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**BayREN Comments to EE and Building Decarbonization - 19-IEPR-06**

*Additional submitted attachment is included below.*



May 15, 2019

California Energy Commission  
Dockets Office MS-4  
1516 Ninth Street  
Sacramento, CA 95814-5512  
*Submitted via Docket No. 17-EBP-01*

Re: Docket No. 19-IEPR-06  
*2019 California Energy Efficiency Action Plan*

Dear Commissioners and Energy Commission Staff,

On behalf of the San Francisco Bay Area Regional Energy Network (BayREN), we appreciate the opportunity to provide comments for consideration in the development of the 2019 California Energy Efficiency Action Plan. The BayREN is a regional program of the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) and is composed of public agencies in the nine-county Bay Area. We design and implement effective energy savings programs, drawing on the expertise, experience, and proven track record of Bay Area local governments to develop and administer successful regional and local climate, resource, and sustainability programs. BayREN was approved in California Public Utilities Commission (CPUC) Decision 12-11-015, and has received ratepayer funding as directed by the CPUC since 2013. In addition to offering a portfolio of energy efficiency programs, we also have received a Climate Protection Grant from the Bay Area Air Quality Management District (BAAQMD) to address the primary barriers to greater adoption of energy efficient Heat Pump Water Heaters (HPWH). As a local government implementer we provide these comments based on our unique experience with the subject matter of the stakeholder request.

### **Building Standards**

*o One goal from the 2016 Existing Buildings Energy Efficiency Plan Update was to make the 2019 Building Energy Efficiency Standards easier to use/understand than previous iterations. In your view, was this goal achieved?*

The Building Energy Efficiency Standards have many types of users, including architects, energy consultants, contractors, and local government building officials. BayREN is composed of local governments and works with building officials and their staffs, most of whom have not yet used

the 2019 Standards. As a result, it is too soon to say how much easier to use and understand the updated standards are for this audience.

We strongly recommend that making the Building Energy Efficiency Standards (and every code update) easier to use and understand be a goal. The Abstract for the 2019 Standards states that changes were made throughout all sections to improve “clarity, consistency and readability,” and BayREN commends the CEC for these efforts. For many good reasons, however, the standards are still long and complex, and they will only achieve real energy savings if they are understandable and enforceable by local government staff. As a result, this important goal needs to carry forward, and needs to be considered in terms of all of the diverse users of the standards.

*o What are the immediate steps you recommend taking to improve compliance with building energy standards?*

One immediate action the CEC could take to improve usability and enforceability of the 2019 Standards would be to provide both a Table of Contents and an Index for the 2019 Standards, as the version currently on the CEC’s website has neither. Many Building Officials continue to use printed versions of the code and would find a Table of Contents and especially an Index, such as those provided for the other Parts of Title 24, useful.

Looking towards the 2022 Standards, the most important step is for the CEC to actively consider implementation and enforcement while developing the code update. To do this effectively, CEC staff will need to involve and work more closely throughout the code development process with the people who implement and enforce the standards, such as contractors and local government building officials. These users are harder to reach and have often been less involved in the code development process than other parties, but their input is critical. BayREN therefore suggests that the CEC begin exploring new avenues for reaching out to and involving these users, in addition to traditional CEC workshops, including holding workshops in multiple locations across the state and outside of the largest metropolitan areas.

## **Benchmarking**

*o Are building owners looking at their energy consumption or just reporting to benchmarking?*

Building owners who are receiving benchmarking services as part of an energy efficiency program also have technical assistance to use benchmark data as part of the process which informs management and upgrading of buildings. It’s difficult to say outside of the program environment what property owners are doing with the information. Generally, an energy benchmark is only one piece of the information needed to inform action; it needs to be followed with an assessment of the energy usage paired with the building characteristics to determine opportunities for improvement.

One key lesson learned from San Francisco County is that the term “building owners” has a generally inaccurate connotation, because ownership structure, management objectives, and functional requirements of existing commercial buildings vary strongly by building use, size, and

market segment. The term “building decisionmakers” more accurately reflects this variation and conveys more reasonable expectation that communication must either be accessible to a wide range of parties or tailored to specific groups.

There are numerous anecdotal examples of building decisionmakers being directly motivated to improve energy efficiency via information uncovered in the benchmarking process. There were also a considerable number of eccentricities in billing or assignment of responsibility to pay utility bills were also commonly uncovered in older facilities and facilities with many meters. (This is not broadly an aspersion on a utility. Some cases included building decisionmakers paying utility bills after selling a building; older facilities that had been remodeled numerous times containing still-active meters – or meters with shared use unbeknownst to the party paying the bills. There was also an example of a local agency paying utility costs for a former fire station that had been sold some years before. The effort to develop and organize data paid dividends.)

Total energy use in San Francisco County’s commercial sector declined more than 10% since the benchmarking ordinance was adopted in 2011, even though the local building stock grew and occupant density & utilization generally increased with the blossoming of the local economy. Benchmarking is believed to have contributed, but building decisionmakers experienced many factors concurrently:

- Title 24 standards increased dramatically in 2014;
- LED lighting became readily available and highly cost-effective;
- Commercial office buildings experienced multiple years of net absorption (exceptionally strong leasing activity). A large lease of commercial office space commonly includes a tenant improvement – triggering Title 24 compliance for affected systems (commonly including lighting);
- Energy efficiency programs continued to facilitate retrofit of millions of square feet of space; and;
- Numerous financing and ESCO approaches were introduced, expanding such services beyond traditional market MUSH market segments.

Many facilities are affected by a combination of these factors. When a building is benchmarked, a tenant leases space, and the building decisionmakers invest in common area updates to position the asset for ‘tech’ tenants, which of the above factors caused the energy savings? Since such questions are heavily debated in the realm of ratepayer programs, it is pragmatic for benchmarking to not attempt to compete for attribution, and instead to serve as a tracking tool with motivational side effects.

*o What type of encouragement or support, beyond monetary, would lead to improved benchmarking scores over time?*

BayREN suggests the following:

- Access to additional **real-time data**. While automated data provision from the Investor Owned Utilities (IOU) - newly available since AB 802 implementation - is an improvement, it

is more useful for property owners to have additional levels of data about their ongoing energy usage to make real-time decisions about building management and load shifting.

- Access to **software that can disaggregate their energy usage to identify specific energy end-uses should be a target of upgrades** (i.e. to identify if it is the lighting, HVAC, water heating or plug loads that use the most energy). While software that provides this information currently exist in the market (e.g. Lucid, Home Energy Analyzer, etc.), providing program resources (i.e. ARRA or ratepayer funding) has proved challenging as they are costly, proprietary, competing for initial market share, and are in early and ongoing phases of technical development.
- Access to **low-cost assessment tools** (vs. high-cost audit processes) help to initially narrow the scope of potential measures to upgrade. The State's framework for code compliance and incentive programs is sophisticated and increasingly accurate in developing energy usage estimates. However, when there isn't an incentive or a mandatory requirement for action, property owners are unlikely to hire a professional to undertake a costly audit and conduct software analysis as a voluntary next step after receiving an energy benchmark. An example of a Low Cost Assessment Tool is the development of "Energy Pro LITE" as an adjunct to the EnergyPro code compliance tool which has traditionally been used for multifamily incentive program participation. Energy Pro LITE was initially piloted for use as a pre-screening assessment tool in the BayREN's Bay Area Multifamily Building Enhancements (BAMBE) program, and is now being scaled for use by additional programs including the PG&E Multifamily Upgrade Program (MUP) and the City of Berkeley's Building Energy Savings Ordinance (BESO) which requires benchmarking and mandatory upgrades.
- While mandatory (point of sale or date-certain) policies are politically unpopular, they have shown to be effective in driving upgrades in the markets where they exist. Ensure building energy use data is present within decisionmakers' work flow. This is achieved by ensuring data and analytics services that are in common use in commercial real estate management, leasing, ownership, and tenant acquisition all have building energy use data embedded within the platform. Many platforms are available and are not limited to CoStar.

## **Market Transformation**

*o How can local governments continue to support and/or expand energy efficiency efforts?*

In one word: funding. The demands on local governments to address the impacts of extreme weather events, wildfires, housing and rate unaffordability, etc. has never been greater. Yet funding for energy efficiency efforts through local government partnerships has been reduced significantly, and the future of the Regional Energy Networks (both existing and future) is being questioned by the CPUC. There needs to be a dedicated funding source for local governments and the program evaluation should not be limited by the traditional cost-effectiveness measurement, but should consider non-energy benefits and targeting of underserved markets.

*o Which private-sector financial mechanisms have been most successful in supporting energy efficiency?*

In theory, PACE financing and on-bill financing options have shown some success with supporting energy efficiency.

*o What changes, if any, are expected or ongoing in the energy efficiency market due to the expansion of community choice aggregators?*

On March 27, 2019, a ruling was issued in CPUC Rulemaking 13-11-005, *Administrative Law Judge's Ruling Seeking Comment on Future of Regional Energy Networks* (the Ruling), asking for stakeholder input about the future of the RENs in the form of questions. While the Ruling was primarily about existing and future RENs as program administrators in a changed energy efficiency landscape, primarily due to a "proliferation of CCAs"<sup>1</sup>, the first question posed by the CPUC, and BayREN's response is applicable to this question; therefore, the CPUC question and BayREN's response is copied verbatim herein:

*1. Threshold REN Policy. Are RENs still appropriate (new or existing) in light of likely geographic overlap, and/or portfolio overlap, with CCAs and LGPs? Why or why not? What unique value do RENs bring, if any, compared to CCA or LGP programs?*

#### **a) RENs are of Increasing Importance**

The energy efficiency landscape is changing at a fast pace. The demands of the state for new solutions to GHG, climate change, equity, and grid harmonization is challenging everyone to be more innovative, flexible, and effective. The RENs, particularly those that have been operating since 2013, are demonstrating in a consistent fashion their ability to address these challenges.

RENs are increasingly appropriate and valuable considering the proliferation of CCAs and the reduced resources and capacity of the LGPs which has thereby reduced LGP reach and agility. The territories of the existing RENs are larger than those of the CCAs and LGPs, which allows RENs to operate at scale – something that is more appropriate for certain program operations. Broader regional consistency affords a more stable customer experience, contractor engagement, and economies of scale. Moreover, the RENs' innate characteristic of being regional allows local governments (i.e., cities, CCAs, LGPs, and others) to partner, pilot, and propagate new ideas effectively across a broader area. RENs can help energy-related programs, actors, and stakeholders, such as participating contractors, connect with each other across the region and leverage each other's knowledge and expertise. At the same time, RENs work on a small enough scale to also allow in-depth knowledge of local conditions. Regional delivery results in reduced costs through leveraged resources, economies of scale, streamlined project delivery services/assistance, and effective market conditions for participating contractors.

At the time of D.12-11-005, many Bay Area cities and/or counties had robust local government partnerships with PG&E. The LGP programs were for the most part different than BayREN's portfolio, and if there was overlap in a market, the programs would be combined to offer deeper energy savings and more expansive offerings, such as the San Francisco Energy Watch partnership multifamily offering and BayREN's BAMBE program. Further, these LGP were

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<sup>1</sup> CPUC R.13-11-005, Administrator Law Judge's Ruling Seeking Comment on Future of Regional Energy Networks, at pages 4-5.

typically managed and directed by the IOUs with limited opportunity for the local jurisdiction to design, direct or innovate the program resources. One of the Commission's original intentions when approving the REN model was to be additional to and not instead of LGPs<sup>2</sup>. The need to augment and/or supplement LGPs is more relevant now given the significant decrease in the LGP budgets resulting in a decline of programs and in some counties, a discontinuation of all programs. With their approved BPs, and an increased percentage of third party implementation of their portfolios, the IOUs have significantly reduced funding and programs for all LGPs, focusing local governments to non-resource activities in 2020 and beyond. With very limited potential exceptions, the LGPs are unlikely to be involved in future resource program administration nor implementation.

In short, the role of the LGPs across the state has lessened because of the significant reduction of budgets and choices of programs. Accordingly, any perception that the RENs are duplicating the LGPs is misplaced. BayREN requests that the Commission consider an expansion of the RENs to include some or all the activities previously performed by the LGPs in their territories, at the election of the LGP.

#### **b) Most CCAs are not Offering Energy Efficiency Programs**

When D.12-05-015 was issued, there was only one CCA in the Bay Area: Marin Clean Energy (MCE).<sup>3</sup> MCE applied to be a program administrator at the same time as ABAG applied on behalf of BayREN and is one of two CCAs in the state that has applied or elected to administer ratepayer funded programs. In BayREN's territory, while there are CCAs now operating in all of the nine counties, none have – or to BayREN's knowledge intend to – apply in the near future for ratepayer funds for administration of EE programs.

CCAs allow local governments to procure power on behalf of their residents, businesses, and municipal accounts from their chosen suppliers while transmission continues to be provided from their existing utility.<sup>4</sup> There are many benefits to CCAs, one of which is allowing the aggregation of demand that enables communities to negotiate better rates with suppliers and choose a more expansive mix of renewable energy. The mission of the Bay Area CCAs' extends beyond providing competitively priced and a greener form of electricity for their customers and most of the Bay Area CCAs offer some customer programs. The focus of these programs, however, has been primarily on transportation and building electrification, activities that cannot be funded with EE dollars. Many of the Bay Area CCAs are also interested in demand response programs that deliver services that, as noted in the Sonoma Clean Power Integrated Resource Plan, "are designed to provide positive grid impacts including renewable integration/system reliability, load reducing, load shifting, and minimal load impact."<sup>5</sup> These programs have been mainly grant or self-funded. The ability for CCAs and RENs to partner and compliment services is

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<sup>2</sup> D.12-05-015, at page 13.

<sup>3</sup> At the time of this Decision, MCE was known as Marin Energy Authority.

<sup>4</sup> See e.g. AB 117, SB 790, and Public Utilities Code Sections 331.1, 366.2.

<sup>5</sup> Viewable at <https://sonomacleanpower.org/uploads/documents/SCP-FINAL-IRP-10-04-18.pdf>, page 43.

important. New approaches to Distributed Energy Resources (DER) and community-scale solutions require a CCA like entity to manage and oversee energy procurement efforts as that is not the RENs' purview. Conversely, a REN may be better suited to address house-by-house or business-by-business efforts, which are more time consuming and unable in most cases to meet the stringent cost-effective thresholds required of CCAs.

BayREN and the Bay Area CCAs are not in competition with one another, but rather have forged valuable partnerships and collaborate regularly....

The importance of the Bay Area CCA-BayREN partnership – as well as the benefit of a regional approach, is well articulated by the Director of Energy Programs, PCE, in a letter of support to the BAAQMD grant application for the project “BayREN – Heat Pump Water Heater Regional Market Transformation”: “BayREN is a highly effective lead on a regional program and we look forward to collaborating with the team to accelerate electrification and transform the regional market....The project leverages existing BayREN programs and CEC grants, along with support from local governments, municipal utilities and CCAs....We support a regional program approach which can catalyze market transformation and address the many persistent barriers that cannot be addressed at a local scale.”

We do not minimize the implications of the “proliferation of CCAs” and their statutory authority to elect or apply to administer energy efficiency programs; however, the above illustrates the existing collaboration between BACCAs and BayREN, and how it has resulted in more expansive offerings to our shared constituents and addressing needs beyond energy efficiency. Even if all BACCAs wanted to seek ratepayer funds, the investment to do so is significant and the process is long, not to mention the time it takes to design a program and start implementation.

### **c) The RENs Provide Value that is not Offered Elsewhere.**

The RENs bring the following unique values:

- RENs have a unique opportunity for scalability because they cover a larger territory as compared to most CCAs and LGPs.
- The RENs offer a framework to bring diverse local governments together to share administrative resources and design programs that target customer classes most appropriate for, and in need of, local government intervention.
- By their charter, a primary focus of the RENs is filling gaps in the energy efficiency marketplace. Ensuring these programs filling gaps will consistently be available to customers will be particularly valuable during PG&E's transition to third-party (3P) implementation and the resolution of its bankruptcy.
- The RENs can and have leveraged other utility, CCA and LGP programs, resulting in more comprehensive retrofits.
- RENs can design, develop, and direct funds based on local government priorities, free from IOU constraints as is the case with LGPs.”<sup>6</sup>

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<sup>6</sup> Opening Comments of the Association of Bay Area Governments, on Behalf of the San Francisco Bay Area Regional Energy Network, on Administrative Law Judge's Ruling Seeking Comments on the Future of Regional Energy Networks, at pages 6-12.

*o Have you seen improvements in energy efficiency marketing, outreach, and education efforts? If not, what areas are still undeveloped? Please provide examples.*

In our opinion, the statewide Energy Upgrade California marketing campaign has done a good job of promoting energy efficiency and provide information about steps Californians can take to reduce their carbon footprint. For example, on a personal level (i.e. without seeing the tracking data, or evaluation studies), the “Keep it Golden” campaign provided good messaging for behavior change.

The effectiveness of energy efficiency marketing, outreach and education (MEO), however, cannot be viewed as a one size fits all. For more regional and local programs, MEO is best if it is done at that level; statewide campaigns are not expansive enough to include more localized efforts.

*o In your opinion, what retrofit programs (please specify sector) are most successful? What makes the program successful?*

BayREN's multifamily program, BAMBE, has been very successful and was recently awarded an ACEEE award for exemplary program design. Among the successful program elements are:

- o Highly targeted and designed to overcome the specific barriers in multifamily market – financing complexity and owner/tenant split incentive
- o Technical Assistance – step by step consulting with the property owner to get the work done
- o Program outreach done by local government staff, who are seen as a trusted messenger

BayREN's Energy Advisor provides a “concierge” service to Bay Area homeowners and renters and contractors. This one-on-one, customized service has proven successful not only for BayREN's program, but also with the significant number of complimentary referrals provided to PG&E, CCA and LGP programs. BayREN's revised Commercial program that focuses on small to medium businesses, will build on this success and offer a similar advising service.

*o What barriers remain for energy efficiency to be a reliable grid resource? Are there data limitations, lack of quality results, lack of awareness, etc. What immediate steps do you recommend the Energy Commission take to resolve these barriers?*

While not exhaustive, we note the following as barriers:

- Policy and funding barriers to create streamlined and seamless EE plus DER projects
- Regulatory barriers to providing community scale solutions, i.e. inability to provide community solar or storage (and other aggregated solutions)
- Lack of incentives for energy storage and advanced building controls
- Disconnect between infrastructure development and building scale solutions – i.e., continued investment in gas infrastructure while trying to incent decarb/electrification.

- Complexity in governance of energy systems that would serve to balance loads and energy systems across multiple buildings
- Lack of consumer understanding and availability of reliable tools to help businesses and homeowners schedule and manage use of their appliances and high energy loads based on needs of the grid
- CPUC data and the Potential and Goals study that focuses on whole IOU territories. Breaking this data down to counties would be much more useful especially with the RENs and the increased number of CCAs across the state
- Continued inability for RENs and Local Governments to easily and reliably access energy use data in a meaningful way to target customers and to track progress

## **Building Decarbonization**

*o What are the main concerns with implementing programs that focus on reducing carbon emissions from buildings?*

Stakeholders are excited about the opportunities presented by SB 1477 to have a GHG reduction focus in the design and implementation of programs. As the CPUC and its selected administrators design and implement the programs authorized under SB 1477 we hope that they:

- do not simply re-create the existing Energy Efficiency framework for metrics and evaluation,<sup>7</sup> but instead look to the California Air Resources Board framework for GHG reductions as a launching point
- do not discount the needed support for newer technologies which might not be cost-effective in early market adoption phases
- do not spread the funding too thin in an attempt to incentivize ALL technologies (especially those which are already eligible for incentives through energy efficiency ratepayer funding), and
- do not underestimate the importance of addressing code compliance policy issues associated with fuel switching and current biases towards natural gas over (renewably generated) electricity use for space and water heating

*o Heat pump water heaters and space conditioners are expected to play a role in building decarbonization, they currently occupy a small portion of the market; what actionable steps do you think are viable to improve the market potential of the technology?*

In 2020, BayREN will have launched what we see as the initial foundation to develop the market for Heat Pump Water Heaters (HPWH), starting with the residential water heating application, in our Regional Residential Heat Pump Water Heater program funded through a climate grant from

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<sup>7</sup> While the state has seen advances through the energy efficiency ratepayer funded programs, the CPUC framework for cost-effectiveness based primarily upon the TRC metric has become a barrier to implementation of some innovative technologies. There are technologies which could have deeper GHG reduction impacts than the low-hanging fruit measures preferred by the IOU portfolios which result in a better TRC (and also a bigger return on investment in the shareholder incentive mechanism).

the Bay Area Air Quality Management District (BAAQMD). This program will address some of the barriers necessary to evolve the market. Specifically:

- **Education** of code officials, contractors, plumbers and consumers is one foundational component to enable the technology.
- The higher cost of the HPWH equipment is a challenge which needs to be addressed by the availability of **statewide upstream (or mid-stream) incentives** that bring-down the price of the equipment *before* reaching the consumer. The upstream incentive approach for HPWHs has shown success in other parts of the country, and experiences with consumer rebates for HPWHs in SMUD and Palo Alto Municipal Utility programs has reinforced the notion that the incentives need to be introduced earlier in the supply chain.
- Addressing **code biases towards natural gas over (renewably generated) electricity** use for space and water heating would also help enable the use of the technology.

While we are excited by the BayREN regional initiative, we also hope that there will be a statewide up-stream incentive for HPWHs which will be necessary to move the overall appliance market, and that we have the opportunity to scale our approaches refined in our Regional Residential HPWH program to also be offered statewide.

### **Low Income and Disadvantaged Communities**

*o What type of energy efficiency programs are shown to be most successful in low-income and disadvantaged communities? Please cite any evidence such as program results or customer testimonials.*

No comment.

### **Standards Compliance**

*o In your experience, what are the primary drivers of non-compliance with building standards?*

In 2015, BayREN completed its “Permit Resource Opportunity Program (PROP) Final Report”<sup>8</sup> based on a survey and in-depth visits to 15 local building departments. The findings from that report indicated that energy code compliance documentation was incomplete or inconsistent, with only 16% of projects having error-free documentation at all stages of review. More than half of all projects reviewed (51%) contained errors suggesting that the building would perform worse than predicted in the initial submittal package. The most common field errors found were the installation of measures that were less efficient than those documented, as well as failure to meet mandatory measures. Designs and specifications are often revised during construction, but energy documentation is not always updated accordingly.

The prevalence of these errors indicate that energy code compliance is challenging both for project applicants and for building department staff. People may not always understand what is required or why it is important. Architects and designers may delegate energy code compliance to

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<sup>8</sup> The report is viewable at: [https://www.bayrencodes.org/wp-content/uploads/2017/04/BayREN\\_CS\\_PROP\\_Final\\_Report\\_2015\\_0401\\_0.pdf](https://www.bayrencodes.org/wp-content/uploads/2017/04/BayREN_CS_PROP_Final_Report_2015_0401_0.pdf).

energy consultants, who may not be involved in later stages as a building's design is modified. Building departments may be under-staffed, with limited time to spend on each project, and an understandable need to prioritize life-safety requirements.

Addressing these problems is not easy. The Building Energy Efficiency Standards are complex, in part because of 1) the need to be cost-effective in all climate-zones, which leads to different requirements in different places, and 2) the desire to provide flexibility, which allows for a wide variety of approaches and combinations of measures. BayREN and other organizations in California have been trying different approaches and are actively working to improve compliance. There is no simple answer, but making the standards easier to understand and use, particularly by the contractors and local government building department staff responsible for implementing and enforcing the standards, would be a significant step towards improving compliance.

**Workforce Development**

*o Have state efforts resulted in workforce improvements to install energy efficiency measures?*

No comment.

*o Provide examples of effective energy efficiency workforce training efforts.*

No comment.

We appreciate the opportunity to provide this input, and thank the CEC for its careful consideration of the BayREN's comments.

Respectfully Submitted,



Jennifer K. Berg

Assistant Director - Energy Programs Manager

Cc: Veronica Olvera, Electrical Engineer and CEC-BayREN Liaison