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Supporting Market Transformation as an Element of California's Building Energy Action Plan

Additional submitted attachment is included below.

earthadvantage

MARCH 26, 2024
RE: 2023 CALIFORNIA BUILDING ENERGY ACTION PLAN
DOCKET NO. 23-DECARB-03

California Energy Commission Docket Unit
Docket No. 23-DECARB-03
715 P Street
Sacramento, CA 95814

SUBJECT: SUPPORTING MARKET TRANSFORMATION AS AN ELEMENT OF CALIFORNIA'S BUILDING ENERGY ACTION PLAN

Dear CEC Commissioners, and staff,

Earth Advantage thanks the California Energy Commission for their leadership on developing an extensive Building Energy Action Plan for the State of California. Earth Advantage is a national non-profit based on Portland, Oregon with extensive expertise on the costs, benefits, risks, and rewards associated with equitable housing decarbonization needs, policies, and programs.

Earth Advantage's staff bring a combined decades of experience designing, implementing, and evaluating impacts of home energy upgrade policies and programs. Earth Advantage has supported dozens of cities, states, financiers, and underwriters around the country explore home energy label programs and policies, including in the ongoing BayREN Home Energy Scoring program, and has been recognized by the U.S. Department of Energy for national leadership, innovation, and results. The impact of Earth Advantage's work includes over 17,000 individuals trained, nearly 40,000 high performance residential units certified, over 30,000 Home Energy Scores delivered, and over 3 million records in their Green Building Registry®.

Home energy labels that can be used in real estate listings, home appraisal, financing determinations, and public policy have the power to transform the market at scale. A successful home energy label will provide useful and easy to understand information to key housing decisionmakers in moments when they are able to take action to invest in home energy upgrades that improve home comfort, reduce energy bills, improve indoor and outdoor air quality, and support climate and housing goals. Home energy labels should be designed to meet the needs of various housing decisionmakers – homeowners, buyers, sellers, renters, home appraisers, mortgage lenders, and housing/infrastructure regulators – such that these people can feel confident investing in home efficiency and electrification features.

Earth Advantage believes this work will only be successful at the necessary scale to impact the climate crisis if national standards and systems are adopted. Nationally applicable standards and systems will make it easier for national financing, underwriting, regulating, and policymaking entities to aggregate data and make changes to their "business-as-usual" practices that carry national ripple effects. As the state with the largest population, the greatest number of homes, and highest GDP, California can create pull for these national players to participate in green home funding and financing in California as well as the rest of the country. California is uniquely poised to update its whole-house home energy labeling program to drive energy upgrades in California's 14 million homes, as well as the 126 million homes in the US outside of California.

If successful, green home lending in the US could begin to look more like Europe, where Energy Performance Certificates (EPCs) are supporting financial markets as the European Banking Authority has begun requiring lenders to report their Green Asset Ratio (GAR) starting in 2024. For GAR reporting, EPCs enable real estate to be "taxonomy eligible assets," meaning they can be measured as an element in this ratio and monitored. The DOE's Home Energy Score was designed to meet needs for documenting home energy status in the United States and improves upon label elements gathered from researching impacts of EPCs in Europe. By adopting a home energy labeling scheme in California that builds off existing systems that can drive national markets while also meeting state-specific needs, CEC can drive outsized impact with this rulemaking. More information about how home energy labels can unlock financing is available in this report Earth Advantage co-authored with RMI: https://rmi.org/insight/build-back-better-homes/

For CEC to establish a Building Energy Action Plan that accelerates equitable housing decarbonization across the state, Earth Advantage provides the following high-level recommendations:

1) **Launch a home energy label that is useful and actionable for existing California homes.** According to US Census, there were over 14.6 million housing units in California in 2022, and nearly 120,000 housing units authorized by building permits statewide that same year. Getting new housing right from a climate and equity perspective is vital, if for no other reason than to prevent the need for home upgrades shortly after construction is completed, and Earth Advantage applauds the efforts CEC has undertaken to support climate-friendly new homes across the state. However, meaningful reduction of carbon emissions and energy costs is only possible through programs that also spur market demand for home energy upgrades in the 99% of California housing that is pre-existing. Many homeowners, buyers, and renters in existing homes lack needed information about how homes differ in terms of expected energy costs and how home energy performance can be improved in existing homes.
2) **Include DOE's Home Energy Score as a component within a California Home Energy Label.** Earth Advantage strongly recommends use of Home Energy Score as

a component of any home energy label issued in California, given its applicability to national market transformation efforts, design to be used across comparable homes in real estate transactions, and current use in the CPUC-funded BayREN Home Energy Score program. Home energy labels built off DOE's Home Energy Score can meet the Inflation Reduction Act (IRA) Home Efficiency Rebates requirement for a third-party verification and energy audit data reporting requirements. Rather than starting any label design or modeling engine from scratch, CEC can leverage DOE and BayREN investments in these areas to provide home energy labels that are nationally applicable *and* deliver California-specific information about electrification, demand flexibility, and decarbonization. The CEC should develop a minimum set of standards that energy labels must meet in the state, rather than recreating an all-encompassing program that duplicates, and potentially conflicts with, existing mechanisms in the market. The CEC should coordinate with and learn from the experiences of existing program implementers in the space.

3) **Support CEC-approved home energy labels as a requirement for California home sale listings.** Currently, most homeowners, buyers, and renters have insufficient information about how their home uses energy and what factors contribute to poor energy performance, high energy costs, and high carbon emissions. A home energy labeling requirement would help educate consumers about these issues, help them protect themselves from high energy bills, and send more homeowners on a pathway toward decarbonization. Home energy labels can act as a roadmap for consumers that may not otherwise consider home energy upgrades and can serve as a mechanism to reduce customer acquisition costs for businesses and programs seeking to deploy these upgrades and government funds. A study from Lawrence Berkeley National Laboratory (LBNL 2022) found that when homes were required to disclose Home Energy Scores, each one-point increase in a home's score was associated with a 0.5% increase in sales price and 5.5% reduction in odds of 30-day mortgage delinquency. Home energy labels also foster availability of financing for home energy upgrades, particularly through mortgage financing products where borrowers can complete upgrades based on a home's as-completed predicted value. Earth Advantage recommends CEC align the Building Energy Action Plan with BayREN's Home Energy Score Rebate program, which CPUC has put on a track to pilot a statewide Home Energy Score California program in 2026.
4) **Support CEC-approved home energy labels as a requirement for California rental home listings.** An energy disclosure rating system on all rental units would empower renters to understand the cost of utilities when deciding where to live. This would incentivize landlords to take advantage of energy efficiency and electrification programs and rebates to appear more attractive to prospective tenants, thus mitigating some influence of the split-incentive between landlords and renters on energy upgrade investments. In cases where tenants are income-qualified for the Equitable Building Decarbonization (EBD) program, these labels can serve as an impetus for landlords to pursue government funding to support rental property upgrades.

Home energy labeling fits into a larger theory about driving growth of the clean energy economy through market transformation. Market transformation is a long and continuous process with changes that can be observed through market indicators. Market transformation efforts must recognize there is no one "market decider" that has direct control over the array of decisions that result in expanded market share of clean energy services. Instead, the culminating outcome of market transformation activities must appeal to the interests and needs of market actors - including homeowners, buyers, renters, lenders, and regulators - to justify their investment of time, money, and political capital.

Sincerely,

Madeline Salzman
Head of Strategic Partnerships
Earth Advantage

BACKGROUND INFORMATION

To maximize the impact of CEC's various building energy programs. Earth Advantage recommends CEC allow various funding sources to contribute to the fund stack available on a per-unit basis to households served through multiple programs (e.g., EBD, Home Energy Rebates, tax credits, etc.). The EBD program guidelines have set impressive requirements for including heat pump conversion, establishing prevailing wage, and protecting low-income households from paying high costs, all of which Earth Advantage applauds as mechanisms to support a clean energy economy with protected consumers and workers. Earth Advantage endorses the comments made by the Bay Area Residential Decarbonization High Road℠ Partnership in support of workforce standards and ease of customer use. We express concern that the cost caps for EBD funds of $6k per single-family or multi-family unit and $7.2k per manufactured housing unit may prove to be a barrier for impactful projects to materialize. Many homes, particularly low-income homes in need of fuel conversion, will need decarbonization work completed that carries a market-rate cost closer to $30-$50k per household (LBNL 2023).

Rather than attempting to spread money too thinly, Earth Advantage recommends CEC focus on defining a strong sense of ***the value*** building energy programs should deliver, and then demonstrating this value effectively. While the IRA Home Energy Rebates and EBD funds are significant, if all these funds were spread evenly across California's 13.3 million households (US Census), there would be just under $96 available per household. If all these funds were provided evenly to the 13% of Californians in poverty (assuming the same rate of households in poverty), then there would be about $737 per household. There is no way for these funds alone to meet even close to all the need for home energy upgrades in California.

Rather, to meet California's energy and climate goals, these government funds should be used to pay for meaningful levels of improvement for served housing and catalyze continued funding. This is possible by systematically showing the value of home energy upgrades to homeowners, financiers, and regulators so they will continue to pay for the installation of these technologies and employment of these workers even after funds have been depleted. By using these funds to deliver substantive value to recipients – homes that transform the at-home living experience, reduce energy bills and healthcare costs, and put people to work in good jobs – and showcasing that value, California can spur market demand for home energy upgrades as a merchandisable, tangible product. In contrast, projects that are too small to make a noticeable difference in the living experience of recipient households will be insufficiently desirable to pull in continued market investment.

Home Energy Score™ Programs are characterized by implementation of the U.S. Department of Energy (DOE)'s Home Energy Score™ through DOE-approved partnerships. Designed as a "miles-per-gallon"-style rating system applicable to US housing, the Home

Energy Scoring Tool can be utilized as a building block within standardized home energy assessments for various programs operated by state and local governments, nonprofit organizations, and private companies. Nationally, more than 100 businesses actively work to deliver Home Energy Scores through over 30 public and private partner organizations. As of February 2024, over 235,000 Home Energy Scores have been delivered nationwide.

The Home Energy Scoring Tool itself began development in 2010 and has undergone more than a decade of software updates and enhancements since its initial release in 2013. Based on approximately fifty data inputs regarding a home's features, as well as various input datasets and modeling assumptions, the Scoring Tool produces an output report with overall Score, modeled energy use metrics, and recommended home energy upgrades. Home Energy Score outputs include an 8760 hourly load calculation based on DOE's flagship building energy modeling software, EnergyPlus™. More information about how Home Energy Score works is available on DOE's website.

Home Energy Score can help build value for home energy efficiency among homeowners, home buyers and renters, financiers, and regulators. For the homeowner, Home Energy Score provides home-specific data, including actionable recommendations for energy-saving improvements that can save money, improve thermal comfort, and increase resale value. For prospective home buyers and renters, Home Energy Score disclosure can help residents understand the potential energy costs of a property, which directly affects overall affordability. As an asset rating, Home Energy Score provides information on expected energy costs for a particular home, while controlling for occupancy size or behavior. This provides energy cost estimates that control for occupant behaviors and allows for a "less noisy" data comparisons between homes.

For the lender, Home Energy Score can translate into real home value, which can extend equity for homeowners to borrow against for completing home energy upgrades. Home Energy Score documentation of higher home performance can also be a trusted source for underwriters to sell mortgages on the secondary market for a green premium. The market for green mortgage backed securities (MBS) in the multifamily market is already well established, and through Home Energy Score can be expanded to include existing single-family mortgages as well. Finally for the regulator, Home Energy Score can be used to understand the nature of energy burdens across the state, prioritize communities based on need, and quantify the needs in housing today to minimize energy burden, electrify, or decarbonize. For many households, regulator-enabled funding and financing resources are necessary to make home energy upgrades accessible, and identifying these households and their needs will help assure no one is left behind in decarbonization efforts.

In summary, the Home Energy Score is more than a 1-10 metric. It is a technical system based on hourly building energy modeling calculations that are developed and maintained by a dedicated team of staff at DOE and three national labs. It is a program that includes training requirements, quality assurance protocols, and is administered by established

providers and practitioners. It is a partnership of local and state governments working to make improvements and test new permutations and methods of deployment. It is a nationally applicable foundation that supports local policies designed to meet local needs.

The over 22,000 Home Energy Scores in California were created through the BayREN Home Energy Score Rebate Program, as well as the City of Berkeley and City of Piedmont Home Energy Score policies. Since its inception, 7.8% of the BayREN Home Energy Scores have been delivered in Berkeley and Piedmont–cities which represent 1.9% of the Bay Area housing stock. Earth Advantage supports the BayREN program through assessor oversight, database management, and customized home energy label generation.

StopWaste, an Alameda County Government Agency, became a Home Energy Score partner to support the City of Berkeley's Building Emissions Savings Ordinance (BESO), which required Home Energy Scores be included in real estate transactions. For decades, Berkeley required prescriptive energy upgrades to buildings at time of sale and in 2015, the policy (formerly known as the Residential Energy Conservation Ordinance or RECO) was updated to focus on disclosure. In 2020, the BESO ordinance was updated to require Home Energy Scores in property sale listings to help increase the visibility of Home Energy Score data for prospective buyers before they have committed to a transaction. In 2021, the City of Piedmont passed a similar ordinance to the City of Berkeley requiring an energy audit at time of listing a home for sale, under which Home Energy Score is one compliance pathway. Other cities around California have approached StopWaste about supporting their efforts to adopt Home Energy Score disclosure policies.

Beyond the DOE Home Energy Score modeling engine and metrics, the BayREN Home Energy Label also includes additional data and metrics aligned with BayREN program priorities. BayREN developed a voluntary electrification checklist for Assessors to use when gauging whether a home may be a good candidate for electrification upgrades. Beginning in 2023, Assessors who fill out the electrification checklist addendum are eligible for an additional $50 rebate. The electrification checklist data and any associated recommended improvements are also included in the BayREN energy label.

Guest users seeking to understand how the Home Energy Scoring Tool works can use guest access to create unofficial demonstration scores here: https://guest.hescore.labworks.org/guest-access

There are many important strategies CEC should take on to assure home energy labeling benefits reach low-income and disadvantaged communities. In Earth Advantage's experience, these include: (1) Setting aside a fund to help cover the costs of home energy labels for low-income households. (2) Providing home energy labels at no cost to low-income households participating in weatherization and home energy upgrade programs. (3) Support efforts to exclude government-covered home energy upgrades from being included in home tax assessments. (4) Supporting home energy label generation in multiple

languages. (5) Supporting workforce development opportunities for low-income and disadvantaged workers to be a part of job opportunities in home energy labeling.

Alongside these efforts, CEC should dedicate resources to making sure the value of CEC-approved Home Energy Labels is known among real estate and financing stakeholders across the state. These efforts should include establishing a financing roundtable and coordinating access to aggregated home energy label data to mortgage underwriters, who are interested in expanding green lending into single-family home upgrade markets.

Transforming the market does not necessitate delivering valuable and finite government funds to higher income households. In fact, a key element of market transformation is supporting market growth, which is not achieved if these funds are merely subsidizing the price of installations that higher income households are already supporting. Instead, Earth Advantage recommends that as much as possible of these funds – well over the 50% requirement – are dedicated toward substantially helping the homes that need funds most and providing substantial support on a per-household basis. Earth Advantage recommends that CEC prioritize households with high energy burdens, using oil, propane, or electric resistance for heat, and with residents that experience at-home respiratory distress that is potentially exacerbated by poor home energy performance.

To assure CEC's program funds deliver products of value such that they effectively pull more funding into this space, sufficient funding must be dedicated to program administration, communications and outreach, quality assurance, and valuation. Oftentimes, there is significant pressure on administrators to reduce the cost of doing business to such an extent that the quality of the work and value being delivered is hampered. This creates a negative vicious cycle of people not seeing the value to sufficiently continue large-scale investment. Earth Advantage recommends the following strategies as ways to assure real help is offered through these programs and real value is achieved for the homes that are served:

- **Fund community organizations to participate in this work as subcontracted partners to build credibility and gain efficiencies of existing systems.** This funding can make the difference for whether low-resourced organizations, businesses, and households can overcome barriers to participation at all. These groups can more flexibly offer various hand-holding services to households in need including direct outreach, language translation, and trusted guidance.
- **Set up programs to be as flexible as possible for recipient households on the front end, such as by accepting various forms of documentation for income verification.** Rather than slowing the process on the front end, require the program implementer engaging with the resident (e.g., the CBO) to document their process clearly. Lists stating the array of forms or IDs someone may use to attest their income qualification should be exemplary rather than exhaustive. Explain clearly to recipients the risks of misrepresenting their income information (e.g., if attestation is found to be falsified,

they must pay back the funding) and then perform quality review of the program's income verification as part of the overall program quality assurance.

- **Do not underestimate the costs that must be budgeted to convey program value.** Efforts for quality assurance, quality control, data collection and analysis, communications and outreach, and program evaluation all play a role in demonstrating that the work happening in the field is worthwhile. Strong quality assurance and quality control is necessary to assure recipients become advocates for the benefits of energy upgrades. These are also important efforts to allow the program to adjust or pivot mid-deployment if collected data provides unexpected or undesirable results. Mechanisms for automated data collection – including but not limited to API-linked home energy assessment tools and centralization of income verification information – can reduce burden on these processes for implementers.

Attract high-quality contractors by offering bridge loans to help contractors wait for the payment of rebate funds. Without publicly supported bridge loans, attracting enough contractors that can wait for repayment may prove to be a challenge for scalable program deployment