Opinion Dynamics

BUILDING INITIATIVE FOR LOW EMISSIONS DEVELOPMENT (BUILD) PROGRAM

INTERIM PROCESS REPORT

FEBRUARY 22, 2024

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I. EXECUTIVE SUMMARY

Opinion Dynamics is the developmental evaluator for the Building Initiative for Low Emissions Development (BUILD) Program, utilizing the Whole Independent Systems Approach™ (WISE™). In this interim process report, we provide an update on and present the results of the ongoing process evaluation of the BUILD Program. Process research will continue into 2024, and we expect to prepare a second iteration of this report near the end of 2024.

The BUILD Program is an $80 million program that aims to put California on a path to zero-emission homes by encouraging the design and construction of all-electric buildings. The BUILD Program provides incentives for constructing all-electric new residential housing using near-zero-emission building technologies to significantly reduce greenhouse gas emissions beyond what would be expected to result from a code-compliant mixed-fuel building. The BUILD Program also offers standalone technical assistance focused on all-electric and high-efficiency design support and program application support. The BUILD program focuses on the affordable housing market.

This interim process evaluation report is based on program staff interviews, program materials review, periodic status calls, participant interviews, and a tracking data analysis. The evaluation team contacted 14 individual companies who had achieved a Design or Construction reservation through the BUILD Program.[1] These companies were among the first applicants of the BUILD Program and applied between February 2022 to May 2023. In total, we interviewed nine developers representing ten projects in total. The evaluation team offers the following findings and recommendations based on the results of the interim process evaluation.

- **Finding #1: Most projects did not change their design significantly in response to BUILD incentives or technical assistance. Those who made design or equipment changes described minor changes, such as increasing equipment efficiencies or incorporating JA-13 compliant HPWHs. Most importantly, all respondents were already planning on building all-electric.**
  - **Recommendation:** The BUILD Program should consider restructuring the incentive calculations to encourage participating projects to reach for deeper savings. Currently, over half of all incentive dollars are provided through the base GHG incentive, which assumes a baseline of an energy code-compliant building with gas-fired space heating, water heating, clothes dryer, and cooktop. In our research, we found that all interviewed participants would have built an all-electric building regardless of program participation, which strongly indicates most early participants are not influenced by the BUILD Program to build all-electric. This highlights an opportunity to reallocate incentives to capture greater GHG savings per participating project by emphasizing deeper savings. This could manifest as tiered incentives that increase alongside increased GHG savings. Alternatively, the program could reallocate funds from the GHG incentive to the efficiency incentive or allocate them to new or existing kicker incentives. Another option to consider is reallocating incentive budgets to enhance the New Adopter Design award. [2]
  - **Recommendation:** The BUILD Program, or similar new construction decarbonization programs, should consider limiting program eligibility to earlier design phases such as design development, or nominal progress in construction documents. The current BUILD Program guidelines allow eligible projects that have not received a certificate of occupancy to apply for incentives. Projects at the end of the design phase present limited

[1] The BUILD Program currently has 26 total projects with reserved incentives at the time of this report, however at the time of our outreach there were only 14 projects with reserved incentives.

[2] The BUILD New Adopter Design award is an additional award outside of the $2 million award available through the BUILD Initiative that provides up to $100,000 in funds to developers designing their first all-electric low-income multifamily building to offset design costs.

opportunities for the BUILD Program to achieve deeper GHG savings, and after a project has begun construction, opportunities are even more limited.

- **Finding #2: All respondents reported their projects rely on multiple sources of public funding, including affordable housing tax credits, state and county funds, local government funds, and conventional loans in addition to BUILD funding. Further, many respondents stated their other funding sources imposed overlapping requirements with BUILD Program requirements.**
  - **Recommendation**: The BUILD Program, or similar new construction decarbonization programs targeted toward affordable housing developments, should further integrate with existing affordable housing funding structures to align program requirements and streamline the approval process for qualified projects. The funding ecosystem for affordable housing development is complex and essential to affordable housing projects, which often must secure funding well before design is completed. By integrating further into the existing funding ecosystem program administrators could align eligibility requirements, avoid duplicative work for both the applicant and the administrator, and ensure funding is acknowledged early enough in the project lifecycle to impact building design.
- **Finding #3: Some projects mentioned that they were unaware of all of the services that the TAP team provided and mentioned that communicating the suite of services provided by the TAP team would have been helpful. Additionally, an earlier review of their project plans would have been helpful in maximizing the efficiency of the building design. Corroborating these results, stakeholders in the BUILD Baseline Market Assessment reported that they are interested in receiving technical assistance regarding all-electric new construction topics including comparative cost analyses for all electric equipment choices, financing and other funding opportunities, and code compliance and permitting among other technical assistance topics indicating that there is an appetite for technical assistance among new construction stakeholders.**
  - **Recommendation:** Proactively communicate the services provided by the TAP earlier in the application process, such as during the intake interview, to ensure that applicants can take advantage of the TAP design review to increase their building's efficiency level and maximize their incentive. Establish a regular communication schedule with project applicants, including periodic check-ins to assess their progress and offer guidance on maximizing building efficiency. This proactive approach will help applicants stay informed and make informed decisions regarding TAP team involvement.
  - **Recommendation:** Encourage all projects to undergo the TAP design review to increase the likelihood that the TAP team's recommendations will be accepted by the project.
- **Finding #4: The New Adopter Design award has seen limited uptake by program participants. Findings from the BUILD Baseline Market Assessment revealed that the majority of low-income multifamily developers have been involved in at least one all-electric project, which implies there are a limited number of developers in the market segment who are eligible for the New Adopter Design award.** [3]
  - **Recommendation**: Encouraging first-time all-electric developers is an important element of the BUILD Program. The BUILD Program should explore additional strategies for increasing uptake of the New Adopter Design award, including targeted marketing or increasing the award value.
- **Finding #5: Some respondents reported that the kicker incentives were too small relative to their incremental cost to influence the adoption of kicker technologies. Although most projects did include at least one kicker technology,**

[3] The BUILD Baseline Market Assessment found almost three-quarters of low-income multifamily developers had completed at least one all–electric project (77%, n=48) compared to around half of the market rate multifamily (44%, n=86) and market rate single family (51%, n=70) segments.

interview results found minimal impact of the BUILD Program on the adoption of kicker technologies outside of JA-13 compliant HPWHs.

- **Recommendation:** Consider adjusting kicker incentives to better reflect the cost differential between baseline all-electric technologies and kicker technologies incentivized by the BUILD Program. Provide higher incentives for technologies that are more expensive to implement but have significant energy-saving and GHG reduction potential. The evaluation team, in coordination with the BUILD implementation team, could discuss additions or modifications to the current participant interview to collect data to support this adjustment.

- **Finding #6: The TAP is providing valuable application and project-specific support to BUILD applicants, providing education about all-electric new construction best practices, potentially creating spillover effects, and is actively adapting to applicant needs and feedback.**
  - **Recommendation:** The TAP should continue to conduct plan reviews of participating BUILD projects to refine all-electric best practices. This iterative process will help ensure the program promotes the most practical and cost-effective all-electric construction techniques.
  - **Recommendation:** The BUILD Program should maintain flexibility in defining the role of the TAP to allow for customized engagement with BUILD applicants, allowing the TAP to continue to capitalize on opportunities to provide general market education and potentially influence future projects within builder and developer project pipelines.
- **Finding #7: BUILD incentive applicants are satisfied with program processes and communication, but opportunities exist for improvement.**
  - **Recommendation**: The CEC should assign each applicant a single point of contact to assist with application revisions and coordination throughout the lifecycle of the project. Most respondents required multiple rounds of application revisions that occurred over a span of several months, and a dedicated point of contact would help improve participant satisfaction and the efficiency of the process.

2. INTRODUCTION

Opinion Dynamics ("evaluation team") is the developmental evaluator for the Building Initiative for Low Emissions Development (BUILD) Program, utilizing the Whole Independent Systems Approach™ (WISE). In this interim process report, we provide an update on and present the results of the ongoing process evaluation of the BUILD Program. Process research, including many of the activities highlighted below, will continue into 2024, and we expect to prepare a second iteration of this report at that time.

The evaluation team previously assessed new construction market conditions in California based on primary and secondary research to support evaluation of the BUILD Program. The BUILD Program Baseline Market Assessment[4] report was finalized in January of 2023 and provided an overview of market size, summarized market perceptions of all-electric design and electrification equipment, and characterized the key cost, technical assistance, and training considerations related to low-emission residential new construction in California. These findings are referenced in this report where relevant.

The following sections provide a high-level summary of program implementation, detail our process evaluation approach and methods, and report evaluation results, including findings and recommendations.

2.1 PROGRAM DESCRIPTION

The BUILD Program is an $80 million program that aims to put California on a path to zero-emission homes by encouraging the design and construction of all-electric buildings. The BUILD Program provides incentives for constructing all-electric new residential housing using near-zero-emission building technologies to significantly reduce greenhouse gas (GHG) emissions beyond what would be expected to result from a code-compliant mixed-fuel building. Eligible applicants must demonstrate that their project will result in at least a five percent reduction in residents' utility bills compared to mixed-fuel homes. The BUILD Program is supervised by the California Public Commission (CPUC) and administrated by the California Energy Commission (CEC).

The BUILD Program is funded through the emission allowances directly allocated to gas corporations under the California Cap-and-Trade Program administrated by the California Air Resources Board (CARB). To comply with CARB regulations regarding the use of these funds, participation in the BUILD Program is limited to projects residing within a gas investor-owned utility (IOU) service territory and funds must be spent across service territories proportionally to where those funds are derived. All program funding will be directed toward new low-income housing for the first two years of the program.

Only building owners, developers, tribal governments, and tribal organizations are eligible to apply for BUILD Incentives. Each eligible developer can receive up to $2 million in total incentives, not including the New Adopter award. Developers can have multiple projects participate in BUILD, but the $2 million cap then applies to the sum total of incentives across all their participating projects. The BUILD Program offers the following incentives:

- **Base GHG incentive** – Base electrification incentive calculated as $150 per metric ton of avoided GHG emissions.

[4] Opinion Dynamics. (2023). *Building Initiative for Low-Emissions Development (BUILD) Program Baseline Market Assessment*. California Public Utilities Commission (CPUC). https://pda.energydataweb.com/#!/documents/2764/view

- **Building Efficiency incentive** – Projects built to achieve efficiency beyond the applicable energy code, using the performance method as specified by the Residential and Nonresidential Alternative Calculation Method Reference Manuals, will receive an additional incentive of up to $1,000 per bedroom.
- **Incremental PV incentive** – An incentive per watt of additional photovoltaic (PV) installed beyond what is required by the applicable energy code. This incentive will not be provided for PV installed to meet the energy code or for additional PV beyond what is required to meet the modeled resident energy cost requirement.[5] This incentive is also capped at the cost of the PV system.
- **Kicker incentives** – The program provides kicker incentives for specific high-efficiency technologies, including smart thermostats, JA-13 compliant heat pump water heaters (HPWHs), use of equipment with low global warming potential (GWP) refrigerants, induction cooktops, heat pump clothes dryers (HPCDs), on-site energy storage, and electric vehicle supply equipment (EVSE).
- **New Adopter Design Award** - The program offers a New Adopter Design award of up to $100,000 to eligible applicants who have never received a permit for the development and construction of an all-electric residential building in California. The New Adopter award does not count toward a recipient's $2 million total incentive cap.

There are three steps in the BUILD participation process: the optional design reservation phase (Step 1), the construction reservation phase (Step 2), and the project completion phase (Step 3).[6] A project that does not yet have a building permit at the time of application will first apply for a design reservation and will then proceed to a construction reservation after their building permit is received. A project that has a building permit (but no certificate of occupancy) at the time of application will apply for a construction reservation directly. A project that has received a certificate of occupancy is not eligible for a BUILD Program incentive. Technical assistance, discussed more below, is available to applicants prior to achieving a design or construction reservation and during the design and construction reservation phases.

The BUILD incentive application process involves the submission of several required building design documents in addition to modeling tools outlined below:

- **BUILD Calculator (optional):** The BUILD Calculator estimates the total incentive that a project may receive through a simplified calculator based on CEC staff analysis. The incentive amount calculated using the BUILD Calculator is only an estimation of the incentive the applicant will receive. This calculator may be used by applicants to estimate their potential incentive in Step 1 (Design reservation) of the BUILD Program and does not require the applicant to have completed any energy modeling of the project. It is therefore a simpler and easier option for Step 1 participants who may not have the detailed information on their project available to complete the more detailed Custom Path Tool. All participants applying in Step 1 must submit either a BUILD Calculator or a Custom Path Tool.
- **Custom Path Tool (CPT) (required):** Unlike the BUILD Calculator, the CPT is a required portion of the BUILD application. The CPT is a tool for projects to calculate whether their building design meets the modeled resident utility cost savings and calculates the incentive amount the project will receive. This tool is required to be completed in Step 2: Construction Reservation, and Step 3: Project Completion. It is also optional in Step 1: Design Reservation.

[5] According to the BUILD Program Guidelines, Chapter 2, Section A.6, to comply with PUC Section 921.1 (d)(3), "eligible applicants must demonstrate that the project will result in at least a 5 percent reduction of modeled residents' utility cost savings in the first year of building occupancy."

[6] Chac, Erica; Dominguez, Adriana; Froess, Larry; Jones, Myoung-Ae; Mateo, Tiffany; Mills, Susan; and Van, Steven. January 2022. Building Initiative for Low-Emissions Development Program: Proposed Final Guidelines First Edition, California Energy Commission. Publication Number: CEC-300-2022-001-F.

The BUILD Program also offers standalone technical assistance (TA) to eligible applicants through the BUILD Technical Assistance Provider (TAP). Applicants who receive TA are not required to apply for a BUILD incentive and those that receive a BUILD incentive are not required to apply for TA. Each eligible applicant can be approved for up to 300 hours of TA. Applicants may apply for TA at any time during their participation in the BUILD Program.

TA to support project planning and educate developers, architects, builders, contractors, and other stakeholders about all-electric technologies and building design. The primary goal is to engage with new construction market actors to raise awareness of building decarbonization technologies and encourage them to design, develop, and build all-electric new construction. The BUILD TAP also provides applicants with information regarding and assistance with the incentive application process. The BUILD TAP is led by Association for Energy Affordability (AEA), with marketing, outreach, and application support provided by TRC.

3. EVALUATION APPROACH AND METHODS

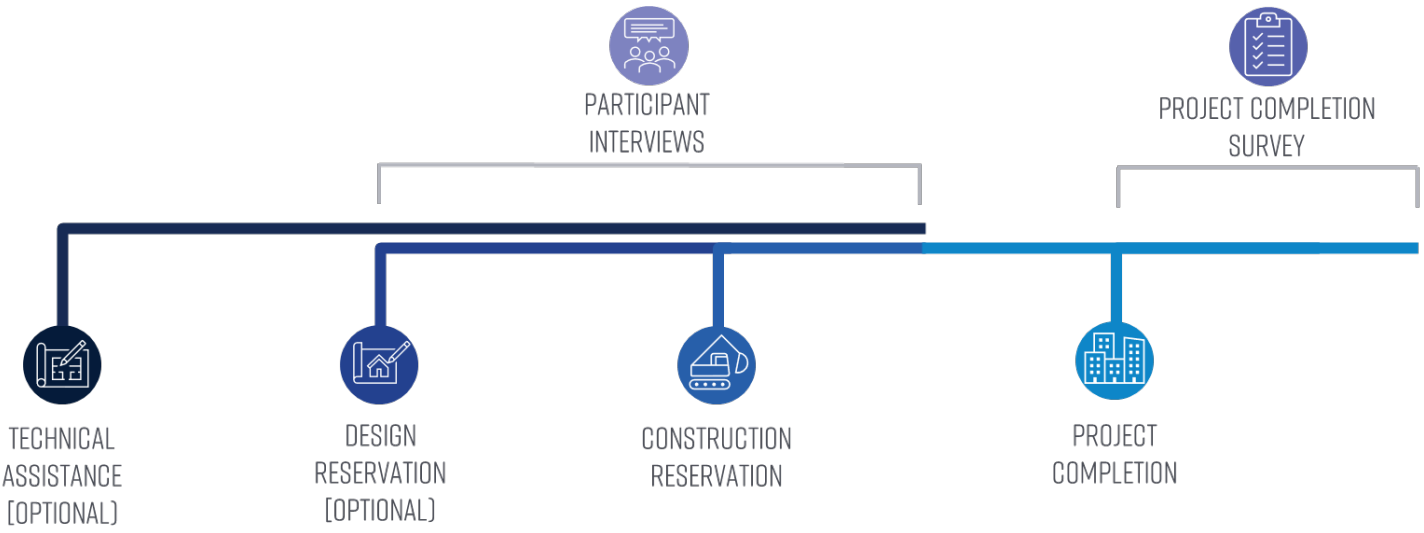
The process evaluation of the BUILD Program includes program staff interviews, program materials review, periodic status calls, participant interviews, a tracking data analysis, and a participant project completion survey. Both the participant interviews and survey are ongoing, and this report only includes data gathered from the participant interviews conducted through June 30, 2023. As of this interim process report, the project completion survey has not yet been initiated. These activities are summarized in Table 1 and the following sections.

Table 1. Summary of BUILD Process Evaluation Activities

Evaluation Activity	Details
Program Staff Interviews	Semi-structured interviews with CPUC, CEC, AEA, and TRC about the implementation of the BUILD Program.
Program Material Review	A comprehensive review of program marketing and implementation, materials.
Periodic Status Calls	Periodic status calls with the implementation teams to discuss program activity, program updates, and evaluation activity.
Participant Interviews	In-depth interviews with program applicants focused on the participation experience in both the incentives and technical assistance tracks, recommendations for process improvements, the impact of the program on project design, and the usefulness of TA.
Tracking Data Analysis	Review and analysis of the BUILD Program tracking data, including incentive application and technical assistance tracking data, to calculate descriptive statistics of the population, highlight common characteristics of applicants, and identify trends. Data compiled from these reviews also helped to develop samples for participant outreach.
Project Completion Survey *(Forthcoming)*	Fielded at participant project completion. A web survey covering satisfaction with program design and implementation, the usefulness of different aspects of technical assistance, the expected impact on building operating costs, and other topics required by the BUILD Program guidelines to complete Step 3. *The results of this survey are forthcoming as no projects have completed their participation through the BUILD Program*.

Figure 1 below shows a visual depiction of the BUILD Program participation process and illustrates where in this process our participant primary data collection occurs. To minimize participant burden, our goal is to complete one interview per project, as close as possible to when the applicant achieves their first incentive reservation (which could be either a design or construction reservation, depending on where they enter the BUILD Program). The project completion survey occurs once an applicant reaches Step 3 of the participation process.

Figure 1. BUILD Incentive Program Participation Process and Participant Primary Data Collection



3.1 PROGRAM STAFF INTERVIEWS

To support our evaluation, the evaluation team conducted interviews with program staff to gain a better understanding of program processes, identify program challenges and successes, and to inform the development of participant interview guides and surveys. In total, we completed four group interviews across three overlapping teams:

- **Outreach and Education Team (CEC, TRC, and AEA)** – October 14, 2022; January 13, 2023
- **Technical Assistance Team (AEA and TRC)** – October 21, 2022
- **Incentive Team (CEC)** – October 6, 2022

3.2 PROGRAM MATERIALS REVIEW

The evaluation team conducted a comprehensive review of all program materials. This included marketing plans, marketing collateral, program implementation guidelines, and various internal and external program documents, such as presentations by CEC or the BUILD technical assistance manual. These materials were used to inform drafting survey questions and support our process evaluation.

3.3 PERIODIC STATUS CALLS

The evaluation team holds a monthly Project Coordination Group (PCG) status call with CEC and CPUC to discuss overall program activity and provide updates on evaluation activities.[7] Through these check in calls, the evaluation team was able to gather real-time information about the implementation status of the BUILD Program and work seamlessly with the BUILD implementation team to contact participants to participate in applicant interviews. As the developmental

[7] We held biweekly meetings during earlier phases of program implementation.

evaluator for the BUILD Program, the evaluation team has been able to understand changes to program implementation over time, including changes to the project pipeline and changes to the application tool.

We also hold a status call every six weeks with CEC, CPUC, and the BUILD TAP to discuss ongoing TA activity.[8] During these check-ins we discuss TA updates, including the primary ongoing TA activities, current hurdles facing the TAP, and any opportunities the TAP has identified.

Through both these status calls, the evaluation team developed evaluation and research materials that were more tailored to applicants as they navigated the BUILD Program. By understanding the real-time status of the implementation efforts, the evaluation team was able to understand the needs of applicants more effectively, note lessons learned, and adapt our research to be timelier.

3.4 PARTICIPANT INTERVIEWS

The evaluation team is conducting interviews with incentive program applicants in real-time after they achieve their first incentive reservation.[9] One key focus of the interviews is the impact of the BUILD Program on project design, in particular the decision to build all-electric and decisions related to the energy efficiency of the building. Our aim is to minimize recall bias by interviewing program applicants on a rolling basis immediately after incentive reservation is complete, as opposed to waiting until the project completes all steps of BUILD Program participation.

3.5 TRACKING DATA ANALYSIS

We also review program tracking data provided by CEC (for the incentive track) and AEA (for the technical assistance track) on an ongoing basis, monthly, as the data are delivered. The data submission portal (DSP) that the CEC employed for the first year and a half of program implementation did not allow applicants to save incomplete applications or edit applications once submitted, however the implementation team has transitioned their application software from the DSP to the BUILD Online tool. The BUILD Online tool allows applicants to edit their applications prior to submission, save their application progress, and make edits to their application after submission.

4. RESULTS

This section summarizes our detailed findings from our process evaluation including program staff interviews, program materials review, status calls, participant interviews, and tracking data analysis.

4.1 RESPONDENT CHARACTERISTICS

The evaluation team contacted 14 individual companies who had achieved a Design or Construction reservation through the BUILD Program.[10] These companies applied for assistance through the BUILD Program between February 2022 to May 2023. In total, we interviewed nine developers representing ten projects in total. Table 2 outlines the stage at which each project engaged with the BUILD Program and whether or not they received technical assistance or a kicker incentive. For context, we also characterize the full applicant population as of June 2023.

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[8] We held monthly meetings during earlier phases of program implementation.

[9] Depending on the stage of a participant's project when they enter the BUILD Program, their first incentive reservation could be a design reservation or a construction reservation.

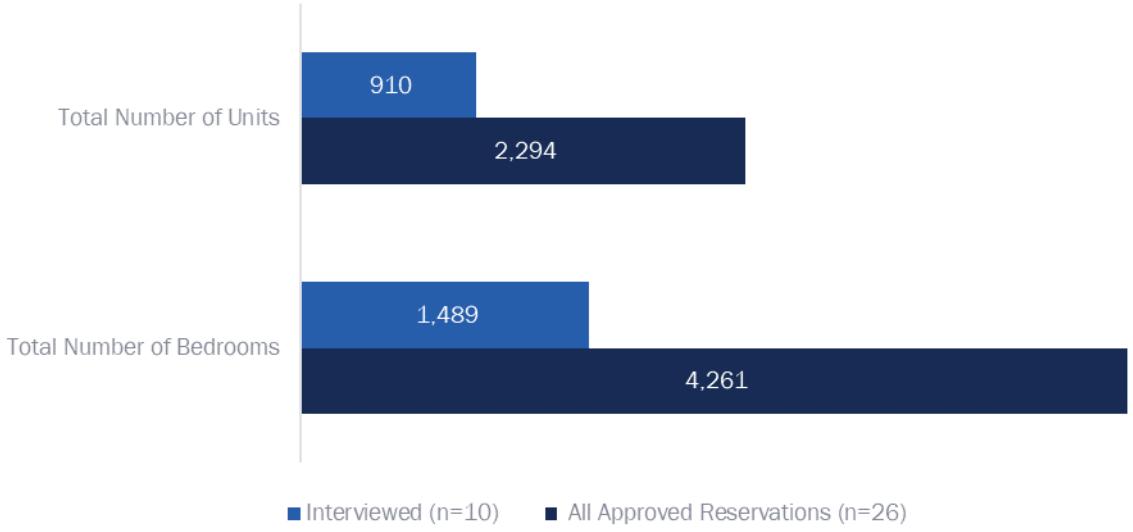
[10] The BUILD Program currently has 26 total projects with reserved incentives at the time of this report, however at the time of our outreach there were only 14 projects with reserved incentives.

Table 2. Project Characteristics

BUILD Project Stage	Total Projects	Projects with Technical Assistance	Projects with Kicker Incentives
Interview Respondents			
Design Reservation	7	7	6
Construction Reservation	3	1	1
Total	**10**	**8**	**7**
All Projects (Including Interview Respondents)			
Design Reservation	15	14	13
Construction Reservation	11	9	8
Total	**26**	**23**	**21**

These projects are projected to add a little over 2,250 all-electric low-income units to California's housing stock. Of the total projects that have currently reserved an incentive, 25 represent multifamily projects and one represented a single family new construction project. Interview respondents represent 40% of the total number of units added as shown in Figure 2.

Figure 2. Total Number of Units & Bedrooms Built

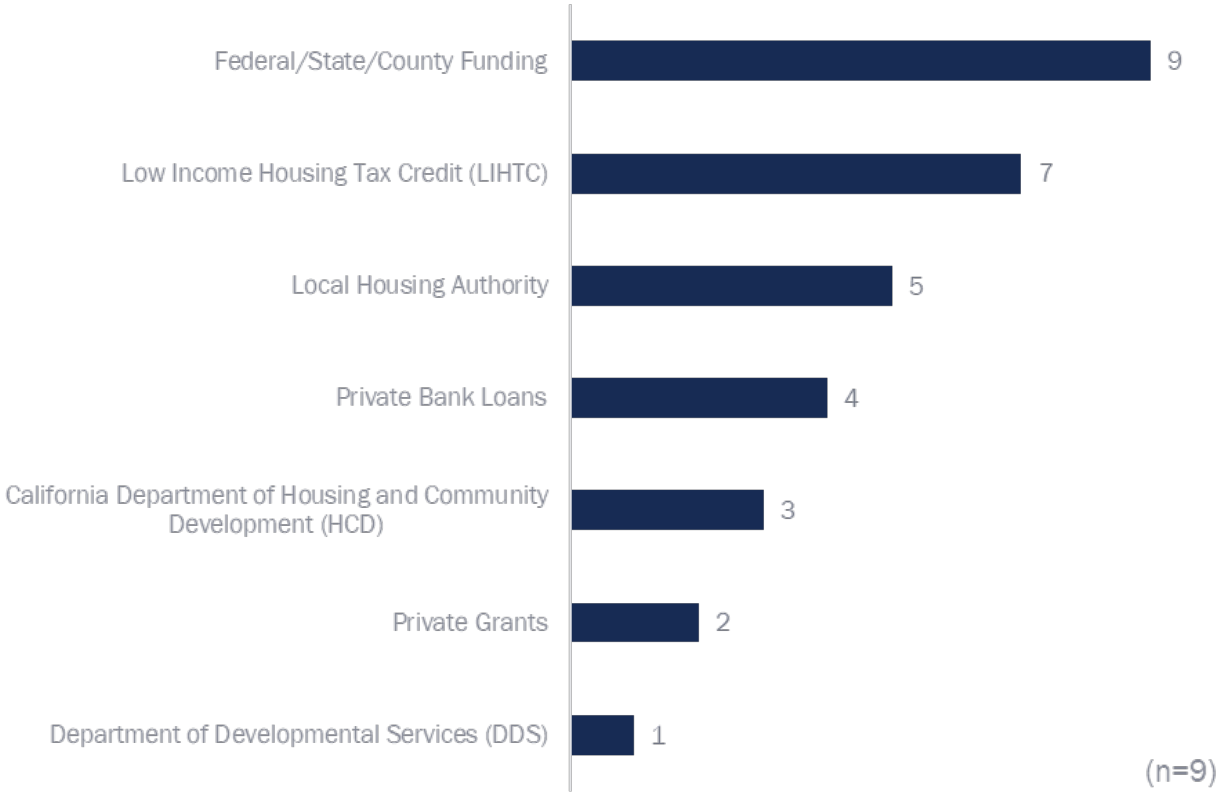


Respondents reported using various funding sources for their projects, including affordable housing tax credits, state and county funds, local government funds, and conventional loans in addition to BUILD funding. The most commonly combined funding sources used by four out of the nine applicants we spoke with were Federal, State, or County funding, the Low Income Housing Tax Credit (LIHTC), and private developer funds. These funding sources align with the funding sources reported on the BUILD incentive application. On average, applicants utilized three funding sources for their project.

Developers typically learn about the above funding sources through their experience in affordable housing development, word of mouth, checking online calendars and schedules for application opportunities, and contacting city and county representatives directly. The TAP did not play a significant role in connecting most applicants to these funding sources, but they did provide some helpful information about other potential funding opportunities for about

one-third of the applicants we interviewed (3 of 8).[11] The primary funding sources utilized by applicants is shown in Figure 3.

Figure 3. Additional Funding Sources Utilized by Applicants



4.2 MARKETING AND OUTREACH

Most BUILD applicants learned about the BUILD Program through a BUILD webinar (11 of 26). Following webinars, BUILD applicants learned about BUILD through a variety of methods such as word of mouth (5 of 26), an industry event (3 of 26), the BUILD website (3 of 26), referral (2 of 26), email (1 of 26), and directly from the BUILD staff (1 of 26). However, interviewed BUILD Program applicants primarily suggested promoting BUILD (or similar opportunities) through an email blast (6 of 9). The remaining interviewed applicants reported suggested word of mouth (1 of 9), through their energy consultant (1 of 9), or at an industry event (1 of 9). Although the results from our interviews seem to contradict program tracking data, we suspect there may be overlap between the webinar and email communication, such as learning about the BUILD Program through an email announcing a webinar.

Interviewed BUILD Program applicants suggested sending targeted email blasts to the affordable housing community, attending conferences, and engaging trade organizations to promote the program. Most frequently, respondents noted email communication is their preferred method to stay informed about incentives and technical assistance (5 of 9), but applicants also mentioned industry events (4 of 9) and affordable housing associations (4 of 9). Additionally, one respondent suggested that integrating programs that encourage energy efficiency and building 'green' such as BUILD into mainstream conversations and existing industry frameworks would help make such programs more accessible.

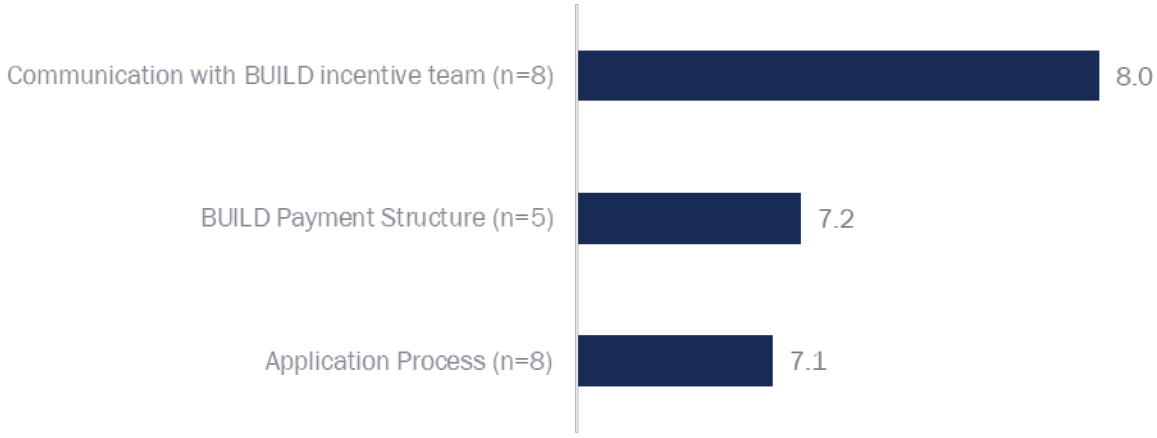
[11] One respondent was unsure if the TAP assisted their project with additional funding sources.

Finally, the remaining two respondents suggested promoting BUILD to energy consultant companies (1 of 9) and through webinars (1 of 9).

4.3 APPLICATION PROCESS

Applicants are generally satisfied with the BUILD application and found it to be relatively straightforward to complete with assistance. Six respondents mentioned that the application was somewhat easy to complete; however, it is worth noting that five of these applicants had outside energy consultants assist with their application and four of them received TA. The three remaining applicants all mentioned difficulty with the application correction process and felt that the corrections process could be streamlined.[12] Of these three respondents, none of them hired an energy consultant however all of them received TA. Additionally, one of these respondents mentioned that an error in their CPT estimation caused their incentive amount to decrease by a significant amount which contributed to their dissatisfaction with the application process. On average, respondents rated the application process as a 7.1 out of 10 (n=8) when asked to rate their satisfaction with the application on a scale from zero to ten, where zero represents "Not at All Satisfied" and ten represents "Extremely Satisfied" (Figure 4).

Figure 4. Average Rating of BUILD Application Components



One applicant reported that they had a positive experience in their first BUILD application process and have decided to build another one of their buildings all-electric. They mentioned that they were considering building their other project dual fuel, however now, they are building it all-electric in part due to the BUILD Program. This participant reported that they have decided to apply for BUILD Program funding for their other project as well.

Although most applicants mentioned that their overall experience applying for the BUILD incentive was positive (5 of 8 provided a response of 7 or higher), respondents provided numerous suggestions for improvement. It is also important to note that some of these suggestions for improvement are being actively addressed through the new BUILD Online application tool which is noted below:

- More responsiveness from the incentive application team (3 mentions)
- The ability to save incomplete applications and additional clarity about how to revise once submitted (2 mentions)[13]

[12] One applicant mentioned that their energy consultant did most of the application and therefore they did not feel comfortable providing a rating.
[13] This capability was added in the new BUILD Online application tool.

- Streamline the application process and provide clearer messaging to applicants about the reasons behind specific information requests (2 mentions)
- Improve the user-friendliness of the application portal to make the process smoother in the future (1 mention)[14]
- Simplify the language on the application and reduce technical jargon to make it more accessible to developers (1 mention)
- Consider accepting a permit ready letter rather than a building permit to expedite the construction reservation process (1 mention)

None of the applicants we interviewed reported any particular part of the application process or BUILD requirements to be burdensome to meet. Six of the nine applicants we spoke with mentioned that their projects already qualified for the BUILD Program, specifically the solar PV allocation and bill impact threshold requirements due to obligations to other funding sources.

One applicant described their experience working on their affordable housing project below:

> *"For most of these affordable housing projects, we have to utilize tax credits… and their requirements are even more strict in terms of solar… So, we already have to meet their threshold, which already exceeds the BUILD Program…. It wasn't really burdensome just because we already have to do that and more in order to meet our tax credit obligations."*

Almost all respondents noted that the application correction process took a significant amount of time and the application itself required a significant amount of project documentation to complete. Five of the nine applicants mentioned they had to go through multiple rounds of corrections before their application was accepted. One respondent mentioned the entire process took seven to eight months, to submit, revise, and receive approval for their incentive application.

Some applicants also reported that the functionality of the application tool made the process more difficult since they were unable to save their application and it was unclear how to edit the application once it had been submitted (2 mentions).

> *"I would say, in terms of the online application itself, it would be very helpful if there were a way where you could save it and come back to it. At least at the time that I completed it, and maybe this has changed, you had to be ready to complete your application. Once your application is completed, then you can go back and make changes later. But you actually have to have everything ready and submitted for a complete application all in one sitting.*
>
> *Even now, when I went back to modify it, I just find it a little clunky because it's not clear if you have to upload everything again, like all the attachments. I just uploaded my evidence of financing in my permit, but I don't know if they're going to come back and ask me for other things or not, because there's a lot of other attachments there that I had previously uploaded that are no longer there."*

[14] This issue was considered when creating the new BUILD Online application tool.

Some applicants felt that certain requirements of the BUILD Program were not clearly communicated to them. Two applicants mentioned that they were unclear about the energy model requirement, which requires that a certified energy analyst (CEA) approve their model which is then used in the BUILD application. They both mentioned that they needed to hire an additional resource in order to reach this application requirement.

> *"Let me see. It's signed by a 2019 CEA certified energy analyst. And so sometimes the people that are doing these things and putting this stuff together don't necessarily have that certification. So that can be a barrier. It'd be nice to be able to have BUILD work with you to get around that so we don't have to go out and hire us certified CEA to add to our team"*

While applicants are, on average, satisfied with BUILD Program communication, a few applicants reported fundamental difficulties communicating with BUILD Program incentive team. On average, respondents rated communication with the BUILD incentive team as an 8.0 out of 10 when asked to rate their satisfaction on a scale from zero to ten, where zero represents "Not at All Satisfied" and ten represents "Extremely Satisfied". Yet, a few respondents (3 of 9) mentioned communication and communication protocols were often unclear and inconsistent. Two applicants noted the program does not assign a dedicated contact for their incentive application, which contributed to the confusion. They both suggested the program assigned each project with a dedicated project manager to streamline communication. The experience of one of these applicants is highlighted below:

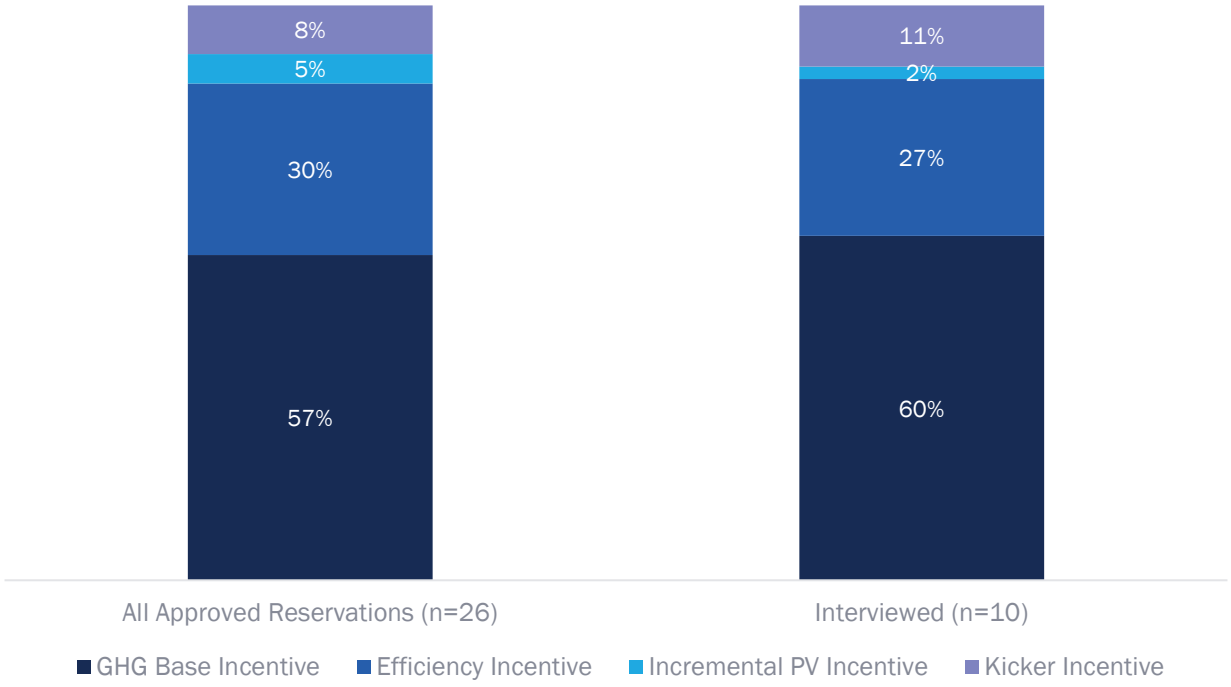
> *"What's confusing for me when I'm responding to emails, they just have one BUILD email to go by... And that's hard for me to track personally when I get a billion emails a day and then I'm getting a billion correction email notices and follow-ups. I don't know who I was talking to half the time or who I should talk to or who I should direct the email to. So having a designated email address for one person, just so you can reach them directly, would probably be helpful."*

4.4 INCENTIVE AMOUNTS

The BUILD Program incentive is split into four categories: the base incentive, the efficiency incentive, the incremental PV incentive, and kicker incentives (see Section 2.1). An additional award is offered for applicants who qualify as first time all-electric developers: the New Adopter Design Award. This award is provided to offset the costs of a developer hiring design professionals to design an all-electric building for the first time. The following section will discuss the breakdown of the total incentives currently reserved within the BUILD Program and participant's understanding the application and recommendations to improve it overall.

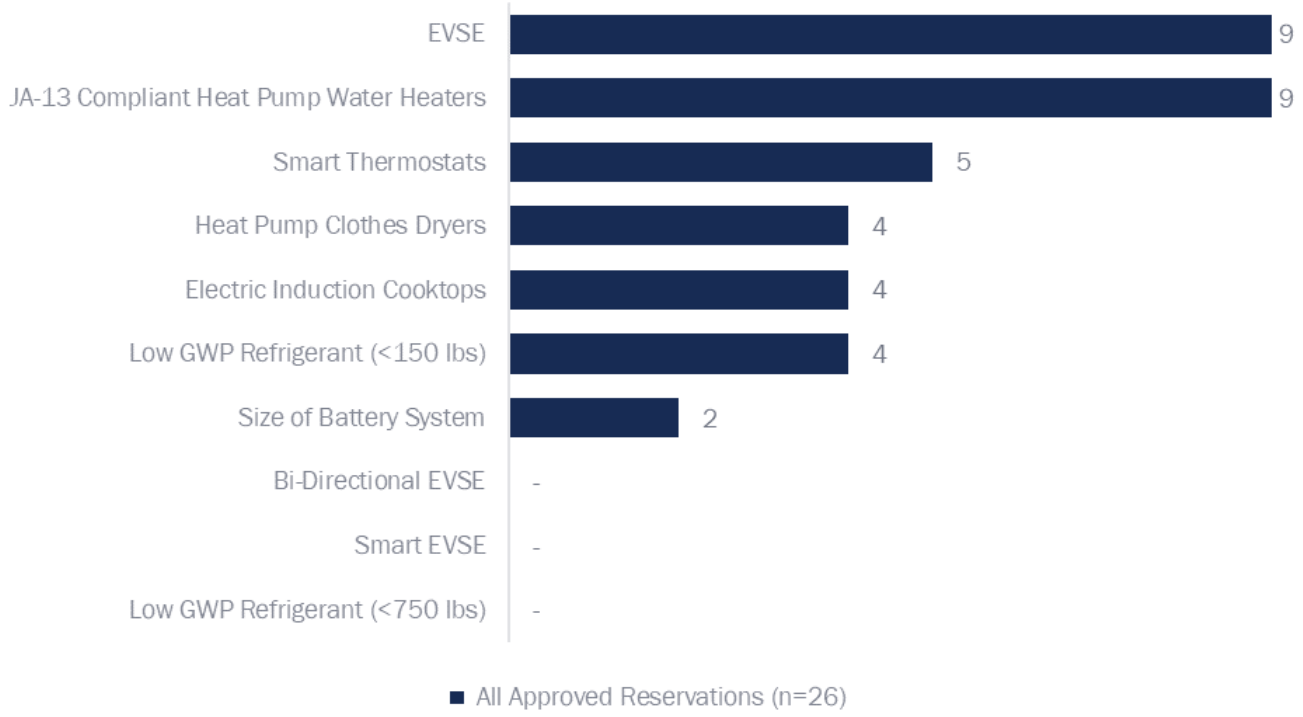
The base GHG incentive accounts for more than half of the total reserved BUILD incentive (57%, n=26). The efficiency incentive accounts for almost one-third (30%, n=26), while the kicker incentive accounts for 8% and the incremental PV incentive represents the smallest proportion at approximately 5%. Figure 5 below shows the total amount of the incentive reserved by category across all approved reservations and all interviewed respondents.

Figure 5. Total Incentives Reserved by Category



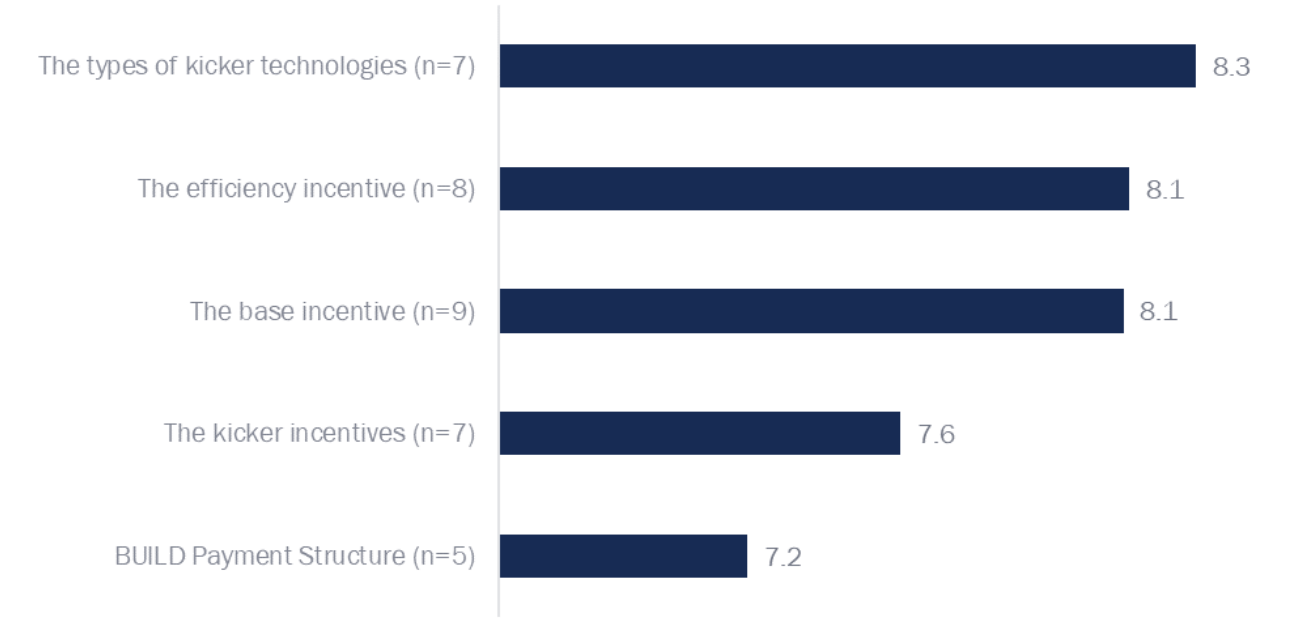
Most projects include kicker incentives (21 of 26). Most applicants we interviewed also received kicker incentives (7 of 10). The most common kicker incentives received by projects that participated in BUILD were the electric vehicle supply equipment (EVSE) and the JA-13 heat pump water heater (HPWH) kicker. The next most common kicker incentives received were low global warming potential (GWP) refrigerant (less than 150 lbs.), and smart thermostats as shown in Figure 6. None of the current participants have received a kicker incentive for bi-directional EVSE, smart EVSE, or low GWP refrigerant (less than 750 lbs.).

Figure 6. Number of Kickers Received



On average, applicants reported being satisfied with the base and efficiency incentive amounts and the types of technologies offered for the kicker incentives. Applicants were less satisfied with the kicker incentive amounts and the BUILD payment structure. Figure 7 below shows the average rating of each component of the BUILD Incentive.

Figure 7. Average Rating of BUILD Incentive Components



Many applicants (4 of 9) noted that some kicker incentive amounts are not large enough to cover the cost difference between the kicker technology and their less expensive alternatives. These respondents noted that the tight budgets

on affordable housing projects can preclude the incorporation of kicker technologies such as the induction cooktops and heat pump clothes dryers, if the incentive is not enough to cover the cost differential compared to cheaper alternatives, such as electric coil cooktops and electric clothes dryers.

> *"The incentive just did not outweigh the benefit on the finance side. It was one of those things that nice to have, love to do it, but when you have a really tight development budget, it just wasn't worth it... But for our particular project there wasn't enough of a kicker."*

Of all the applicants with a reservation, only two qualified for the New Adopter Design Award. One of the New Adopter Design Award recipients completed an interview and reported that the funds helped to offset the costs for them to design all-electric for the first time. This recipient also mentioned that moving forward all of their projects will likely be all-electric.

> *"So, we had never done an all-electric project before. So that was interesting to design something with no natural gas, and it's the direction we want to go anyway to assist with climate change.... knowing that we only have to work with the engineering on the electrical side and the construction crews on the electrical side, and no gas, that's one less headache to deal with in projects. So yeah, I mean I'm hoping I can do all electric from here on out."*

4.5 TECHNICAL ASSISTANCE

The BUILD Program TAP aims to provide design support for and education on all-electric new construction to projects during design and construction phases and assist developers with completing the BUILD application. This assistance includes application guidance, review of all-electric design plans, and help with incentive layering, fuel substitution, and technology evaluation. Among the applicants interviewed, the majority (7 of 9) received TA support.

Applicants' primary motivation to receive technical assistance was to receive assistance applying for the BUILD Program incentive but some also sought guidance on the custom path tool (CPT) and suggestions for cost-effective energy efficiency measures. The BUILD application process was made relatively easy and required minimal effort, with the TA team providing assistance in filling out the custom path tool. The technical assistance team provided valuable support in navigating the BUILD application process, but three applicants felt that additional design reviews and more clearly communicating what the TAP team offers could have been beneficial at earlier stages to explore more options and optimize energy efficiency.

The technical assistance team offered valuable support throughout the application process, providing clear guidance during the intake interview and addressing specific project nuances; however, applicants had some recommendations for improvement. Applicants described the intake interview as being smooth, allowing applicants to convey initial project information effectively. Additionally, most applicants (5 of 7) reported that the TA team was very knowledgeable and helpful throughout the application process. Some applicants expressed a desire for additional resources regarding design assistance and energy modeling (2 of 7). Two applicants mentioned having to hire an outside CEA resource to verify their energy model prior to submittal, one of which reported costing the project additional funds.

Similar to communication with the BUILD incentive team, some applicants found the communication with the TA team to be confusing and disjointed, highlighting the need for clearer distinctions between the different entities involved. Two applicants also felt that the communication with the TA and incentive teams was very confusing, as they didn't

know what the roles of the different staff were, and who they were getting emails from between the incentive and TA team. They noted the following about their experience:

> *"It was unclear who I was supposed to reach out to for what. And whenever I responded, there was multiple other people copied. And I found the whole process very… with the technical assistance team, very confusing."*

> *"I am just thinking now that one thing that could be helpful is clarifying the difference between the technical assistance people and the CEC people because there's definitely been, I think, a couple of times where I've had a question, whether it's about the application or timeline or whatever, where I'm looking through those emails and I'm not actually sure who I should be asking. That would be one thing that could help with clarity."*

The TAP leverages their relationship with developers to provide education about all-electric new construction best practices, potentially creating spillover effects, and is adapting to applicant needs and feedback. The evaluation team learned through our periodic status calls with the TAP that they are beginning to assist participating developers in updating their internal design standards to help reduce the energy usage, reduce GHG emissions, and improve the design and operation of not just participating all-electric projects but non-participating projects as well. The TAP's strategy has also evolved over time based on applicant needs and circumstances. For instance, the TAP now offers applicants support in completing the CPT after initial feedback from early participants on the complexity of the tool. The TAP also found that participants who entered the program in construction stage had little to no opportunities to change design plans at this late stage of the project. However, TAP leveraged their conversations to educate developers and builders about best practices for all-electric design and construction. Two applicants that we spoke with mentioned that they were working on other projects in various stages of the design process and their interaction with the TAP team inspired them to increase efficiencies and or convert projects in their pipeline to all-electric. A sentiment from one of these participants is highlighted below:

> *"I think [TAP] definitely helped with feasibility and you have these ideas in your head and then you're talking to people who are directly working with this day-to-day on various projects and how we can actually make it work. So, I think that's definitely influenced us in that respect because otherwise we probably would've written it off earlier than we needed to, if this program wasn't available around. So yeah, it definitely did. And again, the review was very helpful. The AEA review that they did at the CD phase was really great."*

4.6 ATTRIBUTION

The primary goal of the BUILD Program is to engage with new construction market actors to raise awareness of building decarbonization technologies and encourage them to design, develop, and build all-electric new construction housing. By providing incentives and technical assistance to builders and developers, the program intends to encourage them to build all-electric rather than dual fuel buildings. The evaluation team sought to understand the number of applicants who attributed their decision to develop an all-electric building to their awareness of and participation in the BUILD Program.

Most projects engaged with the BUILD Program in the design phase of the phase of their project (7 of 10) while the remaining respondents engaged with BUILD during the construction phase. All respondents mentioned that they had

not heard of BUILD prior to engagement and therefore there was no way for the BUILD Program to have gotten involved earlier in the design process.

Despite applicants finding the technical assistance useful, about a third of applicants reported that they had not made any changes to their design due to the technical assistance they received. Some respondents reported that their project designs were mostly finalized by the time that they had engaged with the BUILD Program and therefore could not make further changes to the design of their building (2 of 9). Additionally, all respondents reported that their designs had already qualified for the BUILD Program due to their own internal all-electric development goals, the requirements of new state and local standards for all-electric new construction, or the requirements for other funding programs. Three respondents reported they had made changes to their water heater to receive the BUILD Program JA-13 compliant HPWH kicker incentive and one respondent reported making changes to the overall efficiency of their building to maximize their incentive after recommendations from the TAP.

All applicants reported that they would have built their projects all-electric regardless of their participation in the BUILD Program. All of them mentioned that due to baseline energy code requirements of Title 24 in addition to the requirements of other funding sources such as the LIHTC and other programs under the California Tax Credit Allocation Committee (CTLAC), their projects were already planning on building all-electric.

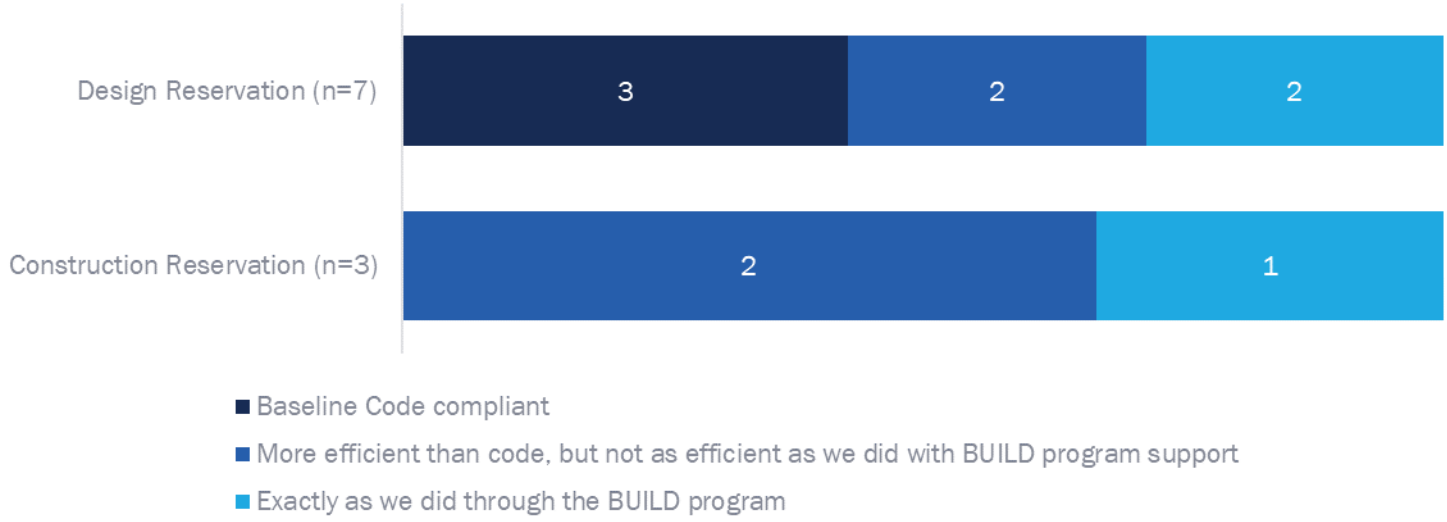
The BUILD Program support often increased the efficiency level and reduced the GHG emissions of participating projects. Most respondents (6 of 9) reported making some changes to their project designs due to the BUILD program incentive or due to BUILD requirements. Two developers representing three projects mentioned that they would have built their projects as baseline code compliant, and four developers said that they would have built their building more efficiently than code, but not as efficiently as what they did with BUILD Program support, as shown in Figure 8 below. Respondents cited several specific upgrades the BUILD Program influenced, including:

- Upgrading water heaters to qualify for the JA-13 compliant HPWH kicker incentive (3 projects)
- Increasing the efficiency level of installed systems (including HVAC) (2 projects)
- Increasing PV allocations (1 project) and the total amount of PV (1 project)
- Improvements to insulation (1 project)
- Adding a virtual net energy metering (VNEM) system (1 project)

When the BUILD Program did not increase the efficiency level of participating projects, it was due to natural adoption and late engagement. The remaining three developers made no changes to their design due to their participation in the BUILD Program and reported that they would have built their project exactly the same if the BUILD Program was not available. Two of these developers were also still in the design development phase, however had mentioned that they didn't need to make any changes to their design since it already qualified for the BUILD Program as-is. The last developer stated their project was in the construction phase and had almost received their certificate of occupancy, making changes to the design of the building impossible.

Funding for low-income multifamily projects is determined early in the project lifecycle, and is inherently tied to major design decisions. Two developers also mentioned that the BUILD incentive was provided too late in the project lifecycle to be effective at influencing their project to make design changes to their project. These developers mentioned that the BUILD funding they received acted as funding to supplement their contingency funds after the project was completed.

Figure 8. Likely Action to be Taken without the BUILD Program



5. KEY FINDINGS AND RECOMMENDATIONS

The evaluation team offers the following findings and recommendations based on the results of the interim process evaluation.

- **Finding #1: Most projects did not change their design significantly in response to BUILD incentives or technical assistance. Those who made design or equipment changes described minor changes, such as increasing equipment efficiencies or incorporating JA-13 compliant HPWHs. Most importantly, all respondents were already planning on building all-electric.**
  - **Recommendation:** The BUILD Program should consider restructuring the incentive calculations to encourage participating projects to reach for deeper savings. Currently, over half of all incentive dollars are provided through the base GHG incentive, which assumes a baseline of an energy code-compliant building with gas-fired space heating, water heating, clothes dryer, and cooktop. In our research we found that all interviewed participants would have built an all-electric building regardless of program participation, which strongly indicates most early participants are not influenced by the BUILD Program to build all-electric. This highlights an opportunity to reallocate incentives to capture greater GHG savings per participating project by emphasizing deeper savings. This could manifest as tiered GHG incentives that increase alongside increased savings. Alternatively, the program could reallocate funds from the GHG incentive to the efficiency incentive or allocate them to new or existing kicker incentives. Another option to consider is reallocating incentive budgets to enhance the New Adopter Design award.
  - **Recommendation:** The BUILD Program, or similar new construction decarbonization programs, should consider limiting program eligibility to earlier design phases such as design development, or nominal progress in construction documents. The current BUILD Program guidelines allow eligible projects that have not received a certificate of occupancy to apply for incentives. Projects at the end of the design phase present limited opportunities for the BUILD Program to achieve deeper GHG savings, and after a project has begun construction, opportunities are even more limited.
- **Finding #2: All respondents reported their projects rely on multiple sources of public funding, including affordable housing tax credits, state and county funds, local government funds, and conventional loans in addition to BUILD funding. Further, many respondents stated their other funding sources imposed overlapping requirements with BUILD Program requirements.**

- **Recommendation**: The BUILD Program, or similar new construction decarbonization programs targeted toward affordable housing developments, should further integrate with existing affordable housing funding structures to align program requirements, and streamline the approval process for qualified projects. The funding ecosystem for affordable housing development is complex and essential to affordable housing projects, which often must secure funding well before design is completed. By integrating further into the existing funding ecosystem program administrators could align eligibility requirements, avoid duplicative work for both the applicant and the administrator, and ensure funding is acknowledged early enough in the project lifecycle to impact building design.

- **Finding #3: Some projects mentioned that they were unaware of all of the services that the TAP team provided and mentioned that communicating the suite of services provided by the TAP team would have been helpful. Additionally, an earlier review of their project plans would have been helpful in maximizing the efficiency of the building design. Corroborating these results, stakeholders in the BUILD Baseline Market Assessment reported that they are interested in receiving technical assistance regarding all-electric new construction topics including comparative cost analyses for all electric equipment choices, financing and other funding opportunities, and code compliance and permitting among other technical assistance topics indicating that there is an appetite for technical assistance among new construction stakeholders.**
  - **Recommendation:** Proactively communicate the services provided by the TAP earlier in the application process, such as during the intake interview, to ensure that applicants can take advantage of the TAP design review to increase their building's efficiency level and maximize their incentive. Establish a regular communication schedule with project applicants, including periodic check-ins to assess their progress and offer guidance on maximizing building efficiency. This proactive approach will help applicants stay informed and make informed decisions regarding TAP team involvement.
  - **Recommendation:** Encourage all projects to undergo the TAP design review to increase the likelihood that the TAP team's recommendations will be accepted by the project.
- **Finding #4: The New Adopter Design award has seen limited uptake by program participants. This finding is consistent with the BUILD Baseline Market Assessment which found the low-income multifamily market had the highest proportion of developers who had completed at least one all-electric project.**[15]
  - **Recommendation**: Encouraging first-time all-electric developers is an important element of the BUILD Program. The BUILD Program should explore additional strategies for increasing uptake of the New Adopter Design award, including targeted marketing or increasing the award value.
- **Finding #5: Some respondents reported that the kicker incentives were too small relative to their incremental cost to influence the adoption of kicker technologies. Although most projects did include at least one kicker technology, interview results found minimal impact of the BUILD Program on the adoption of kicker technologies outside of JA-13 compliant HPWHs.**
  - **Recommendation:** Consider adjusting kicker incentives to better reflect the cost differential between baseline all-electric technologies and kicker technologies incentivized by the BUILD Program. Provide higher incentives for technologies that are more expensive to implement but have significant energy-saving and GHG reduction potential The evaluation team, in coordination with the BUILD implementation team, could discuss additions or modifications to the current participant interview to collect data to support this adjustment.

[15] The BUILD Baseline Market Assessment found almost three-quarters of low-income multifamily developers had completed at least one all–electric project (77%, n=48) compared to around half of the market rate multifamily (44%, n=86) and market rate single family (51%, n=70) segments.

- **Finding #6: The TAP is providing valuable application and project-specific support to BUILD applicants, providing education about all-electric new construction best practices, potentially creating spillover effects, and is actively adapting to applicant needs and feedback.**
  - **Recommendation:** The TAP should continue to conduct plan reviews of participating BUILD projects to refine all-electric best practices. This iterative process helps ensure the program promotes the most practical and cost-effective all-electric construction techniques.
  - **Recommendation:** The BUILD Program should continue to maintain flexibility in defining the role of the TAP to allow for customized engagement with BUILD applicants. This has allowed the TAP to continue to capitalize on opportunities to provide general market education and influence future projects within builder and developer project pipelines.
- **Finding #7: BUILD incentive applicants are satisfied with program processes and communication, but opportunities exist for improvement.**
  - **Recommendation**: The CEC should assign each applicant a single point of contact to assist with application revisions and coordination throughout the lifecycle of the project. Most respondents required multiple rounds of application revisions that occurred over a span of several months, and a dedicated point of contact would help improve participant satisfaction and the efficiency of the process.