TRC $/Therm	$2.08	$2.18	5% higher

- **The PY18 BayREN portfolio did not meet their savings goals**
  - The portfolio brought in 75% (electric net) and 80% (them net) of the targeted first year savings but ~86% of the targeted lifecycle savings. Either the programs are installing measures with longer effective useful life (EUL) than planned or the first year and lifecycle targets are not well aligned
    - The SF program brought in 55% their expected electric first year savings and 76% of their expected first year therm savings
    - The MF program brought in ~80% of the targeted gross electric savings in common area and in-units, but ~65% of the targeted net electric savings in these areas.
      - Either the program installed measures with lower net-to-gross ratios (NTGR) than expected or the gross and net targets are misaligned
    - The portfolio did a good job at reaching their targets within the disadvantaged communities (DAC)
      - All savings were 99% or more of the targeted values although the DAC savings were only about 7.5% of the portfolio savings, perhaps due to the small number of DACs in the BayREN territory

- **There are a few metrics that appear to have unrealistic targets – these metrics have 2018 values that are significantly different than the targeted values**
  - The MF program targets for common area natural gas savings appear ambitious as the program achieved only about 20% of targeted savings
    - Common area and master metered categories appear related
    - BayREN includes therm savings but no targets in the master metered category
      - Savings in the master metered category are about four times higher than seen in the common area category (i.e., ~85 MW versus ~19 MW respectively)

- BayREN should add targets for master metered MF kW values and adjust the other targets to better reflect where they expect to obtain savings
    - The 2018 value of the MF metric "Percent of square feet of eligible population participating (by property)" is 6959% of the target. (0.005% target and 0.38% actual)
        - BayREN touched significantly more square feet in 2018 than the 2016 baseline year. (4,507,843 in 2018 versus 5,000 in 2016)
        - BayREN changed the denominator between the two years, but only slightly so the percentage affected was minimal
        - The 2016 "square foot" value seems very small compared to the 2018 values; however, BayREN set future targets that assume this small percentage (0.005%) and may want to update future targets to a more realistic value
    - The 2018 value of the MF metric "Percent of participation relative to eligible population by property" is 5783% of the target. (0.00006 target and 0.00319 actual)
        - BayREN reduced the 2018 denominator substantially compared to the 2016 baseline year (to 23,510 from 1,431,478) but kept the target that used the baseline denominator
        - The absolute number of MF properties (i.e., the numerator for the percentage) actually went down between 2018 (75) and the 2016 baseline year (125)
        - BayREN needs to adjust the 2016 baseline denominator value so these are comparable
    - The 2018 value of the MF metric "Lifecycle ex-ante kW net per project (property)" is 219902% of the target. (0.03 target and 66 actual)
        - There is some sort of mix up in the baseline value and targets for this metric. The baseline value and targets all appear to be a percentage value, yet the 2018 values are not
        - BayREN should revisit this metric and correct
    - The 2018 kW values for Disadvantaged Community savings range from 355% (first year net) to 514% (lifecycle gross)
        - BayREN may want to revisit their targets in the future (after at least one more year of metrics to see if these percentages continue to be high)

Appendix B: Tracking to Demonstrate CPUC Directives

Note that this analysis was conducted to inform the research and the report above (so pre-dates the report) and has not yet been updated.

CPUC Directive	How is BayREN Tracking and/or Reporting, if at all	Challenges	Suggestions for how to document and track
GAPS: Activities that utilities cannot or do not intend to undertake	The JCM with PG&E clearly sets forth activities that BayREN is doing that PG&E is not (i.e., "distinguishing activities").	The JCM content does not stress areas where PG&E has nothing similar and the *value* of these activities is difficult to absorb in the current format. "Gaps" and "Filling gaps" is not a typical quantitative metric where something can be counted. The JCM is not widely reviewed.	Gaps have not been documented in the past. This may be done by (1) developing a process to identify and document gaps, (2) developing programs to fill gaps. To be systematic, each of these steps should be documented through a milestone-type metric. Once the theory is described (to fill the gap), BayREN will be able to determine outputs that could be reported annually. BayREN could keep a growing list of all of the ways in which their programs fill gaps and present that in their Annual Report or elsewhere in an "at-a-glance" format that is easy to find.
SCALING PILOTS: Activities where there is no current utility program offering, and where there is potential for scalability to a broader geographic reach, if successful	The JCM lays out the pilots, by program. The Annual Report also mentions pilots, but it provides only one example (WBSP)	This is not a typical quantitative metric where something can be counted. The JCM information does not provide context and is not widely read.	Speak to the scalability, where BayREN is in this process, what the goals would be, and how BayREN will measure success.
HTR (underserved) Activities in hard to reach markets, whether or not there is a current utility program that may overlap	BayREN does report on MF and DAC penetration and savings, but not on other HTR/underserved activities. The JCM format also allows for this type of reporting.	BayREN is currently working on redefining this as "HTR and underserved." This would need to be approved by the CPUC before BayREN can show how they meet these criteria.	To show how BayREN is serving "underserved," BayREN needs to track and report additional information including the number of households (and savings) in the populations that BayREN believes are underserved, e.g., SFMI households, rural, non-English speaking, SMB, etc.

Appendix C: Data Collection from Local Jurisdictions

The table below provides the details of the data collection included in this research.

County (number of cities with data collected)	Details
San Mateo (12 unique)	• County-wide meeting where 10 cities in the county were represented, as well as the county and other stakeholders • 12 online responses from unique cities, and 4 from county
Santa Clara (9)	• 4 in-depth interviews • 5 online responses
Alameda (8)	• 6 cities and 3 county-based online responses • 2 in-depth interviews
Marin (5)	• County-wide meeting with 2 cities, representatives of the county, and stakeholders • 3 online responses
Contra Costa (3)	• 3 in-depth interviews
Sonoma (2)	• 2 in-depth interviews
Napa (1)	• Indirect feedback from 1 city
San Francisco (1)	• 1 interview with the City of SF
Solano (0)	[No representation available]
Total	**Roughly 41 cities represented across the efforts** (note that we often received multiple responses from the same city, but we count each only once)

# Appendix D: Additional Exploration of Local Governments

The ability of these local governments to come together within the BayREN structure is due to the fact that they have common sustainability goals. We note that Bay Area local governments generally seek to:

- Promote clean energy

- Decarbonize buildings

- Decarbonize transportation and promote sustainable land use

- Manage resources (e.g., water and waste) sustainably

- Empower their communities

- Adapt and respond to a changing climate[48]

These general categories also capture several direct mandates to the local governments, such as:

- SB 97 - mitigation - This could further reinforce the decarbonization focus, plus community-scale planning for grid 2.0 and anything associated with that (storage, TOU, etc.), as well as any integration with EV's and water-energy.

- SB 379 - adaptation – This layers resilience and water-energy onto EE programs where effective.

- SB 246 – This is intended to integrate organizations' climate adaptation and resilience efforts, though it was specifically about the formation of state orgs (see also http://opr.ca.gov/planning/icarp/).

Figure 8. Local Government as Foundation
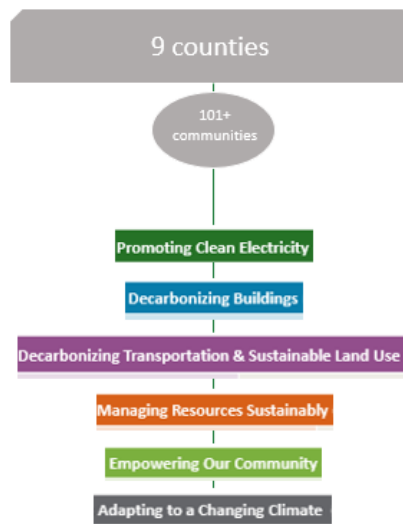
Source: Colored boxes Adapted from the Sunnyvale CAP.

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[48] As a starting point for discussion, these specific strategies are adapted from Sunnyvale's August 2019 plan (Sunnyvale: https://sunnyvale.ca.gov/people/sustainability/climate.htm). These categories are consistent with Grounded Research's review of a sample (over 20) CAPs, as well as with primary data that Grounded Research collected from 41 cities within the BayREN territory.

We were able to identify climate action plans or some form of sustainability plan for roughly 90% of the cities and towns, however, many were outdated. Some were developed as far back as 2009. Approximately 30% of the CAPs were adopted before 2013 –before BayREN was established.

CAPs tend to be broad, covering areas such as transportation, land use, solid waste and recycling, water and wastewater, as well as energy. Some of the more recent CAPs also start to touch on more sophisticated areas such as adaptation, resiliency, or carbon sequestration.

As such, while most of the cities have CAPs, a large number of them are outdated and need updating. Because many pre-date the establishment of BayREN, many mention PG&E and other local programs, but do not reference BayREN, although several cities recognize that BayREN can play an important role supporting their CAPs.

According to a few of the cities that we interviewed, the initial CAPs were not very aggressive. They sought to achieve goals and accomplish activities that were already planned; the CAP was a means to solidify the process. We also received a mix of responses about whether the city tracks progress or not, with some tracking and others only loosely paying attention to whether they are making progress towards goals.

Looking forward, while many of the CAPs are old, some cities don't have the resources to update their plans. Some cities are not planning to update their CAP as they feel it was a huge investment of staff time to create the first one and they don't have resources to support this effort even if they wanted to. Some, however, are finding other ways to do it informally through strategic planning or looking to their local CCA to fill in the gaps because the CCA can use their own revenue to design programs in support of the city's desire to do fuel switching and transportation.

There are a couple of cities, however, that are in the process of updating their CAPs or recently completed an update. One city that just made the decision to update their CAP (Antioch) is doing it alongside their housing efforts through the Community Development Block Grants (CDBG) and is planning to focus the update on ways to help low-income and disadvantaged communities. They expressed a need for help in this area, particularly with the installation of new cooling technologies in homes that haven't previously had air conditioning before.

Another city, Sunnyvale, adopted a new Climate Action Plan on August 13, 2019 (https://sunnyvale.ca.gov/people/sustainability/climate.htm). According to the website description, Sunnyvale's Climate Action Playbook was developed between 2017 and 2019 as a collaborative, team effort between city staff, consultants, and community members. The community was actively engaged in the process ad provided ideas that formed the foundation of their plan. These ideas inspired the Playbook's six core strategies:

- Promoting Clean Electricity
- Decarbonizing Buildings
- Decarbonizing Transportation and Sustainable Land Use
- Managing Resources Sustainably
- Empowering Our Community
- Adapting to a Changing Climate

Within each Strategy, the Playbook defines:

- **Plays** that identify opportunities for action. Plays have measurable targets that will help assess progress towards goals.
- **Moves** that define specific actions the city and community can collectively take to address climate change.

They specifically lay out several strategies to decarbonize buildings. In our interview with a Sunnyvale representative, they mentioned that they were specifically thinking about BayREN and other program administrators when they developed these strategies, and they hope that BayREN can help them understand benchmarking, be more aggressive at providing and promoting programs that accelerate energy efficiency and the adoption of heat pump

water heaters and space heaters, and provide assistance with reach codes that can help move the community towards electrification.

	Strategy 2: Decarbonizing Buildings
2.A	Research energy disclosure and energy benchmarking requirements for commercial and multi-family residential buildings to encourage property owners and managers to invest in energy efficiency upgrades and building information systems.
2.B	Advocate to regional providers of energy efficiency programs (such as Bay Area Regional Energy Network or BayREN, Silicon Valley Energy Watch or SVEW) that their offerings are more aggressively promoted to Sunnyvale residents and businesses.
2.C	Develop a program to accelerate the adoption of heat pump water heaters and space heaters.
2.D	Electrify municipal buildings upon rebuild or significant remodel, including the Civic Center.
2.E	Evaluate code and permitting processes to streamline building electrification.

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