FINAL REPORT
Energy Savings Assistance (ESA) Household Segmentation Research For Pacific Gas & Electric Company 2009-2011

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Prepared for:
Pacific Gas & Electric Company
Rosemead, California

Prepared by:
Steven Westberg, Senior Vice President
HINER & Partners, Inc.
Long Beach, California

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

List of Tables

List of Figures

EXECUTIVE SUMMARY

This report summarizes research completed to identify distinct marketplace segments among Pacific Gas & Electric Company's (PG&E) low income customer population to support outreach and program delivery efforts of PG&E's Energy Savings Assistance (ESA) program (formerly called the Low Income Energy Efficiency (LIEE) program[1]). Although this research is a joint project with Southern California Edison, results among SCE's low income residential population are not included in this report. A similar but separate report has been developed for SCE.

Introduction and Background

The Energy Savings Assistance (ESA) program is designed to provide California's low income population with a resource that assists customers in lowering energy costs, reducing the financial burden of energy bills, and improving quality of life in terms of issues related to physical comfort and safety. The ESA program provides no-cost services and energy efficiency measures including lighting retrofits; Heating, Ventilation, and Air Conditioning (HVAC) retrofits; refrigerator and pool pump replacements; duct testing and sealing; evaporative cooler installation; water heating measures; weatherization; minor home repairs; and furnace repairs and replacements. The program is intended to provide an energy resource for California, produce energy savings, and reduce low-income customer bills.

The results of the study are intended to assist Pacific Gas & Electric Company (PG&E) in targeting outreach efforts based on existing customer data that includes: geography, relevant demographics, energy burden (energy use compared to income), energy insecurity (frequency of bill payment difficulties), and level of energy use. In addition, the findings are expected to be utilized to provide targeted communication plans that will improve outreach results, particularly in so far as they increase customer receptivity and participation through more customized and appropriate messages and program offerings.

Methodology

To achieve the segmentation objectives, the research team followed a three-phase approach that included: (1) database analysis and segmentation, (2) focus groups, and (3) telephone surveys (Table 1). Each phase of the data collection and analyses provided a different type of information that informed the final segmentation results presented in this report. Additional details on each of these phases of data collection and analyses are described below in the Methodology section of the report.

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[1] While in this report the program is referred to as the Energy Savings Assistance (ESA) Program, it had previously been called the Low Income Energy Efficiency (LIEE) or "Energy Partners" program. These were the statewide and PG&E names of the program for the 2009-2011 research cycle.

PG&E Energy Savings Assistance (ESA) Segmentation Research
Page 5
HINER & Partners, Inc.

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Table 1: Data Sources and Purpose

Data Source	Type	Number	Dates	Purpose
Low Income (CARE) Customer Population	PG&E Dataset: utility, geographic, and Acxiom data	260,000 analyzed	Aug 2011	Determine segments, assign customers to a segment
CARE Customers: ESA (LIEE) participants & non-participants, temperate and non-temperate	Focus Groups	6 groups	Apr/May 2010	Understand issues for quantitative survey
CARE Customers: stratified by segments	Telephone Survey	1,520 interviews	Sep/Oct 2011	Validate and profile the segments

In brief, the three phases include:

(1) <u>Database analysis</u> based on PG&E CARE customer data[2]. The purpose of the database analyses and segmentation was to create some basic segments that could be built from the information available from multiple sources including several PG&E databases as well as geographic and census data. In particular, a data set was developed using PG&E billing, usage, and program participation data in conjunction with geographic, weather (climate), and census data. These data were analyzed to build segments that could be tied to specific customer records. Traditionally segmentation studies are built from survey data that make it difficult to tie back to specified customers. The approach to build the initial segmentation solutions from the available customer data allows the program to utilize these results in targeting specified customers.

(2) <u>Focus groups</u>. Exploratory focus groups were conducted to understand customer issues, concerns, attitudes, and experiences to be used to inform development of the quantitative instrument.

(3) <u>Telephone survey</u>. A phone survey with a randomly drawn sample from Pacific Gas & Electric Company's CARE customers was used to gather additional potentially differentiating information on relevant variables not available via the existing utility records. The survey included questions regarding demographics, home characteristics, appliances and electronics, energy usage behaviors, as well as knowledge and experience with PG&E's Energy Savings Assistance (aka "Energy Partners") program. The telephone survey served to both validate the database segmentation through identification of additional discriminating variables as well as to provide further profiling information of the customer segments in order to give a more comprehensive understanding of the low income customer segments.

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[2] CARE customers were used as a proxy for the PG&E "low income" customers. However, it is possible that PG&E's low income CARE program participants differ from PG&E's non-CARE low income customers. This research did not examine potential differences between the CARE vs. Non-CARE low income customers.

Segmentation Results

The Energy Savings Assistance (ESA) segmentation research identified eight customer segments:

Table 2: Low Income Customer Segments

Segment	Name	Energy Usage	Percent of ESA (CARE) Population
1	Inland Older Homeowners	Low	22%
2	Small Coastal Renters	Very Low	17%
3	Inland Family Homeowners	High	16%
4	Struggling Modest Renters	Low	14%
5	Coastal Older Homeowners	Low E, High G	13%
6	High Use, Most Problems	High	10%
7	Disability Challenged	Very High	5%
8	High Contact Moderate Users	Moderate	4%

Again, while the segments were initially identified via customer database information, the additional focus group and survey data augmented our understanding of the segments. Briefs descriptions of each segment, based on quantitative information from the dataset and the telephone surveys, follow. Note that in the following descriptions the term "average" refers to the mean of the population, and "above" or "below" average indicates that the segment is significantly and substantially different from the population regarding the characteristic.

Segment 1: Inland Older Homeowner (22% of the population)

This segment includes older homeowners in smaller households that are more prevalent in the North Central Valley area. They also tend to be in single family homes. This segment is also very low touch – they are below average in frequency of contacting PG&E, and have very few bill problems. Interestingly, PG&E's records indicate that they are below average in PG&E program participation, yet their self-reported participation is high, especially for ESA. They have low electricity and natural gas usage, and a higher than average proportion who are gas only (e.g., SMUD customers). Contributing to low energy usage, they believe that they are successful in their efforts to save energy, they are in good health, and their homes tend to be above average regarding energy efficient features.

Segment 2: Small Coastal Renters (17% of the population)

This segment, the lowest energy users of all the segments, is comprised of the smallest households in small apartments in coastal climate zones (particularly the North Central Coast aka the Bay Area). They include an above average proportion of renters in self-described urban areas. Demographically, they are middle age or older, with higher education but lower income, and are more likely (compared to the population) to be Asian. They are "low touch" with very few payment problems, a low incidence of contact with PG&E, and low program participation. Contributing to their very low energy usage,

they have fewer appliances and electronics, yet their refrigerators tend to be older and their homes tend to have fewer energy efficient features. They also tend to feel that they have been successful with their efforts to save energy, as evidenced by their lower-than-average winter thermostat settings. This suggests that they already have adopted energy efficient behaviors even though their dwellings are somewhat lacking.

Segment 3: Inland Family Homeowners (16% of the population)

This segment has high electricity and natural gas use, and an above average proportion of electric-only customers. Contributing to their high usage, they are larger households in larger, single family homes in inland climate zones (especially in the South Central Valley). While these households are in newer homes with more energy efficient features, they tend to have more appliances and more electronics, and possibly even a pool or spa. Despite being in newer homes, however, their refrigerator and central AC systems tend to be older (self-reported).

They do exhibit some energy saving behaviors – primarily an above average incidence of having installed a programmable thermostat, a tendency to set their summer thermostats higher, and an interest in being early adopters of new appliances. Otherwise, they are quite average. Members of this segment are low contact customers with very few bill payment problems as well. A primary barrier to their participation in ESA: they don't think their home needs it.

Segment 4: Struggling Modest Renters (14% of the population)

This segment includes larger families who are renters in smaller homes (high proportion of apartments) with fewer energy efficient features and fewer actions taken to improve this (likely because they are renters). They have relatively few appliances (likely because they are renters in apartments), but an above average number of electronics (likely because they are larger families). Though energy usage is low overall for both electricity and gas, this segment has the second highest rate of bill payment problems, and the corresponding worries about being able to pay their bills.

Demographically, this segment is very average among low income (CARE) customers, but with a higher proportion of those with Hispanic and African-American backgrounds. They are average when it comes to trying to save energy, but below average regarding their perceived success; hence they recognize that they conceivably could do more to conserve but don't know what to do.

Segment 5: Coastal Older Homeowners (13% of the population)

This segment has low electricity use but high natural gas use, likely because they reside in coastal climate zones yet are older people in older homes that require more energy for comfort. Demographically, they tend to have smaller household sizes (consistent with being older), and they tend to be White or Caucasian. Also, they have a high incidence of home ownership, and are more likely in single family homes and even in mobile homes. Despite being older, their homes are above average for insulation and

for ceiling fans. Also helping to keep their electricity usage low, they have relatively few electronics and they turn off lights when not in use. They make other efforts to reduce energy use, including adding clothing for warmth, and believe that they have been successful. They have above average past participation in ESA (Energy Partners)..

Segment 6: High Use, Most Problems (10% of the population)

This segment has the second highest electricity usage among the eight groups, but the highest incidence of bill payment problems and frequency of contact from PG&E. They are predominantly younger householders with the largest household sizes, living in inland climate zones (e.g., Central Valley). Contributing to their high usage, in addition to a large number of family members, they tend to have central AC, more appliances and electronics, and perhaps even a pool or spa. Otherwise, the age and condition of their homes tend to be very average compared to the rest of the low income (CARE) population. Demographically, this segment is above average in incidence of Hispanic and African-American households, and above average for household income (although over half are still less than $33,000 per year). They want to conserve, yet feel that they have not been successful. An obstacle is not knowing what to do. Perhaps because of the frustration that this likely has caused (along with their high frequency of bill payment problems), this segment is less satisfied with PG&E compared to other segments.

Segment 7: Disability Challenged (5% of the population)

This segment has the highest electricity usage among the eight groups – not too surprising since they are homeowners in the largest homes, with larger household sizes, with the most appliances and electronics, and with above average likelihood of having a pool or spa.   Almost two-thirds are electric only – the highest of any segment. Demographically, they tend to have higher education and income levels, to be White or Caucasian, and to speak only English.   Also, they tend to be located in rural, Northern climate areas (e.g., Northern Inland Valley and Northern Inland Coastal).

Another characteristic that sets this segment apart is an above average incidence of someone who is disabled (self reported) living in the home. Reflective of their somewhat higher incomes, they tend to have more energy efficient features in their home, but do not believe that their efforts to save energy have been successful. They are the segment with the lowest satisfaction with PG&E as well.

Segment 8: High Contact Moderate Users (4% of the population)

With moderate electricity and natural gas usage, this segment is predominantly described by their moderate level of payment problems but en extremely high level of contact with PG&E – which suggests that they are "assistance seekers." They are more likely to be renters in multifamily homes with fewer energy efficient features, and with fewer improvements made to the home (by the customer). Located in higher proportions in the South Central Valley, they also have a higher than average incidence of central AC. Demographically, they are younger householders with larger families. Also, they are less educated and with lower income than other segments, an above

average proportion with Hispanic and African-American backgrounds, and a higher percentage of having a disabled person in the home.

Segmentation Recommendations

In order to further the objectives of improving targeting and outreach activities, the following recommendations should be considered:

- <u>Classify the CARE population into the eight segments</u>. Because the segments were determined using variables that are included in the main billing database, customers can be classified into one of the eight segments. Following this, customers from identified segments can be targeted by program implementers with more specific messages and media. For example, direct mail with a segment-specific message may be sent to those households that are members of the segment.

- <u>Identify segments to target</u>. The segments are differentiated based on electricity usage, energy burden, demographics, and other characteristics. Some segments include higher proportions of potentially qualified customers and/or customers who may be more in need of the services provided by ESA. Moreover, depending on resource needs and logistics, program operations may pursue specific geographic regions with higher concentrations of certain segments that are relatively more likely to benefit from program participation.

- <u>Use additional variables in the dataset to further screen members of a segment into smaller subgroups for even more precise targeting</u>. For example, the dataset includes a variable of the date that service was first established at a premise. Since older homes in certain CEC climate zones are more likely to qualify for the types of improvements provided by the ESA program, this variable may be used to specifically identify these older premises within a particular segment. Along these lines, household energy usage data can be used to identify households within a segment that demonstrate unusually high usage so that program resources may be applied to households with greater energy savings potential.

- <u>Apply geographic information to assist program implementers with neighborhood targeting</u>. The dataset can be used to find the ZIP codes that contain higher proportions of customers who belong to higher interest segments. These ZIP codes can be mapped, from which a geographic implementation plan can be developed. This can be taken a step further in the field, where contractors can approach homes armed with a handful of customized messages based on some assumptions regarding that region or household's segment membership.

- <u>Periodically refresh the low income customer dataset</u>. The segmentation algorithm can be applied to new CARE households with at least one year of energy usage history to classify them into one of the eight segments. This is

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PG&E Energy Savings Assistance (ESA) Segmentation Research

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needed since new households will otherwise remain unclassified regarding their segment membership. This will ensure that the natural pattern of households moving in and out of different residences does not render the segmentation obsolete after a few years. Also, segment membership for all households in the low income customer database may be refreshed periodically (such as every three to five years) to account for changing dynamics within a household.

ESA Program Marketing and Design Implications

The results of this study also inform marketing and program design. Overall findings that can be generalized across the low income customer population suggest that: (1) customer awareness and knowledge of the ESA (or "Energy Partners") program have room to grow, (2) some customer barriers to participation could be addressed, (3) participation could be motivated by more targeted messaging, and (4) renters face some unique issues.

Specific recommendations follow. These recommendations do not imply that PG&E has not been or is not currently addressing these issues, but rather that these issues should be considered when developing future plans. Also, the recommendations are intended to be directional, in part because this research did not include a process evaluation. All recommendations need to be considered within the context of feasibility, cost effectiveness, and any other relevant criteria.

Awareness and knowledge building recommendations include:

- <u>Continue communications to raise awareness above 63% (current level)</u>. It's not unreasonable to strive for higher awareness of the ESA program among the population of CARE-eligible customers.

- <u>To reach customers, continue to augment direct mail and bill inserts with more personal direct contact methods</u> (e.g., telephone including automated calls, email, and community events). These are the methods most preferred by customers. Other methods of outreach, including door-to-door, were not as popular with customers but still have a place in the overall program outreach portfolio.

- <u>Employ strategies to encourage word-of-mouth</u>. Word-of-mouth was found to be the number one source of information about the program among those already familiar with it, so efforts to encourage more of this could pay off. For example, a "refer a friend" program could be established. This also suggests that testimonials could be effective for overcoming customer hesitations to sign up (discussed below). The downside is that word-of-mouth tends to promulgate incomplete information, so there is still a strong need for direct communication from PG&E to customers.

Top barriers to participation that customers face (once they become aware of the program and it is "in their minds") include: someone else probably needs it more, don't think they will need it, not sure how to sign up, don't think they will qualify, and concerns about program quality. Overcoming these barriers might require both short term and long term solutions. Actions to consider are:

- <u>Ensure awareness building communications provide enough information</u> so customers can and do take the next step – such as directions on how to sign up, and a call to action.

- <u>Clarify misperceptions.</u> Common misperceptions are that: (1) the program can run out of funds, which discourages customers from being more proactive regarding participation, (2) qualifying is "all or nothing," so that customers who have had some weatherization or who have a new refrigerator might believe they won't qualify, and (3) the program is for a single measure, such as "refrigerator replacement" or "weather stripping" rather than providing a more comprehensive package of measures. This last misperception stems from incomplete information – many customers just don't know much about ESA and what they learn may be from friends, family or neighbors who may not accurately communicate the value, eligibility, or participation requirements of the program.

- <u>Use testimonials to overcome customer concerns</u> about program quality (e.g., workmanship, appliances, etc.) or "it's too good to be true."

- <u>Consider including measures that appeal to more households</u>. Introducing measures that appeal to more customers – particularly renters – may increase overall program interest. For example, measures that enable more "control," such as smart power strips and timers, and/or enhanced program education that targets different audiences such as children, teens, seniors, disabled, etc. may appeal to a wider audience while also providing one solution for customers who are frustrated not being able to manage "others" in the home.

In the telephone survey, ESA (LIEE) participants were asked their main reasons for signing up for the program. In addition to simply finding out about the program, saving money and saving energy were mentioned as the second and third top reasons, followed by receiving the free measures (refrigerator, light bulbs, weather stripping, insulation, etc.) The focus groups revealed that in some cases "saving energy" implied "doing without" for some people, so might not be as motivating as saving money.

- <u>Program messaging could make use of these top of mind and salient reasons</u>, for example with a "save money without spending any" message.

Customers also discussed message preferences and desires that may be accommodated by including descriptive information, functional benefits, and an emotional leverage point such as:

- The program provides energy-saving appliances and services including refrigerators, home weatherization, and energy efficient light bulbs.

- PG&E will pay all costs of purchasing and installing the appliances for the program.

- Helps your household use energy more efficiently.

- It's easy to participate – just call Pacific Gas & Electric Company or go to PG&E.com and complete an online application.

- Using energy more efficiently allows you to do more of the things you want to do.

Recommendations regarding more effectively reaching the renters in the program are centered on issues that renters face related to gaining permission for program participation. Many renters are hesitant to contact their landlord for a variety of reasons. Program staff may consider:

- Developing a marketing campaign targeted to renters that can address their hesitancies about contacting their landlord, and about making changes to a physical structure that they don't own.

- Adding measures that do not require landlord approval, such as plug-in control devices or an enhanced CFL component.

I. INTRODUCTION AND BACKGROUND

The Energy Savings Assistance (ESA) program is designed to provide California's low income population with a resource that assists customers in lowering energy costs, reducing the financial burden of energy bills, and improving quality of life in terms of issues related to physical comfort and safety. The program is operated by PG&E, PG&E, San Diego Gas and Electric (SDG&E), and Southern California Gas (SoCalGas).

The ESA program provides no-cost services and energy efficiency measures including lighting retrofits, Heating, Ventilation, and Air Conditioning (HVAC) retrofits, refrigerators, pool pump replacements, duct testing and sealing, central air conditioner maintenance, evaporative cooler installation and maintenance, attic insulation, water heating measures, weatherization, minor home repairs, and furnace repairs/ replacements. In addition, the program also provides information and education that promotes energy efficiency practices. The program is intended to provide low-income households with an energy resource for California, produce energy savings, and reduce low-income customer bills.

PG&E and SCE proposed an Energy Savings Assistance (ESA) Segmentation Study that combines targeting (effective location and identification of energy-burdened households or energy-insecure households) with efforts to tailor outreach medium and message to defined segments within the LIEE eligible customer base.

The results of the study were intended to assist Pacific Gas & Electric Company (PG&E) and Southern California Edison (SCE) in targeting outreach efforts based on existing customer data that includes: geography, relevant demographics energy burden, energy insecurity, and level of energy use. In addition, the findings were expected to be utilized to provide targeted communication plans that will improve outreach results, particularly in so far as they increase customer receptivity and participation through more customized and appropriate messages and program offerings.

Figure 1 below demonstrates the primary purpose of this research: to determine the market structure of the low income population in order to identify who to target and what characteristics are most important for these target segments.

Figure 1. Research Goals
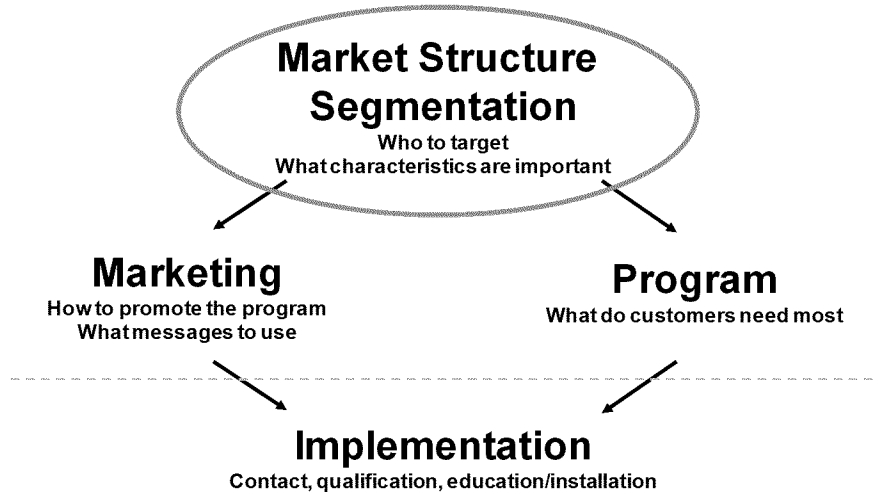
The results were intended to provide information that could inform relevant marketing channels and messages as well program measures that may be relevant or appropriate for specific target groups.

The specific objectives of the study included:

- Facilitate identification and targeting of eligible customers for ESA programs.
- Examine awareness, attitudes and behavior regarding energy efficiency and household needs for particular segments of low-income customers.
- Recommend utility-specific customer targeting strategies that take into account each utility's current database infrastructure, previous findings, available data, as well as the appropriateness of particular services for particular households.
- Specify the messages, products, and outreach vehicles to maximize program participation among particular segments.

Additionally, the segmentation research sought to determine the "market structure" of the low income customer population, based on the criteria that:

- Segments reflect the relative customer "need" for the ESA program.
- Segments can be identified in the Utility's low income customer records, so that all customers can be classified ("scored") into a segment.
- Segments are differentiated on other descriptive variables, including energy attitudes, motivations, behaviors, and other variables.

The results included in this report are based on the analyses of the PG&E customer data. Results among Southern California Edison's low income residential population are included in a separate report. The recommendations are not intended to be binding, as they need to be considered within the context of feasibility, cost effectiveness, and any other relevant criteria that were not assessed as part of this evaluation.

II. METHODOLOGY

To achieve the segmentation objectives, the research team followed a three-phase approach that included: (1) dataset analysis, (2) qualitative focus group discussions, and (3) quantitative telephone surveys (Table 3).

Table 3: Data Sources and Purpose

Data Source	Type	Number	Dates	Purpose
Low Income (CARE) Customer Population	PG&E Dataset: utility, geographic, and census/ Acxiom data	260,000 analyzed	Aug 2011	Determine segments, assign customers to a segment
CARE Customers: ESA (LIEE) participants & non-participants, temperate & non-temperate	Focus Groups	6 groups	Apr/May 2010	Understand issues for quantitative survey
CARE Customers: stratified by segments	Telephone Survey	1,520 interviews	Sep/Oct 2011	Validate and profile the segments

Each of the three phases is described in more detail below:

(1) <u>Database analysis and segmentation</u>. The first phase of analyses was based on PG&E customer data, including energy usage, program participation, bill payment history and disconnects, climate zone, and other variables. The purpose of the database segmentation was to create some basic segments that could be built from the information available within PG&E billing database which would enable the program to identify and assign customers to specified segments. Traditionally segmentation studies are built from survey data that make it difficult to tie back to specified customers. The approach to build the initial segmentation solutions from the available customer data allows the program to utilize these results in targeting specified customers.

(2) <u>Focus group discussions</u>. While the dataset of PG&E customer data was being analyzed, a set of focus groups were conducted in order to understand customer issues, concerns, attitudes, and experiences that may be relevant in assisting to design the telephone survey.

(3) <u>Telephone survey</u>. A phone survey with a randomly drawn sample from Pacific Gas & Electric Company's CARE customers was completed to gather additional potentially differentiating information on relevant variables not available via the existing utility records. The survey included questions regarding demographics, home characteristics, appliances and electronics, energy usage behaviors, as well as knowledge and experience with PG&E's Energy Savings Assistance (ESA) program (referred to as "Energy Partners" in the research). The telephone survey served to validate the database segmentation through identification of additional discriminating variables as well as provide further profiling information of the customer segments in order to give a more comprehensive understanding of the low income customer segments.

Database Analysis

For the first phase of research, Pacific Gas & Electric Company pulled data from their primary billing database to create a dataset of service account-level information among the current CARE customer population. The utility's CARE customers include customers who are participating in a "rate discount" program which entitles them to a 20% discount on their electric bill.

About 1.4 million PG&E CARE customer records were examined during this phase of the project, although the actual segmentation analysis was completed using a randomly-generated subsample of 260,000 CARE customer records for more efficient data processing. The dataset included those enrolled in CARE at a specific residence at the point in time that the data set was created (end of 2011). Customers had to have been in the residence for at least one year, and data going back three years was gathered. About 642,000 of these customers were in CARE at the same residence during the entire three years. Another 764,000 moved into a new residence and/or enrolled in CARE at some point during the three-year period, or moved out or disenrolled from CARE during that period. The relevant "unit of analysis" is a specific household at a specific location, so data from a CARE household's previous residence, even within the three year window, was not included.

The CARE population was used to represent the population of ESA-eligible customers because eligibility requirements for the two programs are the same. The service account-level data included several types of data: utility-billing and usage records, utility program participation data, geographic data, and census-derived data.

The utility data is typical of the information that is used to transact utility customer business, and was compiled across the previous three years. These data include: monthly kWh usage (consolidated into 12 quarters), frequency of program participation (e.g., the ESA or "Energy Partners" program, Medical Baseline, Life Support, SmartAC, SmartRate, ClimateSmart, Balanced Pay Plan, Time of Use, Energy Efficiency Rebates, and an online account service called MyAccount), frequency of shut-off/non-payment events, frequency of contact with PG&E (both customer initiated and PG&E initiated), year service account was established, number of outages, and type of accounts (electric, gas, or both).

The geographic data included a climate zone indicator of the service address (used by California's investor owned utilities for determining energy "baseline" allocations, among other things), physical location (city/county/ZIP), and an urban/rural indicator.

Census-derived data (provided by Acxiom) is modeled from census block-level data and includes: year dwelling was built, size of dwelling (square footage), household income, household size, ethnicity, and renter proportion. Because these data are promulgated at the block group level, the household-level data is essentially an average of the census block group. Individual household differences are not represented.

This combined dataset of utility, geographic, and census data was used to develop an initial comprehensive multi-dimensional segmentation solution.

Analytical Method

A multivariate technique known as cluster analysis was used to determine the initial residential low income customer segments based on all of the variables in the dataset. Cluster analysis assigns individual records (i.e., low income customers in this case) to groups that are similar based on the variables that are included in the dataset used for the analysis. Since this is a correlation-based approach, it does not identify or imply any causal relationships, but rather just association. Also, the analyses using this technique are data-driven and not influenced by a priori assumptions.

At the same time, cluster analysis requires the analyst to choose the number of clusters. Typically, cluster analysis for segmentation purposes is used to generate solutions that include between 2 and 10-clusters. After the results are reviewed, modifications can be made to adjust the number of clusters to support a solution that offers the greatest interpretability and insight for understanding the population. In this type of analyses, it is often the case that the solution includes the maximum number of clusters stopping short of a solution that produces extremely small and irrelevant clusters, or clusters that are so extensive that the clusters are not very different from each other.

Initial Focus Groups

For the second phase of the research, six focus groups were conducted, with an average of 8 customers per group. Three focus groups were completed with past ESA ("Energy Partners" or LIEE) participants, and three focus groups were completed among non-participants. Three geographic areas were represented: Fresno, Oakland, and Chico.

Customers were randomly selected and recruited from PG&E's population of CARE customers residing within 15 miles of the location of the group. During recruitment for the groups, customers were asked additional questions to ensure that each group included people in different life circumstances: number of people in the household, age, gender, owners and renters, and income (within the limits of CARE qualification).

The following table illustrates the breakdown of the groups.

Table 4: Pre-Segmentation Focus Group Locations

Date	Location	Group Composition	Language
April 29, 2010	Fresno	ESA (LIEE) Participants	Spanish
April 29, 2010	Fresno	Non-Participants	English
May 2, 2010	Oakland	ESA (LIEE) Participants	English
May 2, 2010	Oakland	Non-Participants	Spanish
May 3, 2010	Chico	ESA (LIEE) Participants	Spanish
May 3, 2010	Chico	Non-Participants	English

The discussion areas of these groups covered topics such as:

- Energy efficient and inefficient habits and behaviors
- Reasons and motivations for increases and decreases in energy use
- Reasons for high use relative to neighbors
- Barriers to adopting more energy efficient behaviors
- Customer hardships and dealing with energy bills
- Customer awareness and perceptions of the ESA program (referred to as "Energy Partners"), and barriers to participation

The Interview guide is provided in Appendix A.

The information from these focus groups was used to further our understanding of this customer population, provide further insight that can help explain the differences between the segments created from dataset clustering, and develop the quantitative research instrument for the telephone survey.

Telephone Survey

In the third phase of research, the research team completed 1,520 telephone survey interviews designed to augment the initial segmentation solutions with additional descriptive information about these different groups of customers. The survey inquired about key behavioral, motivational, attitudinal, circumstantial, situational, and demographic variables that were not available via these other sources but might assist in differentiating the different groups of customers within the low income population.

The survey sample frame included the population of PG&E's CARE-eligible customers. Since five of the segments initially determined by the dataset analysis were relatively small (less than 15% of the population) given the proposed sample size, the survey sample was stratified across the eight cluster-derived segments, and sampling was done randomly within strata. An "oversample" of interviews was completed for the five smallest segments in order to boost the number of completed interviews above 160 for each segment. Results were then weighted within each segment to match population proportions.

In total, each segment was represented by between 163 and 251 interviews, with oversample quotas ranging from 1 to 118 interviews. These sample sizes provide margins of error for each segment between 6.0% and 7.7% at a 95% confidence level (Table 5).

Table 5: Telephone Survey Sample Sizes

Segment	Size	Proportional Sample Quota	Over-Sample	Total Sample Quotas	Margin of Error (95%)
1	22%	262	-	262	+/- 6.0%
2	17%	202	-	202	+/- 6.9%
3	16%	197	-	197	+/- 7.0%
4	14%	169	1	170	+/- 7.5%
5	13%	158	21	179	+/- 7.3%
6	10%	116	54	170	+/- 7.5%
7	5%	59	118	177	+/- 7.4%
8	4%	49	114	163	+/- 7.7%
Total	**100%**	**1,212**	**308**	**1,520**	**+/- 2.5%**

The interviews were completed using a Computer Assisted Telephone Interview (CATI) system between September 6 and October 4, 2011. Because the low income population includes not only English-speaking customers but those who speak languages other than English, Spanish-speaking customers (approximately 9% of the population) were interviewed in Spanish. The average interview length was 21 minutes in English and 24 minutes in Spanish. Refusal rates were quite low at 31% among English speakers and 21% among Spanish speakers.

Survey topics included: demographics (e.g., age, gender, education, income, ethnicity, disabled person in home, number in household), home characteristics (e.g., type, square footage, own or rent, energy efficient features, type and age of AC), type and number of major appliances, type and number of major electronics, energy-rated attitudes (overall effort made to save energy, beliefs about success, self-described obstacles, agreement/disagreement with attitude statements), energy-related behaviors (e.g., frequency of taking specific actions, HVAC temperature settings), connection with utility programs (e.g., overall opinion about utility EE programs, awareness and participation in specific EE programs), ESA program (awareness, knowledge, participation, barriers), and information source preferences.

The telephone survey data were used to profile the eight cluster-derived segments to identify key behavioral, motivational, attitudinal, circumstantial, situational, and demographic variables that differentiate between the segments. In this way, the survey data were used to validate segment differences identified by the initial dataset variables, as well as identify additional relevant descriptive variables that contribute to differences among the segments.

Summaries of the survey data are found in Appendix B. The telephone survey questionnaire is in Appendix C.

III. SEGMENTATION ANALYSES AND RESULTS

A. Database Analysis

For the first phase of research, Pacific Gas & Electric Company provided a dataset of service account-level information among the current CARE customer population to which program data, geographic data, and census data were appended. The dataset served as the basis for this analysis.

Results: Eight Segments

For the PG&E low income segmentation solution, an 8-cluster solution was chosen. The segments are shown below in Table 6, along with the relative size of each segment among the low income population.

Table 6: Low Income Customer Segments

Segment	Name	Energy Usage	Percent of ESA (CARE) Population
1	Inland Older Homeowners	Low	22%
2	Small Coastal Renters	Very Low	17%
3	Inland Family Homeowners	High	16%
4	Struggling Modest Renters	Low	14%
5	Coastal Older Homeowners	Low E, High G	13%
6	High Use, Most Problems	High	10%
7	Disability Challenged	Very High	5%
8	High Contact Moderate Users	Moderate	4%

In the analysis, the variance of each variable in the data set is indicated by the "r-square." This value denotes the amount of influence a particular variable has had on creating the segments. As such, the higher the "r-square" value, the more that a particular variable has influenced the overall segment solution, and thereby is a stronger differentiating variable between the segments.

Results: Segment Differentiation

The following tables show the variables that were included in the clustering analysis, the variable's mean values or proportions for each cluster (or segment), and the "r-square" value for the variable. Color coding indicates that the value for the cluster or segment is noteworthy because it is substantially different from the total population, which represents the mean or norm.

Pink indicates values that are below the "average" while green indicates that a particular value is above the average. The sample size is approximately 260,000, so the number of customers represented in each cluster or segment range from approximately 10,700 to 56,000. Because the sample sizes are so large, even very small and inconsequential

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PG&E Energy Savings Assistance (ESA) Segmentation Research

HINER & Partners, Inc.

differences are significant, so we call attention only to some of the more distinctive or descriptive variables in each of the segments, discussed below.

Electricity usage is a dominant variable (high "r-square") in the cluster solution, with Segment 7 (Disability Challenged) being the highest users of electricity followed by Segments 6 (High Use, Most Problems) and 3 (Inland Family Homeowners), and Segment 2 (Small Coastal Renters) being the lowest users. Segments 1 (Inland Older Homeowners), 4 (Struggling Modest Renters), and 5 (Coastal Older Homeowners) are also lower users of electricity.

Table 7: Electricity Usage

	Total	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8	
Estimated Population Size	1,319,864	283,507	220,945	209,462	186,365	174,222	127,367	64,013	53,850	
Cluster Size	100%	21.5%	16.7%	15.9%	14.1%	13.2%	9.7%	4.9%	4.1%	R^2
e.usage.Q2.2008										0.43
Mean monthly electricity usage in kWh for Q2 2008	492	386	176	687	357	334	697	1,171	550	
e.usage.Q3.2008										0.39
Mean monthly electricity usage in kWh for Q3 2008	649	530	199	967	480	400	979	1,384	798	
e.usage.Q4.2008										0.44
Mean monthly electricity usage in kWh for Q4 2008	519	408	188	724	382	356	735	1,239	575	
e.usage.Q1.2009										0.40
Mean monthly electricity usage in kWh for Q1 2009	539	417	198	743	389	378	747	1,386	563	
e.usage.Q2.2009										0.45
Mean monthly electricity usage in kWh for Q2 2009	505	392	178	715	372	341	723	1,231	573	
e.usage.Q3.2009										0.40
Mean monthly electricity usage in kWh for Q3 2009	659	529	204	985	507	410	999	1,446	825	
e.usage.Q4.2009										0.46
Mean monthly electricity usage in kWh for Q4 2009	547	426	201	773	414	379	780	1,361	614	
e.usage.Q1.2010										0.41
Mean monthly electricity usage in kWh for Q1 2010	551	425	205	773	411	391	776	1,477	592	
e.usage.Q2.2010										0.44
Mean monthly electricity usage in kWh for Q2 2010	494	380	179	707	380	345	714	1,348	564	
e.usage.Q3.2010										0.39
Mean monthly electricity usage in kWh for Q3 2010	647	533	206	978	545	404	988	1,544	826	
e.usage.Q4.2010										0.42
Mean monthly electricity usage in kWh for Q4 2010	566	466	216	802	470	385	812	1,521	652	

Natural gas usage is another variable that has a high level of influence on the segments. Overall, segments with high electricity usage also have high gas usage, and segments with low electricity usage have low gas usage. One exception is Segment 5 (Coastal Older Homeowners), who have very low electricity use but moderately high gas use.

Table 8: Natural Gas Usage

	Total	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8	
Estimated Population Size	1,319,864	283,507	220,945	209,462	186,365	174,222	127,367	64,013	53,850	
Cluster Size	100%	21.5%	16.7%	15.9%	14.1%	13.2%	9.7%	4.9%	4.1%	R^2
g.usage.Q2.2008										0.35
Mean monthly gas usage in therms for Q2 2008	29	23	12	36	22	36	37	65	30	
g.usage.Q3.2008										0.24
Mean monthly gas usage in therms for Q3 2008	17	14	8	20	15	21	23	37	19	
g.usage.Q4.2008										0.36
Mean monthly gas usage in therms for Q4 2008	34	29	14	45	27	40	45	72	37	
g.usage.Q1.2009										0.34
Mean monthly gas usage in therms for Q1 2009	59	53	22	81	46	65	78	117	65	
g.usage.Q2.2009										0.36
Mean monthly gas usage in therms for Q2 2009	28	23	12	36	22	36	37	65	30	
g.usage.Q3.2009										0.24
Mean monthly gas usage in therms for Q3 2009	18	14	9	21	15	22	23	39	19	
g.usage.Q4.2009										0.37
Mean monthly gas usage in therms for Q4 2009	39	33	15	52	31	46	51	80	43	
g.usage.Q1.2010										0.34
Mean monthly gas usage in therms for Q1 2010	57	51	21	79	46	64	75	110	63	
g.usage.Q2.2010										0.37
Mean monthly gas usage in therms for Q2 2010	31	26	13	42	26	40	42	69	35	
g.usage.Q3.2010										0.25
Mean monthly gas usage in therms for Q3 2010	18	15	9	22	16	24	24	41	20	
g.usage.Q4.2010										0.37
Mean monthly gas usage in therms for Q4 2010	36	32	15	49	31	43	48	75	41	

PG&E's records show that Segments 3 (Inland Family Homeowners), 5 (Coastal Older Homeowners), and 7 (Disability Challenged) are more likely to include electric-only customers. Not surprisingly, Segments 3 and 7 tend to have higher electricity usage as well, yet Segment 5 tends to have lower electricity usage despite the high proportion who are electric only. Segment 1 is more likely to include gas-only customers.

Census data indicates that Segment 7 (Disability Challenged) customers are in larger homes. Segments 2 (Small Coastal Renters) and 5 (Coastal Older Homeowners) are in the oldest homes. Also, Segments 2 (Small Coastal Renters), 4 (Struggling Modest Renters), and 8 (High Contact Moderate Users) are more likely renters.

Table 9: Housing Details

	Total	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8	
Estimated Population Size	1,319,864	283,507	220,945	209,462	186,365	174,222	127,367	64,013	53,850	
Cluster Size	100%	21.5%	16.7%	15.9%	14.1%	13.2%	9.7%	4.9%	4.1%	R^2
Type of PG&E Account										0.05
Both electric and gas	62.9%	60.2%	62.2%	59.3%	70.3%	62.6%	72.3%	38.8%	75.1%	
Electric only	22.9%	9.5%	25.3%	28.8%	14.0%	37.5%	18.2%	55.9%	16.7%	
Gas only	14.2%	30.3%	12.5%	11.9%	15.7%	0.0%	9.5%	5.3%	8.2%	
Owner/Renter Status										0.07
Owner	85.6%	90.0%	66.9%	94.7%	75.0%	89.1%	85.8%	94.5%	77.4%	
Renter	14.4%	10.0%	33.1%	5.3%	25.1%	10.9%	14.3%	5.5%	22.7%	
Number of People in Household										0.05
Mean number of people	2.5	2.6	1.9	3.0	2.2	2.5	2.9	2.8	2.5	
Acxiom: Size of Housing Unit (Square Feet)										0.05
Mean square feet	1,504	1,419	1,404	1,633	1,407	1,348	1,566	1,924	1,476	
Acxiom: Year Unit Built										0.03
Mean year	1967	1970	1961	1971	1968	1959	1968	1969	1969	
Year SA Started										0.11
Mean year	2002	2003	2004	1997	2007	1995	2003	1999	2004	

The frequency of contact with PG&E, the frequency of disconnects, and the frequency of outages are also very influential in discriminating between the segments. Segments 5 (Coastal Older Homeowners) and 7 (Disability Challenged) experience the most outages (likely related to their geographic locations), while Segments 1 (Inland Older Homeowners) and 4 (Struggling Modest Renters) experience the fewest outages. Segments 6 (High Use, Most Problems) and 8 (High Contact Moderate Users), followed by 4 (Struggling Modest Renters) index high on the number of times they have had contact with PG&E. In particular, Segment 6 receives the most contacts *from* PG&E, while Segment 8 initiates more contacts to PG&E than other segments. Segment 6 (High Use, Most Problems) is also the segment with the most disconnects, followed by Segment 4 (Struggling Modest Renters).

Table 10: PG&E Contact and Disconnect Frequencies

	Total	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8	
Estimated Population Size	1,319,864	283,507	220,945	209,462	186,365	174,222	127,367	64,013	53,850	
Cluster Size	100%	21.5%	16.7%	15.9%	14.1%	13.2%	9.7%	4.9%	4.1%	R^2
Number of outages										0.24
Mean outages	2.8	0.1	1.6	3.8	1.1	7.1	3.1	7.4	2.7	
Total Number of Times PG&E Contacted the Customer										0.72
Mean number of contacts from PG&E	8.1	1.9	1.7	2.8	14.1	1.9	36.7	9.1	17.2	
Total Number of Times the Customer Contacted PG&E										0.57
Mean number of contacts to PG&E	5.7	1.5	1.4	2.1	8.5	1.7	12.6	6.8	43.8	
Number of Different Payment Methods Used										0.13
Mean number of payment methods used	1.9	1.6	1.6	1.7	2.2	1.7	2.7	2.1	2.4	
Shut Off / Non-payment Codes (Disconnects)										0.27
Mean number of shut off / non-payment codes	0.36	0.01	0.02	0.02	0.72	0.02	2.27	0.22	0.41	

Past participation in the ESA (LIEE) program is more likely among members of Segment 5 (Coastal Older Homeowners) and least likely among Segment 7 (Disability Challenged). Segment 7, however, is more likely than all other segments to be on Medical Baseline, Life Support, and the TOU rate. Segments 3 (Inland Family Homeowners) and 8 (High Contact Moderate Users) also have above average participation in Medical Baseline.

Regarding participation in other programs, Segment 3 (Inland Family Homeowners) has the highest incidence of participation in SmartAC and Energy Efficiency Rebates. Segments 5 (Coastal Older Homeowners) and 7 (Disability Challenged) are also more likely than other segments to have participated in EE Rebates previously. At the opposite end of the spectrum, Segment 2 (Small Coastal Renters) have below average participation in nearly all the programs, except for ClimateSmart.

Table 11: PG&E Program Participation

	Total	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8	
Estimated Population Size	1,319,864	283,507	220,945	209,462	186,365	174,222	127,367	64,013	53,850	
Cluster Size	100%	21.5%	16.7%	15.9%	14.1%	13.2%	9.7%	4.9%	4.1%	R^2
ESA (LIEE) Participation										0.00
No	97.5%	97.7%	98.0%	97.3%	97.9%	96.4%	97.8%	98.2%	97.0%	
Yes	2.5%	2.3%	2.0%	2.7%	2.1%	3.6%	2.2%	1.9%	3.0%	
Customer has a "My Acccount"										0.04
Yes	24.2%	21.2%	17.1%	22.6%	33.1%	13.8%	40.0%	29.9%	35.0%	
Customer has Bill Payment Plan (Balanced Pay Plan)										0.02
Yes	6.0%	6.5%	3.2%	11.1%	3.1%	8.5%	1.4%	8.2%	6.1%	
Customer on CARE										0.00
Yes	97.7%	98.5%	98.6%	96.9%	97.9%	97.7%	96.4%	95.7%	97.9%	
Customer on FERA										0.00
Yes	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	
Customer on Medical Baseline										0.02
Yes	4.4%	2.5%	1.5%	7.7%	3.0%	3.7%	6.6%	11.7%	7.8%	
Customer on Life Support										0.01
Yes	3.0%	1.5%	0.9%	5.2%	2.1%	2.2%	5.2%	8.1%	5.5%	
Customer on SmartAC										0.01
Yes	1.7%	0.6%	0.5%	4.3%	0.7%	2.9%	1.7%	2.7%	1.5%	
Customer on SmartRate										0.00
Yes	0.5%	0.5%	0.3%	0.8%	0.6%	0.4%	0.4%	0.4%	0.5%	
Customer on ClimateSmart										0.00
Yes	0.6%	0.5%	1.1%	0.6%	0.3%	0.9%	0.3%	0.5%	0.4%	
Customer Participated in Any EE Programs in Past 3 Years										0.02
Yes	6.0%	4.2%	2.7%	11.9%	2.6%	9.2%	5.3%	9.0%	4.9%	
Customer on a TOU Rate										0.01
Yes	0.4%	0.0%	0.0%	0.9%	0.0%	0.5%	0.2%	2.8%	0.1%	

Customers in Segments 3 (Inland Family Homeowners), 5 (Coastal Inland Homeowners), and 7 (Disability Challenged) are less likely to have moved recently – perhaps because these segments are predominantly homeowners. Customers in Segment 4 (Struggling Modest Renters) are most likely to have moved recently.

Table 12: Indication of Recent PG&E Move-In

	Total	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8	
Estimated Population Size	1,319,864	283,507	220,945	209,462	186,365	174,222	127,367	64,013	53,850	
Cluster Size	100%	21.5%	16.7%	15.9%	14.1%	13.2%	9.7%	4.9%	4.1%	R^2
Status of Customer										0.06
No move	48.6%	40.8%	43.4%	63.5%	30.6%	67.8%	50.7%	54.5%	41.7%	
Moved in	51.4%	59.2%	56.6%	36.5%	69.5%	32.2%	49.3%	45.5%	58.3%	
Moved out	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Census-based ethnicity and income distribution are discussed next. Segments 3 (Inland Family Homeowners) and 7 (Disability Challenged) have higher proportions of customers who are White or Caucasian. Segment 4 indexes higher on customers being Hispanic, while Segments 6 (High Use, Most Problems) and 8 (High Contact Moderate

Users) index higher on African-Americans. Segment 2 (Small Coastal Renters) indexes higher on Asian/Pacific Islanders. Regarding mean estimated incomes, Segment 7 (Disability Challenged) is highest while Segment 2 (Small Coastal Renters) is lowest.

Table 13: Ethnicity and Income

	Total	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8	
Estimated Population Size	1,319,864	283,507	220,945	209,462	186,365	174,222	127,367	64,013	53,850	
Cluster Size	100%	21.5%	16.7%	15.9%	14.1%	13.2%	9.7%	4.9%	4.1%	R^2
Acxiom: Ethnicity										0.01
White/Caucasian	41.1%	36.0%	34.7%	47.6%	36.1%	43.1%	43.6%	64.0%	45.7%	
Hispanic	34.3%	36.0%	34.2%	31.3%	39.1%	35.4%	36.1%	18.3%	31.7%	
Black/African American	4.7%	2.7%	4.7%	2.7%	6.8%	4.9%	7.4%	3.4%	8.9%	
Asian/Pacific Islander	8.1%	10.7%	13.5%	9.4%	2.6%	9.4%	2.3%	3.6%	1.6%	
Middle Eastern	1.7%	1.7%	1.9%	2.0%	1.3%	1.7%	1.3%	2.0%	1.0%	
Native American	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	0.1%	0.3%	0.2%	
Multi-ethnic	0.3%	0.3%	0.3%	0.3%	0.2%	0.3%	0.4%	0.4%	0.2%	
Unknown/Uncodable	9.8%	12.5%	10.7%	6.5%	13.8%	5.1%	8.8%	8.2%	10.8%	
Acxiom: Income										0.01
Mean Estimated Income	$52,926	$52,639	$48,394	$57,017	$49,482	$51,221	$56,022	$61,290	$49,388	

Segments are also differentiated by climate zone. In part this is a function of their energy use, but not entirely. Some high users do reside in more temperate climate zones, just as some of the lower usage customers reside in non-temperate climate areas. Overall, though, Segments 2 (Small Coastal Renters) and 5 (Coastal Older Homeowners) are more coastal, while Segments 1 (Inland Older Homeowners), 3 (Inland Family Homeowners), 6 (High Use, Most Problems) and 8 (High Contact Moderate Users) are more likely residing in inland areas. Segment 7 (Disability Challenged) is more likely to be located in the northern areas of PG&E's service territory.

Table 14: Climate Zone and Urbanicity

	Total	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	Cluster 6	Cluster 7	Cluster 8	
Estimated Population Size	1,319,864	283,507	220,945	209,462	186,365	174,222	127,367	64,013	53,850	
Cluster Size	100%	21.5%	16.7%	15.9%	14.1%	13.2%	9.7%	4.9%	4.1%	R^2
Climate Zone										0.03
Coastal Northern California (Crescent City, Eureka, Mendoc	1.6%	0.9%	1.2%	1.4%	1.0%	2.9%	1.2%	6.0%	0.9%	
Inland Coastal Northern California (Ukiah, Santa Rosa, Nap	6.0%	4.7%	7.1%	5.6%	5.2%	7.2%	5.0%	12.3%	4.2%	
Bay Area/Northern Central Coast (Point Reyes, Oakland, Sa	23.2%	16.4%	39.4%	12.4%	22.8%	34.4%	18.8%	14.2%	19.7%	
Inland Central Coast (San Jose, Hollister, Paso Robles)	9.3%	8.6%	13.3%	8.9%	8.5%	10.5%	7.6%	5.0%	6.7%	
Southern Central Coast (Cambria, Santa Maria, Santa Ynez	2.1%	0.6%	3.3%	1.5%	1.2%	6.5%	1.0%	1.3%	0.8%	
Northern Inland Valley (Redding, Chico, Yuba City)	8.8%	9.3%	4.7%	12.5%	7.4%	7.3%	9.4%	16.9%	6.9%	
Northern Central Valley (Sacramento, Concord, Stockton, N	29.6%	42.4%	22.7%	31.1%	33.2%	13.7%	30.4%	23.1%	29.9%	
Southern Central Valley (Medera, Fresno, Visalia, Bakersfie	18.4%	16.2%	7.7%	25.3%	20.4%	15.8%	25.9%	17.5%	30.3%	
High Desert (Palmdale, Barstow, Joshua Tree, Julian)	0.3%	0.8%	0.2%	0.2%	0.3%	0.0%	0.1%	0.1%	0.1%	
High Mountains (Mount Shasta, Bishop, Big Bear, Idyllwild)	0.8%	0.2%	0.2%	1.1%	0.2%	1.8%	0.7%	3.6%	0.5%	
Urban/Rural										0.04
Rural	26.3%	22.3%	14.9%	35.5%	19.4%	34.4%	27.2%	55.6%	20.5%	
Suburban	6.1%	6.8%	5.1%	7.0%	5.7%	5.1%	6.6%	6.9%	5.5%	
Urban	67.6%	71.0%	80.0%	57.6%	74.9%	60.5%	66.2%	37.5%	74.0%	

In sum, the eight segments created by clustering on utility-created, geographic, and third party (Acxiom) data are distinct from each other in potentially meaningful ways with regard to the ESA program – a critical result for the research project. Specifically, half of the segments (3, 5, 6, and 7) are defined, in part, by high usage, so these groups represent greater opportunity for program measures to achieve more substantial savings. Two segments (4 and 6), including one with higher usage, represent customers with greater energy burden as evidenced by higher frequencies of bill payment problems. Segments are also differentiated on location (e.g., climate zone), housing stock, and the probability of a household member with a disability – all variables that are relevant to targeting for the ESA program.

B. Initial Focus Groups

Another initial data collection effort involved 6 focus groups, with an average of 8 customers in each group. These groups were completely separately from the database segmentation analysis effort. The groups were conducted with CARE-enrolled customers representing the low income residential population.

The information from these focus groups was used to further our understanding of this customer population, provide further insight that can help explain the differences between the segments created from dataset clustering, and develop the research instrument for the telephone survey.

Focus Group Results

Although electricity is not top of mind for most people, it's clear that electricity permeates the homes of low income consumers, just as it does the homes of people across all socioeconomic strata. These consumers have little difficulty identifying the things that use electricity in their homes, and recognizing the multitude of benefits they receive from it.

Most low income household electricity usage goes beyond basic subsistence needs as well, since nearly all have all the conveniences that exist in society – cell phones, multiple TVs, computers, video games (among households with children), and large and small appliances.

When asked if they think they use more or less energy than their neighbors, customers in the groups were divided. Reasons included:

(1) Their lives are filled with more energy using equipment now than previously.

(2) The number of people in the household. More people results in higher usage.

(3) The amount of time they spend in their homes. More time at home leads to higher usage.

(4) The presence of children in the home. Customers with children mentioned that their kids turn on and leave on all the lights, and/or often run multiple appliances at the same time (TV, computer, music), etc.

(5) Some homes are difficult to keep at a comfortable temperature. They have insufficient insulation, leaks around windows and doors, and other issues that lead to high heating (coastal areas) and cooling (inland) bills.

(6) The health of someone in the household. This includes an elderly relative or a spouse or child with a chronic condition that requires more consistent winter

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heating or summer cooling, and in some cases the use of in-home medical equipment.

Despite their circumstances, just about everyone is interested in reducing their energy use, yet many of these low income customers find it difficult to give up or reduce the benefits that electricity provides, or to control their household's energy use. Specific barriers include:

(1) Lack of financial resources to make improvements that require money up front.

(2) Lack of control over their bill, over others in the household, or if renters over their physical environment.

(3) Lack of more detailed knowledge (e.g., how much energy is used by each specific appliance) that would allow them to prioritize their additional efforts.

(4) Lack of time and energy to take even more rigorous and consistent actions such as unplugging appliances and electronics.

(5) Not wanting to give up some of the benefits of electricity – as one customer put it, "no one really wants to sit in the dark with candles", but others simply don't want to wait for their computer to boot up so they leave it running.

Relative to homeowners, renters are even less willing or able to consider participating in the program or make changes to their home. Renters report the following additional concerns or barriers:

(1) Being fearful their landlord could raise their rent if they request or receive any improvements.

(2) A misperception that you need to be a homeowner to participate in a program like ESA.

(3) A perceptual barrier against changing something that they don't own – to the extent that some are even hesitant to change a light bulb. This is also one of the benefits of being a renter – not having to think about or deal with maintenance, repairs, or even simple upkeep.

(4) Situations where the landlord paid the bill, so the renter had no incentive to save.

To a considerable degree, the ESA program design and implementation employs strategies to address many of these barriers, however, more information, education, and marketing may further assist in overcoming some of these concerns. Also, the issues that renters face suggest that targeting landlords for program such as ESA might be appropriate.

Customer Perceptions of ESA(aka "Energy Partners")

About half the customers in the focus groups had heard of the "Energy Partners" program, although few knew it by name. A few customers in the groups were familiar with all aspects of the program (refrigerator, AC, weatherization/caulking, lights, etc.) but most seem to just know about bits and pieces. There's quite a bit of confusion or misunderstanding about program details as well, even among the participants.

Nonetheless, most said they would participate in a program such as "Energy Partners" if the program were offered to them. However, some voiced skepticism about the program, and their hesitations about signing up. These include:

- Concerns that it's too good to be true. A few skeptics thought that the "free" offer that includes a home inspection might lead to additional repairs being identified that they would have to pay for.

- Believing they would not qualify. Even though all the respondents in the focus groups are CARE customers, many do not think they are low income so presume they would not qualify. A few were willing to take a chance by looking into the program anyway, but for many this presumption about not being qualified likely keeps them from taking the next step or even from responding affirmatively to proactive outreach.

- Skeptical about the quality of the appliances or work to be performed. Some customers presumed that getting something for free implies the item would be low quality – an off brand or too noisy.

- Improvements will not help much, or aren't worth the effort. Some felt that their home does not really need these types of improvements, such as caulking and weatherproofing, or that the improvements probably are not worth the effort of filling out an application, proving one's income, etc.

- Reluctance to take from others who need it more. Some customers expressed reluctance about the program out of concern that others probably need it more.

- Embarrassment of admitting to being low income. A few customers admitted that it's embarrassing to receive low income assistance.

Though customers brought up many barriers, most contend they would participate if the program might help them reduce their energy use. Some of these reported barriers indicate why, though the program may initially seem appealing, the percentage of customers who actually agree to participate when presented with the details of program participation is lower that might be expected. During the discussion, however, it was also clear that further explanation about the program and discussion about program details did often assist in overcoming these barriers, at least among those who have participated in ESA ("Energy Partners") in the past.

C. Telephone Survey

The telephone survey followed the database segmentation and focus group research. As noted earlier, 1,520 telephone survey interviews were conducted to augment the initial segmentation solutions with additional descriptive information about these different groups of customers.

Results: Segment Descriptions

The survey results were tabulated with the segments serving as the basis for grouping respondents together, and the responses to each question were compared across all of the segments. Based on these comparisons and the results from the dataset analysis, brief descriptions of each segment follow, including tables that describe the variables that differentiate the segment from other segments. More detailed results are in Appendix B.

Note that in the following descriptions the term "average" refers to the mean of the population, and "above" or "below" average indicates that the segment is significantly different from the general population with respect to the designated characteristic.

Segment 1: Inland Older Homeowner (22% of the population)

This segment includes older homeowners in smaller households that are more prevalent in the North Central Valley area. They also tend to be in single family homes. This segment is also very low touch – they are below average in frequency of contacting PG&E, and have very few bill problems. Interestingly, PG&E's records indicate that they are below average in PG&E program participation, yet their self-reported participation is high, especially for ESA. They have low electricity and natural gas usage, and a higher than average proportion who are gas only (e.g., SMUD customers). Contributing to low energy usage, they believe that they are successful in their efforts to save energy, they are in good health, and their homes tend to be above average regarding energy efficient features.

In the tables that follow, segment characteristics that are significantly different from the low income population as a whole are shown. For variable categories where no description is shown, the segment is no different from the population.

Table 15: Segment 1 Differentiating Variables and Descriptors

Segment Determinants (PG&E and Acxiom Data)

Electricity Usage:	Low
Gas Usage:	Low
Service Types:	Gas Only
Payment Problems:	Very few
PG&E Contacts:	Low
Dwelling Characteristics:	Smaller
Geographic/Homeownership:	Owners
Climate Zones:	No. Central Valley
	High Desert
PG&E Program Participation:	Very low

Home Characteristics

Housing Type:	Not Apt
Characteristics:	--
Own or rent:	Owners
Energy Efficient Features:	More
Improvements Made:	--
AC Type and Age:	--

Demographics

Age:	Older
Household Size:	Smaller
Education / Income:	--
Ethnicity:	--
Language:	--
Disabled:	--

Appliances and Electronics

Appliances:	--
Refrigerator Age:	--
Electronics:	--
Pool or Spa:	--

Energy-Related Attitudes

Always try to save:	--
Have been successful:	Yes
Importances:	Environment
Obstacles:	Don't know
	--
Attitudes:	No bill worries
	No health issues

Connection with Utility Programs

Satisfaction with PG&E:	High
Opinion About EE Programs:	--
Ever Partic. in EE Program:	High
Programs: Yes	Energy Partners
Programs: No	--

Energy-Related Behaviors

Always do this:	Clothing for warm
	Lower H20 temp
Don't always do this:	--
	--
HVAC on Hot Summer Days:	--
HVAC on Cold Winter Days:	--

ESA Awareness and Participation

Past ESA participation:	--
Home (past participants):	--
Sources of ESA info:	--
Awareness of ESA (non-part.):	--
Barriers (non-participants):	Know nothing about it
Info source preferences:	Not TV/Radio Ads

Segment 2: Small Coastal Renters (17% of the population)

This segment, the lowest energy users of all the segments, is comprised of the smallest households in small apartments in coastal climate zones (particularly the North Central Coast aka the Bay Area). They include an above average proportion of renters in self-described urban areas. Demographically, they are middle age or older, with higher

education but lower income, and are more likely (compared to the population) to be Asian. They are "low touch" with very few payment problems, a low incidence of contact with PG&E, and low program participation. Contributing to their very low energy usage, they have fewer appliances and electronics, yet their refrigerators tend to be older and their homes tend to have fewer energy efficient features. They also tend to feel that they have been successful with their efforts to save energy, as evidenced by their lower-than-average winter thermostat settings. This suggests that they already have adopted energy efficient behaviors even though their dwellings are somewhat lacking.

Table 16: Segment 2 Differentiating Variables and Descriptors

Segment Determinants (PG&E and Acxiom Data)

Electricity Usage:	Very Low
Gas Usage:	Very Low
Service Types:	--
Payment Problems:	Very few
PG&E Contacts:	Low
Dwelling Characteristics:	Smaller
Geographic/Homeownership:	Renters
Climate Zones:	No. Central Coast
	Not Valley
PG&E Program Participation:	Not MyAccount

Home Characteristics

Housing Type:	Apartment
Characteristics:	Small
Own or rent:	Renters
Energy Efficient Features:	Fewer
Improvements Made:	Not thermostats
AC Type and Age:	None

Demographics

Age:	Not Younger
Household Size:	Smallest
Education / Income:	Higher Education, Lower Income
Ethnicity:	Asian
Language:	--
Disabled:	--

Appliances and Electronics

Appliances:	Fewer
Refrigerator Age:	Older or don't know
Electronics:	Fewer
Pool or Spa:	No

Energy-Related Attitudes

Always try to save:	--
Have been successful:	Yes
Importances:	Environment
Obstacles:	Don't know
	--
Attitudes:	No bill worries
	Not early adopter

Connection with Utility Programs

Satisfaction with PG&E:	High
Opinion About EE Programs:	--
Ever Partic. in EE Program:	Lower
Programs: Yes	--
Programs: No	Energy Partner
	EE Rebates
	ARP, SAC

Energy-Related Behaviors

Always do this:	--
	--
Don't always do this:	--
	--
HVAC on Hot Summer Days:	--
HVAC on Cold Winter Days:	Lower

ESA Awareness and Participation

Past ESA participation:	--
Home (past participants):	--
Sources of ESA info:	Not rep at door
Awareness of ESA (non-part.):	Lower
Barriers (non-participants):	Not sure how to sign up
Info source preferences:	Not phone

Segment 3: Inland Family Homeowners (16% of the population)

This segment has high electricity and natural gas use, and an above average proportion of electric-only customers. Contributing to their high usage, they are larger households in larger, single family homes in inland climate zones (especially in the South Central Valley). While these households are in newer homes with more energy efficient features, they tend to have more appliances and more electronics, and possibly even a pool or spa. Despite being in newer homes, however, their refrigerator and central AC systems tend to be older (self-reported).

They do exhibit some energy saving behaviors – primarily an above average incidence of having installed a programmable thermostat, a tendency to set their summer thermostats higher, and an interest in being early adopters of new appliances. Otherwise, they are quite average. Members of this segment are low contact customers with very few bill payment problems as well. A primary barrier to their participation in ESA: they don't think their home needs it.

Table 17: Segment 3 Differentiating Variables and Descriptors

Segment Determinants *(PG&E and Acxiom Data)*

Electricity Usage:	High
Gas Usage:	High
Service Types:	Electric Only
Payment Problems:	Very few
PG&E Contacts:	Low
Dwelling Characteristics:	Newer, Larger
Geographic/Homeownership:	Rural, Owners
Climate Zones:	So. Central Valley
	Not Coastal
PG&E Program Participation:	Med Base, BPP

Home Characteristics

Housing Type:	Single-Family
Characteristics:	Newer, Larger
Own or rent:	Owners
Energy Efficient Features:	More
Improvements Made:	Prog. Therm.
AC Type and Age:	Central, Older

Demographics

Age:	Older
Household Size:	Larger
Education / Income:	--
Ethnicity:	Not African-American
Language:	--
Disabled:	--

Appliances and Electronics

Appliances:	More
Refrigerator Age:	Older
Electronics:	More
Pool or Spa:	Yes

Energy-Related Attitudes

Always try to save:	--
Have been successful:	--
Importances:	--
Obstacles:	Don't know
	--
Attitudes:	Early adopter
	New appliances

Connection with Utility Programs

Satisfaction with PG&E:	--
Opinion About EE Programs:	--
Ever Partic. in EE Program:	--
Programs: Yes	--
Programs: No	--

Energy-Related Behaviors

Always do this:	--
	--
Don't always do this:	--
	--
HVAC on Hot Summer Days:	Higher (warmer)
HVAC on Cold Winter Days:	--

ESA Awareness and Participation

Past ESA participation:	--
Home (past participants):	--
Sources of ESA info:	--
Awareness of ESA (non-part.):	--
Barriers (non-participants):	Don't think home needs it
Info source preferences:	--

Segment 4: Struggling Modest Renters (14% of the population)

This segment includes larger families who are renters in smaller homes (high proportion of apartments) with fewer energy efficient features and fewer actions taken to improve this (likely because they are renters). They have relatively few appliances (likely because they are renters in apartments), but an above average number of electronics (likely because they are larger families). Though energy usage is low overall for both electricity and gas, this segment has the second highest rate of bill payment problems, and the corresponding worries about being able to pay their bills.

Demographically, this segment is very average among low income (CARE) customers, but with a higher proportion of those with Hispanic and African-American backgrounds. They are average when it comes to trying to save energy, but below average regarding their perceived success; hence they recognize that they conceivably could do more to conserve but don't know what to do.

Table 18: Segment 4 Differentiating Variables and Descriptors

Segment Determinants (PG&E and Acxiom Data)

Electricity Usage:	Low
Gas Usage:	Low
Service Types:	Electric & Gas
Payment Problems:	High
PG&E Contacts:	High
Dwelling Characteristics:	Newer, Smaller
Geographic/Homeownership:	Urban, Renters
Climate Zones:	No. Central Valley
PG&E Program Participation:	MyAccount, Not Med Base or BPP

Home Characteristics

Housing Type:	Apartment
Characteristics:	Smaller
Own or rent:	Renters
Energy Efficient Features:	Fewer
Improvements Made:	Fewer
AC Type and Age:	Don't Know

Demographics

Age:	Younger
Household Size:	Larger
Education / Income:	--
Ethnicity:	Hispanic, African-American
Language:	--
Disabled:	--

Appliances and Electronics

Appliances:	Fewer
Refrigerator Age:	Don't Know
Electronics:	More
Pool or Spa:	No

Energy-Related Attitudes

Always try to save:	--
Have been successful:	No
Importances:	--
Obstacles:	Don't know
	--
Attitudes:	Bill worries
	Could reduce use

Connection with Utility Programs

Satisfaction with PG&E:	--
Opinion About EE Programs:	--
Ever Partic. in EE Program:	--
Programs: Yes	--
Programs: No	--

Energy-Related Behaviors

Always do this:	--
	--
Don't always do this:	--
	--
HVAC on Hot Summer Days:	--
HVAC on Cold Winter Days:	--

ESA Awareness and Participation

Past ESA participation:	--
Home (past participants):	Previous
Sources of ESA info:	--
Awareness of ESA (non-part.):	--
Barriers (non-participants):	Not sure how to sign up
Info source preferences:	Internet, Not Insert

Segment 5: Coastal Older Homeowners (13% of the population)

This segment has low electricity use but high natural gas use, likely because they reside in coastal climate zones yet are older people in older homes that require more energy for comfort. Demographically, they tend to have smaller household sizes (consistent with being older), and they tend to be White or Caucasian. Also, they have a high incidence of home ownership, and are more likely in single family homes and even in

mobile homes. Despite being older, their homes are above average for insulation and for ceiling fans. Also helping to keep their electricity usage low, they have relatively few electronics and they turn off lights when not in use. They make other efforts to reduce energy use, including adding clothing for warmth, and believe that they have been successful. They have above average past participation in ESA (Energy Partners)..

Table 19: Segment 5 Differentiating Variables and Descriptors

Segment Determinants *(PG&E and Acxiom Data)*

Electricity Usage:	Low
Gas Usage:	High
Service Types:	Electric Only*
Payment Problems:	Low
PG&E Contacts:	Low
Dwelling Characteristics:	Older
Geographic/Homeownership:	Rural, Owners
Climate Zones:	Coastal
PG&E Program Participation:	Not MyAccount

Home Characteristics

Housing Type:	SFR, Mobile Home
Characteristics:	Older
Own or rent:	Owners
Energy Efficient Features:	Insulation
Improvements Made:	Ceiling Fans
AC Type and Age:	Swamp or None

Demographics

Age:	Older
Household Size:	Smaller
Education / Income:	--
Ethnicity:	White
Language:	--
Disabled:	--

Appliances and Electronics

Appliances:	--
Refrigerator Age:	--
Electronics:	Fewer
Pool or Spa:	No

Energy-Related Attitudes

Always try to save:	--
Have been successful:	Yes
Importances:	--
Obstacles:	Don't know
	--
Attitudes:	Not tech adopter
	Not bill worries

Connection with Utility Programs

Satisfaction with PG&E:	--
Opinion About EE Programs:	--
Ever Partic. in EE Program:	--
Programs: Yes	Energy Partners
Programs: No	--

Energy-Related Behaviors

Always do this:	Turn off lights
	--
Don't always do this:	Clothing for warmth
HVAC on Hot Summer Days:	Lower
HVAC on Cold Winter Days:	--

ESA Awareness and Participation

Past ESA participation:	Higher
Home (past participants):	Current
Sources of ESA info:	--
Awareness of ESA (non-part.):	--
Barriers (non-participants):	--
Info source preferences:	--

Segment 6: High Use, Most Problems (10% of the population)

This segment has the second highest electricity usage among the eight groups, but the highest incidence of bill payment problems and frequency of contact from PG&E. They are predominantly younger householders with the largest household sizes, living in inland climate zones (e.g., Central Valley). Contributing to their high usage, in addition to a large number of family members, they tend to have central AC, more appliances and electronics, and perhaps even a pool or spa. Otherwise, the age and condition of their homes tend to be very average compared to the rest of the low income (CARE) population. Demographically, this segment is above average in incidence of Hispanic and African-American households, and above average for household income (although over half are still less than $33,000 per year). They want to conserve, yet feel that they have not been successful. An obstacle is not knowing what to do. Perhaps because of the frustration that this likely has caused (along with their high frequency of bill payment problems), this segment is less satisfied with PG&E compared to other segments.

Table 20: Segment 6 Differentiating Variables and Descriptors

Segment Determinants (PG&E and Acxiom Data)

Electricity Usage:	High
Gas Usage:	High
Service Types:	Electric & Gas
Payment Problems:	Highest
PG&E Contacts:	High
Dwelling Characteristics:	--
Geographic/Homeownership:	--
Climate Zones:	Central Valley
PG&E Program Participation:	MyAccount, Life Support

Home Characteristics

Housing Type:	Single Family
Characteristics:	--
Own or rent:	--
Energy Efficient Features:	--
Improvements Made:	--
AC Type and Age:	Central AC

Demographics

Age:	Younger
Household Size:	Largest
Education / Income:	Higher Income
Ethnicity:	Hispanic, African-American
Language:	--
Disabled:	--

Appliances and Electronics

Appliances:	More
Refrigerator Age:	Newer
Electronics:	Most
Pool or Spa:	Yes

Energy-Related Attitudes

Always try to save:	--
Have been successful:	No (least success)
Importances:	--
Obstacles:	Don't know
	--
Attitudes:	Bill worries
	Want to conserve

Connection with Utility Programs

Satisfaction with PG&E:	Lower
Opinion About EE Programs:	--
Ever Partic. in EE Program:	--
Programs: Yes	--
Programs: No	--
	--
	--

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Energy-Related Behaviors		**ESA Awareness and Participation**	
Always do this:	--	Past ESA participation:	--
	--	Home (past participants):	--
Don't always do this:	--	Sources of ESA info:	Not an ad
	--	Awareness of ESA (non-part.):	--
HVAC on Hot Summer Days:	--	Barriers (non-participants):	Attempted (unable)
HVAC on Cold Winter Days:	--		Not sure how to
		Info source preferences:	Email

Segment 7: Disability Challenged (5% of the population)

This segment has the highest electricity usage among the eight groups – not too surprising since they are homeowners in the largest homes, with larger household sizes, with the most appliances and electronics, and with above average likelihood of having a pool or spa. Almost two-thirds are electric only – the highest of any segment. Demographically, they tend to have higher education and income levels, to be White or Caucasian, and to speak only English. Also, they tend to be located in rural, Northern climate areas (e.g., Northern Inland Valley and Northern Inland Coastal).

Another characteristic that sets this segment apart is an above average incidence of someone who is disabled (self reported) living in the home. Reflective of their somewhat higher incomes, they tend to have more energy efficient features in their home, but do not believe that their efforts to save energy have been successful. They are the segment with the lowest satisfaction with PG&E as well.

Table 21: Segment 7 Differentiating Variables and Descriptors

Segment Determinants *(PG&E and Acxiom Data)*

Electricity Usage:	Very High
Gas Usage:	Very High
Service Types:	Electric Only
Payment Problems:	Low
PG&E Contacts:	--
Dwelling Characteristics:	--
Geographic/Homeownership:	Rural, Owners
Climate Zones:	Northern-all areas
PG&E Program Participation:	MyAccount Medical Baseline

Home Characteristics

Housing Type:	SFR
Characteristics:	Largest
Own or rent:	Owners
Energy Efficient Features:	More
Improvements Made:	--
AC Type and Age:	--

Demographics

Age:	--
Household Size:	Larger
Education / Income:	Higher Education, Higher Income
Ethnicity:	White
Language:	English
Disabled:	Yes

Appliances and Electronics

Appliances:	Most
Refrigerator Age:	--
Electronics:	More
Pool or Spa:	Yes

Energy-Related Attitudes

Always try to save:	--
Have been successful:	No
Importances:	Not environment
Obstacles:	Don't know
	--
Attitudes:	Bill worries
	Health dependent

Connection with Utility Programs

Satisfaction with PG&E:	Lowest
Opinion About EE Programs:	Neutral
Ever Partic. in EE Program:	--
Programs: Yes	--
Programs: No	--

Energy-Related Behaviors

Always do this:	Run appliances full
Don't always do this:	Unplug chargers
	--
HVAC on Hot Summer Days:	--
HVAC on Cold Winter Days:	--

ESA Awareness and Participation

Past ESA participation:	--
Home (past participants):	--
Sources of ESA info:	Not rep at door
Awareness of ESA (non-part.):	--
Barriers (non-participants):	--
	--
Info source preferences:	Not email

Segment 8: High Contact Moderate Users (4% of the population)

With moderate electricity and natural gas usage, this segment is predominantly described by their moderate level of payment problems but en extremely high level of contact with PG&E – which suggests that they are "assistance seekers." They are more likely to be renters in multifamily homes with fewer energy efficient features, and with fewer improvements made to the home (by the customer). Located in higher proportions in the South Central Valley, they also have a higher than average incidence of central AC. Demographically, they are younger householders with larger families. Also, they are less educated and with lower income than other segments, an above average proportion with Hispanic and African-American backgrounds, and a higher percentage of having a disabled person in the home.

Table 22: Segment 8 Differentiating Variables and Descriptors

Segment Determinants *(PG&E and Acxiom Data)*

Electricity Usage:	Moderate
Gas Usage:	Moderate
Service Types:	Electric & Gas
Payment Problems:	Moderate
PG&E Contacts:	Very High
Dwelling Characteristics:	--
Geographic/Homeownership:	Urban, Renters
Climate Zones:	So. Central Valley
PG&E Program Participation:	Not ESA

Home Characteristics

Housing Type:	Fewer single fmly
Characteristics:	--
Own or rent:	Renters
Energy Efficient Features:	Fewer
Improvements Made:	Fewer
AC Type and Age:	Central AC

Demographics

Age:	Younger
Household Size:	Larger
Education / Income:	Less Educated, Lower Income
Ethnicity:	Hispanic, Af-Am
Language:	English speakers
Disabled:	Yes

Appliances and Electronics

Appliances:	--
Refrigerator Age:	--
Electronics:	More
Pool or Spa:	--

Energy-Related Attitudes

Always try to save:	--
Have been successful:	--
Importances:	Save money
Obstacles:	Don't know
	--
Attitudes:	Bill worries
	Willing to sacrifice

Connection with Utility Programs

Satisfaction with PG&E:	--
Opinion About EE Programs:	--
Ever Partic. in EE Program:	--
Programs: Yes	--
Programs: No	--
	--
	--

Energy-Related Behaviors

Always do this:	--
	--
Don't always do this:	--
	--
HVAC on Hot Summer Days:	Lower
HVAC on Cold Winter Days:	--

ESA Awareness and Participation

Past ESA participation:	--
Home (past participants):	--
Sources of ESA info:	Not an ad
Awareness of ESA (non-part.):	--
Barriers (non-participants):	--
Info source preferences:	Separate Mail, Phone

IV. ADDITIONAL RELEVANT FINDINGS ON THE PG&E ENERGY SAVINGS ASSISTANCE (ESA) PROGRAM

In addition to providing information about each of the eight segments, the study provides insights with regard to PG&E's ESA program. The following section highlights some additional findings garnered from both the telephone survey (shown in the data tables below) and focus group discussions.

ESA Program Awareness and Knowledge

The phone survey found that almost two out of three (63%) of low income customers claimed to have heard of the ESA ("Energy Partners") program (Table 23) – quite high but with potential for further growth, using the success of CARE as a benchmark. Of these customers who are aware, half of them (31% of the total) reported having participated before. Program awareness is similar across the segments.

Table 23: Awareness of ESA Program (aka "Energy Partners")

Response	Percent
	(n=1,499) M.E. = +/- 2.5%
Aware of ESA ("Energy Partners")	63%
Participated	31%
Not Participated	32%
Not Aware of ESA or Not Sure	37%

Margin of error is determined based on the sample size at expected proportion of 50% at 95% confidence
"Which of the following programs have you participated in? (LIST OF EE PROGRAM)"
"Have you heard of this "Energy Partners" program that includes weather stripping, insulation, refrigerators, and such?"

Those who were aware but had not participated (32% of the total low income population) were then asked about their level of knowledge about the program (Table 24). Over one-third (38%) of those who were aware but had not participated said they didn't know anything about the ESA program (other than they have heard the name – Energy Partners – or recognized a short description of it), while another one in three (33%) said they didn't know enough about it to make a decision (or to sign up).

Among those who reported having some awareness of the program but not enough to make a decision to participate, some (15%) reported having tried in the past and not been successful while others (14%) report having decided against participating in the program.

Table 24: Knowledge of the ESA Program
(among those aware of ESA who have not participated)

Response	Percent
	(n=496) M.E. = +/- 4.4%
Know nothing about it, or "don't know"	38%
Don't know enough to make a decision	33%
Attempted but unable to participate	15%
Decided against it	14%

Margin of error is determined based on the sample size at expected proportion of 50% at 95% confidence
"Which of the following best describes what you know about this program?"

These data were supported by the focus group discussions in which the majority of customers who are aware of the ESA ("Energy Partners") program contended that they didn't know too much about it. Some had heard about the program but didn't know any details, they knew only bits and pieces about it, or their knowledge included incorrect beliefs. Even participants or those who attempted to participate but were told they did not qualify did not know much about program details. For example, a few customers in the focus groups who were aware that they might qualify for a free refrigerator were unaware that the program offered weatherization.

A related issue is that once customers find out about the program, their lack of more detailed knowledge about the program may prevent them from taking the next step or following through with their interest in the program. For example, one customer in a focus group who said he "signed up" said that he did not hear back from PG&E, so presumed, incorrectly, that the program either ran out of funds or that his household did not qualify, so he did not proactively pursue it.

These results suggest that awareness of the program still has room for improvement, even without the name change. Awareness of the CARE program is considerably higher as may be presumed by the high participation rate of CARE. Therefore, it would be reasonable to strive to raise the awareness of the ESA program above its current level. In addition, among those aware of the program, many didn't know enough to take action. Simply raising the awareness is not enough unless customers know what is needed on their part to actually apply for the program – such as calling their utility or going online to get more information or to sign up. The qualitative discussions also revealed that in many cases customers were not very proactive, so the onus is on PG&E to continue to actively pursue them both for enrollment and the follow-up steps to ensure they receive measures that they qualify for.

Preferred ESA Information Sources

Customers in the survey (as well as in the focus groups) were asked their preference regarding communications from PG&E about the ESA program. Results from the survey (Table 25) indicate that printed material from PG&E was most preferred.

Table 25: ESA Information Source Preferences
(multiple responses accepted)

Response	Percent (n=1,494) M.E. = +/- 2.5%
PG&E Separate Mail	60%
PG&E Bill or Bill Inserts	45%
Phone Call	23%
Internet / Websites (non-PG&E)	7%
PG&E employees / in-person	6%
Email	5%
News: TV / radio	4%
PG&E Advertising: TV / radio	3%
Newspapers	2%
PG&E Website	2%
Word-of-mouth	1%
Community / assistance organization	<1%
Contractors	<1%
Stores / Retailers	<1%
Other	2%
No preference / Don't want it	2%

Margin of error is determined based on the sample size at expected proportion of 50% at 95% confidence
"What is the best way for PG&E to get information to you about saving energy or about their programs?"

These results suggest that increasing program awareness through communications can continue to rely on mail campaigns. Direct mail was the customers' preferred method, followed by bill inserts. Although direct mail and inserts are not always read, other research suggests that many customers do read materials they receive in the mail from Pacific Gas & Electric Company. Printed material also makes it easier to take action – applications, phone numbers, and website addresses can all be included. A few customers reported they save printed materials for future reference as well.

Past program participants and those who had heard of the program before were asked how they learned about the program (Table 26). From the telephone survey, the number one answer was word-of-mouth (from friends, neighbors, or family). This was also supported by the qualitative findings. Program advertising and representatives going door-to-door were cited as ways customers learned about the program as well.

Table 26: Sources of Information About ESA
(among past ESA participants or aware of ESA/"Energy Partners")

Response	Percent (n=961) M.E. = +/- 3.1%
Saw/heard ad	33%
Friend/neighbor/family	25%
Rep at my door	15%
Phone call (called utility and they told me)	7%
Phone call (they called me)	6%
Utility website	3%
Landlord	2%
From county / city / senior center	2%
From another program or class	2%
Bill insert	1%
Direct Mail	<1%
Other sources	3%
Don't know or don't recall	6%

Margin of error is determined based on the sample size at expected proportion of 50% at 95% confidence
"How did you learn about this program?"

A conclusion is that mail communications can and should be augmented by more personal, direct contact methods. In both the focus groups and the phone survey, customers reported they would like to learn about the program via: (1) telephone contact (including automated telephone calls), (2) email (although some are hesitant about getting too many messages so prefer just one every few months), and (3) community events (many low income people attend local community events because they are seeking assistance resources so the ESA program is a natural fit here).

The limitations of other outreach methods that appeal to some customers were described in the focus groups. These include:

- In-Person (door-to-door): some people don't open their doors to people they don't know, or they are not home very often so would miss out
- Printed material left at the door (e.g., flyers): not everyone reads them
- Inserts in coupon packs (most don't read them and don't think the ESA program is a good fit).

Word-of-mouth has been a common way that customers learn about the program. As a result, strategies to encourage word-of-mouth might be useful to consider. For example, a "refer-a-friend" program could be established. Likewise, the use of actual testimonials could be effective for overcoming customer hesitations about signing up.

ESA Program Barriers

Those who know something about the program were asked their reasons for not signing up. Reasons were first identified in the pre-segmentation focus groups and then validated in the quantitative survey. The quantitative survey results are shown below (Table 27).

Table 27: Reasons Not Signed Up for ESA
(among those who know something about ESA but have not participated)
(multiple responses accepted)

Response	Percent
	(n=234) M.E. = +/- 6.4%
Someone else needs it more	51%
Don't think home needs it	44%
Not sure how to sign up	36%
Don't think would qualify	34%
Doubt appliance quality	16%
Doubt the workmanship	13%
Some other reason	19%

Margin of error is determined based on the sample size at expected proportion of 50% at 95% confidence
"Which of the following are reasons that you've not signed up for the Energy Partners or Energy Savings Assistance program?"

The main reasons customers did not sign up, in order of frequency of mention, included: someone else probably needs it more, don't think their home needs it, not sure how to sign up, don't think they will qualify, doubt the appliance quality, and doubt the workmanship.

If not already employed, program marketing and design may be improved with any/all the following:

- Information that the program has resources to serve many, not just a few.

- Information that makes it clear that the program is not "all or nothing" in that even if the household does not need or qualify for all the measures, many households will benefit from some aspect of the program.

- Directions on how to sign up, including a direct call to action that takes customers to the next step.

- Income requirements so customers can readily determine their eligibility.

The program may also want to consider:

- The use of testimonials to overcome customer concerns about program quality (e.g., workmanship, appliances, etc.) or "it's too good to be true."

- Modify or add program measures to increase program appeal and to be perceived to be more relevant to more households. Ideas for program changes include: (1) add measures to provide households with more control, such as smart power strips and timers, and (2) enhance program education to target different audiences such as children, teens, seniors, disabled, etc.

Renters face additional barriers. In particular, since most renters are hesitant to contact their landlord, the program may consider:

- Developing marketing materials targeted to renters that can address their hesitancies about contacting their landlord, and about making changes to a physical structure that they don't own.

- Adding program measures that do not require landlord approval, such as plug-in control devices or an enhanced CFL program that provides not only initial bulbs but replacements when the originals burn out.

ESA Program Messaging

In the telephone survey, ESA participants were asked why they signed up for the "Energy Partners" program (Table 28). Just the fact that they had "learned about it" was mentioned by 20%. Saving money (15%) and saving energy (15%) were mentioned as the second and third top reasons. Receiving the free measures (refrigerator, light bulbs, weather stripping, windows, insulation, etc.) was mentioned by about one in five participants.

Table 28: Main Reasons for Signing Up for ESA (among past ESA/"Energy Partners" participants)

Response	Percent
	(n=462) M.E. = +/- 4.5%
Learned about it	20%
Friend, relative, word-of-mouth	5%
Rep came to the door	3%
Misc other methods	11%
Save money	15%
Save energy	15%
Get weather stripping	9%
Limited income / don't have any money	8%
Get refrigerator	3%
Medical condition	2%
Get light bulbs	1%
Discount on bill	1%
Get windows	1%
Help environment	<1%
Other reasons	12%
Weatherizing/Insulation	4%

Misc other reasons	8%

Margin of error is determined based on the sample size at expected proportion of 50% at 95% confidence
"What were the main reasons that you signed up for or participated in this program? Please tell me whatever details you remember about how you learned about the program and about what the program offers that prompted you to sign up."

Program messaging could make use of these top of mind and salient reasons, for example with a "save money without spending any" message. Note that the focus group discussions suggested that "saving energy" implied "doing without" for some people, so might not be as motivating as saving money.

In the focus groups, customers responded most favorably to messages that are more functional and descriptive of the program:

- The program provides energy-saving appliances and services including refrigerators, home weatherization, and energy efficient light bulbs.

- PG&E will pay all costs of purchasing and installing the appliances for the program.

- Helps your household use energy more efficiently.

Other sign-up message elements that are important to continue to include are:

- It's easy to participate – just call Pacific Gas & Electric Company or go to PGE.com and complete an online application.

- Both homeowners and renters can participate.

- Customers qualify based on their household income.

Messages that highlight potential hurdles to participation (e.g., statements about proof of income being required, renters needing landlord's signature) should not be "lead" copy items, but rather included after the program benefits have been described.

As noted above, customers also reiterated a salient issue is not having enough money to do the things they want to do. Messaging that includes the notion that if they are able to use energy more efficiently, they may be able to do more of the things they want to do is likely to resonate with this group.

V. CONCLUSIONS

The research focused on two overarching objectives: (1) developing a segmentation of the low income customer population, and (2) providing information to support program marketing and, possibly, design.

Specific recommendations follow. These recommendations do not imply that PG&E has not been or is not currently addressing these issues, but rather that these issues should be considered when developing future plans. Also, the recommendations are intended to be directional, in part because this research did not include a process evaluation. All recommendations need to be considered within the context of feasibility, cost effectiveness, and any other relevant criteria.

The ESA segmentation research identified eight customer segments, listed in Table 29 below.

Table 29: Low Income Customer Segments

Segment	Name	Energy Usage	Percent of ESA (CARE) Population
1	Inland Older Homeowners	Low	22%
2	Small Coastal Renters	Very Low	17%
3	Inland Family Homeowners	High	16%
4	Struggling Modest Renters	Low	14%
5	Coastal Older Homeowners	Low E, High G	13%
6	High Use, Most Problems	High	10%
7	Disability Challenged	Very High	5%
8	High Contact Moderate Users	Moderate	4%

In sum, each low income customer in the service territory can be assigned to one of the eight segments, and identified segments can be targeted through direct mail or other direct contact methods. Additionally, PG&E may want to utilize variables in the dataset to further screen members of a segment for even more precise targeting, segment members can be located geographically to facilitate a geographic implementation plan, and the dataset can be refreshed periodically to keep it current.

Segmentation Recommendations

In order to further the objectives of improving targeting and outreach activities, the following recommendations should be considered:

- Classify the CARE population into the eight segments. Because the segments were determined using variables that are included in the main billing database, customers can be classified into one of the eight segments. Following this, customers from identified segments can be targeted by program implementers with more specific messages and media. For example, direct mail with a segment-specific message may be sent to those households that are members of the segment.

- Identify segments to target. The segments are differentiated based on electricity usage, energy burden, demographics, and other characteristics. Some segments include higher proportions of potentially qualified customers and/or customers who may be more in need of the services provided by ESA. Moreover, depending on resource needs and logistics, program operations may pursue specific geographic regions with higher concentrations of certain segments that are relatively more likely to benefit from program participation.

- Use additional variables in the dataset to further screen members of a segment into smaller subgroups for even more precise targeting. For example, the dataset includes a variable of the date that service was first established at a premise. Since older homes in certain CEC climate zones are more likely to qualify for the types of improvements provided by the ESA program, this variable may be used to specifically identify these older premises within a particular segment. Along these lines, household energy usage data can be used to identify households within a segment that demonstrate unusually high usage so that program resources may be applied to households with greater energy savings potential.

- Apply geographic information to assist program implementers with neighborhood targeting. The dataset can be used to find the ZIP codes that contain higher proportions of customers who belong to higher interest segments. These ZIP codes can be mapped, from which a geographic implementation plan can be developed. This can be taken a step further in the field, where contractors can approach homes armed with a handful of customized messages based on some assumptions regarding that region or household's segment membership.

- Periodically refresh the low income customer dataset. The segmentation algorithm can be applied to new CARE households with at least one year of energy usage history to classify them into one of the eight segments. This is needed since new households will otherwise remain unclassified regarding their segment membership. This will ensure that the natural pattern of households moving in and out of different residences does not render the segmentation obsolete after a few years. Also, segment membership for all households in the low income customer database may be refreshed periodically (such as every three to five years) to account for changing dynamics within a household.

ESA Program Marketing and Design Implications

The results of this study also inform marketing and program design. Overall findings that can be generalized across the low income customer population suggest that: (1) customer awareness and, even more so, knowledge of the ESA program have room to grow, (2) some customer barriers to participation could be addressed, (3) participation could be motivated by more targeted messaging, and (4) renters face some unique issues.

Specific recommendations follow. These recommendations do not imply that PG&E has not been or is not currently addressing these issues, but rather that these issues should be considered when developing future plans. Also, the recommendations are intended to be directional, in part because this research did not include a process evaluation. All recommendations need to be considered within the context of feasibility, cost effectiveness, and any other relevant criteria.

Awareness and knowledge building recommendations include:

- <u>Continue communications to raise awareness above 63% (current level)</u>. It's not unreasonable to strive for higher awareness of the ESA program among the population of CARE-eligible customers.

- <u>To reach customers, continue to augment direct mail and bill inserts with more personal direct contact methods</u> (e.g., telephone including automated calls, email, and community events). These are the methods most preferred by customers. Other methods of outreach, including door-to-door, were not as popular with customers but still have a place in the overall program outreach portfolio.

- <u>Employ strategies to encourage word-of-mouth</u>. Word-of-mouth was found to be the number one source of information about the program among those already familiar with it, so efforts to encourage more of this could pay off. For example, a "refer a friend" program could be established. This also suggests that testimonials could be effective for overcoming customer hesitations to sign up (discussed below). The downside is that word-of-mouth tends to promulgate incomplete information, so there is still a strong need for direct communication from PG&E to customers.

Top barriers to participation that customers face (once they become aware of the program and it is "in their minds") include: someone else probably needs it more, don't think they will need it, not sure how to sign up, don't think they will qualify, and concerns about program quality. Overcoming these barriers might require both short term and long term solutions. Actions to consider are:

- <u>Ensure awareness building communications provide enough information</u> so customers can and do take the next step – such as directions on how to sign up, and a call to action.

- <u>Clarify misperceptions.</u> Common misperceptions are that: (1) the program can run out of funds, which discourages customers from being more proactive regarding participation, (2) qualifying is "all or nothing," so that customers who have had some weatherization or who have a new refrigerator might believe they won't qualify, and (3) the program is for a single measure, such as "refrigerator replacement" or "weather stripping" rather than providing a more comprehensive package of measures. This last misperception stems from incomplete

information – many customers just don't know much about ESA and what they learn may be from friends, family or neighbors who may not accurately communicate the value, eligibility, or participation requirements of the program.

- <u>Use testimonials to overcome customer concerns</u> about program quality (e.g., workmanship, appliances, etc.) or "it's too good to be true."

- <u>Consider including measures that appeal to more households</u>. Introducing measures that appeal to more customers – particularly renters – may increase overall program interest. For example, measures that enable more "control," such as smart power strips and timers, and/or enhanced program education that targets different audiences such as children, teens, seniors, disabled, etc. may appeal to a wider audience while also providing one solution for customers who are frustrated not being able to manage "others" in the home.

In the telephone survey, ESA participants were asked their main reasons for signing up for the "Energy Partners" program. In addition to simply finding out about the program, saving money and saving energy were mentioned as the second and third top reasons, followed by receiving the free measures (refrigerator, light bulbs, weather stripping, insulation, etc.) The focus groups revealed that in some cases "saving energy" implied "doing without" for some people, so might not be as motivating as saving money.

- <u>Program messaging could make use of these top of mind and salient reasons</u>, for example with a "save money without spending any" message.

Customers also discussed message preferences and desires that may be accommodated by including descriptive information, functional benefits, and an emotional leverage point such as:

- The program provides energy-saving appliances and services including refrigerators, home weatherization, and energy efficient light bulbs.

- PG&E will pay all costs of purchasing and installing the appliances for the program.

- Helps your household use energy more efficiently.

- It's easy to participate – just call Pacific Gas & Electric Company or go to PG&E.com and complete an online application.

- Using energy more efficiently allows you to do more of the things you want to do.

Recommendations regarding more effectively reaching the renters in the program are centered on issues that renters face related to gaining permission for program participation. Many renters are hesitant to contact their landlord for a variety of reasons. Program staff may consider:

- <u>Developing a marketing campaign targeted to renters</u> that can address their hesitancies about contacting their landlord, and about making changes to a physical structure that they don't own.

- <u>Adding measures that do not require landlord approval</u>, such as plug-in control devices or an enhanced CFL component.

APPENDICES

Appendix A: Focus Group Discussion Guide (Initial Groups)

ESA/LIEE Segmentation Sessions
Focus Group Discussion Guide
(Approximately 1:50 hours total time)

I. INTRODUCTION (15 minutes)
OBJECTIVE: Create an atmosphere for open discussion

- <u>Moderator Introduction</u>:
  - Introduce self
  - Leading the discussion today
  - I am an independent consultant and do not work directly for the company who hired us so you will not hurt our feelings or insult us if you disagree with, or do not like something is presented here today.
  - Only rules are (1) that everyone needs to participate although not all at once, so please take turns talking, and (2) if you have something to share please speak to the entire group, not just your neighbor (3) it is VERY important that you are honest. Do not just agree with others or say what you think WE or others in the group want to hear. Personal and HONEST opinions are important.
  - Room description, backroom observers, audio and video recording

- <u>Objective/Topic of Discussion</u>:
  We want to learn more about…
  - your attitudes and behavior related to the use of electricity (as well as those of your family)
  - your family's home and circumstances as they relate to energy use
  - how the recent economy may be affecting your energy use
  - your opinions of some programs the utilities offer to help their customers

- <u>Introductions</u>: Tell us about yourself:
  - Name
  - Where you live
  - What type of home is it (single family, townhouse, condo, apartment)
  - How long you've lived there
  - How many in your household
  - And share with us one current source of frustration that perhaps keeps you from doing more of the things that you would like to do?

PG&E Energy Savings Assistance (ESA) Segmentation Research
Page 53
HINER & Partners, Inc.

SB_GT&S_0310397

II.   OVERALL ENERGY HABITS AND USE (15 minutes)

OBJECTIVE: Understand energy efficient and inefficient habits and behaviors. Determine barriers to adopting more energy efficient behaviors.

1. **I'd like to begin by asking you to tell me a little bit about your home – and in particular, how you and other members of your household use energy.**

   - What are your main uses of energy in your home?
     - o (MAKE LIST – WRITE ON BOARD)

   - What are the main benefits to you of using energy in your home? PROBES: How does it affect your life at home?
     - o (MAKE ANOTHER LIST – WRITE ON BOARD)(E.G.: Helps keep the routines of your household, physical comfort, safety, entertainment and enjoyment, income (if you work at home), getting more things done, taking care of your family, dong things with others, etc.
     - o Which is most important?

   - Do you think your household uses more or less energy in relation to others in your community?
     - o Show of hands, who thinks they use more?
     - o Who thinks they use less?
     - o If you think you use more, why is that? (PROBES IF NEEDED: number of people, what different household members do, the home itself, how you use appliances, what types or age your appliances are, etc.)
     - o If you think you use less energy, why is that?

III. CHANGES IN ENERGY USE / ATTITUDES TOWARDS ENERGY (20 minutes)

OBJECTIVE: Understand possible reasons and motivations for increases AND decreases in energy use.

1. **Have any of you noticed if you are using MORE energy now than you did a few years ago? Your bill may go up for other reasons – at the moment I am really interested in knowing if you have noticed if you are actually using more electricity now than you used to.**

   - For those of you who have INCREASED your energy use over the past few years – can you talk a little about that?
     - ○ What do you think is causing you to use more energy? (PROBE FOR USES AND REASONS: E.G.: NEW APPLIANCES ADDED, MORE ELECTRONICS IN THE HOME, MORE PEOPLE IN THE HOME, EQUIPMENT NOT WORKING AS WELL, WEATHER MORE EXTREME?)

   - Are there any others who <u>think</u> they are using MORE energy than they used to – even if you are not sure or haven't been paying attention to changes in your energy bill or not.
     - ○ What do you think is causing you to use more energy now?

2. **On the other side, how many of you are <u>confident</u> that you are using LESS energy than you used to?**

   - What do you think is causing you or your household to use LESS energy than you used to? (PROBE FOR (1) USE CHANGES, (2) CIRCUMSTANCES, AND (3) REASONS: E.G., FEWER PEOPLE IN THE HOME, TURNING OFF LIGHTS MORE, ALTERING THERMOSTAT TEMP, TURNING OFF TV, NOT USING AC AS MUCH, ETC)

   - Any others who think they are using LESS energy than they used to?
     - ○ What are some of the reasons that you or your household is using LESS energy than you used to?

3. **When you hear about the need to conserve or use less energy, what comes to mind? What does this mean to you?**

   - PROBES IF NEEDED: Is it about saving money, saving the environment, propaganda, something else?

4. **To what extent do you and others in your household try to <u>actively</u> conserve or save energy?**

- Would you say that conserving energy in your home is more—or less—important to you than others?
    - Who do you compare yourselves to?
    - For those who say saving energy is more important to your household than to others – why is it important?
    - For the rest of you, why is it less important to your household?
- To the extent that you or your household tries to save energy, what is the main reason that you do this? What prompted you to actively conserve energy? (PROBE: MONEY, ENVIRONMENT, COMFORT, PRESSURE FROM OTHERS (WHO?), ANYTHING YOU'VE SEEN OR READ, ETC.)
    - Have you been successful in saving energy?
    - What are the biggest barriers that YOU personally have in trying to save energy?
    - Do other members of your household share this opinion – or do you think they might see other reasons for NOT saving more energy?
    - What energy habits are hard to change?

5. **If saving energy is not that important to you, why not? (PROBE: USE LITTLE TO BEGIN WITH, CAN AFFORD IT, COMFORT, ETC.)**

IV. HIGH USAGE NEEDS ASSESSMENT QUESTIONS – BEHAVIORS, APPLIANCES, AND ATTITUDES IN RELATION TO OTHERS (25 minutes)
OBJECTIVE: Understand possible reasons for high use relative to neighbors

1. **Earlier we talked briefly about how you see yourself and your household in relation to others – I'd like to discuss in a little more detail how you see your attitudes and electricity use in comparison to others in your community.**

   - First off, relative to your neighbors, in your opinion, tell me what you think makes you and/or your household MORE or LESS "green"?

   (ASK THE FOLLOWING 2 QUESTIONS AS FOLLOW-UPS IF THEY HAVE NOT BEEN ANSWERED

   - Is there anything about your home or personal circumstances that you feel makes it "necessary" for you to use MORE electricity than your neighbors?

   - Is there anything about your home or your personal circumstances that perhaps allows you to use LESS energy than your neighbors?

2. **We also made a list of things that use energy in your home. Which of these appliances, equipment, and electronics do you consider:**

   - Most energy efficient?

   - Least energy efficient?

   - Unsure/neither?

3. **What makes things more energy efficient? (E.G., NEWER, SMALLER, ETC.)**

   - What makes things less energy efficient?

   - FOR APPLIANCES THAT APPEAR TO BE MISCLASSIFIED, PROBE WHY

4. **Can you tell me some things that you feel you CANNOT control or change with regard to your energy use?**

5. **What sort of things do you feel you CAN control or change with regard to your energy consumption?**

   - PROBE TO IDENTIFY CONTROLLABLE SITUATIONS (remembering to turn the thermostat down; TV off; close windows, fill laundry machine, VS need to keep warm; need to do laundry, etc.).

6. Is there anything that you can think of that would make you more likely to conserve or be more efficient with your energy?

7. Next I am going to ask you to use the pencil and paper in front of you to write three different things down for me:

- FIRST, thinking about ads or public service announcements that talk about "the need to conserve energy", is there anything in information that you have seen or heard that **you find hard to believe?** (LET THEM WRITE – AND THEN GO ON TO #2)

- SECOND, again thinking about ads or public service announcements, is there anything that you hear or read **that you feel does not apply to you?** (LET THEM WRITE – AND THEN GO ON TO #3)

- THIRD, is there anything that you see or hear about "saving energy" that **makes you angry?**

- ONCE WRITING IS FINISHED:
  - What did you write down as "hard to believe"?
  - What does not apply to you?
  - What makes you angry?

COLLECT THE PAPERS.

IV. FINANCIAL CHALLENGES & PAYING THE UTILITY BILL (10 minutes)

OBJECTIVE: Gain insights into relative customer hardship & strategies for dealing with bills.

1. **In a minute I am going to ask your opinion about a specific energy efficiency program offered by your utility, but before I do that, I'd like to get a sense from you about how the current economic situation has impacted your ability to pay your bills.**

   - When it comes time to pay the bills each month, how do you decide which bills to pay first? And which ones go to the bottom of the pile – in terms of importance?

   - Roughly where does your electric bill fit in – in terms of a priority?
     - o Why?

   - How many of you have had difficulty paying your electric bill this past year?
     - o Because of this, who has had a late payment, missed a payment, or received a disconnect notice? Has anyone actually had their service shut off because they did not pay a bill? *VERIFY TO SEE IF IT IS AN OVERSIGHT OR BECAUSE THEY DID NOT HAVE THE MONEY.*

   - Where would you think to turn for assistance with high energy bills, keeping in mind that there are many different ways that you might deal with this?
     - o What kinds of help would get your attention and make the most sense to you?
       - i. Financial help like a discount or help with a payment?
       - ii. Physical help like fixing old appliances or insulating your home?
       - iii. Advice or educational assistance, informing you what you can do to change your energy use?
     - o What do you think about these types of assistance?
       - i. Benefits to you?
       - ii. Negatives? (e.g., too time consuming to help, hurts self-respect, doesn't really help, etc.)

2. **Since your energy bills may go up and down based on the outside temperature, are there things that you, and members of your household, try to do to minimize the higher energy bills?**

3. **How many of you are currently receiving a discounted rate through your utility? (*IT SHOULD BE ALL – IF THEY KNOW*)**

   - How did you learn about this program?

   - Have you ever told others you know about this program?

V. AWARENESS AND INTEREST IN THE ESA/LIEE PROGRAM (20 minutes)

OBJECTIVE: Gain insights into customer awareness and perceptions of the program, as well s barriers to participation.

1. **Are any of you familiar with any other programs that your utility offers to help customers reduce their energy consumption?**

   - Can you tell me the names and/or a description of any of the programs that you are familiar with? *(HOW MANY SPECIFIC PROGRAMS COME TO MIND)*

   - Can I see a show of hands if any of you have participated in any of these programs?
     - o Which program? What prompted you to participate?

2. **How many of you are familiar with a program called "EMA" or the Energy Management Assistance Program?** *(GET A SHOW OF HANDS).*

   - What do you know about the program? *(PROBE IF NECESSARY:*
     - o *What does it include?*
     - o *How does it work?*
     - o *How can someone participate?)*

MODERATOR READ:

The "EMA" program is a program that offers energy efficiency products and services to some customers at no cost. A qualifying household can receive a mix of different services, depending on its needs. Some of the things provided by the program include: informational materials and tips on saving energy, compact florePG&Ent bulbs, attic insulation, energy efficient refrigerators, evaporative coolers, caulking, and in some cases air conditioning units. The program also offers maintenance services for some appliances to insure that they are working properly and not "wasting" energy.

3. **Have any of you participated in this program, or one like it?**

   - What do you know about the EMA program, other than what I just told you?

   - Has anyone participated in a program like this one, but with a different name?
     - o Is that program different from this EMA program? How so?

   - For those of you who have participated in this or a program like it, what enticed you to participate?
     - o What was the most important reason that you participated?

   - Were you very, somewhat, or not at all satisfied with the program?

- o Why "very" satisfied?
- o Why 'somewhat" satisfied?
- o Why "not at all" satisfied?
- What would you tell friends who were qualified for the program were the strengths and weaknesses of it?

4. Now, for the rest of the group, does this program sound like something that would be helpful to you or your household? Why? Why Not?

- For people who think it could be helpful, what is it about the program that you find appealing?

- For folks who do not think it would be helpful, why is this something that does not sound like it would be helpful for you?

- Assuming that you are eligible, based on what you have heard so far, how many of you would consider participating in a program like this?

- What is the main reason that you WOULD participate? *PROBE FOR SPECIFIC ASPECTS OF THE PROGRAM THAT SOUND APPEALING – INFORMATION, GETTING A NEW FRIDGE, ETC?*

- What, if anything, might keep you from participating in the program?

5. Now that you know a little bit about the program, I would like to get your reaction to the process that customers go through in order to participate in the program.

First, an PG&E representative goes door-to-door through a neighborhood to find out if people are interested and qualified for the program. The PG&E rep will complete an application at that time or will leave information about the program. After the customer completes the application, PG&E schedules an evaluation visit, where a trained energy evaluator goes through the home to identify what improvements might be needed. Then, another appointment is scheduled where the improvements are completed. Finally, a third appointment is scheduled to review the completed work.

- Now I want to ask you again, assuming that you are eligible, how many of you would consider participating in this program?

- What, if anything, might keep you from participating in the program?

V.   CONCLUSION (5 minutes)
OBJECTIVES: Summary and final comments.

1. I am going to go into the back room now to see if they have any final questions for me to ask you. (LEAVE AND RETURN. ASK FINAL QUESTIONS)
2. Do *you* any final comments?

THANK YOU VERY MUCH!

APPENDICES

Appendix B: Telephone Survey Results by Segment

Table B1. DEMOGRAPHICS: AGE, GENDER, HOUSEHOLD SIZE

	Total	1	2	3	4	5	6	7	8
	(100%)	(22%)	(17%)	(16%)	(14%)	(13%)	(10%)	(5%)	(4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Age (D1)

18 to 44 years	26%	27%	18%	21%	41%	16%	34%	23%	33%
45 to 64 years	35%	27%	39%	31%	40%	29%	46%	39%	48%
65 or older	35%	41%	38%	42%	16%	49%	17%	34%	17%
Refused	5%	5%	5%	6%	3%	6%	3%	4%	2%

Gender (D8)

Male	32%	35%	27%	38%	27%	34%	30%	34%	23%
Female	68%	65%	73%	62%	73%	66%	70%	66%	77%

Household Size (mean) (S4, S5, S6)

Total	2.8	2.6	2.0	3.1	3.3	2.3	3.9	3.2	3.2
Under 18	2.2	2.2	1.8	2.2	2.1	2.1	2.5	2.0	2.3
65 or older	1.5	1.5	1.3	1.6	1.4	1.6	1.5	1.6	1.4

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B2. DEMOGRAPHICS: EDUCATION AND INCOME

	Total	1	2	3	4	5	6	7	8
	(100%)	(22%)	(17%)	(16%)	(14%)	(13%)	(10%)	(5%)	(4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Education (D2)

High school or less	35%	39%	33%	38%	28%	40%	29%	23%	42%
Some college	38%	35%	32%	37%	43%	37%	43%	47%	39%
College graduate	26%	25%	34%	24%	26%	22%	26%	27%	16%
Refused	2%	1%	1%	2%	3%	1%	2%	3%	3%

Income (D5)

Less than $33,000	65%	65%	74%	59%	65%	64%	57%	56%	72%
$33,000 to < $53,000	14%	14%	7%	15%	19%	16%	19%	16%	12%
$53,000 or more	10%	10%	8%	13%	8%	8%	16%	16%	7%
Refused	11%	11%	10%	13%	8%	13%	8%	11%	9%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B3. DEMOGRAPHICS: ETHNICITY AND LANGUAGE SPOKEN

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163
Ethnicity (D3)									
White or Caucasian	56%	1%	57%	59%	41%	66%	46%	70%	44%
Hispanic or Latino	21%	19%	20%	21%	28%	20%	28%	11%	26%
African American	7%	4%	5%	3%	16%	2%	12%	3%	18%
Asian	5%	5%	8%	5%	3%	4%	2%	3%	3%
American Indian	2%	2%	1%	3%	2%	2%	4%	3%	3%
Other	5%	6%	4%	6%	7%	5%	5%	4%	3%
Refused	3%	3%	3%	5%	4%	2%	2%	6%	4%
Languages Spoken In Home (D4)									
English	85%	81%	83%	85%	82%	86%	88%	93%	93%
Spanish	13%	15%	14%	13%	15%	13%	11%	5%	6%
All Other	4%	5%	5%	4%	4%	4%	4%	2%	3%
Refused	1%	1%	<1%	2%	1%	-	2%	2%	1%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B4. DEMOGRAPHICS: DISABILITIES

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163
Disabled Person Living in Home (D6)									
Yes	39%	35%	34%	40%	37%	37%	45%	50%	56%
No	60%	63%	65%	57%	62%	62%	53%	47%	42%
Refused	2%	2%	1%	3%	1%	1%	2%	3%	2%
Type of Disability (if disabled person living in home) (D7)									
Mobility	44%	37%	46%	56%	40%	48%	42%	43%	42%
Chronic Disease	38%	41%	35%	27%	41%	39%	40%	38%	47%
Hearing	18%	24%	15%	25%	8%	18%	17%	16%	12%
Vision	13%	12%	13%	14%	11%	16%	10%	-	13%
Psychological	10%	9%	10%	11%	19%	4%	5%	12%	15%
Cognitive	9%	11%	6%	8%	14%	3%	13%	14%	7%
Other	<1%	-	1%	-	-	-	-	-	-
Refused	2%	1%	3%	3%	3%	-	1%	5%	3%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B5. HOME CHARACTERISTICS: TYPE, SIZE, AGE, AND OWNERSHIP

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163
Type of Home (HC1)									
Single Family	66%	69%	36%	85%	56%	72%	79%	80%	58%
Apartment	17%	11%	46%	5%	25%	8%	4%	2%	22%
Mobile Home	6%	6%	2%	6%	3%	11%	7%	8%	7%
Duplex	5%	6%	7%	1%	6%	5%	4%	2%	7%
Condominium	3%	4%	3%	2%	5%	2%	1%	1%	1%
Townhouse or Row House	3%	3%	5%	1%	5%	2%	4%	2%	4%
Don't Know	<1%	1%	<1%	1%	-	-	-	-	-
Characteristics (means) (HC2a, HC2b, HC4, HC5)									
Size (square footage)	1,492	1,441	1,083	1,750	1,381	1,520	1,554	1,906	1,524
Number of bedrooms	2.6	2.7	2.0	3.0	2.5	2.6	3.1	3.0	2.7
Years lived there	14.7	16.1	11.9	19.2	6.9	21.6	11.6	17.2	11.6
Year home was built	1969	1968	1966	1973	1971	1965	1971	1970	1969
Own or Rent (HC3)									
Own	58%	66%	36%	78%	38%	72%	52%	81%	37%
Rent or lease	42%	32%	64%	21%	62%	28%	47%	19%	62%
Don't know	1%	2%	<1%	1%	-%	-	1%	1%	9%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B6. HOME CHARACTERISTICS: EE FEATURES AND IMPROVEMENTS

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163
Type of Home (HC1)									
Single Family	66%	69%	36%	85%	56%	72%	79%	80%	58%
Apartment	17%	11%	46%	5%	25%	8%	4%	2%	22%
Mobile Home	6%	6%	2%	6%	3%	11%	7%	8%	7%
Duplex	5%	6%	7%	1%	6%	5%	4%	2%	7%
Condominium	3%	4%	3%	2%	5%	2%	1%	1%	1%
Townhouse or Row House	3%	3%	5%	1%	5%	2%	4%	2%	4%
Don't Know	<1%	1%	<1%	1%	-	-	-	-	-
Characteristics (means) (HC2a, HC2b, HC4, HC5)									
Size (square footage)	1,492	1,441	1,083	1,750	1,381	1,520	1,554	1,906	1,524
Number of bedrooms	2.6	2.7	2.0	3.0	2.5	2.6	3.1	3.0	2.7
Years lived there	14.7	16.1	11.9	19.2	6.9	21.6	11.6	17.2	11.6
Year home was built	1969	1968	1966	1973	1971	1965	1971	1970	1969
Own or Rent (HC3)									
Own	58%	66%	36%	78%	38%	72%	52%	81%	37%
Rent or lease	42%	32%	64%	21%	62%	28%	47%	19%	62%
Don't know	1%	2%	<1%	1%	-%	-	1%	1%	9%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B7. HOME CHARACTERISTICS: ALL ELECTRIC OR ELECTRIC AND GAS

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Other Action Taken To Make Home More Energy Efficient (HC11)

Yes	20%	22%	16%	21%	14%	22%	19%	28%	20%
No	78%	76%	81%	78%	86%	76%	79%	69%	77%
Don't know	2%	2%	3%	1%	1%	2%	2%	2%	2%

Type of Action (if other action taken) (HC12)

Refrigerator/Appliances	22%	16%	25%	17%	32%	21%	27%	22%	30%
Insulation	16%	14%	12%	27%	-	18%	21%	20%	12%
Weather Stripping	7%	5%	16%	10%	-	3%	6%	4%	18%
New Doors	8%	11%	6%	5%	14%	8%	3%	10%	3%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B8. HOME CHARACTERISTICS: AC

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Air Conditioning Type (HC9)

Central AC	44%	48%	32%	54%	45%	23%	58%	46%	53%
Evap or Swamp Cooler	13%	11%	4%	15%	12%	20%	15%	17%	13%
Window or Wall AC	11%	11%	11%	9%	13%	11%	11%	13%	10%
Heat Pump	1%	1%	2%	2%	-	2%	1%	2%	1%
Fans	8%	6%	11%	5%	9%	11%	6%	5%	7%
Portable AC	2%	2%	3%	1%	4%	2%	2%	2%	1%
None	24%	20%	38%	18%	21%	33%	11%	20%	18%
Don't know	3%	4%	2%	3%	4%	2%	2%	1%	2%

Age of Air Conditioner (if have some type of AC) (HC10)

Less than 10 years	53%	58%	42%	52%	51%	57%	52%	57%	51%
10 years or older	34%	32%	37%	41%	21%	32%	37%	35%	31%
Don't know	14%	10%	21%	7%	29%	11%	11%	8%	18%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B9. APPLIANCES

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Appliances in the Home (means) (HIN1)

	Total	1	2	3	4	5	6	7	8
Refrigerators	1.2	1.2	1.1	1.3	1.2	1.2	1.2	1.3	1.1
Clothes Washer	0.9	0.9	0.5	1.0	0.9	0.9	0.9	1.0	0.8
Clothes Dryer	0.8	0.9	0.5	0.9	0.8	0.9	0.9	1.0	0.8
Dishwasher	0.6	0.6	0.4	0.7	0.5	0.5	0.7	0.7	0.5
Plug-in Electric Heater	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.6	0.3
Standalone Freezers	0.3	0.4	0.2	0.5	0.3	0.3	0.4	0.4	0.3
Window AC	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1
Pool or Spa	0.1	0.1	0.1	0.2	0.0	0.0	0.2	0.3	0.1
Total	4.4	4.5	3.2	5.1	4.1	4.3	5.0	5.6	4.1

Age of Primary Refrigerator (HIN3)

	Total	1	2	3	4	5	6	7	8
Less than 5 years	42%	44%	34%	41%	44%	44%	51%	42%	45%
6 years or older	47%	47%	51%	54%	39%	49%	42%	50%	40%
Don't know	11%	10%	15%	5%	18%	7%	7%	8%	15%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B10. ELECTRONICS

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Electronics in the Home (means)(HIN1)

	Total	1	2	3	4	5	6	7	8
TV's	2.2	2.1	1.7	2.4	2.4	2.0	3.0	2.8	2.5
Cable/DVR Boxes	1.4	1.3	0.9	1.5	1.6	1.1	1.8	1.7	1.7
Desktop Computers	0.6	0.6	0.4	0.7	0.6	0.5	0.9	0.9	0.6
Laptop Computers	0.6	0.6	0.5	0.6	0.6	0.5	0.9	0.9	0.5
Video Game Console	0.5	0.5	0.3	0.5	0.7	0.2	0.9	0.7	0.6
Total	5.3	5.1	3.8	5.7	5.8	4.3	7.4	6.9	5.9

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B11. ENERGY-RELATED ATTITUDES: EFFORT MADE

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Efforts to Save (1 to 5 scale) (AT1, AT2)

Always try to save (4-5)	83%	82%	84%	86%	80%	85%	81%	80%	83%
Have been successful (4-5)	68%	73%	76%	69%	59%	76%	51%	56%	62%

Importances (means – 10 point allocation) (AT5)

Save money on bill	4.8	4.9	4.7	4.7	4.8	4.7	5.0	5.0	5.6
Improve environment	2.8	3.0	3.1	2.7	2.9	2.8	2.5	2.4	2.5
Comfortable and productive	2.3	2.1	2.2	2.6	2.3	2.5	2.5	2.6	1.9

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B12. ENERGY-RELATED ATTITUDES: OBSTACLES

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Attitudes About Energy (percent strongly + somewhat agree) (AT6)

Cost of energy makes me want to conserve	93%	93%	92%	93%	95%	89%	96%	94%	98%
I monitor my electricity bills very closely	87%	89%	85%	89%	85%	85%	89%	89%	90%
New technologies can help me use energy more efficiently	87%	86%	89%	89%	85%	80%	89%	87%	90%
I am very concerned about the environment	91%	91%	92%	88%	93%	88%	94%	91%	94%
Energy I use has an impact on future generations	85%	82%	87%	84%	88%	85%	86%	80%	90%
I am very knowledgeable about things I can do to save	91%	92%	91%	91%	90%	91%	92%	93%	91%
Saving on bill is worth sacrificing some comfort & convenience	79%	81%	78%	80%	81%	75%	79%	79%	85%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B13. ENERGY-RELATED ATTITUDES: AGREEMENT WITH STATEMENTS

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Energy Efficient Behaviors (percent who "always" do this) (EB1)

	Total	1	2	3	4	5	6	7	8
Turn off lights	77%	77%	76%	78%	71%	82%	75%	72%	81%
Turn off TV	73%	76%	75%	73%	72%	74%	68%	69%	68%
Run appliances full	73%	72%	69%	77%	71%	72%	75%	79%	76%
Power down computer	66%	67%	62%	67%	65%	72%	64%	65%	69%
Clothing for warmth	54%	61%	60%	51%	48%	47%	51%	35%	54%
Unplug chargers	53%	56%	52%	52%	51%	54%	54%	45%	54%
Close ducts	49%	52%	52%	47%	48%	44%	46%	56%	50%
Use fans on hot days	43%	44%	47%	39%	39%	48%	37%	47%	44%
Raise/lower thermostat	34%	31%	29%	36%	38%	35%	37%	47%	44%
Lower hot water temp	33%	39%	33%	31%	28%	28%	36%	34%	33%
Mean number of "always"	5.0	5.3	4.7	5.1	4.9	4.9	5.2	5.2	5.1

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B14. ENERGY-RELATED ATTITUDES: AGREEMENT WITH STATEMENTS

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

HVAC Temperature Settings (means) (EB2, EB3)

	Total	1	2	3	4	5	6	7	8
Hot summer days	75.2	75.6	74.6	77.0	74.8	73.0	75.4	75.8	73.9
Cold winter days	70.6	71.0	69.7	71.1	70.8	69.8	71.4	70.4	70.5

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B15. ENERGY-RELATED ATTITUDES: AGREEMENT WITH STATEMENTS

	Total	1	2	3	4	5	6	7	8
	(100%)	(22%)	(17%)	(16%)	(14%)	(13%)	(10%)	(5%)	(4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Satisfaction with PG&E (1 to 10 scale) (CU1)

	Total	1	2	3	4	5	6	7	8
Satisfied (%8-10)	72%	78%	78%	72%	69%	71%	65%	60%	72%
Dissatisfied (%1-3)	4%	3%	3%	3%	5%	4%	7%	12%	4%
Mean	8.2	8.5	8.4	8.2	8.1	8.2	7.8	7.3	8.3

Opinions About EE Programs (open ended responses) (CU2)

	Total	1	2	3	4	5	6	7	8
POSITIVE: Total	76%	77%	76%	75%	79%	74%	78%	71%	82%
NEUTRAL: Total	17%	19%	17%	17%	12%	18%	12%	25%	13%
Don't Know	15%	16%	16%	14%	12%	14%	11%	24%	12%
Don't Care	2%	3%	1%	4%	1%	4%	1%	1%	1%
NEGATIVE: Total	9%	8%	7%	8%	10%	11%	12%	7%	7%
Not enough info	3%	3%	2%	3%	1%	3%	4%	2%	1%
Hard to qualify	2%	2%	2%	2%	3%	5%	4%	2%	2%
Rebates too small	2%	2%	1%	2%	2%	2%	2%	1%	1%
Don't trust PG&E	1%	<1%	2%	1%	1%	2%	1%	-	1%
Need money to part.	1%	2%	1%	1%	1%	-	4%	2%	1%
Too much effort	<1%	-	-	-	1%	-	-	-	-
Renter	<1%	-	1%	1%	1%	-	-	-	1%
Other	5%	4%	4%	4%	7%	5%	7%	6%	8%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

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PG&E Energy Savings Assistance (ESA) Segmentation Research
HINER & Partners, Inc.

Table B16. ENERGY-RELATED BEHAVIORS

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Energy Efficient Behaviors (percent who "always" do this) (EB1)

	Total	1	2	3	4	5	6	7	8
Turn off lights	77%	77%	76%	78%	71%	82%	75%	72%	81%
Turn off TV	73%	76%	75%	73%	72%	74%	68%	69%	68%
Run appliances full	73%	72%	69%	77%	71%	72%	75%	79%	76%
Power down computer	66%	67%	62%	67%	65%	72%	64%	65%	69%
Clothing for warmth	54%	61%	60%	51%	48%	47%	51%	35%	54%
Unplug chargers	53%	56%	52%	52%	51%	54%	54%	45%	54%
Close ducts	49%	52%	52%	47%	48%	44%	46%	56%	50%
Use fans on hot days	43%	44%	47%	39%	39%	48%	37%	47%	44%
Raise/lower thermostat	34%	31%	29%	36%	38%	35%	36%	34%	33%
Lower hot water temp	33%	39%	33%	31%	28%	28%	35%	31%	32%
Mean number of "always"	5.0	5.3	4.7	5.1	4.9	4.9	5.2	5.2	5.1

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B17. ENERGY-RELATED BEHAVIORS: HVAC SETTINGS

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

HVAC Temperature Settings (means) (EB2, EB3)

	Total	1	2	3	4	5	6	7	8
Hot summer days	75.2	75.6	74.6	77.0	74.8	73.0	75.4	75.8	73.9
Cold winter days	70.6	71.0	69.7	71.1	70.8	69.8	71.4	70.4	70.5

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B18. CONNECTION WITH UTILITY PROGRAMS: OVERALL OPINIONS

	Total	1	2	3	4	5	6	7	8
	(100%)	(22%)	(17%)	(16%)	(14%)	(13%)	(10%)	(5%)	(4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Satisfaction with PG&E (1 to 10 scale) (CU1)

	Total	1	2	3	4	5	6	7	8
Satisfied (%8-10)	72%	78%	78%	72%	69%	71%	65%	60%	72%
Dissatisfied (%1-3)	4%	3%	3%	3%	5%	4%	7%	12%	4%
Mean	8.2	8.5	8.4	8.2	8.1	8.2	7.8	7.3	8.3

Opinions About EE Programs (open ended responses) (CU2)

	Total	1	2	3	4	5	6	7	8
POSITIVE: Total	76%	77%	76%	75%	79%	74%	78%	71%	82%
NEUTRAL: Total	17%	19%	17%	17%	12%	18%	12%	25%	13%
Don't Know	15%	16%	16%	14%	12%	14%	11%	24%	12%
Don't Care	2%	3%	1%	4%	1%	4%	1%	1%	1%
NEGATIVE: Total	9%	8%	7%	8%	10%	11%	12%	7%	7%
Not enough info	3%	3%	2%	3%	1%	3%	4%	2%	1%
Hard to qualify	2%	2%	2%	2%	3%	5%	4%	2%	2%
Rebates too small	2%	2%	1%	2%	2%	2%	2%	1%	1%
Don't trust PG&E	1%	<1%	2%	1%	1%	2%	1%	-	1%
Need money to part.	1%	2%	1%	1%	1%	-	4%	2%	1%
Too much effort	<1%	-	-	-	1%	-	-	-	-
Renter	<1%	-	1%	1%	1%	-	-	-	1%
Other	5%	4%	4%	4%	7%	5%	7%	6%	8%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B19. CONNECTION WITH UTILITY PROGRAMS: PAST PARTICIPATION

	Total	1	2	3	4	5	6	7	8
	(100%)	(22%)	(17%)	(16%)	(14%)	(13%)	(10%)	(5%)	(4%)
Weighted Sample Size:	n= 1,520	327	255	240	215	200	147	73	62
Unweighted Sample Size:	n= 1,520	262	202	197	170	179	170	177	163

Ever Participated in EE Programs Before (CU3)

	Total	1	2	3	4	5	6	7	8
Yes	53%	59%	49%	49%	54%	51%	58%	48%	58%
No	43%	38%	49%	47%	43%	45%	39%	46%	42%
Don't know	3%	3%	2%	4%	3%	4%	4%	6%	1%

Programs Participated In (if ever participated) (CU4)

	Total	1	2	3	4	5	6	7	8
Energy Partners	31%	36%	25%	25%	29%	37%	32%	25%	33%
EE Rebates	19%	21%	13%	22%	19%	17%	22%	23%	17%
Home Energy Surveys	19%	21%	17%	21%	18%	19%	19%	17%	17%
Appliance Recycling	16%	18%	12%	19%	15%	13%	21%	16%	17%
SmartAC	8%	10%	4%	10%	8%	7%	12%	8%	8%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B20. ESA SOURCES OF AWARENESS

	Total	1	2	3	4	5	6	7	8
	(100%)	(22%)	(17%)	(16%)	(14%)	(13%)	(10%)	(5%)	(4%)
Weighted Sample Size: n=	465	119	63	61	62	74	47	18	20
Unweighted Sample Size: n=	463	95	50	50	49	66	55	44	54

Current or Previous Home (ESA participants) (LIEE3)

	Total	1	2	3	4	5	6	7	8
Current	87%	87%	82%	92%	78%	98%	84%	91%	87%
Previous	13%	13%	18%	8%	22%	2%	16%	9%	13%

Source of Learning About ESA (ESA participants) (LIEE4)

	Total	1	2	3	4	5	6	7	8
Saw/heard an ad	33%	35%	39%	37%	27%	34%	25%	27%	25%
Friend/neighbor/family	25%	26%	21%	28%	24%	25%	29%	27%	20%
Rep at my door	15%	14%	10%	17%	16%	16%	19%	9%	18%
Phone call	6%	6%	9%	7%	6%	3%	6%	5%	4%
Utility website	3%	4%	2%	2%	3%	4%	5%	3%	5%
From another program	2%	1%	4%	-	3%	2%	1%	2%	2%
County/City/Snr Center	2%	2%	3%	1%	3%	2%	3%	1%	1%
Landlord	2%	2%	2%	1%	4%	-	-	1%	8%
Bill insert	1%	-	2%	-	-%	2%	1%	3%	2%
Direct Mail	<1%	1%	-	1%	-%	-	-%	-	-
Other	3%	4%	1%	1%	5%	2%	4%	3%	1%
Don't know	6%	4%	9%	3%	6%	8%	4%	9%	8%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B21. ESA PARTICIPANT CONCERNS

	Total	1	2	3	4	5	6	7	8
	(100%)	(22%)	(17%)	(16%)	(14%)	(13%)	(10%)	(5%)	(4%)
Weighted Sample Size: n=	462	119	63	60	61	74	47	18	20
Unweighted Sample Size: n=	462	95	50	49	48	66	55	44	54

Concerns or Hesitations About ESA (ESA participants) (LIEE6)

	Total	1	2	3	4	5	6	7	8
Don't know of any	60%	65%	60%	61%	56%	52%	58%	57%	78%
None	27%	24%	26%	31%	29%	35%	25%	34%	9%
Did not believe was free	5%	5%	4%	6%	8%	6%	4%	-	4%
Might be a scam / fine print	2%	-	-	2%	2%	5%	2%	2%	2%
Had to document income	<1%	-	-	-	-	-	-	2%	-
Doubted quality	<1%	1%	-	-	-	-	2%	-	-
Didn't think I'd qualify	1%	1%	-	-	-	2%	2%	-	-
Wanted more info	1%	-	-	-	2%	-	2%	2%	2%
Landlord's permission	1%	-	2%	-	2%	-	2%	-	-
Take too much time	<1%	-	2%	-	-	-	2%	-	-
Other	1%	1%	2%	-	-	-	-	2%	-

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B22. ESA PARTICIPATION DIFFICULTIES

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size: n=	462	119	63	60	61	74	47	18	20
Unweighted Sample Size: n=	462	95	50	49	48	66	55	44	54

Difficulties or Disappointments (ESA participants) (LIEE7)

Yes	20%	19%	14%	24%	23%	18%	23%	18%	22%
No	80%	81%	86%	76%	77%	82%	77%	82%	78%

Type of Difficulty or Disappointment (ESA participants) (LIEE8)

Scheduling / wait	9%	6%	14%	8%	9%	8%	8%	25%	9%
Contractor didn't finish	13%	12%	14%	8%	18%	25%	-	-	18%
Workers not professional	5%	6%	14%	8%	9%	8%	8%	25%	9%
Weather stripping problem	14%	25%	29%	-	9%	8%	17%	12%	-
Too expensive	5%	6%	-	8%	9%	-	-	-	9%
Didn't qualify	10%	-	-	17%	9%	33%	-	12%	9%
Insulation problem	5%	12%	-	8%	-	-	-	25%	-
Other	35%	13%	14%	50%	36%	25%	67%	12%	55%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B23. ESA REASONS FOR PARTICIPATING

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size: n=	462	117	62	61	62	74	47	18	20
Unweighted Sample Size: n=	461	94	49	50	49	66	55	44	54

Main Reasons You Signed Up for ESA (ESA participants) (LIEE5)

Save Money	15%	15%	12%	18%	10%	14%	22%	14%	24%
Save Energy	15%	18%	24%	16%	4%	14%	9%	16%	15%
Weather stripping	9%	5%	10%	14%	10%	15%	4%	9%	4%
Limited income	8%	13%	10%	6%	4%	3%	7%	11%	4%
Refrigerator	3%	1%	8%	2%	4%	2%	5%	7%	4%
Medical condition	2%	-	4%	2%	2%	3%	5%	2%	-
Light bulbs	1%	1%	-	2%	4%	2%	-	-	2%
Discount on bill	1%	1%	2%	2%	2%	-%	-	-	4%
Windows	1%	1%	-	-	-	-%	-	5%	2%
Help environment	<1%	-	-	-	2%	-%	-	-	-
Other	12%	14%	8%	8%	14%	12%	16%	16%	6%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B24. ESA AWARENESS AMONG NON-PARTICIPANTS

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 1,033	204	183	178	150	124	99	54	40
Unweighted Sample Size:	n= 1,034	163	145	146	119	111	115	130	105

Heard of ESA (not participated) (LIEE1)

	Total	1	2	3	4	5	6	7	8
Yes	47%	45%	42%	48%	52%	49%	48%	43%	48%
No	50%	52%	54%	48%	43%	48%	49%	55%	51%
Don't know	3%	3%	4%	3%	4%	4%	3%	2%	1%

	Total	1	2	3	4	5	6	7	8
Weighted Sample Size:	n= 496	95	81	87	81	62	47	24	20
Unweighted Sample Size:	n= 494	76	64	71	64	55	55	57	52

Status with ESA (not participated but aware of ESA) (LIEE2)

	Total	1	2	3	4	5	6	7	8
Don't know enough	33%	30%	27%	31%	45%	33%	33%	35%	35%
Know nothing about it	22%	32%	22%	21%	11%	22%	27%	21%	17%
Don't know	16%	18%	19%	20%	14%	13%	5%	16%	17%
Attempted but unable	15%	8%	14%	17%	14%	18%	20%	18%	19%
Decided against it	14%	12%	19%	11%	16%	15%	15%	11%	12%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B25. REASONS NOT TO PARTICIPATE IN ESA

	Total (100%)	1 (22%)	2 (17%)	3 (16%)	4 (14%)	5 (13%)	6 (10%)	7 (5%)	8 (4%)
Weighted Sample Size:	n= 234	40	37	37	49	29	22	11	9
Unweighted Sample Size:	n= 232	32	29	30	39	26	26	26	24

Reasons Not Signed Up for ESA (know something about ESA but have not participated) (LIEE9)

	Total	1	2	3	4	5	6	7	8
Not sure how to sign up	36%	33%	21%	23%	49%	36%	48%	35%	48%
Don't think would qualify	34%	32%	25%	36%	36%	36%	30%	43%	36%
Don't think home needs it	44%	48%	56%	57%	24%	62%	30%	33%	30%
Someone else needs it more than you do	51%	48%	62%	60%	46%	33%	52%	54%	40%
Doubt the workmanship	13%	13%	7%	4%	17%	29%	5%	18%	12%
Doubt appliance quality	16%	20%	15%	15%	12%	24%	12%	13%	17%
Some other reason	19%	28%	21%	7%	26%	12%	12%	15%	29%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

Table B26. ESA INFORMATION SOURCE PREFERENCES

	Total	1	2	3	4	5	6	7	8
	(100%)	(22%)	(17%)	(16%)	(14%)	(13%)	(10%)	(5%)	(4%)
Weighted Sample Size: n= 1,520		327	255	240	215	200	147	73	62
Unweighted Sample Size: n= 1,520		262	202	197	170	179	170	177	163

Information Sources (percent preferring)

	Total	1	2	3	4	5	6	7	8
PG&E Separate Mail	60%	57%	60%	59%	64%	62%	60%	56%	68%
PG&E Bill or Inserts	45%	47%	48%	51%	34%	47%	41%	43%	38%
Phone	23%	24%	16%	22%	25%	21%	24%	26%	34%
Internet/Website	7%	6%	5%	8%	13%	6%	5%	5%	7%
News: TV/Radio	4%	2%	4%	7%	4%	6%	4%	5%	3%
Email	5%	5%	3%	7%	4%	3%	10%	2%	3%
PG&E Employees / In-Person	6%	5%	5%	6%	6%	6%	6%	7%	3%
PG&E Advertising: TV/Radio	4%	2%	4%	7%	4%	6%	4%	5%	3%
PG&E Website	2%	1%	1%	3%	4%	1%	2%	2%	3%
Newspapers	2%	3%	2%	3%	1%	3%	2%	1%	2%
Word of Mouth	1%	<1%	1%	2%	1%	-	1%	1%	1%
Community/Assistance Org.	<1%	<1%	1%	2%	1%	-	1%	1%	1%
Contractors	<1%	<1%	-	-	1%	-	-	1%	-
Stores/Retailers	<1%	-	-	-	-	-	-	-	1%
Other	2%	1%	3%	2%	4%	5%	3%	1%	2%
None	2%	2%	4%	-	1%	2%	-	3%	1%

Significant differences higher and lower than "total" indicated by green and red shading, respectively
Question numbers are shown, actual questions are found in the research instrument

APPENDICES

Appendix C: Telephone Survey Research Instrument

n=1,500 Residential Customers

INTRODUCTION

Hello, I'm_____ calling from HINER & PARTNERS, on behalf of [Pacific Gas & Electric] to conduct a survey about energy usage in your area. [PG&E] is requesting your help with this survey, which will be used for planning for programs and services that are offered by the utility. We are only interested in your opinions, and all your answers are completely confidential.

S1.   Could I speak to the person in your household who is primarily responsible for making decisions about your electric and/or gas service, for example the person who would call [PG&E] if you had a question or wanted to sign up for a program? (IF LANGUAGE BARRIER, ASK TO SPEAK TO SOMEONE WHO SPEAKS ENGLISH)

Yes, speaking..	GO TO S1
Someone else..	REREAD INTRO
Not available...	SCHED CALLBACK
Language Barrier: No English speaker................................	CONTINUE

S2.   DO NOT ASK: WHAT LANGUAGE?

Spanish...	SPANISH PROC
Asian (SPECIFY IF POSSIBLE: ____)................................	2
European (SPECIFY IF POSSIBLE: _____)........................	3
Other (SPECIFY:_____)...	4
Don't know / can't determine...	9

(ONCE THE CORRECT PERSON IS ON THE LINE, READ INTRO AGAIN)
Hello, I'm_____ calling from HINER & PARTNERS, on behalf of [Pacific Gas & Electric] to conduct a survey about energy usage in your area. [PG&E] is requesting your help with this survey, which will be used for planning for programs and services that are offered by the utility. We are only interested in your opinions, and all your answers are completely confidential.

IF NEEDED OR WHEN ASKED: The survey can take as long as 20 minutes. I can begin now and at any time we can break and continue later.

S3. To begin, which of the following activities are you involved in for your household? (READ. MULTIPLE RESPONSE)

Making decisions about purchasing new appliances............	1	CONTINUE
Reviewing and/or paying the monthly [PG&E] bill................	2	CONTINUE
Calling [PG&E] if there's a problem, such as a power outage	3	CONTINUE
Budgeting for or figuring out ways to reduce your energy costs	4	CONTINUE
None of the Above	7	OTHER
Don't Know/Not Sure...	8	OTHER
Refused	9	OTHER

MUST SAY YES TO 2 OR MORE OF ITEMS 1-4 TO QUALIFY.
OTHER: Ask for someone else who would say yes to two or more of these questions. If yes, return to intro and continue. If not, thank and terminate.

For quality purposes, this call may be monitored or recorded.

First, I have some questions about your household and your home that can tell us something about the energy your household uses. These will help us know how to better serve you.

S4. How many people live in your home for at least 6 months out of the year?

(RECORD NUMBER) _____
Refused... 99

S5. (IF S4=2 OR MORE) How many are under 18?

(RECORD NUMBER) _____
Refused... 99

S6. (IF S4 MINUS S3=2 OR MORE) How many are 65 or older?

(RECORD NUMBER) _____
Refused... 99

I. HOME CHARACTERISTICS (5 minutes)

HC1. What type of home do you live in? Is it a … (READ UNTIL RESPONDENT SELECTS ANSWER)

Single Family Detached home.. 1
Duplex... 2
Townhouse or Row House with shared walls...................... 3
Condominium with shared walls and another unit above or below 4
Apartment.. 5
Mobile Home.. 6
Or some other type (SPECIFY) (DO NOT READ)................ 7
Don't Know / Refused (DO NOT READ)............................. 9

HC2a. Approximately how many square feet is your home? Your best guess is okay.

(RECORD NUMBER) _____ (0-9998)
Don't Know / Refused (DO NOT READ)............................. 9999

HC2b. How many bedrooms do you have?

(RECORD NUMBER) _____ (0-8)
Don't Know / Refused (DO NOT READ)............................. 9

HC3. Do you own or rent your home?

Own 1
Rent / lease.. 2
Don't Know / Refused (DO NOT READ)............................. 99

HC4. How many years have you lived at your current residence?

Less than 1 year 0
(RECORD NUMBER OF YEARS) _____
Don't Know / Refused (DO NOT READ)............................. 99

HC4a. [IF HC4=4 or less] And how many times have you moved in the past 5 years?

None 0
(RECORD NUMBER OF Times) _____
Don't Know / Refused (DO NOT READ)............................. 99

HC5. Do you know in what year it was built? Your best guess is okay. (IF GUESSING TRY FOR NEAREST DECADE LIKE "1960")

(RECORD YEAR) _____
Don't Know / Refused (DO NOT READ)............................. 99

HC6. To the best of your knowledge, which of the following does your home have …? (READ)

Yes.. 1
No 2
Not Sure/Don't Know... 8
Refused.. 9

1. Ceiling fan
2. Double or triple paned windows
3. Intact weather-stripping at <u>all</u> windows and doors that seals air leaks … If you have any windows or doors that leak air when they are closed, than answer "no"
4. A programmable thermostat for heating and cooling
5. Motorized attic vents or fans (that remove hot air from the attic)
6. Attic insulation that would meet current standards
7. Whole house fan (that pulls air from inside the home into the attic and then outside)

[FOR EACH "YES" IN HC6, ASK HC7 BEFORE MOVING ON TO NEXT ITEM]

HC7. Was it installed before you moved in or since you have been living there?

Already installed when I moved in... 1
Installed since living there / I installed it............................... 2
Not Sure/Don't Know... 8
Refused.. 9

HC8. Approximately how many of your light bulbs are compact fluorePG&Ent or CFL bulbs? (READ)

None (0%) 1
One-quarter (25%)... 2
Half (50%).. 3
Three-quarters (75%) 4
All or nearly all (100%).. 5
Don't Know / Refused (DO NOT READ)................................. 9

HC9a. What type of air conditioning does your home have? (READ)(MULTIPLE OKAY)

Central AC... 1
Heat Pump... 2
Evaporative or swamp cooler... 3
Window or wall mounted air conditioner(s)............................ 4
Portable air conditioner.. 5
Fans 6
None... 7
Don't Know / Refused (DO NOT READ)................................. 9

HC9b. [IF HC9s=1,2,3,4] What is the approximate age of your air conditioner(s)? (IF MORE THAN ONE: The one you use most often.] Your best estimate is okay.

Less than 5 years old.. 1
5 to less than 10 years.. 2

10 to less than 15 years..	3
15 to less than 30 years..	4
30 or more years..	5
Don't Know / Refused (DO NOT READ)............................	9

HC10a. What type of heating or furnace does your home have? (READ)(MULTIPLE OKAY)

Central heating..	1
Floor heating..	2
Portable space heaters...	3
Wood burning, such as a stove or fireplace.........................	4
Some other type of heating (Specify:____).........................	5
None...	6
Don't Know / Refused (DO NOT READ).............................	9

HC10b. Is your central heating system natural gas, electric, dual fuel, propane, or something else?

Gas...	1
Electric..	2
Dual fuel..	3
Propane...	4
Some other type of heating (Specify:____).........................	5
Don't Know / Refused (DO NOT READ).............................	9

HC11. As far as you know, has anything else been done to your home to make it more energy efficient that I've not mentioned?

Yes...	1
No	2
Don't know / Refused (DO NOT READ)..............................	9

HC12. [IF HIN11=1] What else has been done?

_____

HOME INVENTORY AND EFFICIENCY – 1 MINUTE

My next questions are about things you have in your home that use energy.

HIN1a. How many of each of the following does your household have? Only count those that are used or are plugged in at least on occasion.

____(RECORD NUMBER BETWEEN 1-20)
Don't know/Refused... 99

ELECTRONICS (ASK 1-5 AS FIRST GROUP– RANDOMIZE WITHIN THE GROUP)
1. TV's
2. Desktop computers
3. Laptop computers

4. Cable, satellite, DVR or TIVO boxes
5. Video game consoles like Xbox, PlayStation or Wii

APPLIANCES (ASK 6-14 AS SECOND GROUP – RANDOMIZE WITHIN THE GROUP)
6. Refrigerators
7. Stand alone freezers
8. Dishwasher
9. Clothes washer
10. Clothes dryer
11. Pool or spa
12. Microwave oven
13. Window AC units (ask ONLY if HC9 = 4)
14. Plug in electric heaters

HIN1b. For each of the following, is it powered by electricity, natural gas or some other fuel like propane?

Electricity..	1
Natural gas..	2
Something else, such as propane..	3
Not applicable – don't have this..	4
Don't know/Refused..	99

a. Water heater
b. Oven
c. Cooktop
d. (IF HIN1a.10=YES] Clothes dryer

HIN2. Do you have any other electrical equipment or appliances in your home or garage that you believe use a lot of power? (DO NOT READ LIST – PROVIDE EXAMPLES IF NEEDED.)

Fish tank..	1
Power tools (table saw, power tools, welding, etc.)..............	2
Air Compressor..	3
Car charger (for electric car)...	4
Medical Equipment...	5
Other (SPECIFY:_____)...	6
Don't know/Refused..	99

HIN3. How old is your main refrigerator (in years)? (IF DON'T KNOW, PROBE: Can you tell me how long you have had it?) Your best estimate is okay.

_____(RECORD NUMBER BETWEEN 1-50)

Don't know/Refused..	99

ATTITUDES & MOTIVATIONS (10 Minutes)

AT1. How would you describe [S4=1: your][S4=2 OR MORE: your household's] efforts to save energy in your home? Please use a scale of 1 to 5, where 1 means "You do very little to

save energy" and 5 means "You always try to save energy in your home."

5 You always try to save energy..	5
4	4
3	3
2	2
1 You do very little to save energy.......................................	1
Don't know / Refused (DO NOT READ)..............................	9

AT2. How successful do you think you have been in reducing energy use in your home? Please use a scale of 1 to 5, where 1 means "you have not been very successful" and 5 means "you have been very successful".

5 You have been very successful...	5
4	4
3	3
2	2
1 You have not been very successful..................................	1
Don't know / Refused (DO NOT READ)..............................	9

AT3. What obstacles do you face in trying to save energy in your home? (DO NOT READ. MULTIPLE OK) What other obstacles do you face? (CONTINUE PROBING UNTIL EXHAUSTED)

Cooperation of others in the home..	1
Construction of home (cathedral ceilings, multiple floors, skylights, etc.)....	2
Condition of home (not enough insulation / single pane windows, etc.).......	3
Cost (or initial cost) of new appliances or repairs / Lack of money..............	4
Maintain comfort / Heating or Cooling / AC use...	6
Age of home / home is old...	7
Lack of time / too busy..	8
Don't know what to do..	9
Medical needs (of someone in the home)...	11
Work from home / need to be comfortable or run equipment for work.........	12
Pool / spa / need to run pool pump..	14
Renter / not the owner / landlord problems...	15
Too many things that use electricity (TV's, cell phones, etc.).....................	16
Other (specify) _____	17
Don't know / not sure..	99

[IF MORE THAN ONE ITEM SELECTED IN AT3, ASK AT4]

AT4. Which ONE of these things do you see as the BIGGEST obstacle to saving more energy? (IF NEEDED, REREAD AT3 RESPONSES. RECORD ONE)

Cooperation of others in the home..	1
Construction of home (cathedral ceilings, multiple floors, skylights, etc.)....	2
Condition of home (not enough insulation / single pane windows, etc.).......	3
Cost (or initial cost) of new appliances or repairs / Lack of money..............	4
Maintain comfort / Heating or Cooling / AC use...	6
Age of home / home is old...	7
Lack of time / too busy..	8

Don't know what to do..	9
Medical needs (of someone in the home)...	11
Work from home / need to be comfortable or run equipment for work.........	12
Pool / spa / need to run pool pump..	14
Renter / not the owner / landlord problems...	15
Too many things that use electricity (TV's, cell phones, etc.).....................	16
Other (specify) _____	17
Don't know / not sure..	99

AT5.   Now tell me which of the following is more important to you by allocating 10 points between these three options. For example you can allocate all 10 points to just one of them if it is the only one that is important to you, or you can divide the 10 points between the options. (READ ALL THREE OPTIONS, THEN RECORD POINTS. MUST TOTAL 10 PTS)

(RANDOMIZE)
a. ___ Reducing energy use to save money on my bill
b. ___ Reducing energy use to improve our environment
c. ___ Using energy to be comfortable and productive in my home
        Don't know / Refused (DO NOT READ)......................... 99

AT6.   Next, I am going to read you some statements about your outlook on energy use in and around your home. For each statement, I'd like you to tell me if you "strongly agree," "somewhat agree," "neither agree nor disagree," "somewhat disagree," or "strongly disagree." How much do you agree with the statement:

Strongly Agree..	5
Somewhat Agree...	4
Neither Agree nor Disagree...	3
Somewhat Disagree...	2
Strongly Disagree..	1
Don't know / Refused (DO NOT READ)...............................	9

[RANDOMIZE]

CONSERVATION / ENVIRONMENT ATTITUDES, KNOWLEDGE & BEHAVIORS
1.   Having the benefits I get from using energy is more important than saving energy
2.   I don't often think about how much energy I use in my home
3.   DELETED
4.   I believe new technologies can help me use energy more efficiently
5.   The amount of energy I use today has an impact on future generations.
6.   I'm very concerned about the environment
7.   DELETED

PRICE & COST SENSITIVITY
8.   Saving even a few dollars on my electric bill is worth sacrificing some comfort or convenience
9.   DELETED
10. If I were to buy a new appliance like a refrigerator or air conditioner, I would probably buy a less expensive one even if it used more energy
11. I sometimes worry whether there is enough money to pay my energy bill

12. The cost of energy makes me want to conserve.
13. DELETED

EMPOWERMENT & PERSONAL CONTROL
14. DELETED
15. If I really wanted to, I could probably use less energy than I use now without sacrificing too much
16. Someone in my household is dependent on using energy in my home for health reasons
17. I do more than most people I know to reduce my impact on the environment
18. I am often the first among my family and friends to purchase new appliances or electronics equipment
19. I am very knowledgeable about things I can do around my home to save energy
20. I monitor my electricity bills very closely
21. I've already done everything I can to save energy in my home.
22. I regularly try to convince others to use less energy
23. My actions have little effect on global warming.
24. I usually buy used rather than new appliances

Next I want to ask some questions about things that you [IF S4=2 OR MORE: and members of your household] may or may not do in order to save energy. . Please try to be as honest as you can [IF S4=2 OR MORE: and answer for your entire household rather than just for yourself].

EB1. For each statement, tell me if you do this "always," "most of the time," "some of the time," "rarely," or "never." How often do you…

Always.. 5
Most of the time.. 4
Some of the time... 3
Rarely.. 2
Never... 1

Not applicable / do not have this.................................... 8
Don't know / Refused (DO NOT READ).............................. 9

[RANDOMIZE]

LIGHTS
1. Turn off lights in rooms when not in use
2. DELETED
ELECTRONICS / APPLIANCES
3. Turn off or power down your computer when it is not in use
4. Unplug cell phone, battery, or toothbrush chargers when not in use
5. Turn off your TV when it is not in use
6. Run appliances like your dishwasher or clothes washer ONLY with full loads
HEATING/COOLING
7. Use fans instead of an air conditioner on hot days
8. [IF HC9=1 AND 3, E.G. BOTH] Use an evaporative or "swamp" cooler instead of the air conditioner on most hot days
9. Set your thermostat at a temperature where you might feel somewhat uncomfortable
10. Put on a more clothing to keep warm instead of turning up the heat
11. Close heating or cooling ducts in rooms that are not used much
12. Turn down the temperature on the water heater

EB2. What temperature do you typically keep your home at on hot summer days? (IF NEEDED: Your best estimate is okay.)

_____(RECORD NUMBER: 55 – 95)................................ 1
Don't Know / Refused (DO NOT READ).............................. 9

EB3. What temperature do you typically keep your home at on cold winter days? (IF NEEDED: Your best estimate is okay.)

_____(RECORD NUMBER: 55 – 95)................................ 1
Don't Know / Refused (DO NOT READ).............................. 9

CONNECTION WITH UTILITY / PROGRAM AWARENESS & PARTICIPATION – 1.5 MINUTES

My next few questions are about your energy utility company.

CU1. Thinking about all the services that [Pacific Gas & Electric] currently provides, on a scale of 1 to 10 where "1" means not at all satisfied and "10" means completely satisfied, how satisfied are you with [PG&E] overall?

[RECORD SATISFACTION RATING]

										DK	REF
1	2	3	4	5	6	7	8	9	10	98	99

CU2. Your utility company offers customers different programs to assist them in saving energy. What do you think about these programs overall? (DO NOT READ. MULTIPLE RESPONSE.) Are there any negatives about them?

POSITIVES
Good / great / helpful / like them... 1
NEUTRAL
Don't know much about it / no opinion................................. 2
Don't care / don't pay attention to this................................. 3
NEGATIVES
Need money to participate / don't have the money.............. 4
Rent / need landlord's permission 5
Don't qualify / hard to qualify.. 6
Not enough information about them / Don't know what is offered 7
Don't trust the utility or their motives, etc............................ 8
Too much work or effort (e.g., too much paperwork for rebates) 9
Rebates are too small / not worth it..................................... 10

Other (SPECIFY: ___).. 11
Refused (DO NOT READ).. 99

CU3. Have you ever participated in any utility programs that assisted you in saving energy (IF NEEDED: such as rebates or a home energy survey)?

Yes.. 1
No 2
Don't know / Refused (DO NOT READ).............................. 9

CU4. [IF CU3=1] Which of the following programs have you participated in? (READ)(Yes, No, DK for each)(RANDOMIZE. H ALWAYS LAST)

a. Rebates for energy efficient appliances or improvements or electronics
b. DELETED
c. Refrigerator or freezer recycling
d. Home energy surveys or audits
e. [PG&E: SmartAC], the air conditioning cycling program

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f. [PG&E: Energy Partners or Energy Savings Assistance Program], where income-qualified customers can receive weather stripping, insulation, refrigerators, evaporative coolers, CFL light bulbs, and information about saving energy at no cost.

ESA/LIEE PARTICIPATION, PERCEPTIONS, AND BARRIERS – 3 MINUTES

LIEE1. [CU3=NO/DK OR CU4f=NO/DK] Have you heard of this [Energy Partners or the Energy Savings Assistance] program that includes weatherstripping, insulation, refrigerators, and such?

Yes – Heard of it..	1
No – Have not heard of it...	2
Don't know / Not sure..	3
Refused...	9

LIEE2. [LIEE1=1] Which of the following best describes what you know about this program? (READ)(ONE ANSWER ONLY)

You've heard of it but know nothing about it..	1
You've heard of it and know something about it but not enough to take action..	2
You've considered the program but made a decision not to sign up............	3
You attempted to sign up but were informed that you were not eligible or could not participate..	4
(DO NOT READ) Don't know / Refused..	9

LIEE3. [IF CU4f=YES] Was that in your current home or a previous home?

Current..	1
Previous..	2
Don't know / Refused..	9

LIEE4. [IF CU4f=YES OR LIEE1=1] How did you learn about this program? (DO NOT READ) (PROBE:) Did you hear about it from any other sources? Which ones?

Friend / neighbor / family member..	1
Saw / Heard an ad..	2
Representative came to my home / door-to-door..................	3
Utility's website..	4
Called utility and they told me..	5
Landlord..	6
Other (SPECIFY:___)..	7
Don't know / Refused..	9

LIEE5. [IF CU4f=YES] What were the main reasons that you signed up for or participated in this program? Please tell me whatever details you remember about how you learned about the program and about what the program offers that prompted you to sign up.

_____

LIEE6. [CU4f=YES] Before you agreed to participate, did you have any concerns about it, or any reasons to hesitate to sign up? (DO NOT READ)

Did not believe or trust it was free..	1
Might be a scam / fine print	2
Would take too much time...	3
Too much paperwork...	4
Had to provide income documentation..................................	5
Did not trust contractor / representative to let them in home	6
Doubted the quality of work / appliances.............................	7
Other (SPECIFY:___)..	8
Don't know / Refused..	9

LIEE7. [IF CU4f=YES] After you signed up, did you encounter any difficulties, problems, or disappointments concerning the program?

Yes..	1
No	2
Don't know / Refused..	9

LIEE8. [IF LIEE7=1] Can you describe that problem or disappointment?

_____

LIEE9. [IF LIEE2=2, 3] Which of the following are reasons that you've not signed up for the [Energy Partners or the Energy Savings Assistance] program? (YES, NO, DK/REF FOR EACH)(RANDOM. G ALWAYS LAST)

a. You are not sure how to sign up
b. You do not think you would qualify based on your income
c. You do not think your home needs the improvements that the program offers
d. Someone else needs the improvements more than you do
e. You have doubts that the work would be of high quality
f. You have doubts that the appliances would be of high quality
g. Are there any other reasons I have not mentioned?

LIEE10.[IF LIEE9g=1] What is the reason you've not signed up?

_____

LIEE11.[IF LIEE2=4] What was the reason you were given for not being able to participate? (DO NOT READ. MULTIPLE RESPONSE OKAY.) Any other reasons?

Income too high / Did not qualify based on income.....................................	1
Needed landlords permission / Landlord refused...	2
Improvements already done / Previous tenant participated........................	3
Home did not need anything / Home or refrig or AC did not qualify.............	4
Program ran out of funds..	5
Not in my area at that time...	6
Other (Specify: ____)...	7
Don't know / Refused..	9

SOURCES OF INFORMATION / MEDIA / COMMUNICATION – 1 MINUTES

IS1. What is the best way for [PG&E] to get information to you about saving energy or about their programs? (DO NOT READ)(MULTIPLE RESPONSE) What other ways should they get information to you? (RECORD "BEST" AND "OTHER WAYS")

News: Television, Radio	1
Newspapers	2
Stores / Retailer (e.g., Home Depot)	3
Government partnerships	4
[PG&E] employees / in-person	5
[PG&E] advertising: TV, radio, Internet	6
[PG&E] bill or inserts in the bill	7
[PG&E] separate mail	8
[PG&E] website	9
Word-of mouth: Friends, neighbors, etc.	10
Internet / Websites / Google search	11
Contractors / electricians	12
Community or assistance organizations	13
Other (specify) _____	14
None / Don't want information	15
Don't Know/Refused	99

IS2. DELETED
IS3. DELETED
IS4. DELETED

DEMOGRAPHICS – 2 MINUTES

These last questions are for classification purposes. Your answers will be kept confidential.

D1.   In what year were you born?

      19 _ _ (ENTER LAST TWO DIGITS)
      Don't Know / Refused (DO NOT READ).............................   99

D2.   Which of the following best describes your education? (READ LIST)

High school or less...	1
Some college or post-high school training............................	2
College graduate	3
Completed graduate school...	4
Don't Know / Refused (DO NOT READ)..............................	9

D3.   Do you consider yourself (READ LIST)

White..	1
African-American..	2
Hispanic or Latino	3
Asian..	4
American-Indian..	5
Or a member of another race..	6
Don't Know / Refused (DO NOT READ)..............................	9

D4.   And what language do you speak most often in your home? (DO NOT READ)(IF RESPONDENT SAYS CHINESE, CLARIFY MANDARIN OR CANTONESE)(IF MORE THAN ONE SPOKEN MOST OFTEN EQUALLY, MARK BOTH)

English..	1
Spanish..	2
Mandarin (Chinese)	3
Cantonese (Chinese)..	4
Vietnamese	5
Tagalog (Filipino)..	6
Korean..	7
Japanese..	8
Russian..	9
Other (SPECIFY:_____)...	10
Don't Know / Refused (DO NOT READ)..............................	99

D5.   Which of the following categories best describes your annual household income? (READ LIST)

Less than $15,000..	1
$15,000 to just less than $28,000..	2
$28,000 to just less than $33,000..	3

PG&E Energy Savings Assistance (ESA) Segmentation Research

HINER & Partners, Inc.

$33,000 to just less than $40,000......................................	4
$40,000 to just less than $46,000......................................	5
$46,000 to just less than $53,000......................................	6
$53,000 to just less than $60,000......................................	7
$60,000 to just less than $75,000......................................	8
$75,000 to just less than 100,000......................................	9
$100,000 to just less than 200,000.....................................	10
$200,000 or more..	11
Don't know / Refused (DO NOT READ)............................	99

D6.   Do you or does anyone in your household have a permanent disability, related to mobility, hearing, vision, cognitive, psychological, or chronic disease?

Yes...	1
No..	2
Refused..	9

D7.   [IF D6=YES] In which category would you classify the disability? (READ ONLY IF NEEDED TO PROMPT)

Mobility...	1
Hearing...	2
Vision..	3
Cognitive (learning or mental)...	4
Psychological..	5
Chronic disease...	6
(DO NOT READ) Other (Specify:____)............................	7
(DO NOT READ) Don't know / Refused............................	9

D8.   OBSERVE AND RECORD GENDER

Male..	1
Female..	2
Don't know...	9

CONFIRM NAME AND TELEPHONE.
On behalf of [PG&E], thank you very much.

IF RESPONDENT HAS QUESTIONS ABOUT SURVEY LEGITIMACY:

The name of the manager for this survey project is [Redacted] at Pacific Gas & Electric. He can be reached at (415) 973-8347.

IF RESPONDENT WANTS ADDITIONAL INFORMATION OR ASSISTANCE WITH A PROGRAM, BILL PAYMENT, OR OTHER ISSUE:

Please call PG&E at 800-743-5000.