Evaluation of theYear 1 CL&P Pilot Customer Behavior Program

FINAL

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Executive Summary

This report summarizes the analyses conducted to evaluate the first year of the Home Energy Reports (HERs) Pilot Program, implemented for Connecticut Light and Power (CL&P) by OPower. The evaluation activities were completed by NMR Group, Inc. (NMR), subcontractor Tetra Tech, and advisor Hunt Allcott (the Team). The evaluation activities describe program processes and impacts.

The results summarized in the report include the following:

- Customer reaction to, awareness of, and satisfaction with the HERs
- Behavioral changes resulting from the program
- Energy savings attributable to the HERs program
- Persistence of savings after HER cessation
- Details of the implementers experience enacting the program and program population make-up

Program Design

CL&P together with program implementer OPower has administered a behavior pilot program for the purposes of achieving residential electricity use savings, and providing value to their customers through the delivery of HERs. These reports present the treatment group with feedback on their energy use and compare that use to a group of similar households referred to as "neighbors" (see below). The HERs Pilot began in late January 2011.

One of the critical characteristics of the HERs program is its reliance on an experimental design. Using data provided by CL&P, OPower identified a study group of 48,000 CL&P residential customers that met specific criteria for account activity (i.e., had billing data for a year prior to the study period) and electricity consumption (i.e., had relatively high usage compared to the typical CL&P household). OPower then randomly assigned each of the study group households to either a treatment group (i.e., the participants) that received HERs in the mail or to a control group (i.e., non-participants) that did not receive the HERs. The treatment group was further divided into monthly and quarterly sub-treatment groups by random assignment, with the former receiving a HER every month and the latter receiving one every three months. A subset of the monthly treatment group—the persistence sample—received HERs for approximately six to eight months, while the rest of the monthly treatment group received HERs for a full year. The pilot program uses an "opt-out" design, where customers assigned to the treatment group automatically receive reports but have the option to contact program representatives to opt-out of the HERs program if desired.

Study Objectives and Methodology

The team relied on five different methodologies to assess the HERs program.

- Baseline and follow-up telephone surveys were conducted among treatment and control groups to determine treatment group utilization of the reports and overall energy saving behaviors.
- Treatment group focus group discussions[1] were conducted to gauge reaction to the HERs program among the treatment group and to investigate questions raised by the surveys, relating to readership and recall of the information presented in the HERs, the perceived usefulness of the HERs information, customers' level of engagement with the HERs program, and behavioral changes resulting from the program.
- Participation in the HES programs was examined for HERs treatment and control groups to identify potential energy-saving behavioral changes that may have been induced by the HERs program. The result of these examinations was subjected to a chi-square test to test for statistically significant differences in CEEF program participation between the HERs treatment and control groups.
- A billing analysis (ordinary least squares modeling with controls for pre-program energy usage) was conducted to examine whether the HERs produced attributable energy savings and whether these savings persisted in the absence of reports.
- In-depth interviews were conducted with implementers and stakeholders to assess the process of initiating the program.

Key Findings

The evaluation activities provided important insights into the program objectives, and the key findings are presented below. More information on these findings can be found in the main body of the report as well as in Appendix B.

Treatment Group Experiences with the HERs Program

The examination of treatment group experiences suggests a moderate level of customer engagement and satisfaction with the program.

- Nearly all (about 95%) of the treatment group households that participated in the follow-up survey were aware that they were receiving reports, and the few households that did not immediately recall receiving reports did so after the interviewer described the reports to them. However, there appears to be only a moderate level of engagement and

[1] Focus groups and surveys centered on examination of customer experience with and behavior changes resulting from the HERs program. Therefore in order to be part of either the focus groups or surveys, the respondent had to assert that they were aware they were participants in the HERs program. All of treatment group households contacted for the survey indicated they were aware of their program participation and that they were receiving Home Energy Reports. As a result, none of the households contacted for the follow-up survey were disqualified. The result should be a minimal, if any, upward bias toward program awareness

readership of the HERs. For example, more than 40% of the treatment group respondents could not recall any specific energy saving tips from the HERs. The two most frequently recalled energy saving tips were installing energy efficient light bulbs and shutting off appliances when not in use, actions which are widely known by most consumers.

- About 40% of treatment group households taking part in the follow-up survey were aware of the option to set up an online account for the program, but fewer than two percent of survey respondents had done so. Program records, which would capture the activity of all treatment group households and not just those sampled for the survey, also indicate that fewer than two percent of treatment group households had done so. OPower, reports this rate of establishing online accounts is consistent with other HERs programs they have administered with a similar design. OPower indicates that when customers set up an online account, it provides more information about their household, enabling more tailoring of the energy-saving tips presented in the HERs.
- More than 36 percent of treatment group follow-up survey respondents found the information presented in the HERs somewhat useful, while more than 40 percent rated the HER information as not very or not at all useful. About 20% of monthly recipients and one-quarter of quarterly recipients found the HERs very useful for their household.
    - Most focus group attendees were not aware of the definition of "neighbor group" provided on the HER and believed the neighbor comparison group for their household was not comparable.
    - For treatment group survey respondents who rated the HERs information as 'Not at all' or 'Not Very' useful, the perceived incomparability of the neighbor comparison was the most frequently cited reason (43%). One quarter of those who rated the HERs information as "Somewhat' or 'Very' useful also believed the neighbor comparison group was not comparable to their household.
    - Both focus group attendees and treatment group follow-up survey respondents indicated that the neighbor comparison would be more useful if the program provided more specific diagnostic information about why their household's level of electricity usage was high or low relative to the comparison group.
- Follow-up survey respondents report a moderate level of satisfaction with the program. Forty percent of respondents report a positive overall satisfaction rating (a rating of four or five on a five-point scale) for the HERs. Thirty-four percent report a rating of three on the five-point scale, indicating an indifferent rating, while 26% report a satisfaction rating of one or two, indicating dissatisfaction.[2]

[2] For the five-point overall satisfaction scale, where a score of five was labeled "Very Satisfied" and a score of one was labeled "Very Unsatisfied."

Behavioral Change Attributable to the HERs Program

The follow-up surveys and analysis of CEEF program records examined whether the HERs program had induced behavioral changes among participants.

- In the follow-up survey, 59% of the monthly treatment group and 54% of the quarterly treatment group respondents reported that household members get together for informal talks about things you can do to save energy; both treatment groups are significantly more likely to do so than the control group (44%). However, the team was unable to identify any other statistically significant energy-saving behavior between treatment and control group households.
    - Focus group attendees provided one possible explanation for this finding—that the tips were too generic to induce behavioral changes.
    - Another possible explanation is that both treatment and control group households each say they engage in energy-saving behavior so as to provide a socially desirable response, regardless of what their actual behavior may be.
    - A third possible explanation is attribution bias—the tendency of survey respondents to provide an inaccurate (often unintentionally so) report of the specific factors that prompted their actions. The fact that the impact analysis shows that the program induced statistically significant energy savings among treatment households supports the possibility of attribution bias. In other words, households may be taking energy savings actions because of the HERs, but they simply do not realize that the HERs prompted them to act. It may also be that the actions are sufficiently modest that respondents do not think of them as actions at all.
- The HERs program has induced participation in the Home Energy Solutions (HES) program, with a statistically larger number of treatment group households taking part in HES than control group households.

Energy Savings Attributable to the HERs Program

The HERs program was effective at inducing energy savings in the treatment group.

- Overall the treatment group used an average of 1.7% less energy than did the control group, translating to 388 kWh less energy used by a treatment household, compared to a control household, during the first year of the program.
- Treatment group households paying the all-electric rate (2.0% savings) and households that used the most electricity prior to the program (2.4% savings) saved more energy than did control group households with otherwise similar characteristics.
- Monthly report recipients (2.2% savings) saved more electricity than did the quarterly report recipients (1.2% savings).
- Summer energy savings were 2.1% and winter savings were 1.9%.

The vast majority of households (99%[3]) in the study group used more electricity than the average CL&P household, so the evaluators divided the study group into high-use, mid-use, and low-use groups based on their pre-program electricity use. It must be stressed that even the low-use study group still used 67% more energy than the average CL&P household (1,335 kWh vs. 800 kWh, respectively).

- Analysis of the savings achieved by these groups' shows that high-use households saved more energy (2.4 kWh daily) than either mid-use (0.9 kWh daily) or low-use households (0.7 kWh daily). The energy savings for the high-use group is statistically greater than for the mid- and low-use groups, the analyses revealed no statistically significant differences in use between the mid- and low-use groups.
    - The greater savings among the high-use group suggests that the savings achieved by the average CL&P customer may be lower than that for the Year 1 HERs treatment group, but the NMR team cannot predict these savings as too few average use households were included in the Year 1 study group.
    - The Year 2 program design includes a greater number of average CL&P customers, and the evaluation team will compare savings between high use and average customers after the cessation of the Year 2 program in the spring of 2013.

Persistence of Savings

In order to test how long savings persist after the cessation of reports, the study design included a persistence treatment sub-group that received HERs monthly for the first half of the program year only. The persistence group savings were determined by comparing their energy use with that of the control group households, not with monthly or quarterly treatment households. The findings demonstrate that, during the period in which persistence group households stopped receiving reports, monthly and quarterly report recipients continued to achieve statistically significant energy savings compared to the control group, but the persistence group savings dropped over time, particularly after the second month of not receiving reports. By the fifth month after report cessation, the persistence group no longer achieved statistically significant savings over the control group.

Implementation of the Program

The exploration of program implementation processes revealed the following findings:

- Less than one percent of the treatment group households asked to opt-out of the program; as of June 4, 2011 (three to four months after receiving the first HER). Data from the CL&P Call Center indicates that concerns about the comparability of the "neighbor group" was the most common reason for opting out.

[3] Of the 47,296 households examined in this study 368 of them used 1,000 kWh or less a month and only 61 of the study households used 800 kWh (the approximate CL&P average customer monthly usage) or less a month.

- A baseline survey review of treatment and control group demographic and household characteristics revealed no statistically significant differences between the two groups.
- In the baseline survey, treatment group households were more likely to report that their household had done all or most of the things they could think of to conserve energy in their household, but this may have reflected the fact that the treatment group respondents had already received at least one report by the time of the baseline survey, possibly biasing their responses.

Conclusions

During the first year of the program, the HERs program succeeded in achieving substantial electricity savings among the 24,000 treatment group households. While some households saved more than others, on average, the treatment group achieved electricity savings of 1.7% over the control group households. This translates into a total of 9,288 MWh savings across all the treatment households in the study group.

At the same time, it appears that the first year of the HERs pilot program also resulted in a moderate level of customer satisfaction. Treatment group households were only somewhat engaged with the program and had mixed reactions regarding its usefulness and their own level of satisfaction with the program. Treatment group households seemed particularly troubled by the neighbor comparison group—not understanding who these "neighbors" were and doubting that they were truly comparable households.

Some other important conclusions and potential implications are summarized below.

- The monthly delivery of HERs appeared to result in the greatest program savings; however, future research will be needed to determine if monthly delivery yields the most *cost effective* savings. High users comprised nearly all households in the Year 1 study group. The Year 2 Pilot study group will contain more average-use customers, which should allow the team to draw conclusions about program impacts on the average customer. However, the differences between the treatment groups across program years prevent the results of the Year 1 billing analysis to be extrapolated to all CL&P residential customers.
- Treatment group households wanted more individualized information about their own energy use. The low percentage of treatment group households who set up an online account is a missed opportunity to increase the level of engagement and provide more individually tailored energy-saving tips to treatment group households, and the Year 2 program may want to place greater emphasis on use of the website. Also, CL&P and OPower may consider promoting the HES and HES-IE programs more vigorously to the treatment group in Year 2, as these programs certainly will provide tailored suggestions on ways individual households can reduce energy use.

- Treatment group households seemed very confused about the nature of the neighbor comparison group. In Year 2, the implementer may want to consider alternative ways of describing the neighbor comparison group, including increasing the visibility of the explanation on the HERs.
- The focus groups revealed that some treatment group households were frustrated that they had adopted tips and seen their energy use decrease but were still classed as using more energy than their neighbors. They wanted more feedback on their current use relative to their own historic use. The implementers may want to emphasize the historical comparison of a household's usage as reported on the Year 2 HER, because most focus group attendees had not recognized this comparison prior to having it shown to them.

1 Introduction

This report summarizes the results of a process evaluation and an impact evaluation of the Home Energy Reports (HERs) Pilot Program, implemented for Connecticut Light and Power (CL&P) by OPower. NMR Group, Inc. (NMR), subcontractor Tetra Tech, and advisor Hunt Allcott performed the evaluation activities; they are referred to collectively as the team. The evaluation covers the entire first year of the program.

1.1 Program Description

CL&P and program implementer OPower administered a behavior pilot program for the purposes of achieving residential electricity use savings, and providing value to their customers through the delivery of HERs. These reports present the treatment group with feedback on their energy use and compare that use to a group of similar households referred to as "neighbors" (see below). The first phase HERs Pilot began in late January, 2011.

One of the critical characteristics of the HERs program is its reliance on an experimental design. Using data provided by CL&P, OPower identified a study group of 48,000 CL&P residential customers that met specific criteria for account activity (i.e., had billing data for a year prior to the study period) and electricity consumption (i.e., had relatively high usage compared to the typical CL&P household). OPower then randomly assigned each of the study group households to either a treatment group (i.e., the participants) that received HERs in the mail or to a control group (i.e., non-participants) that did not receive the HERs (Table 1-1). The treatment group was further divided into monthly and quarterly sub-treatment groups by random assignment, with the former receiving a HER every month and the latter receiving one every three months. A subset of the monthly treatment group—the persistence sample—received HERs for approximately six to eight months, while the rest of the monthly treatment group received HERs for a full year. The pilot program uses an "opt-out" design, where customers assigned to the treatment group automatically receive reports, but have the option to contact program representatives to opt-out of the HERs program if desired.

Table 1-1: HERs 2011 Program Design

Sub-treatment group	Treatment Group	Control Group
Monthly	10,000	n/a
Quarterly	10,000	n/a
Persistence*	4,000	n/a
Total	24,000	24,000

* Received reports for approximately eight months

For each treatment group household receiving the HERs, a group of 100 CL&P customer households that live near and share similar characteristics to the treatment group household was identified as a "neighbor" comparison group. The neighbor comparison group was drawn from

the larger CL&P residential customer base and may or may not have been a part of the 48,000 households included in the study group.

The HER is a two-page (printed on front and back) report, branded with the CL&P and Connecticut Energy Efficiency Fund (CEEF) logos. The HER shows treatment group households their electricity consumption for the previous month and the previous 12 months and compares their usage to the neighbor comparison group. The usage for the neighbor comparison group is further divided into the "most efficient neighbors (the 20% of the neighbor group with the lowest electricity usage) and the "average of all neighbors." The treatment group household receives the HER approximately two weeks after the monthly CL&P bills. Accompanying the first HER, households also received a "Welcome Letter," also branded with CEEF and CL&P logos, providing an introduction to and "Frequently Asked Questions" about the HER and the Program. Examples of an HER and a Welcome Letter are provided in Appendix C.

1.2 Study Objectives

The study had both process and impact objectives. The objectives related to program processes and customer experiences included the following:

- Establish the degree to which residential customers engage with the program: The Team developed protocols to establish the level of customers' engagement with the HER program.
- Determine if the program brought about changes in energy-related behavior among customers and increased customer participation in other CEEF programs: The team examined customer self-reported behaviors to assess whether the program had induced behavioral change and analyzed participation records for other CEEF programs to ascertain if the HERs program increased participation in other CEEF programs.

Impact-related objectives included the following:

- Explore whether the HER program induced energy savings for customers: The team performed analyses to establish whether the impact of the program lead to energy savings and whether those energy savings were dependent on other intervening variables.
- Assess whether energy savings persist after a household stops receiving reports: The team examined energy use over time for sub-groups of the program treatment group, including tracking energy use of one sub-group after they stopped receiving reports, to ascertain whether the program had lasting impact on the customers' energy-saving behavior.

The evaluation also examined various aspects of program implementation such as use of online tools and the demographic similarities and differences between treatment and control groups. The team reports these findings as supporting information to the four main objectives.

1.3 Methods

The team relied on five different methods to inform the study objectives. This section provides details about each method as well as their role in addressing the research objectives.

1.3.1 Treatment and Control Groups Baseline and Follow-up Surveys

The team utilized survey research to establish customer engagement with the program and to determine customers' stated behavioral changes stemming from program intervention. In particular, baseline and follow-up surveys provided a means to explore treatment group feedback on the program as well as their level of awareness, satisfaction, and engagement with the program. In addition, the baseline survey examined customers' self-reported energy-related behavior prior to the program, while the follow-up survey looked for changes in such behavior that had been induced by the program. The team fielded the baseline survey of 153 treatment group members and 147 control group members from April 7 to May 5, 2011. A follow-up survey was conducted from December 20, 2011 to February 9, 2012 with 155 treatment group members receiving monthly HERs, 142 treatment group members receiving quarterly HERs, and 299 control group members.[4] Both surveys were administered by interviews using computer-assisted telephone interviewing (CATI) software. A detailed explanation of the survey methodology and an accounting of the sample dispositions and response rates by respondent category are included in Appendix A, while the survey instruments are presented in Appendix D.

For the baseline and follow-up surveys, descriptive statistics were presented for treatment and control group households. In the baseline survey, comparisons between treatment and control group households were conducted to determine if there were any important differences in demographics, household characteristics, and prior experience with energy efficiency programs, using difference of means and difference of proportions tests. Comparisons between treatment and control group households were also conducted with the follow-up survey data to determine any statistically significant differences in attitudes and self-reported energy efficiency behaviors.

1.3.2 Treatment Group Focus Groups

Team members also held three focus groups which examined treatment group awareness, engagement, and satisfaction with the program. The focus groups also addressed specific questions raised by the follow-up survey, including lower recall of information from the HERs, given the level of reported readership, reasons driving customer ratings of the usefulness of the HERs and satisfaction with the HER program. Two focus group discussions were conducted in Farmington on Tuesday, March 20, 2012. Seven attended the 6pm group and six attended the 8pm group. Attendees at these groups were equally split by gender and covered age groups of 31-44 years, 45-60 years, and 61-75 years. One focus group was conducted in Stamford on

[4] Households in the persistence sample that stopped receiving reports in August and September of 2011 were excluded from the study because, at the time the Team fielded the survey, the evaluators did not know the date persistence households last received reports.

Wednesday, March 21, 2012. There were eight attendees, equally divided by gender and covering age groups 31-44, 45-60, and 61-75.

Each focus group discussion was video-tape and reviewed to provide an accurate description of what each observer said and to provide verbatim quotes from focus group participants in the report. In addition, the observer took detailed notes during each focus group discussion that captured the observer's assessments of the group. Qualitative data from the focus group discussions were analyzed to identify main themes and less frequently mentioned, but substantively important perspectives. Analysis was conducted using detailed notes of each discussion to identify the range of responses to each focus group questions or topic, comparing and categorizing responses across the three focus group discussions, and identifying patterns of responses for each question and topic.[5]

1.3.3 Analysis of Other CEEF Program Records

One of the objectives of the HERs program is to increase participation in other CEEF-funded programs. The team assessed if this objective was being met by comparing participation rates in other CEEF programs between households in the HERs treatment and control groups between January 1, 2011 and August 30, 2011. CL&P provided the team with data on participation by HERs study group households (both treatment group and control group) in additional CEEF residential programs during this time period. CL&P provided data on participation in the following programs:

- Home Energy Solutions (HES)
- Home Energy Solutions – Income Eligible (HES-IE)
- Residential Heating, Ventilation, and Air Conditioning (HVAC)
- Lighting Coupons
- Lighting Catalog
- Insulation Rebate
- Appliance Retirement (ARP)

Two separate analyses allowed for an assessment of the impact of HERs on participation in these other programs. First, the team compared the numbers and percentages of HERs treatment and control group households that took part in other programs, searching for patterns that would suggest greater participation in these other programs among the HERs treatment group. Second, the performance of a statistical *Chi-Square* (X^2) test captured whether participation rates in other CEEF programs among the HERs treatment and control groups differed from what could be expected based on chance. To prepare the data for this test, each study group household was scored with a "one" if they had participated in each individual CEEF program and a "zero" if

[5] This study uses both focus groups and surveys to capture the advantages of each method. Focus groups allow researchers to have in-depth discussions with customers that provide rich information that is far more nuanced than the information collected in surveys. .Surveys provide more statistical reliability concerning the prevalence of the expressed opinions among all HER program treatment households.

they had not participated in that same program. The team then used STATA to run the X^2 test for each of the seven other CEEF programs for which they had data. If the HERs treatment group participated in these other programs at a greater rate than the HERs control group and if the X^2 test was found to be statistically significant at the 90% level of confidence (meaning that the results could be expected to be based on chance about 10% of the time), the team concluded that the HERs program changed participation in the other CEEF program. The team also compared the rates of participation in HES for the HERs treatment group, the HERs control group, and all other households in Connecticut.

1.3.4 Billing Analysis

The team utilized customer energy bills to determine whether the program had successfully resulted in behavior change and long term reduction of energy use. The team estimated energy savings and the persistence of savings through the use of billing analysis. NMR prepared a dataset containing billing, program, rate code, and weather data and then analyzed the data in STATA, a widely used statistical analysis software package. The billing analysis relies on a statistical technique known as ordinary least squares (OLS) robust regression, which is resistant to any imbalances in pre-program use between treatment and control groups and also to data point outliers; thus, OLS ensures that the method does not over-estimate or underestimate treatment effects. Appendix A provides a detailed discussion of the data preparation process and the billing analysis methodology used in the study.

In order to use the billing analysis to fulfill objectives about savings for specific time periods and sub-groups, the team divided the treatment and control groups into various sub-groups by restricting the data by time period or by characteristic of interest. Specific sub-groups including restricting the analysis to summer or winter months, paying the all-electric rate, amount of pre-program energy use, and, for the treatment group, the frequency of receiving HERs (i.e., monthly or quarterly). The team developed the break out based on pre-program energy use by using a cluster analysis that defined three groups based on the similarity of the groups' pre-program mean energy use, as explained in more detail in Appendix A.

To assess the persistence of savings, the team compared the savings of the persistence group to those of the monthly and quarterly groups before and after cessation of the reports; this analysis took two different forms. In both analyses, the team aggregated savings for January through August. The approaches differ, however, in their treatment of the months after the persistence households stop receiving reports. In one approach, the analysis compares savings for the aggregated months of September 2011 through March 2012, while in the second approach, the team examines savings for each individual month between September 2011 and March 2012, providing a way to identify not only if savings persist but also how long they persist.

1.3.5 Implementer and Stakeholder Interviews

The team performed in-depth interviews with members of the CL&P implementation staff and OPower in order to establish a framework of program implementation that could inform further

evaluation of customer program participation and satisfaction. Specifically, the in-depth interviews allowed the team to learn more about program design and processes. An in-depth interview was conducted by telephone on April 11, 2011 with three members of OPower's team working with CL&P to design and implement the HER program, and the same OPower staff members also answered a short series of follow-up questions on April 26, 2011. An in-depth interview was also conducted with the CL&P co-program managers for the HER Program on April 14, 2011. Appendix D presents both interview guides.

The data from the interviews with CL&P Program Managers and OPower program implementation staff were each analyzed by topic. For example, the key points from each interview were combined to describe the activities and experiences to date with program design, program launch, program operations to date, and activities conducted for program outreach to auto-enrolled customers. Where differences were reported for a topic, such as the issue in properly classifying auto-enrolled customers with electric heat, follow-up discussions were conducted to clarify the problem, the actions that were taken to resolve the problem, and whether the problem was resolved satisfactorily.

2 Key Findings

The evaluation activities provided important insights into the program objectives, and the findings are presented below. More information on these findings can be found in Appendix B.

2.1 Treatment Group Experiences with the Program

The evaluation examined treatment group experiences with the program, focusing on such issues as level of awareness and engagement with the program as well as treatment group perceptions of the usefulness of the program and their level of satisfaction with it.

2.1.1 Awareness and Readership of the HERs

Nearly all of the monthly (97%) and quarterly (94%) HERs treatment group households were aware they were receiving the HERs when simply asked if they were receiving the reports (unaided awareness); all of the remaining households recollected the reports after having the HER described to them (aided awareness)(Table 2-1).[6] Self-reported readership of the HERs among follow-up survey respondents was also high—about 58% of respondents said someone in the home read the entire report—but additional data from the follow-up survey and focus group discussions suggests that readership was only cursory for many households. In the focus group discussions, when example HERs were handed out, most attendees reported seeing information they had not noticed before, including a description of the basis for the neighbor comparison, the household's numerical ranking among the 100 neighbors in the comparison group, and information about the HER website. This suggests that, while treatment group households look at the report, their reading may be cursory resulting in limited recollection of the content.

The focus groups were held about a year after treatment group households had received their first HERs report, and almost all focus group respondents reported reading the HERs less carefully now (i.e., the time of the focus group) than when they first received them. A majority of focus group respondents indicated their readership had become more cursory and selective over the year, and they now focused only on one or two pieces of information in the HER. A similar finding that participants read the HERs "very lightly" was reported in ethnographic interviews conducted for the Massachusetts Cross-Cutting Behavioral Program Evaluation.[7]

[6] The initial question (A1) in the Follow-up Survey asked respondents if they were receiving HERs through a program sponsored by CL&P and the CEEB. If they answered "No," "Don't Know," or refused to answer the question, they were asked a follow-up question (A1A) which described the Welcome Letter, as well as the frequency of reports (monthly or quarterly). Respondents were then asked again if they recall receiving the HERs. The percentages shown in Table 2.1 reflect the percentage of households who indicated initially they were aware of receiving the HERs. The remaining respondents who did not respond "Yes" to Question A1, all indicated in Question A1A they were aware of receiving the HERs. No respondents were terminated in the Follow-up Survey because they were not aware of receiving the HERs.

[7] Massachusetts Cross-Cutting Behavioral Program Evaluation, Volume II Final, pages 56-57, Opinion Dynamics Corporation, prepared for the Massachusetts Energy Efficiency Advisory Council, June, 2011.

Among focus group attendees, the HERs tended to be opened and read mainly by the primary bill payer for the household. Only one or two attendees in each focus group indicated that more than one person in the household actually look at the HER.

Table 2-1: Treatment Group Awareness and Recall of HER Information*

HER Recall and Readership	Monthly	Quarterly)
Number of Respondents	**155**	**142**
Recall receiving HERs (unaided)	97%	94%
Household characterization of reading HERs		
Someone reads the whole report	58%	58%
Someone skims it or just glances at it quickly	20%	15%
Someone reads certain parts of the report	18%	26%
No one reads it - we ignore it	4%	2%
Types of information remembered from HER (unaided)		
Neighbor comparison	76%	76%
How you are doing, Smiley Faces	11%	8%
Rank out of 100 Neighbors	9%	10%
Energy saving tips	9%	13%
Amount of annual savings	3%	10%
Other	13%	11%
None	2%	3%
Found HER either "Very easy" or "Somewhat easy" to understand	96%	92%
HER Usefulness of Neighbor Comparison		
Very useful	18%	27%
Somewhat useful	39%	35%
Not very useful	16%	18%
Not at all useful	27%	21%

* A total of 13 respondents selected a “no” or “don’t know” response to the initial question of whether their household was receiving HERs. All 13 of these respondents were asked a follow-up question, with a description of the HERs and all 13 indicated their household was receiving the HERs. No respondents were skipped out of the questions shown in this table evaluating the HERs.

2.1.2 Level of Engagement with HERs and Program

The program offers treatment group households the opportunity to establish an online account at the HER program website, which enables them to provide more detailed information about their household and, according to OPower, receive more individually tailored energy savings tips. In the follow-up survey, fewer than 40% of respondents were aware of the opportunity to set up an

online account and less than two percent set up an online account. Similarly, program records that include all treatment households revealed that less than two percent of treatment group households created an online account. The low percentage of treatment group households who set up an online account is a missed opportunity to increase the level of engagement and provide more individually tailored energy-saving tips to treatment group households. Receiving more individually tailored energy-saving tips is one of the suggestions most often offered by survey respondents for improving the HER program (see Section 2.1.5 below).

2.1.3 Reactions to Information on HERs

The follow-up survey and focus group discussions also asked respondents to report their reactions to certain information contained in the HERs.

2.1.3.1 Perceived Comparability of the Neighbor Comparison Groups

The neighbor comparisons were the feature of the HERs most often recalled by treatment group respondents in the follow-up survey. In an unaided recall question, more than 75% of follow-up survey respondents recalled the neighbor comparisons (Table 2-1). However the follow-up survey and focus groups made clear that many treatment group households questioned the validity or fairness of being compared to the neighbor group. One survey respondent commented that *"I'm not clear who they are comparing me to. I live in a house with four adults; the neighbor has one adult. If they are comparing me to that neighbor, it's a little apples to oranges. I'm not sure what the comparison is, is it apples to apples?"* Similarly, one focus group attendee reported. *"At first I thought this was a joke. We are the highest (electricity usage) in the neighborhood. We have added onto the house over time, but one neighbor has a daycare, most other neighbors have more people at home during the day, so I don't understand how we can be the highest."* As these two quotations illustrate, the concern about the comparability of the neighbor comparison group was often based, at least in part, on a misperception that neighbors in the immediate vicinity of their household comprised the neighborhood comparison group.

2.1.3.2 Usefulness of the HERs and the Neighbor Comparisons

Most of the follow-up survey respondents who recall receiving the HERs found it to be useful—96% of monthly report recipients and 92% of quarterly report recipients held this opinion.

Despite having reservations about the neighbor comparison, nearly 50% of follow-up survey respondents mentioned this report feature as the most useful information from the HERs in an open-ended question; 14% mentioned energy-saving tips (Table 2-2). However, 22% of respondents said they could not recall information from the HERs, and 16% indicated there was no useful information presented in the HERs.

Table 2-2: Ratings of Most Useful Information from HERs*

Information in HERs rated as most useful	Monthly	Quarterly
Neighbor comparison	51%	47%
Don't know or can't recall any information from the HERs	20%	26%
No information in the HERs is useful	15%	19%
Energy-saving tips	15%	13%
Other[8]	18%	10%
Number of respondents	155	142

*Sum of percentages is greater than 100%, because multiple responses were accepted

In a separate follow-up survey question, when respondents were asked how useful the neighbor comparisons were to their household, the most frequent response for both monthly and quarterly report recipients was "somewhat useful" (roughly one-third or slightly more for both groups). Smaller, but nearly equal, percentages rated the neighbor comparisons as "Very Useful" (18% to 27%) and "Not at all Useful" (27% to 20%) (Table 2-1). In the focus group discussions, a minority of attendees (usually two to three per focus group) indicated the neighbor comparison provided useful information. One attendee indicated, *"It gives me an idea of what we are using compared to other people, and it makes me think about how to save energy."* Another attendee indicated, *"The Home Energy Reports tell me something I could not get from my electricity bill. I had no idea that I used more electricity than my neighbors."* However, a majority of focus group attendees expressed the opinion that the neighbor comparisons were not especially useful. As one attendee noted, *"The (HERs) are a good way to get your attention, but they don't motivate you to do anything, We are now ready for the next step – we need someone to tell us what to do."* Another attendee noted, *"When I looked at the graph, it was clear that I was higher than my neighbors. I thought that's great, so what do I do now? Thanks for the information, but it just told me what I already knew."*

[8] The category "Other" includes responses that could not be categorized in one of the categories shown in Table 2.2, including statements like, "It (HER) is useful, but it's nothing I can take action on" or "the fact that I use less in the summer. I could see that when it showed the scale. It made me realize I use a lot less in the summer." Other responses were critical of the neighbor comparison, such as "It (HER) is not accurate. You're comparing apples to oranges."

2.1.4 Level of Customer Satisfaction with the Reports

Follow-up survey treatment group respondents reported a moderate level of satisfaction with the HER program. About 40% (39% monthly and 41% quarterly) of the HERs treatment group respondents rated their overall satisfaction with the program as a four or five on a five-point scale, indicating a positive satisfaction rating (Table 2-3).[9] Thirty-four percent reported a rating of three on the five-point scale, indicating an indifferent satisfaction rating, while about one-quarter (28% monthly and 24% quarterly) offered a satisfaction rating of one or two, indicating dissatisfaction.

Table 2-3: HERs Treatment Group Satisfaction with the Program

Rating of Satisfaction with HER Pilot	Monthly	Quarterly
Very Satisfied – 5	18%	15%
4	20%	26%
3	33%	35%
2	11%	15%
Very Unsatisfied – 1	17%	10%
Number of respondents	155	142

Fewer than one-half of the focus group attendees in each group (usually two to three attendees), indicated a positive level of satisfaction with the HERs. One attendee said, *"It is interesting. We do see it; our neighborhood is about like-sized homes. If we're not doing well, it is a wake-up call."* However, a majority of attendees were less satisfied with the HERs and the HER program. One attendee expressed frustration with the HERs, by saying *"My husband is a builder and we have new windows and energy efficient equipment. I don't care what my neighbors do. We are frugal and watch what we do. The report just tells me I am a bad neighbor."* A small number of attendees (one to two per focus group) expressed stronger dissatisfaction, saying they felt their household was being singled out by CL&P when they received the HERs. As one attendee indicated, *"I think this report points a finger at the consumer and it may be the case that CL&P is trying to cover up their own shortcomings as an electricity supplier."*

Among the attendees who were most negative about the HER program, there were questions about why they could not find other households in their immediate vicinity or among friends and colleagues who were receiving the HERs.

2.1.5 Usefulness of the Energy-saving Tips

In addition to concerns about the neighbor group with which they were being compared, open-ended comments indicated that many of the lower satisfaction ratings were driven by perceptions that the energy-saving tips offered in the HERs were not sufficiently tailored for their household

[9] For the five-point overall satisfaction scale, where a score of five is labeled "Very Satisfied" and a score of one is labeled "Very Unsatisfied," we interpret scores of four and five as positive or high satisfaction, a score of three as neutral of indifferent, and scores of one and two as low or negative satisfaction.

and would not yield noticeable savings. This issue was expressed by one attendee, *"The energy-saving tips are mostly just 'nickel and dime' things. When you are such a high user, with electric bills in the hundreds of dollars, you need something more dramatic to reduce your usage. If you are in the top one percent, these little things suggested on the reports are not going to change your position."*[10]

Fewer than one-half of the follow up survey respondents (44%) thought the HERs had helped them reduce their household energy use—that is, the HER "definitely" or "probably" helped (Table 2-4). About 30% of respondents (32% monthly and 30% quarterly) reported the HER "definitely" did not help their household reduce electricity use.[11]

Table 2-4: Rating of Whether HERs Helped to Reduce Household Electricity Use

So far, has the HER program helped your household reduce your electricity use?	Monthly	Quarterly
Definitely yes	13%	16%
Probably yes	32%	27%
Probably no	23%	28%
Definitely no	32%	30%
Number of respondents	155	142

In the focus group discussions, most attendees felt the HERs and the program had probably increased the level of awareness of their household electricity use and may have made a small impact on their household electricity use. One focus group attendee stated, *"At Christmas time, I saw a tip (in the HER) about using a power strip. I am starting to use it at home. I have my whole cable TV system on the power strip, so I can turn it off when I leave the house, but I haven't done it yet. I'm not sure how much of a difference it will make."* For some focus group attendees, the HERs and the neighbor comparison actually made it difficult to tell if or feel like they were making progress. This opinion was exemplified by one focus group attendee who indicated, *"The first report showed we were really high (compared to the neighbor group). Then we tried some things and the bill went down, but our standing among the neighbors didn't really change. Trying to do things to save energy doesn't really seem to have an effect."*

[10] In fact, the individual participant is unlikely to see a large reduction in their energy use by adopting most of the energy-saving tips; however, the program design works from the premise that thousands of households saving "nickels and dimes" results in very large energy savings for the utilities, a question the team explores in detail in Section 2.3.

[11] Survey respondents generally reported that they did not find the energy savings tips useful and tended not to attribute energy efficiency actions to the HERs Program. This survey finding is in contrast to the billing analyses finding that the program induced average household savings of 388 kWh annually (Table 2-9). A possible explanation for the difference between the survey and billing analysis findings could be attribution bias, where survey respondents are not able to accurately identify the factors that lead them to take a specific action. It may also be that the actions are sufficiently modest that respondents do not think of them as actions at all.

2.1.6 Treatment Group Suggestions for Improving the Program

Treatment group respondents in the follow-up survey provided numerous thoughts and suggestions on how to improve the usefulness of the HERs to the households, which may or may not be feasible considering the design of the HERs program. The following examples are from an open-ended question asking how the HER program could be improved. The customer suggestions primarily reflected two themes:

- Provide more detailed and impactful energy savings tips and options for the customer.
    - "[Provide] more helpful tips or hints to save on energy; more than changing the light bulbs and stuff like that."
    - "I think more specific information; how neighbors are using or not using their electricity, so tell me why? How are they so efficient?"
    - "Maybe a better listing of ways to save energy, such as update appliances, energy efficient newer technology that is available to lower energy that's not too expensive to purchase."
    - "Resources; come do an audit or give assistance. Come out and help us."
- Provide further description of how the neighbor comparison groups are selected.
    - "When you're comparing neighbors, you have to compare households with same number of people and same number of rooms. It just says your neighbors. That's not helpful; compare with neighbors in same situation. We're being compared to someone heating with oil or gas or cooking with gas instead of electric. If it's just comparing neighbors, it's not the same."
    - "…On the comparison I would like to know what they are comparing it to so it can be more accurate."
    - "It would be interesting to find out something more detailed, such as homes with electric heaters versus gas, and stoves that are electric versus gas. You know that way you can figure it out. I have an electric stove and heat, but compared to those with gas it's hard to make a good comparison. I don't know if I am doing all that well with my electricity."

Suggestions made by the focus group attendees for improving the HERs program included similar ideas for revising the content of the HERs, such as providing more relevant tips with greater energy savings potential; providing a comparison of a household's historical use, rather than comparison with a neighbor group (even though this is available in the HERs, it was not recognized by most participants); and usage information covering short time intervals, such as hourly use data that will show more cause and effect for specific actions. At least two people in each focus group expressed a concern that CL&P was sending paper copies of the HERs by mail (not environmentally friendly) or that CL&P was spending additional money to mail the HERs separately, when they could be included with the electricity bill.

2.2 Behavioral Changes Attributable to the HERs Program

The team relied on the follow-up telephone survey and a review of HERs study group participation in other CEEF programs to identify possible energy-saving behaviors attributable to the HERs program.

2.2.1 Discussions and Reactions Reported in Response to the HERs

In the follow-up survey, 59% of the monthly treatment group and 54% of the quarterly treatment group respondents reported that household members get together for informal talks about things they could do to save energy. Both treatment groups were significantly more likely to do so than the control group (44%)(Table 2-5). However, the treatment group households were no more likely to report developing a plan to reduce energy use and there were no statistically significant differences in self-reports of energy efficiency actions taken since the treatment group households began receiving the HERs.

The team also searched for—but was unable to identify—additional differences in energy-saving behaviors between the treatment and control group. This inability to identify significant differences in reported energy efficiency behaviors between the two groups may reflect the concern discussed by some focus group participants—that the tips provided in the HERs were perceived to be generic and not sufficiently tailored to each individual household to prompt additional actions. An alternative interpretation for the lack of differences in reported energy efficiency behaviors between the treatment and control groups is based on social desirability bias—where respondents in both groups were more likely to report they had engaged in some energy efficiency actions that are widely perceived to be something that households should do.

Table 2-5: Household Discussion of Energy Use (Follow-up Survey)

Household Discussion of Energy Use	Monthly Treatment	Quarterly Treatment	Control Group
Household members get together for informal talk about things you can do to save energy *	59%	54%	44%
Household developed a plan to reduce energy use	50%	51%	54%
Number of respondents	155	142	299

* Chi square = 11.19, p = 0.0004.

2.2.2 Participation in Other CEEF Programs

Some of the tips provided on the HERs encourage behavior that would likely involve the households' participation in other CEEF-funded programs. For example, one tip suggested that households have an energy audit performed on their home, which would feed into the HES and HES-IE. Other tips promoted the purchase of energy efficient appliances and lighting, which relate to HES and also to the ENERGY STAR® retail products and appliance retirement programs. A portion of this evaluation was dedicated to assessing the degree to which the HERs

program increased participation of the treatment group compared to the control group in other CEEF programs.

The analysis of participation in other CEEF programs supports the conclusion that the HER program increases participation in at least some of these programs, but especially in HES. Table 2-6 shows a comparison of the number and percentage of HERs treatment and control group households that took part in other CEEF programs between January 1, 2011 and August 31, 2011. A simple, non-statistical comparison of the participation rates suggest that, in five of the seven programs, HERs treatment households took part at a greater rate than did the control group households, but the sample sizes—and many of the differences in participation rates—are very small. Therefore, the team tested the statistical significance of the differences. The statistical test suggests no differences in rates of participation in other programs between the HERs treatment and control groups, largely because neither the treatment nor control group took part in other programs in large numbers.

Table 2-6: Participation in other CEEF Programs

Program	HES-IE	HES	Insulation Rebate	Lighting Catalog	Lighting Coupon	Res HVAC	ARP
# Treatment Group	58	107	4	1	11	34	2
# Control Groups	47	71	2	2	6	31	2
# Study Group	105	178	6	3	17	65	4
% of all Treatment	0.241%	0.445%	0.017%	0.004%	0.046%	0.141%	0.008%
% of all Control	0.195%	0.295%	0.008%	0.008%	0.025%	0.129%	0.008%

Although very few of the 48,129 HERs study group households for whom the team had data in the summer of 2011 actually took part in any of these other CEEF programs, the large sample size of the HERs study group provides ample statistical power for identifying small program effects.[12] Therefore, the team expanded the analysis of participation in other programs to the entire study group and ran a X^2 test to see whether the participation pattern translated into statistically significant differential participation rates. The results indicated that only the HES program (not HES-IE) demonstrated statistically different participation rates between the treatment and control groups (X^2=7.3 and p-value =0.007 or a confidence level of nearly 99%), supporting the conclusion that HERs increased participation in HES among the treatment group (Table 2-7). Chi-square tests for other programs were not statistically significant. The team can say with certainty that receiving the reports (or participation in the behavioral program) results in the treatment group turning to the HES program to help them reduce their electricity use.

[12] The team included all 48,129 study group households as, even if their billing data were not sufficient to be included in the billing analysis, the treatment households in this group still receive reports that may have induced participation in other CEEF programs.

Table 2-7: Chi-square Test of HES Participation

Statistics	Value	Degrees of Freedom	Significance Level
Pearson Chi-Square	7.321	1	0.007
Number of Households	48,129		

In order to understand the degree to which the HERs experience may translate to the typical residential customer, the team also compared the participation in HES among the HERs study group with HES participation among all households in Connecticut. The estimates that were available for HES participation included participants of UI and CL&P rather than CL&P alone. Moreover, although the team subtracted the number of households in the HERs program from all residences in Connecticut, the overall population of "other residences" for the state still includes households served by municipal utilities. Yet, because CL&P represents the vast majority of electric using households in the state, these shortcomings are rather minor in nature. The results clearly show that the study group, among the highest users among CL&P's residential population, participate in HES less frequently than the general CL&P residential population (Table 2-8). Specifically, the results indicate that households in Connecticut that are *not* part of the HERs pilot participate in HES at a greater rate (0.8%) than do the households in the HERs study group (0.4% for the treatment group and 0.3% for the control group).[13] The team believes that the correct interpretation of these results is that HERs increases HES participation among the study group, who are all higher users, but the study group still takes part in HES at a lower rate than the general CL&P residential population. These differential participation rates likely reflect underlying differences between the study group and the overall population.[14]

Table 2-8: HES Participation Among HERs Households and Other Households

	HERs Treatment	HERs Control	Other Residences
Population	24,060	24,069	1,279,500[a]
# HES Participants	107	71	10,543[b]
% HES Participants	0.445%	0.295%	0.824%

[a] Includes customers of the United Illuminating Company and municipal utilities but subtracts out the CL&P HERs households; rounded to the nearest 100.

[b] 10,721 minus the 178 households in the HERs program.

2.3 Savings Attributable to the HERs Program

The two main purposes of the impact evaluation were to estimate the electricity savings resulting from the HERs program and to explore how other factors, such as weather, time of year, and

[13] Because these are population data, there was no need to perform tests of statistical significance.

[14] Some of the underlying differences include that the households in the HERs study group (both treatment and control) tend to be wealthier, own their homes at a greater rate, and are more likely to have amenities such as pools and spas than the average Connecticut household. Their responses to high electricity bills and home energy reports may be markedly different than the general residential population.

household characteristics affected the savings achieved. The team accomplished this through an analysis of electricity use as billed to the study group household based on actual or estimated meter reads, employing statistical controls to isolate savings by summer and winter months, whether or not the household pays the all-electric rate code, how frequently the household received HERs (i.e., quarterly or monthly), and the amount of electricity the household used prior to the program. The analysis also controls for pre-program use.[15]

In the results that follow in subsequent subsections, the tables list the estimated average treatment effects for the entire study group (comprising both treatment [including opt-out] and control households) as well as for the specific sub-groups of interest. The study period under question ran from January 2010 through March 2012, with data from 2010 serving as the pre-treatment time period and data from 2011 and 2012 representing the post-treatment time period. All of the results presented in these tables are statistically significant at the $P > 0.1$ level unless indicated otherwise.

2.3.1 Overall Treatment Group Savings

Table 2-9 shows the energy savings of the treatment group when compared to the control group for the entire program population and study period as well as specified groups or time periods. The models indicate significant energy savings among the treatment group households within all specified groupings of the data. Over the study period, the entire treatment group saved an average of 0.85 kWh daily when compared to the control group (column A) indicating that the treatment group used 1.7% less energy than did the control group.

Columns B and C examine savings by whether households pay the all-electric rate (Column C) or pay the regular rate (Column B). The treatment group that paid the regular rate used 1.6% more energy than did the control group that paid the regular rate (column B). The all-electric rate paying treatment group used 2% less energy than did the all-electric rate paying control group. However, comparing the results across the models using a Wald test (see below and Appendix A for more on this test statistic) shows that the energy savings were not statistically different between households that paid the regular rate and those that paid the all-electric rate, meaning that although all savings were significant within each particular treatment grouping the savings across treatment groups were not significantly different from each other.

Looking seasonally, the models show the estimated average energy savings to be 1.9% for winter months (Column D) and 2.1% for summer months (Column E).

[15] The team also employed additional control variables (e.g., weather) to increase the precision of the estimate. The estimating equation can be found in Appendix A.

Table 2-9: Estimated Average Energy Savings Overall and for Specified Sub-groups

	A	B	C	D	E
Program Period	**Entire**	**Entire**	**Entire**	**Winter**	**Summer**
Sample Used	**Full**	**Regular Rate**	**All-Electric Rate**	**Full**	**Full**
Daily Energy Savings (kWh)	0.85	0.79	0.98	0.92	1.04
Upper Bound 90% CI	1.13	1.11	1.54	1.31	1.45
Lower Bound 90% CI	0.57	0.46	0.42	0.53	0.62
Total kWh Energy Savings Per Household*	388	360	446	111	65
Percent Savings*	1.72%	1.62%	2.01%	1.90%	2.13%
Treatment Sample Size	23,594	16,958	6,636	23,491	23,091
Control Sample Size	23,702	17,058	6,644	23,588	23,004
Explained Variance	80%	82%	76%	80%	85%

* Limited to the months and the specific sub-groups in the model.

Columns F, G and H of Table 2-10 present the results of the models broken out by mean pre-program energy use. By dividing the study group into high-, mid- and low-use sub-groups the team was able to isolate further where program induced energy savings are coming from.[16] To accomplish this analysis, the team divided the study group into three sub-groups based on their pre-program electricity use and labeled the three groups high-use, mid-use and low-use. These labels provide a convenient classification for discussion purposes and accurately describe the relative electricity use of the households in the study group; however, the sub-groups here do not correspond to high-, mid-, or low- energy use among all CL&P customers. This is because the mean CL&P customer energy use (about 800 kWh monthly) is much lower than the mean program population energy use (about 1,600 kWh monthly), and even lower than the low-use group (about 1,335 kWh monthly) as defined here.

The results demonstrate statistically significant savings across all three use groups. Specifically, the average high-use treatment group household used a total of 1,078 kWh (2.4%) less energy than the high-use control group did during the program period. The mid-use treatment household used less energy than did the mid-use control household by 1.49% (410 kWh during the program period). The low-use treatment household used an average of 323 kWh (or 1.7%) less than the low-use control household did over the program period. The team also explored whether the energy savings in the high-, mid- and low-use group models were significantly different across models as well (e.g., whether high-use households saved more than mid-use households). The results indicate that the high-use treatment group savings were statistically different from the mid- and low-use treatment group savings, but mid- and low-use group savings were not

[16] See Appendix B for high, mid, and low-use sub-group assignment and average energy use.

statistically different from each other.[17] Thus, the team concludes that the households with the highest pre-program electricity use also save the most energy as a result of the HERs program.

Table 2-10: Estimated Average Energy Savings by Pre-program Use

	F	G	H
Program Period	**Entire**	**Entire**	**Entire**
Sample Used	**High Use**	**Mid Use**	**Low Use**
Daily Energy Savings (kWh)	2.37	0.90	0.71
Upper Bound 90% CI	4.68	1.51	0.99
Lower Bound 90% CI	0.06	0.28	0.43
Total Energy Savings*	1,078	410	323
Percent Savings*	2.41%	1.49%	1.72%
Treatment Sample Size	1,359	6,381	15,839
Control Sample Size	1,286	6,449	15,982
Explained Variance	58%	40%	38%

* Limited to the months and the specific sub-groups in the model.

[17] The team utilized the Wald statistic to test whether the estimated average energy savings for the high-use, mid-use, and low-use groups were statistically different from each other. The analysis found that the high-use group estimated average energy savings were significantly different from the mid-use estimated average energy savings (Wald chi2=5.84 with a P value of 0.01) and that the high-use estimated average energy savings were also significantly different from the low-use estimated average energy savings (Wald chi2=7.85 with a P value of 0.01). See Appendix A for a further explanation of the Wald test.

2.3.2 Savings by Treatment Sub-group[18]

The implementers divided the treatment group into sub-groups defined by the frequency at which households received a HER. The treatment sub-groups included monthly households, which received reports every month of the program period and quarterly households, which received reports once every three months of the program period. The team calculated the estimated average energy savings for the monthly and quarterly treatment sub-groups to determine whether rate of report reception has an impact on the program's effectiveness in inducing energy savings.

Table 2-11 illustrates each treatment group's estimated average energy savings as compared to the control group. Monthly treatment households saved 1.1 kWh daily while the quarterly treatment households saved 0.7 kWh daily. The monthly treatment group saved 2.2% more energy than the control group, the largest percentage savings of all the treatment groups across the total program period.

Table 2-11: Estimated Average Energy Savings by Treatment Group for Total Sample

	Daily Savings	Upper Bound 90% CI	Lower Bound 90% CI	Annual Savings	Percent Savings
Monthly	1.07	1.44	0.71	391.86	2.17%
Quarterly	0.72	1.10	0.35	264.23	1.46%
Treatment Sample Size	23,594				
Control Sample Size	23,702				
Explained Variance	80%				

[18] The models in this section also controlled for a persistence treatment sub-group that received monthly reports for six to eight months in order to control for different program exposure in the model and not bias the monthly and quarterly results. As discussed in Section 2.4, the estimated average energy savings of the persistence group was statistically the same as that of other monthly report recipients during the time they received reports. However, their abbreviated program exposure means that their savings for the entire period of January 2011 through March 2012 should not be compared to the monthly and quarterly households that received reports for the entire study period.

The team ran seven more models examining savings by treatment sub-group and the other variables of interest (i.e., time of year, payment of the all-electric rate code, and pre-program energy use). Table 2-12 presents a summary of these analyses, but see Appendix B for more detailed results including daily and annual savings as well as confidence intervals. The greater monthly treatment group energy savings estimated in every model leads the conclusion that the HERs are most effective at inducing energy savings when they are distributed monthly.[19]

Table 2-12: Estimated Average Energy Savings (Daily Household kWh) by Treatment and Other Specified Sub-groups

	Not All Electric	All Electric	Winter	Summer	High Use	Mid Use	Low Use
Monthly	1.03	1.18	1.10	1.26	2.97	1.24	0.86
Quarterly	0.63	0.91	0.93	0.75	1.75	0.76	0.63
Treatment Sample Size	16,958	6,636	23,491	23,091	1,359	6,381	15,839
Control Sample Size	17,058	6,644	23,588	23,004	1,286	6,449	15,982
Explained Variance	82%	76%	80%	85%	58%	40%	38%

2.4 Long-term Reduction in Energy Use After Report Cessation

The team also investigated the persistence of savings for a sub-treatment group that received monthly reports for only six months, compared to the full year of reports sent to the other treatment group households. Most households in the persistence group received reports beginning in January or February 2011 through August or September 2011, although a few received their first reports in March and their last reports in October. To evaluate the persistence groups savings before and after cessation of the reports, the team ran nine models (Table 2-13): the first (column A) lists savings for all months through August 2011 when the persistence group was receiving reports, the second (column B) includes the months from September 2011 to the end of the program period (the time period in which persistence households stopped receiving reports), the final seven models (columns C through I) are restricted to individual months after the persistence group was no longer receiving reports. In order to compare the persistence group savings to the other treatment sub-groups the team also broke out the treatment effect by whether or not the treatment group received reports monthly, were in the persistence sample, or received reports quarterly.

Column A shows that during the period when the persistence group was receiving monthly reports, monthly treatment households saved one kWh daily while a persistence household saved a similar 0.8 kWh; in contrast, a quarterly household saved only 0.5 kWh daily during the same period. Column B demonstrates that a gap in energy savings appears between the persistence group and monthly report group savings during the six months after the persistence group

[19] Additional research will be needed to determine if monthly report receipt is also the most cost effective study design.

stopped receiving reports (i.e., the monthly group savings increased to 1.1 kWh while the persistence group savings decreased to 0.5 kWh); similarly, quarterly savings also increased during these six month (to about one kWh), leaving only the persistence sub-group achieving smaller savings during the time period. Breaking the savings down by persistent group post-report month reveals even more information about the persistence of savings. For the first two months after the persistence group stopped receiving reports (columns C and D), its estimated average energy savings were similar to those of the monthly group and even exceeded the monthly group in September of 2011.[20] However, starting in the third month after report cessation, the persistence group savings decreased substantially (column E to Column I). In October through December (Columns D through F), the persistence group still saved energy, but at less than one-half the amount they saved when receiving monthly reports. By January (Column G), the persistence households were no longer achieving statistically significant savings.[21]

Table 2-13: Estimated Average Energy Savings and Percent Savings by Month After the Cessation of Persistence Group Treatment

	A	B	C	D	E	F	G	H	I
	Thru Aug. 2011	**From Sept. 2011**	**Sept. 2011**	**Oct. 2011**	**Nov. 2011**	**Dec. 2011**	**Jan. 2012**	**Feb. 2012**	**March 2012**
Monthly Treatment Effect	0.98 (1.93%)	1.11 (2.30%)	1.13 (2.38%)	0.90 (2.16%)	0.83 (2.14%)	1.21 (2.49%)	1.46 (2.53%)	1.29 (2.33%)	1.25 (2.56%)
Persistence Treatment Effect	0.80 (1.58%)	0.51 (1.06%)	1.34 (2.81%)	0.84 (2.03%)	0.34 (0.86%)	0.39 (0.80%)	0.23* (0.40%)	0.16* (0.29%)	0.26* (0.54%)
Quarterly Treatment Effect	0.51 (1.00%)	0.97 (2.00%)	0.66 (1.38%)	0.60 (1.44%)	0.64 (1.65%)	1.10 (2.27%)	1.37 (2.38%)	1.32 (2.39%)	1.22 (2.5%)
Treatment Sample Size	23,592	22,815	22,259	21,804	22,045	22,356	22,348	22,029	22,240
Control Sample Size	23,702	22,923	22,985	22,170	22,152	22,478	22,488	22,194	22,369
Explained Variance	78%	72%	54%	57%	56%	58%	61%	61%	59%

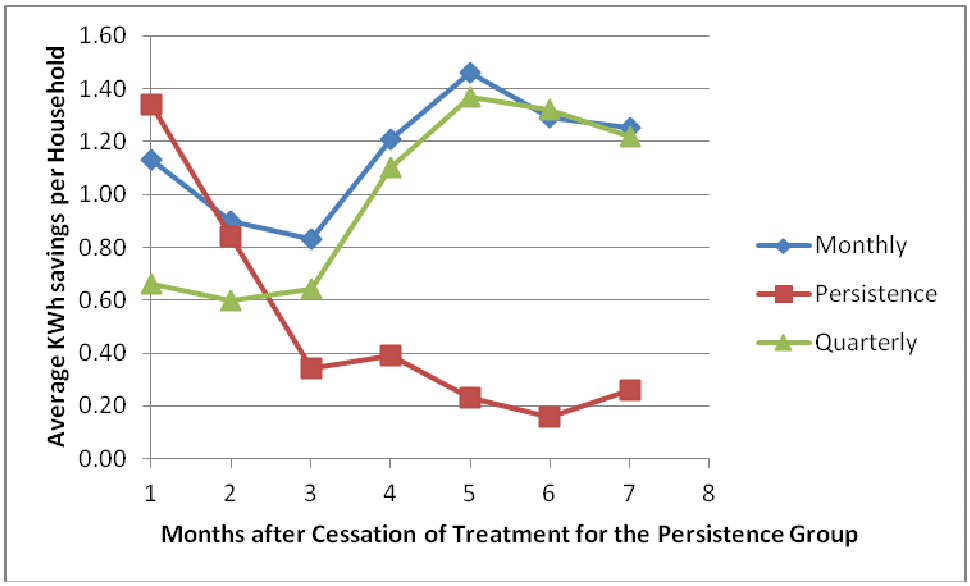
* Not statistically different from the comparison group at the 90 percent level indicating no measureable savings.

[20] This is likely due to simple variation in energy use and is not systematically related to the fact that households in this group stopped receiving reports. In fact, some persistence households were still receiving reports in September, and their behavior would be expected to mimic those of monthly households.

[21] A previous study tested persistence after a two-year treatment duration. These longer treatment periods may result in a longer persistence or flatter degradation of savings. These possibilities are being tested during the second year analysis of the HERs program. Allcott, H. and T. Rogers (2012) "How long do treatment effects last? Persistence and durability of a descriptive norms intervention's effect on energy conservation (Faculty Research Working Paper)." http://web.hks.harvard.edu/publications.

Figure 2-1 is a graphic representation of savings after the persistence group was no longer receiving reports and shows the steep decrease in energy savings after they stopped receiving reports. The evidence presented in Table 2-13 and Figure 2-1 show that in the absence of reports the persistence treatment group energy savings persisted for two months at their pre-cessation level, then declined sharply and, by the fifth month of not receiving a report, the persistence treatment group no longer displayed any measurable energy savings over the control group.

Figure 2-1: Estimated Average Energy Savings After the Cessation of Treatment for the Persistence Sub-group*



* Prior to the months represented in this graph, the persistence group had been receiving monthly reports and their energy use was statistically similar to that of other monthly report recipients.

2.5 Implementation of the Program

As part of the process evaluation, the team explored aspects of program implementation that may have affected program processes and impact.

2.5.1 Impact of Press Research Announcing Program

On January 31, 2011, CL&P issued a press release announcing the launch of the HER program. This announcement occurred prior to implementation of the baseline survey, raising a concern that baseline survey responses by control households could have been influenced by program activities. In the press release all CL&P customers had been prompted to visit the CL&P website, which may have affected their awareness and behaviors related to energy efficiency. The baseline survey results indicate that a little more than one-quarter of baseline survey respondents recalled seeing the press release, and only five percent reported visiting the CL&P website to look for energy efficiency information. These baseline survey responses show that the potential for significant bias resulting from the CL&P press release was small.

2.5.2 Customers Electing to Opt-out of the HER Program

In most CEEF programs, customers contact the Companies or their vendors to initiate program participation. In contrast, the HERs program design assigns households to the treatment group, and treatment group households are not aware that they are a part of the program until they receive the Welcome Letter. Treatment group households, however, can choose to "opt out" of the program if they wish to stop receiving HERs. Through data provided by the CL&P Program Manager, the team found that less than one percent of the auto-enrolled HERs treatment group households requested to be dropped from the program as of June 4, 2011 (three to four months after receiving the first HER). CL&P Customer Service Call Center data indicate that the primary reasons for opting out of the program were questions or concerns about the comparability of the "neighbor group" with which their household was being compared. OPower, the program implementer, reported that the opt-out rate for the HER program is consistent with their experience in other HER programs with a similar design featuring random assignment of households to treatment and control groups.

2.5.3 Differences between the Treatment and Control Group Households

In the baseline survey, no statistically significant differences in customer demographics or household characteristics were found between the HER treatment group households and the control group households. Baseline survey respondents from treatment group households were significantly more likely to report that their household had done all or most of the things they could think of to conserve energy in their household (Table 2-14). Treatment group respondents receiving monthly home energy reports should have received at least one report by the time of the baseline survey. It is possible that receiving a monthly home energy report, and recognizing that they were a part of the "treatment" group for the HER program may have led some treatment group respondents to report having taken a greater portion of energy efficient action than they would have before receiving the report.

Table 2-14: Comparison of Self-Reported Actions Prior to Program Implementation

Thinking about all the things you could do to save energy, would you say you have done	Control Group HH N=147	Treatment Group HH N=153
Everything you can think of*	10.2%	17.0%
Most things	29.9%	37.3%
A few things	51.7%	41.2%
Nothing	8.2%	4.6%

* A dichotomous variable was constructed by combining "Everything you can think of" and "most things" as one category and "a few things" and "nothing" as the residual category. A test of the difference of proportions for the two independent samples indicated that treatment group households (54.3%) were significantly more likely than non-treatment group households (40.1%) to indicate they had done everything or most things they could think of (z=2.331).

3 Conclusions

During the first year of the program, the HERs program succeeded in achieving substantial electricity savings among the 24,000 treatment group households. While some households saved more than others, on average, the treatment group achieved electricity savings of 1.7% over the control group households. This translates into a total of 9,288 MWh savings across all the treatment households in the study group.

The first year of the HERs pilot program also resulted in a moderate level of customer satisfaction. Treatment group households were only somewhat engaged with the program and had mixed reactions regarding its usefulness and their own level of satisfaction with the program. Treatment group households seemed particularly troubled by the neighbor comparison group—not understanding who these "neighbors" were and doubting that they were truly comparable households.

Some other important conclusions and potential implications are summarized below.

- The monthly delivery of HERs appeared to result in the greatest program savings; however, future research will be needed to determine if monthly delivery yields the most *cost effective* savings.
- High users comprised nearly all households in the Year 1 study group. The Year 2 Pilot study group will contain additional, more average-use customers, which should allow the team to draw conclusions about program impacts on the average customer. However, the results of the Year 1 billing analysis cannot be extrapolated to all CL&P residential customers.
- Treatment group households wanted more individualized information about their own energy use. The low percentage of treatment group households who set up an online account is a missed opportunity to increase the level of engagement and provide more individually tailored energy-saving tips to treatment group households, and the Year 2 program may want to place greater emphasis on use of the website. Also, CL&P and OPower may consider promoting the HES and HES-IE programs more vigorously to the treatment group in Year 2, as these programs certainly will provide tailored suggestions on ways individual households can reduce energy use.
- Treatment group households seemed very confused about the nature of the neighbor comparison group. In Year 2, the implementer may want to consider alternative ways of describing the neighbor comparison group, including increasing the visibility of the explanation on the HERs.

- The focus groups revealed that some treatment group households were frustrated that they had adopted tips and seen their energy use decrease but were still classed as using more energy than their neighbors. They wanted more feedback on their current use relative to their own historic use. The implementers may want to emphasize the historical comparison of a household's usage as reported on the Year 2 HER, because most focus group attendees had not recognized this comparison prior to having it shown to them.

Appendix A Detailed Methods

The evaluation team employed the methods below to explore the objectives of this study.

A.1 Detailed Survey Methodology

Tetra Tech conducted 301 baseline survey telephone interviews with CL&P customers (153 treatment and 148 control group households) from April 7, 2011 to May 5, 2011. These baseline survey interviews were used to answer the following researchable issues:

- What baseline actions were taken by participating and nonparticipating customers prior to program implementation?
- Are there differences between treatment and control group households in prior participation in energy efficiency programs, awareness of energy efficiency measures and attitudes toward energy efficiency, characteristics of their residence, and household and demographic characteristics?
- How many control group households were aware of the HER program, through the CL&P press release or from other sources, and for those who were aware, how many visited the CL&P website to obtain energy efficiency information prior to the program launch?

The follow-up survey of 596 (155 monthly treatment, 142 quarterly treatment, and 299 control group households) was in the field from December 20, 2011 to February 9, 2012. The evaluation focused on understanding treatment group acceptance and satisfaction with the reports, and the extent to which the HERs program induced energy use actions among treatment households. The researchable issues included the following:

- Level of awareness and customer engagement with the HERs
- Energy saving discussion and actions reported in response to the HERs
- Level of customer satisfaction with the reports
- Changes in the program that could increase the level of customer engagement and satisfaction
- Review customer demographics across HERs treatment and control households

Table A-1 displays the final sample designs of the two surveys.

Table A-1: Baseline and Follow-up Final Sample Design

	Baseline Survey			Follow-up Survey		
	Treatment	**Control**	**Overall**	**Treatment**	**Control**	**Overall**
Study Population	24,061 (50%)	24,068 (50%)	48,129 (100%)	24,061 (50%)	24,068 (50%)	48,129 (100%)
Completed Surveys – all households	153 (51%)	148 (49%)	301 (100%)	297* (50%)	299 (50%)	596 (100%)

* 155 monthly report recipients and 142 quarterly report recipients

Data analysis focused on summarizing the responses and characteristics of survey respondents using descriptive statistics such as proportions and means. The team also tested for statistical differences between relevant groups for a subset of questions. Both survey instruments can be found in Appendix D.

A.2 Focus Group Methodology

Tetra Tech conducted three focus group discussions with CL&P customers in the treatment group. The team recruited focus group attendees from lists of treatment group households, and limited attendance to those households aware that they were receiving HERs reports; this limitation was necessary to make sure attendees could provide meaningful information about their level of engagement with the HERs program. The focus group recruitment process screened for awareness of the HERs; however, none of the individuals contacted reported they were not aware of receiving the HERs and no one was excluded from the focus groups for this reason. The focus groups were held in two different locations—Farmington and Stamford—in Connecticut to capture variability in experience. The focus groups were held March 20 and 21, 2012. Eight attendees were recruited for each group and a total of 21 individuals attended (groups of six, seven, and eight attendees). Attendees were evenly split by gender and coverage age-groups of 31-44, 45-60, and 61-75. Appendix D includes the focus group discussion guide.

A.3 Methods to Estimate Energy Savings

The evaluation team largely relied on a billing analysis to estimate energy savings resulting from the program. The subsection explains the data preparation and methodology of this approach.

A.3.1 Billing Analysis Data Preparation

The billing analysis relied on data obtained from three different sources: 1) CL&P, 2) OPower, and 3) the National Climate Data Center (NCDC) website (Table A-2).[22] This section describes the process of preparing these data for inclusion in the billing analysis.

Table A-2: Billing Analysis Data Sources

CL&P	OPOWER	NCDC
Monthly billing data in kWh, presented as total usage and daily average usage	Household and demographic characteristics	Average daily temperature for four major weather stations in Connecticut
Flag for treatment households who opted out of program[b]	Tips received by each treatment household and date(s) received	Heating Degree Days (HDD), calculated from the average daily temperature data
Participation in other CEEF programs since January 1, 2011	Date of first report	Cooling Degree Days (CDD), calculated from the average daily temperature data
Flag for service disconnection	Assignment to treatment and control	
Meter read date	Assignment to treatment and control	
Rate codes to identify all-electric rate customers		

[a] Data provided for all treatment and control group households unless otherwise noted.

[b] Opt-out household have been retained in the analysis.

CL&P provided the billing data used in this analysis. These data included monthly electricity use (overall and average daily) per service account for both the HERs treatment group and control group as well as the meter read dates from January 1, 2010 through March 31, 2012. CL&P included rate codes, so the team could determine all-electric rate paying households, and flags for whether service had been disconnected. Although they originated with OPower, CL&P also sent data on treatment and control group assignments, sub-treatment group assignments (i.e., quarterly, monthly, and persistence samples) for the treatment group only, and if members of the HERs treatment had opted out of (i.e., asked to be excluded from) the study.

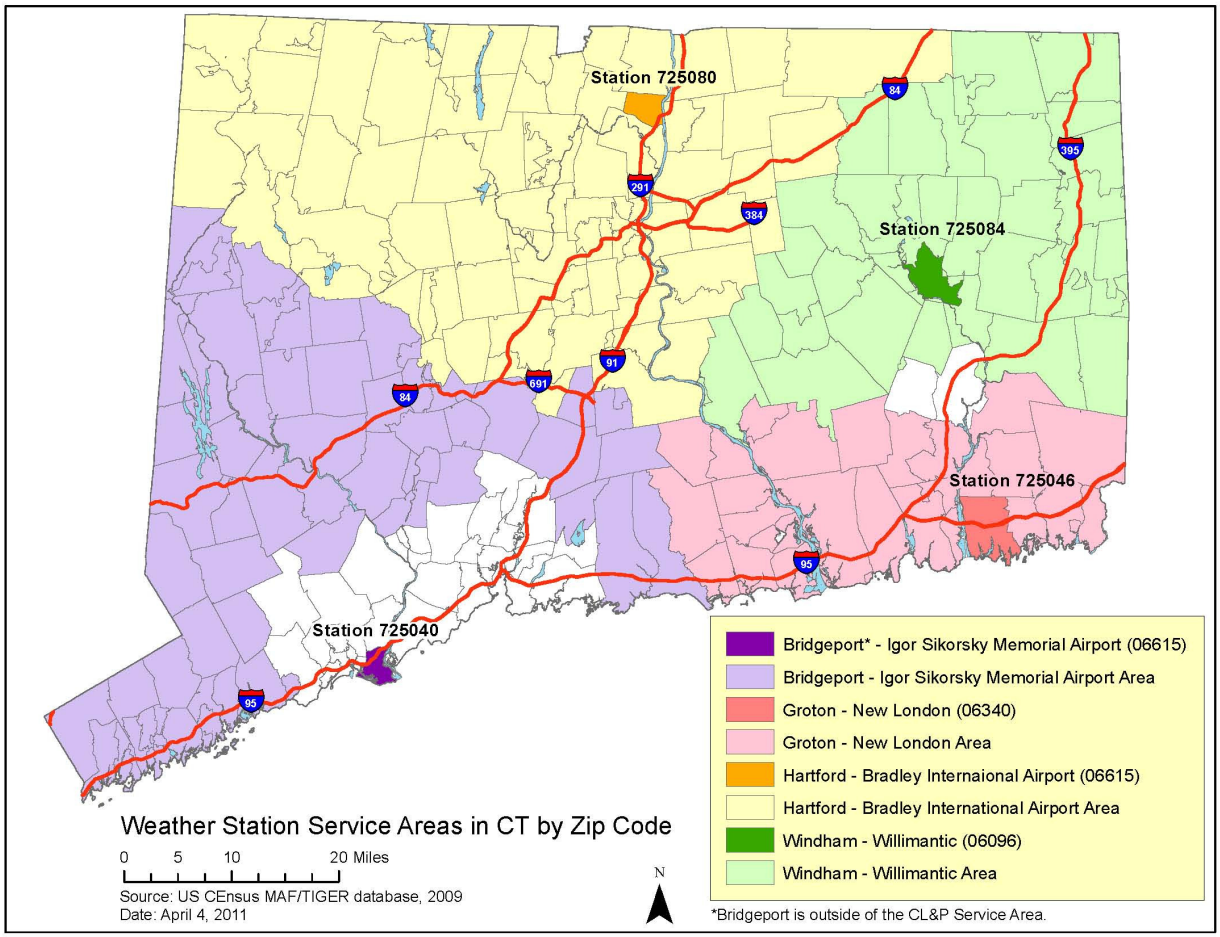
OPower provided NMR with data they had obtained from third-party sources on household characteristics such as the dwelling type, number of occupants, age and size of the home, and the presence of air conditioning in the home. NMR cautions that these third-party data are not available for all households and their quality and accuracy varies, but in ways that are equally true for both the treatment and control groups.[23] Data sent by OPower also showed the date that they mailed the first report to each treatment household. Weather data came from four regional

[22] Accessed at http://www7.ncdc.noaa.gov/CDO/cdoselect.cmd?datasetabbv=GSOD&countryabbv=&georegionabbv=

[23] The team only removed households lacking data on these characteristics in the models in which they tested for the impacts of these characteristics on electricity use and savings. This is because the information is actually "missing" for them, and the model excludes cases that are missing data on the variables being tested. Excluding households lacking the housing data may introduce bias into the analysis if the households for which data were or were not available data differ systematically from each other, which is possible. However, due to the random assignment process, the treatment and control groups are identical, and any bias that may be introduced by removing households lacking housing data will be in the same, although unknown, direction for the treatment and control groups.

stations in Connecticut. Using GIS, the team created a map and assigned service account zip codes to the nearest of the four weather stations. The areas in white are served by municipal utilities and the United Illuminating Company. Also, the Igor Sikorsky Memorial Airport is outside of the CL&P service territory, but it still is the closest weather station to many of the CL&P towns located in the southwest corner of the state. For each region, the team calculated average monthly temperature, total monthly heating degree days, and total monthly cooling degree days from daily data available from the NCDC website for December 2009 through March 31, 2012.

Figure A-1: Weather Station Assignment



The team needed to remove some households from the analysis. The greatest number of cases was excluded because they did not have billing data for the full pre-program time period (2010 calendar year). The team also removed households that had their service disconnected prior to January 1, 2011, accounting for most of the remaining removals. The team excluded households from the analysis because they lacked a unique billing account, and another six households had not been assigned to a treatment or control group. In total, this process reduced the number of records from 48,400 to 47,296, with 553 records removed from the treatment group and 551 from the control group. The final database included household characteristics, monthly billing data, monthly regional weather data, CEEF program participation, and a selection of tips received through the program. Table A-3 summarizes the final sample sizes used in the analysis.

Table A-3: Total Electricity Usage for Households Included in Analysis*

	Households	Total Usage (kWh)	Average Usage (kWh)
Treatment Group	23,579	994,959,221	42,197
Control Group	23,717	1,005,280,502	42,386
Entire Study Group	47,296	1,000,119,862	42,292

* These data reflect the period from January 2010 through March 2012, a total of 27 months.

A.3.2 Overall Program Savings Estimation Procedure

Regarding the actual analysis, on the advice of team member Hunt Allcott, the evaluators decided to use OLS instead of fixed effects linear regression (the model used in preliminary analyses of the first seven months of the program) because a smattering of missing data (inadequate post and pre-treatment energy use and households lacking treatment/control assignments) created an imbalance in the dataset because the missing data were not evenly distributed between the treatment and control group households. We include the estimating equation below:

> Estimated Average Energy Savings=β_0(Avg. Post-Treatment Energy Use)+ β_1(Dichotomous Treatment)+ β_2 (Avg. Pre-Treatment Energy Use)+ β_3 (Dichotomous Electric Heat)+ β_4 (Dichotomous Single Family Home)+ β_5 (Heating Degree Days)+ β_6 (Cooling Degree Days)

All results have also been multiplied by negative one (-1.0) for ease of interpretation; this step converts a measure of decreased use—a negative number—to a measure of savings—a positive number.

The team used a Wald test to test for significant differences in estimated average energy savings between sub-groups—namely the high-, mid-, and low-use groups and all-electric rate and regular rate households. The Wald performs chi-square test of equality of the coefficients that are common in each of the three usage group models. The test sets the estimated average energy savings for the high-use group equal to the estimated average energy savings of the mid-use group (and low-use group in turn)—if these values were not found to be equal we can say that

they were significantly different from each other. The mid-use and low-use estimated average energy savings were also tested using the Wald test and were not found to be statistically different from one another. Likewise, the Wald test revealed no statistically significant differences in estimated average energy savings between households that paid an all-electric rate and the households that paid a regular rate.

A.3.3 Estimation of Electricity Savings by Pre-program Use

In order to examine whether energy savings differed by pre-program electricity use, the team created three sub-groups based on their average energy pre-usage. The sub-groups were created using a partition cluster-analysis method that assigned the households into three distinct groups based on the similarity of the household average pre-usage to the sub-group's pre-usage mean. Partitioning the households into sub-groups began with assigning a household to a sub-group based on its pre-usage mean and then recalculating the sub-groups' mean with the new household's data included in the sub-group—this process, accomplished using statistical software, was repeated many times until households no longer changed sub-groups and the sub-group's means stabilized. The resulting sub-groups are not of equal size because a household's placement in a specific sub-group is determined by the distance between the household's pre-usage mean and the sub-group mean, and the similarities between the means within a sub-group determine how many households will be in the sub-group. The highest average energy use sub-group has the smallest sample size (n=2,645), followed by the mid-range average energy use (n=12,830) followed by the largest sub-group, low average energy use (n=31,821)(Table A-4). Keep in mind that the terms high, mid, and low relate to the sub-group's place among the CL&P behavioral program population not the overall CL&P residential population. The program population is made up of households that exceed CL&P's general population energy use of about 800 kWh monthly.

Table A-4: Average Energy Pre-program Energy Usage by High, Mid, and Low-use Sub-groups

Sub-group	Average Monthly kWh	Sample Size
High-use	3,179	2,645
Mid-use	1,973	12,830
Low-use	1,335	31,821

Appendix B Additional Information on the Results of the Exploration of Energy Savings

This appendix provides supplemental information on the estimation of energy savings presented in Section 2.3.

OPower assigned treatment households to a sub-treatment group based on frequency and duration of the reports: 1) monthly group receives a report reach month for 12 months; 2) quarterly group receives a report every three months for one year; and 3) persistent group receives a monthly report a certain duration but then ceases to receive the report. The models represented in Table B-5 through Table B-11 show the estimated average treatment effect for the monthly and quarterly treatment groups for the total program population and additional program population sub-groups. The models also controlled for the persistence group but, as explained in Section 2.3.2, the team did not compare their energy savings in this particular analysis to those of the monthly and quarterly groups due to the persistence group's abbreviated program exposure. Section 2.4 describes the energy savings of the persistence group over time, both during and after program exposure.

The results presented in Table B-5 are restricted to the program population that did not pay the all-electric rate. Among the regular rate sub-group a monthly household saved an average of one kWh daily, 2.1% more energy savings than the control group. The quarterly savings, 1.3, were very similar among the regular rate sub-group.

Table B-5: Estimated Average Energy Savings by Treatment Group for Regular Rate Sample

	Daily Savings	Upper Bound 90% CI	Lower Bound 90% CI	Annual Savings	Percent Savings
Monthly	1.03	1.46	0.61	376.45	2.12%
Quarterly	0.63	1.05	0.21	230.02	1.30%
Treatment Sample Size	16,958				
Control Sample Size	17,058				
Explained Variance	82%				

The energy savings in Table B-6 are restricted to the sub-group of the program population that received an all-electric rate. The average monthly all electric treatment group household saved 1.2 kWh daily when compared to the all-electric control group, 0.15 more daily kWh than their regular rate counterparts. The all electric quarterly treatment households also saved more energy than did their regular rate counterparts. The all electric rate monthly treatment group saved 2.4% more than the all-electric control group and the quarterly group saved 1.9% more than the all-electric control group.

Table B-6: Estimated Average Energy Savings by Treatment Group for Electric Rate Sample

	Daily Savings	Upper Bound 90% CI	Lower Bound 90% CI	Annual Savings	Percent Savings
Monthly	1.18	1.88	0.48	431.51	2.43%
Quarterly	0.91	1.70	0.13	333.63	1.88%
Treatment Sample Size	6,636				
Control Sample Size	6,644				
Explained Variance	76%				

Table B-7 and Table B-8 represent savings from models that were restricted to the winter (Table B-7) and summer (Table B-8) months of the pilot program. The monthly treatment group saved more energy than did the quarterly treatment group in both the winter (1.1 kWh) and summer (1.26 kWh) months.

Table B-7: Estimated Average Energy Savings by Treatment Group for Winter Months

	Daily Savings	Upper Bound 90% CI	Lower Bound 90% CI	Annual Savings	Percent Savings
Monthly	1.10	1.60	0.60	132	2.27%
Quarterly	0.93	1.44	0.42	111	1.91%
Treatment Sample Size	23,491				
Control Sample Size	23,588				
Explained Variance	80%				

Table B-8: Estimated Average Energy Savings by Treatment Group for Summer Months

	Daily Savings	Upper Bound 90% CI	Lower Bound 90% CI	Annual Savings	Percent Savings
Monthly	1.26	1.81	0.72	77	2.60%
Quarterly	0.75	1.29	0.21	44	1.54%
Treatment Sample Size	23,091				
Control Sample Size	23,004				
Explained Variance	85%				

Table B-9, Table B-10, and Table B-11 contain model results that are specific to a sub-group of the program population based on the sub-groups pre-program mean energy use. The team created three sub-groups based on their average energy pre-usage. The treatment groups in the highest use sub-group saved more energy than did their counterparts in the mid-range and lowest use sub-groups demonstrating that the highest average energy users were also the sub-group that saved the greatest amount of energy. A high use monthly treatment household saved an average of three kWh when compared to the control group while a mid-range treatment household saved 1.2 kWh and a low use monthly treatment household saved 0.6 kWh. A high use quarterly treatment household saved an average of 1.7 kWh daily while a mid-range use quarterly treatment household saved 0.8 kWh daily and a low use quarterly treatment household saved 0.6 kWh daily.

Table B-9: Estimated Average Energy Savings by Treatment Group for Highest Average Energy Users of the Behavioral Pilot Study Group

	Daily Savings	Upper Bound 90% CI	Lower Bound 90% CI	Annual Savings	Percent Savings
Monthly	2.97	5.85	0.08	1083.28	3.03%
Quarterly	1.75	4.90	-1.40	638.64	1.78%
Treatment Sample Size	1,359				
Control Sample Size	1,286				
Explained Variance	58%				

Table B-10: Estimated Average Energy Savings by Treatment Group for Mid-Range Average Energy Users of the Behavioral Pilot Study Group

	Daily Savings	Upper Bound 90% CI	Lower Bound 90% CI	Annual Savings	Percent Savings
Monthly	1.24	2.03	0.45	453.39	2.06%
Quarterly	0.76	1.58	-0.06	276.75	1.26%
Treatment Sample Size	6,381				
Control Sample Size	6,449				
Explained Variance	40%				

Table B-11: Estimated Average Energy Savings by Treatment Group for Lowest Average Energy Users of the Behavioral Pilot Study Group

	Daily Savings	Upper Bound 90% CI	Lower Bound 90% CI	Annual Savings	Percent Savings
Monthly	0.86	1.22	0.49	312.14	2.07%
Quarterly	0.63	0.99	0.27	230.63	1.53%
Treatment Sample Size	15,839				
Control Sample Size	15,982				
Explained Variance	38%				

Appendix C OPower Welcome Letter and Example of HER

Figure C-2: CL&P Behavior Pilot Welcome Letter

Serving Utility

Connecticut Light & Power

A Northeast Utilities Company

BOB SMITH
1234 MAIN STREET
HARTFORD, CT 06141

Account Number: xxxxxxxxx

October 8, 2010

Dear <fname> <lname>,

As a customer of Connecticut Light and Power, you have been selected to participate in an exciting new pilot program, sponsored by the Energy Efficiency Fund, to help you make more informed decisions about your home's energy use.

Enclosed is your first personalized Home Energy Report. In the report you'll find:

- **Comparison to neighbors**: Learn how your energy use compares to similar-sized homes in your neighborhood that use electricity. This information is compiled anonymously and provided confidentially. Only you will see your personal information.
- **Progress tracker**: See how your energy use changes over time, so you can set targets for savings.
- **Personalized energy-efficiency tips**: Review tips chosen specifically for you based on your energy use patterns and characteristics of your home.

We'll send you updated reports throughout the year to help you measure your energy savings and share advice on how to save across seasons. In the meantime, visit our secure site — www.clpenergyreports.com — to learn more and start saving energy.

If you do not find this program helpful, you can opt out at any time by calling us at 866-541-7779.

We hope that your Home Energy Report will enable you to make informed choices about the energy you use — saving you money and benefiting our environment. Thank you for your participation.

Sincerely,

Jeff Butler
President and Chief Operating Officer

P.S. Included on the back of this letter is a brief overview of your Home Energy Report and answers to frequently asked questions.

This statewide program is fully funded by the Connecticut Energy Efficiency Fund and administered by CL&P. For more information on the Energy Efficiency Fund, please visit www.ctenergyinfo.com. Connecticut's Energy Efficiency Programs are funded by a Charge on Customer energy bills. The programs are designed to help customers manage their energy usage and cost.

Better Information. Smarter Choices. Greater Savings. Customized for You.

Useful info available online

Learn more about your energy use and how to save

See how you compare

Find out if you're using more or less energy than other similar homes in your area based on:

- Home size
- Home type (apartment or single-family)
- Heating source

Note: Vacant homes are excluded.

Learn even more online

Visit www.clpenergyreports.com for tips and tools

- Discover dozens of ideas to reduce energy use
- Share tips with others in your community
- Develop an energy savings plan

Frequently Asked Questions

Why is Connecticut Light and Power sending me this report?
You are among a group of randomly selected CL&P customers included in the Home Energy Reports program, which is designed to help customers save energy and money.

How did you choose homes used in these comparisons?
We chose approximately 100 homes that are near you with similar characteristics—such as square footage and fuel types—that typically lead to similar energy needs. Homes that appear to be unoccupied based on very low energy use are excluded from the comparison.

How do 'efficient households' use such little energy?
Efficient households likely take a number of the steps we recommend to reduce their energy use, including using the thermostat to manage heating and cooling costs, taking shorter showers and always running full loads of laundry. By putting these and other tips into practice, you also can make your home more efficient.

Can I opt out of the Home Energy Reports program?
Yes. Home Energy Reports are provided to help you understand your home energy use, save energy and reduce your energy costs. If you do not find these reports useful, you can opt out by calling 866-541-7779.

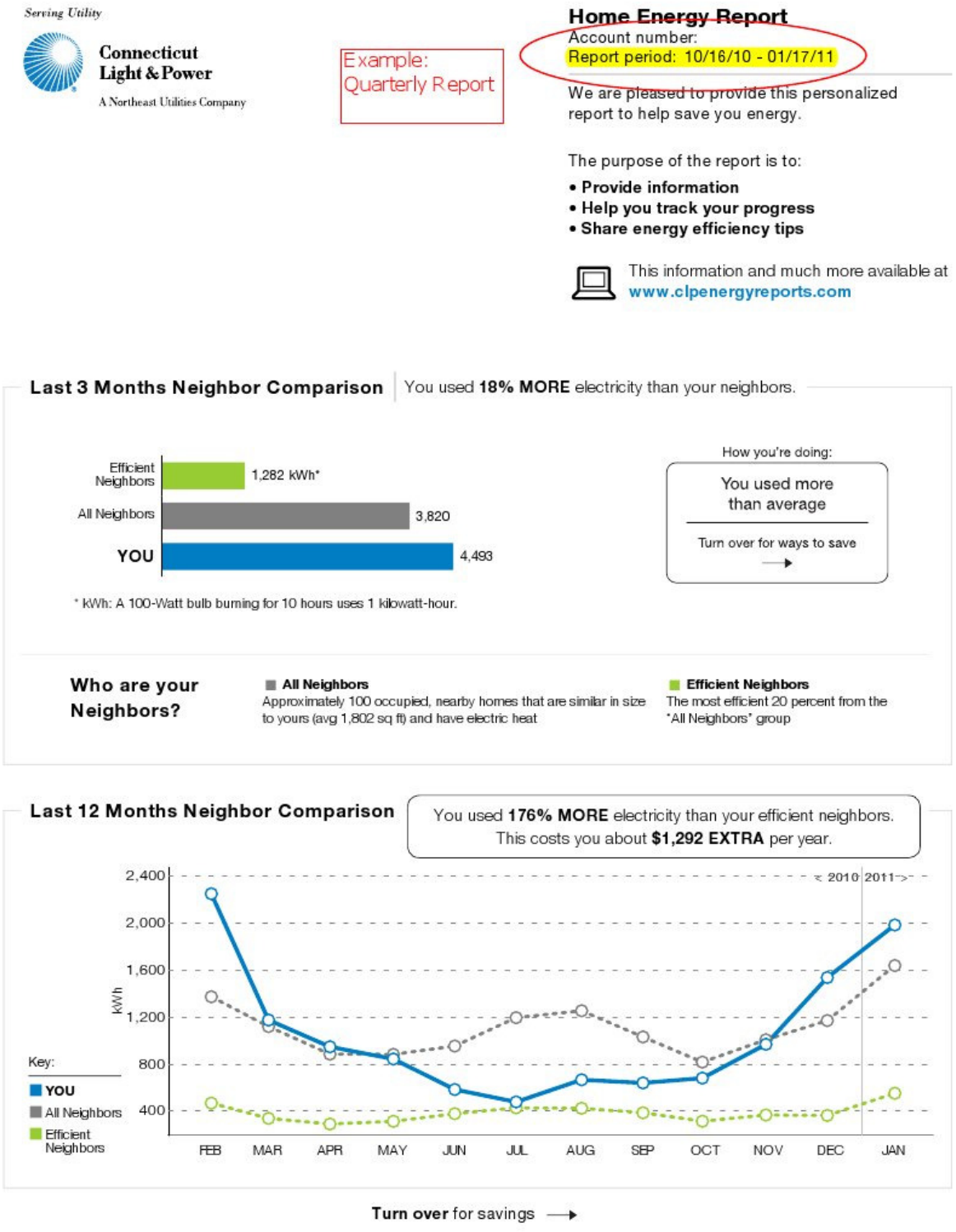
Go online for more ways to save.
www.clpenergyreports.com

Sponsored by
CONNECTICUT ENERGY EFFICIENCY FUND
www.CTenergy$#%.com

© Printed on 30% post-consumer recycled paper.

CLP_WLCM_A_1010

Figure C-3: Example of HER



Action Steps | **Personalized tips chosen for you based on your energy use and housing profile**

Quick Fix
Something you can do right now

☐ **Reduce water heater temperature**

Lowering your water heater temperature from 140° to 120° can result in a 10% savings in hot water costs. This temperature will also help prevent scalding.

Check the owner's manual for safety instructions before making any changes to your water heater's settings.

After lowering the temperature on the water heater, use a thermometer to check the temperature of water flowing from your faucets.

SAVE UP TO $35 PER YEAR

Quick Fix
Something you can do right now

☐ **Shave a minute off shower time**

The average American spends about 8 minutes taking a shower roughly once a day.

Reducing average shower time by 1 minute can result in a 13% savings in shower water use, which reduces the money you spend on water heating.

See how long you and your fellow household members take to shower and compare your shower times to the national average. Set a goal for showering a bit faster and watch your energy bill go down.

SAVE UP TO $20 PER YEAR

Quick Fix
Something you can do right now

☐ **Be smart about clothes washing**

Water heating accounts for about 90% of the energy used for washing clothes.

Unless your clothes have oily stains, washing with cold or warm water is effective and can be gentler on your clothes. Special cold-water detergents are available, though most detergents will work.

For more savings, run only full loads. Lastly, the "sanitary" and "allergy-free" cycles use very hot water, which increases energy use. Avoid them unless necessary.

SAVE UP TO $25 PER YEAR

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Connecticut's Energy Efficiency Programs are funded by a Charge on Customer energy bills. The programs are designed to help customers manage their energy usage and cost. Monetary savings estimates from reduced energy usage are based on billing rates in effect at the time of printing.

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Appendix D CL&P HER Pilot Program Baseline and Follow-up Survey Instruments and Focus Group Guide

The evaluation instruments used in the process evaluation are presented below. Preceding this instrument section the evaluation team has referred to treatment and control groups. However, in the original survey and focus group instruments, the team used the terms participant and non-participant, and the section preserves this terminology.

D.1 Baseline Survey Questionnaire

Hello, my name is [interviewer name], and I'm calling on behalf of Connecticut Light & Power. May I speak with [named respondent]?

1 Yes

2 No [*If named respondent is not available: ask for another adult who is most involved in managing their household's energy use]*

I'm with Tetra Tech, an independent research firm. We are talking with customers of Connecticut Light & Power to understand their views on energy use and conservation. You may have received a letter regarding this. I'm not selling anything; I'd just like to briefly talk about your household's energy use. Your responses will be kept confidential and your name will not be revealed to anyone. For quality assurance, these calls are recorded.

(Who is Connecticut Light & Power?) *Connecticut Light & Power is the largest investor-owned electric distribution company in the state, serving more than 1 million customers.*

(Why are you conducting this study?) *Studies like this will help Connecticut Light & Power better understand customers' needs and to design their energy conservation programs accordingly.*

(How did you get my name or number?) *Your name and phone number were provided by Connecticut Light & Power. You were one of 300 customers randomly selected for this study.*

(How long will this take?) *This survey should take 15 minutes or less. IF THIS IS NOT A GOOD TIME, SET UP A CALL BACK APPOINTMENT OR OFFER TO LET THEM CALL US BACK AT 1-800-454-5070.*

(Are you trying to sell me something?) *This is not a sales call; we would simply like to learn about your household's experiences with energy use and conservation. Your responses will be kept confidential.*

Section 1: Experience with the CL&P and Statewide Programs (Participants)

E1 Has your household participated in any energy efficiency programs designed to save energy at your home? (Select one)

[IF NEEDED: FOR EXAMPLE YOU MAY HAVE RECEIVED A HOME ENERGY ASSESSMENT TO IDENTIFY WAYS TO REDUCE YOUR ENERGY USE OR PURCHASED AN EFFICIENT APPLIANCE USING A REBATE]

1 Yes

2 No

D Don't know

R Refused

E2 *[IF E1 =1]* Which program or programs have you participated in?

[DO NOT READ] [SELECT ALL THAT APPLY]

1 Home Energy Solutions (in-home energy assessment and services)

2 ENERGY STAR Retail Products (appliance and lighting rebates)

3 Smart Living Catalog (various small measures at a discount)

4 High Efficiency HVAC (Central AC and heat pump rebates)

5 Quality Installation & Verification (QIV) (HVAC Equipment tune-up)

6 Residential New Construction (incentives for building a green home)

7 Other *[PLEASE SPECIFY]*

D Don't know *[WHAT DID THE PROGRAM DO?]*

R Refused

E3 Have you seen any news stories or information in the media about a new Home Energy Report Program that CL&P and the Connecticut Energy Efficiency Fund are sponsoring to help customers save money on their electricity bills in 2011?

1 Yes *[SKIP TO E3A]*

2 No *[SKIP TO E4]*

D Don't know *[SKIP TO E4]*

R Refused *[SKIP TO E4]*

E3A Where did you see the story or information in the media about the Home Energy Program?

[DO NOT READ]

1 Newspaper

2 CL&P Website

3 Other *[SPECIFY]*

D Don't know

R Refused

E4 Do you recall if your household has received any information in the mail about energy efficiency from Connecticut Light & Power in the last 3 months, that is since January 2011? *[SELECT ONE]*

1 Yes *[CAN YOU DESCRIBE WHAT THE INFORMATION WAS ABOUT?]*

2 No

D Don't know / Can't remember

R Refused

E5 Have you logged onto the CL&P website to look for energy efficiency information or identify strategies to save energy in your home in the last three months, that is since January 1, 2011?

1 Yes

2 No

D Don't know

R Refused

E6 Do members of your household get together informally from time to time to talk about things you can do to save energy?

1 Yes

2 No

D Don't know

R Refused

E7 Has your household developed a plan for reducing the amount of energy you use?

1 Yes

2 No

D Don't know

R Refused

E8 Has your household set a goal for how much energy you want to save this year?

1 Yes

2 No

D Don't know

R Refused

E9 Now, thinking about all of the things you could do in your household to conserve energy, would you say you have done – everything you can think of, most things, a few things, or nothing? (Select one)

1 Everything you can think of

2 Most things

3 A few things

4 Nothing

D Don't know

R Refused

Section 1: Experience with the CL&P and Statewide Programs (Non-Participants)

NPE1 Has your household participated in any energy efficiency programs designed to save energy at your home? *[SELECT ONE]*

[IF NEEDED: *FOR EXAMPLE YOU MAY HAVE RECEIVED A HOME ENERGY ASSESSMENT TO IDENTIFY WAYS TO REDUCE YOUR ENERGY USE OR PURCHASED AN EFFICIENT APPLIANCE USING A REBATE]*

1 Yes

2 No

D Don't know

R Refused

NPE2 *[IF YES TO E1]* Which program or programs have you participated in?

[DO NOT READ] [SELECT ALL THAT APPLY]

1 Home Energy Solutions (in-home energy assessment and services)

2 ENERGY STAR Retail Products (appliance and lighting rebates)

3 Smart Living Catalog (various small measures at a discount)

4 High Efficiency HVAC (Central AC and heat pump rebates)

5 Quality Installation & Verification (QIV) (HVAC Equipment tune-up)

6 Residential New Construction (incentives for building a green home)

7 Other *[PLEASE SPECIFY]*

D Don't know *[WHAT DID THE PROGRAM DO?]*

R Refused

NPE3 Have you seen any news stories or information in the media about a new Home Energy Reports Program that CL&P and the Connecticut Energy Efficiency Fund are sponsoring to help customers save money on their electricity bills in 2011?

1 Yes *[SKIP TO NPE3A]*

2 No *[SKIP TO NPE4]*

D Don't know *[SKIP TO NPE4]*

R Refused *[SKIP TO NPE4]*

NPE3A Where did you see the story or information in the media about the Home Energy Reporting Pilot Program? *[DO NOT READ]*

1 Newspaper

2 CL&P website

3 Other *[SPECIFY]*

D Don't know

R Refused

NPE4 Have you gone to the CL&P website to look for energy efficiency information or identify strategies to save energy in your home in the last 3 months, that is since January 1, 2011?

1 Yes

2 No

D Don't know

R Refused

NPE5 *[IF NPE3 = 1]* When you saw the story about the Home Energy Reports Program, did you try to log on to the CL&P website to find out more about the program?

1 Yes

2 No

D Don't know

R Refused

NPE6 Do members of your household get together informally from time to time to talk about things you can do to save energy?

1 Yes

2 No

D Don't know

R Refused

NPE7 Has your household developed a plan for reducing the amount of energy you use?

1 Yes

2 No

D Don't know

R Refused

NPE8 Has your household set a goal for how much energy you want to save this year?

1 Yes

2 No

D Don't know

R Refused

NPE9 Now, thinking about all of the things you could do in your household to conserve energy, would you say you have done – everything you can think of, most things, a few things, or nothing? *[SELECT ONE]*

1 Everything you can think of

2 Most things

3 A few things

4 Nothing

D Don't know

R Refused

Section 2: General Household Energy Use

Now, I would like to ask you about how you use some of the appliances that you currently have in your household.

G1 Do you have central air conditioning in your household? *[SELECT ONE]*

1 Yes

2 No

D Don't know

R Refused

[IF G1 = 1, ASK G2. IF G1 = 2, SKIP TO G3]

G2 Have you programmed your air conditioner thermostat to adjust the temperature setting in your house for different times of the day or different days of the week?

1 Yes

2 No

3 N/A – only run A/C when the temperature warrants

D Don't know

R Refused

[IF G2 = 2, SKIP TO G2C]

G2A *[IF G2 = 1]* What is the daytime setting for the main areas of the house during the cooling season?

_____ Degrees F

G2B *[IF G2 = 1]* What is the nighttime temperature setting for the main areas of the house during the cooling season?

_____ Degrees F

G2C *[IF G2 = 2]* What is your typical air conditioner setting for daytime during the cooling season?

_____ Degrees F

G3 *[IF G1 = 2]* Do you use any window or "through the wall" air conditioners?

1 Yes

2 No

D Don't know

R Refused

G3A *[IF G3 = 1]* How many window or through the wall air conditioners do you use?

_____ Window air conditioners

What is the primary fuel that you use for heating? (Select one)

1 Electricity

2 Gas

3 Oil

4 Propane

5 Wood *[SKIP TO G8]*

6 Other *[PLEASE SPECIFY]*

D Don't know

R Refused

G5 Do you have a programmable thermostat for your furnace or primary heating system?

1 Yes

2 No *[SKIP TO G7]*

D Don't know *[SKIP TO G7]*

R Refused *[SKIP TO G7]*

G6 Have you programmed your thermostat to adjust the temperature setting in your house for different times of the day or different days of the week?

1 Yes

2 No *[SKIP TO G6C]*

D Don't know

R Refused

G6A *[IF G6 = 1]* What is the daytime setting for the main areas of the house for the heating season?

_____ Degrees F

G6B *[IF G6 = 1]* What is the nighttime temperature setting for the main areas of the house for the heating season?

_____ Degrees F

G6C *[IF G6 = 2]* What is the usual temperature setting in the house when you're heating?

_____ Degrees F

G7 Does your primary space heating system allow you to use different temperature settings in different zones in your residence?

[IF NEEDED: ZONE HEATING USES THERMOSTATS OR SETTINGS THAT CONTROL JUST ONE OR A FEW ROOMS, RATHER THAN THE WHOLE HOUSE. YOU MAY CALL IT SECTIONED OR DIVIDED HEATING AS WELL.]

1 Yes

2 No *[SKIP TO G7B]*

D Don't know *[SKIP TO G7B]*

R Refused *[SKIP TO G7B]*

G7A *[IF G7 = 1]* Do you have different temperature settings in different areas of your house during the daytime, as well as nighttime?

1 Yes

2 No

D Don't know

R Refused

G7B *[IF G7 = 2] [IF G6 =2, SKIP] [IF G6A > 0, OR G6C > 0, SKIP]* What is your usual temperature setting in the house for heating?

_____ Degrees F

G8 Do you use any portable electric space heaters during the heating season?

1 Yes

2 No *[SKIP TO G9]*

D Don't know *[SKIP TO G9]*

R Refused *[SKIP TO G9]*

G8A *[IF G8 = 1]* How many portable electric heaters are typically used during the heating season?

_____ Portable electric space heaters

G9 Do you use any ceiling fans in your residence?

1 Yes

2 No *[SKIP TO G10]*

D Don't know *[SKIP TO G10]*

R Refused *[SKIP TO G10]*

G9A *[IF G9 = 1]* Do you reverse the direction of the ceiling fans in the winter?

1 Yes

2 No

D Don't know

R Refused

G10 Do you have a pool at your residence?

1 Yes

2 No

D Don't know

R Refused

G10A Do you have a spa, hot tub, or whirlpool at your residence?

1 Yes

2 No

D Don't know

R Refused

G10B *[IF G10A = 1]* Have you reduced the temperature setting for your spa, hot tub or whirlpool heater to save energy?

1 Yes

2 No

D Don't know

R Refused

G10C *[IF G10 = 1]* Have you reduced the run time for your pool pump to save energy?

1 Yes

2 No

D Don't know

R Refused

G10D *[IF G10 = 1]* Have you reduced the temperature setting for your pool heater to save energy?

1 Yes

2 No

D Don't know

R Refused

Section 3: Energy Use Behaviors

U1 *[IF VER = 1]* We often find that people have not done things to reduce energy use in their homes. They aren't sure how to do them, they don't have the right tools, or they just haven't had the time. For each of the following activities, please tell me if you have done this in your home in the last six months, that is since September 2010:

[IF E5 = 1 OR NPE5 = 1, SHOW "BUT BEFORE YOU VISITED THE CL&P WEBSITE IN 2011?"]

OR

[IF VER = 2] I am going to read you a list of energy-saving activities. For each activity please tell me if you have done this in your home in the last six months, that is since September 2010

[IF E5 = 1 OR NPE5 = 1, SHOW "BUT BEFORE YOU VISITED THE CL&P WEBSITE IN 2011?"]

U1A Turned down your thermostat when the fireplace is in use to avoid losing heat.

1 Yes

2 No

D Don't know/ N/A

R Refused

U1B Blocked drafts of cold air around doors or windows.

1 Yes

2 No

D Don't know/ N/A

R Refused

U1C Ensured the area around heating and cooling vents is clear to increase airflow.

1 Yes

2 No

D Don't know/ N/A

R Refused

U1D Turned down the temperature setting on your water heater.

1 Yes

2 No

D Don't know/ N/A

R Refused

U1E Turned down the water heater temperature when gone for a few days or more.

1 Yes

2 No

D Don't know/ N/A

R Refused

U1F Cleaned the coils in the back of your primary refrigerator in the last 6 months.

1 Yes

2 No

D Don't know/ N/A

R Refused

U1in2 OK, now please tell me if you have done any of the following in the last 3 years, that is since Winter 2008:

[IF E5 = 1 OR NPE5 = 1, SHOW "BUT BEFORE YOU VISITED THE CL&P WEBSITE IN 2011?"]

U1G Reduced the brightness of your TV screen from the factory setting.

1 Yes

2 No

D Don't know/ N/A

R Refused

U1H Installed task lighting to use in place of overhead lighting.

[IF NEEDED: TASK LIGHTING FOCUSES LIGHT ON A PARTICULAR AREA WHERE SOME TASK IS BEING PERFORMED, SUCH AS A DESK LAMP, A READING LAMP IN THE LIVING ROOM, OR UNDER THE COUNTER TO LIGHT THE KITCHEN, RATHER THAN OVERHEAD LIGHTING THAT ILLUMINATES AN ENTIRE ROOM.]

1 Yes

2 No

D Don't know/ N/A

R Refused

U1I Installed new energy efficient windows.

1 Yes

2 No

D Don't know/ N/A

R Refused

U1J Raised the temperature of your refrigerator or freezer.

1 Yes

2 No

D Don't know/ N/A

R Refused

U1K Unplugged or removed a second refrigerator that was not in use at the time.

1 Yes

2 No

D Don't know/ N/A

R Refused

U1L Unplugged the ice maker on your primary refrigerator.

1 Yes

2 No

D Don't know/ N/A

R Refused

U1M Installed weather-stripping around doors and windows.

1 Yes

2 No

D Don't know/ N/A

R Refused

U2 How often do you power off computers in your household when you are not using them? *[SELECT ONE]*

1 Every night/day

2 Almost every night or most of the time

3 Sometimes

4 Rarely or never

D Don't know / Can't say

R Refused

U3 How often do you power off external computer speakers and other electronic equipment in your household when you are not using them? *[SELECT ONE]*

1 Every night/day

2 Almost always or most of the time

3 Sometimes

4 Rarely or never

D Don't know / Can't say

R Refused

U4 How often do you unplug chargers, such as cell phone chargers or laptop power cables, when you are not using them? *[SELECT ONE]*

1 Every night/day

2 Almost always or most of the time

3 Sometimes

4 Rarely or never

D Don't know / Can't say

R Refused

U5 *[IF VER = 1]* We often hear that it is difficult to get everyone in a household to remember to do the everyday things that could reduce their energy use. Many people just never get into the habit of doing these things. For each of the following habits, please tell me if the people in your household have done this "Always or most times," "Some of the time," or "Rarely or never" during the last six months

[IF E5 = 1 OR NPE5 = 1, SHOW "BUT BEFORE YOU VISITED THE CL&P WEBSITE IN 2011?"]

OR

[IF VER = 2] For each of the following, please tell me how often this happens in your household during the last six months – did it happen "Always or most times,' "Some of the time," or "Rarely or never."

[IF E5 = 1 OR NPE5 = 1, SHOW "BUT BEFORE YOU VISITED THE CL&P WEBSITE IN 2011?"]

U5A Make sure computer goes into sleep mode when not in use.

1 Always or most times

2 Some of the time

3 Rarely or never

D Don't know/ N/A

R Refused

U5B Turn off lights when you leave the room.

1 Always or most times

2 Some of the time

3 Rarely or never

D Don't know/ N/A

R Refused

U5C Wait to run dishwasher until it is full.

1 Always or most times

2 Some of the time

3 Rarely or never

D Don't know/ N/A

R Refused

U5D Wait to run clothes washer until it is full.

1 Always or most times

2 Some of the time

3 Rarely or never

D Don't know/ N/A

R Refused

U5E Wait to run clothes dryer until it is full.

1 Always or most times

2 Some of the time

3 Rarely or never

D Don't know/ N/A

R Refused

U5F Wash clothes in cold water.

1 Always or most times

2 Some of the time

3 Rarely or never

D Don't know/ N/A

R Refused

U5G Hang laundry instead of using clothes dryer.

1 Always or most times

2 Some of the time

3 Rarely or never

D Don't know/ N/A

R Refused

U5H Limit showers to 5 minutes or less.

1 Always or most times

2 Some of the time

3 Rarely or never

D Don't know/ N/A

R Refused

U5I Pull down blinds or cover windows during the day in the summer.

1 Always or most times

2 Some of the time

3 Rarely or never

D Don't know/ N/A

R Refused

U5K Lower the heat temperature setting when you leave the house.

1 Always or most times

2 Some of the time

3 Rarely or never

D Don't know/ N/A

R Refused

U5L Close the flue or damper on your fireplace when not in use.

1 Always or most times

2 Some of the time

3 Rarely or never

D Don't know/ N/A

R Refused

Section 4: Household and Respondent Characteristics

In this last section, I would like to ask you a few questions about yourself and your household. All of your responses will be kept completely confidential.

D1 Including yourself, how many people currently live in your home year-round?

_____ People living in home year-round

D Don't know

R Refused

D2 *[IF D1 = 1]* Which of the following best describes your age? *[READ LIST]*

1 Less than 18 years old

2 18-24 years old

3 25-34 years old

4 35-44 years old

5 45-54 years old

6 55-64 years old

7 65 or older

D Don't know

R Refused

D2_A *[IF D1 > 1]* Including yourself, how many people currently living in your home year-round are in the following age groups? *[READ CATEGORIES]*

_____ Less than 18 years old

_____ 18-24 years old

_____ 25-34 years old

_____ 35-44 years old

_____ 45-54 years old

_____ 55-64 years old

_____ 65 or older

D3 Do you own or rent your current residence? *[SELECT ONE]*

1 Own

2 Rent

D Don't know

R Refused

D4 What type of residence do you live in? *[READ CATEGORIES] [SELECT ONE]*

1 Single family residence

2 Duplex or two family residence

3 Apartment or condo with 2-4 units/families

4 Apartment or condo with more than 4 units/families

5 Townhouse

6 Mobile home

7 Other (specify)

D Don't know

R Refused

Does your home have: *[READ CATEGORIES, SELECT ALL THAT APPLY]*

1 Electric dryer

2 Electric hot water heater

3 Electric stove or range

4 Hot tub

5 None

D Don't know

R Refused

D6 In approximately what year was your house built? *[READ CATEGORIES] [SELECT ONE]*

1 Before 1900

2 1900 to 1930

3 1931 to 1950

4 1951 to 1970

5 1971 to 1990

6 1991 to present

D Don't know

R Refused

D7 How many bedrooms are in your house?

_____ Total bedrooms

D Don't know

R Refused

D8 What is the highest level of education you have completed? [Read categories] (Select one)

0 No schooling

1 Less than high school

2 Some high school

3 High school graduate or equivalent (e.g., GED)

4 Trade or technical school

5 Some college

6 College graduate degree

7 Some graduate school

8 Graduate degree

9 Other (specify)

D Don't know

R Refused

D9 Which of the following best represents your annual household income from all sources in 2010, before taxes? Was it…? [Read categories 1-7] (Select one)

1 Less than $20,000 per year

2 $20,000 - $50,000

3 $50,000 - $75,000

4 $75,000 - $100,000

5 $100,000 - $150,000

6 $150,000 - $200,000

7 $200,000 or more

D Don't know

R Refused

D10 Respondent gender: [DO NOT READ] Is respondent male or female?

1 Female

2 Male

D.2 Follow-up Survey Questionnaire

SURVEY OBJECTIVES:

- Participant recall, readership, and evaluation (engagement, usefulness) of Home Energy Reports
- Participant use of CL&P Home Energy Reports website and general CL&P website
- Actions participants and non-participants have taken
- Participant satisfaction with HER Program and suggestions for improvement
- Participant and non-participant household and respondent characteristics

SURVEY GROUPS:

- Participants
  - Monthly (receives monthly reports)
  - Quarterly (receives quarterly reports)
- Non Participants

Introduction to HER Follow Up Telephone Survey

Hello, my name is [interviewer name], and I'm calling on behalf of Connecticut Light and Power. May I speak with [named respondent]?

1 Yes

2 No [If named respondent is not available: ask for another adult who is most involved in managing their household's energy use]

I'm with Tetra Tech, an independent research firm. We are talking with customers of Connecticut Light and Power to understand their views on energy use and conservation. You may have received a letter regarding this. I'm not selling anything; I'd just like to briefly talk about your household's energy use. Your responses will be kept confidential and your name will not be revealed to anyone. For quality assurance, these calls are recorded.

(Why are you conducting this study?) Studies like this will help Connecticut Light and Power better understand customers' needs and to design their energy conservation programs accordingly.

(How did you get my name or number?) Your name and phone number were provided by Connecticut Light and Power. You were one of 600 customers randomly selected for this study.

(How long will this call take?) This survey should take about [10 minutes/15 minutes]. IF THIS IS NOT A GOOD TIME, SET UP A CALL BACK APPOINTMENT OR OFFER TO LET THEM CALL US BACK AT 1-800-454-5070.

(Are you trying to sell me something?) This is not a sales call; we would simply like to learn about your household's experiences with energy use and conservation. Your responses will be

kept confidential. If you would like to talk with someone at Connecticut Light and Power regarding this work, please call Customer Service Center at 1-800-286-2000 or 860-947-2000 for the Hartford, Meriden area.

Recall, Readership, and Evaluation of Home Energy Reports

[IF NON PARTICIPANT, SKIP TO EINT]

A1 Our records indicate that you [are currently receiving Home Energy Reports through a Program sponsored by Connecticut Light and Power and the Connecticut Energy Efficiency Board. Is that correct? [SELECT ONE]

1 Yes [SKIP TO A2]

2 No

A1A You would have received a letter in January or February, as well as a report [each month/every three months] telling you about your electricity consumption. Do you remember receiving the letter and the monthly Home Energy Reports? [SELECT ONE]

1 Yes

2 No [Thank and terminate]

A2 The Home Energy Reports Program [provides/provided] a [monthly/quarterly] report from Connecticut Light and Power showing your household's energy use and a comparison with some of your neighbors. Do you remember receiving any of these reports since January 2011? [SELECT ONE]

1 Yes

2 No [SKIP TO B6]

D Don't know [SKIP TO B6]

R Refused [SKIP TO B6]

A3 When you receive the Home Energy Report in the mail, which of the following most accurately reflects what you personally do with the report? [READ LIST, SELECT ONE]

1 No one reads it - we ignore it [SKIP TO A10]

2 Someone skims it or just glances at it quickly

3 Someone reads certain parts of the report

4 Someone reads the whole report

D [Do not read] Don't know

R [Do not read] Refused

A4 What types of information, if any, do you remember from the Home Energy Reports for your household? [DO NOT READ, SELECT ALL THAT APPLY. PROBE WITH "ANYTHING ELSE?" UNTIL R SAYS "NO"]

1 None - don't remember any information from report

2 Neighbor comparison [PROBE: “IS THAT LAST MONTH'S NEIGHBOR COMPARISON

OR THE 12 MONTH COMPARISON?” RECORD VERBATIM]

3 How you are doing - Smiley faces and label "Great, Good, Average"

4 Amount of annual savings/extra cost compared to neighbors

5 Your rank out of 100 neighbors

6 Energy-savings tips

7 Other [SPECIFY]

D Don't know

R Refused

A5 What information, if any, from the Home Energy Reports do you find is most useful for your household? [DO NOT READ, SELECT ALL THAT APPLY]

1 None - don't remember any information from report

2 Neighbor comparison [PROBE: “IS THAT LAST MONTH'S NEIGHBOR COMPARISON

OR THE 12 MONTH COMPARISON?” RECORD VERBATIM]

3 How you are doing - Smiley faces and label "Great, Good, Average"

4 Amount of annual savings/extra cost compared to neighbors

5 Your rank out of 100 neighbors

6 Energy-savings tips

7 Other [SPECIFY]

D Don't know

R Refused

A6 How easy is it to understand the information that is presented in the Home Energy Report? Would you say it is: [READ LIST, SELECT ONE]

1 Very easy to understand

2 Somewhat easy to understand

3 Somewhat difficult to understand

4 Very difficult to understand

D [Do not read] Don't know

R [Do not read] Refused

A7 [Skip if A4=2 or A5=2] Do you recall seeing a comparison of your household's electricity use compared to a group of your neighbors in your Home Energy Reports? [SELECT ONE]

1 Yes

2 No [SKIP TO A10]

D Don't know

R Refused

A8 How useful do you find the comparison of your household's electricity consumption with a group of your neighbors? Would say this comparison is: [READ LIST, SELECT ONE]

1 Very useful

2 Somewhat useful

3 Not very useful

4 Not at all useful

D [Do not read] Don't know

R [Do not read] Refused

A9 [IF A8=3 or A8=4] Why do you say that? [OPEN-END RECORD VERBATIM]

A10 Overall, would you say the Home Energy Report is useful or not useful for your household? [PAUSE, PROBE IF NECESSARY] Would you say the report is: [READ LIST, SELECT ONE]

1 Very useful

2 Somewhat useful

3 Not very useful

4 Not at all useful

D [Do not read] Don't know

R [Do not read] Refused

A11 Why do you say that? [OPEN-END RECORD VERBATIM]

Use of CL&P Home Energy Reports Website and General CL&P Website

B1 Do you remember seeing a link to a website on your Home Energy Report where you can find additional information about your energy use and energy efficiency tips and set up an online account to track your progress in saving energy? [SELECT ONE]

1 Yes

2 No [SKIP TO B6]

B2 Have you visited the website *clpenergyreports.com*, using the link that is shown on your Home Energy Reports? [SELECT ONE]

1 Yes

2 No Why have you not visited the website? [OPEN-END RECORD VERBATIM – And SKIP TO B6]

D Don’t know [SKIP TO B6]

R Refused [SKIP TO B6]

B3 How easy or difficult was the website to use? Would you say it was: [READ LIST, SELECT ONE]

1 Very easy to use

2 Somewhat easy to use

3 Somewhat difficult to use

4 Very difficult to use

D [Do not read] Don't know

R [Do not read] Refused

B4 How helpful was the information available at this website? Would you say it was: [READ LIST, SELECT ONE]

1 Very helpful

2 Somewhat helpful

3 Somewhat unhelpful

4 Very unhelpful

D [Do not read] Don't know

R [Do not read] Refused

B5 Have you set up an online account for the Home Energy Reports Program, at the website *clpenergyreports.com*? [SELECT ONE]

1 Yes

2 No [Why have you not to set up an online account for the program?] [OPEN-END RECORD VERBATIM

D Don’t know

R Refused

B6 Have you visited the general CL&P website *cl-p.com* to look for energy efficiency information or identify strategies to save energy in your home since January, 2011? [SELECT ONE]

1 Yes

2 No [SKIP TO C1]

B6A About how often have you logged on to the CL&P website to look for energy efficiency information of energy-savings tips since January, 2011? [READ LIST, SELECT ONE]

1 Only once

2 Less than once a month

3 Monthly

4 More than once a month

D [Do not read] Don't know

R [Do not read] Refused

B7 How easy or difficult was the website to use? Would you say it was: [READ LIST, SELECT ONE]

1 Very easy to use

2 Somewhat easy to use

3 Somewhat difficult to use

4 Very difficult to use

D [Do not read] Don't know

R [Do not read] Refused

B8 How helpful was the information available at this website for your household? Was it: [READ LIST, SELECT ONE]

1 Very helpful

2 Somewhat helpful

3 Somewhat unhelpful

4 Very unhelpful

D [Do not read] Don't know

R [Do not read] Refused

[SKIP TO E1INT IF A2=No, Don’t know, or Refused]

Satisfaction with HER Program and Suggestions for Improvement

C1 Now I'd like to ask you about your experience with the program overall. So far, has the Home Energy Reports program helped your household reduce your electricity use? Would you say: [READ LIST, SELECT ONE]

1 Definitely yes

2 Probably yes

3 Probably no

4 Definitely no

D [Do not read] Don't know

R [Do not read] Refused

C2 If the Home Energy Reports were available to all CL&P customers, how likely is it that you would recommend them to a friend or colleague? Would you say you are: [READ LIST, SELECT ONE]

1 Very likely

2 Somewhat likely

3 Somewhat unlikely

4 Very unlikely

D [Do not read] Don't know

R [Do not read] Refused

C3 Overall, on a scale from 1 to 5, where 1 equals Very Unsatisfied and 5 equals Very Satisfied, how satisfied are you with your household's participation in the Home Energy Report Program? [SELECT ONE]

1 Very unsatisfied

2

3

4

5 Very satisfied

D Don't know

R Refused

C4 What, if anything, would you like to see in the overall Home Energy Reports Program to make it more useful for your household? [OPEN-END RECORD VERBATIM]

C5 Has anyone in your household called the CL&P Customer Service with a question or concern about the Home Energy Reports Program since you began receiving them? [SELECT ONE]

1 Yes

2 No [SKIP TO E1]

D Don't know [SKIP TO E1]

R Refused [SKIP TO E1]

C6 What was discussed with CL&P Customer Service regarding the Home Energy Reports Program? [OPEN-END – RECORD VERBATIM]

Actions Participants / Non Participants Taken or Anticipate Taking

EINT [IF PARTICIPANT SKIP TO E1] I would like to begin by asking you a few questions about how your household thinks about and uses energy.

E1 Do members of your household get together informally from time to time to talk about things you can do to save energy? [SELECT ONE]

1 Yes

2 No

D Don't know

R Refused

E2 Has your household developed a plan for reducing the amount of energy you use? [SELECT ONE]

1 Yes

2 No

D Don't know

R Refused

E3 Has your household set a goal for how much energy you want to save this year? [SELECT ONE]

1 Yes

2 No

D Don't know

R Refused

E4 Now, thinking about all of the things you could do in your household to conserve energy, would you say you have done – everything you can think of, most things, a few things, or nothing? [SELECT ONE]

1 Everything you can think of

2 Most things

3 A few things

4 Nothing

D Don't know

R Refused

E5 [If E4 = 2, 3, 4, D] What are the main reasons that keep your household from making even more energy efficiency actions or changes in energy use? [DO NOT READ, SELECT ALL THAT APPLY. PROBE WITH "ANYTHING ELSE?" UNTIL R SAYS "NO"]

1 Money

2 Time

3 Knowledge – don't know what else to do

4 Capability – don't know how to do other things

5 Need to hire someone to do other things

D Don't know

R Refused

E6 We often find that people have not done things to reduce energy use in their homes. They aren't sure how to do them, they don't have the right tools, or they just haven't had the time. For each of the following activities, please tell me if you have done this in your home in the last eight months; that is since February 2011?

OR

I am going to read you a list of energy-saving activities. For each activity please tell me if you have done this in your home in the last eight months, that is since February 2011?

Activity	Yes	No	DK/ NA
Improved your home's insulation in the walls, floors or the roof	□	□	□
Improved window shading to reduce heat from sun in summer months	□	□	□
Checked to ensure a tight seal around window air conditioners	□	□	□
Installed an ENERGY STAR qualified central air conditioner	□	□	□
Cleaned the area around the outside condenser of your central air conditioner	□	□	□
Cleaned the condenser coils on the back of your refrigerator	□	□	□
Installed energy efficient lighting fixtures	□	□	□
Recycled your older second refrigerator	□	□	□
Installed a programmable thermostat in your home	□	□	□
Installed solar outdoor lights	□	□	□
Purchased an energy efficient clothes washer	□	□	□
Checked the seals on your refrigerator or freezer door	□	□	□

E7 How often do you unplug your cable or satellite set-top boxes? [READ LIST, SELECT ONE]

1 Every night/day

2 Almost every night or most of the time

3 Sometimes

4 Rarely or never

D Don’t know / Can’t say

E8 How often do you unplug electronic devices such as stereos and chargers when not in use? [READ LIST, SELECT ONE]

1 Every night/day

2 Almost every night or most of the time

3 Sometimes

4 Rarely or never

D Don’t know / Can’t say

E9 How often do you turn off your computer at night? [READ LIST, SELECT ONE]

1 Every night/day

2 Almost every night or most of the time

3 Sometimes

4 Rarely or never

D Don't know / Can't say

E10 We often hear that it is difficult to get everyone in a household to remember to do the everyday things that could reduce their energy use. Many people just never get into the habit of doing these things. For each of the following habits, please tell me if the people in your household have done this "Always or most times," "Some of the time," or "Rarely or never" during the last eight months.

OR

For each of the following, please tell me how often this happens in your household during the last six months – did it happen "Always or most times,' "Some of the time," or "Rarely or never."

Habits	**Always/ Most times**	**Some of the time**	**Rarely/ Never**	**DK/ NA**
Use fans for cooling targeted areas	□	□	□	□
Hang your laundry to dry	□	□	□	□
Reduce hot water use when using your dishwasher (e.g., run full loads, air dry, or pre-wipe dishes)	□	□	□	□
Have annual maintenance tune ups for your central air conditioner	□	□	□	□
Turn off lights when you leave a room	□	□	□	□
Raise your thermostat setting in the summer	□	□	□	□
Use direct lighting for work spaces	□	□	□	□
Put in compact fluorescent bulbs when replacing light bulbs	□	□	□	□
Monthly clean or replace filters for your HVAC system	□	□	□	□
Place your computer in sleep mode when not in use	□	□	□	□

Bill Awareness

[INTRO]: These next questions ask you about your monthly [CL&P/UI] electric bill, [SHOW FOR PARTICIPANTS ONLY: "not the Home Energy Reports you have been receiving".]

BILL1 Do you receive a paper copy of your [CL&P/UI] bill each month or have you elected to receive your bill electronically each month?

1 Paper Copy

2 Electronic Bill [SKIP TO BILL6]

D Don't know

R Refused

BILL2 On your monthly CL&P bill, do you recall seeing any information about your household's electricity use, other than the meter readings, the various charges, and the total amount you owe for the previous month's electricity use?

1 Yes

2 No

D Don't know

R Refused

BILL2A What information you remember seeing on your monthly CL&P bill?

[OPEN END]

BILL3 On your monthly CL&P electric bill, do you recall seeing a small graph on the top left side of the second page that shows how much electricity you used last month and the previous 12 months?

1 Yes

2 No [SKIP TO DINTRO]

D Don't know [SKIP TO DINTRO]

R Refused [SKIP TO DINTRO]

BILL4 How often do you look at the graph on the top left of the second page of your CL&P bill showing the amount of electricity you used during the last month and the previous months? Would you say you look at this graph every month, most months, only some months, rarely, or never?

1 Every month

2 Most months

3 Only some months

4 Rarely

5 Never

D Don't know

R Refused

BILL5 [IF BILL4 = 1,2,OR 3] Why do you read this graph (INSERT FREQUENCY – every month, most months, or some months)?

[DO NOT READ RESPONSE CATEGORIES, SELECT ALL THAT APPLY.]

1 To keep track of my electric usage

2 I want to see if my electric usage changes

3 I already know my electricity usage

4 Graph is difficult to understand

5 Other [SPECIFY]

6 Don't know

7 Refused

[PAPER COPY USERS SKIP TO DINTRO]

BILL6 When viewing your electronic bill, do you recall seeing any information about your household's electricity use, other than the meter readings, the various charges, and the total amount you owe for the previous month's electricity use?

1 Yes

2 No

D Don't know

R Refused

BILL6A What information you remember seeing on your monthly CL&P bill?

[OPEN END]

BILL7 On your monthly electronic CL&P electric bill, do you recall seeing a small graph that shows how much electricity you used last month and the previous 12 months?

1 Yes

2 No [SKIP TO DINTRO]

D Don't know [SKIP TO DINTRO]

R Refused [SKIP TO DINTRO]

BILL8 How often do you look at the graph showing the amount of electricity you used during the last month and the previous months? Would you say you look at this graph every month, most months, only some months, rarely, or never?

1 Every month

2 Most months

3 Only some months

4 Rarely [SKIP TO DINTRO]

5 Never [SKIP TO DINTRO]

D Don't know [SKIP TO DINTRO]

R Refused [SKIP TO DINTRO]

BILL9 [IF BILL8 = 1,2,OR 3] Why do you read this graph (INSERT FREQUENCY – every month, most months, or some months)?

[DO NOT READ RESPONSE CATEGORIES, SELECT ALL THAT APPLY.]

1 To keep track of my electric usage

2 I want to see if my electric usage changes

3 I already know my electricity usage

4 Graph is difficult to understand

5 Other [SPECIFY]

6 Don't know

7 Refused

Household and Respondent Characteristics

In this last section, I would like to ask you a few questions about yourself and your household. All of your responses will be kept completely confidential.

D1 Including yourself, how many people currently live in your home year-round?

_____ People living in home year-round

D Don't know

R Refused

D2 [IF D1=1] Which of the following best describes your age? [READ LIST, SELECT ONE]

1 Less than 18 years old

2 18-24 years old

3 25-34 years old

4 35-44 years old

5 45-54 years old

6 55-64 years old

7 65 or older

D [Do not read] Don't know

R [Do not read] Refused

D2A [IF D1 > 1] Including yourself, how many people currently living in your home year-round are in the following age groups? [READ LIST, SELECT ONE]

_____ Less than 18 years old

_____ 18-24 years old

_____ 25-34 years old

_____ 35-44 years old

_____ 45-54 years old

_____ 55-64 years old

_____ 65 or older

D3 Do you own or rent your current residence? [SELECT ONE]

1 Own

2 Rent

D Don’t know

R Refused

D4 What type of residence do you live in? [READ LIST, SELECT ONE]

1 Single family residence

2 Duplex or two family residence

3 Apartment or condo with 2-4 units/families

4 Apartment or condo with more than 4 units/families

5 Townhouse

6 Mobile home

7 Other [Specify]

D [Do not read] Don't know

R [Do not read] Refused

D5 Does your home have: [READ LIST, SELECT ALL THAT APPLY]

1 Electric heating

2 Electric dryer

3 Electric hot water heater

4 Electric stove or range

5 Hot tub

D [Do not read] Don't know

R [Do not read] Refused

D6 In approximately what year was your house built? [READ LIST, SELECT ONE]

1 Before 1900

2 1900 to 1930

3 1931 to 1950

4 1951 to 1970

5 1971 to 1990

6 1991 to present

D [Do not read] Don't know

R [Do not read] Refused

D7 How many bedrooms are in your house?

_____ Total bedrooms

D Don’t know

R Refused

D8 What is the highest level of education you have completed? [READ LIST, SELECT ONE]

1 Less than high school

2 Some high school

3 High school graduate or equivalent (e.g., GED)

4 Trade or technical school

5 Some college

6 College graduate degree

7 Some graduate school

8 Graduate degree

9 Other

D [Do not read] Don't know

R [Do not read] Refused

D9 Which of the following best represents your annual household income from all sources in 2010, before taxes? Was it…? [READ LIST, SELECT ONE]

1 Less than $20,000 per year

2 $20,000 - $50,000

3 $50,000 - $75,000

4 $75,000 - $100,000

5 $100,000 - $150,000

6 $150,000 - $200,000

7 $200,000 or more

D [Do not read] Don't know

R [Do not read] Refused

D10 [DO NOT READ] Is respondent male or female?

1 Female

2 Male

[Thank you, those are all the questions I have today]

D.3 Focus Group Discussion Guide

CL&P 2012 Home Energy Report Pilot Program Focus Group Guide

[Note: In this document, we use HER to refer to Home Energy Reports. During the discussion, the full name will be used. This document not meant to be read verbatim, but to serve as guide to the discussion. Moderator will bring copies of a Home Energy Report to handout to participants for discussion]

I. Moderator Introduction (5 minutes)

Welcome & Brief Introduction: Welcome….As you may remember from the invitation call, CL&P and the Connecticut Energy Efficiency Board are interested in your feedback from the Home Energy Reports (the "Reports") you have been receiving over the past year.

Confidentiality: The results of the discussion will be aggregated with results from other focus group discussions to develop a report for CL&P and the Connecticut Energy Efficiency Board. Specific names will not be attributed to any comments made and results from this group will be included with results from other groups in the report, so what you tell me tonight will remain confidential.

No Right or Wrong Answers: There are not any 'right' or 'wrong' answers for the questions we will discuss tonight. I don't work for CL&P or the EEB, so nothing you say will hurt my feelings or make me feel better. I want to get your honest responses to the questions I ask during this discussion. If you have a different opinion than someone else in the group, I want to hear it. I want to hear the full range of opinions and there is no need to reach an agreement or a consensus for any of the questions.

Recording: We will record the session (audio and video), but let me assure you it will be used only for internal purposes. I do have [NUMBER] colleagues (indicate behind the glass) who will be listening in and taking notes. This is to help us capture all your input.

Rules: Please talk one at a time. When more than one person is talking, we can't get all of the information you are providing. We want to hear from everyone, so I might ask you to hold that idea for a moment, so I can hear from someone else. Please be patient and we will give you a chance to say whatever you have to contribute. Please mute cell phones. The discussion will last about 90 minutes.

Participant HERs: If you brought your own Home Energy Report, please put them away for the entire discussion tonight.

Logistics: Availability of refreshments and food; directions to restrooms, any questions before we begin?

II. Participant Warm-up (5 minutes)

1. As we go around the table, please introduce yourself (identify your occupation, and the number of people who live in your household).

III. Customer Awareness of Pilot Program, Design, and Materials (10 minutes)

A. Initial Awareness and First HERs

1. Think back, when did you first become aware that you were receiving Home Energy Reports? [If not mentioned, probe for recall of a tri-fold introduction accompanying the first HER]

2. What did you think when you received the first HER?

    a. What did you do with the first HER you received (ignore, toss, quick read, keep, etc.)?

    b. Did you have any questions about the report or the information in the report? [Probe for any actions participants have taken to answer the questions and what they 'found out.']

    c. What does your household do with the HERs now when you receive them?

IV. Customer Use and Satisfaction with HERs (25 minutes)

A. Pen and Paper Exercise (remind participants there are no "right" or "wrong" answers for this exercise and we want to know them it is alright if they don't do much with the Home Energy Reports. Ask Participants to record their first name only, as we will collect them after the discussion).

1. Hand out exercise and ask respondents to take a few minutes to write down answers to following 3 questions:

    a. What, if anything, is the first thing you look at when you receive a Home Energy Report? [If you don't look at the HERs, please indicate this].

    b. Has receiving the Home Energy Reports had any effect on everyday behaviors or energy-saving purchases for your household? If no, please explain why not. If yes, please describe what type of effects.

c. Has receiving the Home Energy Reports affected your perception of CL&P – either positively, negatively, or no effect? Please explain briefly.

B. Describe household's level of readership of HERs [NOTE: Begin discussion again]

1. Does anyone in your household read the HER? [IF YES] Who in your household reads the Home Energy Report? Do you discuss the energy information provided?

2. [If they read it] How do they read it – read entire report, read specific parts, glance/skim, ignore,

3. Do you share any of the information from the report with others in household who don't read the report? [IF YES, who was it shared with and how was it shared?]

C. Recall of report content (not showing report yet) [Topics in this section may already be discussed – Discuss tip recall if not mentioned]

1. When you think of the Home Energy Report, what's the first thing that comes to mind?

2. How interesting is the report? When the report arrives, is it something you look at right away or is it something you set aside and look at it later?

3. What types of information from the report do you recall?

4. What types of information provided are most interesting? Surprising?

5. What kinds of energy saving tips or advice do you recall from the Home Energy Report? [PROBE: How helpful are the energy-saving tips and information about how to reduce your electricity use?

6. Do you recall seeing information about a website for the Home Energy Reports? Has anyone visited the website? [IF YES, ask when they visited the website and what did they look for and find?]

   b. If you could get information that is more tailored to your household by setting up an on-line account on the Home Energy Reports website, how likely would you be to do this? [Probe to see if anyone is aware that they can set up an account on the UI HER website and get more information and energy saving tips that are specifically tailored to your household]

D. Discuss example Home Energy Report

[HAND OUT COPY OF REPORT TO PARTICIPANTS – note to participants that this report may be structured slightly differently from your own. Remind participants to focus on this report, rather than their own]

1. What does this HER tell you about this household? [IF NEEDED, PROBE: How is this household doing compared to last year? How is this household doing compared to their neighbors? What could they do to decrease electricity use?]

    a. Do you notice any types of information on this example HER that you have not noticed on the HER you receive?

    b. [IF NEIGHBOR COMPARISON IS MENTIONED] How do you react when you see the neighbor comparison on your HER? Does it motivate you to conserve electricity or does it have a different effect?

    c. [SHOW OF HANDS] How many of you have received at least one "Great" rating (2 smiley faces?) How many of you have received at least one "More than average" rating (no smiley faces)?

2. Do you have any questions after reading the report? [IF PARTICIPANTS DON'T HAVE ANY QUESTIONS ABOUT CONTENT, ASK: Can someone explain what the bar graph tells us about this household's electricity use?]

3. Has anyone noticed another organization, besides CL&P, who is sponsoring the Home Energy Reports? [IF no one has noticed the CEEF logo, point out the logo and ask if anyone has heard about or is familiar with the Connecticut Energy Efficiency Fund. [If some people noticed the CEEF logo, ask them to explain what they know about CEEF].

4. Has receiving the Home Energy Reports changed your opinion of CL&P? How?

Response to the HER Energy Use Information and Tips (25 minutes)

Discuss specific energy saving actions taken

1. [SHOW OF HANDS] How many of you have done one or more of the things suggested in the HER to reduce electricity use in your household?

    a. [IF PARTICIPANT MENTIONS HAVING DONE SOMETHING] What convinced you to do those actions? [Probe to see if participants attribute a part or all of their energy efficiency actions to the HER]

    b. [IF HAVEN'T DONE ANYTHING] Was there any particular reason you haven't done any of the energy-saving actions suggested in HER?

2. Are there any everyday energy behaviors or energy-saving purchases that you are planning for the near future?

   a. What gave you the idea or motivated you to decide to do this? [Probe for role of HER in planned energy saving actions]

3. What would encourage you to do more to reduce your electricity use? [IF NOT MENTIONED, PROBE:]

   a. What other types of information might convince you to take actions?

   b. What changes to the HER reports might motivate you to take actions?

V. Suggestions for Improving HER Satisfaction and Customer Benefit (10 minutes)

A. How could the Home Energy Reports be of more use to your household? [IF NEEDED, PROBE:]

1. What additional energy use information or comparisons?
2. Are there any changes you would like to see in the way the information is presented?
3. How useful are the energy-saving tips for your household?

Are there any other types of information that would improve report's usefulness (info other programs, rebates, potential savings)?

VI. Wrap Up (5 minutes)

A. Last Questions for Discussion [Around the room]

   a. If you could tell CL&P one thing or give CL&P one piece of advice, what's the most important thing you'd like to tell CL&P regarding the Home Energy Reports Program.

   b. Does anyone have any last questions or comments?

Thank you for sharing your opinions and taking the time to participate, your input is greatly appreciated. And don't forget to pick up your incentive on your way out.