

BayREN

Residential Sector

Bay Area Multifamily
Building Enhancements
(BayREN02 and 02-A) and
Single-Family Home+
(BayREN 08)

FINAL

2021 Residential Sector Process Evaluation



Photo source <https://www.bayren.org/multifamily>

GROUND
— RESEARCH AND CONSULTING —

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2021 Residential Sector Process Evaluation

This document has the findings from BayREN's 2021 process evaluations of the Bay Area Multifamily Building Enhancements (BAMBE) and Single-family Home+ programs as presented to the Bay Area Regional Network (BayREN) through four 2021 memos. This document replaces the two process evaluation reports originally planned for 2021.

There were fundamental shifts in the energy efficiency portfolios within 2021 as the California Public Utilities Commission required that all programs be segmented into resource acquisition, market support, or equity with the new segments of market support and equity including new and additional metrics. This change was settled late in 2021 and Grounded Research moved to a two-phase process evaluation, with Phase 1 occurring in 2021 and Phase 2 to begin once the direction of the BAMBE and Home+ programs is finalized (i.e., after the Business Planning process is completed in early 2022).

Phase 2 of the process evaluations will begin in March 2022 (under BayREN's 2022 research and evaluation efforts). This work will build on, but not reiterate Phase 1 findings. As such, this document is put forth to share BayREN's 2021 EM&V findings.

The four memos are described below and included in this document in the order shown.

Multifamily Memos

Grounded Research provided two multifamily memos to BayREN in 2021:

- **May 2021 – Electrification and Streamlining Custom Projects**
 - This memo provides early information on electrification, targeting of local difficult to serve (LDTS) populations¹, and streamlining custom projects.
- **June 2021 – Participant Survey**
 - This memo provides a summary of findings based on an analysis of the online survey data.

Single-family Memos

Grounded Research provided two single-family memos to BayREN in 2021:

- **May 2021 – Energy Advisors Early Feedback Memo**
 - This memo provides a brief a summary of Energy Advisor feedback, with a focus on potential solutions for discussion by the Home+ team. In some places, this is coupled with a review of program data and information from BayREN program staff.
- **July 2021 – Participant Surveys**
 - This memo provides a summary of key survey findings based on an analysis of the Home+ online survey data.

¹ The LDTS term refers to underserved populations in the Bay Area. While this term is no longer in use by BayREN, for purposes of this document, we are leaving the term as is.

Multifamily Memo 1 (May 2021)



BAMBE – Electrification and Streamlining Custom Projects May 2021

Approach

This memo provides early information to the BayREN program manager based on evaluation efforts to date. Within this document, the evaluation team begins to answer several research questions. This memo specifically provides early information on electrification, targeting of local difficult to serve (LDTs) populations¹, and streamlining custom projects. Note that this research was conducted prior to the finalization of D21.-05-031 (during ongoing discussions about segmentation) to help inform whether BAMBE was currently aligned with the CPUC-proposed Equity segment and how to best adjust program processes related to energy savings and electrification. The evaluation team made small adjustments to the original memo to ensure clarity for a broader audience.

Summary

Electrification: BAMBE is already providing high levels of incentives (which has been shown to drive heat pump installations). BAMBE should determine the best approach to get the word out as the case studies could help BAMBE find the right customers for electrification. Incentives for panel upgrades may be needed to move the market (and we know that you are already considering this option). Additionally, the multifamily project manager (PM) could talk with the C&S PM to see if C&S wants to discuss local carbon caps for buildings within the C&S forums or other events. While longer term, discussions within C&S efforts could begin to build the local laws to drive electrification. Other steps and implications related to electrification are shown in the table in the next section.

LDTs: BAMBE is doing a good job of obtaining participation within their targeted LDTs population. Information gleaned from the technical assessors (TAs) indicates that BAMBE already has a process that helps to ensure customers are the right fit for the program and past program performance shows that this process is bringing in the LDTs customers desired by BAMBE. In 2020, 87% of the 39 BAMBE participants fit into at least one of the four types of LDTs customer types.

The naturally-occurring affordable housing (NOAH) roundtable pilot on how to find buildings with a large proportion of lower income tenants will be important in the future, especially if BayREN chooses to move this program into an equity bucket, where all participants may need to fulfill equity metrics.

Additionally, the current LDTs data supports the program's projects (which are all custom) fitting into a CPUC category that could apply accelerated replacement measures with little to no preponderance of evidence requirements. (See below.)

Streamlining Custom Projects: Later in the memo, we present three options for BAMBE to consider to streamline custom projects within the program (and one option we are not recommending, but included for completeness). The best option is to determine if BAMBE's customers can be categorized as small businesses or hard-to-reach. Discussions about how to determine energy use that the owner pays for versus energy use that tenants pay for is a good first step in whether the site could be categorized as a small business. If so, the current process removes an extensive level of required documentation for these customers. Additionally, we recommend that the program create their own templates based on the requirements for projects. The program should look for an easy way for

¹ The LDTs term may change to something like "equity priority communities" or "underserved". However, since LDTs is used across multiple programs, it may take time to decide on a specific term. For purposes of this document, we are leaving the term as is.

the TAs to collect the required data (and only the required data), enter that data into Salesforce, and again pull from Salesforce for merging into each template.

The new proposed decision that enables programs to be placed fully in an equity bucket could affect any custom projects that are included within equity programs. However, it is too soon to speculate whether the CPUC will simply drop any custom review (CR) process for equity programs. Additionally, even if they do allow equity programs to not undergo the CR process (and BayREN chooses to label BAMBE an equity program), these segments only begin to come into play in 2022, so there continues to be a period where options for streamlining are needed.

Electrification

BAMBE is at the forefront of evolving electrification programs. According to a recent ACEEE document, electrification programs across the country are growing, but still evolving.² We found it difficult to find relevant program managers to talk with for this effort.³ In our discussion with NYSERDA program managers, we found that NYSERDA was in about the same stage as BAMBE (if not a little behind). Our discussion with the program manager at Boulder County (in Colorado) found that they look to California as the place where electrification innovation is occurring. An interesting point that this manager brought out was that marketing of comfort and health resonated better with women (and that women tended to play a large role in making retrofit decisions). VEIC has been running a heat pump program for years with a relatively recent report (from 2018) that gave us a nice set of lessons learned, so we pulled out a few highlights from that document (described later).

Technological opportunities for electrification in multifamily buildings is high. According to the 2019 California Residential Appliance Saturation Survey (RASS), over half of multifamily dwellings with 5+ units have gas space heating and most of these (40%) are within individual units with 19% being central gas heating.⁴ Similarly, about half of the units have gas cooking. Water heating, on the other hand, is mainly natural gas, but split fairly equally between in-unit and central water heating.

BAMBE has many of the structural components in place (or is considering them) to help with electrification. There have been many documents written about electrification, but one of the most concise we have found is also specific to multifamily buildings. In Urban Green's "Going Electric Retrofitting NYC's Multifamily Buildings"⁵ they put forward nine key steps (structural components) for advancing electrification in multifamily buildings. Below we categorize these nine into "Steps already present in the Bay Area" and "Steps that BayREN or BAMBE could consider."

² Nadel, Steven. 2020. *Programs to Electrify Space Heating in Homes and Buildings*. ACEEE Topic Brief. <https://www.aceee.org/topic-brief/2020/06/programs-electrify-space-heating-homes-and-buildings>

³ We reached out to programs in New York, Colorado, Illinois, and Tennessee, but only were able to talk with folks in New York and Colorado.

⁴ The remaining are not eligible for electrification per se as 40% have electric heat and 1% has "other". These sites may benefit from energy efficiency efforts such as moving to heat pumps, but do not bring about the carbon reduction associated with fuel switching.

⁵ <https://www.urbangreencouncil.org/content/projects/going-electric-report> (April 2020)

Table 1. Key Multifamily Electrification Steps (according to Urban Green and for Heat Pumps only)

Urban Green's Key Steps in Electrification	Urban Green's Points on this Step	Implication for BAMBE (or BayREN)
Steps already present in the Bay Area		
Increase incentives and promote transparency	Significant increases in incentives are needed to encourage heat pump options. Mandatory reporting of non-sensitive project details (i.e., transparency) will make future electrification planning easier.	BAMBE already provides increased incentives for their decarbonization measures. BAMBE's in-unit equipment incentive levels are similar to NYSERDA's for HPWH, but lower for an Air Source Heat Pump (ASHP). (NYSERDA offers \$900 for a HPWH and \$2,000 for an ASHP while BAMBE currently offers \$1,000 for each.)
Enable electrification in affordable housing	For New York City (the focus of the Urban Green document), this is an important segment of the population	BAMBE is targeting this segment already and in the past two years has served 2,943 units within affordable housing or where a high percent of tenants are low-income. Additionally, BAMBE is piloting how to find more buildings where a high percent of tenants are low-income.
Ramp up workforce training	Urban Green described education and training for heat pump system installation and maintenance as well as manufacturer engagement	BayREN has begun this already as they fold the previous StopWaste grant effort into BAMBE and Home+ programs (i.e., working with manufacturers to train contractors in heat pump installation).
Launch a building electrification campaign	Develop a large-scale, public-facing campaign to engage owners, educate residents on the benefits of heat pumps, and facilitate this long-term transition	BayREN is involved in "The Switch in On", a public-facing decarbonization campaign (BayREN is a member of The Building Decarbonization Coalition who is spearheading the campaign).
Demonstrate heat pump technology	Cities lead by example	In addition to the four very nice case studies on the website (two that are hardcopy and two YouTube videos) already created to support BAMBE, BAMBE could create and publicize new case studies on how property owners are benefiting from the decarbonization and how tenants are perceiving their newly electrified water or space heating (or cooking if that occurs). BAMBE could include how helpful the TAs were as part of the case studies (so the example serves two purposes). As BAMBE creates more case studies, it may be beneficial to label the case studies something like "Small Buildings" or "Electrification" so others can read about building or approaches most applicable to them.
Steps that BayREN or BAMBE could consider		
Start electrifying one step at a time	Urban Green suggests spreading out retrofit costs over time, but with guidance on planning a multi-phase retrofit	BAMBE is considering a phased approach as suggested by Urban Green, but needs to be aware of that the CPUC does not favor phased custom projects (as it is viewed as a possible way to undermine the custom review process). If this is brought into the program on a regular basis, BAMBE should make an effort to discuss with the CPUC.
Identify electrical infrastructure needs	Urban Green described a need for information on current infrastructure to enable planning for the future	BAMBE is considering a panel upgrade incentive and PG&E has commissioned a study on panel upgrade costs. The PG&E study is expected to be available by June 2021 (but could be running late). Our interview with NYSERDA indicated they are offering a \$1,500 incentive for electric service upgrades and that the County of Boulder was thinking these could be useful, but were not currently providing this type of incentive (he indicated a limited budget).
Harness Local Law 97 to drive electrification	NYC's emissions law sets carbon caps for buildings starting in 2024.	BayREN C&S could look into whether their cities are interested in setting similar carbon cap requirements. Cities such as Berkeley are already putting ordinances

Urban Green's Key Steps in Electrification	Urban Green's Points on this Step	Implication for BAMBE (or BayREN)
		into place for no natural gas in new construction, but a carbon cap would be a different type of mechanism that could enable incremental reductions over time and apply to current and new buildings. It is something that a Home Energy Score could also support.
<i>Steps that BAMBE cannot affect (but should be aware of)</i>		
Support heat pumps with better electricity rates	Urban Green discusses TOU rates as a way to support heat pumps	This is an opportunity for BAMBE to use TOU within marketing as residential customers are being opted into TOU in the near future.

We also reviewed a recent document that outlined the factors involved with successful heat pump programs across seven states in the northeast.⁶ The study authors found the most successful programs combine two factors:

- Midstream program design and supply channel engagement to move the market and support marketing and training; and
- Significant incentives (at least \$500/unit for ductless mini-splits)

Additionally, the study recommended that program incentive packages include weatherization, explore funding options beyond electric system benefit charges, and provide contractor and customer training to encourage quality installation and efficient operation (customer training is to ensure that proper set points are used to ensure that the heat pump is used more than any resistant back up system). For BAMBE, these lessons learned are only partially applicable as BAMBE's goal is not volume in the market, but to reach deeply into the targeted market of LDTS customers. As such, there seems to be no need to move to a midstream program design, but the significant incentives are an important take away from this northeast study. However, BAMBE may want to explore whether they could use the Home+ program midstream channel that is being created or the new third party statewide Midstream Water Heating Program or TECH pilot program (as it will include a midstream channel for electrification measures).

The northeast study supports some of the actions already in place by BAMBE. For example, weatherization is offered and has been included in 18% of projects. One possible addition to the program when heat pumps are included in a project (which is relatively rare so far, affecting only 2% of units) is to create and distribute information on how to best operate a heat pump. Additionally, BAMBE may want to explore whether there are synergies between themselves and the CCAs (who are not already program administrators) to layer on additional incentives (i.e., use a different funding source).

Next Steps for Electrification Questions:

Memo 2 explores the influence of rebates versus other components in the online survey of participants.

⁶ Levin, E. (VEIC) and Borgeson, M (NRDC). 2018. *Driving the Heat Pump Market*. <https://www.veic.org/clients-results/reports/driving-the-heat-pump-market-lessons-learned-from-the-northeast>

Targeting of Local Difficult To Serve (LDTS) Customers

Based on interviews with PM and review of program tracking data.

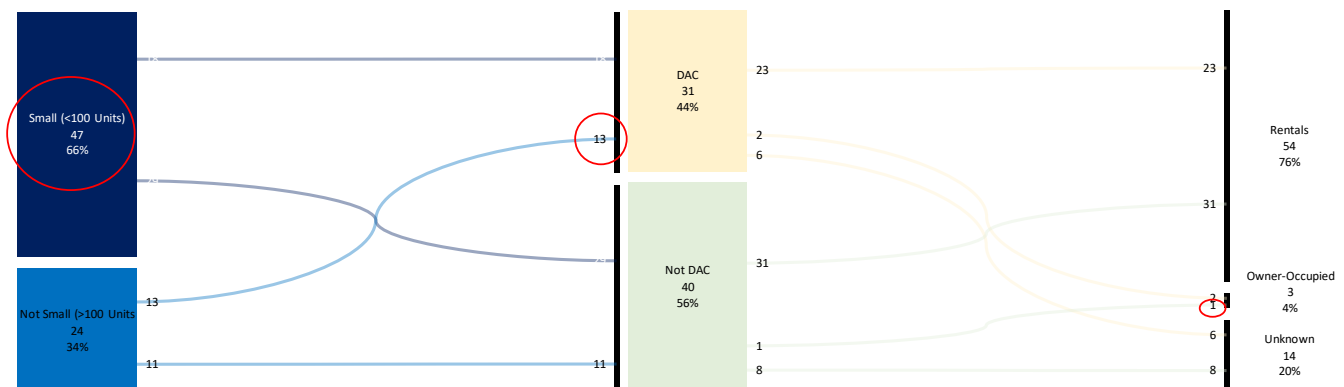
BAMBE has been seeking to serve small customers for several years. In late 2020, the BAMBE target expanded to include a broader section of LDTS customers, defined as:

- Is small (<100 units)
- Has a resident ownership structure, such as an Homeowners Association or co-operative
- Is a deed-restricted or naturally-occurring affordable property ⁷
- Is located within a DAC (the proxy for DAC are AB 1550 communities and based on address/zip code)

Subsequent to the broadening of targets for the program, the program tracking database added variables to enable tracking of the program against the LDTS categories. The DAC category could be backfilled because this was based on zip code (which the program has for each participant). However, the program only began ensuring 100% collection of other LDTS categories (e.g., occupancy type and deed restriction) in late 2020 (after defining LDTS). As such, there are unavoidable 2020 gaps in the LDTS data that hamper a full analysis of the categories in which BAMBE's participants are considered LDTS (but the program implementer is filling in these categories now in the program tracking database).

With the somewhat limited data available, we see a no differences in LDTS participation between PY19 and PY20; 87% of customers were LDTS in both years. In PY19, 62 of 71 were uniquely in a single LDTS category and for PY20, it was 34 of 39. Noteworthy, though, is that the three Clean Heating Pathway (CHP) sites are all LDTS.⁸ (See Figure 1 and Figure 2)

Figure 1. LDTS Projects in PY19 (N=71)

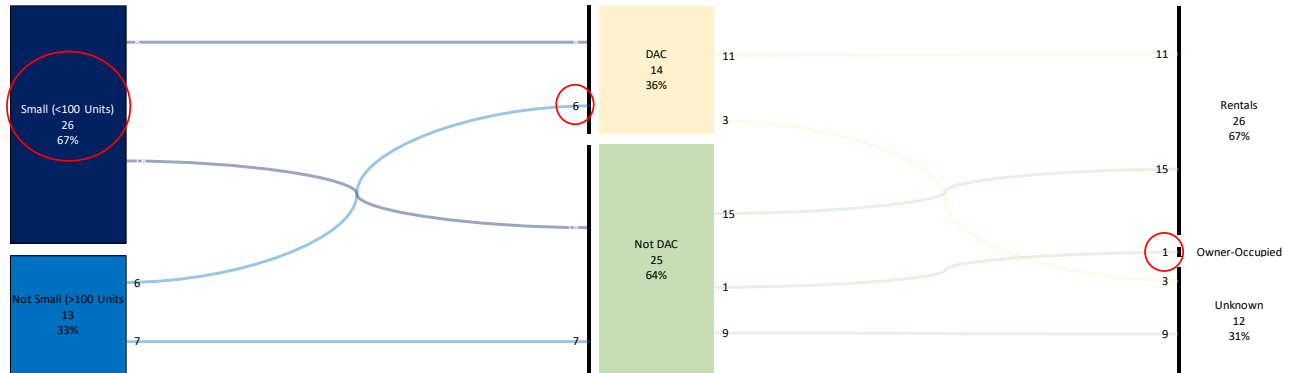


LDTS Projects shown in red circles. Not shown in the figure is one site with subsidized tenants (and not small, or DAC, or owner-occupied) to bring the total to 52 unique sites within an LDTS category.

⁷ A naturally-occurring affordable property demonstrates low-income eligibility without a regulatory agreement (taken from LIWP) through, for example: 1) Income documentation showing at least 66% of households are ≤ 80% AMI, 2) Provision of document showing at least 66% households participate in public assistance programs or receive benefits primarily available to those with income levels ≤ 80% AMI, 3) In housing serving lower income households, gross rents paid (rent charged plus the utility allowance) cannot exceed 30% of household income for the housing to be deemed affordable, or 4) Active Office of Migrant Services (OMS) Migrant Center

⁸ CHP was the name for the electrification path. The three CHP sites were all small rentals (20 units total with from 5 to 8 units per project). One was within DAC and the two not in DAC had subsidized tenants.

Figure 2. LDTs Projects in PY20 (N=39)



LDTs Projects shown in red circles. Not shown in the figure is one site with subsidized tenants (and not small, or DAC, or owner-occupied) to bring the total to 34 unique sites within an LDTs category.

BAMBE is just beginning to implement targeting the full complement of LDTs customers. Additionally, BAMBE implementers had several years to figure out how best to pull in smaller buildings into the program, so it is not surprising to see no change between the two years. The LDTs categories are included in other programs as being hard to reach (e.g., buildings with small number of tenants) and therefore are valuable to include.

The program is doing a good job of bringing in smaller properties and those in DAC. BAMBE is already piloting how to find buildings with a high level of low income tenants (i.e., naturally-occurring affordable housing). This pilot will be important in the future, especially if BayREN chooses to move this programs into an equity bucket, where all participants may need to fulfill equity metrics.

Additionally, the data supports the program's projects (which are all custom) fitting into the new CPUC category of equity customers. While not yet firmly in place, equity customers may be able to apply accelerated replacement measures with little to no preponderance of evidence requirements. See the next section for more information on that subject.

Next Steps for Targeting Questions:





At this point, we are not planning to pursue this area more. However, if desired, we could ask a few questions of the participants to understand more about their difficulty in performing energy efficiency retrofits absent the program (i.e., were they truly a custom that needed the program to move forward, which is a program influence question).

Considering Custom Projects

Before understanding where options for streamlining custom projects may occur, one has to understand the different requirements of a custom project. Attachment 1 has the various required data and a decision type graphic based on measure types.

The table below includes four options for BAMBE to consider to streamline the CPUC Custom Review (CR) process. Additional information about each option is included after the table. The colored numbers in the table correspond to the decision graphic in Attachment 1.

The new proposed decision that enables programs to be placed fully in an equity bucket could affect any custom projects that are included within equity programs. However, it is too soon to speculate whether the CPUC will simply drop any CR process for equity programs. Additionally, even if they do allow equity programs to not undergo the CR process (and BayREN chooses to label BAMBE an equity program), these categories do not come into play until 2022, so there continues to be an eight-month period where the options below are needed.

Option	Pros	Cons	Notes
Determine if it is worthwhile to separate incentives into commercial (common area) and residential (tenant) 	Has a high possibility of moving the commercial measures into a “small business” category that does not require program influence for accelerated measures	May require that residential measures be described as deemed with different paperwork requirements within the program (but not like a custom project)	This is the hybrid (mixed) application type that AEA and Frontier may have explored. <i>Recommended for BAMBE to consider</i>
Reduce the level of evidence required for CR by never claiming savings for accelerated measures 	Will eliminate the documentation for program influence as outlined in Table 5. (Evidence of equipment viability is still required, see Table 4)	Significantly reduces the savings within the program.	Would cause the already low TRC to go even lower. While BayREN is not subject to a TRC value, the CPUC is looking for the program to improve their TRC. <i>Recommended for BAMBE with reservations.</i>
Automate required documentation as much as possible 	Reduces administrative time to fill out the CPUC required Feasibility Study document	Will take time to implement and still needs some level of QA to ensure data being put in documentation is sufficient and of high quality	This is already underway for moving into Salesforce. May want to also create an Excel to Word merge ability to fill out the Project Feasibility Study. <i>Recommended for BAMBE to pursue.</i>
Create non-custom projects (i.e., deemed savings only based on workpapers) 	All CR requirements are eliminated.	<ul style="list-style-type: none"> About one-third of electric and 15% of natural gas savings do not have a workpaper (based on 2019-2020 participation) Current workpapers do not match the savings output from the model used by BAMBE to 	This is an extreme option that essentially changes the program design to accommodate an evaluation effort. <i>Not recommended for BAMBE, but included for completeness.</i>

Option	Pros	Cons	Notes
		estimate savings (sometimes higher and sometimes lower savings from workpapers vs model)	

1 Determine if it is worthwhile to separate incentives into commercial (common area) and residential (tenant)/Consider looking to designate the customer as a small business or Hard-to-Reach (HTR). If a customer is designated as a small business or HTR, BAMBE must provide sufficient evidence of that categorization. Small businesses must use less than 40,000 kWh or 10,000 therms in a year.⁹ HTR customer must follow the regular HTR requirements. This designation greatly reduces the documentation for measures that are most typically installed (accelerated replace, or AR measures). AR measures with this customer designation are not required to provide evidence of equipment viability. The project must always provide evidence of influence, but does not need to base that evidence on the incentive level tiers.

All BAMBE projects, even if small, are estimated to use more energy than the small business categorization allows. However, that is for the entire building. If only the energy paid for by the building owner is considered (i.e., common areas when not master metered), then that level of energy has the possibility of meeting the small business criteria. This option needs further discussion as it may require that BAMBE pay out tenant units separately and therefore not be a viable option for the program.

2 Reducing the level of required evidence. During the CR process, the CPUC selects a sample of custom projects to review in terms of equipment viability and program influence. For measures that are normal replacement (NR), add-on equipment (AEO), or building weatherization (BW), the program only needs to provide evidence of influence which reduces the administrative burden associated with providing evidence of equipment viability, although not the time required for a CR. Accelerated replacement (AR) measures require much more documentation. If the program dropped any AR measures (or only claimed NR savings), it should reduce the level of required evidence. However, since many measures are AR, this change has the potential to reduce the available measures. (See Attachment 1 for the different levels of evidence required.)

3 Automate required documentation as much as possible/Streamline through automation of data into the CR template(s). AEA is already working on Excel macros to streamline data entry and lessen data entry error potential. Specifically, AEA indicated they are creating macros to move a CSV file into Salesforce. BAMBE may want to also look into creating a merge situation from the CSV file to bring data into the Project Feasibility Study (the custom review process document for projects with the highest incentive levels).

Additionally, there are several options for BAMBE to create their own template of documentation for projects that require less documentation than those required to use the Project Feasibility Study (see Attachment 1). These templates should have clear information requirements and a way to easily pull required data from

⁹ A small business customer is defined as a non-residential customer with an annual electric usage of 40,000 kilowatt hours (kWh) or less, or an energy demand of 20 kilowatt (kW) or less, or annual consumption of 10,000 therms of gas or less. Alternatively, a small business customer is a customer who meets the definition of “micro-business” in California Government Code Section 14837 (Section 14837). Section 14837 defines a micro-business as a business, together with affiliates, that has average annual gross receipts of \$3,500,000 or less over the previous three years, or is a manufacturer, as defined in Section 14837 subdivision (c), with 25 or fewer employees. The California Department of General Services is authorized to amend the gross receipt amount. In January 2010 DGS increased the gross receipt amount from \$2,750,000 to the current amount of \$3,500,000. (see, California Office of Administrative Law, Regulatory Action Number 2000-1110-01S.) This definition does not include fixed usage or unmetered rate schedule customers. (Resolution E-4939, October 11, 2018, p 31)

Salesforce to merge into a project specific template. Data entry may be reduced if the requirements by project category are highlighted in a data entry form so that TAs only fill in the required data.

Eliminating the CR by using only a deemed savings approach. While not recommended (because it would extensively change the program design), it is possible that BAMBE could remove any CR requirement by becoming a deemed program and only installing measures with deemed savings (i.e., workpapers).

As of the end of March 2021, there are 183 workpapers available for PAs to use. These workpapers cover measures that brought in 65% of BAMBE's installed electricity savings over the past two years and 82% of therm savings. The four electrical measures that represent 97% of non-workpaper savings were common area bulbs, in-unit hard-wired lighting fixtures, windows, and variable speed recirculation pumps. The three gas measures that represented virtually all of the non-workpaper savings were windows, variable speed recirculation pumps, and hydronic/steam system controls. (Table 2)

Table 2. Measures in Past BAMBE Programs and Current Workpapers

Measures	2019-2020 Installed Savings			
	MWh	% of MWh	Therms	% of Therms
All measures with workpapers	2,727	65%	274,471	82%
Measures without workpapers	1,360	32%	48,989	15%
<i>In-unit hard wired lighting fixtures</i>	440	10%	(-6,488)	---
<i>Common area bulbs</i>	438	10%	(-1,067)	---
<i>Windows</i>	318	8%	13,555	4%
<i>Variable speed recirculation pump</i>	120	3%	35,072	11%
<i>Hydronic / steam system controls</i>	---	---	555	0.17%
Unsure if have a workpaper	130	3%	9,943	3%

Next Steps for CR Streamlining:

We would like to discuss the various streamlining options with you as well as review the decision graphic with AEA and Frontier.

Attachment 1: Levels of Evidence for Custom Projects and Custom Project Categories

Unless a program has been designated as direct-to-decision¹⁰, the level of evidence required for accelerated measures within a custom review (CR) varies based on the incentive level, with two-thirds of BAMBE's PY20 projects falling into the top two rigor tiers. (Table 3)

Table 3. Custom Review Rigor Tier, Incentive Range, and # of BAMBE Projects

Custom Project Review Rigor Tier	Incentive Range	Number of BAMBE Projects in this Tier in 2020
Full	>= \$100,000	11
Medium	\$25,000 - \$100,000	13
Low	\$7,500 - \$25,000	11
Very Low	<\$7,500	4

Information from Resolution E-5115, February 2021 and Program Tracking Database

The required evidence for accelerated measures of both equipment viability (Table 4) and program influence (Table 5) grows as the project incentive level grows.

*Table 4. Required Equipment Viability Evidence by Custom Review Rigor Tier**

Very Low	Low	Medium
Customer Affidavit Statement	Same as Very Low plus: <ul style="list-style-type: none"> • photos or videos • information about whether the existing equipment can continue to operate 	Same as Low, plus: <ul style="list-style-type: none"> • age of equipment • operating data • current and past maintenance and repair history or records, as well as costs • reliability history and issues • information on current plans for budgeting for expansions, remodels, replacements

*The CPUC has a template for the full rigor evidence that includes extensively more data requirements. It is called a "Feasibility Study" with a template provided by the CPUC.

Table information from Resolution E-5115, February 2021

While all projects must provide evidence of program influence, the evidence for accelerated replacement (AR) measure application types varies by incentive level.

¹⁰ Within E-4818 (2017), Section 1.5.5 on "direct-to-decision" baseline assignment indicates an approach that streamlines or automates the determination of accelerated replacement baselines. To be automatic, the approach must: 1) have Commission approval on program design, rules, and customer eligibility 2) specify the level of evidence for eligibility to be collected by the program, 3) collect the evidence for each installations and make it available to the Commission upon request and submit with energy claims and 4) fulfill appropriate tiered preponderance of evidence requirement for equipment viability. (page 43) If a program-level case is made, "the project-level preponderance of evidence requirement can be limited to include evidence of customer eligibility for program participation and evidence of equipment viability." (page 43)

Table 5. Required Program Influence Evidence by Custom Review Rigor Tier*

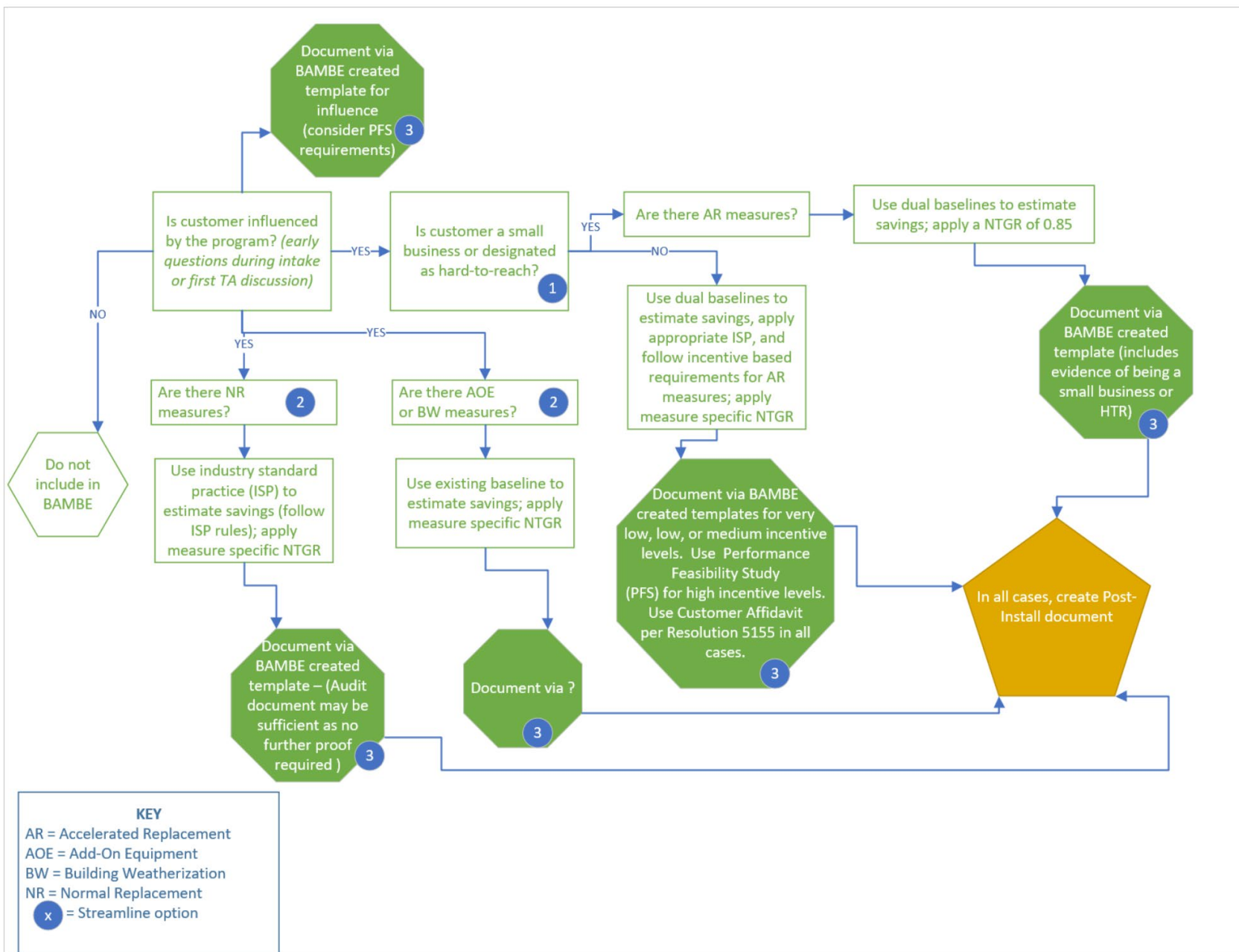
Evidence of Program Influence	Very Low Rigor	Low Rigor	Medium Rigor
Describe this project's development, including the customer's motivating factors for the project development and all factors that the customer considered as it planned, designed, and selected the project to replace the existing equipment.	✓	✓	✓
Describe the project developer's services provided to the customer and timing of developer's engagement compared to customer's decision-making process.	✓	✓	✓
Describe any major repairs performed on the existing equipment, not related to a full system overhaul, in the last 12 (very low) OR 24 (low and medium tier) months.	✓	✓	✓
Describe any maintenance issues for the existing equipment in the last 12 (very low tier) OR 36 (low and medium tier) months.	✓	✓	✓
Demonstrate that the project is not part of the customer's scheduled maintenance or equipment upgrade. Provide evidence that the customer was not going to do this energy efficiency project anyway.	✓	✓	✓
What are the customer's barriers (if any) to adopting a new energy efficiency measure? What are its resource constraints (if any)?			✓
What are the regulations (e.g., code, standards) applicable to the existing equipment or process and the relevant energy efficiency measure?			✓
What is the decision-making process for determining and selecting a specific energy efficiency measure option(s)? What are the customer's criteria in decision-making?			✓

**This level of program influence is for accelerated replacement (AR) measures only. The project developer is required to collect this information from the customer and provide written responses.*

Information from Resolution E-5115, February 2021

The figure below shows a high level set of decisions for custom project. It is a work in progress. While based on multiple resolutions and a discussion with the CPUC, we have not fully discussed this with AEA and Frontier to see if there is agreement.

Figure 3. Areas for Potential Streamlining of Custom Review Paperwork



Multifamily Memo 2 (June 2021)



BAMBE – Participant Survey June 2021

Approach

This memo provides a summary of findings based on analysis of the online survey respondents. Grounded Research is providing this memo as an early feedback memo to the program administrator/implementation team.

Grounded Research gathered data from multifamily building owners or property managers who participated in the BAMBE program in 2019 or 2020. Twenty one participants responded to the survey. For the most part, the 21 completed surveys have similar characteristics as the sample frame of 78 (27% response rate, which is a good response rate). We saw the most variation in the customers with buildings in DAC (fewer DAC in our survey than in the sample frame). Even with these differences, we consider this survey to be a good representation of the sample frame with minimal response bias. (Details included in Attachment 1.)

We first provide findings that are interesting, but do not point to specific areas that the program may want to adjust. We then discuss the few noteworthy areas for possible changes. The evaluation team made small adjustments to the original memo to ensure clarity for a broader audience.

Findings of Interest

Satisfaction is high. Past participants are very satisfied with the program.

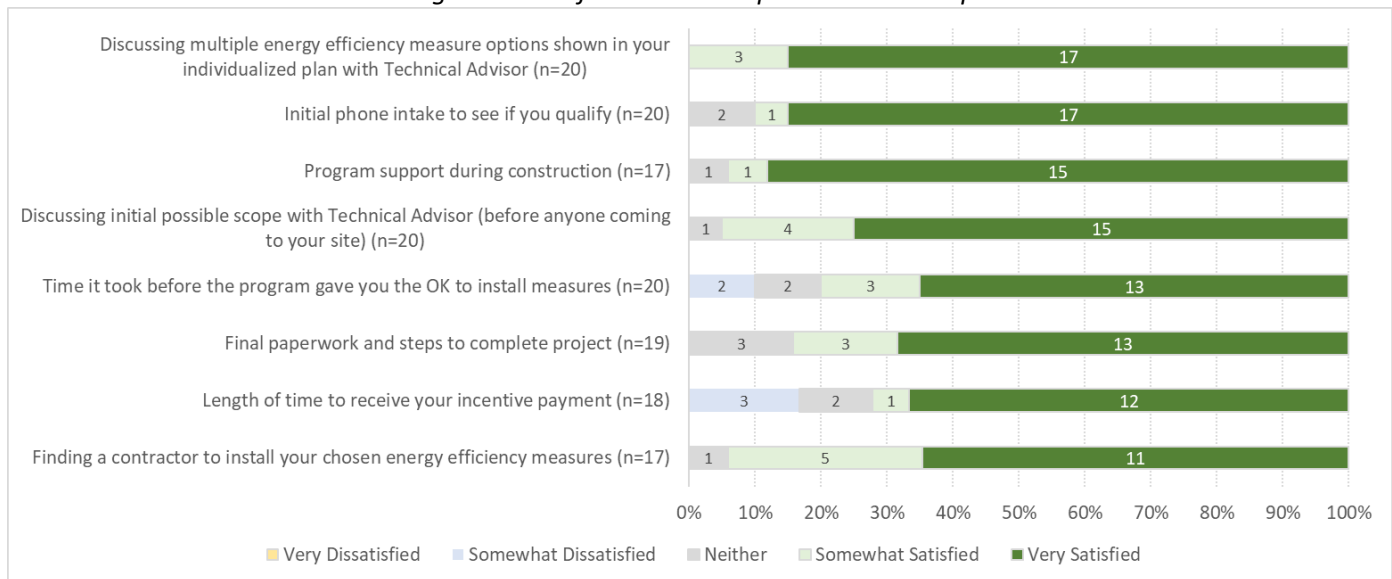
They are most happy with the program's technical advisors. All were either somewhat satisfied (19%) or very satisfied (81%) with the Technical Advisor discussions of the individualized plan. Additionally, many were very satisfied (75%) with the support received during the construction phase. In fact, one customer wanted to have more technical assistance (even if they had to pay for it) so they could obtain more ideas about how to cut costs further.

The only areas of discontent were the time it took before the customer received the go-ahead to install the efficient equipment (2 of 20 customers or 10%, somewhat dissatisfied) and the time it took to receive their incentive (3 of 18 customers, or 17% somewhat dissatisfied). While we heard anecdotal information from discussions with the implementer that some customers were dissatisfied with the custom review process because of a delay in receiving the go-ahead, this was not the case for the two dissatisfied responses in our survey as the custom review process was not yet applicable when the projects occurred.¹ Additionally, while some customers were dissatisfied with certain times, their projects were not large outliers in terms of days.² (Figure 1)

¹ The project tracking database indicated that it took 85 and 249 days for the customers dissatisfied with the days between TA and construction (average of 213 days for all projects). In one case, the project was given the go-ahead in 2018 and the other project received their go-ahead in mid-October 2020. This second project did not match up with the three "test the custom review process" projects that the BayREN team discussed in early 2021 and so we are reasonably confident that the 249 days was due to other circumstances (not the custom review process).

² The project tracking database indicated that it took 12, 17, and 20 days for the customers dissatisfied with the time to obtain their incentive (average of 15 days for all projects).

Figure 1. Satisfaction with Implementation Steps



Source: Online survey of participants. "Does not apply" responses removed.

Technical Advisors actively work with customers and provide what customers want. Respondents interact relatively often with their Technical Advisors. Most (12) indicated interaction once or twice a month while many interacted once a week or more (7). Only one customer indicated interacting once or twice over the course of the project (and their project was relatively quick at about 8 months total). The Technical Advisors almost always provide all the information that a customer wants (18 of 21 responses or 90% indicated received all the information they wanted while 1 customer indicated they received most of the information they wanted). One customer indicated they wanted more information and time discussing new ideas and approaches for their steam supply system.

Money is a top influencer. Not surprisingly, customers are most influenced to install measures by the available incentive (rebate) combined with their existing desires to reduce their energy cost. The need to replace an item and environmental issues (i.e., customer carbon footprint) were also influential (ranking in the middle of all options). The least influential items were the more external issues such as tenant costs and program related activities. The low influence of the program activities points out that other internal choices play a large part in a decision to install a measure. (Table 1)

Table 1. Ranked Influences on Decision to Install Measures

Top Two Ranked Influences	Middle Two Ranked Influences	Bottom Three Ranked Influences
Rebates	Needed to replace the items	Wanted to reduce the cost of energy my tenants pay
Wanted to reduce the cost of energy I pay	Wanted to reduce the carbon footprint of the building(s)	Ease of participation
		Support provided by the Technical Advisors

Source: Online survey of participants

Aligned with the top influencers, respondents wanted to see more rebates (larger incentives in general and rebates tied to patio doors, water tanks, windows) and coordination with solar, batteries, and renewables (as those reduce their cost of energy paid to the utilities).

Mixed response to involvement of tenants. For some buildings that are Homeowner Associations (HOAs), tenants are already involved, "Our building is an HOA so owners involved from start." However, for those that are tenant occupied, many are not interested in involving their tenants in the selection of in-unit upgrades.

About equal number were against involving tenants in energy efficiency choices as were good with it (see below).

- Example quotes of those against involving tenants. All these quotes are from sites with over 100 units.
 - *Don't involve tenants. Demonstrate unit on move in.*
 - *I don't think that is a good idea*
 - *Involving tenants in such a process would greatly complicate this type of a program. That is something that we would not choose to do.*
 - *Informing the tenants-possibly. Involving them-probably not.*
- Example quotes of those who are OK with involving tenants. Both of these are sites with less than 10 units.
 - *When I replaced the refrigerators, I asked my tenants what they needed as far as the fridge features.*
 - *offer tenants to chance to give input. most tenants are not so interested in these issues.*

If the program wants to provide information to tenants, we heard that a simple infographic and basic explanation of why these changes are important, a standardized letter or well-produced explanatory pamphlets would be helpful.

Findings to Consider for Future Program Adjustments

While customers are satisfied, some found it difficult to participate. A little more than a quarter of respondents (6 of 21 or 29%) indicated it was difficult to understand what they needed to do to participate. These respondents either had buildings with smaller units (under 50) or had over 100 units, but were in DAC.

During the participation process, we heard positives about BayREN staff (*"I absolutely love the people I worked with from BayREN"*). However, the point system used to figure out which and how many measures they needed to qualify was confusing and at least one respondent was frustrated with the exclusion of some measures entirely (even those where the measures saved energy). We also heard that a respondent with a smaller building had difficulty translating requirements (that this person indicated were for larger buildings) to fit their project. Lastly, one respondent indicated program staff turnover caused some activities to take a long time.

- Consideration: These comments point out that simple processes are very important. As you consider future changes to program requirements or processes, these adjustments should not be more complex than what is in place now.

Repeat participation for small customers may be difficult. Most customers (15, or 71%) were involved with first time projects and over half considered PG&E's and/or MCE's multifamily programs prior to choosing the BayREN program. Part of this high percentage of new projects may have been due to perceived difficulty in having additional projects as we heard the following from one respondent:

- *Easier qualifying for owners interested in the BayREN program for the second or third time around. Too hard for qualifying after the first time around. -Participant*

The program has several projects with the same customer contacts, so obviously has repeat customers. Additionally, the customer indicating dissatisfaction with additional participation actually did have multiple projects. It is possible that repeat participation is more difficult for smaller properties (as each property must meet the same threshold for savings and inclusion of multiple measures). The quoted customer's buildings are small (under 40 units) and most of the repeat customers have buildings with slightly more units (there are an average of 95 units for repeat customers vs. 79 for single project customers).

- Consideration: If the program plans to target buildings with relatively small units in the future and wants to include repeat customers of these smaller buildings, it may be beneficial to review the processes in place to enable repeat participation to see if there are program rules that cause problems. (As of 2022, the program is continuing to perform benchmarking, but only for select projects.)

Benchmarking may or may not be useful. Our survey does not shed much light on benchmarking as we heard varied answers from the three respondents with completed benchmarking services. One viewed the energy consumption

information within Portfolio Manager one or two times a quarter, another viewed the data one or two times a year while the third had not reviewed the information since the property was set up within Portfolio Manager.

- **Consideration:** The program may want to follow up with benchmarked customers in the future to see how often they use Portfolio Manager and if they make any changes based on what they learn from the data. If the program finds that customers do make changes, but some do not refer to the Portfolio Manager data at all or not very often, the program may consider seeing if they can facilitate use of the data.

Electrification measure incentives are still not high enough to move the market much. Customers need higher incentives to make changes to their natural gas equipment. Other barriers were less noted, but still present (Table 2)

Table 2. Respondent Noted Barriers to Electrification (n=14)

Largest barrier to electrification	Barriers indicated, but by fewer respondents
Incentive did not cover enough of the project cost (n=8)	Electrical panel upgrades were needed (n=2)
	<p>Barriers noted by one respondent</p> <ul style="list-style-type: none"> • Space constraints for the heat pump • The existing equipment was still relatively new • The eventual cost for the tenant to pay for electric utilities would have been too high

Source: Responses to close ended question (so survey choices were set by the survey)

- **Consideration:** If the future program focuses on electrification, then higher incentives would be needed to obtain more installations. While the program cannot change heat pump space constraints or highly influence replacing new equipment, there is the possibility of creating a marketing document that describes operating costs of all-electric equipment to help overcome that noted barrier.

Customers have a variety of suggested improvements. The respondents provided a variety of ways to improve the program that we simply list for consideration. (Table 3)

Table 3. Respondent Suggestions to Improve the Program

Improve marketing	Provide information	Change program design	Accommodate unique situations
<ul style="list-style-type: none"> • We didn't become aware of this program until we were already underway remodeling and missed some date deadlines to qualify in some areas. If I had known sooner, I could have planned accordingly. • Show the prospective owners how much they can save over a year, over 5 years and over 10 years. Using technology such as the smart recirculation water pumps or converting to LED lights. For the heavy duty attic insulation, explain how it helps the tenants with the summer and winter temperatures. 	<ul style="list-style-type: none"> • Allow participants to choose from a list of qualified vendors who can perform the various tasks (installing water heaters / replacing AC's/ etc.). • Having a list of manufacturers whose products qualify for the program would be helpful. • List contractors • Possible walk thru our building and help point out items that would be part of the program. • Heat pump water heater technical support 	<ul style="list-style-type: none"> • Allow upgrading one unit at a time (based on natural attrition). • More flexibility with regards to determining which measures to use to qualify for the program. • Add rebates for EV charging and plumbing upgrades as well as the aforementioned windows, patio doors, water tank, solar, and batteries. 	<ul style="list-style-type: none"> • Integrate with 3rd party reports procured by owner • We master lease most of the buildings so BayREN participating in explaining to the actual owners of our Master lease buildings

Attachment A – Online Survey Details and Respondent Characteristics

This attachment covers details of the implementation of the online survey of past participants and characteristics of respondents.

During the 2019 and 2020 period, the program retrofit 109 projects. However, 31 of these projects had projects at different addresses (ranging from 2 to 7 projects per customer contact). In order to reduce survey fatigue, we randomly chose a single property about which to ask these customers, leading to a population of 78 in our sample frame.³

The online survey was in the field from May 27, 2021, to June 9, 2021. We sent two follow up emails (on 6/2/21 and again on 6/7/21). Respondents were offered a \$25 Amazon gift card to encourage participation.

Out of the 78 unique emails in our sample frame, three emails bounced for a total of 75 possible responses. We received 21 completes (a 27% response rate or 21/75) and had no partially completed surveys.

The average time to complete the survey for most respondents was 6.1 minutes. Three respondents appeared to have been in the survey for an extended period without answering questions as their average time was 68 minutes.

For the most part, completed surveys has similar characteristics as the sample frame (Table 4). We saw the most variation in the customers with buildings in DAC (fewer DAC in our survey than in the sample frame). Even with these differences, we consider this survey to be a good representation of the sample frame with minimal response bias.

Table 4. Survey Respondent Characteristics – Sample Frame and Completed Surveys

Parameter	Sample Frame	Completed Surveys	% of Sample Frame	% of Surveys
2019	48	13	62%	62%
2020	30	8	38%	38%
In DAC	32	4	41%	19%
Not in DAC	46	17	59%	81%
Benchmarking Occurred through Program	12	3	15%	14%
No Benchmarking through Program	66	18	85%	86%
Owner	34	10	44%	48%
Property Manager	25	11	32%	52%
Unknown	19	0	24%	0%
CHP Participant	3	1	4%	5%
Not CHP Participant	75	20	96%	95%
Deed Restricted Affordable	17	4	22%	19%
Not Deed Restricted Affordable	44	13	56%	62%
Unknown	17	4	22%	19%

³ We had one exception to the random choice of a project for customers with more than a single project. We purposefully chose the Clean Heating Pathway (CHP) project for one customer who had several projects to give us the possibility of hearing from one of the three customers with CHP projects (the other two had no other projects so were automatically included in the sample frame).

Parameter	Sample Frame	Completed Surveys	% of Sample Frame	% of Surveys
Renter Occupied	60	17	77%	81%
Owner Occupied	5	3	6%	14%
Unknown	13	1	17%	5%
Subsidized Tenants	22	9	28%	43%
No Subsidized Tenants	38	11	49%	52%
Unknown if Subsidized Tenants	16	1	21%	5%

Note that because our sample frame is not identical to the population, numbers and percentages in the table may not match data in other documents like the Annual Report.

The survey respondents were very similar to the sample frame in terms of the number of units they oversaw, although the survey did not capture responses from property owners/managers with very large number of tenant units. (Table 5)

Table 5. Statistics on Tenant Units for Sample Frame and Completed Surveys

Statistics	Sample Frame	Completed Surveys
Total	6,937	1,183
Average	89	74
Median	66	76
Minimum	4	7
Maximum	700	164

Source: Number of tenant units from program tracking database.

Single-family Memo 1 (May 2021)



Home+ - Energy Advisors Early-feedback Memo

May 2021

Approach

Grounded Research interviewed four Home+ Energy Advisors to understand their recommendations for how to streamline efforts, better serve customers, and encourage additional participation. The information below will inform future Energy Advisor efforts and guide the evaluation's next steps (specifically, participant surveys). This memo provides a brief summary of Energy Advisor feedback, with a focus on potential solutions for discussion by the Home+ team. In some places, this is coupled with an early review of program data and information from BayREN program staff. The evaluation team made small adjustments to the original memo to ensure clarity for a broader audience.

Summary of Early Findings Based on Energy Advisor Feedback

The Energy Advisors described their role as “educational”. They see themselves as a non-biased resource (because they are not trying to sell anything) that tries to help homeowners understand what is going on in their homes. They mentioned being “free help” and having a goal of “try to make [the homeowner’s] process easier”. In 2020, approximately 1,600 households reached out for help from Energy Advisors.

In our discussions, there were two areas where Energy Advisors identified a need for improvements: (1) marketing and (2) interactions with those who contact Energy Advisors.

Marketing. Energy Advisors receive a large number of requests. However, many of the individuals who are calling are not the right targets for Energy Advisor services – or the Home+ program. As shown in the table below, customers may call about upcoming events, projects that are already completed, ineligible measures because they don’t know what measures are available, or Do It Yourself (DIY) projects because they don’t realize that they need to use participating contractors to obtain Home+ program incentives. According to the Energy Advisors, they spend lots of time telling people that the program won’t meet their needs. The Energy Advisors believe that more and more people are calling in just to get general advice. Energy Advisors attempt to call everyone back, but they do not feel that they are effectively helping people all of the time. Given the large numbers of calls, most Energy Advisors can only reach out to households once even though follow up with potential projects can be valuable. In 2020, 65% of calls never made it to an “Account” status, and thus were not the right fit for Energy Advising services.

Interactions with those who contact Energy Advisor. Given the number of calls coming in, Energy Advisors feel that they need to be efficient with their time. Several try to get basic information via email (e.g., fuel source, needs, etc.) prior to talking to the household, when possible, to optimize phone call time. The Energy Advisors mentioned that typical calls are 15-30 minutes but can range from 15 mins -1.25 hours for those who have a complicated project. Usually, the Energy Advisor sends an email immediately following a call. These are generally customized emails with follow-up information and links. Often, Energy Advisors pull affiliate links (e.g., solar PV, financing, Building Together, county funds, etc.) from a “solutions tab” in their Salesforce database to refer households to non-BayREN programs. This is somewhat automated but requires clicking on specific solutions (so “not fully automated”, as described by Energy Advisors). Notably, one Energy Advisor mentioned that “in the old automated system it worked much faster.” In the past, they could push a button to create an energy action plan that would provide next steps. However, according to a couple of Energy Advisors, Pardot (i.e., Salesforce’s B2B marketing automation tool) is not currently working. Energy Advisors think that these follow up emails are really useful for customers, but more automation and web-based tools for customers could help streamline interactions so that Energy Advisors could serve more homeowners.

The Home+ program is already actively working to streamline efforts. Internal goals include:

- Getting back to achieving a < 24 hour (one- to two-day) response time
- Ensuring that calls are more targeted so that Energy Advisors can get homeowners information quicker

Energy Advisors have recently re-categorized those who reach out for Energy Advisor help. In 2021, these fall into the categories of Leads, General Inquiries, and Accounts (as shown in the table below). While these categories were not the same in 2020, the 2020 data includes nearly 1,600 that started as leads, and 550 (about 35%) that became accounts; 65% were not the right fit for Energy Advising services. In total, ~340 (or 21-22%) received referrals to other programs.

Table 1. Characterizations of Households that Reach out to Energy Advisor

2021 EA Categories*	Description of Category	Notes (about types of customers who call based on EA feedback).	Value to State	Program Need**
Leads	These may be households that have not been contacted or have an inquiry that doesn't seem to be aligned with the program. Leads are moved to the following two categories or, eventually, these are closed/not qualified.	<p>Leave message with no info/never contacted. Only occurs when too many to get back to in reasonable time.</p> <p>Event-oriented. Calling about details of an event, or to sign up for an event. Don't want energy advisor services. Occurs when events are marketed.</p> <p>Already did something and want rebate – or ineligible measures (e.g., windows). Not aware that they are ineligible or didn't work with participating contractor.</p>	Not valuable if they remain in this group	<p>BETTER MESSAGING TO HELP MINIMIZE THE NUMBERS THAT REMAIN IN THIS GROUP</p> <p>(and screening)</p>
General Inquiry	These do not appear to have the potential for a viable project, but this category allows the advisor to send solutions outside of the Home+ program (i.e., non-BayREN program links and referrals).	<p>Exploring. No idea what they want to do or what BayREN offers –some open to considering but not currently considering project. May send these people some information by email.</p> <p>Interested in rebates for DIY jobs (e.g., can blow insulation themselves) – lots of these. Not interested in working with contractor or combustion safety test but looking for rebate.</p>	Aligned with what CPUC evaluated– referrals to other programs (ideally leading to savings) are valuable. Would need to be crossed with other program databases or would need to follow up with a survey.	<p>SCREENING TO PROVIDE BASIC INFO AND TARGET FOR NEXT CATEGORY</p>
Home+ (single family) Accounts	<p>These are the “active accounts” where there is some interest in a project.</p> <ul style="list-style-type: none"> Some result in Home+ projects Some still open because they have not resulted in projects through Home+ <ul style="list-style-type: none"> Still planned (6 mo., 6-24 mo., +) Happened but not through Home+ No project going to happen 	<p>Project oriented. Projects may be in all stages. Energy Advisors are looking for between a 20-40% conversion rate from accounts to applications.</p>	Most valuable (both Home+ projects and projects with energy savings outside of Home+)	<p>CONVERSION TO PROJECTS</p> <p>(GOOD TARGET FOR ADVISING)</p>

*Note that these are not the categories used in the 2019 and 2020 databases. **Formal recommendations tied to these needs are presented below.

Connections Between Energy Advisors and the Other BayREN Program Elements

When we look across the Home+ program elements, the connections between Energy Advisor services and Green House Calls or Online Audits/Kits are weak. Moreover, while the exact number of projects that go from an Energy Advisor to a complete project has yet to be determined by the evaluation team, the program manager, program staff, and Energy Advisors all indicated that the large majority of people who receive Home+ rebates are not talking to Energy Advisors – they primarily come from contractor leads.

- **Connections to Between Home+ Program Elements – Energy Advisor Connections**

- **To Green House Calls (GHC)** (1,800 contacts in 2020 in GHC database, – within Energy Advisor database, roughly 60 came from GHC as a lead source, and only 1-2 resulted in an account)
 - **Comments from Energy Advisors.** Because Energy Advisors have too many other leads (and no extra time), Energy Advisors are not following up with these households even though in the GHC survey, many indicate that they are interested in being contacted by an Energy Advisor. According to Energy Advisors and the BayREN PM, these are not generally good leads. Most of these respondents do not have the \$\$\$ to put towards an upgrade. Hard for them to have \$10,000 for a project (or \$40,000 to electrify a house). According to Energy Advisors, these people don't have the means to complete projects.
 - **Evaluator reflections.** The program could assign interested GHC participants to Energy Advisors¹, but if they are not good targets for current program, the program needs to find out how to better serve this group. *The evaluation will attempt to collect data to explore this in the GHC survey.* Note that if Energy Advisors are not going to reach out, then the question should be removed from the survey performed by GHC.
- **To Online Audits/Kits** (about 1,300 unique contacts in 2020 in Online Audit database – within Energy Advisor database, 177 came from online audits as a lead source, and 60 resulted in an account)
 - **Comments from Energy Advisors.** In the past, advisors were connecting with leads from online audits because there weren't as many other leads, but they are no longer following up because they have too many leads.
 - **Evaluator reflections.** Online Audits could potentially be used (or some form of this could be used) to gather information in advance of the discussion with the Energy Advisor, but the Energy Advisors commented that this might not provide the right level of information for a customized discussion. (This is discussed further below.) *The evaluation will attempt to collect data to explore wait times and initial contacts with Energy Advisors within the EA participant survey.*
- **To Rebates/Contractors** (over 1,900 households with projects in 2020 and ~3,200 in 2019 in rebate database – within Energy Advisor database, 77 came from a contractor, but only 1 listed as an account)
 - **Comments from Energy Advisors.** A large percentage of people who get rebates are not talking to Energy Advisors. There are, however, some people who reach out to an Energy Advisor based on a recommendation from a participating contractor. For those who use the Energy Advisor channel, the Energy Advisors support the homeowners through the process, as needed. If a homeowner does not have a contractor, the Energy Advisor may provide links or point customers to the Contractor Tool. Sometimes Energy Advisors help review bids.
 - **When asked why accounts might not turn into a Home+ project,** Energy Advisors mentioned that homeowners sometimes find a contractor outside of the program. Some households feel that the program contractor bids are too high. Or sometimes, the participating contractors get busy and can't respond as quickly as non-participating contractors (e.g., some are scheduling 1.5 months out for estimates, and 4-5 months out for installations). In addition, according to the Energy Advisors, some people can get overwhelmed by the complexity of the project.

¹ This was done from time to time in the past.

- **Evaluator reflections.** To increase conversions, continue to be a resource by following up with more homeowners with potential projects (i.e., Accounts) to help when there are complexities. Energy Advisors would need to free up time to be able to do this. *We note that there is a need for better tracking between the Energy Advisor database and the Home+ database to more clearly understand conversion rates from Energy Advisor services to a full Home+ project. The evaluation will attempt to collect data to explore related topics in the EA and Home+ participant surveys and contractor interviews.*

Overall Evaluator Reflections

Currently, the Energy Advisor service appears to be trying to be a one-stop-shop; however, there is a balance between providing *everything* that a household may need (i.e., truly being a one-stop-shop) and providing targeted advice to help support an energy saving project that is eligible through the Home+ program. Increasing the value of the Energy Advisor services will require limiting the number of calls that come in through more targeted messaging, ensuring that the program is collecting data on referrals (in General Inquiry or Home+ Account), and working to improve conversions to active Home+ projects.²

We note that lots of potential solutions to improve the program came up (both from Energy Advisors and from the evaluation team). These are presented below to facilitate discussions within the Home+ Program Team and the BayREN county oversight group.

Recommendations for BayREN PM and Counties

To better target and limit the number of contacts that are not aligned with what the Home+ program offers:

- **Stagger county marketing campaigns.** Towards the end of 2020, several counties put out marketing for their jurisdictions. Multiple simultaneous marketing efforts results in large waves of households contacting Energy Advisor services, which makes it difficult for the Energy Advisors to get back to everyone within a reasonable time frame. Counties need to work together so that they don't overwhelm the program's ability to respond to customers quickly.
- **Use a code word in campaigns.** When marketing, counties should use a campaign word, e.g., "SUMMERSCLOSE" or "REDGREENBLUE" to help respondents identify why they are calling. For example, if Santa Clara has a new water program to put in water conservation devices for 3-months, the marketing would ask respondents to use the term "SAVEWATER" when they call in so that the Energy Advisors know where people are from and what they are interested in.
- **Ensure that specific information is in the messaging.** In their marketing, counties should be more explicit on what Energy Advisor services offer. They should include information on whether DIY projects qualify or whether they need to use a participating contractor. In some cases, they may need to be clear about what equipment is being replaced and be more explicit that it isn't free. For example, marketing would say: if your home has a gas dryer, you could be eligible for \$X, if you use a participating contractor. Messaging may also need to be clear that they will need to schedule an appointment in advance, e.g., call today to schedule a phone conversation with an Energy Advisor. (This also applies to messaging on the website as well.)
- **Get Advisors' feedback from on the content of the marketing campaigns in advance.** Counties should consult with the Energy Advisor services supervisor (on marketing that sends people to Energy Advisors) to get feedback on whether marketing is clear and includes all important information. This will ensure that there isn't anything missing or misleading.

Recommendations for the Implementer (CLEAResult)

To screen calls:

² Notably, while Home+ projects is one of the goals of the program, energy savings through projects supported by Energy Advisors is also valuable to the State (although energy savings are not counted). The evaluation effort can attempt to collect data in our survey efforts.

- **Consider hiring an administrative position to screen and target calls for Energy Advisors.** In April, the Energy Advisors received around 1,100-1,300 messages (and expect nearly 2,000 in May). To deal with this kind of call volume, the implementers could use an administrative person devoted to the Home+ program who is knowledgeable about the general program offerings and referrals. They could screen calls, deal with general inquiries, and identify accounts for the Energy Advisors. According to the Energy Advisors, those who are interested in traditional rebates could have their questions easily answered by someone other than an advisor.

To streamline Energy Advisor efforts:

- **Work to automate some of the interactions with homeowners.** The implementers should look into what it would take to be “fully automated” (per the Energy Advisor’s comments) to assist the Energy Advisors so that they could quickly provide information to homeowners.
- **Consider building connections between online audit software and Energy Advisor.** The implementers could potentially use the online audit (or a shorter version) to collect basic information about a home so that they don’t have to ask for it during the call and can focus their time on the needs of the homeowner. This could serve as part of the screening process.
- **Connect systems internally.** Energy Advisors use a portal in Salesforce, while Home+ rebate projects are recorded in the Orbit portal. Currently, to determine whether an account submits an application or completes a project, the Energy Advisors must manually look up their contacts in Orbit. The implementers could eventually connect these databases (although we recognize this would take time and resources to complete).

Recommendations for BayREN (Broadly)

To help screen those who contact Energy Advisors and provide a resource that Energy Advisors can point to:

- **Continue to improve the residential pages on the BayREN website.** BayRENresidential.org was relaunched in May 2021. Energy Advisors mentioned that the Find-a-Contractor tool has been very useful. They recognize that improvements to the website are in progress, but they recommended that BayREN add information that could support their efforts. The BayREN web development team could consider:
 - Adding clear information on what qualifies for a BayREN rebate (and requirements such as using program contractor, where relevant)
 - Adding the ability to click on the counties and get to county-specific programs. Note that you can get redirected to a county specific sustainability page.
 - Adding a “what I am interested in” field to the form to have an Energy Advisor contact them
 - Adding information on HPWHs, insulation, and heat pump system sizing (and links to related pages as needed). This is currently only found on pdfs, according to Energy Advisors.

BayREN could also consider putting a table on the website to ask, “where are you in this path?” (as described below) showing them what they should do based on where they are in the path, as well as a table that could convey typical interactions with an Energy Advisor. (See examples below.)

Table 2. Where are you in this path?

Where are you in the path?	What you should do...
Not sure what to do but interested in savings energy	Fill in our online audit, receive kit, and see if an Energy Advisor may be able to help
Considering a project	Check [insert link to start screen for EA] for eligibility
Need help identifying contractors	Use BayREN’s contractor tool to identify participating contractors
Need support evaluating contractor bids to see if they are efficient	Contact an Energy Advisor
Already installed project	Consider future BayREN project

Table 3. Example Interactions with Energy Advisor (and length of time) for a Typical Project

	Typical Interactions with Energy Advisor	Timing
Step 1	Determine project or that homeowner needs help selecting a specific energy saving project	Prior to contacting Energy Advisor
Step 2	Reach out to Energy Advisor for guidance on project	Week 1
Step 3	Receive list of contractors or use the contractor tool to identify contractor	Week 1
Step 4	Contact contractor	Week 2
Step 5	Get bid or estimate from contractor	Weeks 3-4
Step 6	Review estimate (sometimes with Energy Advisor)	Week 4
Step 7	Go back to contractor with questions	Week 5
Step 8	Schedule work with contractor	Can take a few weeks to get on the contractor's schedule
Step 9	Permitting	Can take a month
Step 10	Contractor submits application for homeowner	
	Total	3-4 months

BayREN may also want to meet with Energy Advisors annually just to discuss possible improvements.

Other

The Energy Advisors also have a resource that could serve as a broader resource for the counties (with additional effort/support). Energy Advisors currently update and maintain a referral database (i.e., the “solutions” tab within Salesforce). Within that, they track federal incentives, water rebates, PG&E rebates, CCA rebates, solar rebates, available financing, etc. This database is delineated by county and by energy-related topic. It is currently proprietary (so would require additional discussions/support), but it could be exported, by county, with links, as a resource for counties. Counties could also update periodically if they know of other programs. While this resource may not be 100% accurate due to continuous changes in California’s programs, it is updated regularly by the Energy Advisors since they actively use this – that is, they use it on a daily basis.

As part of this evaluation, our next steps are to follow up with those who contacted the Energy Advisors, Green House Call participants, and homeowners who received Home+ rebates. (See Single Family Memo 2.)

Attachment

Origin	Leads (2020)	Accounts (from 2020 leads)
Web	562	244
Phone	551	198
Email	221	76
Completed Audit List*	149	25
Marketing Event List	77	1
Contractor Lead List	22	9
Other	1	1
Leads (created date)	1,583	554
*This includes GHCs and some online audits. Some other online audits have an origin of phone or web but are listed as "BayREN Online Evaluation" under the lead source field.		

Single-family Memo 2 (July 2021)



Home+ - Participant Surveys July 2021

Approach

Grounded Research is providing this memo as early feedback to the program administrator/implementation team. This memo provides a quick overview of key survey findings based on analysis of the Home+ online survey data.

Grounded Research gathered data from three groups: Home+ rebate recipients, users of the Home+ Energy Advisor services at the “Account” level¹, and Green House Call participants. All data was collected in June 2021.

Table 1. Home+ Online Survey Efforts

Participant Type	Total Population 2020	Sample for Survey (after removing duplicates, crossover* and emails that bounced)	Respondents**	Response Rate
Rebate Recipients	1,845	1,736	364	21%
User of Energy Advisor Services (at the “Account” level)	546	433	120	28%
Green House Call Participants	1,793	1,748	141	8%

*Note that 108 users of the Energy Advisor services were removed from the Energy Advisor survey because they also received a Home+ rebate and were sent a Home+ rebate recipient survey. Nine Green House Call participants were also removed for this reason.

**Note that the number of respondents is based on the total number responding to the survey.

The first 100 respondents for each survey effort were entered into a raffle. 10 of the first 100 received \$25 e-gift cards. Given the limited sample, an additional \$10 incentive was used to encourage 35 additional responses to the Energy Advisor survey. One reminder was sent to each group to improve response rates.




We first provide a cross cutting look at the three survey efforts. We then describe each of the three program efforts. This memo represents a quick review of key questions. Note that the evaluation team made small adjustments to the original memo to ensure clarity for a broader audience.

¹ When Energy Advisors deem a call or email to be a good candidate for advisory services, they move them from a “Lead” to an “Account.” Many people who contact the Energy Advisors are looking for something other than what is offered by the service (e.g., information about an upcoming event, rebates for solar, etc.). Energy Advisors still assist Leads, but they do not move them to the Account status.

Overall Home+ Summary

Satisfaction was high across all program elements. Participants in each of the Home+ offerings indicated that the program helped them to save energy and provided non-energy benefits. In particular, Green House Call participants perceived greater health and safety benefits than those in other channels (see grey in table below), and nearly all Green House Call participants also indicated that they received energy or bill savings as a result of the program – looking almost like rebate recipients in terms of the questions that we asked. Notably, the participants in Green House Call tend to represent a lower income population.² Satisfaction and value by program element are shown in the summary table below.

Table 2. Overall Satisfaction By Home+ Program Elements

		Home+ Program Elements		
		Rebate Recipients	User of Energy Advisor Services (at the “Account” level)	Green House Call Participant
Overall satisfaction satisfied or neutral (very satisfied in parenthesis)		98% (83% very satisfied)	90% (64% very satisfied)	95% (57% very satisfied)
VALUE PERCEIVED BY PARTICIPANTS	Took energy saving actions	100% received a rebate	65% took action – most outside of the Home+ Program	Nearly all received a kit and installed at least one item
	Energy and bill savings 	90%	69%	92%
	Improved indoor air quality 	57%	41%	56%
	Other health benefits	42%	33%	79%
	Improved safety	32%	30%	82%
	Targeting of a specific HTR or underserved audience 	42% low or moderate income 30% speak language other than English at home	37% low to moderate income 34% speak language other than English at home	60% low or moderate income (program data) 34% speak language other than English at home 11% renters
Opportunities		Some missed or future opportunities since many expressed interest in BayREN offerings (outside of the one where they recently received rebate).	Very aware of BayREN and the opportunities offered by BayREN, but many appear to be taking action outside of BayREN programs.	Low awareness of BayREN. While many might not be the right targets for the current Home+ rebates, GHC participants expressed interest in BayREN offerings and could benefit from being made aware of BayREN’s website.

² This is based on the program tracking information, which gathered extensive demographic information in the Green House Call survey.

Our surveys also support the program theory that contractors play a large role in program marketing and delivery of Home+ rebates. While satisfaction with contractors is generally high (~90% either somewhat or very satisfied with contractor interactions), there were several comments from both participants and users of Energy Advisor services related to the knowledge and availability of contractors associated with BayREN's Home+ program.

The following sections provide further details on the:

- Home+ Rebate Recipient Findings
- Energy Advisor Findings
- Green House Call Findings

Home+ Rebate Recipient Findings

The program is leading to energy and non-energy benefits, and participant satisfaction was extremely high. There are still some concerns about contractors, and there may be opportunities to reach back out to participants for further savings through the Home+ program.

VALUE

Home+ is Saving both Energy and Money

The Home+ program is helping households save energy – and making households aware of energy saving opportunities. (Note that all received rebates for energy saving equipment.)

- 90% indicated that they received help that resulted in energy or bill savings (i.e., they mentioned at least one of the following)
 - 81% indicated that they saved money
 - 69% indicated that the program helped them take energy saving actions
 - 68% indicated that they reduced energy use

Improving Air Quality. Leading to Healthier Homes. Increasing Safety.

The Home+ program is also assisting with several non-energy benefits.

- 57% indicate that the program led to improved air quality
- 42% indicate that the program led to improvements in the health of their family
- 32% indicate that the program led to increased safety

Serving Middle Income Less Than Half the Time

While the Home+ program is helping some households that are low to middle income, it does not seem to be focused on this group since fewer than half (see bullets below) fall into this category. Of those who responded to the income question in the survey (about 75% of total respondents), we found that:

- 42% indicated that their total household income was less than \$120K so would fall into a category of low to middle income
 - Note that this appears to be higher than the values that the evaluation team saw in an early version of the program's PowerBI dashboard (March 2021), which indicated that roughly 30% of those responding to the income question fell into the category of less than (<) \$125K. (PowerBI data was available for 61% of the population, with 39% declining to provide this information.)
- 58% were higher income households (and perhaps up to 70% if all those who did not respond to the question were higher income households).

SATISFACTION

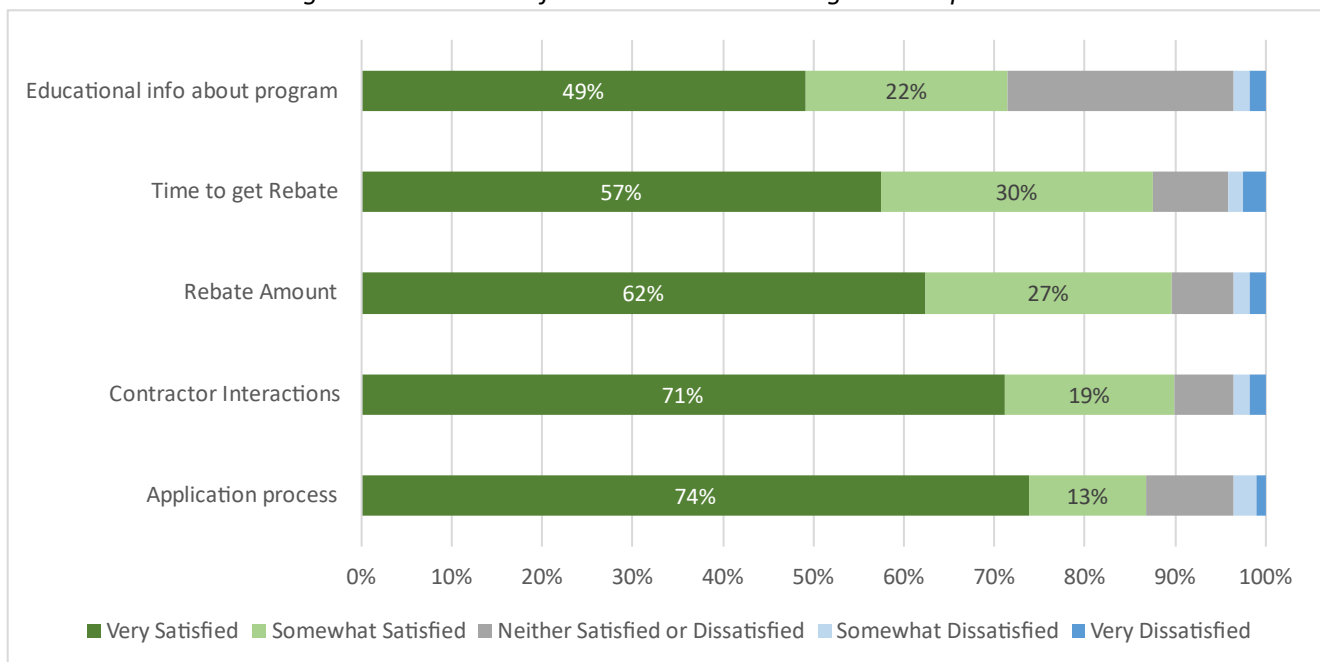
Rebate Recipients Express High Satisfaction

- Satisfaction with the Home+ rebate effort is very high. 98% of rebate recipients stated that they were either satisfied or neutral with the services - with 83% very satisfied, 12% somewhat satisfied, and 3% neutral.
 - **Satisfied because it is easy to participate, and participants save money.**
 - Most respondents mentioned how everything went as expected (or better). "The process was seamless and met expectations." "Good communication and timely payment." "I got the rebate amount that I expected in timely manner."
 - In some cases, the contractors are the ones that made it easy to participate and influenced satisfaction. "The companies I worked with were well informed about the program and how

to fill in the paperwork and submit.” (Notably, however, contractors also often led to dissatisfaction, discussed further below.)

- **A very small percentage of respondents are dissatisfied (~2%).** Their reasons for dissatisfaction are described below.
 - Did not see expected results. “Noise volume remained the same, heat loss remained the same, and coolness remained the same. In other words, no changes only out a grand.”
 - Delays with rebate. “The contractor took months to upload our documents to BayREN, which delayed our rebate. This was during COVID, so the delays were perhaps understandable.”
 - Did not get the rebate, ineligible or lower amount than expected. “The contractor listed on the BayREN website had apparently stopped working with BayREN so I wasn’t able to get the rebates.” “We never received a rebate because it took so long for BayREN to get back to us that we had the work done prior to ever hearing back.” “When I bought my new air conditioner I was told I was to receive a rebate of \$800 and did not receive that amount.” One also mentioned almost missing out on the rebate: “Photo of the capped gas line was not listed as one of the items needed so we had to pull the stove out again to get a photo - if the contractor hadn't come back to fix something else this would not have happened, and I'd have been ineligible.”
- **Satisfaction was also very high when we explored satisfaction with the various elements within the rebate program offering.** (See figure below.) 90% of participants stated that they did not run into any problems with the program. Those that did run into problems, however, sometimes indicated that it had to do with their contractor (even though most were somewhat or very satisfied with their contractor interactions (~90%).
 - Very few participants are dissatisfied with any component of the rebate program; however, information educating them about the Home+ program received a lower satisfaction rating than other program elements, which is consistent with information showing that most rebate recipients are not aware of the breadth of BayREN offerings.

Figure 1. Home+ Satisfaction with Various Program Components



CONTRACTORS

Contractors Play A Critical Role

- **Large majority (70%) found out about the program from contractors.** 70% of participants found out about the program from the contractor (while 12% found out from the website and 5% from Energy Advisors).
- **Overall satisfaction with contractor interactions was nearly 90%.** Some of the high satisfaction was due to the contractor. As described above, 89% were satisfied (and another 7% were neutral).
 - “The companies I worked with were well informed about the program and how to fill in the paperwork and submit.” “High rating is mostly due to the company who performed the services, McHales Insulation, because they completed much of the form and submitted it as well. Very easy for me!” But contractors also often led to dissatisfaction.
- **Only 3% of participants were dissatisfied with their contractor.**
 - A few of those who were dissatisfied with their contractor attributed it to the “Limited selection of contractors; lack of comprehensive home energy contractors.”
 - Some mentioned difficulty getting through the program process. Problem was “[this was a three] way interaction me <—> BayRen <—> contractor <—> me.” “Getting the contractor to fill the rebate form.” “Contractor was very expensive and gave conflicting information. Then they did paperwork wrong, and rebate was sent to me. Had I not told them of their mistake, we could have kept rebate and they would never have known. Perhaps you should send this survey to contractor since in the end, they got the rebate. It was a very expensive and disappointing experience but I’m glad that I have a HPWH. Our next purchase will be a mini split heat pump for space cond. Will want to work with BAYREN then but with a different contractor.”
 - Other comments were just general dislike of the contractor that they worked with. “I didn’t like the contractor used for the water heater replacement. I would rather have chosen someone else.”

OTHER CHALLENGES

- 10% reported some kind of challenge with the program. Often this was related to the contractor (discussed above), but others reported challenges or problems included:
 - Comments about what qualifies. “Clarification of what contractor’s “air seal” is vs. BayREN’s version of “air seal” for rebate approval.”
 - There were also several comments specifically related to electrification and how the program did not provide enough for electrification measures³. Many of the comments appear to come from respondents who would have installed the measure anyway (so might have been considered a free rider), but their comments seem to indicate that early adopters do not feel like the incentives are high enough, which may indicate that they won’t be high enough for the large majority.
 - “Rebate amount (HPWH) does not provide proper incentives to promote electrification.”
 - “Did not get rebate for gas --> electric conversion” and “heat pump water heater too noisy, had to be replaced. AC leaking.”
 - “It was a bit difficult to determine if switching from a gas space heater to an electric heat pump would qualify for a rebate. It did not, which I still don’t understand but somehow it was about having to switch from one thing to another within the same technology (e.g., inefficient to more efficient gas heater) - I don’t recall exactly but it seemed unintuitive and not helpful.”

³ Note that a couple of Energy Advisor respondents mentioned similar comments, such as “I have an old gas furnace and I’m replacing it with a high efficiency electric heat pump HVAC and you all don’t provide a rebate because the heat pump includes AC. Totally absurd.” “unfortunately, rebates for ducted mini splits are not available, and that seems to be the preferred option for local contractors. So, I wasn’t able to take advantage of a rebate for my gas to electric hvac switch.” “Allow rebates for heat pumps for homes that have an existing gas furnace but don’t have an existing AC.”

- “We received a rebate on reinsulating our attic but not on getting a heat pump which replaced a gas furnace. I thought the heat pump would have gotten a rebate especially considering it was very expensive.”
- “I converted from gas to all-electric and did not qualify for thousands.”

POSSIBLE SAVINGS BEYOND THE RECENT REBATE

Beyond the savings from the rebated measures, the survey did provide some indication of possible additional energy saving actions that are occurring – some of which are a result of the program and others that may not be.

- 68%⁴ said that they went on to take other low-cost actions after receiving the Home+ rebate.
- 32% said that they installed energy savings measures outside of the program (although there may be some overlap with the program measures since these installations were not verified onsite).
- 26% said that they were referred to other energy-related programs.
- Many are installing items that are also provided in the BayREN kits (although only a small percentages of rebate recipients, ~16%, report getting a kit).

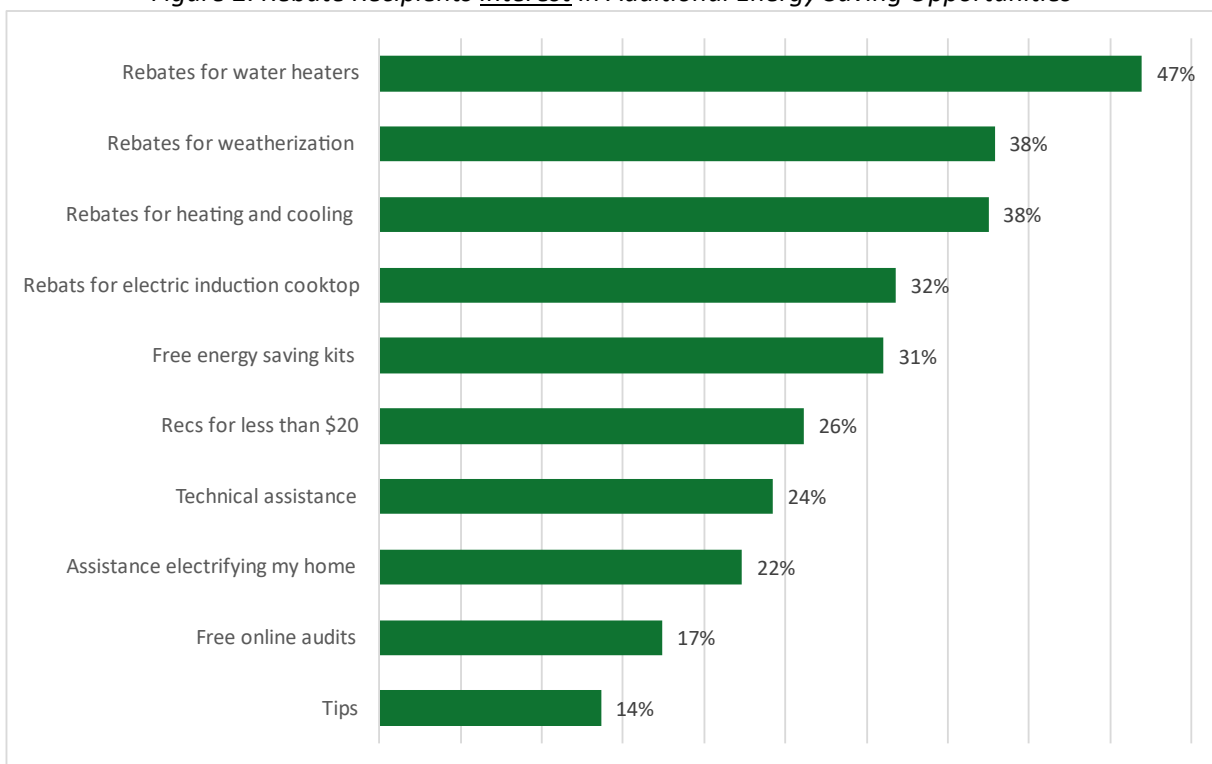
⁴ These percentages are based on a total base of just over 270 respondents, that is, 270-275 responded to these questions.

ADDITIONAL ENERGY SAVING OPPORTUNITIES

While Home+ is leading to savings both in and out of the program, there may be some missed opportunities. Even among participants, many are not fully aware of BayREN offerings. As might be expected, recipients of rebates tend to be more aware of the variety of rebates offerings (since they received one of the rebates) but less aware of BayREN's other services and the newer induction cooktop rebates. Awareness of traditional rebates ranged from 44% for water heaters to 79% for heating and cooling equipment. Some 38% are aware of kits, 31% are aware that Energy Advisor services are available. Awareness of rebates for electric induction cooktops was among the lowest⁵, with 28% aware that BayREN offered this option.

Participants expressed interest in other energy saving opportunities that are offered through the program, which could be used to explore future savings and/or may indicate saving opportunities that are being missed. (See figure below.) Respondents were asked, "What would help you save energy in the future? Please select all that are of interest to you. If you are no longer in need of any services, indicate "none of the above". Their interest level, by offering, is shown below.

Figure 2. Rebate Recipients Interest In Additional Energy Saving Opportunities



⁵ Only awareness of the free online audit was lower (23% of participants were aware that BayREN had this offering).

Energy Advisor Findings

About two-thirds of those who interact with Energy Advisors at the “Account” level go on to take energy saving actions; however, most take actions outside of the Home+ program. Satisfaction was extremely high, however, several did mention that some of the information is confusing, while recommending changes to the format (or clarity) of the information that was provided to them.

VALUE

Energy Advisors Are Encouraging Savings – but Often Outside of Program

The Energy Advisor services are helping to encourage energy saving.

- 79% made aware of energy saving opportunities
- 69% indicated that they received help that resulted in energy or bill savings (i.e., they mentioned at least one of the following)
 - 63% indicated that the program helped them take energy saving actions
 - 52% indicated that they saved money
 - 49% indicated that they reduced energy use
- 65% of those who reach the Account level indicated that they made changes to save energy in their home as a result of their interactions with the Energy Advisors. Many of these changes occurred outside of the program.
 - 22% received rebate from BayREN for the change they made
 - 43% took action outside of the BayREN program
 - Of those who took action outside of the program, they mentioned installing more efficient furnace and AC, installing heat pumps, installing new water heater, weatherizing their home, and some conservation activities.
 - Among the roughly five who mentioned installing a heat pump outside of the program, one seemed to have solar panels “Needed to replace HVAC equipment and BayREN contact helped me decide on air sealing. It did not help me decide whether to replace furnace & AC or get a heat pump... I could not sort out if I had enough solar panels to power them. Could not sort out mini split vs. other type of heat pump, etc.”

Improving Air Quality. Leading to Healthier Homes. Increasing Safety.

Interactions with Energy Advisors is also leading to several non-energy benefits.

- 41% led to changes that improve their indoor air quality
- 33% led to changes that improved the health of their family
- 30% led to changes that increased their safety

Supporting Energy Saving Actions

In addition to direct savings, Energy Advisors also help households connect to services that will enable them to take action.

- 52% helped me find a contractor
- 46% referred me to other programs
- 5% helped me access financing

SATISFACTION

Users of Energy Advisor Services Express High Satisfaction

- Satisfaction with Energy Advisor services was high. 90% of users of Energy Advisor services stated that they were either satisfied or neutral with the services - with 64% very satisfied, 21% somewhat satisfied, and 5% neutral.
 - For those who were satisfied, they mentioned how knowledgeable and helpful the Energy Advisors were. Comments were extremely positive. Several of the Energy Advisors were referenced by name.
 - “The person I've been talking with is highly knowledgeable and has been extremely helpful.”
 - “Knowledge and compassion in addressing my needs. Excellent customer service.”
 - “Wonderful to get free, sound technical, environmentally responsible advice in an area that requires deeper knowledge than I can acquire quickly.”
 - “BayREN advisor was able to answer my questions during my AC installation, clarified what rebates I was eligible for and why I was not eligible for others.”
 - “The person who explained the program, did so clearly and spent the time to make sure I understood the options available to me.”
 - Many received the services that they expected “I received individualized assistance, scheduled telephone check-ins, detailed answers to my questions, advice on vendors and options to consider to promote energy efficiency in my home.”
 - **About 10% expressed dissatisfaction with the services.** A few mentioned that they had not connected with the Energy Advisor “After scheduling an appointment, advisor had to reschedule and then never bothered schedule a follow up appointment.”
 - “Very difficult to find information about the programs and how they work in real life.”
 - “The advisory service is ok but the program is not good as you cannot save anything on the upgrades due to the nature of the program. the contractors might make more money.”
 - “Rebates are ridiculously unwieldy and exclude some of the key systems consistent with goals (heat pump HVAC).”
 - “Where is my free energy kit? I am still waiting!”
 - **A slightly higher percentage, 12% felt that the Energy Advisors provided too little support** (about half of whom were somewhat satisfied and half of whom were neither). Among those who felt that the Energy Advisors offered too little support, they mentioned the following:
 - “I would have liked more information regarding resources for low income senior citizens.”
 - “Not as familiar with various heat pump HVAC system as I would have liked, and did not respond to a subsequent email with questions I had a few months later. But hard to complain when the service is free.”
 - “Lot of the conversation resulted in “this is subjective.”
 - “Insufficient information re. finding contractors on your web site and inconsistent call backs.”
 - They haven't followed up on the evaluation yet.
 - Many contractors listed on site don't service my area, but says they do
 - **13% experienced problems** generally related to delays in being contacted, kits not being sent or contractors.

SUGGESTIONS FOR INFORMATION PROVIDED BY ENERGY ADVISORS AND EXPANDED CONTRACTOR SERVICES

Some Suggestions to Improve Information Provided By Program

- Several participants made suggestions to streamline and improve the information that the Energy Advisors are providing to users of the service.
 - “The advisor was friendly and tried with earnest to help me sort out my options, but the info was confusing and difficult to sort through. A more structured approach would have been more helpful. For example, the rebates kept changing and it was not clear what I did vs. did not qualify for.”
 - “Not entirely clear about available rebates.”
 - “I was happy with the consulting services provided, the friendly contact, the write ups as well as the free equipment provided. The only reason I am giving less than a perfect score is that the savings kit has not make a difference for us and contains some questionable products. Overall, I would prefer a more low hanging fruit driven approach ("do these 3 things this first").”

Program May Also Want to Explore Contractor-Related Concerns

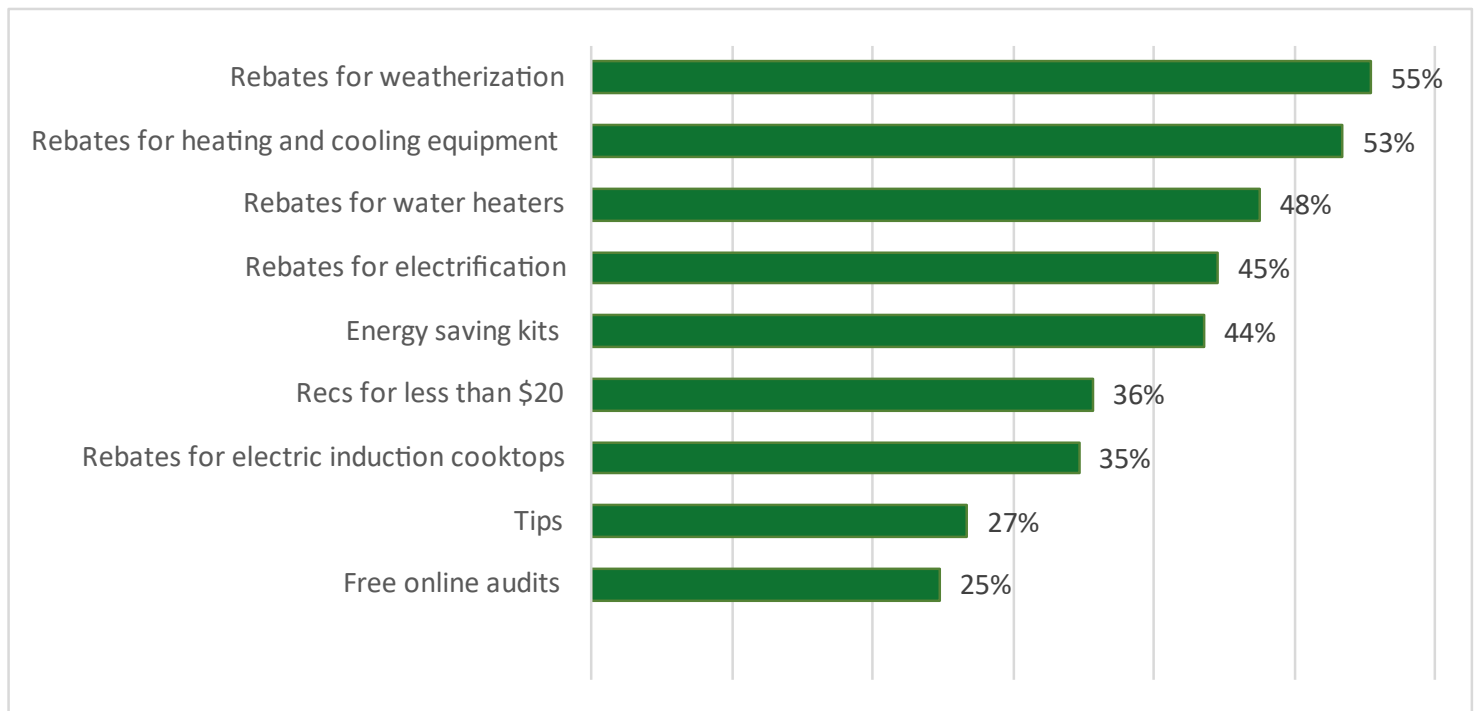
- Contractors were also mentioned by participants on several occasions (without prompting).
 - “Please do not tie the program to specific contractors. All participating contractors are either not available or too expensive. I did everything through my general contractor and was not able to take advantage on anything in this program. Terrible decision to make this program available through specific contractors. Terrible experience and waste of my time assisting BayREN.”
 - “Was given many Santa Clara contractors that would not service my area The energy consultant was helpful but some of the BayREN contractors weren’t great.”
 - “I wish I had known the list of recommended contractors I got was not exhaustive of those available in my area.”
 - “Was not provided with good contractors that would service area of Daly City.”
 - “Make sure contractors required by the program are affordable and service all areas. the one option that came back was incredibly expensive. so I'm going to go outside the program for cost savings.”
 - “Allow a wider choice of contractor to get the rebate. The ones on your list for hvac were too booked and expensive to work out for me so I didn't get the rebates.”
 - “Some of the contractors on your list seem to want to upcharge for unnecessary things. Catwalk in attic etc.”

ADDITIONAL ENERGY SAVING OPPORTUNITIES

Those who interacted with Energy Advisors tended to be much more aware of BayREN offerings than rebate recipients. Awareness ranged from 60% aware that BayREN offers rebates for induction cooktops to 83% aware that BayREN offers rebates for heating and cooling. As such, Energy Advisors appear to be doing a great job letting those who they interact with know about BayREN's offerings.

Many expressed interest in rebates that they had not yet taken advantage of (see figure below), indicating that it may be worthwhile for Energy Advisors to follow up with Account level respondents. (Note that the early findings memo delivered in May outlined some of the challenges that Energy Advisors have had with follow up activities, while also noting that this had improved by Q2 2021.)

Figure 3. Energy Advisor User Interest In Additional Energy Saving Opportunities



Green House Call Findings

While Green House Call participants appear to be receiving a lot of benefits from the program, there is not a lot of awareness of BayREN or the Home+ program offerings. There is an opportunity to better utilize the Green House Call Program to educate households about BayREN and the rebates and services available from Home+ so that if they are in need of services at a later date, they know that BayREN has programs that can help them save energy.

VALUE - ENERGY SAVING ACTIONS FROM PROGRAM INTERACTIONS

Nearly All GHG Participants Saved Energy

- Green House Call participants report saving energy based on their interaction with the program (including installation of items in the kit and beyond). Nearly all (92%) expressed that their interaction with the program led to energy savings. Many also expressed that their interaction with the program led to non-energy benefits (i.e., improved safety and health).
 - 92% energy savings
 - Nearly all (99%) recalled receiving a kit and all but one person who responded to the questions about the kit installed at least one of the measures in the kit.
 - **There were some barriers to installing kit measures.**
 - Some issues with receiving the kit, although for a small minority of respondents. Barriers included:
 - Bulbs – not bright enough
 - Aerators – not compatible with kitchen sink or showerhead, didn't fit
 - General – already had some of the items/we don't need them
 - Comments from respondents also indicates that these homeowners are installing and making changes.
 - "The energy efficiency kit was great! I am currently using almost all of the items I received, and they have definitely helped make my home brighter and more sustainable."
 - "Not only saving money for homeowners, it provides impetus for change, for example I've changed more lights, which were not covered by this program, to LED."
 - "I took over management of the house under a trust - your lights helped me make a divet in the PGE cost, and I used your suggestions (Nest, etc.) at another home, which has significantly dropped my monthly bill."
 - "I left the lights at [street address], but did take photos of some of them to order for use in my other home."
 - "I save my electricity bill significantly now."

Very High Levels of Non-Energy Benefits

- GHC Participants expressed very high levels of non-energy benefits – higher than those expressed by participants in the other program elements. Non-energy benefits included:
 - 82% increased safety
 - 79% improved health
 - 56% lead in improvements in home's indoor air quality

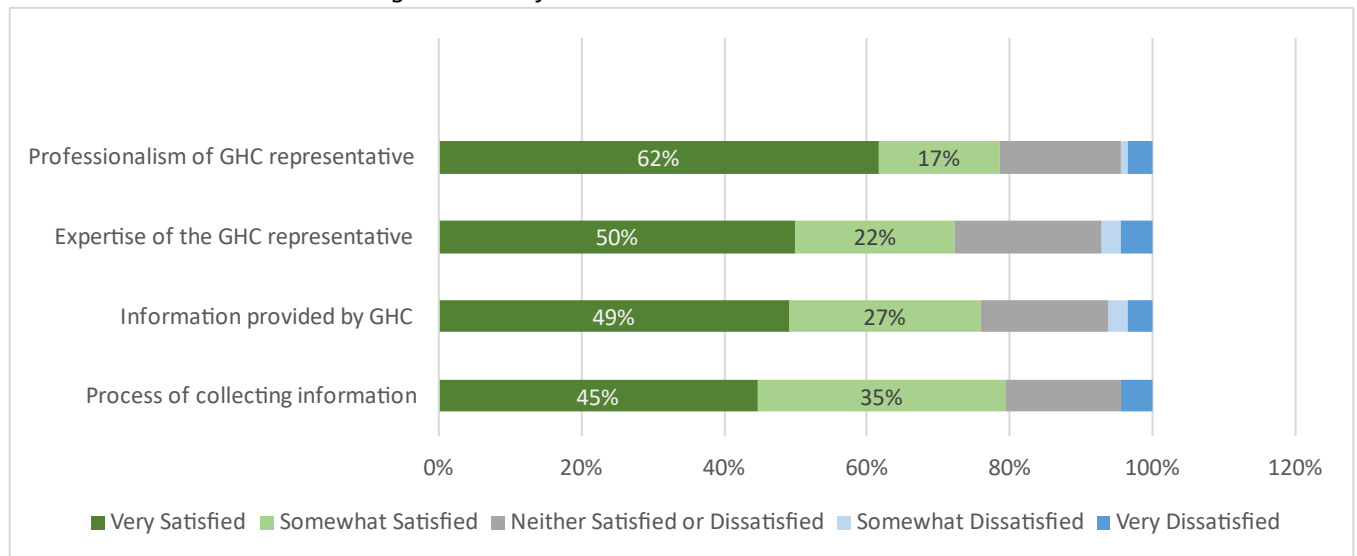
SATISFACTION

High Satisfaction Among GHC Participants

- Satisfaction with Green House Calls was high. 95% of Green House Calls indicates that they were either satisfied or neutral about the Green House Call program - with 57% very satisfied, 22% somewhat satisfied, and 16% neutral.

- For those who were satisfied, they mentioned “excellent projects and service.” “easy process,” “high quality items and useful tips” or “the kit had way more than I thought.” There was some mention of the kits arriving late (while still expressing that they were satisfied): “package was more than what I expected and considered things I had not considered for energy savings. It was many months late but I assume that was due to COVID.” Or “My package had shipped but it never got delivered. I had to email and ask the team. I suggest the team notify the recipients earlier.” Others went out of their way to complement the program and the Rising Sun representatives:
 - “It’s a wonderful program! Thank you for introducing me to simple ways to make my home more efficient.”
 - “Your representative was very professional, polite and helpful.”
- A very small number (7 survey respondents in total, or 5%) expressed dissatisfaction.
 - For those who expressed dissatisfaction, a couple of respondents indicates that they received the package but that “no one ever came or scheduled the appointment.” One respondent expressed that the program “never finished” and that she was still waiting for someone to come. Some indicated that they didn’t have use for a lot of the items in the box or that the items in the box are duplicative of other programs and that BayREN could provide other services like help establishing gray water savings or items such as clothes lines.
- **Note that 9% of participants expressed that they experienced some kind of a problem.** Problems included having to call a few times before the kit was sent, slow responses, and broken items. “No home evaluation. No follow through. Now we are ineligible?” and “Failure to connect with the agent personally as COVID prevented that.”
- **Satisfaction with the process of collecting information about their home, Information provided, the expertise of the GHG representative, and the professionalism were all very high – that is, dissatisfaction was roughly 5-6% in each case.**

Figure 4. Satisfaction with Green House Call



AWARENESS OF BAYREN WEBSITE AND OFFERINGS

There are Opportunities to Educate about BayREN and Home+

- There is an opportunity to better utilize the Green House Call Program to educate households about BayREN and the rebates and services available from Home+.
 - **Only 21% indicated that their Green House Call representative referred them to other programs or resources.**

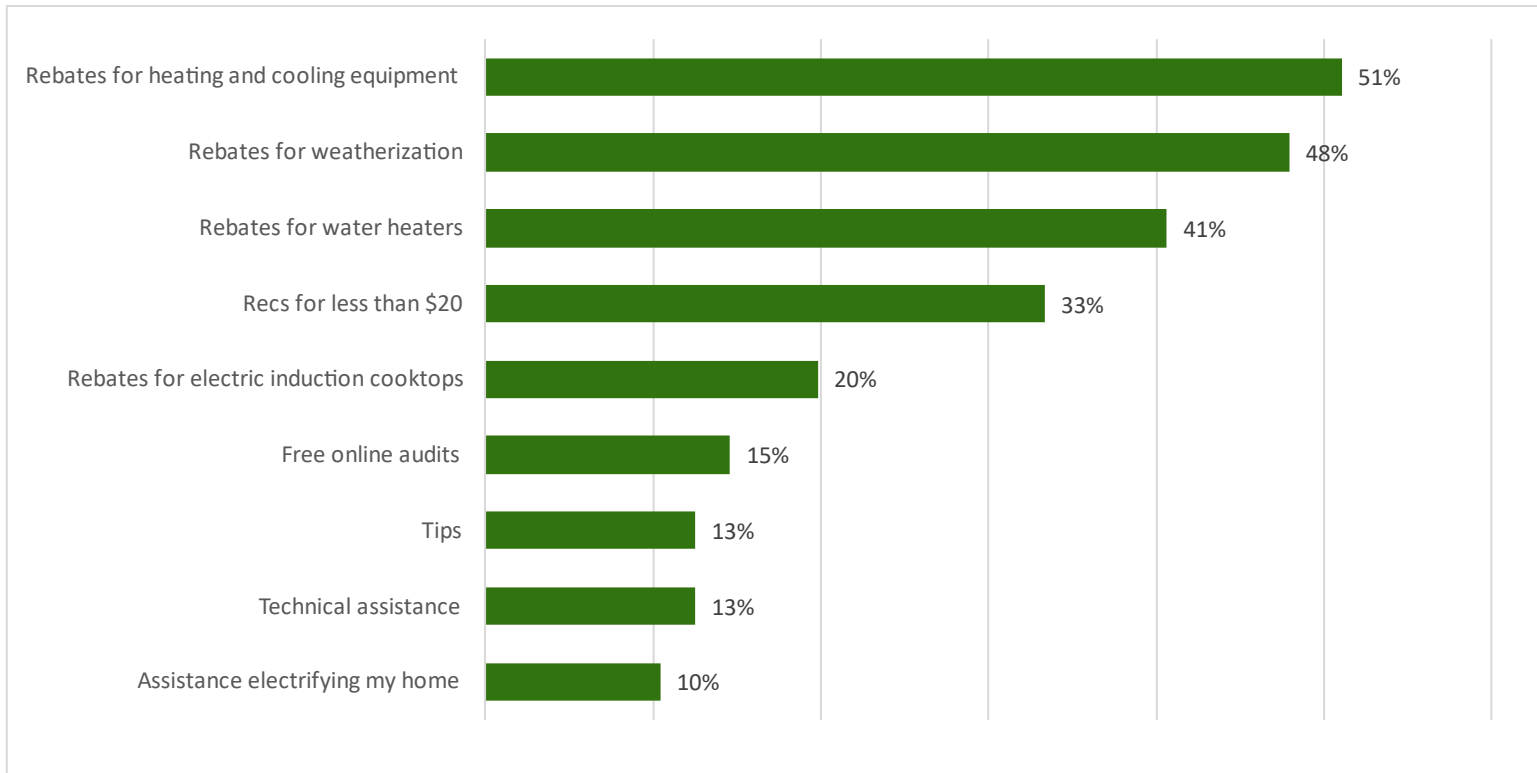
- Of these, only one mentioned Home+. One mentioned HomeIntel. Most others could not remember.
- **About 1/3rd (or 32%) had some familiarity with BayREN, while the majority were not aware of BayREN even after their Green House Call**
 - 23% of Green House Call participants had been to BayREN website

ADDITIONAL ENERGY SAVING OPPORTUNITIES

Many are not fully aware of BayREN offerings. When asked what additional services they were interested in, households were most interested in rebates.

Notably, only 13% felt that they wanted technical assistance from an Energy Advisor.

Figure 5. Green House Call participant Interest In Additional Energy Saving Opportunities



Other comments about what services Green House Call participants desire included:

- “Help with leaky windows, add retractable clothesline, help with reusing gray water from shower and washer
- “I help to promote BayREN program in Chinese community before the pandemic. Lots of people told me the program, energy upgrade California was good plus have the rebate, the problem is even after rebate the price people did on the items they upgraded is 20% more than the market price. Maybe the contractor join the program quote more? I like to have heat pump installed, can you give me some contractor information? Thanks”
- “Educational info on why electric for cooking saves energy; gas is better for cooking-ask any chef.”
- “EV Car charger rebates.”

One did mention that the information seemed to be too generic to be of use.

Appendix – Data Collection Instruments

There are eight different data collection instruments in this appendix. They are provided in the order shown next:

Multifamily (MF) Instruments:

1. MF PM Interview Guide
2. MF Technical Assessors Guide
3. MF Other Electrification Program Managers Guide
4. MF Participant Online Survey

Single Family Instruments

1. Energy Advisor Guide
2. Energy Advisor Participants Online Survey
3. Green House Call Participants Online Survey
4. Home+ Rebate Recipients Online Survey



Grounded Research is interviewing multiple people involved with the BAMBE implementation. We plan for three distinct interview guides for 1) BAMBE program manager and subcontractors, 2) technical assessors at Frontier and AEA, and 3) program managers involved with electrification programs other than BayREN.

Interview Guide for BayREN Program Manager and Subcontractor(s)

~45-60 mins.

These discussions will touch on three main areas – the CHP pilot, customer experiences, and program processes.

CHP Pilot

These questions focus on lessons learned from the CHP pilot and future plans.

- Is the level of CHP participation about what you expected for 2020? (we see 3 sites, 20 units, out of 36 who are part of the CHP).
 - What has been the biggest hurdle for customer participation in the CHP pilot?
 - What worked for you to bring in the CHP sites that you did? Does it seem that whatever worked for these three sites are applicable for others?
- What would you want to say to someone embarking on this type of pilot to help them? That is, what lessons did you learn that you would do differently?
- Do you have any mid-pilot changes planned?
- You have many different decarb measures in the CHP. Do you see others being added in the near future? Any that you feel you may drop?
- Are you working with the local CCAs to help obtain CHP participation? If so, how is it working out?
- Are you seeing other programs (e.g., CCAs) offer any demand controls measures for heat pumps or other offerings that promote clean, resilient housing?

Clean Heating Incentive Levels	
BAMBE Rebate	Rebate
Reduce >0.25 tonnes CO2 per unit	\$750 per apt in building
Electrification Adders	Rebate
In-unit Measures	
In-unit Heat Pump Water Heater	\$1,000
In-unit Heat Pump HVAC	\$1,000
In-unit Laundry Dryer	\$250
In-unit Electric Cooking	\$350
Central System Measures	
Central Heat Pump Water Heater (2-18 apts served)	\$800 per apt served
Central Heat Pump Water Heater (19 or more apts served)	\$15,000
Central Heat Pump HVAC	\$800 per apt served
Common Area Measures - these require an additional measure from the BAMBE "core" list	
Common Area Heat Pump HVAC	\$1,000
Laundry/Common Area HP Water Heater	\$1,000
Heat Pump Pool Heater	\$1,500

Customer-Level Questions

These questions aim to understand what is working well for customers in both the traditional and CHP paths, where they see customer challenges, as well as any suggested updates to processes.

- How often do you interact directly with customers?
- Can you describe the typical customer interactions you have?
- What aspects of the program do you think work well for the customer? Where do you see customers having challenges? (both for the regular and CHP paths)
- How involved are you with the technical assistance provided to customers? (if involved, ask:)
 - What aspects of the technical assistance seem most valuable to customers?
 - Do you see areas where your customers are confused about the technical assistance provided to them?

- If you could ask the customer one thing, what would you want to know? *(we may add to the customer survey)*

Program Specific Questions

If these questions have not been discussed above, we will ask about:

- How did COVID affect your program in 2020? What adjustments (if any) did the program make in 2020 to accommodate the pandemic restrictions?
- Do you feel you are serving your local difficult to serve population? If not, what do you need to better target and/or serve them? Or, who are the LDTS population if not these folks?
- Thinking about the program overall, what is working well?
 - Where do you see challenges?
 - What do you think could be changed (or simplified) to encourage more participation?
- Now thinking about your role within the program, what is working well for you in your role? Where do you have challenges?
- How well are communications with others in the program working for you? Would you call it effective communication? What would you want to know more of (if anything)?
- If you could change anything about the current program processes, what would it be?
 - What steps tend to take the longest and why?
- Any new small trials you are trying out?
- How long do you expect to use the CEC funds to help with the MF benchmarking?
- Do you expect to make any big changes in the next year within the program?
- The MTC website describes BAMBE within its Equity Pillars in Action because of offering to your LDTS group. Any other aspects of the MTC equity platform that you feel BAMBE supports?
 - According to the MTC website, “The Equity Platform looks inward as well as outward, to elevate groups and programs that help lift us all. When communities support those who need it most, when we create the circumstances that allow those who have been left behind to participate and contribute fully, everyone wins.”

Wrap Up

- Anything in particular you want to tell us about the program that we have not covered?



Grounded Research is interviewing multiple people involved with the BAMBE implementation. We plan for three distinct interview guides for 1) BAMBE program manager and subcontractors, 2) technical assessors at Frontier and AEA, and 3) program managers involved with electrification programs other than BayREN.

Interview Guide for Technical Assessors at Frontier and AEA

~30-45 mins.

These discussions will touch on two main (but related) areas – the customer experience and details around the move to the CPUC’s new custom project requirements for BAMBE level projects. Additionally, we will ask a few program specific questions.

Customer-Level Questions

These questions aim to understand what is working well for customers, where the TA sees challenges, as well as any suggested updates to processes.

- How often do you interact directly with program customers? Do you tend to have occasional discussions with each customer or multiple discussions with the same customer?
- Are there certain types of customer who seem most interested / not interested in program offerings? *(Probe for reasons by property size, affordable housing, resident-owned, etc.)*
- Can you describe the typical customer interactions you have?
- What aspects of the program do you think work well for the customer?
 - Where do you see customers having challenges?
 - What processes do you think could be simplified for the customer?
 - What are the customer responses you see to the regular and CHP components of the program?
- Do you have ideas of how to encourage more customers to move all the way through the program process and fully participate? (for the regular and/or the CHP components)
- Do you have ideas on how you could get customers interested in doing more than the low-payback, cost effective measures (especially large portfolio owners)?
- If you could change anything about the current processes of providing technical assistance to customers, what would it be? (e.g., anything that could be streamlined?)

Custom Project Specific Questions

If these questions have not been discussed above, we will ask about:

- Do you consider all your projects to be custom projects (that fit the CPUC definition of a custom project for a custom project review)?

- If not, how does a project that requires a custom project review by the CPUC differ from any other project? What type of measures have you seen be installed within a custom project in the past that are not in “non-custom” projects?
- Do you feel that the program can obtain the same level of savings through using prescriptive measures as may be possible using custom projects? (*how much less/more?*)
- We know that the CPUC has recently adjusted requirements for BAMBE custom projects. Can you explain to me the differences between what you used to do and what you must do now?
- Do you have information that speaks to the difference it takes in terms of your time for moving custom projects through the program now versus previously? How about the time required by your customers for this type of project?
- What, if any, comments have you received from your customers as you move them through the new custom project requirements?

Program Questions

- What parts of the program work well for you in your role as a technical assessor? Where do you have challenges? What would you want to see improved if possible?
- How well are communications working for you with others in the program (e.g., Frontier, other AEA or SFE staff)? Would you call it effective communication? What would you want to know more of (if anything)? What would you want to see improved, if possible?

Wrap Up

- Anything in particular you want to tell us about the program that we have not covered? (e.g., COVID impacts)



Grounded Research is interviewing multiple people involved with the BAMBE implementation. We plan for three distinct interview guides for 1) BAMBE program manager and subcontractors, 2) technical assessors at Frontier and AEA, and 3) program managers involved with electrification programs other than BayREN.

Interview Guide for Program Managers of Electrification Programs

~15-30 mins.

These discussions will focus on the successes and challenges other PMs have had as they work to bring about electrification in buildings. These interviews are to help us understand ways that BAMBE could adjust the CHP pilot.

These questions focus on lessons learned from the electrification efforts in the various programs.

- How long has your program been seeking to move customers to electric measures from measures that use other fuels (e.g., natural gas, propane, oil)?
 - Have the measures you promote changed over time?
 - What measures do you promote now? (and did you drop any measures over time)
- What has the participation been like in these electrification efforts? (steady level over time, dips and increases, steady increase)
- What have you found to be important when you talk with customers about electrification measures?
- What has been the biggest hurdle for customer participation in this type of program?
- What would you want to say to someone embarking on this type of effort to help them? That is, what lessons did you learn that you would do differently?
- What are the external forces at play in your area (outside the program) that you see affecting customer's choice to move to electric measures?

Wrap Up

- Anything in particular you want to tell us about your program that we have not covered?

BayREN - Multifamily Program Participants_FINAL

Start of Block: Default Question Block

Q1 Overall, how satisfied were you with your program experience?

- ☐ Very Satisfied (1)
 - ☐ Satisfied (2)
 - ☐ Dissatisfied (3)
 - ☐ Very Dissatisfied (4)
-

Q2 We would like to ask you questions about the property at \${e://Field/Street}, \${e://Field/City} that was retrofit in \${e://Field/Completion_Year} with these measures: \${e://Field/Scope}

Q3 Is this your first project with the BayREN Multifamily program?

- ☐ No (1)
 - ☐ Yes (2)
-

Page Break

Q4 What other programs did you consider before eventually choosing the BayREN Multifamily program?

☐

PG&E's Multifamily Upgrades (1)

☐

MCE's Multifamily Energy Savings Program (2)

☐

No others (3)

Page Break

Q5 How easy was it to understand what you needed to do to participate in the BayREN Multifamily program?

☐

Very Difficult (1)

☐

Difficult (2)

☐

Easy (3)

☐

Very Easy (4)

Page Break

Q6 You went through several steps to participate in the program. What is your level of satisfaction with each?

	Very Dissatisfied (1)	Somewhat Dissatisfied (2)	Neither Dissatisfied nor Satisfied (3)	Somewhat Satisfied (6)	Very Satisfied (4)	Does not apply (5)
a. Initial phone intake to see if you qualify (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Discussing initial possible scope with Technical Advisor (before anyone coming to your site) (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Discussing multiple energy efficiency measure options shown in your individualized plan with Technical Advisor (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Time it took before the program gave you the OK to install measures (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Finding a contractor to install your chosen energy efficiency measures (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

f. Program support during construction (6)

☐☐☐☐☐☐

g. Final paperwork and steps to complete project (7)

☐☐☐☐☐☐

h. Length of time to receive your incentive payment (8)

☐☐☐☐☐☐

Display This Question:

If Q6 [Very Dissatisfied] (Count) > 0

Or Q6 [Somewhat Dissatisfied] (Count) > 0

Q7 You indicated you were dissatisfied with one or more of the steps above. Can you tell us a little about why you were dissatisfied so we can try to fix it for future participants?

Page Break

Display This Question:

If CHP_Flag = 0

Q8 Did your Technical Advisor describe options to replace your natural gas fired equipment with electric heat pumps for space conditioning, heat pumps for water heating, or electric induction cooktops?

- ☐ Yes (1)
- ☐ No (2)
- ☐ I don't remember (3)

Page Break

Display This Question:

If Q8 = Yes

And CHP_Flag = 0



Q9 Why did you choose to not install this type of equipment?

- ☐ Incentive did not cover enough of the project cost (1)
- ☐ Electrical panel upgrades were needed (2)
- ☐ It would have been too disruptive to the tenants (3)
- ☐ The existing equipment was still relatively new (4)
- ☐ The eventual cost for the tenant to pay for electric utilities would have been too high (5)
- ☐ Space constraints for the heat pump (6)
- ☐ Other (7) _____

Q10 Over the course of this project, how often did you interact with your Technical Advisor?

- ☐ One or two times over the course of the project (1)
 - ☐ About once or twice a month (2)
 - ☐ About once a week (3)
 - ☐ More than once a week (4)
 - ☐ I can't remember (5)
-

Q11 Did you obtain the information you wanted from your Technical Advisor?

- ☐ I received all the information I wanted (1)
 - ☐ I received most of the information I wanted (2)
 - ☐ I wanted more information (please write below what information you wanted, but didn't receive) (3) _____
-



Q12 Please rank these components from most influential (put as 1) to least influential (put as 7) in your decision to install the measures you did at the site. (choose an item and drag it to where you want it)

- _____ Ease of participation (1)
 - _____ Support provided by the Technical Advisors (2)
 - _____ Rebates (3)
 - _____ Needed to replace the items (4)
 - _____ Wanted to reduce the cost of energy I pay (5)
 - _____ Wanted to reduce the cost of energy my tenants pay (6)
 - _____ Wanted to reduce the carbon footprint of the building(s) (7)
-

Display This Question:

If Benchmark_Flag = 1

Q13 Our records show that the program worked with you to benchmark your building(s). How often do you review the information in the ENERGY STAR Portfolio Manager?

- ☐ At least once a month (1)
- ☐ One or two times a quarter (2)
- ☐ One or two times a year (3)
- ☐ I haven't reviewed that information since this property was set up for ENERGY STAR Portfolio Manager. (Please let us know why in the text box below) (4)

Q14 What would you like to see the program offer in the future?

Q15 What could the program do to improve the participation experience for future participants?

Q16 How could the program help if future participants wanted to involve tenants in the selection of in-unit upgrades or informing tenants about the operation of any in-unit upgrades?

Page Break

Display This Question:

If Rental_Flag = 1

Q17 Just for our records, is this property rental units or do owners occupy the units?

- ☐ Rental (1)
- ☐ Owner-occupied (2)
- ☐ I don't know (3)

Display This Question:

If Deed_Restricted_Flag = 1

Q18 Just for our records, is this a deed restricted affordable property?

- ☐ Yes (1)
- ☐ No (2)
- ☐ I don't know (3)

Display This Question:

If Affordabe_Flag = 1

And Q18 = No

Or Q18 = I don't know

Q19 Just for our records, does this property have a high percentage of tenants who are low income?

- ☐ Yes (1)
- ☐ No (2)
- ☐ I don't know (3)

Page Break

Q20 As a small token of our appreciation, we will send a \$25 Amazon Gift Card to \${e://Field/RecipientEmail}.

- ☐ Thank you. Please send my gift card to this email address. (4)
- ☐ I would prefer to not receive a gift card. Please do not send one to me. (6)
- ☐ I would prefer to have this gift card sent to a different email address (put new email in the box below) (5) _____

End of Block: Default Question Block



Home+ Energy Advisors Interview Guide

Grounded Research will interview the four (4) experienced Home+ Energy Advisors to understand their recommendations for how to streamline efforts, better serve customers, and encourage additional participation. We note that the Home+ program is planning to expand the number of Home+ Energy Advisors in 2021 and these interviews will inform future EA efforts, as well as our participant survey.

Questions for Energy Advisors

1. Can you tell me how long you have been an Energy Advisor and a little bit about your background (i.e., experience/how you got into EE space)?
2. For the households (HHs) that reach out to you, what type of help are they typically looking for? Can you describe the range of what they are looking for and how you help them?
 - a. What is a typical light touch and how frequently does that happen?
 - b. Can you describe the most intensive interaction and how frequently that happens? [PROBE for repeat interactions]
3. In your experience as an Energy Advisor...
 - a. ...which interactions or services do you think are most successful (i.e., what works)?
 - b. ...what doesn't work or could work better?
4. Who is likely to install measures after talking to you? Are there groups that are not good targets for installations through Home+? Why?
5. How often do you recommend further interactions with the Home+ program (i.e., installing measures)?
6. What do you tell them about the Home+ program? [PROBE TO SEE HOW EAs PRESENT PROGRAM]
7. What do you think could help increase conversion rates (that is, from an EA interaction to a Home+ project)?
8. What are the biggest barriers for participants?
9. Is there something that households need or ask for that you are unable to provide?
10. If you could make one improvement to EA services, what would it be?
11. If you could make one improvement to the Home+ program, what would it be?
12. We are planning to survey households or the "users of the EA services." Are there any questions that you would want us to ask this group? Any feedback about the program that you think we should get from them?

Thank you for your time.

Attachment for Reference – EA Services listed in the implementation plan

	<p><i>We could potentially ask about each of these quickly through an online survey, if desired. This level of detail is probably not required so we are attaching for reference only. Let us know if you have any recommendations on this or the questions above.</i></p>	
	How frequently do you...	From the customer's perspective, how useful is it when you...
1. Walk customers step-by-step through the Home+ Program and associated requirements		
2. Provide education and resources about energy efficiency improvements and associated non-energy benefits that encourage participation in the Program		
3. Perform utility bill analysis for customers and develop a long term energy efficiency plan		
4. Assist customers to identify a Participating Contractor for their project and drive 'warm' leads to Participating Contractors		
5. Assist customers with project bids or estimate reviews		
6. Maintain ongoing relationships with customers and provide follow-up services to ensure potential customers move forward with an energy efficiency project		
7. Provide referrals to other complementary programs and/or incentives based on the customer's interest		
8. Collect customer feedback about their experience and communicate results to BayREN and the Program team		
9. Encourage word-of-mouth referrals and provide tools and resources to facilitate the process		
10. Serve as a resource to Participating Contractors by providing excellent customer facing services and a resource for Participating Contractors to direct potential clients to for additional sales and education support		



Energy Advisor “Accounts” Survey

May 28, 2021

Grounded Research will field an online survey to residential customers who have had various levels of engagement with the Home+ program. The survey below will be used for households in 2020 that reached the “Account” status with Energy Advisors.

We are planning to use a raffle to encourage participation in the various survey efforts – 10 \$25 gift cards from the first 100 who respond.

Energy Advisor “Accounts” - Survey Topics (in current draft)

- Overall Experience – EA Satisfaction
- Program Component Satisfaction
- Knowledge of BayREN and Home+ Program
- Motivations/Attitudes
- Cross Program Connections & Verification of Kits
- Actions and Home+ Rebates
- Value (including Referrals)
- Future Needs – Lost Opportunities

Email Invite (will use BayREN logo)

Subject Line: Help us improve our Energy Advisor services!

Subject Line for follow up email: We need your feedback!

We are hoping to get feedback from individuals who were in contact with our Energy Advisors so that we can improve our services. 10 of the first 100 respondents will receive a \$25 Amazon e-gift card.

Overall, how satisfied were you with your experience?

- ☐ Very Satisfied
- ☐ Somewhat Satisfied
- ☐ Neither
- ☐ Somewhat Dissatisfied
- ☐ Very Dissatisfied

Thank you in advance for your time! This survey should only take 5-10 minutes to complete.

If you have any questions about this survey, please contact Jennifer Mitchell-Jackson (jennifer@grounded-research.com).

This survey is being implemented by [Grounded Research and Consulting, LLC](#), an independent evaluator of BayREN programs. All responses will remain anonymous.

Overall Experience – EA

Overall, how satisfied are you with your experience?

1. Very Satisfied
2. Somewhat Satisfied
3. Neither
4. Somewhat Dissatisfied
5. Very Dissatisfied

[FOR THOSE WHO GIVE DISSAT RATINGS] Why are you dissatisfied?

[FOR THOSE WHO GIVE SAT RATINGS] Why did you give this rating?

Program Component Satisfaction

How would you rate your satisfaction with the following

1. Length of time to hear back from the Energy Advisor
2. Process of collecting information about your home
3. Information provided by the Energy Advisor
4. Expertise of the Energy Advisor
5. Professionalism of the Energy Advisor
6. [ANYTHING ELSE BAYREN WANTS TO ASK ABOUT?]

Did you experience any problems trying to use the Energy Advisor services?

[If experienced problems] What problems did you experience?

Do you think you received too little support, the right amount of support, or too much support from your Energy Advisor?

Knowledge about the Program

[EA “participants” were asked how they heard about the program (see Lead and Lead Source columns. We will not ask that here.)]

Are you aware that BayREN offers the following? [Yes/No]

1. Rebates for heating and cooling equipment
2. Rebates for insulation
3. Rebates for water heaters
4. Rebates for electric induction cooktops
5. Free online audits
6. Free energy saving kits
7. Technical assistance on projects from Energy Advisors

Have you ever been to the BayREN website (bayren.org)?

1. Yes
2. No
3. Don't know

Motivation/Attitudes

What motivated you to reach out to an Energy Advisor? [rotate responses/multiple response]

1. Just exploring options
2. Energy & bill savings
3. Health
4. Comfort
5. Mold
6. Safety
7. Getting rebates
8. Broken appliances or heating/cooling equipment
9. Reducing carbon footprint
10. Other (please specify)

Cross Program Connections & Verification of Kits

Did you receive a kit in the mail with items such as lightbulbs, a showerhead, a power strip, a nightlight and sink aerators?

1. Yes
2. No

[IF RECEIVED A KIT/YES] Which items did you install? Or which items are you planning to install? [Installed (at least some), planning to install within the next year, not planning to use, did not receive]

- A. Light bulbs – globe shape (8 or 12 of these in your kit)
- B. Light bulbs – flood light or recessed can shape (3 or 4 of these in your kit)
- C. Bath (sink) aerator (1 or 2 in your kit)
- D. Kitchen (sink) aerator
- E. Showerhead
- F. Power strip
- G. Night light

[FOR EACH A-E, IF NOT PLANNING TO USE] What are the barriers to using the items sent to you?

Actions and Home+ Rebates

Did you make changes to save energy in your home as a result of your interactions with the Energy Advisor?

1. Yes
2. No

[IF YES] What did you do?

[OPEN END]

[IF YES] Did you receive a rebate from BayREN?

1. Yes
2. No

Value (including Referrals)

Please indicate whether any of the following are true [TRUE/FALSE/DK]

My interactions with the Energy Advisor...

- A. ...led to changes that improved the health of my family
- B. ...led to changes that increased my safety
- C. ...led to changes that improved my home's indoor air quality
- D. ...saved me money
- E. ...helped me find a contractor
- F. ...helped me access financing
- G. ...reduced my energy use
- H. ...made me aware of energy saving opportunities
- I. ...helped me take energy saving actions
- J. ...referred me to other programs (e.g., energy, water, or other program opportunities)

Are there any benefits that you received from the program that were not mentioned above? [OPEN END]

[IF REFERRAL] Did you end up participating in another program as a result of a referral by your Energy Advisor?

Future Needs and Lost Opportunities

What would help you save energy in the future? (Please select all that are of interest to you. Rebates would require a purchase to receive a rebate for part of the cost.)

- 1. Rebates for heating and cooling equipment
- 2. Rebates for insulation
- 3. Rebates for water heaters
- 4. Rebates for electric induction cooktops
- 5. Rebates to help my home shift from gas to electric
- 6. Free online audits
- 7. Energy saving kits
- 8. Tips on how to save energy by changing my behavior
- 9. Information on things I can do to save energy that cost less than \$20
- 10. Assistance electrifying my home (i.e., switching from gas to electric)
- 11. None of the above

Do you have any other recommendations for the program?

Household and Housing Characteristics

D1. Which of the following best describes your home?

[SINGLE RESPONSE]

- 1. Single-family detached home
- 2. Single-family attached home such as townhouse or row house
- 3. Apartment or condominium
- 4. Mobile home
- 0. Other, please specify: [OPEN-ENDED RESPONSE]

[ASK IF D1 = 3]

D2. How many housing units are in your apartment or condo complex?

[SINGLE RESPONSE]

1. 1
2. 2
3. 3
4. 4
5. 5 or more
98. Don't know

[ASK IF QD = 98]

D2A. Is it more than five units?

1. Yes
2. No
98. Don't know

D5. Approximately how many square feet your home?

[SINGLE RESPONSE]

1. Less than 1,000 sq. ft.
2. Between 1,000 and 1,999 sq. ft.
3. Between 2,000 and 2,999 sq. ft.
4. Between 3,000 and 3,999 sq. ft.
5. Between 4,000 and 4,999 sq. ft.
6. Greater than 5,000 sq. ft.
98. Don't know

DX. Do you rent or own your home?

1. Rent
2. Own

D6. Do you speak a language other than English in the home?

1. Yes
2. No

D4. Which of the following categories best represents your 2020 household income, before taxes?

1. Up to \$45K
2. >\$45K but < \$80K
3. \$80K but <\$120K
4. \$120K or more

From the EA database we know zipcode, and income (if they provided)

Thank you for your time!



Green House Call Survey

May 28, 2021

Grounded Research will field an online survey to residential customers who have had various levels of engagement with the Home+ program. The survey below will be used for Green House Call participants in 2020 (~1,800 email contacts).

We will plan to segment results by those who were interested in following up with the Home+ program Energy Advisors (based on a question in the GHC survey) and those who were not.

We are planning to use a raffle to encourage participation in the various survey efforts – 10 \$25 gift cards from the first 100 who respond.

Green House Call Participants - Survey Topics (in current draft)

We are not proposing to use the BayREN logo for this effort to Green House Call participants since it was referred to as the “Green House Call Program” and BayREN might not have been introduced.

- Overall Experience – Overall and Component Satisfaction
- Knowledge of BayREN and Home+ Program
- Motivations/Attitudes
- Verification of Kits
- Actions and Referrals
- Value
- Future Needs – Lost Opportunities

Email Invite

Subject Line: Help us improve the Green House Call Program!

Subject Line for follow up email: We need your feedback!

We are hoping to get feedback from individuals who have used the Green House Call program so that we can improve the program. 10 of the first 100 respondents will receive a \$25 Amazon e-gift card.

Overall, how satisfied were you with your Green House Call program experience?

- ☐ Very Satisfied
- ☐ Somewhat Satisfied
- ☐ Neither
- ☐ Somewhat Dissatisfied
- ☐ Very Dissatisfied

Thank you in advance for your time! This survey should only take 5-10 minutes to complete.

If you have any questions about this survey, please contact Jennifer Mitchell-Jackson (jennifer@grounded-research.com).

This survey is being implemented by [Grounded Research and Consulting, LLC](#), an independent evaluator of BayREN programs. All responses will remain anonymous.

Overall Experience – GHC

Overall, how satisfied are you with your Green House Call program experience?

1. Very Satisfied
2. Somewhat Satisfied
3. Neither
4. Somewhat Dissatisfied
5. Very Dissatisfied

[FOR THOSE WHO GIVE DISSAT RATINGS] Why are you dissatisfied?

[FOR THOSE WHO GIVE SAT RATINGS] Why did you give this rating?

How would you rate your satisfaction with the following

1. Process of collecting information about your home
2. Information provided by the Green House Call representative
3. Expertise of the Green House Call representative
4. Professionalism of the Green House Call representative
5. [ANYTHING ELSE BAYREN WANTS TO ASK ABOUT?]

Did you experience any problems?

[If experienced problems] What problems did you experience?

Do you think you received too little support, the right amount of support, or too much support from your Green House Call representative?

Knowledge of BayREN and Home+ Program

[GHC “participants” were asked how they heard about the Green House Call program. We will not ask that here.]

How familiar are you with the following? [Not at all familiar to Very familiar scale]

- A. BayREN
- B. Home+ program
- C. Rising Sun

Have you ever been to the BayREN website (bayren.org)?

1. Yes
2. No
3. Don’t know

Motivation/Attitudes

Why did you decide to participate in a Green House Call? [rotate responses/multiple response]

1. It was free
2. Energy & bill savings
3. Health
4. Comfort
5. Mold
6. Safety
7. Getting rebates

8. Broken appliances or heating/cooling equipment
9. Other (please specify)

Verification of Kits [GHC recipients received either a large or small kit (8 or 12 bulbs, 3 or 4 BR30, 1 or 2 bath aerators – all received a power strip, showerhead, kitchen aerator, dye tab]

[ALL GHC] Did you receive a kit in the mail with items such as light bulbs, a showerhead, a power strip, a nightlight and sink aerators?

1. Yes
2. No

[IF RECEIVED A KIT/YES] Which items did you install? Or which items are you planning to install? [Installed (at least some), planning to install within next year, not planning to use, did not receive]

- A. Light bulbs – globe shape (8 or 12 of these in your kit)
- B. Light bulbs – flood light or recessed can shape (3 or 4 of these in your kit)
- C. Bath (sink) aerator (1 or 2 in your kit)
- D. Kitchen (sink) aerator
- E. Showerhead
- F. Power strip
- G. Night light

[FOR EACH A-E, IF NOT PLANNING TO USE] What are the barriers to using the items sent to you?

Outside of the Program, Referrals and Participation in Other Programs

Did your Green House Call representative refer you to any other programs or resources?

1. Yes. Which ones?
2. No

Have you participated in any other programs or received any other rebates?

1. Yes. Which ones?
2. No
3. Don't know

Value

Please indicate whether any of the following are true. [TRUE/FALSE/DK]

My Green House Call ...

- A. ... led to changes that improve the health of my family
- B. ... led to changes that increased my safety
- C. ... led to changes that improved my home's indoor air quality
- D. ... resulted in energy savings
- E. ... provided me with information about energy, water, or other program opportunities

Are there any benefits that you received from the program that were not mentioned above? [OPEN END]

Future Needs

What would help you save energy in the future? (Please select all that are of interest to you. Rebates would require a purchase to receive a rebate for part of the cost.)

1. Rebates for heating and cooling equipment
2. Rebates for insulation (e.g., attic insulation)
3. Rebates for water heaters
4. Rebates for electric induction cooktops
5. Free online audits
6. Energy saving kits
7. Technical assistance from an Energy Advisor
8. Tips on how to save energy by changing my behavior
9. Information on things I can do to save energy that cost less than \$20
10. Assistance electrifying my home (i.e., switching from gas to electric)
11. None of the above (make this exclusive)

Do you have any other recommendations or feedback for the program?

Thank you for your time!

A Note on Household and Housing Characteristics for GHC Survey

Green House Call demographic information will come from the sample (we will not re-ask) - We already have information from Rising Sun on: zipcode, renter/owner, # bedrooms, square footage, type of house, fuel, fuel for water heater, year built, oldest/youngest/number in home, speak language other than English, annual gross income, race, and whether in DAC zip. We can append this data to responses, as needed.

We have information on number of incandescent globes, appliance information (e.g., Energy Star or not), heating/cooling, envelop information, etc. in their home. They only asked if manual or programmable thermostat – doesn't appear to have smart thermostat option unless no one selected that option.

Home+ Rebate Recipient - Participant Survey

May 28, 2021

Grounded Research will field an online survey to residential customers who have had various levels of engagement with the Home+ program. The survey below will be used for rebate recipients in 2020 (about 1,900 unique contacts with email addresses).

We are planning to use a raffle to encourage participation in the various survey efforts – 10 \$25 gift cards from the first 100 who respond.

Home+ Rebate Recipient - Survey Topics

- Perception of the Program – BayREN or Contractor Rebate?
- Overall Experience – Satisfaction with Home+
- Awareness of Home+ Offerings
- Connections between Home+ Program Components
- Motivations/Attitudes (aligned with contractor survey)
- Program Component Satisfaction
- Value – Energy and Non-Energy Benefits
- Savings and Actions Outside of Home
- Future Needs – Lost Opportunities (Home+ Opportunities Not Yet Utilized)
- Household and Housing Characteristics

Email Invite (will use BayREN logo)

Subject Line: Help us improve BayREN's Home+ Program!

Subject Line for follow up email: We need your feedback!

We are hoping to get feedback from individuals who received a BayREN rebate for energy saving equipment so that we can improve our services. Your contractor most likely helped you get this rebate.

This survey should take less than 10 minutes to complete and 10 of the first 100 respondents will receive a \$25 Amazon e-gift card.

Prior to receiving the rebate check, were you aware that the rebate came from BayREN?

1. Yes
2. No

Thank you in advance for your feedback!

If you have any questions about this survey, please contact [REDACTED]

This survey is being implemented by [Grounded Research and Consulting, LLC](#), an independent evaluator of BayREN programs. All responses will remain anonymous.

Perception of Program – BayREN or Contractor Rebate?

Prior to receiving the rebate check, were you aware that the rebate came from BayREN?

1. Yes
2. No

Overall Experience – Home+

Overall, how satisfied are you with your experience in the Home+ program?

1. Very Satisfied
2. Somewhat Satisfied
3. Neither
4. Somewhat Dissatisfied
5. Very Dissatisfied

[FOR THOSE WHO GIVE DISSAT RATINGS] Why are you dissatisfied?

[FOR THOSE WHO GIVE SAT RATINGS] Why did you give this rating?

Awareness of Home+ Offerings

How did you find out about the Home+ program?

1. Contractor
2. BayREN website
3. Energy Advisor
4. Word of Mouth
5. Marketing materials
6. Community presentation
7. Other (specify)

Are you aware that BayREN offers the following? [Yes/No]

1. Rebates for heating and cooling equipment
2. Rebates for insulation
3. Rebates for water heaters
4. Rebates for electric induction cooktops
5. Free online audits
6. Free energy saving kits
7. Technical assistance on projects from Energy Advisors

Have you ever been to the BayREN website (bayren.org)?

1. Yes
2. No
3. Don't know

Connections between Home+ Program Components (and early indication of kit use)

[IF AWARE OF FREE ONLINE AUDIT] Did you fill out an online audit?

1. Yes
2. No

[IF AWARE OF ENERGY SAVING KIT] Did you receive a kit in the mail with items such as light bulbs, showerhead, power strip, night light, and sink aerators?

1. Yes
2. No

[IF RECEIVED A KIT/YES] Which items did you install? Or which items are you planning to install? [Responses: Installed (at least some), planning to install within the next year, not planning to use, did not receive]

- A. Light bulbs – globe shape (8 or 12 of these in your kit)
- B. Light bulbs – flood light or recessed can shape (3 or 4 of these in your kit)
- C. Bath (sink) aerator (1 or 2 in your kit)
- D. Kitchen (sink) aerator
- E. Showerhead
- F. Power strip
- G. Night light

[IF NOT PLANNING TO USE AT LEAST ONE A-F] What are the barriers to using the items sent to you?

[IF AWARE OF TECHNICAL ASSISTANCE - EA] Did you interact with an Energy Advisor either before or during your participation in the program?

1. Yes
2. No

Motivation/Attitudes (aligned with contractor survey options)

*¹What was your primary motivation for participating in the Home+ program? [rotate responses]

1. Energy & Bill Savings
2. Health
3. Comfort
4. Mold
5. Safety
6. Getting rebates
7. Broken appliances or heating/cooling equipment
8. Other (please specify)

Program Component Satisfaction

How would you rate your satisfaction with the following

1. Information educating you about the Home+ program
2. [IF ONLINE AUDIT] Online audit
3. [IF KIT] Kit with low-cost energy saving measures
4. [IF EA] Interactions with my Energy Advisor
5. Contractor interactions
6. Application process for a rebate
7. Length of time to receive the rebate
8. Rebate amount

¹ This question is asked in the Contractor survey. Valid responses are Energy& Bill Savings, Health, Comfort, Other.

Did you run into any problems or find any part of the program difficult?

1. Yes
2. No

What difficulties did you encounter?

Do you have any recommendations to improve the program?

Value – Energy and Non-Energy Benefits

Please indicate whether any of the following are true. The Home+ program... [TRUE/FALSE/DK] [ROTATE]

- A. Led to changes that improved the health of my family
- B. Led to changes that increased my safety
- C. Led to changes that improved my home's indoor air quality
- D. Saved me money
- E. Helped me find a contractor
- F. Helped me access financing (beyond rebates)
- G. Reduced my energy use
- H. Made me aware of energy saving opportunities
- I. Helped me take energy saving actions
- J. Referred me to other energy-related programs

Are there any benefits that you received from the program that were not mentioned above? [OPEN END]

Savings and Actions (Other Programs) Outside of Home+

Did you install low cost energy saving equipment outside of the program (e.g., smart strips, smart thermostats, energy efficient light bulbs)?

Did you install energy savings appliances, heating/cooling or insulation (without program rebates) after you connected with the program?

[IF YES] What did you do?

[OPEN END]

Did you receive any rebates for the actions you just mentioned?

1. Yes. What rebated did you receive? (e.g., PG&E, MCE or retailer rebate for refrigerator)
2. No
3. Don't know

Future Needs – Lost Opportunities (Home+ Opportunities Not Yet Utilized)

What would help you save energy in the future? Please select all that are of interested to you. If you are no longer in need of any services, indicate "None of the above."

1. Rebates for heating and cooling equipment
2. Rebates for insulation
3. Rebates for water heaters
4. Rebates for electric induction cooktops
5. Free online audits
6. Energy saving kits

7. Technical assistance from an Energy Advisors
8. Tips on how to save energy by changing my behavior
9. Information on things I can do to save energy that cost less than \$20
10. Assistance electrifying my home (i.e., switching from gas to electric)
11. None of the above

Household and Housing Characteristics

D1. Which of the following best describes your home?

[SINGLE RESPONSE]

1. Single-family detached home
2. Single-family attached home such as townhouse or row house
3. Apartment or condominium
4. Mobile home
0. Other, please specify: [OPEN-ENDED RESPONSE]

[ASK IF D1 = 3]

D2. How many housing units are in your apartment or condo complex?

[SINGLE RESPONSE]

1. 1
2. 2
3. 3
4. 4
5. 5 or more
98. Don't know

[ASK IF QD = 98]

D2A. Is it more than five units?

1. Yes
2. No
98. Don't know

D5. Approximately how many square feet your home?

[SINGLE RESPONSE]

1. Less than 1,000 sq. ft.
2. Between 1,000 and 1,999 sq. ft.
3. Between 2,000 and 2,999 sq. ft.
4. Between 3,000 and 3,999 sq. ft.
5. Between 4,000 and 4,999 sq. ft.
6. Greater than 5,000 sq. ft.
98. Don't know

DX. Do you rent or own your home?

1. Rent
2. Own

D4. Which of the following categories best represents your 2020 household income, before taxes?

1. Up to \$45K
2. >\$45K but < \$80K
3. \$80K but <\$120K
4. \$120K or more

D6. Do you speak a language other than English in the home?

1. Yes
2. No

[ZIPCODE is in database]

Thank you for your time!