



DATE: December 20, 2017

TO: Energy Council

FROM: Wendy Sommer, Executive Director

BY: Jennifer West, Program Manager

SUBJECT: East Bay Energy Watch Policy Paper

SUMMARY

In October 2017, the Policy and Regulatory Subcommittee of the East Bay Energy Watch released a paper entitled “Navigating the Changing Landscape of Energy Efficiency Programs in the East Bay.” Rachel DiFranco, City of Fremont, and Jennifer West, StopWaste, will make a brief presentation about the findings from the paper at the December 20 Energy Council meeting.

DISCUSSION

East Bay Energy Watch (EBEW) is a Local Government Partnership with PG&E under the auspices of the California Public Utilities Commission, covering all of Alameda and Contra Costa Counties. EBEW supports energy efficiency programs for small and medium businesses, municipal buildings and some residential customers. StopWaste is a co-administrator for EBEW, along with Contra Costa County. The Strategic Advisory Committee is made up of staff from each jurisdiction in the two counties, including the counties themselves, and meets quarterly. There are several subcommittees that meet monthly to discuss items of interest and to guide programs that EBEW funds. The Technical Advisory Group (TAG), which meets monthly, is composed of staff from Energy Council jurisdictions in Alameda County and there is a good deal of overlap between EBEW and TAG members.

In 2016-17, the Policy and Regulatory Subcommittee of EBEW set out to write a paper summarizing the energy efficiency programs available to East Bay communities, recognizing the various program administrators, illuminating possible overlaps, and exploring possible changes expected as community choice aggregation (with MCE and East Bay Community Energy) becomes available to these communities. They interviewed stakeholders, gathered perspectives and produced this paper. Some charts in the paper may be helpful when referring to programs (p.4/5).

The EBEW paper has been shared with sustainability committees in several jurisdictions already, and we are asking for your help in disseminating it further by suggesting people or organizations that may be interested in receiving a copy. It has also been shared with EBCE Board and staff.

The paper can be found online at: <http://www.ebew.org/news/> . It is also attached to this memo (34 pages).

RECOMMENDATION

This item is for information only.

Attachment: Navigating the Changing Landscape of Energy Efficiency Programs in the East Bay

NAVIGATING THE CHANGING LANDSCAPE OF ENERGY EFFICIENCY PROGRAMS IN THE EAST BAY

East Bay Energy Watch Partnership's
Strategic Advisory Committee:
Policy & Regulatory Subcommittee

October 2017

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ACKNOWLEDGMENTS:

Members of the East Bay Energy Watch Policy and Regulatory Subcommittee produced this paper. Various stakeholders shared insights and contributed to this “landscape.” Rachel DiFranco, Sustainability Manager in the City of Fremont, chaired the subcommittee and can be contacted with questions. StopWaste Program Manager, Jennifer West can be contacted with questions on the East Bay Energy Watch and the Strategic Advisory Committee (SAC).

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ENERGY EFFICIENCY PROGRAM SNAPSHOT

East Bay Energy Watch’s Strategic Advisory Committee has developed this paper as part of their process of exploring opportunities for the EBEW partnership as it navigates the evolving and increasingly complex field of energy efficiency programs in the East Bay. The insights in this paper were informed by interviews with representatives of local utilities, municipalities, local government partnerships and community choice aggregators. This paper is intended to spark discussion among energy efficiency program administrators, implementers and other stakeholders, and to identify issues that would benefit from more in-depth analysis.

The California Public Utilities Commission (CPUC) regulates energy efficiency programs that are funded by a surcharge on customers’ electricity and gas bills. This surcharge provides over \$1 billion per year for energy efficiency programs that fight climate change by reducing greenhouse gas emissions related to energy use.¹ A number of entities, including investor-

owned utilities (IOUs), regional energy networks (RENs), local government partnerships (LGPs), and more recently, community choice aggregators (CCAs), use these funds to develop, administer and implement certain energy efficiency programs. The CPUC serves as a public watchdog to ensure that the energy efficiency programs it funds meet its thresholds for energy savings and cost effectiveness.²

The eastern region of the San Francisco Bay Area consists of two neighboring counties, Alameda and Contra Costa, which are known collectively as the East Bay and which have a combined population of about 2.7 million people. Pacific Gas and Electric Company (PG&E) and the East Bay Energy Watch Partnership (EBEW) have been administering ratepayer-funded energy efficiency programs throughout these two counties for more than 10 years. Due to the longevity of these programs, administrators and implementers have developed significant technical expertise and stakeholder relationships. Certain EBEW programs have strong market recognition due to ongoing marketing and education efforts to target hard-to-reach demographics within their targeted sectors.

In addition, the San Francisco Bay Area Regional Energy Network (BayREN), a collaboration of the nine counties that make up the Bay Area, has been offering ratepayer-funded residential energy efficiency programs in the East Bay since 2013. Regional Energy Networks are coalitions of local governments that

This paper intends to spark discussion among energy efficiency program administrators, implementers and other stakeholders, and to identify issues that would benefit from more in-depth analysis.

¹ California Public Utilities Commission, “Regulating Energy Efficiency,” February 2016, p 3. http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/News_Room/Fact_Sheets/English/Regulating%20Energy%20Efficiency%200216.pdf

² The CPUC establishes cost effectiveness using four tests that assess costs and benefits of energy efficiency programs from different stakeholders’ perspectives. These tests are described in the CPUC’s [Standard Practice Manual](http://www.cpuc.ca.gov/General.aspx?id=5267), <http://www.cpuc.ca.gov/General.aspx?id=5267>.

offer large-scale, cross-sector energy management strategies on a regional level. California has two RENs—BayREN as well as the Southern California Regional Energy Network (SoCalREN), which serves public agencies and their constituents in the Southern California Edison and Southern California Gas Company service areas. StopWaste, a joint powers authority representing the 14 cities in Alameda County and the county itself, and Contra Costa County are two of the ten members of BayREN’s governing committee and conduct outreach for BayREN’s energy efficiency programs in their respective jurisdictions. StopWaste also implements regional multifamily energy efficiency rebate and financing programs for BayREN.

MCE, a community choice aggregator, has offered ratepayer-funded energy efficiency programs in Marin County and the City of Richmond (Contra Costa County) since 2012, and has been serving Napa County and the Contra Costa County cities of Walnut Creek, San Pablo and El Cerrito since 2016. It will begin serving other Contra Costa jurisdictions in 2018. Community choice aggregation regulations allow local governments to purchase or generate electricity on behalf of residents, businesses and municipal accounts in their area. Seven states including California currently allow community choice aggregation. Appendix B provides more information about community choice aggregation, including a list of CCAs in California.

East Bay Community Energy (EBCE), a community choice aggregator established in December 2016 and expected to begin operation in 2018, will serve most of the jurisdictions in Alameda County. As it begins enrolling customers, EBCE may consider entering into the East Bay’s energy efficiency program arena in the future.

These changes in the East Bay’s energy efficiency program landscape present new opportunities to help ensure California ratepayers’ funding is effectively used to meet the state’s energy savings and climate goals. However, potential issues including competition for funding and customers, market confusion, and duplication of administrative costs present challenges for program administrators, implementers, regulators and ratepayers.

ROLES AND PROGRAMS

A number of different types of organizations are involved with energy efficiency program administration within California. For the purposes of this paper, these roles are defined as follows:

- **Program administrator:** An organization that receives CPUC funding to run an energy efficiency program. Includes IOUs, RENs, and CCAs if they opt to do so.
- **Local Government Collaboratives:** A group of local governments collaborating on the design and delivery of energy efficiency programs. Local government partnerships (LGPs) and Regional Energy Networks (RENs) are both considered local government collaboratives.
- **Implementer:** An organization that carries out an energy efficiency program. Program administrators can implement programs directly; local governments, third-party consultants and contractors are also implementers.
- **Program funders:** Includes CPUC (ratepayer funding), CCAs (revenue-based programs),

California Energy Commission, and cities (Richmond, for example, has settlement funds from Chevron for energy efficiency programs).

- **Convener:** An organization that formally chairs committees made up of local government representatives for the purpose of facilitating strategic planning and decision making regarding energy efficiency programming.

These roles are fluid and individual organizations may serve in more than one role. For example, StopWaste Energy Council convenes staff from its 15 member agencies to set priorities and develop funding proposals for energy programs. The Energy Council represents Alameda County jurisdictions in BayREN, which is a collaboration of the nine counties in the Bay Area plus the Association of Bay Area Governments (ABAG). The BayREN governing body has elected Energy Council as the implementer of the regional multifamily program. In 2016 Alameda County and Contra Costa County jurisdictions voted for the Energy Council to assume the role of independent administrator of the EBEW partnership and assist the Strategic Advisory Committee in its strategic planning.

Table 1 lists the organizations involved with energy efficiency programs in the East Bay and their roles.

Table 1. Energy Efficiency Program Administrator Roles in the East Bay

Program Administrators	EBEW (PG&E)	BayREN	MCE
Conveners	Energy Council (StopWaste)	ABAG / MTC	N/A
Local Government Collaboratives	Strategic Advisory Committee (SAC) with cities in Alameda & Contra Costa Counties	BayREN Member Agencies: 9 County Representatives and ABAG/MTC	N/A
Implementers	DNV GL, CESC Rising Sun, QuEST	Each Program is led by one BayREN member agency that oversees sub-consultants	DNV GL, CESC

Table 2 shows the main energy efficiency programs currently offered in the East Bay, by market sector and program administrator. Refer to Appendices B and C for a description of these organizations and programs. *Note that this is not an exhaustive representation of energy efficiency programs in the East Bay.*

Table 2. Main Energy Efficiency Programs in the East Bay, by Sector

ORG.	TERRITORY	SINGLE FAMILY	MULTIFAMILY	COMMERCIAL	MUNICIPAL	CROSS-CUTTING
PG&E	No. CA	<ul style="list-style-type: none"> • Advanced Home Upgrade • CA Advanced Homes • Energy Savings Assistance • Plug Loads & Appliances • Residential HVAC 	<ul style="list-style-type: none"> • Multifamily Upgrade • Multifamily EE Rebates • CA Multifamily New Homes 	<ul style="list-style-type: none"> • HVAC Optimization • Savings by Design 		<ul style="list-style-type: none"> • Energy Advisor • Calc/Deemed Incentives • Direct Install • Continuous Improvement • On-Bill Financing • Codes and Standards
EBEW	Alameda & Contra Costa Counties	<ul style="list-style-type: none"> • California Youth Energy Services 	<ul style="list-style-type: none"> • California Youth Energy Services 	<ul style="list-style-type: none"> • East Bay Energy Watch Program • Your Energy Manager • Building Operator Certification • EnergyWatch Microloan 	<ul style="list-style-type: none"> • Municipal Implementation Team • Civic Spark • Lucid Connected Cities • Automated DR Pilot 	
BayREN	9 Bay Area Counties	<ul style="list-style-type: none"> • Home Upgrade • Advanced Home Upgrade • Home Upgrade Advisor • Home Energy Score 	<ul style="list-style-type: none"> • Bay Area MF Building Enhancements • Bay Area MF Capital Advance Program 		<ul style="list-style-type: none"> • ZNE Assistance 	<ul style="list-style-type: none"> • Codes and Standards • PAYS On-Bill Financing
MCE	Marin, Napa, Contra Costa Counties	<ul style="list-style-type: none"> • Smart Thermostat Pilot 	<ul style="list-style-type: none"> • Multifamily Program 	<ul style="list-style-type: none"> • Commercial Program 		<ul style="list-style-type: none"> • Electric Vehicle Pilot
EBCE	Alameda County					

CHANGING CONTEXT OF ENERGY EFFICIENCY PROGRAMS: FLATTENING THE DUCK CURVE

The growth of solar-generated electricity and its impacts on California's electricity grid are expected to have a significant influence on energy efficiency programs in the East Bay over the next few years.

Since the mid-1970s, the State of California has promoted energy efficiency as the least expensive, most cost-effective energy resource. This has been based on the fact that it historically has been cheaper to save a kilowatt of electricity than to build and operate the infrastructure needed to generate and deliver that kilowatt. In large part due to the state's energy efficiency policies and investments, per capita energy consumption in California has been nearly flat over the past four decades.³

The longstanding emphasis on energy efficiency has produced tremendous benefits for Californians, including relatively low annual electric bills compared to most of the country, growth in clean energy jobs, increased economic output per kilowatt-hour consumed, cleaner air and greenhouse gas emissions reductions.⁴

Over the past few years, however, California has experienced rapid growth of distributed renewable energy deployment,⁵ and in particular solar-generated electricity. As a result, the state's grid is experiencing a growing imbalance between solar production and peak demand for electricity. Managing electricity demand, therefore, has increasingly become as or more important than energy efficiency.

When plotted on a chart, this imbalance takes on a distinctive shape known as the "duck curve" (Figure 1). At midday, when the grid is flooded with solar-generated electricity, there's a deep drop in net load (the grid's normal load minus solar and wind generation). In the late afternoon, as solar generation drops at the same time that people come home from work and start using appliances, air conditioners and other electric devices, there's a steep rise in net load and demand for power from conventional sources spikes. On a chart, the midday drop in net load looks like the sagging belly of a duck, while the late afternoon rise can be seen as the duck's neck. This misalignment of solar production and peak demand will only get worse as the state approaches its goal of 50% renewable energy generation by 2030.

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³ "California's Energy Efficiency Success Story: Saving Billions of Dollars and Curbing Tons of Pollution," NRDC Fact Sheet, July 2013, <https://www.nrdc.org/sites/default/files/ca-success-story-FS.pdf>.

⁴ Ibid.

⁵ Distributed energy refers to electricity generated from sources, often renewable energy sources such as solar or wind, near the point of use instead of centralized generation sources from power plants.

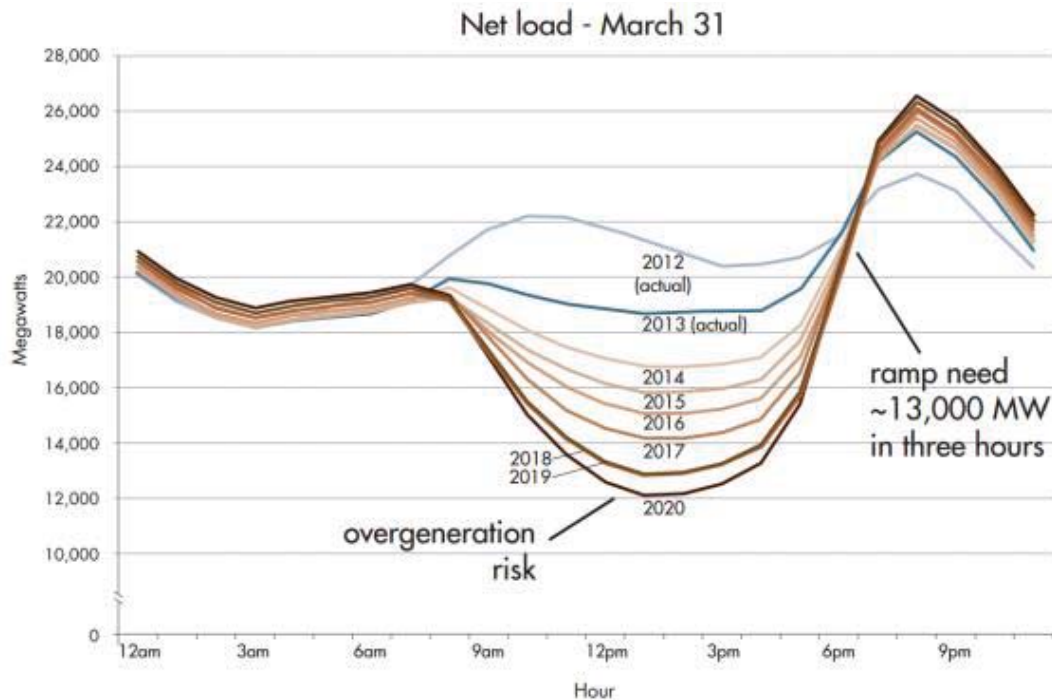


Figure 1. The Duck Curve⁶

California’s energy regulators recognize the need to flatten the duck curve through programs that address peak demand, demand response (DR) and energy storage. Measures that save energy in the late afternoon, for example, are becoming much more valuable than measures that save energy during off-peak times.

Technological advances in battery storage will allow for excess solar generation to be soaked up at midday and made available for use in the late afternoon and evening. Time-of-use pricing (charging customers more when electricity demand peaks and less when electricity supply is plentiful) and other demand response strategies can encourage customers to shift consumption to off-peak hours. Electric vehicles are also predicted to have a role to play in balancing renewables generation and peak demand (though, if improperly managed, could also result in excess demand during peak times).

Given the “duck curve” phenomenon, there’s a growing need for program administrators and implementers to develop demand management programs that address *when* electricity is used, not just *how much* is used. Some of the stakeholders interviewed for this paper, however, reported a lack of engagement with or understanding of these demand management issues at the local government level. Most local governments remain focused on conventional energy efficiency programs like lighting retrofits, appliance rebates, and other basic efficiency measures, as well as standard grid-tied solar PV systems, even though today the bigger opportunities relate to energy storage technologies and strategies that help customers manage demand intelligently in response to signals such as time-of-use

⁶ “Overgeneration from Solar Energy in California: A Field Guide to the Duck Chart,” National Renewable Energy Laboratory, November 2015, p. 3. <https://www.nrel.gov/docs/fy16osti/65023.pdf>

and peak day pricing.

NAVIGATING THE NEW ENERGY EFFICIENCY LANDSCAPE

We interviewed stakeholders who are directly or indirectly involved with administering or implementing energy efficiency programs, including local government, IOU, CCA and other program administrator staff. Their comments generally fall into three categories:

1. Program administrators' roles
2. Communication and coordination
3. Program gaps

The following pages capture insights offered by stakeholders, organized according to these three themes. This "Stakeholders' Insights" section is followed by an outline of various program options or scenarios that CCAs and EBEW might consider, with the pros and cons distilled from the interviews.

This section captures insights offered by stakeholders and should not be construed as a comprehensive analysis of the issues and options or as the recommendations or opinions of the Strategic Advisory Council.

STAKEHOLDERS' INSIGHTS

These comments are intended as discussion points for EBEW's Strategic Advisory Council and other stakeholders. They should not be construed as a comprehensive analysis of the issues and options or as the recommendations or opinions of the Strategic Advisory Council (SAC).

1. Program Administrators' Roles

What are the strengths of the three types of organizations that administer energy efficiency programs in the East Bay?

Stakeholders' comments:

- **Investor Owned Utilities**
 - Well positioned to serve large commercial customers and to develop solicitations for the design and implementation of emerging technologies programs that are not feasible on a small scale.
 - Due to large scale, IOUs can meet CPUC ratepayer funds cost-effectiveness requirements at a portfolio level by balancing less cost-effective programs (such as residential) with more cost-effective programs (commercial, codes and standards advocacy).
 - Energy Watch partnerships fall under the IOU umbrella; the cost effectiveness of their programs can be balanced against PG&E's overall portfolio.

- **Regional Energy Networks**
 - Well suited for running regional programs involving multiple jurisdictions, Codes and Standards efforts that tap into staff expertise with building codes, and energy efficiency programs for municipal facilities.
 - RENs are currently not held to the CPUC's cost effectiveness requirements for their overall portfolio. BayREN's portfolio is developed independently of PG&E and approved by the CPUC directly.
 - RENs are specifically directed to address:
 - activities that utilities cannot or do not intend to undertake,
 - pilot activities where there is no current utility program offering, and where there is potential for scalability to a broader geographic reach, and
 - pilot activities in hard-to-reach markets, whether or not there is a current utility program that may overlap.
- **Community Choice Aggregators**
 - Potential to have a closer relationship with and better ability to reach residential and small and medium business (SMB) customers.
 - May also have more success with hard-to-reach markets in their communities.
 - Have flexibility to focus on innovative programs, carbon reduction measures that aren't limited by the CPUC's energy efficiency and cost effectiveness requirements.
 - If CCAs do receive ratepayer energy efficiency funds, they will also be held to the cost effectiveness test; however, because of their small portfolios relative to IOUs, they may be more challenged to achieve cost effectiveness, particularly where they are in competition with other programs.

With CCAs operating in the East Bay, will EBEW's role become redundant?

Stakeholders' comments:

- **YES:** There may be less need for Energy Watch partnerships in the future. CCAs could administer some of the programs EBEW administers now. To paraphrase one interviewee, in their heart of hearts, local governments don't really want to administer energy efficiency programs because they are cumbersome and highly technical.
- **NO:** EBEW has a very strong brand that can continue to drive energy efficiency gains. Its programs have good name recognition in the SMB market. In addition, EBEW offers program consistency across the two counties. EBEW and PG&E have built a strong partnership that should be capitalized on, not dismissed. The CCA can fill in energy program gaps that are not ratepayer funded and therefore less rigid.
- **NO:** Assuming the need remains strong for energy efficiency and intelligent strategies around mitigating demand response, peak day pricing and time-of-use issues, multiple entities will be needed to serve the East Bay.

Should CCAs invest in rather than administer energy efficiency programs?

Stakeholders' comments:

- **YES:** CCAs should invest in energy efficiency programs instead of managing them directly. CCAs could contract with EBEW to administer programs, thereby leveraging existing EBEW funding and enabling deeper retrofits.
- **NO:** At least in the near term, EBCE won't have funds to bolster EBEW's programs. EBCE will need to direct any profits to developing new local renewable energy facilities and building its cash reserves.

Should BayREN administer energy efficiency programs on behalf of the CCAs?

Stakeholders' comments:

- **YES:** Having a regional entity run energy efficiency programs improves the ability to reach contractor and consumer markets, which usually are not segmented by the boundaries of a county or a CCA.
- **NO:** CCAs will want control over their own programs, for the reasons described in the next section.
- **NOT NECESSARILY:** It doesn't have to be black and white; for example, BayREN and CCAs could collaborate on programs.

Should CCAs be involved in administering ratepayer-funded energy efficiency programs?

Stakeholders' comments:

- **YES:** It's not a question of "should." Their board of directors will want to see the organization run its own ratepayer-funded programs. In general, CCAs are well positioned to be a main or even the sole administrator of certain energy efficiency programs. They are closer to their customers than IOUs are, they may understand local communities better and do a better job of targeting outreach, and they don't have IOUs' negative reputation issues.
- **YES BUT:** If what's important to CCAs is recognition and awareness of their brand, ratepayer-funded programs administered by other organizations can carry the CCA's brand. CCAs can offer their customers energy efficiency programs without actually administering the programs.
- **YES BUT:** Having multiple entities running the same energy efficiency programs drives up administrative costs. Each type of organization could specialize in specific sectors (e.g., single family, multifamily, municipal, SMB, large commercial) with all cooperating and coordinating to support everyone's success. This works well right now, with EBEW focusing on SMB and municipal markets and BayREN focusing on residential markets. However, this may not work with the requirement that CCAs be cost effective, unless other solutions are found, such as MCE's "shared attribution" proposal.
- **NO:** Taking ratepayer funding means CCAs wind up chasing energy efficiency initiatives that the IOUs have led for years. The cost effectiveness test is onerous for organizations that don't operate at an IOU's scale. If CCAs don't tie themselves to the public surcharge, they can embrace market transformation initiatives rather than just doing conventional energy efficiency

programs like lighting swaps.

- **NO:** CCAs have the flexibility to explore new technologies, education programs, and innovative incentives. CCAs should focus on programs that achieve GHG reductions, aren't reliant on ratepayer funding, and go beyond basic energy efficiency measures such as fuel switching, EV charging, battery storage, solar, creative financing, assisting cities with climate action plans. EBCE has significant GHG reduction goals beyond energy savings and should be thinking about how to evaluate programs on the basis of GHG reductions rather than kWh reductions. **An in-depth analysis of these opportunities is beyond the scope of this paper.**

2. Communication and Coordination

Should EBEW lead the coordination among PG&E, BayREN and the CCAs in the East Bay?

Stakeholders' comments:

- **YES:** We need a stronger commitment from all the players to come together around needs and challenges, program design, and so on. EBEW is the perfect space for having this conversation. There's an even greater need for EBEW to coordinate with the CCAs now that most Contra Costa jurisdictions have joined or will join MCE. EBEW provides a good space to share resources and information. We're facing opportunities and challenges in finding appropriate ways for all IOUs, LGPs and CCAs to work together effectively and thoughtfully. It makes sense for Energy Watch to play that coordination role since it's already an established group with proven successes.
- **YES AND:** Smaller cities aren't at the table because they can't spare the staff time. EBEW could fund a regional position to assist small communities, like the consultant who is working on the GHG data for all the jurisdiction's climate action plans this year.
- **QUALIFIED YES:** Having the coordination is super important, even if it's not necessarily led by EBEW. Having StopWaste in the convener role has been very beneficial. Without having a place for significant local government representation and involvement at the staff level, expertise, knowledge and resources that were developed outside that space may be overlooked, especially as we get deeper into EBCE rollout.
- **NO:** There needs to be coordination, especially among local governments, but EBEW doesn't have to be the entity that provides it. There are trust issues. PG&E wants all stakeholders to be at the table and to have a voice. But do all those voices have equal weight? At the end of the day, will the IOUs have CCAs' best interest at heart? Coordination with IOUs gets complicated really quickly because of competition issues. Program coordination between the RENs and CCAs is more straightforward.
- **NO:** This would be problematic for two reasons: 1. EBEW is a ratepayer-funded program and is beholden to its contract with PG&E for cost effectiveness. It doesn't seem like the right place for coordination at that scale. 2. MCE is deeply engaged in coordination with PG&E and has been since launch. It is useful to have a single point of contact type model for coordinating programs, but EBEW is not the right entity. StopWaste or some other government agency that represents the majority of East Bay communities could be the right place for East Bay coordination. However, given MCE's growth and the number of CCAs operating within BayREN's area alone,

this issue is larger than the East Bay and may need to be addressed at a wider regional level, such as ABAG.

Should EBEW continue to serve two counties?

Stakeholders' comments:

- **YES:** EBEW has been exceptionally engaged in energy efficiency in both counties and has the biggest impact in terms of energy savings. It should continue in its current form; less change is better right now. It might even be beneficial to formalize EBEW's relationship in the two counties with a mechanism such as a Memorandum of Understanding (MOU).
- **YES:** EBEW and StopWaste create continuity and facilitate sharing of knowledge and experience across city and county borders. This is particularly beneficial for smaller cities that benefit from learning about more cutting edge programs (e.g., ZNE) that larger cities are implementing. And not every jurisdiction in Contra Costa County has joined MCE, so they would benefit from EBEW continuing to play an active role.
- **YES:** When it comes to advocacy, there is power in numbers. EBEW has more influence on the CPUC if it represents two counties. EBEW is the largest Energy Watch and represents a very large population. The cities, implementers and stakeholders currently active under the EBEW umbrella have a certain amount of leverage. StopWaste has moved this group's interests forward significantly and its advocacy role is as important, if not more, than its convening role. The issue of leverage matters and stakeholders might miss it if it's gone.
- **MAYBE NOT:** It could split into two entities, or dissolve completely. Another possibility is for EBEW to explore coming under the umbrella of a local government Program Administrator, such as BayREN, MCE or EBCE.

3. Program Gaps

Where are the overall gaps in the energy efficiency program offerings and outcomes? Note: These are the program gaps mentioned during the stakeholder interviews; this is not a comprehensive list of gaps.

Stakeholders' comments:

- **Low hanging fruit:** In many jurisdictions, there's still a lot of low hanging fruit for energy efficiency improvements. Some stakeholders emphasized that it's still helpful to have "first step" programs and that program administrators need to keep making progress on basic energy efficiency and measures that address, for example, weatherization, insulation, furnaces and water heaters.
- **Leveraging data:** Gaps include programs that deliver cost effective Energy Management Systems (now mandated by AB 793) and Commercial Whole Building approaches (sometimes referred to as Normalized Metered Energy Consumption approaches). These programs push the envelope on using customer data to establish baselines and savings and incentive levels, bypassing the cumbersome, expensive energy review process at the IOU and Energy Division that sometimes becomes an obstacle to projects moving forward.

- **Non-energy efficiency programs:** EVs, distributed generation, energy storage, and fuel switching present big opportunities to reduce GHG emissions that will not be tied to ratepayer funding restrictions. CCAs could address these needs directly or contract with other entities to offer non-energy efficiency programs.
- **Other gaps include:**
 - Ability to claim savings and pay incentives based on behavioral changes
 - Meter-based savings programs (may be limited by access to data)
 - Peak day pricing solutions
 - More creative financing efforts
 - Funding for outreach and education
 - Existing conditions as baselines for all projects under a certain demand/size

What are the energy efficiency program gaps specific to the residential sector?

Stakeholders' comments:

- **Middle-income residential sector:** EBEW's California Youth Energy Services (CYES) program services low-to-moderate income households, but the program only reaches a small number of middle-income households each year. BayREN's Advanced Home Upgrade to date has served primarily higher income homeowners. BayREN has proposed addressing this gap by shifting its focus from Home Upgrade to a middle-income single-family program.
- **Expanding CYES:** The Rising Sun program is popular but lacks capacity to serve every city every year. The need for cities to copay for the program is also an obstacle, especially for smaller cities and/or those without dedicated sustainability staff or budgets.
- **Hard-to-reach residential markets:** There are still some East Bay cohorts that aren't well served by existing energy efficiency programs: tenants, low income households, non-native English speakers. CYES does serve this market but the program is not large enough to provide adequate coverage.

What are the energy efficiency program gaps specific to the SMB sector?

Stakeholders' comments:

- **Demand reduction:** More consumer education is needed to reduce the "energy literacy" gap. If customers better understood their electricity rates and how they change over the course of the day, participation in demand response activities would likely increase.
- **Automated demand response:** ADR-capable HVAC systems, lighting technologies, plug strips and "smart" appliances can be programmed to work with an ADR platform that makes adjustments in an integrated fashion across devices, reducing energy use during peak hours and adjusting more energy use to off-peak hours. The key is getting all the ADR-enabled devices controlled on the same platform or standard. A big gap for the SMB sector currently lies in the piecemeal rather than holistic approach taken to ADR.
- **Small commercial retrocommissioning:** Retrocommissioning is a systematic process for fine-tuning existing buildings to make them operate more efficiently. Retrocommissioning small

commercial facilities is often not considered cost effective when gauging the cost of the improvements against energy savings over a one-year period. However, for small commercial facilities with predictable energy use, a baseline of 12 to 24 months of historic energy use data could be used to calculate the effectiveness of retrocommissioning for a period of 12 or more months into the future. Meter-based energy savings programs could measure what happens at the meter as a result of retrocommissioning efforts and pay customer incentives based on performance.

PROGRAM ADMINISTRATION SCENARIOS: PROS AND CONS

This section distills the key insights from the stakeholder interviews into seven program administration scenarios and presents pros and cons of each. The seven scenarios are:

1. CCA does not offer any ratepayer-funded energy efficiency programs, and is not involved with their implementation.
2. CCA does not offer its own energy efficiency programs but supports other organizations' programs via outreach, funding, co-branding or other mechanisms.
3. CCA provides ratepayer-funded energy efficiency programs only to fill gaps in current programming.
4. CCA offers ratepayer-funded energy efficiency programs that absorb, compete with, or replace existing East Bay programs.
5. CCA offers non-ratepayer-funded energy and GHG reduction programs.
6. EBEW takes on a formal coordination role among local governments, utilities and CCAs in the East Bay.
7. EBEW splits into two partnerships, with one covering MCE's jurisdictions and the other covering EBCE's jurisdictions.

As with the Stakeholders' Insights section above, these are intended as discussion points and not as recommendations. These scenarios are not necessarily mutually exclusive. For example, a CCA may choose to not offer ratepayer-funded programs (Scenario 1) in certain sectors and offer them in other sectors (Scenario 4).

Scenario 1: CCA does not offer any ratepayer-funded energy efficiency programs.

MCE currently administers a multifamily and commercial program using public goods charge funds, and has proposed to the CPUC that it serve in the role of downstream liaison for ratepayer-funded programs in the areas where it operates. Sonoma Clean Power (SCP), on the other hand, has not pursued ratepayer funding for any of its customer programs. East Bay Clean Energy hasn't yet determined when or if it might offer ratepayer-funded programs.

Pros:

- No disruption to current ratepayer-funded programs offered by PG&E, EBEW and BayREN

- Reduces competition for ratepayer funding
- Allows CCA to focus on developing its core business
- Allows CCA to focus on innovative programs that aren't hampered by the CPUC's onerous Total Resource Cost (TRC) test⁷
- Avoids market confusion that may arise if there are multiple similar programs
- Avoids duplication of program administration costs
- Avoids need to develop staff and systems to comply with complex and onerous regulatory requirements

Cons:

- Missed opportunity to leverage CCA's customer outreach
- Diminished visibility for the CCA into energy reductions occurring in its load base
- CCA will be restricted by the need to base programs on rates and thus may not have significant programming opportunities
- Inconvenient for CCA customers who have to deal with multiple organizations to buy electricity and receive energy efficiency services
- Missed opportunity for CCA to expand staff and capacity by leveraging CPUC-allocated administrative funds

Scenario 2. CCA does not offer its own energy efficiency programs, but supports other organizations' programs via outreach, funding, co-branding or other mechanisms.

Sonoma Clean Power is an interesting example of this approach. They encourage their customers to take advantage of PG&E's ratepayer-funded energy efficiency programs and essentially market these programs to their customers without receiving CPUC funds to do so. They see this outreach activity as benefitting their customers and helping the region achieve its climate goals. They have also collaborated with existing energy efficiency programs to deliver additional services prohibited by ratepayer funding. For example, BayREN Multifamily program technical consultants will be provided with EV training from Sonoma Clean Power. A CCA could also allow programs to carry the CCA's brand without having to take on an administrative or implementation role.

Pros:

Same as Scenario 1, plus:

- Potential to increase recognition and uptake of current energy efficiency programs
- Allows PG&E, EBEW and BayREN to leverage CCA's customer base

⁷ "This test compares benefits to society as a whole (avoided supply-side cost benefits, additional resource savings benefits) with the participant's cost of installing the measure plus the cost of energy efficiency program administration (non-incentive costs). Incentives are considered a transfer payment from program to participant and thus are not explicitly accounted for in the calculation. Since the TRC test takes a societal perspective into account, it is the appropriate test for regulatory agencies and other policymakers to use in establishing energy conservation goals." Source: <http://ceep.rutgers.edu/wp-content/uploads/2013/11/EEGuidebook2009.pdf>

- Potential to enhance CCA's reputation and electricity sales if they are associated with programs that have good name recognition
- CCA could pick and choose programs to support that best fit its goals
- Much less expensive than creating new programs
- CCA avoids having to deal with regulatory bureaucracy of ratepayer funding

Cons:

- Diverts CCA's staff time and revenue from other activities
- CCA might chafe at limited control of energy efficiency programs
- If customers have negative perception of program administrator, that may reflect poorly on the CCA's brand

Scenario 3. CCA provides ratepayer-funded energy efficiency programs only to fill gaps in current programming.

While certain market sectors, such as low and upper-income single-family residential, may be well served with programs, there are underserved sectors as well as technologies and products that may not be well addressed by current programs. A CCA that's not boxed into traditional utility programs might be successful in serving some of these niche areas.

Pros:

- No disruption to current ratepayer programs
- CCAs are potentially more nimble and creative than IOUs and could fill gaps by designing ground-breaking products or delivery channels
- Benefit of helping underserved communities within the CCA service area

Cons:

- CCA would be at competitive disadvantage if established program administrators "owned" the most cost-effective programs and CCA only had access to hard-to-reach markets that are expensive to serve, making TRC low

Scenario 4. CCA offers ratepayer-funded energy efficiency programs that absorb, compete with, or replace existing East Bay programs.

A CCA may apply to the CPUC for funding for programs that duplicate current programs, or that would even supplant those programs.

Pros:

- Continues to provide jurisdictional authority over ratepayer funds collected from CCA customers
- Provides greater visibility into demand reductions occurring within a CCA's load base
- Facilitates positive brand recognition of the CCA as it launches
- Competition among program administrators may spur them to create more innovative, efficient,

and effective programs that could help reduce TRC

- As the new kid on the block, a CCA may find it easier to capture customers' interest than well-established programs, especially if customers have negative associations with the existing program's brand

Cons:

- Competing program administrators might be unwilling to work cooperatively
- Programs may undercut each other when competing for the same customers
- Duplication of program administrative costs and outreach costs wastes ratepayers' money and fragmentation of program's within a region reduce economies of scale and cost effectiveness
- Competing programs or brands may confuse customers
- Taking ratepayer funds ties the CCA to a complicated and onerous set of regulations developed for IOUs and not appropriate to local government implementers
- Taking ratepayer funding could force CCA to aggressively market energy efficiency programs and could divert their resources from other goals (e.g., EBCE's goals of local power generation, local development and local economic benefit)

Scenario 5. CCA offers non-ratepayer-funded energy and GHG reduction programs.

CPUC-allocated ratepayer funds come with strings attached: programs have to meet a strict cost-effectiveness test. Foregoing these funds can free up CCAs to provide more innovative solutions to customers' needs.

Pros:

- Allows CCA to focus on programs that achieve GHG reductions and that aren't reliant on ratepayer funding, such as fuel switching, EV charging, battery storage, solar, creative financing, and education and marketing
- Allows CCA to focus on innovative programs that aren't hampered by the CPUC's onerous Total Resource Cost test

Cons:

- There is still a lot of "low hanging fruit" to be captured in the East Bay through conventional energy efficiency programs
- CCAs need to find other means of funding programs potentially impacting rates for CCA customers and/or limits funding for programs
- Causes CCA customers to pay twice for customer programs if duplicative

Scenario 6. EBEW takes on a formal coordination role among local governments, utilities and CCAs in the East Bay.

Pros:

- EBEW already has experience with this complex coordination

- Helps ensure good integration of CCAs into existing energy efficiency program and good coordination among all the entities involved with program administration
- Helps ensure that local governments share experiences and lessons learned

Cons:

- Participation might be limited unless there were a mandate
- Implementers may want to work directly with IOUs and CCAs, not through EBEW Partnership
- EBEW only covers part of the MCE jurisdictions and may not be well positioned relative to existing coordination efforts

Scenario 7. EBEW splits into two partnerships, with one covering MCE's jurisdictions and the other covering EBCE's jurisdictions.

With MCE serving most of Contra Costa County and EBCE poised to serve most of Alameda County, we asked interviewees if it would make sense for EBEW to divide along county lines.

Pros:

- Would allow for streamlining between the respective CCA and administrator of ratepayer-funded programs within each separate county

Cons:

- Local governments lose some of the cross pollination that comes from EBEW serving both counties
- Two smaller EBEWs would have less clout with the CPUC and other entities than one large EBEW
- Some Alameda County & Contra Costa County jurisdictions have not joined a CCA

ADDITIONAL QUESTIONS

This paper touches on a number of issues that would benefit from deeper exploration:

- **Duck curve.** How can local government's engagement with the duck curve phenomenon and related demand management issues be strengthened?
- **Gap analysis.** There's a need for a comprehensive gap analysis of the energy programs in the East Bay, emphasizing demand management, solar, EV charging, battery storage, creative financing and even fuel switching, as well as conventional energy efficiency programming.
- **Programming by market sector.** Additional information and analysis is needed regarding whether CCAs should offer energy efficiency programs in each market sector served by EBEW (residential, commercial, municipal, industrial).
- **Intelligent demand management.** The paper might benefit from an expanded discussion of how and why CCAs should look beyond CPUC-allocated ratepayer funding with its cost-effectiveness constraints to increasingly important opportunities related to intelligent demand management.

APPENDIX A. ACRONYMS

ABAG	Association of Bay Area Governments
ADR	Automated Demand Response
BAMBE	Bay Area Multifamily Building Enhancements
BAMCAP	Bay Area Multifamily Capital Advance Program
BayREN	Bay Area Regional Energy Network
CAP	Climate Action Plan
CCA	Community Choice Aggregator or Community Choice Aggregation
CCE	Community Choice Energy
CESC	Community Energy Services Corporation
CPUC	California Public Utilities Commission
CYES	California Youth Energy Services
DER	Distributed Energy Resources
DR	Demand Response
EBCE	East Bay Community Energy
EBEW	East Bay Energy Watch
EE	Energy Efficiency
ESAP	Energy Savings Assistance Program
EV	Electric Vehicle
EVSE	Electric Vehicle Service Equipment
GHG	Greenhouse Gas
HES	Home Energy Score
HVAC	Heating, Ventilation and Air Conditioning
HTR	Hard to Reach
IOU	Investor-Owned Utility
kW	Kilowatt
kWh	Kilowatt Hour
MCE	Marin Clean Energy
MIT	Municipal Implementation Team
PACE	Property Assessed Clean Energy
PAYS	Pay-As-You-Save
PG&E	Pacific Gas & Electric Company
PV	Photovoltaic
REN	Regional Energy Network
SCP	Sonoma Clean Power
SMB	Small and Medium Business
TRC	Total Resource Cost
ZNE	Zero Net Energy

APPENDIX B. ENERGY EFFICIENCY PROGRAM ADMINISTRATORS IN THE EAST BAY

Four types of organizations currently administer ratepayer-funded energy efficiency programs in the East Bay: investor-owned utilities (IOUs), regional energy networks (RENs), local government partnerships, and community choice aggregators (CCAs). These program administrator types are described here. Appendix C provides a description of the energy efficiency programs listed below.

Investor-owned Utilities

For over 30 years, PG&E has promoted energy efficiency throughout its service area. PG&E's energy efficiency program portfolio includes a diverse suite of rebates, incentives, services and tools for targeting every customer segment through multiple delivery channels. PG&E also partners with local and regional governments to tailor energy efficiency offerings to the local community through Energy Watch programs. Many of PG&E's programs are sector specific (single-family residential, multifamily, commercial, industrial, agricultural and municipal), while others cut across various sectors. Given the size of PG&E's service territory, the scope of its programs, and the utility's depth of experience with energy efficiency initiatives, the impact of their programs is significant.

These are PG&E's main energy efficiency programs offered in the East Bay:

- **Residential—Single family**
 - Advanced Home Upgrade
 - California Advanced Homes
 - Energy Savings Assistance Program (ESAP)
 - Plug load and appliances
 - Residential Heating, Ventilation and Air Conditioning (HVAC)
- **Residential—Multifamily**
 - Multifamily Upgrade Program
 - Multifamily Energy Efficiency Rebates
 - California Multifamily New Homes
- **Commercial**
 - Commercial HVAC Optimization Program
 - Savings by Design
- **Cross-cutting**
 - Energy Advisor
 - Calculated and deemed incentives
 - Continuous improvement consulting and training
 - Direct install
 - On-bill financing
 - Codes and Standards

Energy Watch Partnerships

PG&E has established Energy Watch Partnerships in their service territory to help local governments develop and implement energy efficiency programs and activities that support their community's sustainability and climate change objectives. PG&E provides incentives, tools and technical assistance to support these efforts, and Energy Watch Partnerships receive ratepayer funds to carry out energy efficiency programs in their service area.

East Bay Energy Watch serves Contra Costa and Alameda Counties. Most of the EBEW program implementer contractors are held directly by PG&E. EBEW's cost effectiveness is balanced against PG&E's overall portfolio, and ultimately its activities are approved by PG&E.

According to a 2016 survey of the local governments participating in EBEW, the number one reason for participation is to help meet climate action plan (CAP) goals for greenhouse gas (GHG) reduction. Every jurisdiction participating in EBEW in Alameda County and the majority of jurisdictions participating in EBEW in Contra Costa County have adopted CAPs.

Ratepayer-funded energy efficiency programs are one way in which local jurisdictions make progress toward achieving their CAP goals. In addition to helping reduce GHG emissions, energy efficiency programs have the potential to provide other benefits, including job training and job creation, lower utility bills, and healthier, safer, more resilient buildings and communities.

These are East Bay Energy Watch's current ratepayer-funded energy efficiency programs:

- **Residential—Single family and multifamily**
 - California Youth Energy Service (provided by Rising Sun)
- **Commercial—Small to medium businesses (SMB)**
 - East Bay Energy Watch Program (provided by DNV GL and CESC; was SmartLights and BEST programs)
- **Municipal**
 - Municipal Implementation Team (MIT) program (provided by QuEST)

EBEW also supports energy efficiency-related needs identified by member jurisdictions through its Strategic Energy Resources⁸ budget including Your Energy Manager, SMB MicroFinance Pilot, Building Operator Certification training, CivicSpark, Lucid Connected Cities and a Municipal Automated Demand Response pilot.

⁸ Strategic Energy Resource initiatives help communities to overcome barriers to achieving deeper energy savings by empowering their creativity to demonstrate new approaches to energy and GHG reduction that align with the longer-term elements of the CEESP and AB32 and to become models for all local governments in California. Source: Pacific Gas and Electric Company 2016-17 Energy Efficiency Portfolio Local Program Implementation Plan Local Government Partnerships Master PGE211005-1, PGE211005-2

Regional Energy Networks

The Bay Area Regional Energy Network (BayREN) is a collaboration of local governments from the nine counties that make up the San Francisco Bay Area. Led by the Association of Bay Area Governments (ABAG), BayREN draws on the expertise and experience of Bay Area local government staff to develop and administer energy efficiency programs. BayREN provides a platform for local government energy programs to benefit from regional consistency and scale. One of only two Regional Energy Networks in California, BayREN represents 20 percent of the state's population.

BayREN's portfolio is developed independently of PG&E and is approved by the CPUC directly. BayREN's energy efficiency programs complement and supplement the programs of the East Bay Energy Watch Partnership. This collaboration helps ensure that each organization's efforts are leveraged and that gaps in service offerings are minimized.

RENs are specifically directed to address:

- activities that utilities cannot or do not intend to undertake, neither as core programs nor under the LGP framework
- pilot activities where there is no current utility program offering, and where there is potential for scalability to a broader geographic region, and
- pilot activities in hard-to-reach markets, whether or not there is a current utility program that may overlap.

These are BayREN's ratepayer-funded energy efficiency programs in the East Bay:

- **Residential—Single family**
 - Energy Upgrade California Home Upgrade
 - Energy Upgrade California Advanced Home Upgrade Assessment Incentive
 - BayREN Home Upgrade Advisor
 - Home Energy Score
- **Residential—Multifamily**
 - Bay Area Multifamily Building Enhancements (BAMBE)
 - Bay Area Multifamily Capital Advance Program (BAMCAP)
- **Municipal**
 - Zero Net Energy (ZNE) Assistance for Municipal Buildings
- **Cross Cutting**
 - Codes and Standards
 - PAYS On-Bill Financing

In addition to these programs, BayREN has submitted proposals to the CPUC to run a public sector and commercial program.

StopWaste Energy Council

The StopWaste Energy Council is a Joint Powers Agency that assists its member agencies (the 15 jurisdictions in Alameda County) in strengthening staff capacity, providing technical expertise, and securing funds to implement local sustainable energy strategies. The Energy Council serves as one of the co-administrators of the East Bay Energy Watch PG&E Local Government partnership along with Contra Costa County. In addition, the Energy Council implements these energy efficiency programs:

- **Residential—Single Family**
 - BayREN’s Regional Home Upgrade program
- **Residential—Multifamily**
 - Bay Area Multifamily Building Enhancements (BAMBE)
 - Bay Area Multifamily Capital Advance Program (BAMCAP)
- **Cross Cutting**
 - BayREN Codes and Standards

StopWaste also provides Energy Council member jurisdictions with model policy support, climate change mitigation and resiliency planning, and assistance with creating zero net energy municipal buildings.

Community Choice Aggregators in the East Bay

To make it easier for people to buy electricity from renewable sources, in 2002 California passed a Community Choice Aggregation bill. This allows cities and counties to buy electricity on behalf of residents, businesses and local governments in their area. California’s CCAs typically offer their customers a choice of electricity generation options sourced from higher levels of renewable energy than investor-owned utilities offer, while keeping rates at or lower than what the IOUs charge. In communities that participate in a CCA program, customers are automatically enrolled but can opt out and continue to receive service from the IOU instead.

Community choice aggregation—also known as community choice energy (CCE)—is expected to play a vital role in helping meet California’s goal of achieving 50 percent renewable electricity by 2030. The state supports the CCA model because it provides choice to California’s ratepayers. Local governments are drawn to CCAs because of their potential to lower energy costs, help cities reach their climate action goals, provide more local control over procurement and programs, and benefit the local economy by bringing in revenue and jobs via local energy projects.

California leads the nation in community choice aggregation, with more than half of all currently operational CCAs located within the state. California’s CCAs focus more heavily on procurement of renewable energy, whereas other programs put more emphasis on competitive pricing and independence from investor-owned utilities. CCAs operating outside of California are Cape Cod Light Compact (MA), Northeast Ohio Public Energy Council (OH), Local Energy Aggregation Network (IL), Clean Power Choice (NJ) and Sustainable Westchester (NY).

CCAs have statutory rights as independent administrators of ratepayer funds for energy efficiency programs under the auspices of the California Public Utilities Commission. This right derives from public utilities code section 381.1. This statute offers two routes for CCA energy efficiency administration; the elect to administer (381.1 (f)) versus the apply to administer (381.1 (a-e)). Under the elect to administer option, a CCA can collect those funds which have been collected from CCA customers (less any funds allocated to statewide or regional programs). While this route applies greater autonomy to a CCA, the budget may be too small to be meaningful and the CCA is limited to serving only CCA customers, which can complicate outreach and enrollment activities. The authority provided under the apply to administer route is much broader, giving the CCA the potential opportunity to administer programs statewide. The apply to administer route subjects the CCA to full CPUC oversight regarding the ratepayer funds.

CCAs in California

According to Lean Energy US,⁹ as of July 2017 there are eight CCAs operating in California, as shown in Table 3. MCE was California’s first community choice energy program, and is the only CCA currently operating in the East Bay. East Bay Community Energy (EBCE) is expected to begin operations in 2018. MCE and EBCE are described in detail following Table 4.

Table 3. Community Choice Aggregators Operating in California as of 2017

CCA	Year Started	Energy Mixes	Energy Efficiency Programs
MCE	2010	50% renewable 100% renewable-CA solar and wind 100% local solar	Multifamily, SMB, single-family, and low-income energy efficiency programs (details below) Also offers: Low-income solar rebates, a Feed-in-Tariff program for local renewables, and a “best in state” net energy metering policy
Sonoma Clean Power	2011	42% renewable (2016) 100% local geothermal	Refers customers to other agencies’ energy efficiency programs Also offers: NetGreen solar net energy metering, DIY energy and water savings toolkit, and ProFIT feed-in tariff for developers, electric vehicle rebates, residential and workplace electric vehicle charging station rebates
Lancaster Choice Energy	2015	35% renewable 100% renewable	Has filed an Advice Letter to administer programs under the

⁹ <http://www.leanenergyus.org/cca-by-state/california/>

Appendix B. Energy Efficiency Program Administrators in the East Bay

CCA	Year Started	Energy Mixes	Energy Efficiency Programs
			“elect to administer” option; currently being reviewed by CPUC staff
CleanPowerSF	2016	40% local wind and solar 100% renewable	No energy efficiency programs Offers net energy metering for solar customers
Peninsula Clean Energy	2016	50% renewable, 75% carbon-free 100% renewable	No energy efficiency programs Offers net energy metering for solar customers
Apple Valley Choice Energy	2017	35% renewable 50% renewable	No energy efficiency programs Offers net metering for solar customers
Redwood Coast Energy Authority	2017	30% wind and solar, 12% local biomass 100% renewable	Offers net metering for solar customers
Silicon Valley Clean Energy	2017	50% renewable, 50% hydroelectric, 100% carbon-free 100% renewable, 100% carbon-free	No energy efficiency programs Offers net energy metering for solar customers

Lean Energy US lists additional CCAs expected to launch in California in 2018, as well as California jurisdictions exploring setting up a CCA. These are shown in Table 4.

Table 4. Emerging CCAs in California

Anticipated Launch in 2018	Exploring
City of Solana Beach	City of Hermosa Beach
City of San Jose	City of Pico Rivera
Contra Costa County (as part of MCE)	City of San Jacinto
East Bay Community Energy	Butte County
Los Angeles Community Choice Energy	Fresno County
Monterey Bay Community Power	Inyo County
Sierra Valley Energy	Kings County
Valley Clean Energy Alliance	Nevada County
	Riverside County
	San Diego County
	San Luis Obispo County
	Santa Barbara County
	Solano County
	Ventura County

Source: <http://www.leanenergyus.org/cca-by-state/california/> (data as of July 2017)

MCE

Launched in 2010, MCE’s service area includes the County of Marin and all jurisdictions within Marin, the County of Napa and all jurisdictions within Napa, the County of Contra Costa and the Contra Costa cities of Richmond, San Pablo, El Cerrito, Moraga, Lafayette, Walnut Creek, Concord, Martinez, Danville, Oakley, Pinole, Pittsburg, and San Ramon, as well as the City of Benicia in Solano County. Residents and businesses in these jurisdictions are automatically enrolled in MCE’s standard 50 percent renewable energy service. Customers can upgrade to higher levels of renewable energy or opt out and instead use PG&E’s standard energy portfolio with 33 percent renewable content.

MCE offers these ratepayer-funded energy efficiency programs in the communities they serve:

- **Residential—Multifamily**
 - No-cost energy assessments, rebates and other incentives
 - Assistance with obtaining energy efficiency loans and PACE financing
- **Single-Family**
 - “Seasonal Savings” programmable thermostat program that remotely adjusts thermostat set points
- **Low Income Families and Tenants Program**
 - Funded through the Energy Savings Assistance Program, this program aims to leverage the multifamily energy efficiency program to deepen the impact both programs can have. This program includes targets for deploying heat pump technology.
- **Commercial—Small businesses**
 - Assessments, rebates, financing and other assistance for small businesses
 - Assistance with obtaining energy efficiency loans and PACE financing

MCE also administers non energy-efficiency programs, including issuing rebates for the installation of electric vehicle supply equipment (EVSE), working with local transit agencies to facilitate procurement of an electric bus, and providing low-income solar rebates. MCE also currently administers more than \$1.7 million in California Energy Commission grants focused on innovative and scalable deployments of Distributed Energy Resources (DER).

East Bay Community Energy

East Bay Community Energy, which will provide greener energy choices in Alameda County, is expected to begin operations in 2018. This CCA will serve the County of Alameda and 11 of its 14 cities—Albany, Berkeley, Dublin, Emeryville, Fremont, Hayward, Livermore, Oakland, Piedmont, San Leandro and Union City. Newark and Pleasanton are not members at this time, and the city of Alameda is served by its own municipal utility.

At this point, no decisions have been made about whether EBCE will offer energy efficiency programs. A management team creating EBCE’s Local Business Development plan is in the process of interviewing stakeholders and assessing opportunities to collaborate with existing energy efficiency program implementers.

APPENDIX C. EAST BAY ENERGY EFFICIENCY PROGRAMS BY SECTOR

This section describes the main ratepayer-funded energy efficiency programs in the East Bay for each major market sector—single family, multifamily, commercial (including industrial and agricultural), municipal and cross cutting.

Note: Program results metrics are only provided where they were readily available for this paper.

Single-Family Programs

PG&E

Advanced Home Upgrade

Up to \$5,500 in rebates and incentives for energy efficiency improvements in existing homes. Requires that participating contractors evaluate the home's heating, cooling and water heating systems. Referrals to financing programs.

California Advanced Homes

Resources and incentives to architects and builders for energy-efficient new single-family homes.

Energy Savings Assistance Program (ESAP)

No-cost weatherization, energy-efficient appliances and energy education for low-income customers.

Plug Load & Appliances

Partnership with local retailers to market and provide special pricing for energy-efficient home appliances including clothes washers, gas water heaters, electric heat pump water heaters and pool pumps. In 2016, PG&E received more than 77,500 applications for this program in their service territory.

Residential HVAC

Education and resources for contractors about HVAC technology, installation and maintenance, and code and permit compliance. This program has had an influence on more than 20,000 HVAC systems in PG&E's service territory.

BayREN

Energy Upgrade California: Home Upgrade and Advanced Home Upgrade

Up to \$3,150 in rebates and incentives for energy efficiency improvements. Requires completion of at least three upgrade measures including one base measure. Provides \$300 rebate for homeowners who complete an energy assessment through PG&E's Advanced Home Upgrade program. Eligible projects must demonstrate a minimum of 10 percent modeled savings. Attracts primarily higher income households due to high out-of-pocket costs. BayREN is exploring program models for moderate-income households.

As of March 31, 2017, this program had served 1,297 homes in Alameda County and 1,833 homes in Contra Costa County.

Home Energy Score

BayREN also promotes the U.S. Department of Energy's Home Energy Score (HES) as a low-cost assessment tool for homeowners. Program outreach is managed by the StopWaste Energy Council.

Home Upgrade Advisor

Phone- and field-based consulting service providing individualized assistance to homeowners about energy efficiency programs and benefits, contractor selection, assessment report and bid review, financing options, upgrade project support and customer service. Also provides referrals to relevant complementary programs.

East Bay Energy Watch

California Youth Energy Services

EBEW contracts with Rising Sun Energy Center's California Youth Energy Services (CYES) program to hire and train youth ages 15 to 22 for summer jobs conducting Green House Calls, which include no-cost home assessments, installing energy- and water-saving devices, and giving residents energy and water conservation tips. Focuses on hard-to-reach households: low to moderate income, renters, multifamily, seniors, non-native English speakers.

CYES is popular with cities for its strong youth training component despite being costly to operate for savings achieved. Since 2010, the program has conducted assessments at 38,196 homes, including 17,364 East Bay homes, and trained and employed 1,537 youth, including 654 East Bay youth. It has saved 120,438,231 kWh, including 4,413,322 kWh in the East Bay, and offset 98,063 metric tons of CO₂ emissions.

MCE

MCE's Seasonal Savings program takes the Nest Thermostat energy savings one step further by providing customers with incremental energy savings throughout a particular heating or cooling season. It does this by making micro setpoint adjustments to a customer's schedule—after receiving their permission—over a three-week period.

Multifamily Programs

PG&E

Multifamily Upgrade

Tiered rebates of \$400 to \$3,000 per unit for whole building upgrades to HVAC and hot water systems, building envelope, lighting and appliances. Assessment incentive of up to \$300.

Multifamily Energy Efficiency Rebates

This program, which offered rebates for energy-efficient appliances in dwelling units and common areas, is on hold due to low activity.

California Multifamily New Homes

Resources and incentives for architects and builders for energy-efficient new multifamily buildings.

BayREN

Bay Area Multifamily Building Enhancements (BAMBE)

Rebates of \$750 per unit and free energy consulting for whole-building energy upgrades. Focuses on projects designed to reduce building's energy use by 15 percent or more. Targets homeowners associations (HOAs) and affordable and market-rate multifamily buildings with five or more attached dwelling units.

In the Bay Area, as of October 2016, this program provided consulting services impacting 65,000+ units; paid \$12+ million in rebates to 252 properties (16,107 units); and saved over 7.1 million kWh and 516,000 therms.

Specifically within Alameda and Contra Costa Counties, as of October 2016 this program provided consulting impacting 10,000+ units; paid nearly \$4 million in rebates for over 5,300 units; and saved over 2 million kWh and 185,000 therms.

Bay Area Multifamily Capital Advance Program (BAMCAP)

Zero percent interest loan for BAMBE participants. Loan limited to no more than 50 percent of the cost of the approved scope of work minus program incentives. New concierge model (expected to launch in 2018) will match property owners with lenders specializing in energy efficiency loans as low as \$5,000.

Since its launch in April 2015, this program has enrolled five lenders and completed three transactions, issuing \$879,000 in program capital and leveraging \$1.3 million in private capital.

East Bay Energy Watch

CYES serves households in multifamily residences through their Green House Calls, one household at a time. See Single-Family Programs for more information.

MCE

Multifamily Program

No-cost assessments (valued at \$3,000 to \$5,000), no-cost installation of lights, faucet aerators and showerheads, and hot water pipe insulation (valued at \$25 per unit), no-cost technical assistance to solicit bids and develop a scope of work, low-cost loans and rebates.

Low Income Families and Tenants (LIFT) Program

Funded through the Energy Savings Assistance Program (ESAP), this program leverages MCE's

multifamily program to deepen the impact both programs can have individually at the property level. The program has a particular emphasis on capturing “hidden communities,” or low-income communities that may not be captured by existing census data or other tracking systems. The program also includes a component to explore heat pump installations in the multifamily residential setting.

Commercial Programs

PG&E

Commercial HVAC Optimization

Incentives up to \$3,836 per unit for enrolling in air conditioning maintenance service agreements and installing optional unit retrofits.

Savings by Design

Resources and incentives for architects and builders for energy-efficient new non-residential buildings.

BayREN

Currently no commercial programs. SF Environment is the lead for a BayREN proposal submitted to the CPUC for a commercial program that would include an expansion of the financing program described below under “Energy Watch Microloan Program.”

East Bay Energy Watch

East Bay Energy Watch Program

Free energy audits. Incentives for lighting retrofits, refrigeration equipment, controls and other technologies; incentives typically cover 50 to 70 percent of the project cost. Prior to 2017, this was two distinct programs: SmartLights (an audit-based model administered by Community Energy Services Corporation), and BEST (a contractor model administered by DNV-GL).

Since 2002, SmartLights completed 8,050 projects saving nearly 92 million kWh. BEST completed 6,000 projects saving 96.7 million kWh.

Your Energy Manager

No-cost analysis, incentives and financing options for energy and water efficiency upgrades. Focus on operational and behavior improvements, lighting, plug load, and packaged HVAC equipment improvements. Serves small and medium-sized businesses with demand of less than 200 kW.

In 2016, YEM met its goal of engaging with 24 properties, where they trained energy champions, put operational and behavioral changes in effect, and implemented energy efficiency projects.

Building Operator Certification

Funding for municipal facilities staff to attend Building Operator Certification courses to learn how to optimize efficiency of city and county facility operations. Training addresses how to maintain and

enhance building systems at little to no cost.

In 2016, 10 jurisdictions in Alameda County and 4 in Contra Costa County participated. In 2017, 7 Alameda County and 4 Contra Costa County jurisdictions participated. Feedback from participants is that the course is very cost- and time-effective.

Energy Watch Microloan Program

Expected to launch in late 2017 in partnership with Mission Asset Fund. Will provide short-term, zero-interest loans to support completing projects in the San Francisco and East Bay Energy Watch territories. Serves small and medium businesses.

MCE

Commercial Program

Uses Community Energy Services Corporation (CESC), which also implements the East Bay Energy Watch commercial program. Provides assessments, matches business with available rebates and financing, and assists with project installation management. To date, this program has reached over 2,400 small businesses and distributed over \$500,000 in rebates.

Municipal Programs

PG&E

No municipal programs.

BayREN

ZNE Assistance for Municipal Buildings

Engineering and cost analysis assistance for zero net energy design and implementation of municipal facilities. This is a unique program that does not duplicate any existing energy efficiency programs in the East Bay.

East Bay Energy Watch

Municipal Implementation Team (MIT)

No-cost energy assessments and technical assistance for municipal buildings. Matches municipalities with cash incentives. Technical assistance, training and reporting services for local government staff on the use of ENERGY STAR Portfolio Manager. Program adjusted in 2016 to provide more flexibility to serve the diverse range of municipal facilities.

The 2016 technical assistance program model served 21 buildings, saving \$930,000, 5.8 million kWh, 22,825 therms, and 1,330 metric tons CO₂e.

Under the 2010–2015 custom incentive program model, 144 audits were performed and 27 projects installed, saving 3.7 million kWh and 137,818 therms. Over \$427,000 of incentives were awarded.

CivicSpark

CivicSpark is a Governor's Initiative AmeriCorps program in California that builds local government capacity to address climate change and water management issues. In the East Bay, activities include climate action planning and metrics, energy efficiency program outreach and implementation, greenhouse gas emissions inventories, outreach for the East Bay Energy Watch Program for small and medium-size businesses (formerly BEST and SmartLights), residential energy workshops, building energy efficiency benchmarking and billing, portfolio manager, and this EBEW paper.

In fiscal year 2015–16, 11 East Bay jurisdictions participated in the program by hosting 11-month Climate Fellows (Antioch, Berkeley, Contra Costa County, Emeryville, Fremont, Hayward, Martinez, Oakland, Piedmont, Pittsburg and Richmond). Each pledged 20 percent of CivicSpark Fellow service hours (out of 1,300+ total hour) to EBEW programs and increased participation in climate action planning and metrics, energy efficiency program outreach and implementation, and piloting and expanding Lucid's BuildingOS platform.

In fiscal year 2016–17, sixteen jurisdictions participated (Albany, Antioch, Berkeley, Contra Costa County, El Cerrito, Emeryville, Fremont, Hayward, Martinez, Oakland, Piedmont, Pittsburg, Richmond, San Leandro, Union City and Walnut Creek).

In fiscal year 2017–18, fourteen jurisdictions are participating (Alameda, Albany, Antioch, Dublin, El Cerrito, Fremont, Hayward, Martinez, Oakland, Piedmont, Pinole, Richmond, San Leandro and San Pablo).

Lucid Connected Cities (EBEW and Lucid partnership program)

Uses Lucid's BuildingOS platform to improve tracking of facility energy use and generation. Allows local governments to benchmark their buildings, provides automated reports and can be used for real-time automated displays. Serves municipal customers. Four jurisdictions have participated: Berkeley, Contra Costa County, Hayward and Oakland.

Municipal Automated Demand Response Pilot

Proposed pilot to encourage East Bay local governments to participate in PG&E's Automated Demand Response (ADR) program.

MCE

MCE could offer municipal programs through its small commercial program, but has deferred municipal projects to the local government partnerships operating in its service area.

Cross-Cutting Programs

PG&E

Energy Advisor

Assists customers in understanding and analyzing their energy use and patterns, and selecting

appropriate energy-saving incentives, technologies and initiatives. Serves residential and commercial customers.

Calculated Incentives

Incentives and technical assistance for installing above-code equipment in existing buildings. Eligible projects require approval and a comprehensive savings verification process. Serves commercial, industrial and agricultural customers.

Code and program eligibility changes have resulted in a decline in projects over the past several years.

Deemed Incentives

Rebates to homeowners for energy-efficient refrigerators, clothes washers, air conditioners, water heaters and other appliances. Incentives for nonresidential customers and vendors for installing or selling qualified energy-efficient equipment. More straightforward than calculated incentives program because does not require comprehensive savings verification. Serves residential, commercial, industrial and agricultural customers.

Direct Install

Provides product and labor for installing efficiency measures. Serves commercial and low-income residential sectors. Straightforward for the customer but lacks flexibility, as the customer has no choice in contractor or product brand.

Continuous Improvement

Consulting services (training, facilitation of cohorts and best practices sharing circles, coaching) for long-term strategic planning and management to reduce energy intensity. Serves commercial, industrial and agricultural customers.

On-Bill Financing

Zero percent interest, zero down payment financing program for energy efficiency upgrades repaid on customer's PG&E utility bill. Serves commercial and municipal sectors.

Codes and Standards

Active member of a statewide team that has supported 80 building codes and 60 appliance standards in California, as well as 40 federal appliance standards or test procedures since 1998.

BayREN

Codes and Standards

Assists cities and counties in complying with the California Building Energy Efficiency Standards. Establishes metrics to evaluate compliance. Provides free training for staff involved in energy code enforcement. To date, this program has hosted 151 workshops and trainings attended by nearly 700 building department staff. In 2016, the program delivered four half-day regional forums, 38 energy code trainings and three online trainings. It also initiated the Residential Energy Assessment & Disclosure

(READ) working group, and customized and distributed over-the-counter permit guides to help building staff and permit applicants understand the building code.

PAYS (Pay As You Save) On-Bill Financing

Allows municipal water utility customers to pay for efficiency improvements through a monthly charge associated with their meter. Joint effort of Bay Area cities and counties and their water agencies. Serves residential, commercial and municipal customers.

Marin Clean Energy

EV Pilot

MCE is between phases of its EV rebate program. In 2016-2017, MCE distributed rebates for 67 EVSE installations. MCE aims to re-launch an EV rebate program in the late fall of 2017. MCE offers an EV rate option for households with electric vehicles. Residents who charge at night benefit from lower, off-peak rates.

Low Income Solar Rebate

MCE partners with GRID alternatives to offer additional funding for low-income customers who install solar on their roofs.

Storage Tariff

MCE offers a rate for residential customers who allow MCE to remotely dispatch residential storage technology.