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Energy Solutions Comments on Draft Guidelines for EBD Direct Install Program

Additional submitted attachment is included below.

Energy Solutions Response to Equitable Building Decarbonization Program Direct Install Program: Draft Guidelines (CEC-400-2023-003-D)

Docket 22-DECARB-03

Submitted June 30th, 2023

Energy Solutions respectfully submits comments on the April 2023 Draft Guidelines for the Equitable Building Decarbonization (EBD) Direct Install Program. Energy Solutions implements multiple energy efficiency and decarbonization programs both in California and nationwide and leads the program implementation team for the Technology and Equipment for Clean Heating initiative ("TECH Clean California" or "TECH"), a statewide market transformation program driving adoption of heat pump space and water heating technologies, and implements the Self-Generation Incentive Program (SGIP) Heat Pump Water Heater (HPWH) program

I. Summary

As noted in *Section B: Program Goals*, the CEC EBD Program is intended to *"Advance the state's goal of 6 million heat pump installations by 2030, 3 million climate-ready and climate friendly homes by 2030, and 7 million climate-ready and climate friendly homes by 2035"*. While the EBD program intends to support only 20,000 to 30,000 homes initially, its investments and lessons learned will lay the groundwork towards a broader state strategy to support low to moderate income households and those in disadvantaged communities. Our comments focus on opportunities to refine the EBD program guidelines in a way that simplifies implementation for regional administrators and offers them flexibility to best serve their communities while also rigorously quantifying program impacts, creating consistency statewide, and expanding the reach and scale of state decarbonization programming to serve the needs as many households as possible. A summary of our comments is provided below.

- **Statewide Approach**: Many necessary program elements of the Equitable Building Decarb program will benefit from statewide implementation and

coordination, such as meter data analysis and customer targeting, data collection, and income verification. A statewide approach to specific program elements enables statewide consistency and reduces the administrative burden on regional program administrators and community-based organizations (CBOs) and is significantly more cost-effective.

- **Support for Existing State Programs**. We support the CEC's proposed approach to allocate a portion of total EBD program funding to existing state programs serving low-income households and disadvantaged communities, which will create much-needed market consistency and enable the EBD program to immediately begin having impact on the lives of the communities it is designed to serve.

Components of Chapter 2, Statewide Direct Install Program:

- **Household/Property Eligibility.** We recommend that the CEC deploy a centralized income verification tool that can be used by regional program administrators, rather than enable the adoption of regional income verification methodologies and processes.
- **Household/Property Targeting.** We support the engagement of a technical support contractor to develop a program-wide analytical tool to target households likely to have an outsized impact on achieving program goals and ensure positive customer bill impacts.
- **Eligible Measures.** We recommend that heat pump water heater requirements specifically reference installation in accordance with JA13 requirements to enable streamlined incentive stacking.
- **Pricing/Cost Caps.** We support the CEC's proposed approach of capping average per-home cost of remediation and safety measures, rather than applying a fixed limit per individual household.

Components of Chapter 4, Administration:

- **Program Coordination / Incentive Layering.** We support the CEC's principles of minimizing complexity for program participants and contractors and recommend taking steps to create consistency with other programs.
- **Metrics and Data Collection.**
  - It is critical that the CEC clearly develop an intentional structure for data collection and reporting and define responsible parties and process for collecting these metrics from varying data sources, preferably before program launch.
  - The CEC should consider the data sources and collection mechanisms for the metrics described in *Table 6. Primary Goals and Metrics*, and which organizations (program administrator, meter data analytics provider, evaluator, local CBO, etc.) may be best suited to collect these data.
  - We recommend that the CEC adopt a consistent statewide data strategy and collection approach using a centralized repository, rather than have regional implementers develop their own data strategies, processes, and infrastructure.

In order to maximize the impact of the data collected from the EBD Program, Energy Solutions recommends that the CEC include additional project-level data fields, including equipment details, cost details, and infrastructure.

II. Statewide Approach

CEC should consider establishing a statewide role that supports regional administrators by implementing program elements best suited for application at the statewide level, including targeting, data collection and reporting, trade ally outreach and program evaluation. This approach creates statewide consistency and enables regional program administrators to focus on implementation.

(1) **Enable statewide consistency**. While a regional approach enables program components to be tailored to a specific region, standardization of specific program elements enables statewide consistency in key areas. For example, a statewide data strategy enables consistent data collection practices that allow useful program data to inform future programs and additional public/private decarbonization investment.

(2) **Facilitate the success of diverse regional administrators**. Requiring regional administrators to develop specific program elements such as creating methods for income verification, data analysis, supply chain engagement, and customer targeting, limits the pool of potentially administrators to those firms that can develop these elements. Streamlining the scope of the regional implementers by providing statewide programmatic tools reduces the administrative burden of regional administrators and enables a broader pool of applicants, particularly smaller, local community-based organizations to participate.

(3) **Efficiently leverage program administrative budget.** Rather than having each regional program administrator develop unique tools or program elements, centralization of these elements enables the program to only need to fund the development of that element once. In specific cases, central program elements can then be customized or tailored by regional program administrators to meet their specific needs.

We suggest that the CEC consider standardizing some or all of the following operations at the statewide level:

- Meter data analysis and customer targeting support. Meter data analysis and targeting requires a significant amount of initial infrastructure investment to set up and standardize datasets, and can be easily replicated across program regions (subject to meter data availability).
- Centralized data collection practices and repository. A consistent statewide data strategy and collection approach ensures that the EBD metrics and data are maximally useful in informing program revisions and subsequent state decarbonization initiatives. Furthermore, a statewide data collection and reporting methodology provided to regional program administrators would significantly reduce burden on regional program implementers and program participants. We recommend a single centralized data repository for program data statewide. This is discussed in further detail in the data collection section below.
- Evaluation. Program evaluation be (1) embedded within regional programs to increase the probability that information gleaned from evaluations will be used to

make continuous program improvements, and (2) conducted by the same evaluator statewide to ensure consistent methodology. Embedded evaluation has played an important role in TECH by rapidly bringing new information back to the Program, through customer and contractor satisfaction surveys and process improvements.

- Income Verification. We recommend the CEC to deploy a standard income verification methodology and tool for program administrators to employ. Income verification requires significant customer data privacy controls, and risk can be more readily managed by centralized infrastructure.
- Centralized training for contractors and installers. While not explicitly discussed in the Draft Program Guidelines, we recommend that any training for contractors and installers deployed on behalf of the EBD Program (or in coordination with the EBD program) be implemented on a statewide basis to ensure consistency across regions and more easily benefit from statewide mechanisms to facilitate contractor engagement.

Centralized outreach efforts with manufacturers and distributors. Manufacturers and distributors conduct activities across the state and their operations span multiple regions. Outreach efforts can be streamlined by statewide coordination.

- Customizable marketing materials. The EBD program may benefit from a base level of marketing materials and toolkits that could be developed for the entire EBD program and leveraged and customized by regional programs. For example, this may include uniform consumer-facing website content where regional program administrators can point customers if they have additional questions, coordinated marketing approach with standardized data, and a customizable marketing "kit". This could ensure that core messaging is consistent across the program. This centralized role would allow regional program administrators to leverage the program-wide marketing toolkit to develop local place-based campaigns that meet the needs of their individual region / community focus areas, while also making it easy to assess the effectiveness of the local campaigns relative to each other and identify and scale best practices.

III. Support for Existing State Programs

We support the CEC's proposed approach to allocate a portion of total EBD program funding to existing state programs serving low-income households and disadvantaged communities, which will create much-needed market consistency and enable the EBD program to immediately begin making impacts in the lives of the communities it is designed to serve.

In discussions with market actors, continued and reliable funding sources are critical to prevent start-stops in the market that are challenging to navigate for customers and market actors. There is significant existing demand in the market that would strongly benefit from immediate additional statewide support. For example, TECH's 2023 incentive budget allocated $7M for statewide multifamily program incentives for heat pump water heaters, heat pump HVAC, as well as electrical infrastructure upgrades. Over 75% of multifamily incentives are allocated to equity customers (largely affordable housing or multifamily in disadvantaged communities). This $7M budget is broken into two tranches of funding reservation opportunities throughout the year. In the first multifamily reservation phase of 2023, TECH Clean California received over $9M in incentive reservations within the first hour, over double the allotted $4.2M allocated for that phase, and greater than TECH's planned 2023 multifamily incentive budget. Statewide, we anticipate that there is likely a current unmet incentive demand of at least an additional $20 million that could be deployed through TECH's multifamily program prior to the launch of the EBD program. To date, the average multifamily incentive amount is approximately $2072 per heat pump water heater (HPWH) and $3000 per HVAC project (per-housing-unit costs), enabling any additional funding to cost-effectively serve populations that face significant barriers to electrification of their dwelling such as tenants of affordable housing. TECH has the capability to rapidly deploy large-scale project funding statewide to low-income households and disadvantaged communities through its multifamily program, and could potentially be a vehicle to support projects in the interim period before the EBD program launches, should CEC staff see fit.

IV. Comments by Section

We have developed responses to specific sections and questions of the draft guidelines, below.

Section E: Household/ Property Eligibility

We recommend that the CEC deploy a centralized income verification tool that can be employed by regional program administrators, rather than enable the adoption of regional income verification methodologies and processes.

The adoption of a centralized consistent methodology can help ensure important data privacy policy decisions and controls are established across the program on a uniform basis. It would alleviate risk and associated cost burden on regional implementers, enabling more effective program implementation. The Department of Energy (DOE) will be releasing guidance and potentially developing a tool for income verification that can be used by Home Electrification Rebate program administrators across the country. Other efforts in California include the Universal Application System currently under development that will cover utility-based low-income programs and will potentially be expanded post-launch to include the Self-Generation Incentive Program (SGIP) and TECH. We recommend the CEC evaluate these DOE and California tools and standardize a statewide approach leveraging one or both when they become available.

Section F: Household/ Property Targeting

We support the engagement of a technical support contractor to develop a program-wide analytical tool to target households that will have an outsized impact on achieving program goals.

With limited program funds, the EBD program should seek to best serve program participants and maximize program outcomes by identifying homes with highest potential for household benefits and contribution to program outcomes, including customer bill savings, GHG emissions reductions, and peak demand reductions.

Customer energy usage and bill impacts can vary widely even across households with similar characteristics such as floor area, climate zone, and building vintage. Targeting should

incorporate a wide range of variables to identify households with the greatest need. We recommend caution in using the selection criteria "proximity to other targeted low-income or moderate-income households, for economies of scale in outreach, implementation, and direct install retrofit." Based on Energy Solutions' experience implementing TECH, we have seen the correlation in energy consumption among adjacent homes is not strong enough to predict that one home will have positive bill outcomes and/or high potential for GHG savings based on the fact that adjacent home or home(s) do.

Section I: Eligible Measures

(1) We recommend that heat pump water heater requirements specifically reference installation in accordance with JA13 requirements to enable streamlined incentive stacking.

The EBD guidelines require compliance with JA13 for heat pump water heaters (unitary). These standards, in Section JA13.3.3 (Control Requirements), include the functional ability to utilize time-of-use rates and the ability, upon receipt of a demand management price or dispatch signal, to engage in demand management with certain functions requiring customer consent and with local and remote override capability. To appropriately exploit this functionality, we recommend HPWHs be installed with the programing to execute the basic load-up and light shed demand management functionality defined in JA13 based on local time-of-use rates. This requirement would align the EBD program with SGIP HPWH program requirements, which require JA13 programming at installation. This implementation requirement should also be expected to reduce costs for consumers by ensuring they are minimizing operation during periods of higher cost rates and maximizing water heating during periods of reduced rates. The CEC should also seek to have marketing materials inform eligible customers about the possibility of receiving SGIP HPWH rebates (should they meet other program requirements such as system demand response program enrollment) and the ability to otherwise participate in system demand response programs where they find program features compelling. Installation of HPWH equipment in compliance with JA13 will enable program participants to access SGIP rebates more easily to further reduce projects costs, and will enable greater grid resiliency and reliability for the state of California.

(2) For measures which are only eligible for incentives when they are a replacement for gas equipment, the CEC should establish a consistent statewide methodology for validating the gas equipment being replaced was removed and properly recycled without being overly burdensome to regional program administrators and program participants.

The federal Home Electrification Rebate program will have a methodology for verification of equipment removal and disposal. We recommend that the CEC consider alignment with the federal methodology when it is released while considering the effect on program outcomes without adopting an overly prescriptive approach that could constrain or significantly complicate program administration and participation.

Section J: Pricing and Cost Caps

We support the CEC's proposed approach of using caps for average per-home cost of remediation and safety measures, rather than a fixed limit per individual household.

Using an average cost, rather than a maximum cost per household, provides the Regional Administrator much more flexibility and discretion in achieving the desired remediation requirements while meeting the needs of individual participating households. TECH Clean California has collaborated with various low-income programs to fund remediation costs, such as the San Joaquin Valley Disadvantaged Communities (SJV DAC) Pilot Program where those programs' rules had a fixed maximum remediation cost. Homes receiving funding through the SJV DAC Pilot Program are eligible for up to $5000 in remediation and minor home repairs, an amount which has been sufficient for the majority of participating homes. Numerous homes were just a few hundred dollars over the allotted cost cap and thus ineligible. TECH's collaboration with the SJV DAC Pilot Program enabled up to $10,000 of additional funding for homes with excessive remediation costs. The majority of these remediation costs were associated with electrical measures, mainly additional circuits, relocation of the water heater, and main service panel upgrades. Approximately 20% of homes participating in the SJV DAC Pilot leveraged this additional remediation support from TECH. While only a small portion of the homes leveraged this additional amount, and it did not substantially increase the overall remediation budget, this flexibility enabled significantly more homes to be supported.

Section A: Program Coordination & Incentive Layering

We support the CEC's principles of minimizing complexity for program participants and contractors and recommend taking steps to create consistency with other programs.

The Draft EBD Program Guidelines outlines a strategy "to maximize the number of California households that benefit from the Equitable Building Decarbonization Program, complementary funding sources should be applied to a project prior to Equitable Building Decarbonization Program funds whenever possible." In order to achieve this objective, simplify program participation, and ensure project incentives do not exceed total or maximum allowable project costs, the EBD program will be required to be part of a system that actively manages project applications across programs in real-time.

The CPUC Incentive Layering decision (D. 21-11-002) attempts to tackle coordination of the building decarbonization program landscape, noting that "ensuring that program participants have a seamless experience is of fundamental importance in maximizing program uptake."

D. 21-11-002 assigns the TECH implementer a central role in developing a system to coordinating building decarbonization programs, stating that "under the current contract, the TECH Initiative implementer is expected to develop a single online platform where distributors and contractors can submit and track applications for multiple programs at once. This platform will further facilitate implementation of the incentive layering guiding principles, such as offering a participant-friendly experience." While it may not always be practical for all programs to go through a single application portal, standardization of application fields, eligibility, and submission requirements will streamline the participant experience and enables incentive layering.

D 21-11-003 outlines an expectation of the TECH implementer to "discuss how the program is coordinating with Energy Efficiency, SGIP, and low-income programs in their efforts to incentivize heat pumps," and "actively facilitate implementation of the guiding principles in … coordination efforts, such as pursuing streamlined, multi-program applications for each supply chain level." The decision further directs the "TECH Initiative implementer [to] develop a memorandum of understanding (MOU) to be entered into by all relevant entities and program administrators, such as investor-owned utilities (IOUs, or utilities), community choice

aggregators (CCAs), RENs, Air Quality Management Districts (AQMDs), publicly owned utilities (POUs), state agencies, or any other entity that may offer incentives for heat pump appliances and related equipment."

As implementer of TECH Clean California, we hope to work with the statewide and regional program administrators, CBOs, and the CEC on how best to resource and coordinate the inclusion and alignment of the CEC EBD Program with the existing decarbonization program infrastructure.

Section B: Metrics and Data Collection

(1) Prior to program launch, it is critical that the CEC clearly develop an intentional data collection and reporting structure, working with responsible parties to establish streamlined data collection from varying data sources.

We support CEC's initiative in developing a robust data reporting strategy to analyze data and help determine the need for adjustments to the program. While we agree with the EBD draft guidelines that metrics can be refined during program development and implementation, it is critical that the CEC clearly develop an intentional structure for data collection and reporting, and define responsible parties and process for collecting these metrics from varying data sources before program launch.

While it is possible to add or modify data fields to the program application or customer experience survey, planning and setting the data sources and collection mechanisms themselves takes much more time and should be developed before the program has launched. With proper consideration of 1) where the data is coming from, 2) which party is best suited to collect it, and 3) how it will all be integrated, the robust dataset resulting from this program can be leveraged to monitor and improve program performance over time, as well as inform future building decarbonization efforts.

(2) The CEC should consider the data sources for the metrics described in *Table 6. Primary Goals and Metrics,* and what organizations may be best suited to collect these data.

Requiring regional administrators to collect and report on all data could result in significant implementer burden; data collection will likely be best coordinated at the statewide level by a

designated data collection provider and analysis team. For example, the EBD Draft Guidelines require the regional program administrators to collect, report, and analyze many data fields to track progress towards program goals and enable ongoing adjustments to the program. Almost of these data can primarily be gathered from four core sources: Administrative Data, Incentive Applications, Meter Data, and Customer Surveys. These sources are consistent with TECH Clean California's data pipeline (see Figure 1 below), though the EBD Draft Guidelines does also include indoor air quality monitoring in sample homes, which may constitute a fifth dataset.

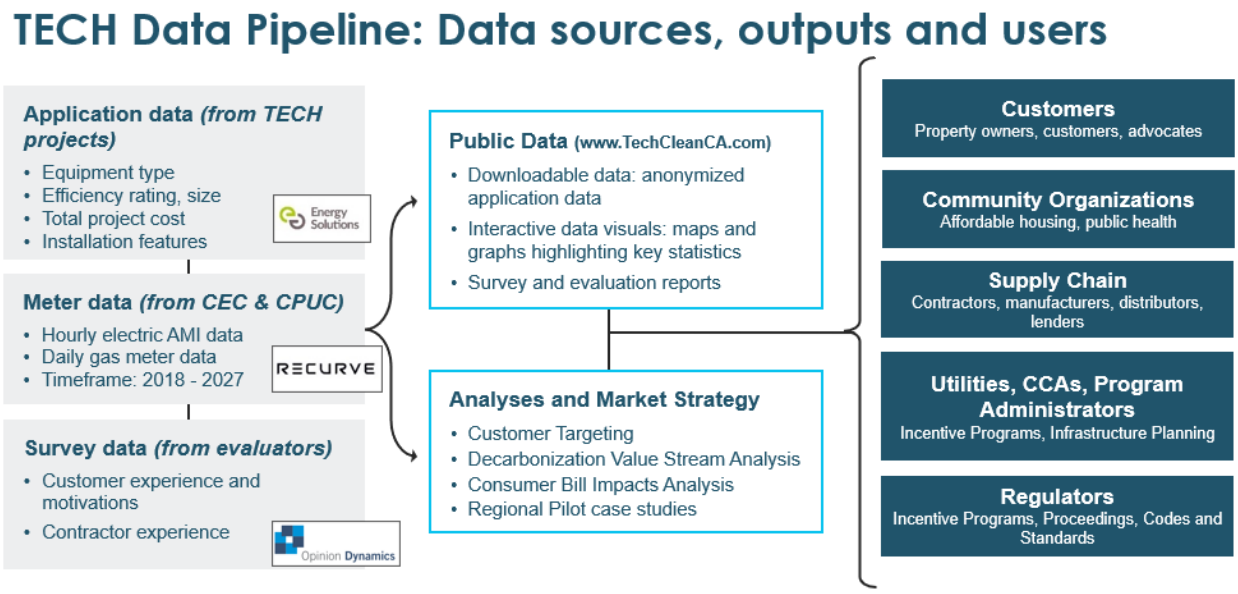

Figure 1. TECH Data Pipeline, with the data sources on the far left, with how the information flows into specific datasets, and inform key stakeholders. A fourth TECH data source, administrative data, which includes contractor company details and is typically collected during the separate contractor program enrollment process.

Within the TECH program, these datasets are collected by different organizations: the program implementer (Energy Solutions) collects both administrative data (via contractor enrollment forms) and incentive application data (including customer and site information from the project application). The meter analytics provider (Recurve) collects and houses meter data, matching project application data from the application system to meter data from those participating households. Customer survey data is collected by the program evaluator (Opinion Dynamics). Energy Solutions sends a bi-weekly customer list (from program application data) to the evaluator so that they can conduct a third-party survey within a few weeks of install, so that the installation experience is fresh in the mind of the customer (this rapid follow up survey has produced very high response rates). While the specific roles may shift to suit the specific needs

of the EBD program (e.g., surveys may be best suited to be administered by a local CBO or trusted advisor), the way these distinct data sources intertwine to inform program reporting and improvement demonstrate a clear need for a standardized and streamlined data collection process across these data sources.

(3) Data standardization and consistency directly underpins program refinement and informing future equitable building decarbonization efforts

While the data collection may occur by different parties, typically these datasets *must be combined* to fully understand causal relationships and make program refinements. Some example combinations include:

- **Combining meter data with project application data** to understand the relationship between changes in energy consumption and project site parameters (equipment installed, project cost, geographic location, contractor who installed the equipment, etc.). For example: *What project components drive project cost and performance, and customer bill impacts? Does upsizing to a 65 or 80 gallon heat pump water heater ultimately save more energy because they are in electric resistance mode significantly more than 50 gallon HPWH? Do inverter-driven heat pump HVAC systems save significantly more energy or GHGs than other systems, and how does that compare to their cost?*

Combining customer survey data with project application data can yield valuable insights about the equipment, particularly when identifying improvement opportunities for contractor training, improved equipment installation, and customer communication. These data are particularly important to refine the program and ensure customer voices are continually incorporated to inform refinements and improvement opportunities. Customer surveys can identify high or low satisfaction with a specific issue, such as comfort, equipment performance, energy bills, or confidence using and maintaining equipment. Combining these valuable data with project application data (and potentially meter data) enables a deeper root cause analysis to find out the potential drivers of those customer survey outcomes. For example, if most customers are very satisfied with

HPWH performance but a small group of customers identify performance issues delivering hot water, combined survey and project application data could inform if this was due to undersizing, and if this was specific to individual contractors or evenly distributed across all projects. This feedback could directly inform program refinements and best practices to improve outcomes.

(4) We recommend that the CEC adopt a consistent statewide data strategy and collection approach, rather than having regional administrators develop their own data strategies, processes, and infrastructure.

Without a statewide approach, the EBD Program Draft Guidelines require the regional program administrator to potentially take on all four of data collection roles (administrative, project application, meter, customer survey data) for their individual region, then coordinate seamlessly with the other regional implementers in order to provide program-wide insights. Both the infrastructural setup and reporting requirement at a regional level will pull valuable time and attention away regional administrators' core focus on effective community engagement and supporting project deployment. The end result would likely be increased administrative burden on the regional administrator and decreased ability to understand and improve program outcomes.

To take best advantage of the data from all regions, data reporting must be standardized, otherwise, there is a significant risk that data from regional programs will be incomplete or difficult to integrate due to different formats. Without an intentional, comprehensive approach to data reporting across the program, the data collected may be inconsistent and unable to support conclusions required to refine and improve the program. Bringing inconsistent datasets to compliance where they are sufficiently useful for statewide analysis could also be cumbersome and divert significant resources from other more productive program goals. Standardized statewide data collection streamlines the program experience for stakeholders and market actors who may act across regions. If one contractor conducts projects in multiple program regions, they may receive different guidance from different implementers about what they needed to change in their applications (no doubt a frustrating experience for the contractor).

Our experience implementing TECH demonstrated the significant challenges in attempting to reconcile disparate datasets which were not designed or coordinated from the outset. The TECH team attempted to integrate data from multiple pre-existing building decarbonization programs within the state with TECH data to refine incentive strategy, inform layering, and understand how projects were flowing through the supply chain. However, this effort proved impractical because the existing programs used significantly different data collection fields and practices as they were not initially set up with program and data coordination in mind. The CEC should establish consistent data collection practices to significantly improve information sharing and analyses.

At minimum, we recommend that the CEC provide regional administrators with standardized data collection and reporting requirements before program launch. Without ensuring consistency, the work required to refine it increases exponentially, and the value and insights that the dataset can generate decreases substantially, with significant limitations how much the dataset can be remediated or improved if reporting inconsistencies are widespread. Examples of data consistency include (1) how to handle missing or implicit data (i.e., if there is an optional TRUE/FALSE field on the application, should the implementer default blank fields to FALSE or leave them blank?), (2) data validation and standardization of responses (i.e., "BRAND NAME" and "brand name" may appear as two different responses).

(5) To maximize the impact of the data collected from the EBD Program, Energy Solutions recommends that the CEC include additional project-level data fields, including equipment details, cost details, and infrastructure.

Successful reporting on some of the proposed metrics requires significant detail at the site level. TECH has over 80 reported fields, which are either collected directly on the contractor participation application, project application, or meter data, or identified from a related lookup of another resource to simplify the process (for example: water heater model number, which is listed on the project application, can be used to look up product details such as size, efficiency, etc.). Several additional project-level fields will be necessary for compliance with program requirements. We recommend including additional fields such as:

- **Cost**: Total project cost; equipment cost for each measure[1], incentive amount.
- **Equipment**: make and model number; quantity of units installed for each measure (a unit is one discrete model of the provided model number).
- **Site Details**: Building type, home size, panel capacity, equipment replacement data (e.g., presence of existing A/C).
- **Customer Details**: Income or equity community qualification.
- **Installation Details**: Start and end date, permit, panel upgrade, infrastructure details (relocation, additional wiring, additional circuits, etc.).

In addition to project level metrics, some additional program level metrics the CEC may want to consider include:

- **Contractor statistics**: Counts of various project types by contractor
- **Self-evaluation:** Difference between predicted and actual GHG savings and bill outcomes.
- **Resiliency:** Homes with existing air conditioning; number of homes served that previously lacked air conditioning in climate zones where majority of homes have air conditioning.

TECH is currently working with ESA programs and has an extensive data reporting template/data dictionary which we recommend that CEC employ to create statewide consistency in data reporting for building electrification programs. Given the expanded measure list of the EBD Program as compared to TECH, the core datasets would align but would require some degree of expansion to include information on weatherization and additional measure data.

[1] Line-item invoices are an important requirement and serve as the basis to understanding how individual measures and supplemental services (equipment relocation, panel upgrades, etc.) contribute to project costs. In our experience working collaborating with direct install programs as part of TECH, some contractors provide line-item invoices and some don't, creating an inconsistency which makes it difficult to compare cost drivers across projects. While identifying cost drivers can be done through alternate mechanisms such as regression analysis, having an itemized invoice is a critical but potentially overlooked requirement. This is less feasible for market rate programs where itemized invoices are simply not part of standard practice, however on direct install programs this is possible because projects are more comprehensive in nature and there is limited group of contractors and so standardization is easier to achieve.

V. Conclusion

Thank you for the opportunity to provide input on the Equitable Building Decarbonization Program Guidelines. We look forward to ongoing dialogue with the CEC and the broader stakeholder community throughout this process.

Dated June 30th, 2023

Respectfully,

/s/ Teddy Kisch
Teddy Kisch
Senior Fellow
Energy Solutions
449 15th Street
Oakland, CA 94612
tkisch@energy-solution.com