

Southern California Edison

HEES for Spanish-Speaking Customers

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Executive Summary

This document is an addendum to the PY2006-08 Home Energy Efficiency Survey (HEES) Program Process Evaluation.

In the process of conducting the Community Language Energy Outreach (CLEO), we came upon the need to have specific feedback from the in-language Spanish-speaking HEES program participants. The completed 2006-2008 HEES (ID SCE 0275.01) process evaluation focused on surveying English-speaking participants. This project is to augment the 2006-2008 HEES study by creating an addendum with survey results from in-language Spanish-speaking participants.

The main document reporting on that evaluation contains the program description, program theory, goals, etc. This project is oriented only to comparing the Spanish-language to the English-language participants on issues central to the program. It is important to know whether different language groups respond differently to the HEES survey in terms of satisfaction, implementing behaviors, motivations, and other dimensions.

Key Findings

Some clear patterns emerged from the survey of Spanish-language HEES participants compared to English-language participants. The differences begin with demographic differences and differences in knowledge of energy efficiency. There are differences in motivation, program influence and effectiveness, satisfaction, and desire for personal contact. Many of the opinions expressed by the Spanish-language participants are similar to those found among English-language participants, but tend to be stronger.

Participant Characteristics

- Compared to English-language participants, Spanish-language participants are:
 - even more likely to live in single-family detached homes (Table 4),
 - a little less likely to own the home, except for mail-in participants (Table 5),
 - less educated; specifically, they are less likely to go to college (Table 8),
 - in lower income categories (Table 9),
 - in larger households (Table 7), and
 - less likely to be senior citizens (Table 6).
- Far fewer Spanish-language participants describe themselves as at least somewhat knowledgeable about opportunities for improving energy efficiency in the home, and are somewhat less knowledgeable about energy efficiency programs (Table 17).

Motivation

- Spanish-language participants place even more value on learning about other energy efficiency programs than English-language participants do (Table 13).

- Spanish-language participants more often say they are influenced by concern for the environment than English-language participants do (Table 13).
- Free items are definitely not the main motivators for participation by Spanish-language participants; this is even more true for Spanish-language than for English-language participants (Table 14).
- As compared to English-language participants Spanish-language participants choose their survey mode more on the basis of the anticipated helpfulness and accuracy of the information provided rather than speed or convenience; this is especially true for in-home participants (Table 25).

Program Effectiveness

- Spanish-language participants are much more influenced by the audit than are English-language participants in the following areas:
 - implementing tips because of the program (Table 28), overall, 38 percent for Spanish language participants and 14 percent for English.
 - calling the utility to get more program information or contractors about energy efficiency equipment (Table 36),
 - reporting that they were influenced by comparisons with their regional average (Table 40), and
 - reporting that they were influenced by energy and water use charts (Table 42);
 - however, Spanish-language participants were *less* likely to visit utility websites or purchase equipment (Table 36).
- Spanish-language participants' energy efficiency efforts prior to participation were weighted toward the category of washing and drying clothes. *After* participation more emphasis was placed on water heating and water usage. *Before* participation they were heavier on practices, and *after* they were more likely to make low-cost purchases. This analysis is based only on the Spanish-language participants as it was not reported in this way for the English-language participants (Table 32). These before versus after changes imply program impact.
- Spanish-language participants have a much higher rate of installing showerheads and aerators than English, but are about the same on CFLs (Table 19). Even the Spanish-language in-home auditors installed more showerheads and aerators than English-language auditors (Table 20). This could be because English-language participants may have already done more in these areas. Spanish-language participants placed higher value on showerheads and aerators and less on CFLs (Table 23).
- Both English- and Spanish-language participants show quite high rates of having implemented recommendations before receiving them (36 percent for Spanish language and 44 percent for English). This implies, as was reported in the original report, that the algorithm for generating recommendations is less precise than is desirable. In addition, however, the rate of Spanish-language participants' implementation of tips prior to the audit was lower than the English (Table 30). In other words, Spanish-language participants received fewer tips that were inappropriate, and English-language participants received more. This is counterintuitive. However, at least part of the explanation for the

difference across language groups in receiving inappropriate tips appears to be under-reporting of prior actions by the Spanish-language group, possibly due to misunderstandings. In addition, if the algorithm is insensitive to some prior actions, the lower rate of tips implemented prior to receiving them by Spanish language participants could reflect fewer actual energy efficiency behaviors prior to HEES, especially given the lower knowledge level shown in (Table 17).

Satisfaction

English-language participants were generally satisfied with the whole HEES process. This is also true of the Spanish-language participants. Following are some differences:

- Spanish-language participants are more satisfied than English in just about every area measured:
 - with survey mode chosen (Table 26),
 - with implemented tips almost across the board (Table 34, Table 35),
 - with the HEES report (Table 38), and
 - with all seven aspects of the program asked about, including the amount of time it took to complete the survey, the clarity of recommendations made, the usefulness of the recommendations, the information provided on energy efficiency programs, and how customized the results were (Table 46).
- Spanish-language participants more often recommended HEES to others (Table 47).
- Spanish-language participants are more likely to name information about energy efficiency programs as the most helpful aspect of program (Table 48).
- The one exception to the pattern of more satisfaction among Spanish-language participants is that that group more often reports that the HEES tool is less easy to fill out than English-language participants do (Table 44).

Personal Contact

- The Spanish-language participants seem to be even more influenced by a personal connection with the audit than English:
 - Bill inserts don't precipitate action as often in Spanish-language customers (Table 12),
 - In-home participation seems to be encouraged by contact with utility reps, and that is likely the main way Spanish-speaking customers learn about that mode (Table 12 and Table 24),
 - Report usefulness is rated much higher for in-home and phone participants (Table 39, Table 41),
 - Energy and water use charts are reported by Spanish-language participants as being more influential when they participate in in-home and phone modes than when they participate in the mail-in mode (Table 42),
 - In-home Spanish-language participants are less likely to say the survey was hard to understand (Table 49), based only on Spanish-language sample,

- The satisfaction difference reported above between Spanish-and English-language participants is greater in personal contact modes. I.e., in personal contact modes (in-home and phone) Spanish-language participant satisfaction is especially higher than English-language participant satisfaction. This seems to imply that the personal connection is even more important to Spanish- than to traditional English-language participants (Table 46).

Participant Suggestions for Improvement

- Spanish-language participants express the wish that the HEES tool was less technical—much more than English, but they also wish it was shorter (Table 45).

Based only on Spanish-language participants (Table 50):

- Mail-in participants especially (compared to phone and in-home) wish for fewer technical words in the HEES tool.
- In-home participants want more information on available services.
- Phone participants want more information on available services and improved auditor service.
- Some mail-in participants (8%) criticized the Spanish translation of the HEES tool.

Recommendations

Based on the findings described above and on a reading of the original process evaluation for the English-language 2006-08 HEES program, the first recommendation of this report is to support those made in the original. There is no recommendation made in the earlier report that does not apply at least as strongly to the Spanish-language participants. Since the purpose of the current study was to compare the Spanish-language participants to the English, the following recommendations are generally tied to language group differences.

Recommendations for Program Implementation

1. **Make a particular effort to inform Spanish-language participants about the in-home HEES mode.** Given the findings that the Spanish-language group tends to be less educated and less knowledgeable about energy efficiency, they more often report difficulty understanding the HEES tool, they appear to under-report what they have already done, and because bill inserts don't precipitate participation as often as they do for English-language participants, the in-home mode offers the most support and clarity for these customers. In addition, report usefulness is rated higher in modes involving personal contact with an expert. Most mail-in and phone participants don't know about the in-home method, so a special effort would be needed to bring them into that approach.
2. **Conduct an exploratory study to determine what the points of misunderstanding and confusion are for Spanish-language participants taking the mail-in survey.** In spite of generally higher program satisfaction, Spanish-language participants seem to have more trouble understanding the survey, and appear to under-report their prior actions. They show a much higher rate of complaints about technical terms. A study that compared customer inputs to an expert's inputs would help program planners

understand where there are confusions and misunderstandings. It could also help target difficulties in translation of the survey into Spanish. About eight percent of Spanish-language participants commented that there were flaws in the translation.

3. **Strengthen connections between HEES report results and energy efficiency programs.** This is a recommendation made in the original report, and is even more important for Spanish-language participants who more often than English-language participants ask for more information on energy efficiency programs.

Recommendation for Program Marketing

4. **Advertise the program to Spanish-language customers emphasizing saving the environment as well as saving money.** Spanish-language participants report themselves more influenced by concern for the environment than English-language.

Overview

The Study

This document is an addendum to the PY2006-08 SCE Home Energy Efficiency Survey (HEES) Program Process Evaluation, and was funded by the public goods charge for energy efficiency.

In the process of conducting the Community Language Energy Outreach (CLEO), we came upon the need to have specific feedback from the in-language Spanish-speaking HEES program participants. The completed 2006-2008 HEES (ID SCE 0275.01) process evaluation focused on surveying English-speaking participants. This project is to augment the 2006-2008 HEES study by creating an addendum with survey results from in-language Spanish-speaking participants.

The main document reporting on that evaluation contains the program description, program theory, goals, etc. This project is oriented only to comparing the Spanish-language to the English-language participants on issues central to the program. It is important to know whether different language groups respond differently to the HEES survey in terms of satisfaction, implementing behaviors, motivations, and other dimensions.

The Report

This report is deliberately structured similarly to the larger study to which this is an addendum. The measure categories, the response groupings, etc, follow that study's so that direct comparisons can be made between English- and Spanish-language participant responses to the survey questions. Almost all of the tables replicate those found in the original study, adding only the analogous results from the Spanish-language participants. The results from English-language participants are repeated from the original report to the tables in this report to facilitate comparisons.

An exception to the replication of tables from the earlier report is made when the English-language results are combined across HEES survey modes, but the same is not done for the Spanish-language results. Combining the results from the Spanish survey across modes could be misleading since participants in the modes are not represented proportionally; the same may be true of the English-language sample as well, so comparing two figures that are both subject to disproportionate sample representation seemed unwise.

Another exception to the rule of following the structure of the earlier report is based on the fact that the current sample is considerably smaller than the original, so answers to some follow-up questions were too sparse to be worth presenting. For instance, when a respondent indicates something less than complete satisfaction, follow-up questions are asked about the specifics of the problem. There usually were not enough respondents to show meaningful results on the specifics.

A third exception to the approach occurs when additional detail is possible and useful in the Spanish sample, but was not presented in the English-language sample.

Method

The following sections describe the sampling and file construction for this project, as well as the process of generating the questionnaire.

Sample

This is a simple study where estimates of proportions (percentages) form the core of the analysis. A power analysis based on proportions, making the most conservative assumption of estimates at .5, again with 90% confidence and 10% precision, a sample size of 68 would generate power of .80 to detect a population proportion of .5 as being different from zero. These results justify a sample of about 67.

There are four modes of the HEES survey instrument provided in Spanish: in-home, mail-in, online, and phone, and it was considered important for all to be represented in the sample such that individual, stable estimates could be provided for each group. An additional consideration in designing the sample is that the new interviews were to take place in the spring of 2010, more than four years after the initial 2006 participants, more than three years after the 2007 participants, etc. Finally, the Spanish version of the HEES did not recruit many participants prior to 2007 (See Table 1), and then almost all participated in the mail-in version. The year 2009 was the first year that anything approaching full participation in all modes was achieved, and even then, online participation remained very low.

Given the above factors, the decision was made to sample only from 2009 and from the latter part of 2008, starting in June. This strategy had the additional advantage of providing telephone numbers for virtually all participants, which would not have been possible prior to June 2008. Further, the decision was made to ignore the online participants as there were not enough even in these most recent months to form the basis of policy.

Table 1. Program Participants by Program Element and Year

Program Element	Program Year			
	2006	2007	2008	2009
In-Home	0	0	1	550
Mail-in	33	499	1536	434
Online	28	1	11	12
Phone	0	0	85	122

The sample frame was further modified by eliminating the participants in the short version of the survey, and eliminating certain recommendations/tips to match the EcoNorthwest decisions that defined the sample frame. These decisions included eliminating tips that were merely congratulations for having done something already to increase efficiency, referrals to other programs such as CARE, or DAP, and a tip that involved a long list of water-saving possibilities. One decision from the previous study that was not replicated was the elimination of tips that occurred less than 100 times. With the smaller sample this study was

working with, there were too many tips that would have been eliminated. Thus, that criterion was not used in the current study.

Ideally, we preferred getting at least 67 from each of the remaining three program modes, which would be accomplished by a total sample size of approximately 200. This was not possible in all three modes. Nevertheless, the total sample size of 200 was retained, with the maximum possible number of interviews coming from in-home and phone versions. Table 2 shows the final sample frame and the targets that were set for each program mode.

Table 2. Sample Frame and Targets

Program Mode	No. in Frame	Sample Targets
In-Home	547	67
Mail-in	917	100
Phone	174	33
Total	1638	200

The sample disposition is shown in Table 3. More completed interviews were obtained in both of the smaller categories than was anticipated. The final numbers were 73 for mail-in, 83 for in-home, and 44 for phone.

The interview protocol called for detailed responses on up to five recommendations provided in the report to the participant. Five of the remaining recommendations, after eliminating those types described above, were randomly selected to present to the interviewees for responses. The recommendations were, of course, provided in Spanish in the report, and therefore could be directly transferred to the interview.

Table 3. Call Disposition

Disposition	Mail-in	In-home	Phone	Total
Not qualified	9	13	10	32
Terminated interview	17	7	2	26
Refused	29	18	9	56
Disconnected number	116	136	39	291
Wrong number	17	33	14	64
English language	1	7	0	8
Other language	0	0	0	0
Other non-interview	0	3	0	3
Unresolved sample	262	300	118	680
Completed interviews	73	83	44	200
Total sample provided	917	547	174	1,638

As described above, the sampling strategy focused on getting sufficient numbers of participants within each of the three HEES modes studied. An alternative focus could have been to get a total sample that is representative of the entire participant population. The difference in the two approaches results from the fact that far more customers participated in the mail-in mode than in the others. Further, there were many more participants in the in-home than the phone mode. This is true of both English-and Spanish-language groups. Sampling enough participants in each mode to develop stable estimates in each, but conserving resources means that participants in the in-home and phone modes are very much over-represented compared to the mail-in mode. In other words, the proportion of in-home sample participants (42 percent of sample versus 24 percent of the population) is much larger than the proportion of mail-in participants (37 percent of the sample versus 63 percent of the population). The same is true to any even stronger degree for the phone sample: it is very highly over-represented (22 percent of the sample versus 9 percent of the population).

The meaning of the over- and under-representation of certain modes compared to the others is that when the modes are combined into one whole sample for calculating statistics such as a percentage of the whole sample, that percentage doesn't represent the whole program as it would if each mode were proportionally sampled. One way to solve this is to weight the modes when combining them so the resulted percentage isn't unduly influenced by phone participant respondents. This weighting was not done for the English-language study to which the Spanish-language results are compared. Thus, it didn't make sense to weight the Spanish-language sample either. Matching the non-weighting approach of the English-language study makes the results somewhat comparable—more comparable than as if the Spanish-language sample were weighted but the English-language sample was not. However, the reader should know that while the mail-in versus in-home samples in the current study are roughly in proportion to the English-language sample, the phone sample is even more over-represented in the English than in the Spanish sample. This means that the phone participants influence the English-language results more than they do the Spanish-language results. For the most part, combining modes is avoided so this problem doesn't arise too often. However, it could not always be avoided, so the reader should be aware of this difference in the English-and Spanish-language results when combining modes.

Although care was taken to assure that the samples were large enough to support trustworthy statistics (percentages), statistical significance tests were not completed. This decision is in line with the fact that the original study to which this is an addendum did not conduct significance tests while comparing responses by survey mode. The decision is a reasonable one as the statistical significance is not the point of the analyses; the point is rather to identify where differences across groups appear and whether they are large enough motivate policy changes.

Interview

The sample described above was interviewed in Spanish. The interview was a translated version of the same interview administered to the English-language sample. The only exception is the fact that questions pertaining to the online survey mode were eliminated due to the elimination of the very few online participants among Spanish-speaking customers during this program period. The interview covered the demographics and other background characteristics of the sample, motivations for participation, knowledge, attitudes, recommendations, actions taken, and satisfaction with all aspects of the process, including the survey process and the resulting report.

Method
Interview

A total of 21,815 recommendations were made to the 2305 participants who participated in the study time period. The average number of recommendations per participant was about 10. Note that the number of participants provided to the interview house was 1638.

Results

Demographics

Table 4 through Table 11 show background information on the Spanish-language interviewed sample, and compares those characteristics to those in the English-language sample. Table 4 shows that the Spanish-language participants reside in single-family homes even more frequently than their English-language counterparts, especially among mail-in participants. In general, HEES participants tend to come from single-family detached homes.

Table 4. Type of Home

Housing Type	Mail-In		In-Home		Phone	
	English (N=228)	Spanish (N=73)	English (N=229)	Spanish (N=83)	English (N=127)	Spanish (N=44)
Single-Family Detached Home	74%	92%	66%	75%	72%	75%
Condo	7%	1%	15%	2%	9%	2%
Apartment	8%	4%	6%	11%	7%	11%
Mobile Home/Manufactured Home	6%	1%	9%	5%	5%	5%
Townhouse	4%	1%	2%	2%	3%	2%
Duplex	2%	0%	1%	5%	3%	5%

HEES participants, as seen in Table 5 tend to own their own homes, but this is a little less true of the Spanish-language group among the phone participants.

Table 5. Own or Rent

Tenancy	Mail-In		In-Home		Phone	
	English (N=228)	Spanish (N=73)	English (N=227)	Spanish (N=83)	English (N=125)	Spanish (N=44)
Own	77%	81%	84%	72%	77%	64%
Rent	23%	19%	16%	28%	23%	34%

Table 6 reveals that Spanish-language participants are heavily concentrated in the 35-54 age group. They are also much less likely to be senior citizens than the English-language participants.

Table 6. Age

Age Range	Mail-In		In-Home		Phone	
	English (N=226)	Spanish (N=73)	English (N=224)	Spanish (N=82)	English (N=122)	Spanish (N=44)
Under 25 Years	4%	1%	0%	2%	2%	0%
25 to 34 Years	7%	10%	4%	11%	6%	27%
35 to 44 Years	10%	21%	10%	37%	20%	32%
45 to 54 Years	14%	32%	18%	27%	23%	32%
55 to 59 Years	12%	15%	7%	10%	7%	5%
60 to 65 Years	10%	10%	4%	4%	6%	2%
65 Years or Older	43%	12%	57%	10%	36%	2%

Spanish-speaking households among the HEES participants tend to have much larger households (See Table 7) compared to English-speaking participants.

Table 7. Number of People in Household

Number of People	Mail-In		In-Home		Phone	
	English (N=226)	Spanish (N=72)	English (N=226)	Spanish (N=83)	English (N=124)	Spanish (N=44)
1	19%	1%	24%	0%	21%	0%
2	30%	5%	41%	8%	25%	5%
3	19%	14%	12%	10%	16%	2%
4	17%	12%	12%	19%	15%	23%
5	8%	32%	4%	24%	14%	27%
6	4%	12%	4%	18%	4%	25%
More than 6	4%	23%	3%	20%	5%	18%

Table 8 reveals that Spanish-language participants are much less likely to have attended college than other participants.

Table 8. Highest Level of Education

Highest Level of Education	Mail-In		In-Home		Phone	
	English (N=224)	Spanish (N=72)	English (N=226)	Spanish (N=83)	English (N=122)	Spanish (N=44)
High school diploma or less	34%	86%	24%	89%	25%	77%
Some college	31%	6%	26%	8%	35%	14%
Associates degree	6%	0%	5%	0%	4%	2%
Bachelors degree	15%	3%	23%	1%	15%	0%
Graduate or professional	13%	6%	21%	1%	20%	7%
Don't know	1%	0%	0%	0%	0%	0%

As one would expect from the lower education level of the Spanish-language participants, that group also tends to have a lower income level (Table 9). Specifically, they are more heavily represented in the less than \$40,000 category, and virtually absent from the \$60,000 plus categories.

Table 9. Annual Household Income

Income Range	Mail-In		In-Home		Phone	
	English (N=204)	Spanish (N=71)	English (N=193)	Spanish (N=82)	English (N=103)	Spanish (N=42)
Less than \$20,000	32%	30%	19%	46%	27%	50%
\$20,000 to less than \$40,000	31%	59%	27%	40%	26%	38%
\$40,000 to less than \$60,000	11%	10%	12%	11%	13%	10%
\$60,000 to less than \$80,000	7%	0%	10%	1%	11%	0%
\$80,000 to less than \$100,000	5%	0%	7%	0%	9%	0%
\$100,000 to less than \$150,000	6%	0%	9%	0%	5%	0%
More than \$150,000	4%	0%	10%	0%	10%	0%
Don't know	2%	1%	4%	1%	0%	2%

In summary, Spanish-language participants differ from participants in the English version of HEES in being even more concentrated in single-family detached homes, being more likely to rent, tending to be less educated, with less income, but larger households.

One final customer characteristic is addressed: whether the customer is a customer of Southern California Gas (SoCalGas) Company, Golden State Water (GSW) Company, or both. Table 10 indicates that the Spanish-language participants are slightly more likely to be SoCalGas or GSW customers.

Table 10. Customer of SoCal Gas and/or GSW?

Customer?	Mail-In		In-Home		Phone	
	English (N=188)	Spanish (N=56)	English (N=199)	Spanish (N=52)	English (N=115)	Spanish (N=28)
Yes	70%	82%	78%	83%	75%	82%
No	24%	11%	20%	12%	22%	18%
Don't know	6%	7%	3%	6%	3%	0%

Table 11 shows that the Spanish-language participants are much more likely to have provided account numbers for SCG and/or GSW. This could mean a stronger commitment to the process than is typically true of the English-language participants.

Table 11. Gas & Water Utility Account Numbers Listed

Account Numbers Listed	Mail-In		In-Home		Phone	
	English (N=129)	Spanish (N=46)	English (N=153)	Spanish (N=43)	English (N=86)	Spanish (N=23)
SoCal Gas or GSW	50%	74%	59%	81%	45%	83%
Neither	13%	22%	7%	12%	17%	17%
Don't know	36%	17%	33%	26%	37%	17%

Marketing Issues

Table 12 shows the percentage of each study group that first learned about the HEES program from each of a list of possible sources. A comparison of English-versus Spanish-language participants reveals some differences. For instance a little over 20 percent of the English-language mail-in group report that they learned of the program from a bill insert, whereas between 5 percent and 18 percent of the Spanish-language participants say that, depending on their survey mode. The English-Spanish difference is largest in the mail-in group (22 percent versus 5 percent). This may imply that bill inserts are less effective among Spanish-language customers, especially if it is soliciting participation in the mail-in mode of HEES. It would seem that the personal connection is more important for Spanish-language customers in that they are more likely to report learning of the program through a utility representative. This is particularly true for the in-home version (41 percent versus 10 percent). One final difference is seen in the mail-in group: Spanish-language participants were more likely to report first hearing about HEES by receiving the survey through the mail, unsolicited (41 percent versus 31 percent).

Table 12. First Information Source

Information Source	Mail-In		In-Home		Phone	
	English (N=228)	Spanish (N=73)	English (N=231)	Spanish (N=82)	English (N=127)	Spanish (N=44)
Bill insert	22%	5%	21%	13%	23%	18%
Utility representative	2%	5%	10%	41%	28%	34%
Survey was mailed to me	31%	41%	4%	4%	6%	2%
Friend/family	3%	3%	10%	10%	4%	7%
Flyer or brochure	6%	15%	5%	7%	6%	14%
Letter from utility	8%	1%	6%	0%	4%	0%
E-mail	0%	4%	0%	2%	0%	0%
Newspaper ad	1%	0%	6%	0%	1%	0%
Community event	0%	1%	3%	0%	1%	0%
Contractor	0%	0%	0%	4%	0%	9%
Post card in the mail	3%	11%	2%	2%	1%	7%
Newsletter	0%	0%	3%	0%	1%	0%
Phone call from SCE	0%	0%	0%	0%	6%	0%
Television	1%	0%	0%	0%	2%	0%
Buying Solar Equipment	0%	0%	0%	0%	0%	0%
Workshop/Conference	0%	0%	1%	0%	0%	0%
Complaining about high bill	0%	0%	2%	0%	0%	0%
Radio	0%	0%	0%	0%	0%	0%
SCE website	0%	1%	2%	1%	2%	2%
Other	0%	4%	4%	9%	0%	5%
Don't know	21%	7%	17%	6%	17%	2%

Participants were asked about each of four possible aspects of the survey, and how important or unimportant each was in deciding to participate. Table 13 shows the results, based only on whether or not the participant said the item was “very important.” The overall pattern of the table is that the Spanish-language participants were more likely to rate each of the four items in that way. However, the strength of that pattern varies by the item: the item where the difference between the two groups was strongest was in the desire to get more information about energy efficiency programs (ranging from 95 percent versus 65 percent to 83 percent versus 51 percent). The next strongest difference was in concern for the environment (ranging from 92 percent versus 77 percent to 92 percent versus 66 percent). The in-home Spanish-language participants were also much more influenced by the free items than their English-language counterparts (55 percent versus 35 percent).

Table 13. Percentage of Participants Considering Factors Very Important

Factors Influencing Participation	Mail-In		In-Home		Phone	
	English (N=228)	Spanish (N=72)	English (N=231)	Spanish (N=83)	English (N=127)	Spanish (N=43)
To reduce the cost of my energy bill	88%	96%	89%	98%	91%	93%
Concern about environment	75%	92%	66%	92%	71%	98%
Desire to find information on energy efficiency programs	51%	83%	57%	89%	65%	95%
Free items	36%	42%	35%	55%	33%	37%

Given that one third to one half of all respondents indicated the free items were very important, it was of interest to know if it was the deciding factor. I.e., would they have taken the survey without the kit of free items? Table 14 reveals the answer to that question. For Spanish-language mail-in and phone participants, virtually all would have taken it anyway (94 percent and 90 percent, respectively) while over three quarters of the in-home group would have. This compares to a little over three quarters of English-language mail-in and in-home participants, and 88 percent of the phone group who said they would have taken the survey anyway. The high percentage of Spanish-language participants that say they would have taken the survey anyway is supported by answers to another question (not shown) where about half of the Spanish-language participants said they didn't realize, in advance, that they would receive free items. This series of questions might be interpreted to indicate higher motivation for participating in the program, and that Spanish-language customers may be especially responsive to messages focusing on learning about energy efficiency programs and about helping the environment.

Table 14. Would Have Taken Survey Without Kit?

Would have taken survey?	Mail-In		In-Home		Phone	
	English (N=185)	Spanish (N=36)	English (N=178)	Spanish (N=49)	English (N=103)	Spanish (N=21)
Yes	79%	94%	76%	76%	88%	90%
No	9%	6%	11%	22%	6%	10%
Don't know	11%	0%	13%	2%	6%	0%

Survey Completion Time and Length

English-and Spanish-language participants were not too different in their timing between learning of the survey and participation (Table 15). About 30 percent to 40 percent responded immediately, and roughly 70 percent to 80 percent responded in less than a month in both groups.

Table 15. Interval from Survey Awareness to Participation

Took survey...	Mail-In		In-Home		Phone	
	English (N=227)	Spanish (N=70)	English (N=231)	Spanish (N=79)	English (N=127)	Spanish (N=43)
Immediately	43%	30%	26%	30%	43%	40%
Less than one month later	39%	44%	45%	35%	37%	30%
1-6 months later	7%	19%	15%	25%	9%	28%
6 months to a year later	1%	4%	2%	4%	0%	2%
More than a year later	1%	3%	1%	5%	2%	0%
Don't know	8%	0%	11%	0%	10%	0%

Asked how long it took to complete the survey, Spanish-language participants indicated it took them a little less time than English-language participants in that the English-language group was much more likely to take more than 15 minutes (see Table 16).

Table 16. HEES Length

Time to complete survey	Mail-In		In-Home		Phone	
	English (N=228)	Spanish (N=73)	English (N=231)	Spanish (N=83)	English (N=127)	Spanish (N=44)
Less than 5 Minutes	8%	5%	3%	2%	7%	14%
5 to 10 Minutes	24%	44%	8%	29%	22%	30%
10 to 15 Minutes	22%	26%	18%	33%	23%	30%
More than 15 Minutes	29%	25%	64%	33%	29%	25%
Don't know	18%	0%	8%	4%	19%	2%

Energy Efficiency Knowledge Level

Table 17 illustrates the differences between Spanish- and English-language participants in their base level of knowledge concerning energy efficiency. Two issues were the subject of knowledge questions. The first asked how much they knew about opportunities for improving the energy efficiency of the home. The English-language group was comprised predominantly of participants who felt at least somewhat knowledgeable about this (86 percent overall—results were not shown by mode). On the Spanish-language side, the mode groups ranged between 52 percent and 63 percent on this question, indicating a substantially lower level of knowledge in the Spanish-language participants. The second question asked about knowledge of energy efficiency programs offered. Here, the two groups were more similar, but the Spanish-language group is somewhat less knowledgeable. The Spanish-language phone group percentage is exactly the same as the English-language group at 73 percent. However, in the other two groups, the knowledge level is lower at 62 percent for mail-in participants, and 58 percent for in-home. The larger pattern is that the Spanish-

language group feels less knowledgeable about energy efficiency than the English-language group.

Table 17. Base Level of Knowledge Before completing HEES: Percent at Least Somewhat Knowledgeable

Before taking the Survey, how knowledgeable were you about...	Spanish			English
	Mail-In (N=73)	In-home (N=83)	Phone (N=44)	Overall (N=818)
Opportunities for improving the energy efficiency of your home	63%	52%	59%	86%
Energy efficiency program offerings for your home	62%	58%	73%	73%

Energy Efficiency Starter Kit

The mail-in and phone participants should have received an energy efficiency starter kit in the mail. Just over 80 percent of English-language participants (shown in the original report as a combined percentage of mail-in and phone) report receiving it, while among the Spanish-language participants, 70 percent of mail-in and 64 percent of phone respondents say they received it (see Table 18).

Table 19 shows what was installed from the kit among those who reported receiving it. The Spanish-language participants are very close to the English-language group in their rate of installing the CFLs provided. However, they tend to be a bit higher in their installation rate for showerheads and aerators. None of the mail-in participants said they installed nothing, though a small percentage of the phone group, and the English-language group failed to install anything.

Table 18. Received Energy-Efficiency Starter Kit in the Mail

Receive kit?	English	Spanish	
	Overall (N=587)	Mail-in (N=73)	Phone (N=44)
Yes	81%	70%	64%
No	17%	27%	36%
Don't know	2%	3%	0%

Table 19. Items Installed from Kit

Installed Items	English	Spanish	
	Overall (N=474)	Mail-in (N=51)	Phone (N=28)
CFL	68%	69%	71%
Low-flow showerhead	55%	88%	86%
Kitchen sink aerator	38%	51%	61%
One bathroom sink aerator	7%	12%	21%
Both bathroom sink aerators	27%	33%	29%
None	12%	0%	11%
Don't know	1%	0%	0%

In-home mode respondents were asked which of the energy efficiency kit items were installed by their auditor. The results are shown in Table 20. For most items, the Spanish-language group reports a higher installation rate.

Table 20. Items Installed by In-Home Auditor

Items Installed	English (N=231)	Spanish (N=83)
CFL	55%	69%
Low-flow showerhead	28%	66%
Kitchen sink aerator	18%	47%
One bathroom sink aerator	4%	18%
Both bathroom sink aerators	15%	27%
None	19%	11%
Was not offered anything	10%	1%
Didn't know consultant would install	8%	1%

Table 21 addresses the number of CFLs installed by the in-home auditor. While there are differences between the language groups in individual number categories, the overall picture

is similar. The most frequently chosen category is 6 CFLs installed, followed by 4, and this is similar for both groups.

Table 21. Number of CFLs Installed by In-Home Auditor

# CFLs	English (N=128)	Spanish (N=56)
1	7%	2%
2	11%	2%
3	5%	20%
4	19%	18%
5	6%	16%
6	39%	34%
Don't know	13%	9%

Only a minority of both language groups report receiving a kit with the in-home survey process: 39 percent of the English-language participants and 40 percent of the Spanish (Table 22). Of those, very similar percentages of participants in both groups installed items after the audit.

Table 22. Items Installed After In-Home HEES

Received Kit	English (N=204)	Spanish (N=82)
Yes	39%	40%
No	52%	60%
Don't know	9%	0%
Installed Items	(N=79)	(N=33)
CFL	82%	85%
Low-flow showerhead	33%	30%
Kitchen sink aerator	17%	9%
One bathroom sink aerator	6%	6%
Both bathroom sink aerators	18%	9%

Table 23 reveals what the participants see as the most valuable item in the energy efficiency kit. The opinions are similar between the two groups, but the Spanish-language group is more

likely to place a higher value on showerheads and a lower value on CFLs than the English-language participants.

Table 23. Most Valuable Item in Energy Efficiency Kit

Most Valuable Item in Kit	Mail-in		In-home		Phone	
	English (N=162)	Spanish (N=51)	English (N=174)	Spanish (N=81)	English (N=104)	Spanish (N=28)
CFL	43%	27%	53%	42%	42%	21%
Low-flow showerhead	38%	55%	20%	51%	32%	57%
Kitchen sink aerator	7%	10%	2%	5%	4%	11%
Bathroom sink aerator	3%	6%	3%	2%	7%	4%
None	4%	2%	2%	0%	3%	4%
Don't know	6%	0%	19%	0%	13%	4%

Other HEES Modes

Customers learn about the HEES survey by different methods, and are variously aware of multiple possible modes of participating. Table 24 indicates whether participants knew about other modes, and it is clear that only a minority of either language group was aware of other possibilities.

Table 24. Awareness of Other HEES Modes

Aware of other modes?	Mail-in		In-home		Phone	
	English (N=228)	Spanish (N=73)	English (N=231)	Spanish (N=83)	English (N=127)	Spanish (N=44)
Yes	27%	26%	23%	30%	44%	30%
No	71%	73%	73%	69%	53%	66%
Don't know	2%	1%	4%	1%	3%	5%

Table 25 tells us the participants' main reason for participating. The most popular reason, for both groups is that the chosen mode was most convenient, or fastest. However, that is most true for English speakers. Spanish speakers were more likely than others to choose their mode based on believing it to yield the most helpful or accurate information. This is especially true of the in-home group.

Table 25. Reason for Selecting HEES Mode

Reason	Mail-in		In-home		Phone	
	English (N=62)	Spanish (N=19)	English (N=53)	Spanish (N=25)	English (N=56)	Spanish (N=13)
Was the most convenient/easiest/fastest	73%	68%	81%	44%	77%	62%
Would provide the most helpful/accurate information	0%	16%	8%	32%	7%	0%
Wanted an in-person consultation	0%	0%	2%	0%	2%	0%
Did not have internet access	8%	5%	0%	0%	0%	0%
Fastest mode to get the free energy efficiency starter kit	8%	0%	0%	8%	0%	8%
Needed survey in my language	5%	0%	4%	0%	4%	23%
Wanted the free Energy Efficiency starter kit	2%	0%	2%	0%	2%	0%
Trouble with on-line portal	0%	0%	4%	0%	0%	0%
Not comfortable with computers/internet	2%	5%	0%	0%	0%	0%
Was the only mode that was offered to me	2%	5%	0%	4%	0%	15%
Other	0%	11%	11%	12%	11%	0%
Don't know	8%	5%	4%	4%	4%	0%

Table 26 reveals a consistently high level of satisfaction with the chosen mode. Roughly 90 percent to 100 percent of the groups reported at least moderate satisfaction, and 71 percent to 87 percent report they are very satisfied. The highest satisfaction is associated with the in-home HEES mode for both language groups.

Table 26. Satisfaction with Mode

Level of Satisfaction	Mail-in		In-home		Phone	
	English (N=227)	Spanish (N=73)	English (N=231)	Spanish (N=83)	English (N=127)	Spanish (N=44)
Very satisfied	71%	79%	81%	87%	78%	86%
Moderately satisfied	18%	16%	11%	10%	13%	14%
Slightly satisfied	2%	1%	2%	2%	1%	0%
Neutral	4%	3%	1%	1%	1%	0%
Slightly dissatisfied	1%	0%	1%	0%	1%	0%
Moderately dissatisfied	0%	0%	0%	0%	1%	0%
Very dissatisfied	0%	0%	1%	0%	2%	0%
Don't know	1%	0%	2%	0%	4%	0%

HEES Recommendations and Behavioral Impacts

The essence of the HEES program is to provide energy-saving recommendations that will lead to changes in behaviors. An important part of that process is for the participant to read the report and recommendations. As seen in Table 27, Spanish-language participants are a little less likely to read the HEES report thoroughly and are more likely not to recall receiving a report. This is true across all modes.

Table 27. Level of Attention to HEES Report

How well did you read the report?	Mail-in		In-home		Phone	
	English (N=228)	Spanish (N=73)	English (N=231)	Spanish (N=83)	English (N=127)	Spanish (N=44)
Read the report thoroughly	53%	47%	64%	45%	57%	48%
Read some portions of the report	18%	21%	11%	13%	20%	11%
Just glanced through it	12%	10%	11%	5%	13%	5%
Did not read the report at all	3%	0%	6%	5%	1%	0%
Do not recall receiving the report	9%	23%	6%	31%	6%	36%
Don't know	6%	0%	2%	1%	2%	0%

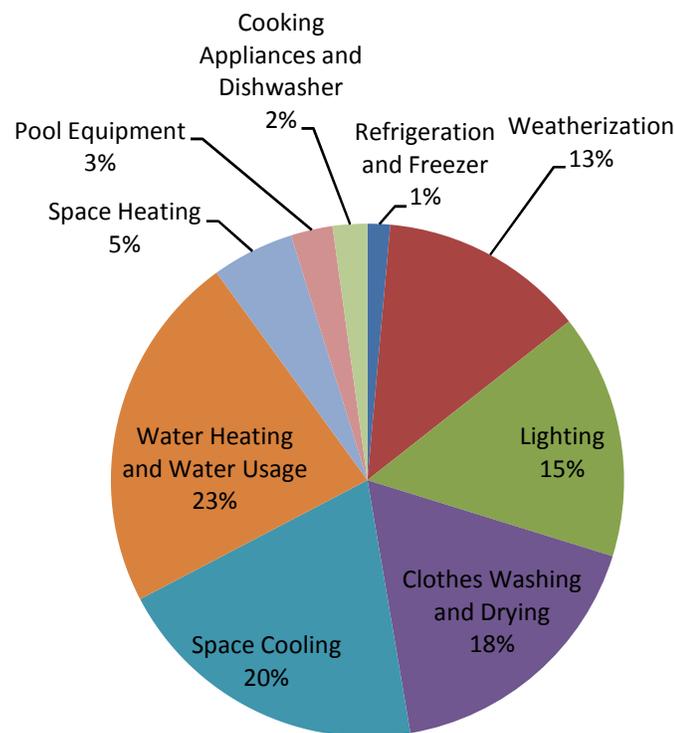
Matching the sample and tip criteria used by ECONorthwest, the recommendations made to the Spanish-language participants were examined and compared to the English-language participants.

This section analyzes the distributions of recommendations made based on completed HEES surveys for Spanish (Figure 1) and English (Figure 2) participants. The analysis is based on

19,573 tips for the Spanish-language participants and 268,927 tips for the English group. The types of recommendations are similar across the groups. However, the Spanish-language participants received a considerably higher percentage of recommendations about water heating and water usage compared to the English-language group (23 percent versus 14 percent). They were also slightly less likely to receive weatherization recommendations than the English-language participants (13 percent versus 17 percent), and the same is true for space heating (5 percent versus 12 percent).

When eliminating the water heating and usage category to focus more on energy savings (not shown), the trends mentioned above are strengthened. Spanish-language participants were more likely to receive space cooling-related recommendations (26 percent versus 17 percent) and were less likely to receive space heating related recommendations (7 percent versus 14 percent).

**Figure 1. HEES Recommendations by Category:
Spanish-Language Group (N=19,573 Tips)**



**Figure 2. HEES Recommendations by Category:
English-Language Group (N=268,927 Tips)**

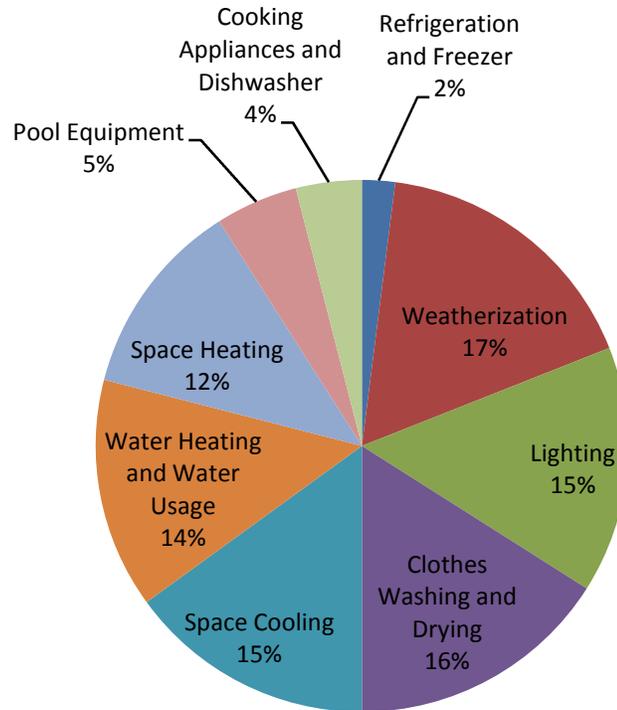


Table 28 addresses the rate of implementation completed and attributed to the program by each group for each measure category. The clear pattern in this table is that there is a higher implementation rate among Spanish-language participants compared to English-language participants. This is true across modes and most measure categories. For both English- and Spanish-language participants, those participating in the in-home mode, on average, have a slightly higher implementation rate, excluding the measure categories with very low recommendation rates in either English- or Spanish-language samples (pool & spa, cooking & dishwasher, weatherization, and space heating).

The English-language report indicated that only 14 percent of the recommendations made to that sample were implemented due to the HEES survey experience. The comparable figure for the Spanish-language group was 38 percent.

Table 28. Recommendations Implemented Due to HEES by Survey Mode

Measure Category	Mail-in		In-home		Phone	
	English	Spanish	English	Spanish	English	Spanish
Water Heating & Water Usage	25%	45% (N=47)	27%	50% (N=64)	28%	68% (N=40)
Lighting	20%	49% (N=55)	22%	35% (N=37)	21%	28% (N=18)
Refrigerator & Freezer	9%	25% (N=8)	29%	60% (N=5)	7%	0% (N=1)
Weatherization	6%	46% (N=39)	9%	38% (N=21)	12%	75% (N=8)
Space Heating	9%	38% (N=8)	9%	8% (N=12)	8%	17% (N=6)
Space Cooling	9%	17% (N=41)	8%	30% (N=56)	10%	35% (N=37)
Washing & Drying Clothes	7%	31% (N=49)	11%	22% (N=41)	10%	42% (N=24)
Pool & Spa	5%	25% (N=4)	6%	20% (N=5)	0%	0% (N=3)
Cooking & Dishwasher	6%	18% (N=11)	8%	0% (N=0)	0%	0% (N=0)

Given that the Spanish-language participants show a strong trend toward implementing a higher percentage of recommendations than the English-language group, the question arises: What are they doing? Table 29 lists the tips implemented in more detail, categorized by the measure groups used in the tables and figures above. See Table 32 and Table 33 below for analysis of the patterns in this table and the next. Table 29 is included because the detail may be useful to program planners.

**Table 29. Specific Measures Implemented Due HEES: Detail
Spanish Language Only**

Description	# Installe d Be caus e of Survey
Refrigerator & Freezer	5
Replace Your Main Refrigerator	5
Weatherization	32
Seal Air Leaks and Caulk Cracks and Gaps Around the House	30
Insulate Your Home	2
Lighting	45
Use CFLs	30
Install motion sensors, photoelectric cell, or timer on security lighting	15
Washing & Drying Clothes	34
Replace Your Washing Machine	1
Run full loads on clothes dryer and clean lint from filter	32
Wash your Laundry In Cold Water	1
Space Cooling	37
Install a Whole House Fan	5
Clean air conditioner filters, keep blinds closed, avoid appliances in heat	10
Seal gaps between wall a/c and wall or window	8
Raise Your Air Conditioner Thermostat Setting	5
Seal leaky ducts	9
Water Heating & Water Usage	80
Lower Your Water Heater Setting	29
Replace Your Water Heater	1
Install Low Flow Shower Heads to Save Energy	47
Wash your car at a commercial car wash	3
Space Heating	5
Keep heating system tuned up--clean and change furnace filters & seal losse-fitting windows	5
Pool & Spa	2

Description	# Installe d Beaus e of Survey
Replace Your Pool Pump Motor	1
Use an Insulated Pool Cover	1
Cooking & Dishwasher	2
Pilotless gas ranges and ovens save gas, time, and kitchen heat	2
Total	242

The HEES English-language report indicated that the overall rate of recommendations made to the interviewed sample that were already completed before the survey was 44 percent. The comparable figure for the Spanish-language participants is 36 percent. Table 30 analyzes those pre-participation actions. As would be expected from the overall rates, the general pattern in this table is that the Spanish-language participants had implemented fewer measures prior to the survey compared to the English-language group. However, this pattern is strongest in the mail-in group and least in the in-home group. This difference in prior actions by mode might be due to increased personalization of recommendations due to more accurate survey inputs by in-home auditors. The in-home method particularly lends itself to customization of inputs and thus the resulting recommendations may be less likely to cover things the customer has already done. This would mean that Spanish-language participants may be under-reporting what they already did. The English-language participants seem to be a little less likely to under-report their prior actions, assuming in-home auditor inputs represent the “gold standard” of inputs to the algorithm.

In addition, if the algorithm is insensitive to some prior actions, the lower rate of tips implemented prior to receiving them by Spanish language participants could reflect fewer actual energy efficiency behaviors prior to HEES, especially given the lower knowledge level shown in (Table 17). The foregoing interpretations are based on the measures that seem to have been recommended and installed enough to produce stable estimates of percentages (therefore excluding pool & spa, cooking & dishwasher, space heating and refrigerator & freezer from interpretation of differences).

Table 30. Recommendations Implemented Prior to HEES by Survey Mode

Measure Category	Mail-in		In-home		Phone	
	English	Spanish	English	Spanish	English	Spanish
Water Heating & Water Usage	39%	28% (N=47)	38%	30% (N=64)	36%	10% (N=40)
Space Cooling	42%	32% (N=41)	41%	32% (N=56)	29%	30% (N=37)
Lighting	50%	40% (N=55)	41%	51% (N=37)	60%	50% (N=18)
Washing & Drying Clothes	73%	55% (N=49)	65%	61% (N=41)	61%	58% (N=24)
Weatherization	37%	33% (N=39)	23%	43% (N=21)	24%	13% (N=8)
Space Heating	63%	38% (N=8)	68%	42% (N=12)	58%	33% (N=6)
Refrigerator & Freezer	14%	25% (N=8)	3%	20% (N=5)	25%	0% (N=1)
Cooking & Dishwasher	36%	18% (N=11)	42%	NA (N=0)	75%	NA (N=0)
Pool & Spa	33%	0% (N=4)	6%	0% (N=5)	0%	33% (N=3)

As with the analysis of recommendations implemented due to the HEES survey, the detailed list of actions participants took prior to the survey are listed (see Table 31).

**Table 31. Recommendations Implemented Prior to HEES: Detail
Spanish Language Only**

Category & Measure	# Installed Before Survey
Refrigerator & Freezer	3
Unplug or Recycle Your Spare Freezer	1
Recycle Your Secondary or Third Refrigerator	2
Weatherization	23
Insulate the Walls of Your Home	2
Seal Air Leaks and Caulk Cracks and Gaps Around the House	21
Lighting	50
Use CFLs	40
Install motion sensors, photoelectric cell, or timer on security lighting	10
Washing & Drying Clothes	66
Wash your Laundry In Cold Water	4
Replace Your Clothes Washer	1
Run full loads on clothes dryer and clean lint from filter	61
Space Cooling	42
Replace Your Central Air Conditioning	1
Raise Your Air Conditioner Thermostat Setting	2
Install a Whole House Fan	6
Seal gaps between wall a/c and wall or window	7
Clean air conditioner filters, keep blinds closed, avoid appliances in heat	13
Seal leaky ducts to save 5-20% of heating costs.	13
Water Heating & Water Usage	36
Lower Your Water Heater Setting	18
Wash your car at a commercial car wash	1
Replace Your Water Heater	2
Install Low-Flow Showerheads	15
Space Heating	10
Keep heating system tuned up--clean and change furnace filters & seal loose-fitting windows	10

Category & Measure	# Installed Before Survey
Pool & Spa	1
Use an Insulated Pool Cover	1
Cooking & Dishwasher	2
Pilotless gas ranges and ovens save gas, time, and kitchen heat	2
Total	233

Table 32 lists the recommendation categories, the number of each that were implemented before the survey and the number implemented after. Also shown are the percent of the total implementations represented by each category. This gives us an idea of where Spanish-language customers have focused their efforts prior to receiving input, and how that emphasis changed after the survey. We already know that Spanish-language participants reported less than English-language participants prior to the survey (Table 30), but here we see what they *did* do and report. The bulk of their efforts were directed toward washing and drying clothes, which represents 28 percent of the reported pre-program efforts. Following this is lighting (21 percent), space cooling (18 percent) and water heating and usage (15 percent). The measures the Spanish-language participants took that they attributed to HEES had a somewhat different emphasis, though the categories are the same. The largest category of post-HEES implementation is water heating and usage (33 percent) followed by lighting (19 percent), and space cooling (15 percent). To summarize, the heaviest emphasis switched from washing and drying clothes to water heating and usage as a result of the survey.

**Table 32 Category of Actions Implemented Before or After Survey
Spanish Language Only**

Category	# Implemented Before Survey	Percent of Total	# Implemented Because of Survey	Percent of Total
Refrigerator & Freezer	3	1%	5	2%
Weatherization	23	10%	32	13%
Lighting	50	21%	45	19%
Washing & Drying Clothes	66	28%	34	14%
Space Cooling	42	18%	37	15%
Water Heating & Water Usage	36	15%	80	33%
Space Heating	10	4%	5	2%
Pool & Spa	1	0%	2	1%
Cooking & Dishwasher	2	1%	2	1%
Total	233	100%	242	100%

Another way to think about participants' energy efficiency actions before and after the HEES survey is to categorize the actions by cost. Table 33 represents that analysis. As would be expected, the least frequent action taken before or after the survey is the purchase of big ticket items like new refrigerators, clothes washers and dryers, etc. The actions taken by Spanish-language participants before the survey were heavily weighted toward energy efficiency practices. The biggest apparent effect of the survey was to encourage people to make low-cost purchases such as lighting, sealing and caulking, and low-flow showerheads and aerators. The weight of effort is similar for practices before and after participation.

**Table 33 Type of Action by Time of Implementation: Before or After Survey
Spanish Language Only**

Action Type	# Implemented Before Survey	Percent of Total	# Implemented Because of Survey	Percent of Total
Big ticket items	8	3%	11	5%
Moderate cost items	51	22%	31	13%
Low cost purchases	62	27%	115	48%
Practices	112	48%	85	35%
Total	233	100%	242	100%

Satisfaction with Measures

The original evaluation addressing English-language participants reported satisfaction on the entire study sample, not breaking the figures out by survey mode. The analyses presented here will break out responses by HEES mode in the Spanish language sample. Also, the original report showed responses by all satisfaction categories. However, satisfaction in the Spanish-language group especially was so high that the only way to distinguish one area of satisfaction from another is to focus only on the highest response category of “very satisfied.” Table 34 shows that comparison: the percent who chose the “very satisfied” response among the overall English-language sample versus each of the three modes studied among the Spanish-language participants. The pattern in the table is very clear. The Spanish-language participants were consistently more satisfied with the new measures they implemented than the English-language participants, with a few exceptions. The other thing we learn from this table is that the participants in the mail-in mode were somewhat less likely to be “very satisfied” than those who had personal contact with an expert (in-home or phone).

Table 34. Percent Very Satisfied with New Measures

Measure	Spanish			English Overall
	Mail-in	In-home	Phone	
Water Heating & Water Usage	85% (N=103)	94% (N=122)	98% (N=96)	71% (N=128)
Space Cooling	85% (N=65)	90% (N=87)	96% (N=78)	82% (N=64)
Lighting	87% (N=100)	90% (N=70)	93% (N=43)	72% (N=130)
Washing & Drying Clothes	80% (N=98)	91% (N=75)	92% (N=52)	75% (N=52)
Weatherization	92% (N=72)	98% (N=52)	91% (N=23)	72% (N=67)
Space Heating	100% (N=19)	85% (N=13)	100% (N=14)	55% (n=44)
Refrigerator & Freezer	71% (N=14)	87% (N=15)	100% (N=3)	78% (N=18)
Cooking & Dishwasher	62% (N=13)	NA	NA	83% (N=6)
Pool & Spa	50% (N=4)	100% (N=5)	0% (N=1)	67% (N=6)

Table 35 broadens the view by showing the percent of respondents who were at least moderately satisfied with the new measures. This table makes the same point a little more strongly: Spanish-language participants report more satisfaction than the English-language group. Nearly 100 percent of the Spanish-language participants were at least moderately satisfied, compared to a range of 76 percent to 91 percent for the English-language.

Table 35. Percent at Least Moderately Satisfied with New Measures

Measure	Spanish			English Overall
	Mail-in	In-home	Phone	
Water Heating & Water Usage	100% (N=103)	100% (N=122)	100% (N=96)	87% (N=128)
Space Cooling	98% (N=65)	100% (N=87)	100% (N=78)	88% (N=64)
Lighting	99% (N=100)	100% (N=70)	100% (N=43)	82% (N=130)
Washing & Drying Clothes	98% (N=98)	100% (N=75)	100% (N=52)	91% (N=52)
Weatherization	100% (N=72)	100% (N=52)	100% (N=23)	88% (N=67)
Space Heating	100% (N=19)	100% (N=13)	100% (N=14)	82% (N=44)
Refrigerator & Freezer	93% (N=14)	100% (N=15)	100% (N=3)	84% (N=18)
Cooking & Dishwasher	100% (N=13)	NA	NA	83% (N=6)
Pool & Spa	100% (N=4)	100% (N=5)	100% (N=1)	76% (N=6)

Further Action

Other recommendations were made to participants in the HEES report sent to them, including program phone numbers to call and websites to visit that are linked to the recommendations analyzed above. The interview asked participants which of those recommended actions they took *as a result of reading the HEES report*. Table 36 reports the results of that question. Among the mail-in group, the Spanish-language participants were less likely to purchase equipment. In the in-home group, the Spanish-language participants were more likely than English speakers to call a utility. In the phone survey group, Spanish-language participants were less likely to purchase equipment, but more likely to call a utility or a contractor. In other words, the Spanish-language participants appear to be more comfortable making phone calls, and less comfortable in making purchases.

Table 36. Action Taken As a Result of HEES

Action Taken	Mail-In		In-Home		Phone	
	English (N=228)	Spanish (N=56)	English (N=231)	Spanish (N=52)	English (N=127)	Spanish (N=28)
Visit a utility website to get additional info on energy efficiency programs	9%	9%	17%	13%	17%	11%
Call the utility to get additional info on energy efficiency programs	18%	21%	15%	31%	17%	36%
Call a contractor to find more about installing energy efficient equipment	11%	20%	15%	19%	10%	29%
Participate in any other rebate or energy efficiency programs	18%	18%	18%	25%	15%	18%
Purchase any energy efficient equipment	28%	16%	25%	27%	23%	14%

Table 37 shows the programs that HEES participants participated in after the survey. While there are some cells of this table that show some differences, the overall pattern of the responses is a lack of a consistent pattern of differences by language group. For both groups, participation in appliance recycling programs was most likely, followed by rebate programs, especially the SCE rebate programs.

Table 37. Programs Participated In

Program	Mail-In		In-Home		Phone	
	English (N=33)	Spanish (N=10)	English (N=36)	Spanish (N=13)	English (N=17)	Spanish (N=5)
SCE - Refrigerator/Freezer Recycling Program	33%	30%	28%	23%	29%	20%
SCE - Rebate Program (For Electric Appliances, Heating And Cooling, Pool Equipment)	24%	20%	33%	15%	12%	20%
SCE - Summer Discount Plan (Air Conditioning Cycling)	6%	0%	0%	15%	12%	0%
Solar Rebate Program (California Solar Initiative)	9%	0%	3%	0%	12%	20%
I Received A Rebate But Don't Remember The Program Name	12%	0%	8%	15%	0%	0%
The Gas Company - Rebate Program (Gas Appliances, Insulation)	6%	0%	3%	15%	0%	20%
The Gas Company - Home Energy Upgrade Finance Program	6%	0%	0%	0%	6%	0%
GSW Or LADWP - Water Utility Rebate Program	0%	0%	3%	15%	6%	0%
SCE Demand Response Program	0%	0%	3%	0%	0%	0%
Other	12%	40%	14%	15%	6%	20%
Don't Know	18%	10%	17%	8%	29%	0%

Satisfaction with HEES Report

An important criterion for the success of an energy efficiency survey program such as HEES is the participants' opinion of how useful the information in the report is. It is also important to take into account whether the participant entered gas company and/or water company account numbers as this information makes more detail and customization possible, which can affect the usefulness of the information.

Table 38 shows the usefulness ratings, broken down by whether or not the participants entered the account numbers and by language group. The sample modes are combined because the numbers are too small when broken down by mode as well as account number entry. The reader is reminded, though, that in both the English- and Spanish-language groups, the percentages are not weighted to reflect different number of participants across modes. In spite of the limitations of the data in this table, it can clearly be seen that the Spanish-

language group found the report more useful than the English-language participants. The difference is seen almost entirely in the fact that the Spanish-language participants were more likely to choose the “very useful” category, while the other group was more likely to choose the “somewhat useful” category. Entering the account numbers of the other utilities appears to contribute a bit to perceived usefulness in both cases, but not dramatically so.

Table 38. Usefulness of HEES Energy and Water Use History by Whether Account Number Entered

Usefulness	Entered SoCal Gas and/or GSW Account #s		Did Not/Don't Know	
	English (N=279)	Spanish (N=70)	English (N=415)	Spanish (N=66)
Very useful	57%	77%	47%	70%
Somewhat useful	30%	11%	26%	20%
Not very useful	9%	1%	7%	2%
Not at all useful	3%	0%	6%	0%
Did not look at the charts at all	5%	9%	8%	9%
Don't know	0%	1%	5%	0%

Table 39 shows the results of the same question for the Spanish-language participants only, breaking out the modes but combining those who did and didn't supply gas and water company account numbers. Here again, we find the familiar pattern of participants being more satisfied with situations where more customization is possible, in this case by having personal contact with an expert. The difference in the perceived usefulness of the energy and water history information between mail-in participants compared to in-home and phone participants is striking. The “very useful” category was chosen 85 percent-86 percent of the time by the latter two groups and only 57 percent of the time by the former. It is impossible to say if the personal touch is more important to Spanish-language participants since the modes are not reported separately for the English-language group.

Table 39. Usefulness of HEES Energy and Water Use History by Survey Mode: Spanish-Language Group

Usefulness	Mail-in (N=56)	In-home (N=52)	Phone (N=28)
Very useful	57%	85%	86%
Somewhat useful	25%	10%	7%
Not very useful	4%	0%	0%
Not at all useful	0%	0%	0%
Did not look at the charts at all	13%	6%	7%
Don't know	2%	0%	0%

The HEES report’s comparison of the participant’s consumption with their regional average was found “very useful” more often by Spanish-language participants than English, but did not differ substantially depending on whether gas and water company account numbers were entered (see Table 40).

Table 40. Usefulness of Comparison with Regional Average

Usefulness	Entered SoCal Gas and/or GSW Account #s		Did Not/Don't Know	
	English (N=277)	Spanish (N=70)	English (N=415)	Spanish (N=66)
Very useful	48%	59%	39%	65%
Somewhat useful	25%	17%	22%	8%
Not very useful	9%	3%	9%	0%
Not at all useful	7%	0%	8%	0%
Did not look at the charts at all	9%	21%	12%	20%
Don't know	8%	0%	9%	8%

Table 41 again shows the Spanish-language results from Table 40, separated by survey mode. The same pattern emerges here as well: perceived usefulness is substantially reduced for the depersonalized mail-in mode.

Table 41. Usefulness of Comparison with Regional Average: Spanish-Language Group Only

Usefulness	Mail-in (N=56)	In-home (N=52)	Phone (N=27)
Very useful	46%	71%	75%
Somewhat useful	16%	10%	11%
Not very useful	2%	0%	4%
Not at all useful	0%	0%	0%
Did not look at the charts at all	27%	19%	11%
Don't know	9%	0%	0%

Perceived usefulness is one thing, but influence on behavior is another. Table 42 shows the level of influence experienced by participants; modes are combined for the English-language group (as they are reported only that way in the main report), but separated by mode for the Spanish-language participants. The pattern is again very striking: Spanish-language participants found they were very influenced by the energy and water use charts (80 percent-96 percent) compared to only 50 percent overall for English. The difference in the Spanish-language participants across modes was less dramatic than in prior analyses, but the basic pattern is still present: those experiencing the mail-in survey were less influenced than those in the other modes. However, interestingly, the phone survey recipients were more influenced even than the in-home participants (96 percent versus 86 percent).

Table 42. Influence of HEES Energy and Water Use Charts

Level of Influence	Spanish			English Overall (N=645)
	Mail-in (N=49)	In-home (N=49)	Phone (N=26)	
Very influential	80%	86%	96%	50%
Somewhat influential	20%	14%	4%	30%
Not very influential	0%	0%	0%	7%
Not at all influential	0%	0%	0%	7%
Don't know	0%	0%	0%	5%

Table 43 shows how influential the comparison with the regional average was for HEES participants. As before, the Spanish-language participants felt much more influenced than did the English group, and the in-home and phone participants were more influenced than the mail-in participants within the Spanish-language sample.

Table 43. Influence of HEES Comparison with Regional Average

Level of Influence	Spanish			English Overall (N=613)
	Mail-in (N=41)	In-home (N=42)	Phone (N=25)	
Very influential	68%	86%	84%	41%
Somewhat influential	24%	14%	16%	23%
Not very influential	7%	0%	0%	14%
Not at all influential	0%	0%	0%	14%
Don't know	0%	0%	0%	8%

Satisfaction with the HEES Tool

Table 44 shows that substantially fewer Spanish-language participants rated filling out the survey as “very easy,” and more rated it “somewhat easy.” Predictably, those who had personal contact, English or Spanish, found it easier. Still, a majority of both groups found it “very easy,” and most found it at least “somewhat easy.”

Table 44. Ease of Filling Out Survey

Level of Ease	Mail-in		In-home		Phone	
	English (N=228)	Spanish (N=73)	English (N=230)	Spanish (N=83)	English (N=127)	Spanish (N=44)
Very easy	74%	51%	89%	58%	80%	70%
Somewhat easy	18%	33%	10%	31%	16%	25%
Somewhat difficult	5%	16%	0%	10%	2%	0%
Very difficult	0%	0%	0%	1%	2%	5%
Don't know	3%	0%	0%	0%	1%	0%

After asking how easy the survey was to fill out, those who found it less than “very easy” were asked what would make it easier, and multiple responses were allowed. The larger sample of the interviews completed in English make it possible to show participant recommendations by mode, but this was not possible for the smaller Spanish-language sample (see Table 45). Still, the results are clear: the Spanish-language participants are more likely to suggest making the survey less technical, and to make it shorter and more concise.

Table 45. What Would Make it Easier?

Recommendations	English			Spanish Overall (N=66)
	Mail-in (N=53)	In-home (N=25)	Phone (N=25)	
Make it less technical	15%	16%	4%	36%
Make it shorter/more concise	26%	4%	12%	27%
Make it available in more languages	6%	4%	8%	11%
Leave more room on the lines to write-in answers	6%	0%	4%	2%
Don't know	36%	52%	64%	0%
Other	15%	20%	12%	24%

Satisfaction with the HEES Experience

Table 46 reveals the percent of participants who were “very satisfied” with each of seven aspects of the HEES experience. The concise summary of these satisfaction results is that participants are generally satisfied with the experience, Spanish-language participants more than English-language. The difference between the groups is greatest on information about other energy efficiency programs, especially for modes involving personal contact.

Table 46. Percent Very Satisfied with Aspects of the HEES Experience

Program Feature	Mail-in		In-home		Phone	
	English	Spanish	English	Spanish	English	Spanish
Amount of time it took to complete the survey	78% (N=227)	81% (N=73)	80% (N=230)	84% (N=83)	73% (N=127)	86% (N=44)
Clarity of the recommendations provided by the survey	80% (N=188)	79% (N=56)	78% (N=198)	90% (N=52)	77% (N=115)	100% (N=28)
Usefulness of the recommendations provided	74% (N=188)	91% (N=56)	72% (N=197)	96% (N=52)	66% (N=115)	96% (N=28)
Information provided on other energy efficiency programs	66% (N=188)	71% (N=56)	60% (N=196)	79% (N=52)	65% (N=113)	93% (N=28)
How customized the survey results were to household	75% (N=187)	86% (N=56)	76% (N=196)	92% (N=52)	65% (N=113)	96% (N=28)
Knowledge, professionalism, and enthusiasm of in-home consultant	NA	NA	89% (N=228)	95% (N=83)	NA	NA
Overall satisfaction with the Home Energy and Water Efficiency Survey	77% (N=227)	90% (N=73)	78% (N=228)	93% (N=83)	70% (N=126)	84% (N=44)

Perhaps the strongest measure of satisfaction is found in whether the participants have recommended the program to others. Table 47 addresses that issue. Not surprisingly, the participants in the in-home mode of both language groups are the most likely to have recommended it to others. In all modes the Spanish-language participants are more likely than English to have done this.

Table 47. Recommended HEES to Others

Recommended?	Mail-in		In-home		Phone	
	English (N=221)	Spanish (N=73)	English (N=227)	Spanish (N=83)	English (N=127)	Spanish (N=44)
Yes	33%	51%	55%	65%	45%	48%
No	67%	48%	44%	35%	54%	52%
Don't know	0%	1%	2%	0%	0%	0%

Participants were asked what aspect of the program was most helpful to them. As seen in Table 48, the responses are spread over many facets. However, the most helpful aspect for English-language participants was the charts of energy and water use, while for Spanish-language participants it was information about other energy efficiency programs.

Table 48. Most Helpful Aspect of the Program

Response	English (N=809)	Spanish (N=200)
Charts of Energy And Water Use	19%	7%
Regional Comparison of Energy And Water Costs	5%	6%
Information About Rebates	3%	2%
Information About Energy Efficiency Programs	9%	27%
Insulation Recommendations	0%	1%
Air Conditioning Recommendations	1%	2%
Furnace And Space Heating Recommendations	0%	1%
Air Distribution (Duct) Recommendations	0%	1%
Water Heater Recommendations	2%	2%
Pool/Spa Recommendations	0%	1%
Dishwasher Recommendations	0%	1%
Clothes Washer Recommendations	1%	3%
Lighting Recommendations	7%	8%
Extra Information From The In-Home Consultant	3%	1%
The recommendations in general	2%	0%
Better understanding/awareness of how to save energy	2%	0%
Better understanding/awareness of how to help environment	<1%	0%
Everything	1%	0%
Easy, fast format	1%	0%
Information about specific appliances	1%	0%
Assurance I am on the right track	1%	0%
Other	5%	17%
None	7%	5%
The Free EE Starter Kit	7%	7%
Don't Know	22%	14%

When the interview was nearly finished respondents were asked an open-ended question about what the most difficult thing about completing the HEES survey was. Table 49

indicates the answers to that question for Spanish-language participants only as this information was not presented in the main report on the English-language group. The most frequent comment was that the survey was hard to understand. Not surprisingly, the participants who were in the in-home mode were least likely to say this (8.5 percent), and the mail-in and phone groups were a little more likely to (17 percent and 14 percent respectively). While these are all low percentages, they are not so low in the context of open-ended questions where responses are typically spread over many issues. None of the other comments that had specific content reach above the 6 percent mark. A few thought the survey was too long (1.2 percent to 4.5 percent), and a few objected to giving personal information or were not able to. Surprisingly, the in-home group was most likely to say they didn't have the information (6.1 percent).

Table 49. Most Difficult Aspect of the Survey: Spanish-Language Group Only

Response	Mail-in (N=72)	In-home (N=82)	Phone (N=44)
Survey was hard to understand	17%	9%	14%
Survey was too long	3%	1%	5%
Giving personal information	4%	0%	2%
Didn't have the necessary information	4%	6%	2%
Other	1%	5%	2%
Don't remember	18%	21%	16%
No difficulties	53%	59%	59%

Throughout the interview, when the respondent expressed anything but complete satisfaction with any aspect of the HEES survey, there was a follow up question asking for what was wrong and what they recommended could be done to improve it. Many times the complaint or suggestion made was not responsive to the question being addressed at the moment. For instance, when the question was about clarity, the criticism might be about length, or the other way around. This happened frequently enough that it made sense to aggregate all of the comments into one analysis of suggestions for improvement. The value of this approach was increased by the fact that in any one question, the frequency of comments on any particular issue was very low. The results of that aggregated analysis are shown in Table 50. More than 50 percent of participants in all modes provided no suggestions for improvement. Among those who did, the most common complaint/suggestion in the mail-in group was about the use of technical language (15 percent). That was the most frequent category across any mode. Following that, among the in-home participants, 13 percent wished for more information, especially on available services. The most frequent responses among the phone survey participants were divided between the desire for more information (as also mentioned by the in-home group) at 9 percent and comments that asked for improvements in auditor service (also 9 percent). Examples of this type of comment were, "...more attention to the clients..." or, "...well, that they provide better service," or, "...the representatives be more complete..."

Table 50. Suggestions for Improvement: Spanish-Language Group Only

Response	Mail-in (N=73)	In- home (N=79)	Phone (N=44)
Reduce the time it takes to do the survey	4%	8%	5%
Use less technical words or make questions simpler	15%	5%	5%
Provide more information, especially on available services	8%	13%	9%
Improve the Spanish translation	8%	1%	2%
Improve the auditor service	0%	5%	9%
Provide more personal service.	4%	3%	0%
Had problems with free gifts	0%	4%	2%
Other	4%	4%	7%
Don't know	10%	10%	7%
No changes necessary	56%	56%	59%

Summary of Key Findings

Some clear patterns emerged from the survey of Spanish-language HEES participants compared to English-language participants. The differences begin with demographic differences and differences in knowledge of energy efficiency. There are differences in motivation, program influence and effectiveness, satisfaction, and desire for personal contact. Many of the opinions expressed by the Spanish-language participants are similar to those found among English-language participants, but tend to be stronger.

Participant Characteristics

- Compared to English-language participants, Spanish-language participants are:
 - even more likely to live in single-family detached homes (Table 4),
 - a little less likely to own the home, except for mail-in participants (Table 5),
 - less educated; specifically, they are less likely to go to college (Table 8),
 - are in lower income categories (Table 9),
 - in larger households (Table 7), and
 - less likely to be senior citizens (Table 6).
- Far fewer Spanish-language participants describe themselves as at least somewhat knowledgeable about opportunities for improving energy efficiency in the home, and are somewhat less knowledgeable about energy efficiency programs (Table 17).

Motivation

- Spanish-language participants place even more value on learning about other energy efficiency programs than English-language participants do (Table 13).
- Spanish-language participants more often say they are influenced by concern for the environment than English-language participants do (Table 13).
- Free items are definitely not the main motivators for participation by Spanish-language participants; this is even more true for Spanish-language than for English-language participants (Table 14).
- As compared to English-language participants Spanish-language participants choose their survey mode more on the basis of the anticipated helpfulness and accuracy of the information provided rather than speed or convenience; this is especially true for in-home participants (Table 25).

Program Effectiveness

- Spanish-language participants are much more influenced by the audit than are English-language participants in the following areas:

- implementing tips because of the program (Table 28),
 - calling the utility to get more program information or contractors about energy efficiency equipment (Table 36),
 - reporting that they were influenced by comparisons with regional average (Table 40), and
 - reporting that they were influenced by energy and water use charts (Table 42);
 - however, Spanish-language participants were *less* likely to visit utility websites or purchase equipment (Table 36).
- Spanish-language participants' energy efficiency efforts prior to participation were weighted toward the category of washing and drying clothes. *After* participation more emphasis was placed on water heating and water usage. *Before* participation they were heavier on practices, and *after* they were more likely to make low-cost purchases. This analysis is based only on the Spanish-language participants as it was not reported in this way for the English-language participants (Table 32). These before versus after changes imply program impact.
 - Spanish-language participants have a much higher rate of installing showerheads and aerators than English, but are about the same on CFLs (Table 19). Even the Spanish-language in-home auditors installed more showerheads and aerators than English-language auditors (Table 20). This could be because English-language participants may already have already done more in these areas. Spanish-language participants placed higher value on showerheads and aerators and less on CFLs (Table 23).
 - Both English- and Spanish-language participants show quite high rates of having implemented recommendations before receiving them. This implies, as was reported in the original report, that the algorithm for generating recommendations is less precise than is desirable. In addition, however, the rate of Spanish-language participants' implementation of tips prior to the audit was lower than the English (Table 30). In other words, Spanish-language participants received fewer tips that were inappropriate, and English-language participants received more. This is counterintuitive. However, at least part of the explanation for the difference across language groups in receiving inappropriate tips appears to be under-reporting of prior actions by the Spanish-language group. In addition, if the algorithm is insensitive to some prior actions, the lower rate of tips implemented prior to receiving them by Spanish language participants could reflect fewer actual energy efficiency behaviors prior to HEES, especially given the lower knowledge level shown in (Table 17).

Satisfaction

English-language participants were generally satisfied with the whole HEES process. This is also true of the Spanish-language participants. Following are some differences:

- Spanish-language participants are more satisfied than English-in just about every area measured:
 - with survey mode chosen (Table 26),
 - with implemented tips almost across the board (Table 34, Table 35),

- with the HEES report (Table 38), and
- with all seven aspects of the program listed, including the amount of time it took to complete the survey, the clarity of recommendations made, the usefulness of the recommendation, the information provided on energy efficiency programs, and how customized the results were (Table 46).
- Spanish-language participants more often recommended HEES to others (Table 47).
- Spanish-language participants are more likely to name information about energy efficiency programs as the most helpful aspect of program (Table 48).
- The one exception to the pattern of more satisfaction among Spanish-language participants is that that group more often reports that the HEES tool is less easy to fill out than English-language participants (Table 44).

Personal Contact

- The Spanish-language participants seem to be even more influenced by a personal connection with the audit than English:
 - bill inserts don't precipitate action as often in Spanish-language customers (Table 12),
 - in-home participation seems to be encouraged by contact with utility reps, and that is likely the main way Spanish-speaking customers learn about that mode (Table 12 and Table 24),
 - report usefulness is rated much higher for in-home and phone participants (Table 39, Table 41),
 - energy and water use charts are reported by Spanish-language participants as being more influential when they participate in in-home and phone modes than when they participate in the mail-in mode (Table 42),
 - in-home Spanish-language participants are less likely to say the survey was hard to understand (Table 49), based only on Spanish-language sample,
- The satisfaction difference reported above between Spanish- and English-language participants is greater in personal contact modes. I.e., in personal contact modes (in-home and phone) Spanish-language participant satisfaction is especially higher than English-language participants' satisfaction. This seems to imply that the personal connection is even more important to Spanish- than to traditional English-language participants (Table 46).

Participant Suggestions for Improvement

- Spanish-language participants express the wish that the HEES tool was less technical—much more than English, but they also wish it was shorter (Table 45).

Based only on Spanish-language participants (Table 50):

- Mail-in participants especially (compared to phone and in-home) wish for fewer technical words in the HEES tool.

Summary of Key Findings
Participant Suggestions for Improvement

- In-home participants want more information on available services.
- Phone participants want more information on available services and improved auditor service.
- Some mail-in participants (8%) criticized the Spanish translation of the HEES tool