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*Comment Received From: Lloyd Kass*  
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**22-DECARB-03 and Equitable Building Decarbonization Program**

*Additional submitted attachment is included below.*



January 17, 2022

California Energy Commission  
Docket Unit, MS-4  
Docket No. 22-DECARB-03  
715 P Street | Sacramento, California 95814

Subject: Equitable Building Decarbonization Program RFI Response

Greetings,

This transmittal from Franklin Energy responds to the Request for Information (RFI) regarding the Equitable Building Decarbonization Program. Franklin Energy applauds the CEC's leadership and public engagement on this critically important matter and appreciates the opportunity to comment on the thoughtful questions posed in the RFI.

For over 29 years, Franklin Energy has helped more than 100 utilities and government clients design and administer programs to reach end-use customers of all types including a) market rate and low-to-moderate income single-family and multi-family; b) large commercial and industrial; c) small business; d) government facilities; and e) the agricultural sector. In California, we offer deep experience working with utilities throughout the state designing stand up energy efficiency programs, delivering emerging technology research, and providing stand alone and/or turnkey support services. It is from this perspective Franklin Energy submits its comments.

Upon review of the RFI, below are some key themes we would like to offer:

- A) Allow for ongoing program optimization in the emerging area of decarbonization and equity.
  - The challenge of reducing bill impacts for equity customers receiving decarbonization are real and have not been a priority in previous public programs.
- B) Regular, timely access to data is vital for customer selection, tracking, and ongoing program improvements and has been a barrier to success with many ratepayer-funded programs.
- C) Fix the methodology for calculating savings for the duration of the program.
- D) Screening customers, who will most likely benefit, prior to outreach is essential to delivering customer bill savings.
- E) The workforce is ready to deliver this program yet will benefit from the following.
  - The Workforce requires routine oversight, training where gaps persist, and ongoing mentoring preferably in-field through witness quality control assessments.
  - A significant investment in this effort will deliver the Market Transformation the CEC desires, but it must be integrated with program delivery.
- F) The Administrator must leverage and layer multiple funding sources while simplifying the process for the customers.
  - Stacking funding drives customer interest as seen in the TECH program and should be encouraged.
  - The Administrator must ensure that housing infrastructure (building envelope) is improved *prior* to bolting on expensive heat pump equipment.

- G) Plan to support panel upgrades, natural gas safety requirements, and minor home remediations.
- Recommendation: Included funding for electrical system upgrades like any other measure.
- H) Workpapers are poor predictors of home performance because they are an average of all customers in any program, and assume the intervention is needed when it may not be.
- Recommendation: Use real-world NMEC results from in-field programs, where applicable.
- I) Ensuring bill savings requires high selectivity for program eligibility is contrary to universal access to all program services.
- Recommendation: Focus on highest savings potential customers first to ensure bill savings in Direct Install. The Market Rate (Rebate) program is less sensitive to energy affordability, and customers are often driven by comfort.
- J) Some form of ongoing customer support, feedback and coaching are necessary to ensure persistence of savings.
- Recommendation: Require ongoing customer service to address tenant energy performance, questions, and warranty issues.
- K) There is substantial deferred maintenance in LMI housing. Substantial non-energy investments (including in electrical systems) may be required to achieve decarbonization, and can also facilitate renewables, storage, and EV adoption.
- Recommendation: Set a program average investment per home objective along with an overall GHG goal, to allow some flexibility when meeting these underlying infrastructure needs.

In the pages that follow, we provide more detailed responses to many of the questions posed in the RFI. Once again and on behalf of Franklin Energy, thank you for this opportunity to provide our input on this important matter.

Sincerely,



Lloyd Kass  
VP Strategy and Market Development

## 1. Direct Install Program Criteria

### a) What criteria should be weighed more heavily or prioritized when scoring program proposals?

Through our experience delivering equity-focused efficiency and electrification programs, performance indicators that address the intent of the program (GHG reductions, energy savings, homes served, etc.) are the organizing principle when the needs of the homes and customers are varied and unique. We propose the following considerations to best serve California's decarbonization, market transformation objectives, and the needs of its citizens.

- Designs should follow the DSM loading order, utilizing long-lived measures, and depth of retrofit.
- Implementers' list of measures should be comprehensive, durable, and reduce energy demand prior to electrification.
  - Measure implementation must include solutions for deferred maintenance barriers and vintage construction, e.g., water heating in conditioned space, knob and tube wiring, and insufficient electrical service.
  - If participants only accept partial electrification, the goal is to make the home "Heat Pump Ready."

Implementers should have direct experience delivering equity-facing electrification. These programs present unique challenges that market rate and LI-only programs do not currently address.

- Consider with care the criterion of "Tribal Lands." Be mindful to serve the persons of Native Americans whether their home is on a designated reservation, land owned by a tribe off reservation, land individually owned by enrolled members, or otherwise.
- Proposals must illustrate how the enrollment process will abate barriers to participation in underserved communities.
- Implementers should describe how they will layer services with sister programs to achieve optimal energy performance for the participant while also treating as many homes as possible within the budget allotted by the state.
  - Priority should be given to coordination with existing efficiency and electrification programs.
  - Priority should be given to coordination with DAC-SASH to enhance affordability outcomes.
  - Priority should be given to outreach designs that work cohesively with existing services, and leverage marketing savings to deliver greater energy outcomes more widely throughout the state.
- Implementers should exhibit competence in managing data while not creating barriers through burdensome enrollment process nor deferring data collection to the trades.
- Preference should be given for data driven decision-making throughout all elements of planning and implementation including properly targeting outreach efforts, delivery of measures and services, and reporting the energy performance of projects post retrofit.

### b) No response provided

### c) Should low-income and moderate-income households be incentivized at different levels? If so, how should that be approached?

Franklin Energy believes the program and the state will be better served if all measures and services are zero cost under the Equitable Building Decarbonization DI program, including low and middle income. Aside from the economic stressors affecting the communities served, there are unmet needs despite multiple, poorly integrated, existing programs. This program should aggregate program delivery, fill gaps in services, and decarbonize vintage housing stock.

With a state in a housing shortage and a premium on real estate prices, middle income customers do not have the means to adopt whole home retrofits. We should not expect these participants to incur debt to advance our collective climate goals. We reiterate that aligning with the IRA's 150% AMI better leverages federal funding and simplifies project qualification. Progressive incentive levels may better serve the Market Rate offering.

## 2. Optimize Program Funds

### a) What best practices, program elements, or state actions would facilitate layering or leveraging different program offerings?

Franklin proposes the following concepts for facilitating a coordinated effort amongst multiple programs:

- Align income level standards across programs (CPUC/CEC/Federal).
- Waive free-ridership concerns for disadvantaged communities and income-qualified participants.
- Coordinate with, and expand the number of IOU-funded, ESA-qualified installers to improve program integration and lower implementation costs.
- Establish a DSM intervention loading order at the measure level.
  - Existing programs then deliver interventions with currently available funding.
  - Equitable Building Decarbonization then fills in the gaps where needed.
- The system of record should capture measures installed and incentives paid at the site level by programs to be aggregated.
  - Data for prior participation in rate-payer programs (ESA/IOU/CCA/REN) is warehoused in CEDARS. However, non- ratepayer efforts like TECH may require data consolidation.
  - Data from POU programs will also need to be imported.
- Implement one secure system of record, such that all stakeholders have real time visibility to measure level eligibility.
  - Include two-factor authentication by individual for data integrity.
  - Meter number queries display measures installed within a certain timeframe to avoid duplicative services.

### b) Should layering or leveraging other programs be a requirement for proposals or a prioritization when scoring proposals?

Providing approaches for layering and leveraging should be a requirement for proposals and they should be evaluated for feasibility and flexibility. There will certainly be obstacles to layering and leveraging federal funds that cannot be anticipated presently and there may be administrative costs to stacking funding that will be prohibitive in some instances, but intelligently combining multiple funding sources will ultimately increase desired impact.

## 3. Low-Income and Moderate-Income Households

### a) No response provided

## 4. Tenant Protections

### a) No response provided

### b) No response provided

### c) What programs should the CEC look to for examples of effective building retrofit and decarbonization programs with tenant protection requirements?

During our implementation (as Build it Green) of the LIWP program as administered under CSD Franklin Energy developed an Affordability Covenant for multifamily facing deep energy retrofits including solar, which can be found at here at [https://camultifamilyenergyefficiency.org/wp-content/uploads/2019/07/liwp-affordability-covenant\\_v1.4\\_final-fillable.pdf](https://camultifamilyenergyefficiency.org/wp-content/uploads/2019/07/liwp-affordability-covenant_v1.4_final-fillable.pdf)

A similar version has been implemented with support of local jurisdictions. In addition, AB 1482 has a simple, balanced, and effective design for local jurisdictions to approve, with additional features such as template staff reports, and which peers have already implemented them.

## 5. Direct Install Third-Party Implementers and Solicitation Scoring

- a) How should the CEC segment the state for a multiple-implementer solicitation (e.g., by climate assessment regions, climate zone, groupings of air districts, counties, etc.)? Are there other ways to segment the state to provide geographic diversity and advance equity?

It makes the most sense to segment the state geographically by region, likely aggregation of counties for ease of coordination with CCAs/RENs, and regional administrators. As a secondary consideration, since the IOUs are a primary funding source for ESA with which it would be ideal to coordinate delivery, it would make sense to aggregate counties by IOU territories, where practical.

Also, because the work will likely be focused on specific census tracts, limiting the number of regions to four to five statewide will capture economies of scale with administration over wider geographic areas. Mapping the census tracts prior to establishing regional service areas will illuminate practical service territories for considerations like minimizing transportation-related emissions from service and affording the workforce development opportunities that are close to home.

- b) What opportunities for workforce development should be considered, encouraged, or leveraged?

Workforce Education and Training (WE&T) should be encouraged in the program. Current programs, such as those run by Elevate (<https://www.elevatenp.org/contractors-workforce/>) should be leveraged to the extent possible to drive living wage jobs within the communities served. But redundancy in documenting metrics existing in other programs has the potential to divert resources away from delivering much needed energy services to DACs, by incurring administrative costs, and the development of duplicative services and/or curriculum.

Our recommendation is to prioritize an approach which delivers "in-program" mentoring that works closely with the trades. In-field operations like "Witness Quality Control" provides inspectors on site with the installers at the time of inspection. This sets performance standards with better quality outcomes over time rather than after-the-fact QC inspections that can feel punitive and discouraging. Clarity on service levels and direct access to subject-matter experts benefits all stakeholders, even non-participants. As evidenced by buildings within California that are on Federal land and conform to Title 24, even though they are not within the State's jurisdiction. (Commonly called "spill-over" effects.)

- c) Should maximum incentives – at building, unit, and/or region – be established? If yes, at what level(s)?

For planning purposes, allocate incentive funding by region to each administrator. These should scale to the size of the population served in a region or territory. Allocations could later be adjusted as needed if some regions are slower to deliver projects than predicted.

Establishing measure specific pricing and following a proper loading order are the approaches that will best manage spending for optimized outcomes. Due to the nature of this effort, funding for deferred maintenance repairs will be a practical necessity. These items should accompany a measure which required their installation to complete, and be documented with before and after photos, like any other measure.

Franklin Energy would also recommend a per-home average at the allocation level to allow for some variability in the cost of individual projects depending on need and state of repair.

## 6. Building Criteria

### a) How can the CEC best facilitate awareness for residents and building owners within under-resourced communities to encourage program participation?

It's an unfortunate truth that the communities most in need have been targeted by multiple unscrupulous business ventures with deals that sounds too-good-to-be-true (and often are). The market is also rife with misinformation about solar power and heat pumps. The CEC can best support this effort with establishing bona fides. This may be as simple as creating a dedicated website, establishing a toll-free number, and allowing implementers to co-brand with approved print collateral.

Should the CEC decide to take the approach of leveraging other programs and stacking incentives, then it would be reasonable to expect some stack-on effect with outreach as well. Geotargeting affords streamlining both "boots on the ground" outreach efforts and resulting construction costs. These communities have a high burden of trust to clear.

Therefore, we suggest combining marketing support, third-party validation by the CEC or another entity, and analytic support to target by site-potential and household eligibility.

### b) Are there any unique considerations that should be taken into account when developing program criteria or reviewing proposals for decarbonizing homes on Tribal lands?

Tribal community membership should be treated the same as DAC geographical qualification, and for budgeting and planning purposes, but will need distinct and purposeful outreach.

Homes on tribal lands have substantial deferred maintenance, and a higher percentage of mobile homes than other DACs, but the solution to address this in 2.1.3 would apply here, as well. There may need to be a higher allowance for non-energy maintenance measures, to the extent that housing stock is in substantially poorer repair. As previously noted in section 1.1.1, a geographic-only requisite is likely to discriminate against many of California's Native American community members who don't live on Tribal lands by any ubiquitous definition.

Program outreach will require meaningful partnerships with Tribal Councils, NGOs, and CBOs familiar to these communities.

c) No response provided

## 7. No response provided

## 8. Direct Install Eligible Equipment and Measures

### a) What specific equipment and measures should be prioritized?

The guiding principle is adherence to the following loading order:

- Reduce energy demand through passive measures that reduce equipment loads and provide resiliency in the absence of power during extreme heat, public safety power shut-offs, and wildfire events.
- Right-size equipment to meet reduced demand and electrify the most energy intensive end uses first, with equipment that features a high enough Coefficient of Performance (COP), to reduce energy poverty and lower real- world energy burden.
- Prioritize variable refrigerant flow HVAC equipment. Systems capable of running at partial capacity mitigate over- sizing by delivering conditioning based on instantaneous need. (This technology is most well known in mini splits applications, but also currently serves split systems and packaged unit applications.)

The need for a loading order acknowledges that homes have unique conditions and needs. Therefore, some will be able to utilize super effective measures like deeply buried duct work, but others will have ducting in a subfloor, or no ducting at all. Serving these communities will require a list of standard items similar to LIWP, but with added electrification and enhanced deferred maintenance measures. This will comprise a robust list of measures for delivering efficiency, electrification, and remediation of in-unit barriers such as deferred maintenance.



Franklin Energy suggests that a dedicated team of auditors should prescribe the work scope for each site, per the loading order and pricing schedule. Based on the measures selected, sister programs (like ESA) and the trades would then complete the SOW. Any deviation from the prescribed scope must be substantiated and then approved by the administrator. Due to the nature of the interventions desired, implementers will need to verify the quality of the assessment, remediate any building related barriers, sequence equipment install and less technical measures like air sealing and insulation, and finally conduct field and desktop QC.

b) **What, if any, equipment standards or certifications should be considered as requirements?**

Heat pump systems can deliver COPs close to or meeting the per Btu cost disparity in field efficiency conditions. That is, COPs must be sufficiently high to overcome the price premium of electric BTUs over Natural Gas BTUs. Laboratory testing conditions can show specifications sufficient to overcome the disparity, but not meet affordability objectives when site conditions are less favorable. This effect can be mitigated with improving site conditions though quality installation and the reduced loads delivered by passive efficiency measures. Hence, the importance of the loading order approach put forward in this response.

The housing specifically targeted by the Equitable Building Decarbonization Program will require a list of measures too extensive to detail in this response in great detail. However, these measures are well known through prior efforts. Their applicability is driven by a series of if/then statements that determine need under real world conditions: e.g., if ducts are present, then seal and insulate them, if not then some other intervention is required.

Franklin Energy looks forward to providing measure level detail at the appropriate time. In the interest of ensuring positive bill impacts and the goals described in AB 209, applying passive measures prior to active ones will yield optimal results.

c) **No response provided**

d) **How should the CEC consider equipment and measures that mitigate impacts from extreme heat, wildfires, or local air pollution but increase individual energy use (e.g., installing a heat pump heating and cooling system in a home that previously did not have an air conditioner)? How does this align with the legislative direction that the program shall “reduce the emissions of greenhouse gases”?**

As previously stated, preference for passive measures should be established and maintained via the loading order. Furthermore, air sealed homes and ductwork systems afford an opportunity to improve indoor air quality through whole home air filtration. (i.e., an HVAC system in typical operation or “fan only mode”, paired with an *effective* air filter)

In the presence of climate change and heat waves ever-increasing in intensity, the market in question will tend to seek out low cost “DIY” relief like window and portable A/C systems, as evident in the fact that retailers continue to stock their shelves with these units. The Equitable Building Decarbonization Program will treat the home as a system to reduce load, downsize mechanical systems, and deliver higher performance equipment than customers can self-source.

Given that heat-related health emergencies are amplified in communities with existing environmental stressors (such as the Central Valley), Franklin Energy supports not excluding heat pump technologies where there is no baseline cooling. The Equitable Building Decarbonization Program should capture baseline conditions with no cooling, or only evaporative cooling, but not prohibit the installation of high efficiency heat pump systems in such homes.

However, it is essential to ensure that the addition of mechanical cooling does not result in a net increase in utility bills. This will require substantial home interventions and careful measure selection per the loading order.

- e) Should the CEC consider unique portfolios, technologies, and measures to reflect California regional diversity, such as different climate zones, electric utilities or community choice aggregator providing service, technology performance, electric reliability, wildfire risk, etc.?

The CEC should consider unique portfolios, technologies and measures based on:

- Climate Zones. Regional variances in heating and cooling loads significantly impact energy affordability. Climate zones effect measure efficacy and areas with more cooling load benefit from increased attic insulation levels. Areas with more cooling load benefit from subfloor air sealing and insulation (commonly referred to as "the stack effect", subfloor air is actively *pulled* into leaky homes because heat rises). In coastal climate zones, water heating likely represents greater consumption of energy than space conditioning.
- Electric Utilities (IOUs). Statewide programs like ESA have nuances in delivery, this impacts the stacking of incentives; market-rate options differ by IOU and CCA service territory. Utilities differ in heat rates associated with their grid mix, so GHG outcomes will also differ.
- Community Choice Aggregators (CCAs). May defer in choosing the option to deliver rate payer programs, may mix ratepayer with non-ratepayer programs, or may be designing new programs. Therefore, implementers should coordinate with CCAs providing services.

## 9. Load Flexibility

- a) What load flexibility requirements should be included in the direct install program, and which load flexibility measures should be prioritized?

Tight and well-sealed building envelopes have been proven to deliver passive peak load reductions and *should be considered as an active strategy* for this effort, as they are not dependent on actions taken by the occupant. Given that peak load conditions coincide with extreme heat in California, envelope measures also provide resiliency in the event of a power outage. Beyond crucial basics, the following technologies should be considered required in conjunction with the indicated interventions.

- Heat Pump HVAC - systems should be installed with controls that are capable of TOU specific scheduling ("precool and drift" load shaping) and demand response program participation.
- Installers should be required to provide thermostat use training and referrals to applicable DR programs or online resources.
- Heat Pump Water Heaters - Functionally the same as above, but training shall be specific to the components installed.
- Variable capacity or variable refrigerant flow systems should be utilized wherever possible to take advantage of consumption reductions associated with lower-demand ambient conditions, and enhanced envelope efficiency.

## 10. No response provided

## 11. Incentive Program

- a) How should the CEC prioritize the use of funds between these options? What market actor should be incentivized? Why?

To date, the best market actor to incentivize has been the Trades for the reasons detailed below. To ensure that incentives flow through to end users and generate market driven values as well as demand, *installers should detail incentives as a line item deduction on the customers invoice.*

Upstream programs have not been implemented (historically) in such a way to provide site level data, with an effect of complicating EM&V. As a result, mini split realization rates were poor from upstream delivery, in spite of being an excellent technology for replacement of wall or floor furnaces. Program data could not distinguish participants adding supplemental comfort from those displacing existing systems. While it is useful to incentivize manufacturers and distributors to produce and stock the technologies desired for GHG reductions and energy savings, increased purchasing levels from downstream will produce the same effect. While upstream interventions are simpler in delivery, it is not clear that the model delivers equivalent values to participating businesses as it does for end users.

Customer-level application processes burden homeowners with technical details. This results in reduced transparency, market penetration, and poor data quality.

Installers should provide incentives as a negative balance line item on the customers contract and provide invoices in order to claim rebates. Equipment performance levels should be detailed (i.e., SEER2 & HSPF2). The TECH program has leveraged this method successfully. This method has the benefit of leveraging other programs to the participants benefit.

b) **What criteria or factors beyond the reduction of direct GHG emissions should be considered when evaluating incentive options? How do these considerations benefit residents living in under-resourced communities?**

Under-resourced communities lack the means to make discretionary improvements to their home. Therefore, they are more reactive in general and will utilize equipment well beyond its useful life. When equipment is eventually replaced, economics drive equipment selection. Repair technicians are cognizant of customers resource limitations and will often keep equipment operational beyond the typical replacement period. Equipment may have been 80% efficient when new but is now significantly less efficient or a health risk due to carbon monoxide and other combustion gasses. Designing a rebate program for market rate (i.e., greater than 150% AMI) that stacks incentives from TECH and IRA will reduce more GHGs than otherwise and mitigate methane-related health concerns.

At the same time, the implementation of TOU rates roughly tracks GHG emissions per hour. This means load-shaping interventions deliver both energy affordability and GHG reductions. Building envelope improvements that passively improve bill affordability also achieve peak reductions. Without significant intervention, less resourced Californians will experience an outsized energy burden because of TOU rates, especially if they utilize electric cooking.

The EE market tends to focus on mechanical and digital specifications (SEER2, HSPF2, web enabled, Zigbee comparable, etc.), which can result in more expensive solutions being connected to poor infrastructure. To take a concrete example, releasing efficiently conditioned air into a vented attic or subfloor serves all stakeholders poorly. The Equitable Building Decarbonization Program can leverage existing programs like TECH, IRA funding, and regional downstream programs like those offered by RENs and CCAs to better effect. Franklin Energy encourages stacking incentives for a "home as a system" approach that combines passive infrastructure improvements with high-performance equipment.

Residents living in underserved communities will often own homes that are either older (built to a lower efficiency code level) and have more limited electrical service in front of and behind the meter. The pending IRA offerings do provide incentives targeted at these conditions and should be leveraged in conjunction with existing California offerings. However, under resourced communities tend to reside in older housing stock in need of very basic efficiency before they can reap the true benefits advanced technologies. Given the above, the state would be best served with program delivery that facilitates multiple incentive sources and fill gaps with true infrastructure improvements that result from technology-centric approaches.

c) Where are the gaps in current incentive offerings that if addressed could advance the market for low and zero-carbon building technologies?

The key gap is for moderate income customers are typically underserved by market-rate programs. Market rate (i.e., rebate) program participants tend to have higher education levels, more tolerance and experience with detailed forms and processes, are generally more affluent, live in newer and larger homes, and are more likely to be renovating in conjunction with an addition to the home.

Given this effort's focus on underserved communities, and the ability to leverage state and federal funds, the market rate program would be best served establishing a rebate schedule that focuses on enhancing energy efficiency in conjunction with TECH incentives for heat pump space and water conditioning. That said, the offering should also have flexibility with heat pump incentives should TECH funding be depleted (again) in the future. Most but not all of the state is served by a REN or CCA with decarbonization efforts active or in development, so incentive levels may require a regional approach.

What is needed is a (potentially income progressive) incentive schedule where homeowners and contractors can choose measures applicable to their homes. One that communicates a proper loading order and enhances the effectiveness of programs that feature only heat pump technologies. In this manner the state can optimize results while treating as many homes as possible.

- d) No response provided
- e) No response provided
- f) No response provided
- g) No response provided