Vermont Electric Cooperative

Consumer Behavior Study

Interim Process Evaluation

Of Year 1

October 2013

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1 Introduction

The eEnergy Vermont Utilities are one of nine Smart Grid Investment Grant (SGIG) recipients nationwide that are conducting research into the effectiveness of dynamic rates and information feedback technologies in effecting changes in (electric) customer behavior. Two of these utilities, the Vermont Electric Cooperative (VEC) and Central Vermont Public Service (CVPS), have designed Consumer Behavior Studies (CBS) to test specific rates within their service territories. This report is focused solely on the VEC study, and describes the experience that has been gained by VEC and its implementation partner, Efficiency Vermont (EVT), during the first year of the study.[1]

1.1 Project Background

The Department of Energy's (DOE) primary objective for each Consumer Behavior Study (CBS) is to "investigate the power of AMI (Advanced Metering Infrastructure) in seamlessly integrating pricing, technology, and information feedback to induce a change in behavior."[2] DOE's vision is that the results of the SGIG dynamic rate studies will be applicable nationwide.[3]

Vermont's primary objective for conducting a Consumer Behavior Study as part of the SGIG is to test the effectiveness of dynamic pricing, information and automation treatments on *lowering peak and total electric loads*, and on increasing the affordability of the state's electric service. Specifically, the objective of the VEC-EVT study is to combine a Variable Peak Price (VPP), a web portal, an in-home display, and a high level of customer support to reduce peak and total energy usage. If these customer systems can operate seamlessly within the AMI infrastructure, the hope is that they will "fundamentally change how customers manage their electricity (use)."[4]

1.2 Project Overview

VEC and CVPS submitted a joint Consumer Behavior Study Plan (CBS Plan) to DOE in September 2010. Implementation of the VEC-EVT study began after DOE approved the CBS Plan in December 2010, and was divided into ten steps. Section 4 will discuss the details and lessons learned to date from each of these steps.

Table 1.2: Implementation History of the VEC-EVT Consumer Behavior Study

#	Step
1	Technology Procurement
2	Sampling
3	Proactive Customer Service Prep
4	Recruitment
5	Technology Deployment
6	Proactive Customer Service
7	Technical Support
8	Data Collection

[11] The evaluation reports written by the SGIG CBS utilities largely focus on load impacts derived from the implemented experiment. However, VEC was unable to derive meaningful and credible load impact estimates from their experiment to date, the reasons for which are documented later in this report. As such, this report focuses instead on evaluating the process and lessons learned out of the CBS implemented in 2012. Load impacts will be estimated in the final report for the pricing experiment that was implemented in 2013.

[2] DOE Webinar, SGIG_Customer_Behavior_Webinar_Day1_20100420.pdf, Slide 8, April 2010.

[3] eEnergy Vermont Consumer Behavior Study Plan, September 15th, 2010, page 9

[4] eEnergy Vermont Smart Grid Investment Grant Application, August 6th, 2009, pp 1-6

9	Data Analysis
10	Final Report & Contract Admin

1.3 Questions of Interest

The research design of the CBS Plan was aimed at three primary questions of interest.

1. Are customer service-based information treatments (embodied in Proactive Customer Service (PCS)) and technology-based treatments complements or substitutes in encouraging demand response and energy efficiency, as measured through monthly customer-level electricity usage and hourly electricity demand?

2. How does a variable peak price (VPP) affect customer-level electricity usage and hourly electricity demand in the presence of customer service-based information, technology-based information feedback, and automated response capabilities? How much does PCS enhance a transition to VPP?

3. How do customer service-based information and technology-based information affect customer attitudes (as measured by post treatment surveys) towards energy management and the introduction of variable peak price tariffs?[5]

[5] eEnergy Vermont Consumer Behavior Study Plan, September 15th, 2010, page 51

2 Project Description

The study is being implemented within the VEC territory, which is comprised of 35,000 members. The geography is rural, with an average density of 14 customers per square mile. VEC has been deploying a power line carrier (PLC) based AMI network since 2005, and as of 2012, 98% of its customers were on the network. Finally, VEC has offered its members on-line access to their usage information through their wattWATCHERS portal since 2009.

2.1 Design Elements

As originally conceived, the study had the following major design elements:

1. Proactive Customer Service (PCS)
2. In-Home Display
3. End-use Controls
4. Web Portal
5. Variable Peak Pricing (VPP) rate

These elements were combined to specify four treatment groups and two control groups as shown in Table 2.1.

Table 2.1: Summary of VEC Treatment Groups

Technology or Price	Treatment Group				Control	
	T1	T2	T3	T4	C1	C2
Proactive Customer Service (PCS)	X		X			
Site In-Home Display (IHD)		X	X			
End-Use IHD + Controls				X		
Flat Rate + Web Presentment	Year 1	Year 1	Year 1	Year 1	X	X
Variable Peak Price (VPP)	Year 2	Year 2	Year 2	Year 2		
Designed Sample Size	**700**	**380**	**360**	**220**	**2,500**	**2,500**
Actual Sample Size on 12/5/12	**268**	**115**	**95**	**0**		

2.2 Target Population, Randomization, and Assignment

The target population for this study is VEC's approximately 30,000 residential accounts as of January 2011.

The first step in the randomization and assignment process was to eliminate customers whose monthly kWh exceeded 6,500 or was below 500. This was done to reduce the variance of the sample, which also reduced the sample size requirements of the study, and resulted in a list of approximately 24,000 customers. Then 16,299 customers were selected using a pseudo-random uniform number generator.[6]

[6] A pseudorandom number generator is an algorithm for generating a sequence of numbers that approximates the properties of random numbers. This is a common approach to generating random numbers.

These customers were recipients of a direct mail, recruitment campaign that resulted in approximately 4,000 survey respondents. These respondents were then screened for eligibility, which meant that they needed to be homeowners (not renters), with a single electric meter, and broadband internet service with a wireless router. The percentage of survey respondents who met these criteria are shown in Table 2.2.1.

Table 2.2.1: Percentage of Survey Respondents Who were Eligible to Participate

# of VEC Residential Customers	#	%	% Explanation
Recruitment Pool	16,299		
# of Survey Respondents	4,022	25%	Survey Response Rate
# of Respondents with a Single Meter	3,270	81%	Single Meter Rate
# of Respondents who were Homeowners	3,105	77%	Ownership Rate
# of Respondents with Broadband Service	2,312	57%	Broadband Service
# of Eligible Respondents	2,205	55%	Overall Eligibility Rate

Survey respondents who met the criteria were randomly assigned to one of the three treatment and control groups using another pseudo-random number generator. Finally, the mean and standard deviation of monthly kWh were calculated for each group, and simple t-tests failed to reject the null hypothesis of equality of means between groups[7], which indicates that the samples have the same average monthly consumption and are comparable to each other and to the population.

It should be noted that the sample size calculation changed after the surveys were received. During technology procurement, the costs of end-use control technologies were found to be outside VEC's budgetary limitations. As a result, the study focused on recruiting participants for the first three treatments. Also, a finite population correction[8] was used during the randomization and assignment of the survey participants, which resulted in smaller sample sizes than those listed in Table 2.1.

The post-recruitment sample sizes are shown in Table 2..

Table 2.2.2: Summary of Treatment & Control Group Sizes[9]

Treatment	Size
T1	480
T2	210
T3	198
C1	1,539
C2, C3[10]	1,656
Total[11]	**4,083**

[7] Source: Dr. Seth Blumsack, The Pennsylvania State University, 'VEC Randomly Assigned Customer Numbers to Shawn 01252011.xlsx'

[8] Source: Dr. Seth Blumsack, The Pennsylvania State University, 'Revision of VEC CBS Sample Size Calculations', Memorandum to B. Bowman, S. Enterline, K. Herter, and R. Pratt, August 27, 2011

[9] Source: Dr. Seth Blumsack, The Pennsylvania State University, 'VEC_CBS_Assignments_09_13_2011.xlsx'

[10] Note that each control group is given a number that corresponds to the treatment group that it supports. The 'C2, C3' control group is actually a single control group that applies to both treatments 2 and 3, 'T2 and T3'.

[11] Note that some of the control groups contained duplicate participants, and that the total exceeds the number of surveys received in Table 2.2 (4,022) as a result.

3 Project Implementation

The study was implemented over an 18 month period from January 2011 to June 2012. The first step in the implementation process was to procure a technology vendor, and a Request for Proposals (RFP) was issued in February 2011 for a 'Residential In-Home Display and End Use Control System.' [12] VEC's existing AMI meters[13] were unable transmit a wireless signal into the home, and therefore, the RFP respondents were required to offer a system that was not dependent on the AMI meters for data capture. As a result, most of the respondents offered systems that relied on a current transformer (CT).

The RFP was issued to a list of about fifty potential vendors, and thirteen submitted proposals. Although the RFP did not require bidders to submit comprehensive systems, the short listed bidders all offered proposals that included the technology itself, deployment of the technology, and technical support throughout the study period. Three semi-finalists were selected, and a contract was executed with the vendor who provided the winning bid at the end of June 2011. As deployment approached, another subcontractor was selected by the vendor to deploy the technology in the households that were selected to participate in the study.

3.1 Project Schedule

Once the technology procurement and sampling steps were completed, work began on steps 3-5 in the implementation process. The following table summarizes the timeline for the study's implementation, and section 3.2 discusses the approach to steps 3 and 4.

Table 3.1: Implementation History of the VEC-EVT Consumer Behavior Study

#	Step	Actual Start Date	Anticipated End Date
1	Technology Procurement	Jan-2011	Jun-2011
2	Sampling	Jan-2011	Jan-2011
3	Proactive Customer Service Prep	Jul-2011	Nov-2011
4	Recruitment	Jul-2011	Oct-2011
5	Technology Deployment	Jul-2011	Jun-2012
6	Proactive Customer Service	Feb-2012	Jun-2013
7	Technical Support	Nov-2011	Dec-2013
8	Data Collection	Jan-2011	Ongoing
9	Data Analysis	Jul-2013	Ongoing
10	Final Report & Contract Admin	Jul-2014	Sep-2014

[12] *'Request for Proposal for a Residential In-Home Display & End Use Control System'*, Efficiency Vermont and Vermont Electric Cooperative, February 14th, 2011

[13] VEC's AMI system utilizes AClara's TWACS technology.

3.2 Recruitment and Customer Retention Approach

Customers were recruited using a direct mail campaign that consisted of three parts. First, customers were sent a pre-enrollment post card, which was designed to boost the response rate to the enrollment package, which was mailed three days later.

Figure 3.2: Pre-Recruitment Post Card

The enrollment package consisted of a cover letter and a survey, both of which are included in the Appendix. The cover letter was sent just after the July 4th holiday weekend on VEC's letterhead, and was signed by VEC's CEO. It included a deadline for returning the survey, emphasized that enrollment was limited, and that returning the survey would enter you into a raffle for an Apple iPad 2. The letter also included a dedicated, toll-free number that was set up specifically to support participants in the study, and was staffed by Efficiency Vermont's call center personnel.

The survey itself was cobranded with both VEC and Efficiency Vermont's logos, and included a postage-paid envelope that was addressed to Efficiency Vermont. The survey consisted of 42 questions, most of which were common to all of the CBS utilities nationwide. A week after the survey was mailed, all of the customers were sent a second post card reminding them of the deadline and the iPad 2 raffle. Although the deadline for returning the survey was in mid-August, returned surveys were accepted until early September. As a result, the recruitment period lasted about eight weeks.

3.2.1 Recruitment Numbers

The direct mail recruitment campaign resulted in a 24.7% response rate. Of the 16,299 customers who were included in the recruitment mailing, 4,022 surveys were received over the course of the following eight weeks. Because of delays in the availability of the CT clamp, confirmation and deny letters were not sent until December 2011. As a result, there was about a five month gap in participant communications between the date of the initial recruitment mailing (July) and the date in which participation in the study was confirmed (December).

Like the survey, the confirmation and deny letters were cobranded with both VEC and EVT logos. The letters (included in the Appendix) described the characteristics of the particular treatment each person was assigned to. A Participation Agreement was also included for informational purposes, but participants were not asked to sign and return it. Instead, they were notified that they would have to indicate their consent to the terms of the agreement upon their first web site visit.

3.2.2 Customer Retention Numbers

After the recruitment phase ended in December 2011, members in the study had two ways to stop participating ('opt-out'); through the toll-free support number and through e-mail, both of which were directed to Efficiency Vermont's Call Center. Opt-out activity began in earnest after the confirmation letters were mailed out in December, and after that initial wave of activity, opt-outs continued throughout the scheduling and deployment of the home area networks (CT clamps & In-Home Displays) and proactive customer service (PCS). By the end of deployment in June 2012, the cumulative customer retention rate was about 54% across all three treatments groups, and in retrospect, the reasons for this are now clear.

Table 3.2.2: Summary of Treatment & Control Group Sizes

Treatment	Post Recruitment Sample Size[14]	Post Deployment Sample Size[15]	Retention Rate
T1	480	270	56%
T2[16]	210	115	55%
T3	198	94	47%
Total	**888**	**479**	**54%**

3.2.3 Lessons Learned

1. Surveys

    a. The survey instrument did not successfully capture enough information about eligibility. For instance, many survey respondents turned out to be seasonal residents or had net metered homes. Still others had farm buildings connected to their residential meter. Many customers responded incorrectly to questions about having a computer, a wireless router, or high speed internet service. These issues created scheduling challenges during deployment as well as customer service questions during the first outreaching customer service call.

    The solution to these issues is probably multi-faceted. First, focus groups could have been used to vet the survey before it was issued to ensure that customers knew what was being asked of them. Second, utility Customer Information Systems (CIS) could be designed to be more able to capture more information about each customer generally. Utilities could offer better service to their customers with information on the seasonal nature of some residences, and information about the end uses (including net metered generation systems) that their meters are connected to (farm buildings).

    b. Even though the survey was labeled as an "Enrollment and Eligibility Survey", its use as an opt-in/sign-up mechanism was not inherently obvious to some participants. The first outreaching proactive customer service (PCS) call uncovered this issue as participants asked questions about

[14] Source: Dr. Seth Blumsack, The Pennsylvania State University, 'VEC_CBS_Assignments_09_13_2011.xlsx'
[15] Source: SharePoint query as of 6/30/13.
[16] As a result of the low overall retention rate, treatment group 2 was folded into treatment group 3 to boost the sample size, resulting in a treatment group that included about 209 participants with an in-home display.

why they were being contacted. These questions overshadowed the intention of the first call which was to build rapport with the customer about their energy use and supporting technology. Furthermore, some of the initial calls may have been perceived as a telemarketing-type interaction, and therefore people were unwilling to participate in it. As a result of these two dynamics, the customer service call turned into an opportunity to opt-out, especially for people who didn't remember filling out the survey.

Increasing the frequency of customer communications could alleviate these issues in the future. There was a large gap in time between the recruitment survey, the confirmation letters, and the delivery of the PCS call. More frequent customer communications, and specifically, post card (or text or e-mail) notices of upcoming PCS calls may have reduced the misunderstandings and the high opt-out rate.

c. In the context of the ambiguity surrounding the purpose of the survey, many survey respondents may have simply been interested in the iPad drawing rather than the study itself. Using an iPad as an inducement to return the survey may have been too strong a motivator, which may have led to a subsequently high opt-out rate. To alleviate this dynamic in the future, the solution could be the same as in 1.a. More frequent, timely communication with the customer (and a clear value proposition) could encourage people to participate even if their initial reason for responding was a strong inducement or incentive such as an iPad.

2. Recruitment and Confirmation

   a. Too much time passed between recruitment (July-Aug 2011) and the confirmation letter (Dec 2011). People naturally may have forgotten and/or lost interest when they received the confirmation letter. As a result, future studies would be well served to minimize the time between recruitment, deployment and ultimate service delivery.

   b. The confirmation letter may have been opened by a different member of the household than the one who returned the survey. To counteract this problem in the future, recruitment and confirmation material could include some collateral, such as a refrigerator magnet, that can be used to communicate to the other occupants that the household is enrolled in a utility program.

3. Scheduling & Deployment

   a. Scheduling the deployment of the technology was both difficult and poorly executed. Customers opted out when they were called by the technology deployment subcontractor who was calling on behalf of the technology vendor, who was calling on behalf of EVT, who was partnering with VEC. This multi-tier partner approach was very difficult to verbalize over the phone, and contributed to the participant opt-out rate.

      At its core, the solution to this issue is to rely on "plug and play" technology that does not require in-home installation of any kind. When this is not possible, the simpler and more direct the relationship is to the customer, the better. If installation subcontractors are required, they should be hired and directly managed by the utility to the extent possible.

   b. While scheduling the installations, the contact rate was not high, and on the day of installation, there were many opt-outs or "walk aways" where the electrician showed up at the home but had to leave because no one was home. The lesson learned in this instance is similar to 3.a. The deployment subcontractor was purely an intermediary between the technology vendor and the VEC customer participating in the study. The study implementation team ultimately solved this problem by eliminating the intermediary deployment subcontractor entirely.

c. Many of the homes were not equipped to accept the technology vendor's equipment in the first place. Many homes did not have high-speed internet access as indicated on the survey, many did not have a wireless router, and still others had unsafe wiring that made it impossible for the electricians to install the CT clamp.

   A focus group could have improved the survey to better communicate these requirements to the customer, and the scheduling phone call could have been used to confirm the most basic eligibility requirements before the installation contractor was dispatched to the home.

d. The technology vendor's web portal was not yet fully commercialized at the time of the vendor selection and turned out to be fraught with bugs and often displayed confusing or erroneous data (usage spikes) which caused complaints and subsequent opt-outs. A more rigorous quality assurance process may have improved the performance of the web portal, and selection of a more commercially mature vendor could avoid this problem in the future.

4. Customer Service

   a. The first outreaching customer service calls were made without an explicit retention strategy in the script.[17] Specifically, one of the 10 different outcomes listed in the script for the first call was, "Member feels comfortable about participating in the study." This question opened up conversations about opting out with some of the customer service staff, and in the absence of a retention strategy or script, some staff members concluded that the customer's discomfort was a reason to offer them the chance to "opt-out at any time." Future studies (and utility programs generally) would be well served to have an explicit retention strategy and to train their staff to implement it prior to deploying the program.

[17] A copy of the telephone scripts are available in the Appendix.

3.2.4 Customer Opt-Out Analysis

When customers opted out of the study during the scheduling phase of the technology deployment, the deployment subcontractor was responsible for tracking the reasons in a spreadsheet that was made available through the team's SharePoint site. All other opt-outs were communicated to EVT's call center staff via e-mail or telephone. The results are summarized in the following table.

Table 3.1.4: Opt Out Activity and Explanation[18]

#	Reason	%	Cumulative %
1	No Reason / Other	30%	30%
2	Don't have time.	13%	43%
3	Couldn't reach.	8%	51%
4	This is my 2nd home/I don't live here year round.	7%	58%
5	Don't have high speed internet.	6%	64%
6	Elderly	5%	68%
7	Moving	5%	73%
8	There is no way I can cut down usage any more than I already do.	5%	77%
9	Technical issues with the install or accessing the web site.	4%	81%
10	Health issue.	4%	85%
11	VPP (Variable Peak Price)	4%	88%
12	I don't have a computer.	3%	91%
13	Don't like all the gadgets you want to install.	2%	93%
14	Don't like the idea of someone calling me, discussing my usage.	1%	95%
15	Has a solar/wind installation.	1%	96%
16	My farm buildings are on my home meter.	1%	97%
17	Privacy concerns.	1%	98%
18	Mad at the electric company.	1%	99%
19	Don't like smart grid in general.	1%	100%
20	Don't really use e-mail.	0%	100%

The top three reasons for opt-out activity accounted for over 50% of the opt-outs: 30% of the opt-outs did not cite a reason, 13% cited a lack of time to participate, and another 8% could not be reached via telephone. Given the 5+ month period between recruitment and the beginning of deployment, it stands to reason and common experience that the 30% who offered no reason were simply reacting to the unanticipated phone call from a stranger, and ended the phone call as quickly as possible.

An argument can be made that the 'Don't have time' and 'Couldn't reach' opt-outs (21%) were a direct result of the outgoing phone customer service efforts, which is another lessoned learned. Participants who couldn't be reached, for instance, were automatically opted out of the study by the call center staff, and it is not surprising that many people who were reached cited a lack of time as their reason for opting out. As a result of this experience, the outgoing customer service component of the study has been discontinued for the second year of the study.

[18] Source: Tena Perrelli, Lead Customer Support Specialist, VEIC, 'Drop Out Reasons for Shawn 052512.xlsx'

The fourth and fifth most common reasons for opting out accounted for 12% of the opt-out activity and were due to eligibility issues. People were required to live in their home year round, and needed high speed internet to take advantage of the web portal and in-home displays. Of the remaining explanations, perhaps the most interesting is the low level of health, privacy and general smart grid concerns. These explanations accounted for only 6% of the opt-out activity. Finally, fear of the Variable Peak Price itself accounted for only 4%.

3.3 Survey Approach

Two surveys were administered during Year 1 of the study. The recruitment survey was issued in July 2011, and the customer satisfaction survey was issued in December 2012. Both survey instruments are included in the appendix, and in the case of the satisfaction survey, the summary results are also included.

Table 3.3: Summary of Survey Methods

Survey Characteristic	Recruitment Survey	Satisfaction Survey
Population Surveyed	16,299 randomly selected residential customers.	379 customers from treatment groups 1, 2 and 3.
Issue Date	July 2011	November 2012
Response Rate	25%	31%
Contact Method	Direct Mail	E-mail
Administration Method	Paper only	Web site only

3.4 Experience with Enabling Technology

The original plan for implementing the VEC CBS Plan was to install ZigBee modules onto VECs existing AClara meters, which would have enabled the meter to communicate wirelessly into the home. The implementation team would then issue an RFP for the in-home display and related home area network devices that are needed to implement the research design. When the implementation team began the procurement process in mid-December, we discovered that AClara no longer was manufacturing ZigBee 1.0 modules, and because of the uncertainty surrounding availability of the ZigBee communication channel generally, AClara had no plans to continue manufacturing wireless modules until the summer of 2011 at the earliest. This meant either a delay of the study implementation or finding a suitable technology alternative.[19]

Five solutions to this problem were considered.

1. Wait to implement the CBS Plan until AClara's ZigBee 2.0 modules become available.
2. Use AClara's prepaid TWACS-based in home display instead of a wireless solution.
3. Install GE SmartSync meters as a secondary meter next to the existing meter. This would get a WiFi signal into the home.
4. Implement the CBS Plan without hardware initially, and install the hardware 3-6 months later. Run the study for 2.5 years.
5. Use a non-AMI solution such as a current transformer (CT) with a z-wave transmitter to get a wireless signal into the home.

The team settled on #5 as the preferred option, and the RFP was issued in February 2011. The RFP process resulted in three semifinalists. The solution that was ultimately chosen included a customer engagement web portal, In-home display, and related home area network hardware (CT clamp, panel meter and gateway portal). The vendor selected was contracted to provide turnkey installation services as well as technical support throughout the study period. As noted above, the vendor later selected a subcontractor to deploy their technology in turnkey fashion.

3.4.1 Customer Eligibility and Enabling Technology

The technology selected for the study relied on two primary components that set minimum criteria for customer eligibility.

1. A CT clamp and panel meter and
2. A gateway to the internet (high speed).

As a result, customers were required to have high speed internet service and an open port on their router that the gateway could plug into.

3.4.2 CT Clamp & Panel Meter

The CT Clamp and Panel meter were designed to capture 15 minute usage data, and to transmit that information wirelessly to the gateway, which would send the data over the internet to the web portal. The first challenge that was experienced with this component was scheduling its installation. The vendor subcontracted to a company who was charged with scheduling and completing the Home Area Network (HAN) installations. It turned out the subcontractor was not accustomed to fulfilling call center operations, and was not equipped with a software-

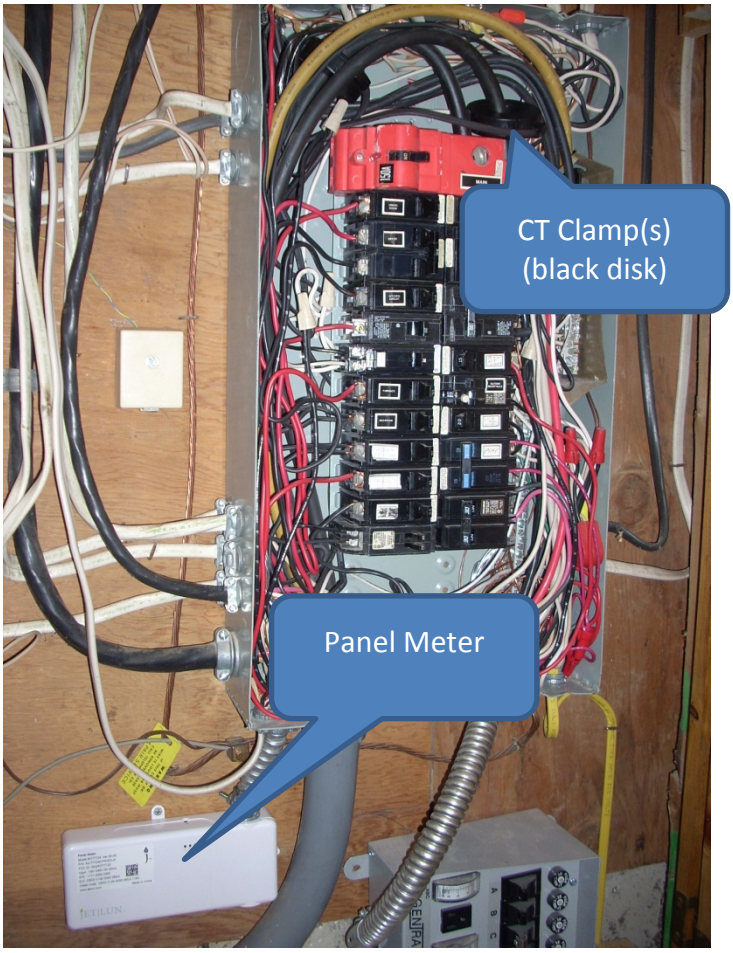
[19] Source: Memo from S. Enterline, Project Manager, '*VEC CBSP Procurement Memo 012711.doc*', January 27th, 2011

driven contact management system to track the multiple phone calls that are required to schedule and manage the HAN installation. They were also unfamiliar with call center scripts and customer retention strategies. As a result, the study implementation team made use of spreadsheet lists to schedule and manage installations, and shared this information using SharePoint. This system lead to the use of multiple spreadsheets and versioning errors, and the lesson learned was to make use of experienced technology deployment firms who have call center staff that are accustomed to using software driven contact management systems.

Once an installation was scheduled by the technology deployment subcontractor, one of six electrical subcontractors was dispatched to complete the installation. It was not uncommon for homeowners to be away when the contractors arrived, and this 'no-show' activity caused additional tracking and contact management challenges.

When the electrical contractor was able to gain access to the home, they encountered a series of other technical challenges. First, they had to check the electrical wiring for safety. Although it was not common, there were instances where the electrician had to walk away from the installation for safety reasons. Once the electrical wiring was deemed safe, the installation of the CT clamp and panel meter could begin. A pre and post installation photo was taken to document the work, and a successful installation is depicted in Figure 3.4.2.

Figure 3.4.2: A Successful CT Clamp and Panel Meter Installation



Once the CT clamp and panel meter were installed, the electrician moved on to installing the gateway, which was just a matter of plugging in the gateway itself and connecting it to the router. At this point, the various components of the HAN needed to be registered. This became a significant challenge because of the long, sixteen digit alpha-numeric codes that had to be hand keyed from the box that the component was shipped in, to a web

portal which was used to register the parts of the HAN. If an electrician was unable to successfully register the HAN they were instructed to contact the vendor's Technical Support Center. The Tech Support Center was not always reachable due to, in part, a two hour time zone difference, as well as times of high call volume. Many times, the electrician was still unable to activate the HAN because of difficulties during this step in the process, which usually necessitated another site visit.

In the event that the HAN was successfully installed and registered, the electricians were trained to guide the homeowner through their first use of the Energize web portal. This included the log in, completing the abbreviated home inventory, and setting a goal for how much energy the homeowner would like to save.

Once the HAN was successfully set up, the next challenge was to validate the information that was being received and displayed on the web portal. The first problem was that the usage data frequently showed up as a large, negative spike in usage on the web portal. Because the panel meters had never been deployed before, it took some months before it was discovered that the counter in the panel meter was starting at zero, while the usage history from the utility meters had counters that were non-zero and often large. The incongruity between these data sources caused the negative usage spikes on the web portal, and required a firmware upgrade to the panel meter to resolve. The firmware update for this bug had to be manually pushed to each participant by someone from the vendor's Technical Support Center because they had to reset the counter on the panel meter and re-ingest the historical usage data.

3.4.3 Gateway

Another common problem was internet access and power to the gateway. Some homeowners had the gateway plugged into a socket that was on a switch, and often times, they inadvertently shut off the gateway. This caused interval data to be reported in large, aggregated clumps instead of 15 minute increments. Furthermore, the vendor's web portal had no Verification, Estimation, and Edit (VEE) capability, which meant that these clumps of data showed up as unusually large usage spikes on the web portal. Finally, internet access was often unreliable, and data was often lost as a result of lapses in internet access.

3.4.4 Web Portal

There were three major features of the web portal that were difficult to implement. First was the bill comparison feature. Because utilities do not bill their customers on a calendar month basis, the length of the billing cycle is unique for most of the customers. This complicates billing comparisons, and was handled by simply displaying calendar month data on the portal. Furthermore, the electric bill always contains a customer charge, taxes, and other miscellaneous charges. The web portal was not able to handle these miscellaneous charges, and as a result, only the energy charges were displayed on the web portal. This meant that customers had no clear way to compare their charges from the utility to the charges on the web portal.

Second, a "ride along" feature of the web portal, which would have enabled customer service representatives to view the same information that the customers' were seeing on their own web portal at home in real time, was never implemented. This feature was considered integral to providing proactive customer service. The customer service representative could only view an aggregated version of customer energy usage, which proved difficult for implementing conservation and behavior change education due to the lack of daily and hourly information. A work around system was put in place that involved using an off-the-shelf Microsoft screen sharing software program, but it was not seamless, and did not add to the customer experience as a result.

Finally, a rate calculator was supposed to be offered that would have allowed customers to compare how much they would pay on the flat electric rate versus the variable peak price. These basic rate calculations were difficult for the technology vendor's development team, and the feature was only developed in a tabular (instead of

graphic) fashion. As a result, participants were unable to see how much they stood to gain or lose under the VPP rate.[20]

3.4.5 In-Home Display

The in-home displays (IHD) generally worked as expected. Because the l HAN was a mesh network, it continued to function when internet access or gateway power was interrupted.

3.4.6 The Vendor's Perspective on Deployment

An in-person debrief meeting was held with the vendor, VEC, and VEIC team in October of 2012 to cover lessons learned during deployment, and set the stage for an ongoing collaboration during the study period. The vendor summarized the installation experience from their perspective in the following bullets.

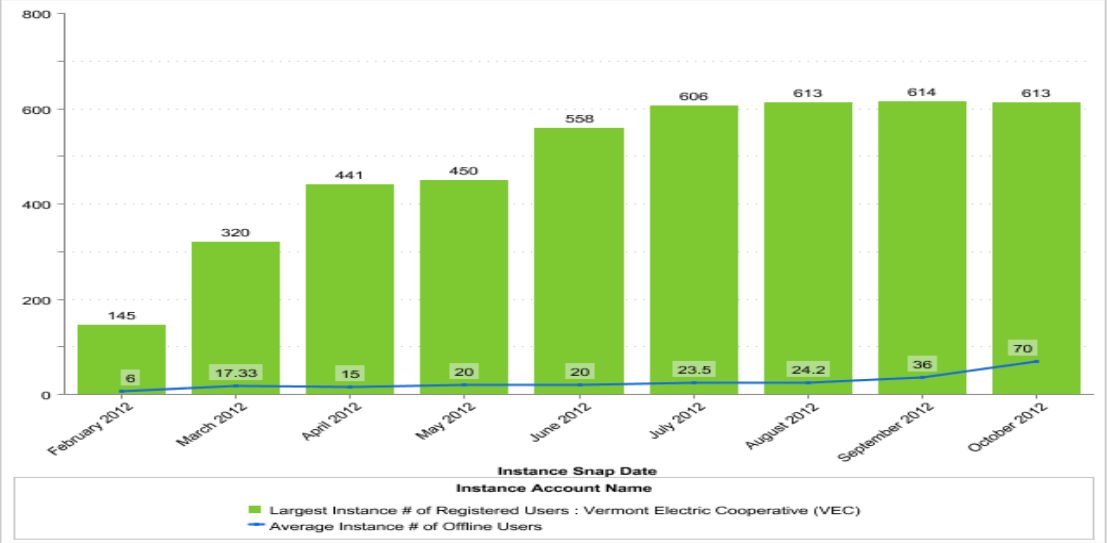
- Total Participants: 487 (including web portal only and HAN participants as of October 2012)
    - Installations Completed: 204 (42.4%)
    - Drop Out/Opt Out: 170 (35.3%)
    - Disqualified: 57 (11.9%) (walk aways or via scheduling)
    - Not Contactable (>5 calls): 51 (10.6%)
    - Moved to Group 1: 5 (1%)

From this perspective, the gap in time between customer engagement (VEIC) and customer installation was problematic, and led directly to the 35% drop out rate that was experienced during the initial scheduling efforts. Specifically, the enrollment database that the vendor was using to schedule HAN installations was 8+ months old.

The vendor also acknowledged that having multiple electrical contractors doing installation for the technology deployment subcontractor across a wide geographic area was problematic, and they corrected this situation by using a single electrical contractor for installations by the end of the deployment. Finally, the vendor acknowledged that staff turnover was a factor, having lost their Installation Director and Installation Specialist during the deployment cycle. Overall, the vendor's deployment efforts resulted in 204 HAN installations and an additional 400 web portal users.

[20] Ultimately, this feature was successfully offered to VEC customers as part of the wattWATCHERS+ web portal as part of Year 2 of the study.

Figure 3.4.6: Technology Deployment Figures as of October 2012



3.4.6.1 Customer Technical Support

Efficiency Vermont wanted to retain a close relationship with its customers, and as a result, it chose to take on the role of providing Tier 1 customer support. This effectively split the customer support duties across both EVT and the vendor. The vendor trained VEIC's call center to provide Tier 1 (non-technical) customer support, and it was responsible for providing Tier 2/3 (technical) support, which involved its call center experts and often involved their software engineers as well.

The vendor implemented weekly calls to respond to Tier 2 cases, to ensure the information was getting to VEIC in the appropriate amount of time. However, the response times to many Tier 2/3 issues was slow, particularly for issues related to resolving offline HAN complaints and web portal bugs such as the data spikes. The underlying reason for this was the fact that there was a split in the Tier 1 and Tier 2/3 customer duties. Furthermore, there were two separate CIS systems handling the customer complaint, EVT's and then the vendor's. This was difficult to manage, and contributed to the slow response times.

The lesson learned during from the customer support experience is that splitting these responsibilities across two different organizations in two different time zones is complicated and difficult to manage. It is our opinion that customers would be better served by a single point of contact.

3.4.6.2 System Configuration & Implementation

The l system proved difficult to configure and implement for a variety of reasons. The following bullets summarize the difficulties from the vendor's perspective.

- CT Clamp Implementation with Historical Data
    - Caused data spikes due to the starting point of the CT clamp being different than the Historical data
- High Number of Offline HANs
    - Implemented a reboot to get the HANs back online
    - Firmware version fix pushed out to CT clamps to fix the issue
    - New report generated for Support to reach out to off-lines
- Rate Calculator

- Outsourced the development of this functionality due to limitations on the vendor's development team.
- Ways to Save (Web site content that gave energy efficiency advice to its users.)
  - Targeted for summer peaking programs, so a revamp was required.

3.4.6.3 Lessons Learned

The following tables are excerpts from the meeting with the vendor in October 2012, and they summarize the lessons learned during the project.

Lessons Learned	Issue	Resolution/Suggestion
1st CT Clamp Deployment	Data didn't align causing spikes in the data.	Support had to remove the data and realign it with the CT clamp.
Portal Branding	Configured too much causing the instance to not be able to be upgraded.	Limited the amount of changes that can be made to ensure we don't restrict the upgrades.
Early Marketing	Marketing was filled by August, but the installations didn't start until January.	Smaller marketing bursts to ensure that we market and then install closer together.
Hardware	CT clamps were delayed by a month ultimately delaying installations and testing	Need to ensure realistic schedules for hardware delivery.
Installation Vendors	Went with a national installer approach, which proved to be difficult due to scheduling and multiple underlying installers.	Moved to a one local installer approach and revisited pricing.

Lessons Learned	Issue	Resolution/Suggestion
Team Turnover	Lost a lot of knowledge do to team members moving on.	Worked hard to ensure a smooth transition was made.
Rate Comparison Tool	Rate comparison tool was contracted and needed for October 1st.	Contracted out and development with input from the VEC/VEIC teams and ready on July 1st. This was delayed due to the release of Grays++.
Offline HANs	Hans going offline due to CT clamp issues, but also due to customers not understanding the Gateway.	Place stickers on the Gateways to let customers know what their purposes is and if red lights appear to reboot power.
Engagement	Customers lose interest in the program if they are not engaging with it enough.	Offer monthly newsletters to customers about money saving tips and tricks as well as information about the pilot and success stories.
Backup Participants	Exhausted the list of participants for installations.	Need to ensure backup participants to fill in for dropouts. We tried to rescue opt outs and got a few.

4 Process Evaluation Results

This section lists the lessons learned from the project implementation and summarizes how they will impact future roll-outs of rate, technology and/or information feedback opportunities.

4.1 Customer Sampling & Eligibility Requirements

4.1.1 Sample Size, Budget & Research Design

The entire service territory was included in the sample, and proved to be just large enough to provide a robust statistical sample. Future studies in Vermont would be well served to include multiple service territories so that a more robust sample can be formed.

The budgeting and research design lessons learned are closely related. It was a challenge to define a research design that was narrow enough to test and pay for in the context of the multiple stakeholders that were involved. There were far more questions that the stakeholders wanted to answer, and the project had neither the budget nor the population size to support them all. There is always merit in collaborative processes, but they do need to be balanced with the need to form narrow and rigorous research designs.

The TAG process was instrumental in helping the collaborative strike the balance, and future studies would benefit from this kind of DOE oversight and expertise. Specifically, the TAG was given responsibility for ensuring that DOE's requirements for a rigorous and replicable study design was followed and implemented. Without specific contractual or scope requirements, the TAG would have lacked the leverage to play this role, and it bears repeating. Having specific, written requirements and clear and enforceable roles for key stakeholders such as the TAG had a direct and positive impact on the outcome of the project.

4.1.2 Quality of Customer Contact Information

The customer contact data was often dated and/or incomplete, which hampered both recruitment and customer support. For instance, the names on the account were often different from the names on the eligibility and enrollment surveys, and phone numbers were often missing. Furthermore, many customers had multiple meters that could not be distinguished from each other for the purposes of the study. The utility records only noted the rate, and not the kind of building or end use that it was metering.

Obviously, future studies would benefit from having more current and complete customer contact information. Importantly, utility customer service would be improved as well, which will become increasingly important as utilities are called on to provide and market specific programs that combine rate offerings with different kinds of enabling technology.

4.1.3 Pre-Treatment Bill Impact Analysis & Cost Effectiveness

Gaining access to a complete bill and usage history was difficult because the information was spread across multiple utility data systems that were not yet integrated. VEC did not have a meter data management system at the inception of the study, and customer information and billing systems were difficult to query for the information. A more timely and complete bill and usage history would have enabled better research design, rate design, and bill impact analysis which would have translated into better marketing and customer support. Future studies will benefit from better integrated utility systems and planning.

4.1.4 Dealing with Low & High Use Customers

The highest and lowest use customers were removed from the population during sampling to lower the variance and the sample size requirements. Future studies could target these users to determine how different their elasticity of demand is from the general population.

4.1.5 Identifying Customers with Multiple Meters

Once a customer with multiple meters was identified, it was difficult to determine which meter was connected to the home and was therefore eligible to participate in the study. Future studies would benefit from having better information on the nature of the building and end use that the meter is connected to.

4.1.6 Primary versus Secondary Home Ownership

When the billing address and the physical address were different, we assumed that the building represented a vacation or secondary home. However, this did not remove all of the secondary home owners from the recruitment list. Because Vermont assesses secondary home owners at a higher property tax rate, utilities could, in concept, identify these kinds of customers. Future studies would benefit if utilities and the state exchanged data or integrated their data systems for purposes like these. Customer service would be enhanced as well.

4.1.7 Renting versus Owning

Because the meters previously installed by VEC needed a CT clamp in order to communicate with the IHD and installation of the CT clamp would have required landlord approval, renters were not eligible to participate in the study. The logistics of getting landlord approval to install a CT clamp inside the home's main breaker panel were deemed to be too challenging. Future studies should be focused on areas where the existing AMI system is capable of transmitting electricity use and price information into the home without needing the installation of a CT clamp. This would not only enable renters to participate, but it would also obviate the need for a CT clamp.

4.1.8 Internet Access and Other Communication Channels

Because of the limited bandwidth of most AMI systems, the internet and telephone channels continue to be important aspects of information feedback with utility customers. Future studies would benefit from having better information on the penetration and subscription rates of internet and cellular phone usage within the service territory. This would also enable the utility to offer better communication and customer service in the event of an outage or other customer engagement need.

4.2 Research Design for Multiple Stakeholders

4.2.1 Defining 'Behavior Change'

At the inception of the study, the phrase 'behavior change' was not universally understood in the energy industry. DOE and the utilities were largely interested in demand response, which is primarily a "use" behavior, while the energy efficiency programs were interested in energy efficiency, which is primarily a "purchase" behavior.[21] EPRI's various publications on these topics were invaluable, and took time to penetrate the corporate cultures of the

[21] "Use" behavior refers to the decisions customers' make about how and when they consume electricity. "Purchase" behavior refers to the decisions customers' make about what electricity consuming devices they purchase (e.g., energy efficient vs non-energy efficient window air conditioners).

different organizations. The Consumer Behavior Study Plan was invaluable in clarifying these issues, and should be a prerequisite for any organization that wishes to study consumer behavior in the future.

4.2.2 Ownership of the Customer Relationship (Utility versus Program)

Efficiency Vermont is unique as an energy efficiency program administrator in that it holds a utility-like monopoly franchise to do business in Vermont. Efficiency Vermont operates a Call Center and consumers in Vermont are encouraged statewide to make use of the informational and technical assistance services available through the Call Center. As a result, Efficiency Vermont has a direct relationship with electric and gas utility customers in Vermont that is frequently on par with the relationship that the other utilities have with customers. This both strengthened and complicated customer support for the study Future studies (in Vermont specifically) would benefit from having more clarity up front around the roles that each of the participating companies has with the customer going into the study and will have throughout the study duration.

4.2.3 What it means to be Customer Focused

Being customer focused means different things to a utility and an energy efficiency program. Utilities concentrate on providing reliable, low cost electric service while efficiency programs are focused on reducing customer's bills through rebate programs and other approaches. This juxtaposition of emphasis had an impact on the kinds of marketing and messaging that was developed for the customer throughout the first year of the study. Namely, the study was focused entirely on energy efficiency and conservation behaviors. In Year 2 of the study, the emphasis shifted to the VPP and became more demand response focused. Future studies that involve collaboration between a utility and an efficiency program administrator would benefit from clearly defining what it means to be customer focused at the outset of the study.

4.3 Technology Procurement & Information Technology Vendors

4.3.1 Information Latency

During the procurement process, a great deal of emphasis was placed on minimizing latency, the time delay between measuring electric consumption and displaying it to the customer. However, our experience was that "timely" information required more than just a quick delivery. It was equally about having the useful information available at the moment when it was required. Future studies would benefit from focusing on discovering what information the customer actually wants and finds useful, and when they need it to be available.

4.3.2 Vendor Experience & Qualifications

Future studies would be well served to work with established vendors and commercially mature technology. There is a difference between 'research and development' and 'research.' When working with technology vendors who are also startup companies, it should be recognized that the study will take on a 'development' component that is separate from the 'research' component.

4.3.3 Validation, Estimation & Editing (VEE) & Billing Quality Information

The technology vendor's system had no VEE function, and was dependent on the quality of the utility and CT clamp information that was loaded into it. The customer experience would have been better if billing quality information was used from the utility's meter, as opposed to the CT clamp which was effectively a second meter.

4.4 Technology Deployment & Back-Office Systems

The back office systems that supported the first year of the study were many, and were not well integrated. This was largely a function of having so many stakeholders and subcontractors involved. Future studies (and utility program generally) would benefit greatly from having fewer and more tightly tested and integrated back office systems.

4.4.1 Web Portal & Software

4.4.1.1 Calendar versus Billing Cycle Months

Utility customers are most often billed on predetermined billing cycles that do not align with calendar months. This complicates analysis and planning generally. Specifically, when combined with the various surcharges on the bill, this makes a simple bill comparison difficult. The technology vendor's web portal was unable to handle this complication, and was unable to answer a basic question that most customers are primarily concerned with, "How does this compare to my bill?" Future studies should ensure that their supporting systems can easily address this question.

4.4.2 Hardware

4.4.2.1 Installer Training

From a technical perspective, installer training provided to the electricians used by the technology deployment subcontractor was successful and straightforward. The electricians had little difficulty installing the hardware in the homes. However, the process and customer service aspects of the training were much more difficult. Scheduling and coordinating installation appointments was difficult, and a significant number of complaints were made about the service that was provided in the home. The individual installers who were the object of the complaints were identified, and the problems were remedied. However, this aspect of the training cannot be overemphasized.

4.4.2.2 Installation Scheduling

Scheduling in-home installations is challenging, and future studies that attempt it should be prepared not only to deal with the logistical complexity, but also be designed to handle an unexpectedly high opt-out rate of 40%. In the context of this study, the opt-out rate includes participants that agreed to accept the technology, but later declined to have it installed. It also includes participants who had successful installations, and who later decided to stop using it and asked to be removed from the study.

In our opinion, the difficulty of deploying equipment in the residential building stock is not unique to this or any other study. Residential installations and retrofits of any kind often require more-than-standard levels of labor, as well as upgrades to the existing infrastructure (wiring, plumbing, etc) to bring the installation up to the applicable building codes.

4.4.2.3 Electrical Code & Safety

Although some electricians walked away from some homes due to safety issues, this was not common, and the training that was provided made it clear that this was not only permissible, but encouraged. Although utilities are not responsible for the behind-the-meter infrastructure of their customers, they often can (and do) refer their customers to local contractors who can fix or install the necessary equipment to resolve potential safety issues. Future studies should continue to emphasize safety as their first priority.

4.4.2.4 System Registration

Registering the HAN required a manual process of entering 16 digit codes into a web site. This process has since been converted to a bar code scanning process, and is greatly improved as a result. Although the installation contractors were trained and the equipment was tested prior to deployment, future studies should ensure that the HAN registration is automated and the process is thoroughly tested prior to deployment.

4.5 Proactive Customer Service & Customer Retention

4.5.1 Incoming Versus Outgoing Customer Support

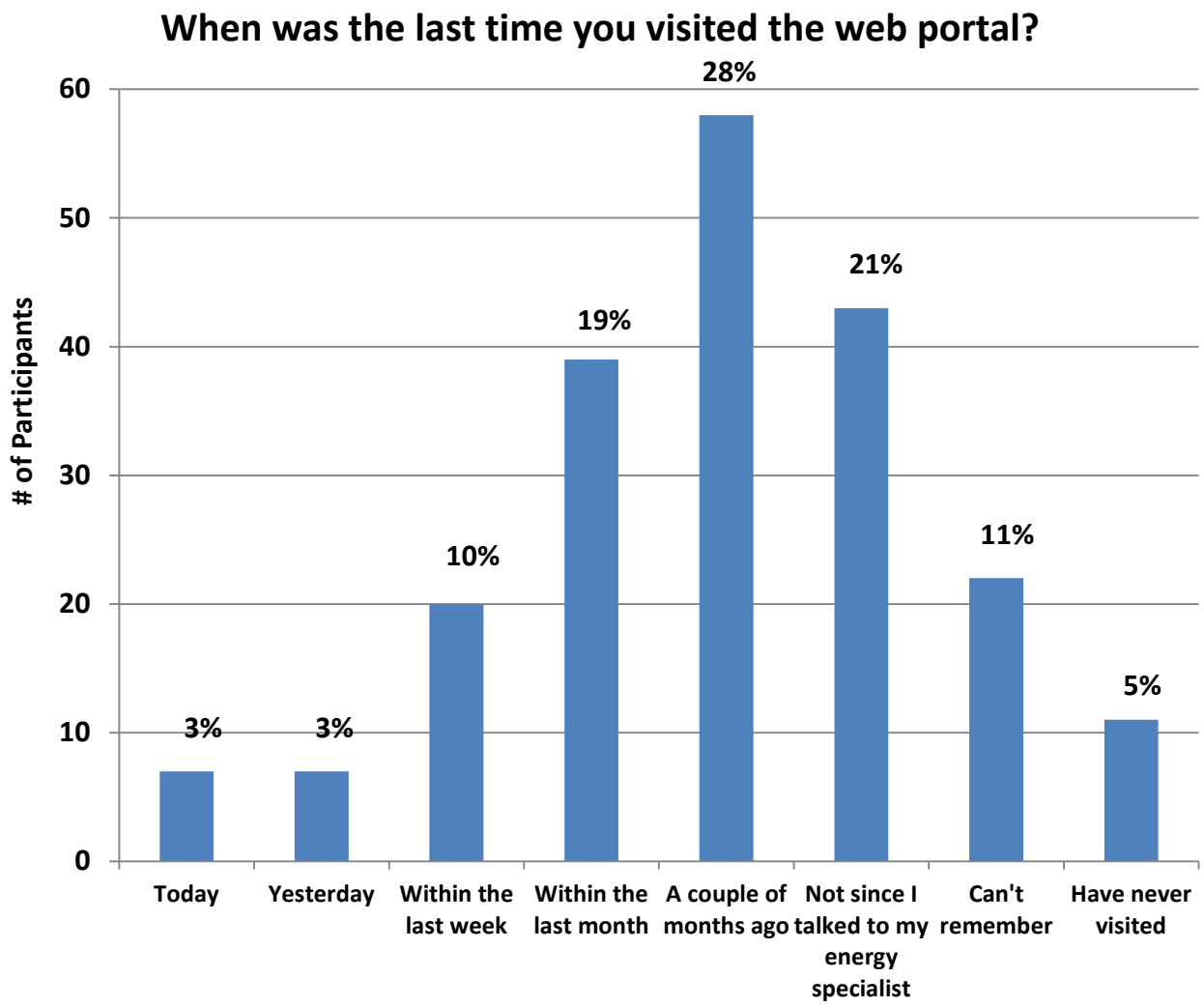
Efficiency Vermont's call center staff are proficient in dealing with incoming calls, yet many were challenged by making outgoing phone calls. Over half of the staff suffered from substantial "call reluctance," which is not surprising because outgoing calling requires a degree of salesmanship and telemarketing skills that were not sought out during the hiring process. Other utility call centers that primarily handle incoming calls too could experience the same results if their staffs were asked to make outgoing calls. Utilities (as well as future studies) would be well served to recognize this, and to select for sales and telemarketing skills if they incorporate outgoing phone calls as a key component of their programs.

4.6 Customer Satisfaction Results

For participants who stayed in the study, customer satisfaction was good. The satisfaction survey was administered in December 2012, which was 6-12 months after the last HAN installation took place. All of the customer service phone calls had been made by this point in time as well. The survey was advertised via email and administered online. The complete question-by-question results are provided in the appendix for each treatment group, but the summary results are as follows.

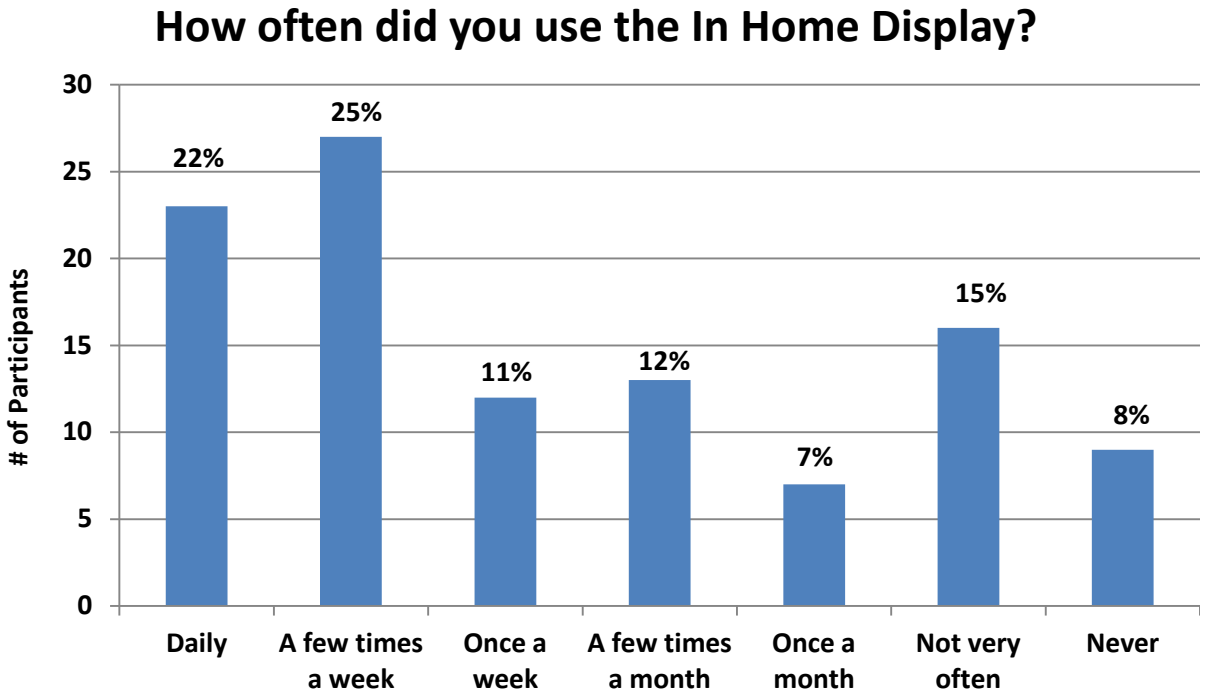
157 responses were received, which equates to about a 30% response rate. The following charts show the high-level results based on a series of five questions.

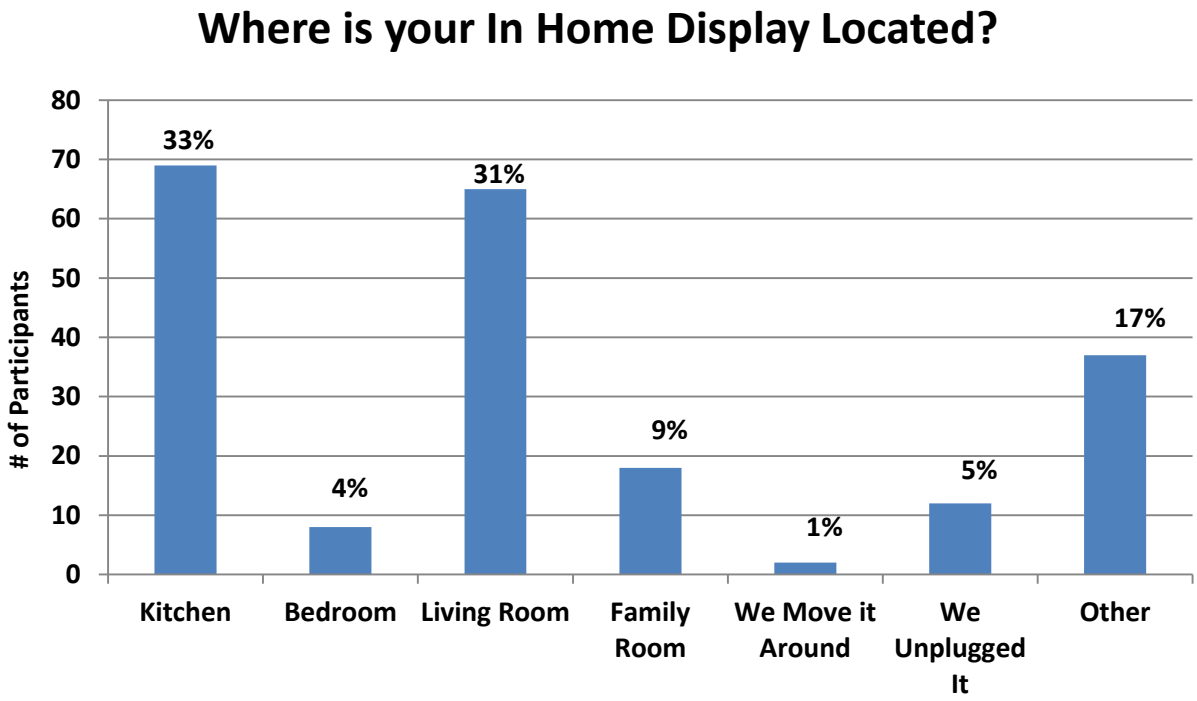
1. When was the last time you visited the web portal?
2. How often did you use the In Home Display?
3. Where is your In Home Display Located?
4. Has your Energy Specialist helped you identify ways to save electricity?
5. Have you implemented any recommendations by your Energy Specialist?



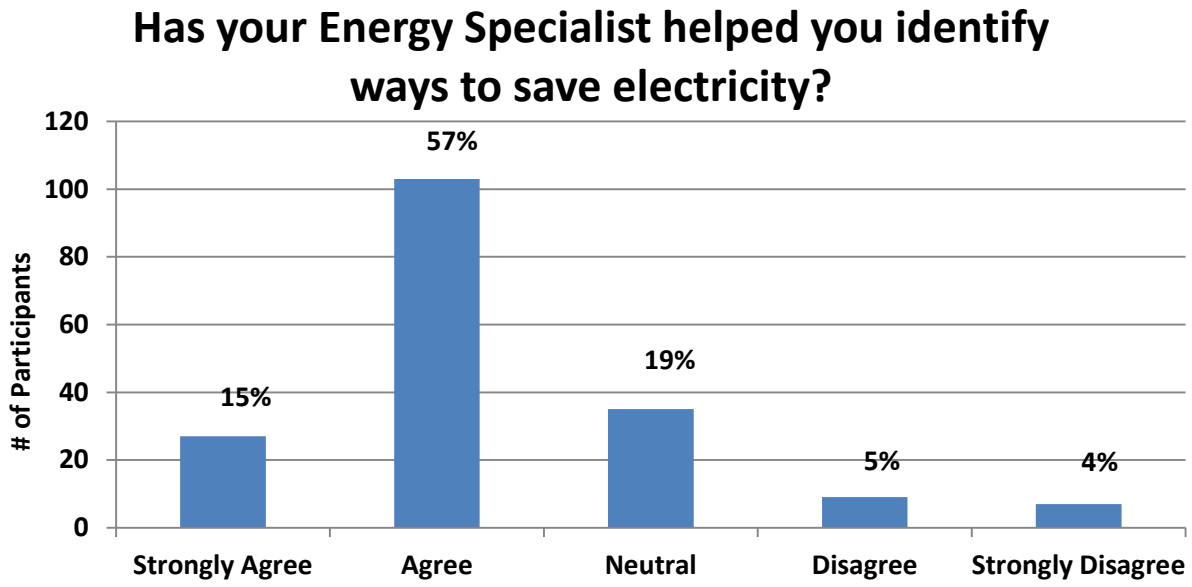
Based on this self-reported information, the web site was moderately successful in terms of customer engagement, at least for the remaining participants. For instance, about one third of the remaining participants were still visiting the web portal at least monthly after 6 – 12 months, and about 63% were visiting the web site at least every couple of months. About 20% reported that they had not visited the web portal since the last telephone call from Efficiency Vermont, which indicates that human interaction (telephone calls) were necessary to motivate this subset of participants to view the web site. Finally, 16% of participants either could not remember when they last visited the web site or had never visited it at all.

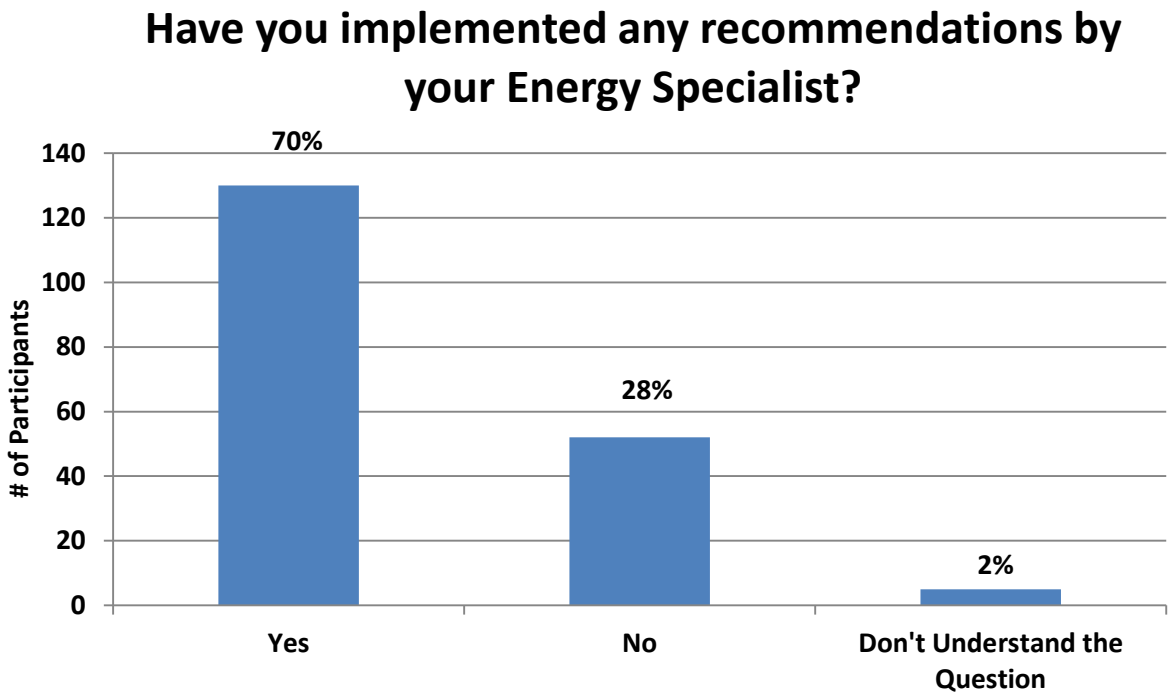
The IHD was more effective than the web site in terms of customer engagement. As the following graphic shows, 58% of the remaining participants were still viewing it at least weekly after 6-12 months, and 77% were still viewing it at least once a month. This could be due to a combination of two factors; the location of the IHD and the immediacy of the feedback that it provides. One third of the IHDs were located in the kitchen, and another 31% were located in the living room. Both of these locations are relatively high traffic parts of the home, where the real-time nature of the IHD information could be viewed more conveniently than the information on the web portal.


How often did you use the In Home Display?
# of Participants
30
25
20
15
10
5
0
22%
25%
11%
12%
7%
15%
8%
Daily
A few times a week
Once a week
A few times a month
Once a month
Not very often
Never


Where is your In Home Display Located?
# of Participants
80
70
60
50
40
30
20
10
0
33%
4%
31%
9%
1%
5%
17%
Kitchen
Bedroom
Living Room
Family Room
We Move it Around
We Unplugged It
Other

Finally, the telephone calls from Efficiency Vermont's "Energy Specialists" were well received as well as effective based on the self-reported information in the next two graphics. Almost three quarters (72%) of the remaining participants agreed with the statement "Has your Energy Specialist helped you identify ways to save electricity?" Perhaps more importantly, 70% of the remaining participants indicated that they had implemented some of the recommendations that were conveyed to them over the telephone.





5 Appendices

Please refer to the attached zip files. Each one is labeled according to the following subheadings, and contains all of the supporting materials that were used in the study.

5.1 A: Recruitment Materials

5.2 B: Technology Description

5.3 C: Deployment - Sample Work Order

5.4 D: Education Material

5.5 E: Satisfaction Survey

5.6 F: Telephone Scripts

CONSUMER BEHAVIOR STUDY
ELIGIBILITY & ENROLLMENT SURVEY

Vermont Electric Cooperative and Efficiency Vermont will maintain the privacy of your electric account information. However, by participating in this study it may be necessary for approved third parties to periodically access electricity usage information. In such cases, the information provided will be "blind" so that no connection can be made between the data and the customer without the customer's prior consent.

1. Is the name and address information above correct?

   ☐ Yes ☐ No

   If you checked NO, fill out your information at #2 (if you checked YES move on to #3):

2. Name (first & last): _____

   Street Address: _____

   City: _____ Zip Code: _____

3. The telephone number that we can reach you at between 1PM and 5PM is _____

4. Your e-mail address is: _____

5. ☐ I certify that I am the person responsible for making decisions on this account. (Please check.)

6. Does your residence have a single electric meter? ☐ Yes ☐ No

7. Do you pay the electric bill for your household? ☐ Yes ☐ No

8. Will you stay in your current home for the next two years? ☐ Yes ☐ No

9. Do you currently use high-speed internet in your home? ☐ Yes ☐ No

10. Your internet connection is:

    ☐ Provided by a telephone company
    ☐ Provided by a cable company
    ☐ Provided by a satellite company

11. Will you maintain high-speed internet service throughout the 2-year duration of the study?

    ☐ Yes ☐ No

12. Do you use a wireless router in your home? ☐ Yes ☐ No

13. Do you own or rent your home? ☐ Own ☐ Rent

14. What type of residence do you live in? Do you live in a:

    ☐ Single Family
    ☐ Duplex or Two Family
    ☐ Apartment/condo in a 2-4 unit building
    ☐ Apartment/condo in a >4 unit building
    ☐ Townhouse or row house (adjacent walls to another house)
    ☐ Mobile home, house trailer

(Continued on back...)

15. Does your home have central air conditioning? ❒ Yes ❒ No

16. Do you have any room air conditioners? ❒ Yes ❒ No

17. If yes, how many? _____

18. Do you have a programmable thermostat? ❒ Yes ❒ No

(If YES, go to question 19. If NO go to question 20)

19. Is the programmable thermostat currently set to automatically change temperatures during the day when no one is home? ❒ Yes ❒ No

20. Do you have an electric clothes dryer? ❒ Yes ❒ No

21. Including yourself, how many adults, 18 or older, currently live in your household? _____

22. How many of these adults are currently over 65? _____

23. How many children under the age of 18 live in your household at least part of the week? _____

24. Do you or does anyone in your household have a chronic illness or disability that requires regular medical treatment? ❒ Yes ❒ No

25. Is there someone home Monday to Friday sometime between 1PM and 5PM at least one day a week? ❒ Yes ❒ No

26. Is there anyone in your household working full time for pay? ❒ Yes ❒ No

27. Do you or anyone in your household have a job where you work at home at least one weekday a week rather than go into an office or some other location? ❒ Yes ❒ No

28. Do you remember personally receiving any information from your electric utility that told you how you could save money on your current electric rate by changing what activity you do in your home or when you do the activity? ❒ Yes ❒ No

(If YES, go to question 29. If NO go to question 31)

29. Do you think the information was useful? ❒ Yes ❒ No

30. Did you do anything that was suggested by this utility information to help you save money? ❒ Yes ❒ No

31. Last year—that is, in 2010—what was your total family income from all sources, before taxes?

- ❒ Less than $10,000
- ❒ $10,000 to less than $20,000
- ❒ $20,000 to less than $30,000
- ❒ $30,000 to less than $40,000
- ❒ $40,000 to less than $50,000
- ❒ $50,000 to less than $75,000
- ❒ $75,000 to less than $100,000
- ❒ $100,000 to less than $150,000
- ❒ $150,000 or more

(Continue to next page)

32. What is the LAST grade or class that you COMPLETED in school?

- ☐ None, or grade 1-8
- ☐ High School incomplete (grade 9-11)
- ☐ High School complete (9-12)
- ☐ Technical, trade or vocational school AFTER High school
- ☐ Some college, no four-year degree (includes Associate degree)
- ☐ College graduate (B.S., B.A., or other four-year degree)
- ☐ Post-graduate or professional schooling after college (e.g. toward a Master's degree or Ph.D; law or medical school)

33. Do you use a dehumidifier in your home? ☐ Yes ☐ No

34. If yes, how many dehumidifiers do you use? _____

35. Do you own a swimming pool? ☐ Yes ☐ No

36. Do you own an electric hot tub, whirlpool or spa? ☐ Yes ☐ No

37. What kind of primary heating do you use in your home? (Check multiple boxes if they apply)

☐ Electric	☐ Natural Gas Boiler	☐ Natural Gas Hot Air
☐ Wood Stove	☐ Oil Boiler	☐ Oil Hot Air
☐ Pellet Stove	☐ Kerosene Boiler	☐ Kerosene Hot Air
☐ Heat Pump	☐ LP Gas Boiler	☐ LP Gas Hot Air

38. How do you heat your hot water? (Check multiple boxes if they apply)

☐ Electricity	☐ LP Gas	☐ Oil	☐ Wood
☐ Kerosene	☐ Natural Gas	☐ Solar	

39. What is the size of your home? (Check only one)

- ☐ 500 sq. ft. - 1,000 sq. ft.
- ☐ 1,100 sq. ft. - 1,500 sq. ft.
- ☐ 1,600 sq. ft. - 2,000 sq. ft.
- ☐ More than 2,000 sq. ft.

40. How many bedrooms in your home? _____

41. How many bathrooms in your home? _____

42. How many total rooms in your home? _____

Please return this in the postage-paid envelope provided, or to:

VEC Member Survey
Efficiency Vermont
255 S. Champlain Street, Ste. 7
Burlington, VT 05401

Name
Address
City, State Zip

Dear Vermont Electric Cooperative Member,

This summer, you submitted a survey that indicated your willingness to participate in a two-year study being conducted by Vermont Electric Cooperative (VEC), the U.S. Department of Energy, and Efficiency Vermont. We are writing to inform you that you have been randomly selected to participate in the study as a member of the Control Group.

The Control Group is an indispensible part of the study. As a participant in the Control Group, you will not need to do anything different relating to your electrical use, and no one will be contacting you. Your normal electricity use will simply be aggregated with data from other Control Group participants. These data will form a baseline for comparison of energy savings that result from smart grid technologies being tested by other groups in the study.

To protect VEC Member privacy and confidentiality, all Member-specific information will be removed prior to any disclosure. This information includes the Member name, address, phone number, and utility account number. Your data will be used only for the study, and will not be sold to or used by third parties.

Thank you for your willingness to participate in this important study. Should you have any questions or wish to opt out of the study, please contact an Efficiency Vermont Representative at 1-855-832-7283 (1-855-VEC-SAVE).

Sincerely,

Jim Merriam
Director
Efficiency Vermont

December 12, 2011

Name
Address
City, State Zip

Dear Vermont Electric Cooperative Member,

This summer, you submitted a survey that indicated your willingness to participate in a two-year study being conducted by Vermont Electric Cooperative (VEC), the U.S. Department of Energy, and Efficiency Vermont. We are happy to inform you that you have been selected to participate in the study. This letter will describe what being a participant means for you. It is organized into four parts:

- What is the purpose of the study?
- What are you being asked to do?
- What are the risks and rewards?
- What are the next steps?

If at any time you have questions regarding the study, you may call 1-855-VEC-SAVE (1-855-832-7283), and an Efficiency Vermont Representative will be happy to answer your questions.

What is the purpose of the study?

The purpose of the study is to measure the reduction in electricity use that results from having Internet access to your hourly electrical consumption, from having a variable electric rate, and from having access to a personal Efficiency Specialist.

What are you being asked to do?

You have been randomly assigned to "Group 1" with other VEC Members who are being asked to receive and make use of the following:

1. **In-Home Energy Feedback Technology:** You will have access to a personalized website that will provide you with hourly information about your electricity use and cost.

2. **Personal Efficiency Specialist:** In January or February, your personal Efficiency Specialist from Efficiency Vermont will be calling you. Throughout the course of the study, your Efficiency Specialist will work with you to help you learn ways to control your electricity use and therefore, to reduce your electricity bill.

3. **Variable Electric Rate:** In the first year of the study, your electric rate will not change. You will pay the same "flat" rate that you currently pay. During the second year of the study, your electric rate will change to a Variable Peak Price or VPP. This rate gives you the ability to control costs by using electricity at times when it is less expensive—typically evenings and weekends.

Variable Peak Pricing consists of three distinct rates: Off-Peak Fixed, On-Peak Fixed and On-Peak Variable. The two Fixed rates (Off-Peak and On-Peak) will be in effect for at least 18 hours of each weekday. The On-Peak Variable rate will fluctuate, according to the demand on the region's electricity grid. The rate will apply only during a regularly scheduled weekday period. The On-Peak Variable rate will be published daily on your personalized website, 12 hours in advance of the rate activation.

What are the risks and rewards?

During the second year of the study, your electricity bill will be calculated according to the Variable Peak Pricing rate. As a result, it is possible that you might pay more for electricity than you would have otherwise paid if you remained on the "flat" rate. For this reason, you are allowed to opt out of the study at any time. Possibly paying more for electricity is the primary risk of participating in the study.

The benefits of participating in the study include:

- Free use of state-of-the-art Internet feedback technology.
- A Personal Efficiency Specialist from Efficiency Vermont who will be in touch with you throughout the study.
- Potential reductions in your electricity bill if you change your electricity use patterns or reduce your use.
- The improvements you make to your electricity use patterns indirectly reduce costs for all members.

What are the next steps?

Please read the attached Member Participation Agreement, and decide if you agree to the participation terms and conditions. You do not need to return the Agreement to us, but you will be required to agree to these terms and conditions when you first log on to the website.

Your Personal Efficiency Specialist will call you in January or February to help you get started with logging on to the website and explore the features and information it offers. Throughout the course of the study, the Specialist will actively help you learn new ways to increase your control over your electricity use and their costs. The Specialist will also be available to answer any questions you may have.

Thank you for your willingness to participate in this important study. We hope that together we can help you have increased control over the cost of your electricity, and make an important difference in helping others in Vermont. Again, should you have any questions before then, please contact an Efficiency Vermont Representative at 1-855-832-7283 (1-855-VEC-SAVE).

Sincerely,

Jim Merriam
Director
Efficiency Vermont

December 12, 2011

Name
Address
City, State Zip

Dear Vermont Electric Cooperative Member,

This summer, you responded to a survey that indicated your willingness to participate in a two-year study being conducted by Vermont Electric Cooperative (VEC), the U.S. Department of Energy, and Efficiency Vermont. We are happy to inform you that you have been selected to participate in the study. This letter describes what being a participant means for you. It is organized into four parts:

- What is the purpose of the study?
- What are you being asked to do?
- What are the risks and rewards?
- What are the next steps?

If at any time you have questions regarding the study, you may call 1-855-VEC-SAVE (1-855-832-7283), and an Efficiency Vermont Representative will be happy to answer your questions.

What is the purpose of the study?

The purpose of the study is to measure the reduction in electricity use that results from having access to in-home energy feedback technology and having a variable electric rate.

What are you being asked to do?

You have been randomly assigned to "Group 2" with other VEC Members who are being asked to receive and make use of the following:

1. **In-Home Energy Feedback Technology:** You will receive an in-home display; in addition, you have will access to a personalized website that will provide you with near-real-time information about your electricity use and its cost.

2. **Installation of the Technology:** Within the next several weeks, our partnering electrical contractor will contact you to schedule the installation of the in-home display. Please work with the contractor to arrange installation. It is important to note that an adult aged 18 or older must be present during installation. Your participation depends on the electrician's ability to successfully install the in-home display in your home. If for any reason it cannot be successfully installed in your home, we will remove you from the study, with our thanks for your willingness to have participated.

3. **Variable Electric Rate:** In the first year of the study, your electric rate will not change. You will pay the same "flat" rate that you currently pay. During the second year of the study, your electric rate will change to a Variable Peak Price or VPP. This rate gives you the ability to control costs by using electricity at times when it is less expensive—typically on evenings and weekends.

Variable Peak Pricing consists of three distinct rates: Off-Peak Fixed, On-Peak Fixed, and On-Peak Variable. The Fixed rates (both On- and Off-Peak) will be in effect for at least 18 hours of each weekday. The On-Peak Variable rate will fluctuate according to the demand on the region's electricity grid. However, the rate will apply only during a regularly scheduled weekday period. The On-Peak Variable rate will be published daily on your personalized website, 12 hours in advance of the rate activation, and will display in real time on your in-home display.

What are the risks and rewards?

During the second year of the study your electricity bill will be calculated according to the Variable Peak Price rate. As a result, it is possible that you might pay more for electricity than you would have otherwise paid if you remained on the "flat" rate. For this reason, you are allowed to opt out of the study at any time. The possibility of paying more for your electricity is the primary risk of participating in the study.

The benefits of participating in the study include:

- Free use of state-of-the-art in-home energy feedback technology.
- Potential reductions in your electric bill if you change your electricity use patterns or if you reduce your use.
- The improvements you make to your electric usage patterns indirectly reduce costs for the all members of the cooperative.

What are the next steps?

Please read the attached Member Participation Agreement, and decide if you agree to the participation terms and conditions. You do not need to return the Agreement to us, but you will be required to agree to these terms and conditions when you first log on to the website.

When our contractor comes to your home in January or February to install your in-home display, he or she will help you get started with logging on to your personal website and exploring the features and information it offers.

Thank you for your willingness to participate in this important study. We hope that together we can help you have increased control over the cost of your electricity, and make an important difference in helping others in Vermont do the same. Again, should you have any questions before then, please contact an Efficiency Vermont Representative at 1-855-832-7283 (1-855-VEC-SAVE).

Sincerely,

Jim Merriam
Director
Efficiency Vermont

December 12, 2011

Name
Address
City, State Zip

Dear Vermont Electric Cooperative Member,

This summer, you submitted a survey that indicated your willingness to participate in a two-year study being conducted by Vermont Electric Cooperative (VEC), the U.S. Department of Energy, and Efficiency Vermont. We are happy to inform you that you have been selected to participate in the study. This letter will describe what being a participant means for you. It is organized into four parts:

- What is the purpose of the study?
- What are you being asked to do?
- What are the risks and rewards?
- What are the next steps?

If at any time you have questions regarding the study, you may call 1-855-VEC-SAVE (1-855-832-7283), and an Efficiency Vermont Representative will be happy to answer your questions.

What is the purpose of the study?

The purpose of the study is to measure the reduction in electricity use that results from having access to in-home energy feedback technology, a variable electric rate, and a personal Efficiency Specialist.

What are you being asked to do?

You have been randomly assigned to "Group 3" with other VEC members who are being asked to receive and make use of the following:

1. **In-Home Energy Feedback Technology:** You will receive an in-home display. In addition, you will have access to a personalized website, which will provide you with near-real-time information about your electricity use and cost.

2. **Installation of the Technology:** Within the next several weeks, our partnering electrical contractor will be contacting you to schedule the installation of the in-home display. Please work with the contractor to arrange installation; it is important to note that an adult aged 18 or older must be present during installation. Your participation depends on the electrician's ability to successfully install the in-home display in your home. If for any reason it cannot be successfully installed in your home, we will withdraw you from the study, with our thanks for your having been willing to participate.

3. **Personal Efficiency Specialist:** Your personal Efficiency Specialist from Efficiency Vermont will be calling you after the in-home display is installed. Throughout the course of the study, the Efficiency Specialist

will help you understand the ways in which you can control your electricity use, and therefore to reduce your electricity bill.

4. **Variable Electric Rate:** In the first year of the study, your electricity rate will not change. You will pay the same "flat" rate that you currently pay. During the second year of the study, your electricity rate will change to a Variable Peak Price or VPP. This rate gives you the ability to save money by using electricity at times when it is less expensive—typically evenings and weekends.

   Variable Peak Pricing consists of three distinct rates: Off-Peak Fixed, On-Peak Fixed, and On-Peak Variable. Both the On- and Off-Peak Fixed rates will be in effect for at least 18 hours of each weekday. The On-Peak Variable rate will fluctuate according to the demand on the region's electricity grid, but it will occur only during a regularly scheduled weekday period. The On-Peak Variable rate will be published daily on your personalized website, 12 hours in advance of the rate activation, and will display in real time on your in-home display.

What are the risks and rewards?

During the second year of the study, your electricity bill will be calculated according to the Variable Peak Pricing rate. As a result, it is possible that you might pay more for electricity than you would have otherwise paid if you remained on the "flat" rate. For this reason, you have the right to opt out of the study at any time. This is the primary risk of participating in the study.

The benefits of participating in the study include:

- Free use of state-of-the-art in-home energy feedback technology.
- A Personal Efficiency Specialist from Efficiency Vermont who will be in touch with you throughout the study.
- Potential reductions in your electricity bill if you change your electric use patterns or reduce use.
- The improvements you make to your electricity use patterns indirectly reduce costs for the all members of the cooperative.

What are the next steps?

Please read the attached Member Participation Agreement, and decide if you agree to the participation terms and conditions. You do not need to return the Agreement to us, but you will be required to agree to these terms and conditions when you first log on to the website.

When our contractor comes to your home in January or February to install your in-home display, he or she will help you get started with logging on to your personal website and with exploring the features and information it offers.

Your Personal Efficiency Specialist will call you shortly after your in-home display has been installed to help you get started with evaluating opportunities for reducing your electricity costs. The Specialist will actively work with

you throughout the course of the study so that you can learn new ways to control your electricity use. The Specialist will also be available to answer any questions you may have.

Thank you for your willingness to participate in this important study! We hope that together, we can help you have increased control over the cost of your electricity, and make an important difference in helping others in Vermont do the same. Again, should you have any questions before you are contacted by either the electrician or the Specialist, please contact an Efficiency Vermont Representative at 1-855-832-7283 (1-855-VEC-SAVE).

Sincerely,

Jim Merriam
Director
Efficiency Vermont

Vermont Electric Cooperative

Consumer Behavior Study

Member Participation Agreement

MEMBER ACCOUNT NAME: <First Name, Last Name>

As a participant in the Consumer Behavior Study, the Member acknowledges having read and understood this Agreement. As a participant, the Member also agrees to comply with the following Study Participation Requirements:

GROUPS 1, 2, and 3

1. **Eligibility.** Eligibility for the Consumer Behavior Study ("Study") is restricted to VEC residential members. All members must be homeowners who obtain electric service from VEC's RS-1 rate for the past twelve months, at a minimum.

2. **Funding**. VEC is receiving funds for the Study through the American Recovery and Reinvestment Act of 2009 (ARRA) and a contract with the US Department of Energy (DOE).

3. **Intellectual Property.** VEC and Member shall each retain ownership of, and all rights, title, and interest in and to, their respective pre-existing intellectual property.

4. **Member Information**: By participating in the Study, Member authorizes the Contractor ([redacted] to collect, store, and use information about the Member for purposes related to the Study.

5. **Member Privacy and Public Information:** To protect Member privacy and confidentiality, all Member-specific information will be removed prior to any disclosure, including name, address, phone number, account number and e-mail address. Your data will only be used for the Study, and will not be sold to or used by third parties for non-Study purposes. Member is advised that because this Study is federally funded, the information collected during the survey, post install check, or captured by the Study's Monitoring Equipment, including status of installation and all incentive paperwork, will be delivered to the US Department of Energy (DOE) at the end of the Study.

6. **Study Purpose and Duration.** The purpose of the study is to measure the reduction in electricity use that results from having access to in-home energy feedback technology, a variable electric rate and "proactive" customer service. The Study will collect two years of electric use information, and the data will be used to publish a report to the US Department of Energy.

7. **Variable Peak Price.** During the second year of the study, Members participating in the Study agree to have their rate changed from the RS-1 rate to a Variable Peak Price rate

8. **Member also authorizes the Contractor** to create and use for purposes unrelated to the Study, non-personally identifying anonymous and aggregate data. Contractor's Privacy Policy can be viewed at [redacted].

9. **Voluntary Participation.** If you do not wish to participate, you may decide to opt out of the study at any time by calling 1-855-VEC-SAVE. Should you choose to end your participation in the Study once it has begun, the privacy and confidentiality practices noted above will apply to any data already collected.

GROUPS 2 & 3 Only

10. **Access.** Members in the Study who are assigned to Groups 2 & 3 agree to permit VEC and its Subcontractors reasonable access to and egress from the home during normal business hours to carry out the work of this Study. In addition, Member will allow, if requested, a representative from the DOE, State of Vermont, VEC or any authorized subcontractor reasonable access to the Equipment to verify the installed product.

11. **Code Compliance.** The Subcontractors are licensed and insured to do business in Vermont and will install the Equipment using the applicable standards and procedures specified in the current municipal building code.

12. **Equipment & Equipment Costs.** Members in the Study will receive the Equipment at no cost to them.

13. **Installation & Installation Costs.** Members in the Study who are assigned to Groups 2 & 3 will receive the installation at no cost to them. Members will be contacted by VEC's designated Contractor, [redacted] and their locally owned and operated electrical Subcontractors to schedule the installation of the Equipment.

14. **Monitoring Equipment & Broadband Internet Access.** Members who agree to participate in Groups 2 & 3 agree to provide and maintain wireless, broadband internet access for the duration of the Study (2 years), and to allow it to be used to communicate electrical usage information to the Contractor's web portal.

15. **Ownership.** Members who enroll in the Study and are assigned to Groups 2 or 3 agree to have an electrician visit their home to install a current transformer in the Member's circuit breaker box and set up an in-home display device. The Equipment will carry the manufacturer's full warranty and become the sole property of the Member upon installation. The Member will be responsible for its maintenance and upkeep throughout the Study and during the operating life of the Equipment. <u>The Equipment will not be removed after the conclusion of the Study and will remain the property of the Member.</u>

16. **Permission.** Member specifically agrees to permit VEC and Subcontractors to visit, photograph, and monitor the Equipment and to install the Equipment for purposes of the Study.

17. **Taxes.** The Member is not responsible for any taxes related to the Equipment or its installation.

18. Summary.

- [redacted] or their local electrical subcontractors will contact you to schedule the installation of the Equipment.
- The installation of the technologies will take approximately 2 hours, during which time you may be without power.
- A person aged 18 or older must be present at the time of installation.
- Your electric use will be monitored for the next 24-30 months.
- The technology installed at your residence is yours to keep, and will not be un-installed at the end of the study (though the monitoring of your electricity usage will cease).

I am the homeowner of the household and I agree to participate in the VEC Consumer Behavior Study. I also state that I am duly authorized to act on behalf of the account named above. I have read and thoroughly understand the terms and conditions as described above.

I acknowledge understanding of the described Study offered by VEC and agree to be bound by the terms of this Agreement.

I authorize VEC to release information for my account to VEC's Consultants and/or Subcontractors for analysis and reporting purposes. This information may include, but is not limited to, read date, number of billed units (e.g., kWh, kW) by intervals as short as 5 minutes, billed costs, and member pilot participation number. Member identifying information such as name address, account number and name will not be released as part of this authorization.

Vermont Electric Cooperative, Inc.

42 Wescom Road
Johnson, VT 05656-9717

Toll Free: 1-800-832-2667
Telephone: 802-635-2331
Fax: 802-635-7645

www.vermontelectric.coop

June 9, 2011

Name
Address
City, State Zip

Dear VEC Member,

By now, you've received a postcard from us about a two-year study being conducted by Vermont Electric Cooperative, the U.S. Department of Energy, and Efficiency Vermont. The purpose of the study is to test new ways to reduce your electric bills.

If selected, you will receive some or all of the following at no cost to you:

- **Interactive Web Portal Access**
  View hourly data on your energy usage through an interactive internet tool, to help you make informed decisions about energy use around the home.
- **In-home Real-Time Display**
  View actual data on your energy usage through a small in-home display unit, to help you make informed decisions about energy use around the home.
- **Proactive Customer Service**
  A dedicated customer service representative Efficiency Vermont will contact you—at your convenience—to provide expert guidance throughout the study on ways to improve electric usage in your home.

Year one of the study will help you to understand and use one or more of the above tools. Your electric rate category will stay the same. In **year two** of the study, your electric rate will shift from a flat rate (which is what you pay now), to a variable rate. In tandem with the above tools, a variable rate gives you the option to use electricity at times when it is less expensive. The tools will also help you to use less electricity during short periods when it may be more expensive.

This study will take little of your time and will provide a way to gain control over your household energy use while also helping to improve the energy future of the United States. Participation is voluntary and you may withdraw from the study if you choose to.

Enrollment is limited, so if you would like to be considered to participate, complete the enclosed survey and return it using the postage paid envelope by **June 24** — doing so will automatically enter you in a drawing to win an Apple iPad 2.

Should you have any questions before then, please contact an Efficiency Vermont representative at 1-855-832-7283 (1-855-VEC-SAVE).

Sincerely,

David C. Hallquist
Chief Executive Officer

[redacted]

Insight

In-Home Display

Give customers insight into energy consumption. Help customers understand, manage and control their household energy consumption with the [redacted] Insight.

The [redacted] Insight is an in-home display that communicates with networked smart devices including thermostats, electricity meters, and outlets. With the [redacted] Insight, consumers can track kilowatts and cost-per-hour of their energy as they use it for up-to-the-minute bill tracking. Customers can also actively participate in energy efficiency programs, and enjoy more choices around energy consumption. With the [redacted] Insight, utilities can help customers save money and reduce their environmental impact, while reducing customer service incidents and improving overall load balancing and Demand Response capabilities. For an enhanced homeowner experience the [redacted] Insight can be used in conjunction with the [redacted] Vantage web portal.

Provide in-home energy usage at a glance. The [redacted] Insight displays a variety of screens that show consumers their monthly consumption and the associated cost, month-to-date estimated bill, and utility electricity pricing and load control event messages. Users can also set personal alerts to manage energy usage more efficiently, and control their energy costs. Concurrently, utilities can send alerts about price changes as well as rebate opportunities for participating in Demand Response events, such as switching thermostats and appliances to more environmentally-friendly settings during peak demand.

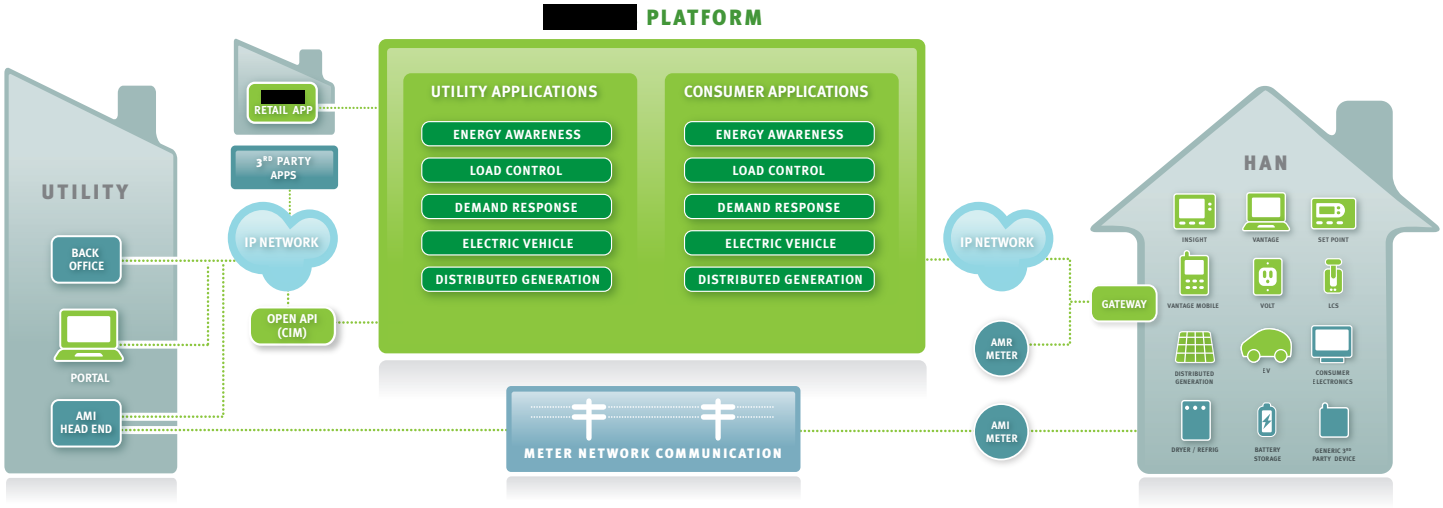
Manage change with a flexible standards-based approach. The [redacted] is ZigBee® Smart Energy 1.0 certified and an integral part of an effective Home Area Network (HAN). A ZigBee-based HAN gives consumers the freedom to choose from a variety of interoperable energy management solutions and to take advantage of automation and real-time information for better energy management.

Overview

- Displays current household energy use in both kilowatts and dollars-per-hour
- Offers monthly bill tracking with up-to-date billing information and an estimated end of month bill
- Displays cost of electricity in real time
- Makes consumers aware of fluctuating energy prices and consumption rates with a variety of audio and visual alerts
- Allows text messaging from utility
- Provides wireless software updates of the latest features and functions

Key Features

- Consumer-friendly package
- Durable plastic housing
- Wall powered via 110VAC power adapter, with 6' cord
- Wall mountable or use the retractable stand for placing at upright viewing angle (e.g., on counter) or laying flat
- Rubber pads at base to provide stability and avoid slippage on hard surfaces
- Colored LED lights indicate various conditions for user and customer support
- Over-the-Air (OTA) enabled firmware update support
- Colored back light for alerts
- Co-branding available
- Embedded [redacted] Profile provides extended Smart Energy functionality and remote diagnostics



The [redacted] platform is a proven energy management technology that provides an end-to-end solution giving utilities and their customers the power to solve today's energy challenges. Consisting of both utility and in-home products and applications, the [redacted] platform creates a dynamic dialogue like never before.

Integrate now and in the future. The [redacted] Insight is open and standards-based, enabling it to integrate with today's AMI and AMR meters. Over-the-air updates enable enhancements to deployed device firmware and software. This flexible, standards-based approach also enables [redacted] to comply with and adapt to changing regulatory, consumer and technological needs, as well as future Smart Energy certified hardware, such as HomePlug® products. With ZigBee-certified [redacted], utilities can implement energy management and efficiency programs more easily and securely, and consumers can reduce energy costs and their impact on the environment.

The big advantage. Now utilities can meet consumer demand and prepare for regulatory mandates by offering customers a truly integrated Smart Grid experience. The [redacted] platform, along with [redacted] in-home products, makes it easy. No matter the network architecture or metering infrastructure, [redacted] offers a solution that gives utilities the security and control they need, while delivering the interaction customers expect.

About [redacted]. [redacted] is a leading energy management technology provider that brings unprecedented insight and control to the Smart Grid. [redacted] enables utilities to balance energy demand through a dynamic dialogue with their customers.

For more information contact a [redacted] representative today.
Visit [redacted] or call [redacted].

Insight Technical Specifications

- 128x240 pixel monochrome display with 9.2 x 5.3 centimeter viewing area
- Backlight with ambient light sensing and Red-Green-Blue color options
- Large fonts with home screen viewable from 8+ feet
- ZigBee/802.15.4 Radio with [redacted] additional functionality
- 2.400 - 2.483 GHz, unlicensed ISM band
- Atmel AVR Control Processor operating at 3.6864 MHz with 256KB Flash and 8KB RAM
- 1MB external serial flash EEPROM100mW power-amp output
- -94dBm receiver sensitivity
- Internal power consumption 1.2W to 1.8W (depending on operational state)
- Elliptic Curve Cryptography (ECC) enabled for AMI configurations
- Pre-configured Link Key enabled for AMR and AMI configurations
- Over-the-air (OTA) embedded software updates

Requirements

- [redacted] platform
- AMI Smart Meter
- AMR Meter

Standards

- Zigbee SE 1.0 certified
- FCC certified
- UL certified

Availability

The [redacted] is available today

[redacted]

[redacted]

[redacted]

Transport
Gateway

Connect on a whole new level. Interact with customers to better manage Demand Response and load control scenarios with the [redacted] Transport.

When it comes to Smart Grid technology, the gateway is critical. The [redacted] Transport effectively brings the Smart Grid, along with all of its energy-saving information, right into the home. The [redacted] Transport is an IP gateway device that opens a new channel of interaction and collaboration between consumers and their utilities. With the [redacted] Transport, utilities can better manage supply, demand and costs. While customers gain more access to energy-related information and more control over energy consumption decisions.

Manage change with a flexible standards-based approach. The [redacted] Transport is ZigBee® Smart Energy 1.0 certified and an integral part of an effective Home Area Network (HAN). A ZigBee-based HAN gives consumers the freedom to choose from a variety of interoperable energy management solutions and to take advantage of automation and real-time information for better energy management.

Integrate now and in the future. The [redacted] Transport is open and standards-based, enabling it to integrate with today's AMI and AMR meters. Over-the-internet updates enable enhancements to be deployed to the device firmware and software.

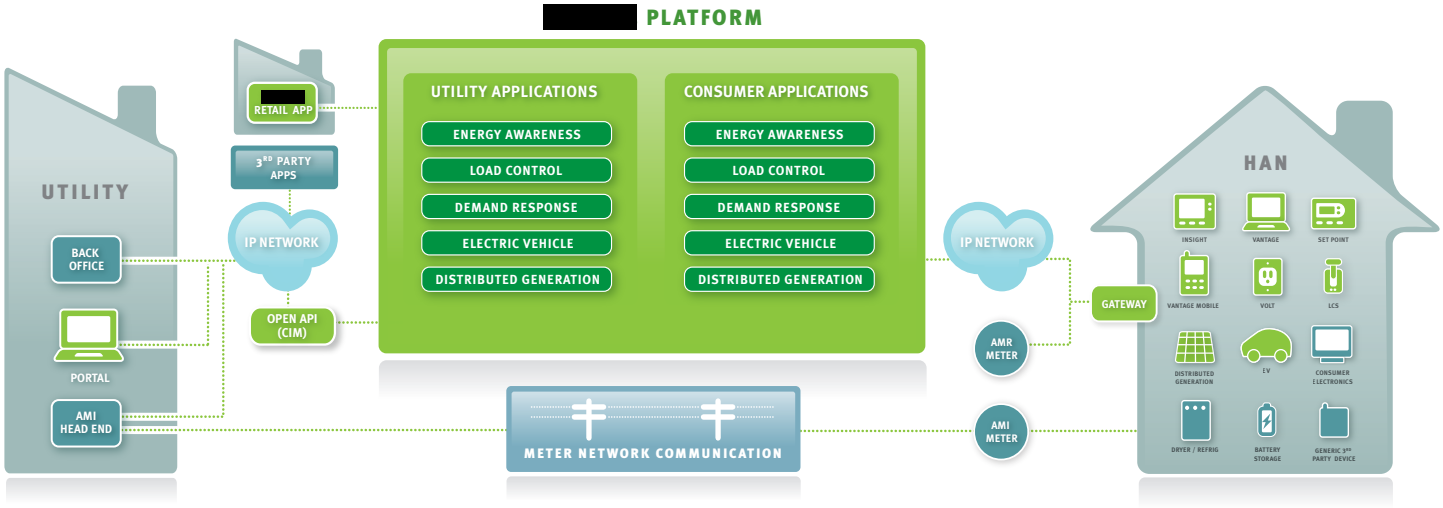
This flexible, standards-based approach also enables [redacted] solutions to comply with and adapt to changing regulatory, consumer and technological needs, as well as future Smart Energy certified hardware, such as HomePlug® products. With ZigBee-certified [redacted] solutions, utilities can implement energy management and efficiency programs more easily and securely, and consumers can reduce energy costs and their impact on the environment.

Overview

- Connects the in-home ZigBee wireless network to an Internet broadband router (cable-modem, DSL modem, etc.)
- Enables unprecedented insight into and control over household energy footprint with graphical web-based information
- Operates in conjunction with smart energy programs of the local electricity provider (where applicable and if enrolled in these programs)

Key Features

- Attractive consumer design
- Consumer safe, durable plastic housing
- Rubber pads on base to provide stability and avoid slipping on hard surfaces
- Screw holes in base for wall-mount applications
- Colored LED lights indicate various conditions for user and customer support
- Wall powered via 110VAC power adapter, with 6' cord
- 6' Ethernet cable for connectivity to home broadband router
- Co-branding available
- Embedded [redacted] Profile provides for local or remote network commissioning and diagnostics



The [redacted] platform is a proven energy management technology that provides an end-to-end solution giving utilities and their customers the power to solve today's energy challenges. Consisting of both utility and in-home products and applications, the [redacted] platform creates a dynamic dialogue like never before.

The big advantage. Now utilities can meet consumer demand and prepare for regulatory mandates by offering customers a truly integrated Smart Grid experience. The [redacted] platform, along with [redacted] in-home products, makes it easy. No matter the network architecture or metering infrastructure, [redacted] offers a solution that gives utilities the security and control they need, while delivering the interaction customers expect.

About [redacted]. [redacted] is a leading energy management technology provider that brings unprecedented insight and control to the Smart Grid. [redacted] enables utilities to balance energy demand through a dynamic dialogue with their customers.

For more information contact a Tendril representative today.
Visit [redacted] or call [redacted].

Transport Technical Specifications

- Smart Energy ESP (Energy Services Portal) capable
- Atmel ARM-9 Control Processor operating at 180 MHz with 16MB Flash and 16MB RAM
- Embedded Linux OS
- 16MB RAM, 8MB Flash
- ZigBee Smart Energy 1.0 certified
- ZigBee/802.15.4 Radio
- 2.400-2.483 GHz, unlicensed ISM band
- 100mW power-amp output
- -94dBm receiver sensitivity
- Internal power consumption: 500mW to 1.2W (depending on operational state)
- Over-the-Internet (OTI) software updates
- Elliptic Curve Cryptography (ECC) enabled for AMI configurations
- Pre-configured Link Key enabled for AMR and AMI configurations

Requirements

- [redacted] platform
- AMI Smart Meter
- AMR Meter
- Broadband Connection with Ethernet

Standards

- Zigbee SE 1.0 certified
- FCC certified
- UL certified

Availability

The [redacted] Transport is available today

[redacted]

[redacted]

JIM Panel Meter (RD77720/ RD71220)

Quick Install Guide

This abbreviated quick install guide is for easy reference only. Please read and follow all instructions in the main “User Guide”, including all warnings, cautions, and precautions before installing and using this product.

All electrical installations must be done in accordance with local electrical codes and the National Electrical Code (NEC), ANSI/NFPA 70. See product manual for detailed installation instructions.

Potential shock hazard from dangerous high voltage.

Jetlun recommends that a licensed electrician install the Panel Meter.

Mounting

1. Protect the Panel Meter from moisture, direct sun-light, high temperatures, and conductive pollution (salt spray, metal dust, etc.), using a NEMA rated enclosure if necessary.
2. Do not install the Panel Meter where it may be exposed to extreme temperature and temperatures below -30ºC or above 55ºC.
3. The Panel Meter must be installed in an electrical service panel, a junction box, or a limited access electrical room.
4. Do not drill mounting holes with the Panel Meter in the mounting position because the drill bit or chuck may damage the Panel Meter housing or connectors.
5. The Panel Meter comes with a din-rail mounting bracket. Simply screw the din-rail bracket onto the back of the Panel Meter, and mount onto the appropriate din rail (sold separately)..

Connecting Current Transformers (CT)

1. Only use the CTs provided by Jetlun as they have been specially calibrated to work with Jetlun Panel Meter for accuracy.
2. To minimize current measurement noise, avoid extending the CT wires, especially in noisy environments. If it is necessary to extend the wires, use stranded twisted pair wire 22-14 AWG, rated for 600V.
3. You may shorten the CT wires.
4. Find the arrow or label “THIS SIDE TOWARD SOURCE” on the CT and face toward the current source.
5. To prevent magnetic interference, separate CTs by at least 1 inch (25 mm).

To connect Solid-core CTs, pass the wire to be measured through the CT and connect the CT according to the labeled phase on the terminal block of the Panel Meter. Always remove power before disconnecting any live wires. Put the line wires through the CTs as shown in above.Split-core CTs can be opened for installation around a wire by puling

email: support@jetlun.com | url: www.jetlun.com

the removable section straight away from the rest of the CT; this may require a strong pull. The removable section only fits one way, so match up the steel core pieces when closing the CT. If the CT seems to jam and will not close, the steel core pieces are probably not aligned correctly; DO NOT FORCE together. Instead, reposition or rock the removable portion until the CT closes without excessive force. A nylon cable tie can be secured around the CT to prevent inadvertent opening.

Wiring

Next, connect the white and black CT wires to the Panel Meter according to the labeled terminal block. Excess length may be trimmed from the wires if desired. Strip or trim the wires to expose 1/4" (6 mm) of bare wire.

Powering Up

To power up the Panel Meter, simply secure the four wires of the Panel Meter directly into breakers that correspond with the correct phase.

Provisioning the Panel Meter to Join the JIM Gateway (sold separately)

From the JIM Gateway software user interface:
1. Under Setup > ZigBee, from the left column, ensure the Current Mode is configured to MASTER. *For model RD71220 Panel Meter, skip to step 7.*
2. Leave the Channel ID, Power Level, and Pan ID as default unless you are an advanced user.
3. Click on the FORM button. Upon success, the FORM button will change to a LEAVE button.
4. On the right column, configure network join permissions by selecting, “Join any time”.
5. Click Execute and follow the steps, “Joining a ZigBee Network” below.
7. Under Home Area Network > Network and locate the Panel Meter on the table.
8. Once located, click on the Authenticate icon to add it to your network.

Joining a ZigBee Network (RD77720 only)

Press and hold the ZigBee security button for four to five (4-5) seconds, then release the button. The ZigBee LED will be lit indicating network success.

Leving a ZigBee Network (RD77720 only)

Press and hold the ZigBee security button for eight to ten (8-10) seconds, then release the button. The ZigBee Link LED will NOT be lit.

LED Indicators

ZigBee LED: Solid Red = RD77720 is not in the network
Solid green = Joins the ZigBee network
Blinking Green = Search network
Phase A/B/C: Solid Green = Power is positive
Solid Yellow = Power is negative
OFF = No current for Phrase A,B,C

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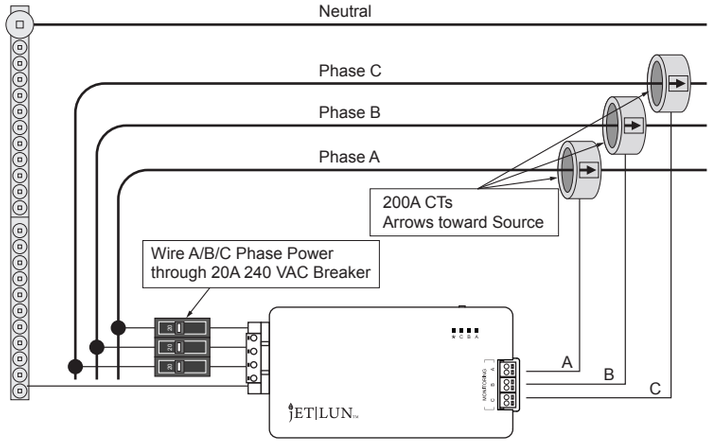
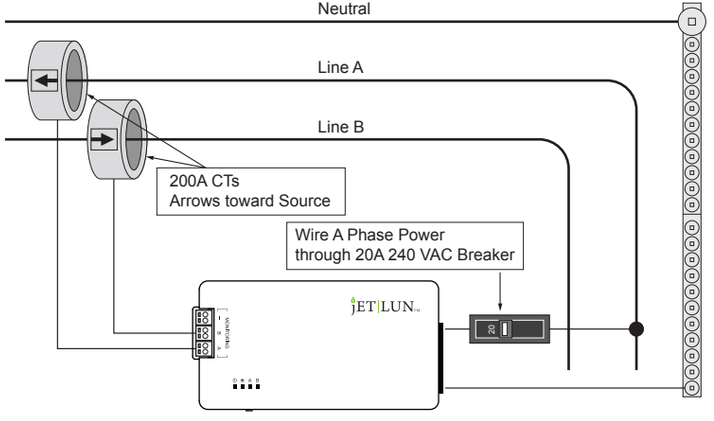
Three Phase



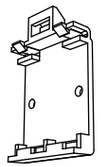
Single Phase



email: support@jetlun.com | url: www.jetlun.com

Package Contents

1x Din Rail Bracket

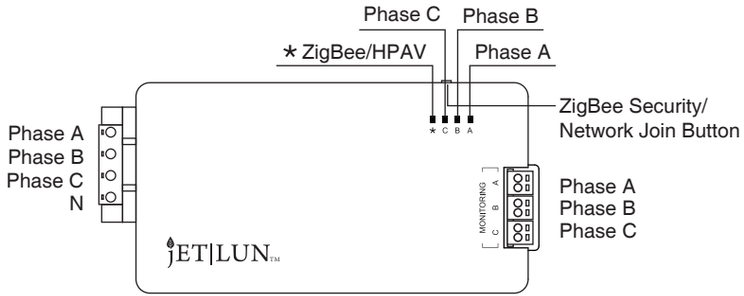


2x Screws

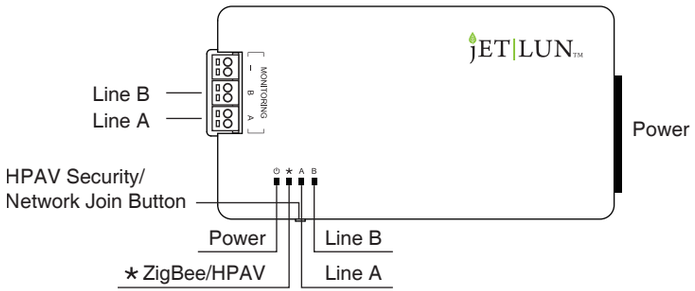
1x Panel Meter (single phase or three phase)

(three phase)

✶ LED for ZigBee if RD77720 and LED for HomePlug if RD71220



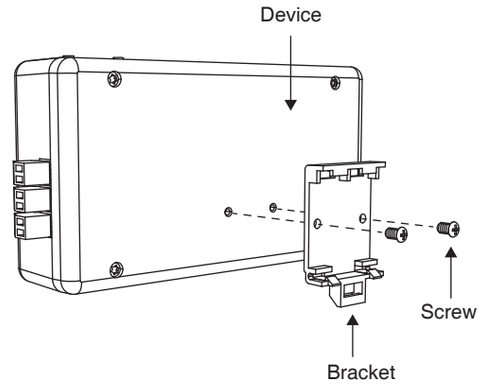
(single phase)



✶ LED for ZigBee if RD77720 and LED for HomePlug if RD71220

Mounting the Device onto the wall using the DIN rail bracket

1. Fasten the bracket to the device with the screws as shown in Figure 1.



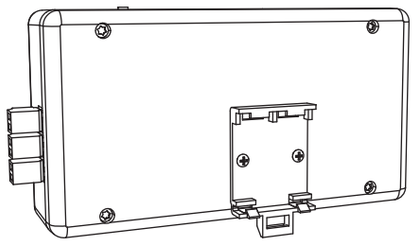


Figure 1. Attaching the DIN Rail Bracket to a Device in a Vertical Orientation

2. Clip the device onto the DIN rail as shown in Figures 2 and 3.

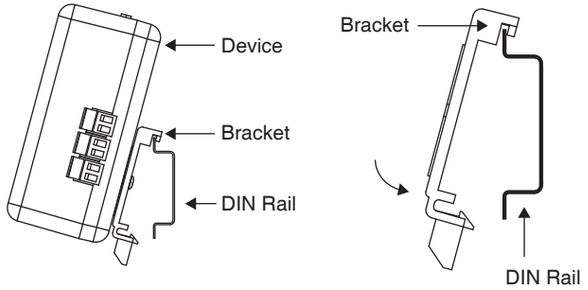


Figure 2. DIN Rail Bracket Locator Diagram

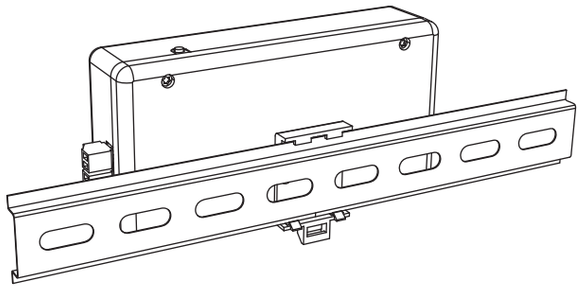


Figure 3. Device Mounted on a DIN Rail

DOC: QIG-RD77720/RD71220-1.5
Revision Date: June 15, 2011

[redacted]

[redacted]

Phone: [redacted]
Fax: [redacted]
Date: 2/3

SERVICE TICKET # 19197

Customer Information	
Name	
Street	
City / Zip	
Phone	
Program	
Username	
Password	

Appointment Information	
Appointment Date	2/3
Appointment Time	8:30am
[redacted]	
Check In Time	8.40
Check Out Time	11.30
[redacted]	

Confirmation Checklist

☑	Call customer stating who you are, contracting company and vehicle description
☑	Verify name of client and address of client
☑	Verify that someone will be present that is at least 18 years old
☑	Specify estimated arrival time
☑	Verify that CBS transport hardware kit is available

Arrival Checklist

☑	Park in street if possible or where vehicle is safe
☑	Call in to [redacted] dispatch [redacted]
☑	Gather tools, kits, critical supplies and work order
☑	Check appearance and gather ID

Customer Greeting Checklist

☑	Introduce yourself presenting ID or displaying uniform
☑	Ask permission to enter (clean feet of dirt and snow)
☑	Present VEIC Welcome Letter.
☑	Provide brief description of the work you are about to do
☑	Ask customer to show hardware locations to complete assessment

Assessment Checklist *(if required, record reason for walkaway on Page 3 and contact Speed Wire)*

☑	Is environment safe to work
☑	Inspect router, verify spare port available and router is accessible
☑	Ask customer if router is firewalled
☑	Is computer and internet operational
☑	Remove cover to electric panel
☑	Verify that panel meets code
☑	Take photo of electric panel ***Note: Photo is required collateral and must be submitted with work order***
☑	Verify access for installing CT clamps
☑	Verify how breakers will be installed, repositioned or external box required
☑	If flush mount panel note how you will mount Jetlun and impact on aesthetics
☑	Inform customer of all changes being proposed and that they are comfortable with proceeding
☐	***Note: Inform the customer of the reason for not meeting the assessment and note on Page 3 of work-order.***

Installation Checklist

- [x] Remove Transport from packaging verifying instance (C- CBS)
- [x] Attach antenna and connect broadband
- [x] Plug In Transport – ***Use Power Strip if required.*** *DO NOT UNPLUG TRANSPORT ONCE IT IS POWERED.*
- [ ] ***Note: Transport will begin communications sequence. Check LEDs against checklist prior to registration***

- [x] Remove Jetlun Power Meter from package. Mount according to installation manual
- [x] Connect CTs to Line A & B. Note spacing and clearance. Points arrows toward in-coming power.
- [x] Install breakers or auxiliary box and breakers as determined during assessment
  Note: Record Parts Used on Page 3 of Work Order
- [x] Wire CT Clamps and power connections to breakers and Jetlun according to installation manual
- [x] Apply power. A&B LEDs on meter should be green. ***Troubleshoot according to installation manual***
- [x] Apply manufacturers label on front of meter and label breaker on customer panel
- [x] Take photo of Jetlun and panel. ***Note: Photo is required collateral and must be submitted with work order***
- [x] Install panel cover. Remove wires and packaging materials. ***Note EUI and Installation Codes to register***

- [x] Remove In Home Display from package. ***Note EUI and Installation Codes to register***
- [x] Identify visible location near an electrical outlet and plug in IHD.

Device Registration Checklist

- [x] Have customer open internet browser and enter vantage portal URL
  https://[redacted]
- [x] Customer enters username and password provided on page 1. Both are case sensitive.
- [x] Customer answers basic questions about household
- [x] Customer enters Gateway ID and registers Transport
- [x] Customer enters EUI 64 and Installation Code and registers In Home Display
- [x] Customer enters EUI 64 and Installation Code for JetLun Power Meter. Go to power meter and press Zigbee registration button for 4 seconds. 3rd LED will blink green. Customer registers Meter.

Customer Education Checklist

- [x] Have customer open new internet browser window and enter Efficiency Vermont portal URL
  https://[redacted]
- [x] Instruct customer to bookmark site in favorites on web browser
- [x] Customer enters username and password provided on page 1
- [x] Customer privately changes username and password
- [x] Customer is trained on the **Energize Portal**: ( ) Setting a Goal ( ) Customer Notifications ( ) Their Pricing Plan ( ) Program Messages ( ) Where to Find an Expert

- [x] Customer is trained on the **In Home Display**: (✓) Main screen today's cost and weather (✓) Adjust background lighting & contrast (✓) Programing a price threshold (✓) Planned events

- [x] Ask customer if they have any further questions
- [x] Who to contact for assistance and web locations for manuals listed in Welcome Letter
- [x] Obtain customer signatures below and extend thanks
- [x] Remove boxes, tools and other installation materials from customers home

Signatures

The tasks checked above have been performed to the best of my abilities.	I have reviewed this list and noted any issues or concerns that were ~~obvious to me~~.
[signature] 02/03/12	[signature]
Installer Signature Date	Customer Signature Date

Close Out Checklist

- [x] Call in to [redacted] dispatch [redacted]
- [x] Confirm completion of installation or note reason for walk away as listed in section below.
  Note: It is mandatory that reasons for walk away and or customer issues are noted and reported to [redacted] immediately after leaving customer site
- [x] Submit collateral through work platform including photos

Confirm Parts Used

- [x] [redacted] Parts: ( ) Transports ( ) In Home Displays ( ) Jetlun Meters ( ) Power Strips
- [x] If parts are replaced record RMA number issued by Tech Support _____
  Note: Installer is responsible for recording RMA # on box and returning parts to [redacted] using RMA process
- [ ] Electrical Parts: ( ) Breakers ( ) External Boxes ( ) Other _____

Walk Aways, Customer Concerns and Delays

- [ ] Note cause for Walk Away and add comments as needed:

  ( ) Customer Not Home ( ) No one above age 18 ( ) Unsafe Work Condition
  ( ) No Available Port on Router ( ) No Broadband Internet ( ) Electric Code
  ( ) No room for CTs ( ) No available breakers ( ) Power Meter Aesthetics
  ( ) Customer changed mind (note reason)_____

  ( ) Other Reasons or Customer Concerns _____

- [ ] If installation requires Tech Support please record [redacted] Case number _____
  Describe reason for calling tech support and time installer was standing by _____

- [ ] Did customer get registered following tech support call? ( ) Yes ( ) No

Contact Information

[redacted] Tech Support (installers only)	[redacted]
[redacted] Dispatch	[redacted]
[redacted] Fax	[redacted]
VEIC Customer Support Hot Line	(855) 832-7283

Please be on-time and courteous to the customer. You are representing your own company as well as the VEIC, the VEC, [redacted] and [redacted]

The **ELECTRIC** CONNECTION

An Efficiency Vermont Newsletter

May 2012 www.efficiencyvermont.com Connect with us:

Vacation Time Can Mean Savings Time, Too

"Out of curiosity, I logged onto my web portal while on vacation in Arizona and noticed something strange: A spike in our usage every night at midnight. At first I was concerned, thinking I hadn't turned everything off, or even that some stranger was making nightly visits to our home. Eventually we realized it was our satellite box downloading updates. What a relief."
- Lester Butterfield, Derby, Vermont; VEC study participant

Any vacation plans this summer? Maybe you're traveling to the ocean, across the country, or to a Vermont State Park. **Wherever this summer takes you, don't forget to give your energy bills a break, too.**

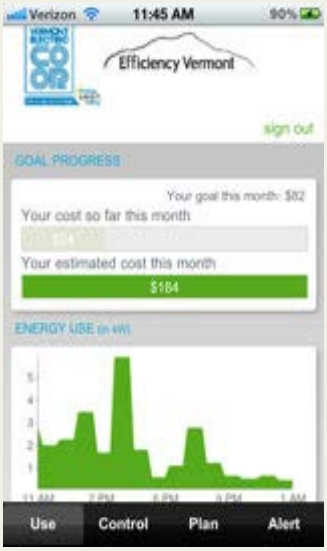
Use this checklist before you head out the door, and save energy and money while you're having fun:

- **Electronics**
  Some people unplug everything before they leave. You could accomplish the same thing with an advanced power strip, which can eliminate vampire load, and works while you're at home, too.

- **Lights**
  This almost goes without saying, but remember to turn out lights before you leave. And if you like to leave a light on so the house doesn't look vacant, try using a CFL. They use a fraction of the electricity, and run cooler and safer.

- **Thermostat**

Smartphone App



As a study participant, you can monitor your electricity usage right from your smart phone. Simply download the mobile application linked below:

- For iPhone, iPad, iPod
- For Android

Log in using the following information:
Server Name: [redacted]

Energy **Detectives**

Get kids thinking about saving energy at home with this fun activity:

Log onto your family's web portal and click on the tab marked "Your Energy Use". Next, select "Day View" to see

Is your heat or air conditioning turned off? There's no need to condition the air while you're away. If you like to come home to a specific temperature, consider a programmable thermostat, so the system kicks on just before you return.

There are many ways to save energy and money, even if you never leave the house. Get more tips here, and don't forget to check your web portal to see how you're doing.

how you did yesterday. Do you see any spikes in electricity? What do you think your family was doing that used electricity during that time?

What do you think tomorrow's graph will look like? Draw out a guestimate graph, and then log on again tomorrow or the day after to see how close you were. Then tell us about it!

Efficiency Vermont and Vermont Electric Cooperative Consumer Study Feedback Survey Group 1November 2012

SurveyMonkey

1. When was the last time you visited your Energize web portal?

	Response Percent	Response Count
Today	1.6%	1
Yesterday	3.1%	2
Within the last week	10.9%	7
Within the last month	18.8%	12
A couple of months ago	**29.7%**	**19**
Not since I talked with my Energy Specialist at Efficiency Vermont	23.4%	15
Can't remember	9.4%	6
Have never visited	3.1%	2
	answered question	**64**
	skipped question	**2**

2. Have you been in contact with Efficiency Vermont regarding any questions or service issues related to your Energize web portal?

	Response Percent	Response Count
Yes	16.7%	11
No	**83.3%**	**55**
	answered question	**66**
	skipped question	**0**

3. Was the question or service issue about your Energize web portal resolved to your satisfaction?

	Response Percent	Response Count
Yes	**100.0%**	**11**
No	0.0%	0
	Your feedback welcome!	2
	answered question	**11**
	skipped question	**55**

4. The information on the Energize web portal has been (check all that apply):

	Response Percent	Response Count
Accurate	29.2%	19
Easy to understand	53.8%	35
Informative	**55.4%**	**36**
I haven't really explored it enough to have an opinion	33.8%	22
Inaccurate	1.5%	1
Difficult to understand	1.5%	1
Didn't find the information useful	1.5%	1
	answered question	**65**
	skipped question	**1**

5. Please explain your response

	Response Count
	30
answered question	**30**
skipped question	**36**

6. In order of what you think are the highest users of electricity in your home, please rank your home appliances and electronics:

		Response Percent	Response Count
1		**100.0%**	**58**
2		**100.0%**	**58**
3		96.6%	56
4		86.2%	50
5		67.2%	39
6		53.4%	31
7		41.4%	24
8		31.0%	18
	answered question		**58**
	skipped question		**8**

7. A typical Vermont household uses 600 kilowatt hours of electricity per month. What do you think your average monthly household usage is?

	Response Percent	Response Count
0-200 kWh per month	1.8%	1
201-400 kWh per month	28.1%	16
401-600 kWh per month	**35.1%**	**20**
601-800 kWh per month	21.1%	12
801-1000 kWh per month	8.8%	5
1000-1200 kWh per month	5.3%	3
1200 kWh+	0.0%	0
	answered question	**57**
	skipped question	**9**

8. Has the frequency of the phone contact from your Efficiency Vermont Energy Specialist so far been:

	Response Percent	Response Count
Not frequent enough	13.6%	8
Just the right frequency	**86.4%**	**51**
Too frequent	0.0%	0
	answered question	**59**
	skipped question	**7**

9. If you were a participant in a similar Study sometime in the future, how often would you prefer to be called by an Energy Specialist?

		Response Percent	Response Count
Once a month		**75.0%**	**6**
Every other month		0.0%	0
Four times a year		25.0%	2
Twice a year		0.0%	0
Would prefer not to be called		0.0%	0
		Other (please specify)	3
		answered question	**8**
		skipped question	**58**

10. Have the phone conversations with your Energy Specialist:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Response Count
Improved your understanding of your household electricity use	1.8% (1)	7.0% (4)	15.8% (9)	**63.2% (36)**	12.3% (7)	57
Helped you identify which appliances are the least efficient	1.8% (1)	5.3% (3)	17.5% (10)	**57.9% (33)**	17.5% (10)	57
Influenced your future appliance purchase decisions	1.8% (1)	5.3% (3)	28.1% (16)	**47.4% (27)**	17.5% (10)	57
Changed the way you use your appliances	3.5% (2)	7.0% (4)	36.8% (21)	**42.1% (24)**	10.5% (6)	57
Helped you identify ways to save electricity	3.5% (2)	1.8% (1)	8.8% (5)	**70.2% (40)**	15.8% (9)	57
Motivated you to make changes that will save electricity	3.5% (2)	5.3% (3)	12.3% (7)	**61.4% (35)**	17.5% (10)	57
				Comments & Feedback welcome!		19
					answered question	**57**
					skipped question	**9**

11. Have you implemented any recommendations or strategies suggested by your Energy Specialist to reduce your electricity consumption?

		Response Percent	Response Count
Yes		**75.9%**	**44**
No		24.1%	14
Don't understand the question		0.0%	0
		answered question	**58**
		skipped question	**8**

12. Why haven't you implemented any of the suggestions from your Energy Specialist (check all that apply)?

	Response Percent	Response Count
Forgot about them	21.4%	3
Got lazy about it	14.3%	2
Not enough time	7.1%	1
Too difficult	7.1%	1
My family isn't disciplined enough	21.4%	3
Cost too much to implement	**35.7%**	**5**
Didn't really understand the suggestions	0.0%	0
Don't think the suggestions will really reduce my electricity usage that much	21.4%	3
Other (please specify)		6
answered question		**14**
skipped question		**52**

13. Have you noticed a reduction in your usage as a result of these actions?

	Response Percent	Response Count
I think so	29.5%	13
Yes	**38.6%**	**17**
I can't really tell	22.7%	10
No	9.1%	4
	Comments	9
	answered question	**44**
	skipped question	**22**

14. Why don't you think those changes helped reduce your consumption?

	Response Count
	3
	answered question	**3**
	skipped question	**63**

15. One of the supporting features of the Study is an eNewsletter from Efficiency Vermont called "The Electric Connection" that offers tips, participant stories and encouragement. So far, we've sent 3 issues. Do you receive the Electric Connection?

	Response Percent	Response Count
Yes	24.1%	14
No	32.8%	19
Not sure	**43.1%**	**25**
	answered question	**58**
	skipped question	**8**

16. Would you like to start receiving the Study's eNewsletter, The Electric Connection, every other month or so?

	Response Percent	Response Count
Yes	**65.9%**	**29**
No Thanks	34.1%	15
	answered question	**44**
	skipped question	**22**

17. To receive The Electric Connection, please provide the email address where you'd like it delivered:

	Response Count
	28
	answered question **28**
	skipped question **38**

18. We're interested in your feedback about The Electric Connection! Please check all that apply:

	Response Percent	Response Count
I generally enjoy it	35.7%	5
I wish it was more frequent	0.0%	0
I really like stories about other participants	14.3%	2
It reminds me to visit my Energize web portal	**50.0%**	**7**
It encourages me to reduce my energy waste	35.7%	5
I learned something about energy efficiency I didn't know	35.7%	5
Not very interesting	0.0%	0
I don't always open it	35.7%	5
I don't remember receiving it	0.0%	0
I wish it was less frequent	0.0%	0
The information isn't very useful	0.0%	0
Please share any comments about the newsletter:		1

answered question	**14**
skipped question	**52**

19. The special Study variable peak rate (Variable Peak Pricing) will be in effect April 1st, 2013 through March 2014. Detailed information will be sent to you this coming March. Your Energy Specialist will also be calling to help you think about how to take advantage of the schedule for the discounted rates and to reduce your usage during more expensive peak hours. Do you have any particular questions about this special Study pricing that should be covered in the information that will be sent in March?

	Response Count
	20
answered question	20
skipped question	46

20. The primary method for notifying Study participants of the changes in the variable peak rate has not yet been determined. Some alternatives under consideration are listed below. In order of your preference, please rank each contact method by typing them into the numbered boxes. Email --- Text --- Energize Web Portal --- Phone Call --- VEC Website

		Response Percent	Response Count
1		100.0%	56
2		87.5%	49
3		62.5%	35
4		46.4%	26
5		41.1%	23
answered question			56
skipped question			10

21. Do you think you've been more aware of your electricity consumption since participating in the Study?

	Response Percent	Response Count
Sometimes	14.3%	8
Yes	**76.8%**	**43**
No	8.9%	5
	Comments	7
	answered question	**56**
	skipped question	**10**

22. Please share any comments or observations you have about the Study you think would be helpful feedback.

	Response Count
	11
	answered question	**11**
	skipped question	**55**

23. Would you like Efficiency Vermont to get in touch with you regarding the Study or this survey?

	Response Percent	Response Count
Yes	22.8%	13
No thanks	**77.2%**	**44**
	answered question	**57**
	skipped question	**9**

24. Your name (optional):

	Response Count
	21
answered question	21
skipped question	45

25. Your email address (optional):

	Response Count
	18
answered question	18
skipped question	48

Efficiency Vermont and Vermont Electric Cooperative November 2012 Consumer Study Feedback Survey Groups 2 & 3

SurveyMonkey

1. When was the last time you visited your Energize web portal?

	Response Percent	Response Count
Today	8.0%	4
Yesterday	4.0%	2
Within the last week	10.0%	5
Within the last month	18.0%	9
A couple of months ago	**34.0%**	**17**
Not since I talked with my Energy Specialist at Efficiency Vermont	12.0%	6
Can't remember	8.0%	4
Have never visited	6.0%	3
answered question		**50**
skipped question		**0**

2. Have you been in contact with Efficiency Vermont regarding any questions or service issues related to your Energize web portal?

	Response Percent	Response Count
Yes	32.0%	16
No	**68.0%**	**34**
answered question		**50**
skipped question		**0**

3. Was the question or service issue about your Energize web portal resolved to your satisfaction?

	Response Percent	Response Count
Yes	**68.8%**	**11**
No	31.3%	5
Your feedback welcome!		8
answered question		**16**
skipped question		**34**

4. The information on the Energize web portal has been (check all that apply):

	Response Percent	Response Count
Accurate	25.5%	12
Easy to understand	42.6%	20
Informative	**44.7%**	**21**
I haven't really explored enough to have an opinion	29.8%	14
Inaccurate	10.6%	5
Difficult to understand	6.4%	3
Didn't find the information useful	10.6%	5
answered question		**47**
skipped question		**3**

5. Please explain your response

	Response Count
	21
answered question	**21**
skipped question	**29**

6. Where is your In Home Display plugged in?

	Response Percent	Response Count
Kitchen	**43.2%**	**16**
Bedroom	2.7%	1
Livingroom	37.8%	14
Family Room	8.1%	3
We move it around	2.7%	1
We unplugged it	5.4%	2
Other (please specify)		11
answered question		**37**
skipped question		**13**

7. The information on the In Home Display is (check all that apply):

		Response Percent	Response Count
Accurate		31.9%	15
Easy to understand		**63.8%**	**30**
Informative		55.3%	26
I haven't used it enough to have an opinion		8.5%	4
Inaccurate		10.6%	5
Difficult to understand		8.5%	4
Didn't find the information useful		10.6%	5
		Please explain why:	20
		answered question	**47**
		skipped question	**3**

8. Now that you've had your In Home Display for several months, how frequently do you generally check the readings?

		Response Percent	Response Count
Daily		23.4%	11
A few times a week		**29.8%**	**14**
Once a week		6.4%	3
A few times a month		14.9%	7
Once a month		4.3%	2
Not very often		10.6%	5
Never		10.6%	5
		answered question	**47**
		skipped question	**3**

9. Please share why you don't you check your In Home Display more frequently (check all that apply).

	Response Percent	Response Count
I learned all I needed to know from it after the first couple of months	16.7%	2
It's too difficult to understand	16.7%	2
It was in the way where we had it plugged in	0.0%	0
The data wasn't accurate	16.7%	2
It wasn't helpful	**41.7%**	**5**
Just forgot about it	**41.7%**	**5**
Other (please explain)		5
answered question		**12**
skipped question		**38**

10. In order of what you think are the highest users of electricity in your home, please rank your home appliances and electronics:

		Response Percent	Response Count
1		**100.0%**	**43**
2		95.3%	41
3		90.7%	39
4		81.4%	35
5		60.5%	26
6		44.2%	19
7		34.9%	15
8		30.2%	13
		answered question	**43**
		skipped question	**7**

11. A typical Vermont household uses 600 kilowatt hours of electricity per month. What do you think your average monthly household usage is?

	Response Percent	Response Count
0-200 kWh per month	2.3%	1
201-400 kWh per month	13.6%	6
401-600 kWh per month	**34.1%**	**15**
601-800 kWh per month	20.5%	9
801-1000 kWh per month	20.5%	9
1000-1200 kWh per month	2.3%	1
1200 kWh+	6.8%	3
	answered question	**44**
	skipped question	**6**

12. Has the frequency of the phone contact from your Efficiency Vermont Energy Specialist so far been:

	Response Percent	Response Count
Not frequent enough	11.1%	5
Just the right frequency	**86.7%**	**39**
Too frequent	2.2%	1
	answered question	**45**
	skipped question	**5**

13. If you were a participant in a similar Study sometime in the future, how often would you prefer to be called by an Energy Specialist?

		Response Percent	Response Count
Once a month		**50.0%**	**3**
Every other month		0.0%	0
Four times a year		16.7%	1
Twice a year		0.0%	0
Would prefer not to be called		33.3%	2
		Other (please specify)	2
		answered question	**6**
		skipped question	**44**

14. Have the phone conversations with your Energy Specialist:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Response Count
Improved your understanding of your household electricity use	6.7% (3)	4.4% (2)	24.4% (11)	**48.9% (22)**	15.6% (7)	45
Helped you identify which appliances are the least efficient	6.7% (3)	8.9% (4)	31.1% (14)	**46.7% (21)**	6.7% (3)	45
Influenced your future appliance purchase decisions	4.5% (2)	9.1% (4)	**40.9% (18)**	**40.9% (18)**	4.5% (2)	44
Changed the way you use your appliances	4.4% (2)	22.2% (10)	**42.2% (19)**	28.9% (13)	2.2% (1)	45
Helped you identify ways to save electricity	6.8% (3)	9.1% (4)	20.5% (9)	**54.5% (24)**	9.1% (4)	44
Motivated you to make changes that will save electricity	4.7% (2)	4.7% (2)	25.6% (11)	**55.8% (24)**	9.3% (4)	43
				Comments & Feedback welcome!		12
					answered question	**45**
					skipped question	**5**

15. Have you implemented any recommendations or strategies suggested by your Energy Specialist to reduce your electricity consumption?

		Response Percent	Response Count
Yes		**68.9%**	**31**
No		28.9%	13
Don't understand the question		2.2%	1
		answered question	**45**
		skipped question	**5**

16. Why haven't you implemented any of the suggestions from your Energy Specialist (check all that apply)?

	Response Percent	Response Count
Forgot about them	15.4%	2
Got lazy about it	0.0%	0
Not enough time	15.4%	2
Too difficult	7.7%	1
My family isn't disciplined enough	0.0%	0
Cost too much to implement	15.4%	2
Didn't really understand them	0.0%	0
Don't think the suggestions will really reduce my electricity usage that much	**69.2%**	**9**
Other (please specify)		6
answered question		**13**
skipped question		**37**

17. Have you noticed a reduction in your usage as a result of these actions?

	Response Percent	Response Count
I think so	18.8%	6
Yes	18.8%	6
I can't really tell	**43.8%**	**14**
No	18.8%	6
	Comments	7
	answered question	**32**
	skipped question	**18**

18. Why don't you think those changes helped reduce your consumption?

	Response Count
	6
	answered question	**6**
	skipped question	**44**

19. One of the supporting features of the Study is an eNewsletter from Efficiency Vermont called "The Electric Connection" that offers tips, participant stories and encouragement. So far, we've sent 3 issues. Do you receive the Electric Connection?

	Response Percent	Response Count
Yes	33.3%	15
No	**37.8%**	**17**
Not sure	28.9%	13
answered question		**45**
skipped question		**5**

20. Would you like to start receiving the Study's eNewsletter, The Electric Connection, every other month or so?

	Response Percent	Response Count
Yes	**70.0%**	**21**
No Thanks	30.0%	9
answered question		**30**
skipped question		**20**

21. To receive The Electric Connection, please provide the email address where you'd like it delivered

	Response Count
	21
answered question	**21**
skipped question	**29**

22. We're interested in your feedback about The Electric Connection! Please check all that apply.

	Response Percent	Response Count
I generally enjoy it	**57.1%**	**8**
I wish it was more frequent	0.0%	0
I really like stories about other participants	0.0%	0
It reminds me to visit my Energize web portal	35.7%	5
It encourages me to reduce my energy waste	28.6%	4
I learn things about energy efficiency I didn't know	14.3%	2
Not very interesting	0.0%	0
I don't always open it	14.3%	2
I don't remember receiving it	0.0%	0
I wish it was less frequent	0.0%	0
The information isn't very useful	0.0%	0
Please share any comments about the newsletter:		3

answered question	**14**
skipped question	**36**

23. The special Study variable peak rate (Variable Peak Pricing) will be in effect April 1st, 2013 through March 2014. Detailed information will be sent to you this coming March. Your Energy Specialist will also be calling to help you think about how to take advantage of the schedule for the discounted rates and to reduce your usage during more expensive peak hours. Do you have any particular questions about this special Study pricing that should be covered in the information that will be sent in March?

	Response Count
	26
answered question	26
skipped question	24

24. The primary method for notifying Study participants of the changes in the variable peak rate has not yet been determined. Some alternatives under consideration are listed below. In order of your preference, please rank each contact method by typing them into the numbered boxes: Email --- Text --- Energize Web Portal --- In Home Display --- Phone Call --- VEC Website

		Response Percent	Response Count
1		100.0%	41
2		100.0%	41
3		70.7%	29
4		63.4%	26
5		63.4%	26
6		63.4%	26
	answered question		41
	skipped question		9

25. Do you think you've been more aware of your electricity consumption since participating in the Study?

	Response Percent	Response Count
Sometimes	31.8%	14
Yes	**63.6%**	**28**
No	4.5%	2
	Comments	6
	answered question	**44**
	skipped question	**6**

26. Please share any comments or observations you have about the Study you think would be helpful feedback.

	Response Count
	13
answered question	**13**
skipped question	**37**

27. Your name (optional)

	Response Count
	28
answered question	**28**
skipped question	**22**

28. Your email address (optional)

	Response Count
	27
answered question	**27**
skipped question	**23**

29. Would you like us to get in touch with you regarding anything having to do with the Study or this survey?

		Response Percent	Response Count
Yes		26.8%	11
No thanks		**73.2%**	**30**
		answered question	**41**
		skipped question	**9**

VEC Group #1

Call #1 - "Introduce Yourself, Establish a Relationship, Ride Along Web Portal"

Timing: Contacts to be completed February 8 – March 9, 2012

567 total Members

TREATMENT: ***Phone Energy Specialist & Personal Web Portal***

Call Outcome Goals:

1. Member learns your name and that you'll be their partner & available throughout the Study.
2. Member has a basic understanding of the purpose of the Study, which is to reduce electricity use by their chosen % goal compared to last year.
3. Understands that Variable Peak Pricing (VPP) will happen in Year 2.
4. You establish whether or not they have computer/broadband in their home.
5. Member understands how to log on to the website and has a basic understanding how to navigate and use.
6. Member understands that the website 'month' and their billing statement month are not the same time period, so the numbers on their VEC monthly bill will not sync with their personal dashboard info.
7. Member feels comfortable about participating in the Study.
8. Member has indicated whether they are willing to receive maximum 2 emails per month from us.
9. Preferred day/time to call Member is established.
10. All appropriate info is entered in SharePoint.

CS&D Checklist:

- ❒ MY NAME, WHY I'M CALLING, IS THIS A GOOD TIME?
- ❒ PROGRAM DETAILS REFRESHER, BENEFITS TO YOU, THANKS FOR PARTICIPATING!
- ❒ HAVE A HOME COMPUTER WITH BROADBAND Y/N
- ❒ WEBSITE A-B-Cs
- ❒ CONFIRM EMAILING IS OK
- ❒ QUESTIONS?
- ❒ SET UP NEXT CALL, ENTER IN KITT
- ❒ APPRECIATION
- ❒ ALL POINTS ENTERED IN SHAREPOINT

CS&D Talking Points

❒ **1. MY NAME, WHY I'M CALLING, IS THIS A GOOD TIME?:**

SAMPLE SCRIPT: Hi! This is _____ calling from Efficiency Vermont. I'm following up to the email I sent earlier this week, and am wondering if this is a good time for us to go over the Study process for about 15 minutes?

If you've caught them at an inconvenient time, make a date for a callback and register that in KITT so you get reminded in your Portal.

The first thing I'd like to do is to confirm that you have a home computer with broadband internet. *Enter in SharePoint.*

If they don't have a home computer or email access, they can still participate in the Study, but we'll have to do a lot more talking and perhaps send them some copies of their usage results in the mail.

❒ **2. PROGRAM DETAILS REFRESHER, BENEFITS TO YOU, THANKS FOR PARTICIPATING!:**
(skip this if if Member is savvy and knowledgeable)

SAMPLE SCRIPT: Are you familiar with the Study that we're conducting with Vermont Electric Cooperative and the Department of Energy?

- **VEC is partnering with Efficiency Vermont and the USDOE;** with only 8 other studies across the country, we're trying to understand how real time electricity consumption information, variable pricing during peak demand hours, and regular contact from an Energy Specialist like me influences your overall energy usage and patterns.
- **This will help Vermont and our country** plan for future energy needs and hopefully reduce our peak volume spikes. The Study will collect two years of electricity use information, and the data will be used to publish a report to the US Department of Energy.
- **The first year of this study is** designed to help you get familiar and comfortable with using your personal website that will give you data about your previous day's hourly electricity use, and to set a goal for reducing your electricity consumption.
- **This information will help you make informed decisions about your usage** that in turn will allow you to have more control over your costs. What you learn during this first year of the Study will be especially helpful in the second year when your kwh rate will be variable.

- **Benefits You'll have:**
  - Internet access to your hourly electricity usage.
  - Internet comparison of current year to last year's monthly use
  - Email tips for reducing electricity waste and updates from me and Efficiency VT
  - My expertise for the duration of the Study!

❒ **3. WEBSITE: LOGGING ON FOR THE FIRST TIME, SETTING GOAL & WALKTHROUGH:**

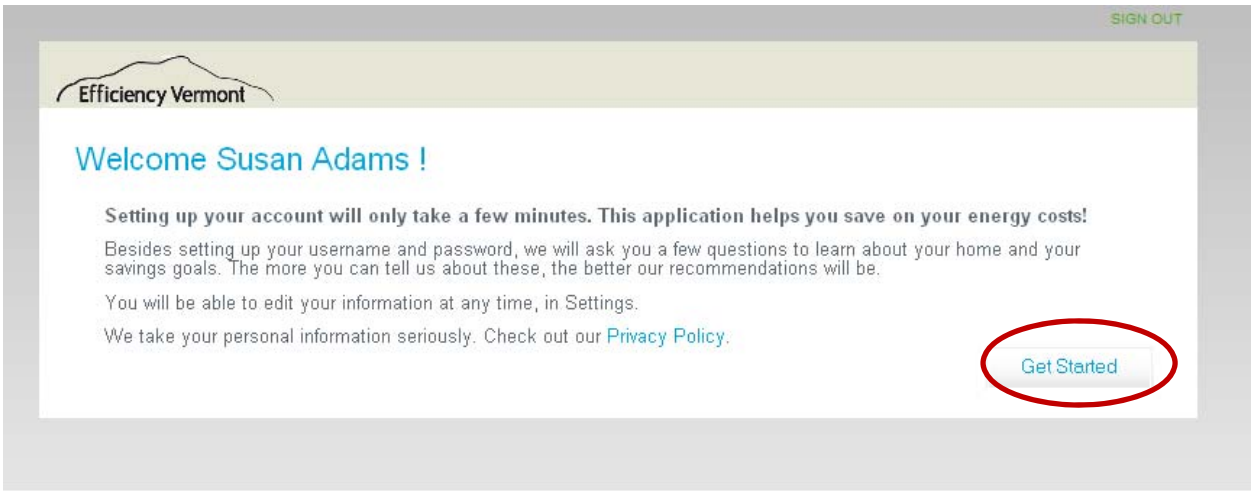
SAMPLE SCRIPT: What I'd like to do now is walk you through your website access and do a quick review of the features and how to use them. Before we do that, do you have any questions?

Let's get you logged on to the web portal where you'll be able to see your electricity usage. Are you at your computer? If you would click on the link that I sent in the email, we can get started. If you don't have that handy, I can email it to you right now:

https://[redacted]

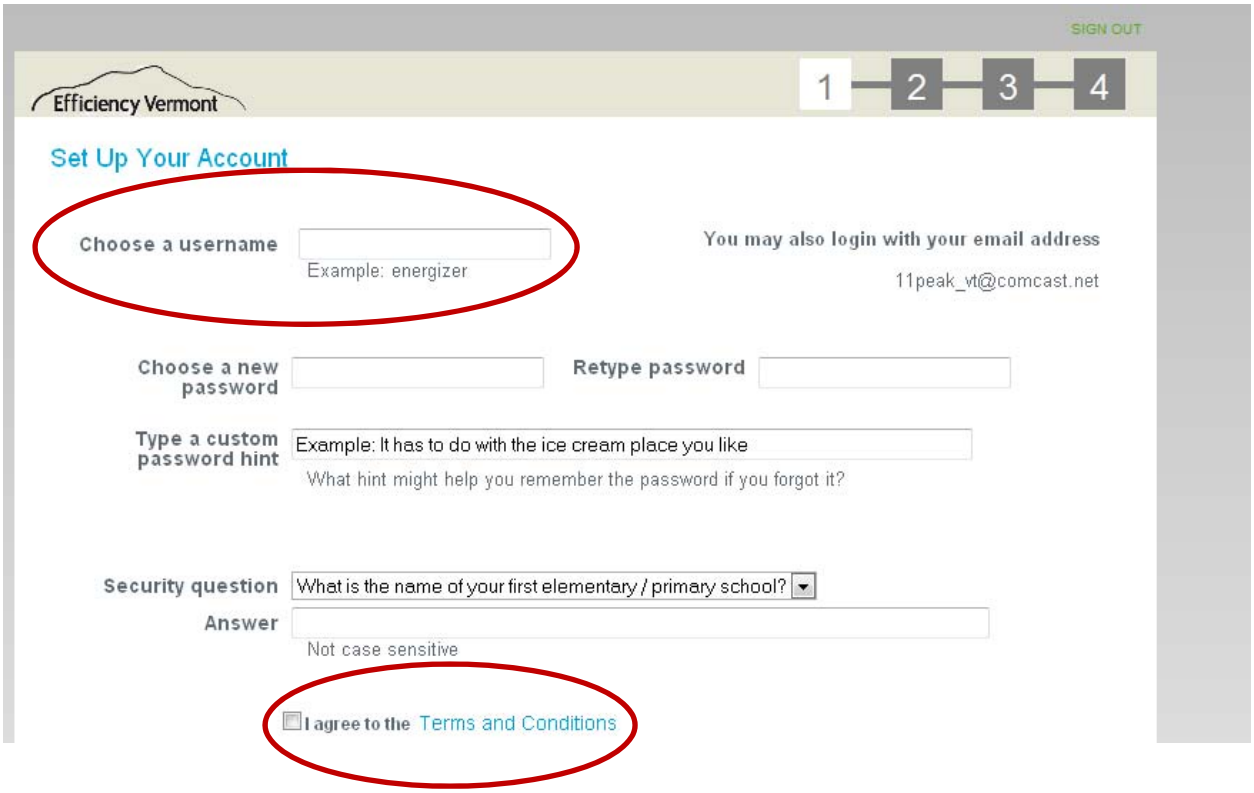
- Your Logon ID is your email address
- Your password is your VEC account number *(which is in the CS SharePoint and your Group list if they don't have it handy)*

Here's what they'll see once they've logged in successfully:



SAMPLE SCRIPT: Congratulations! now you've logged in successfully, there are a few set-up questions to fill out. Just click on the 'Get Started' link for the next steps.

Then they'll see the following screen:



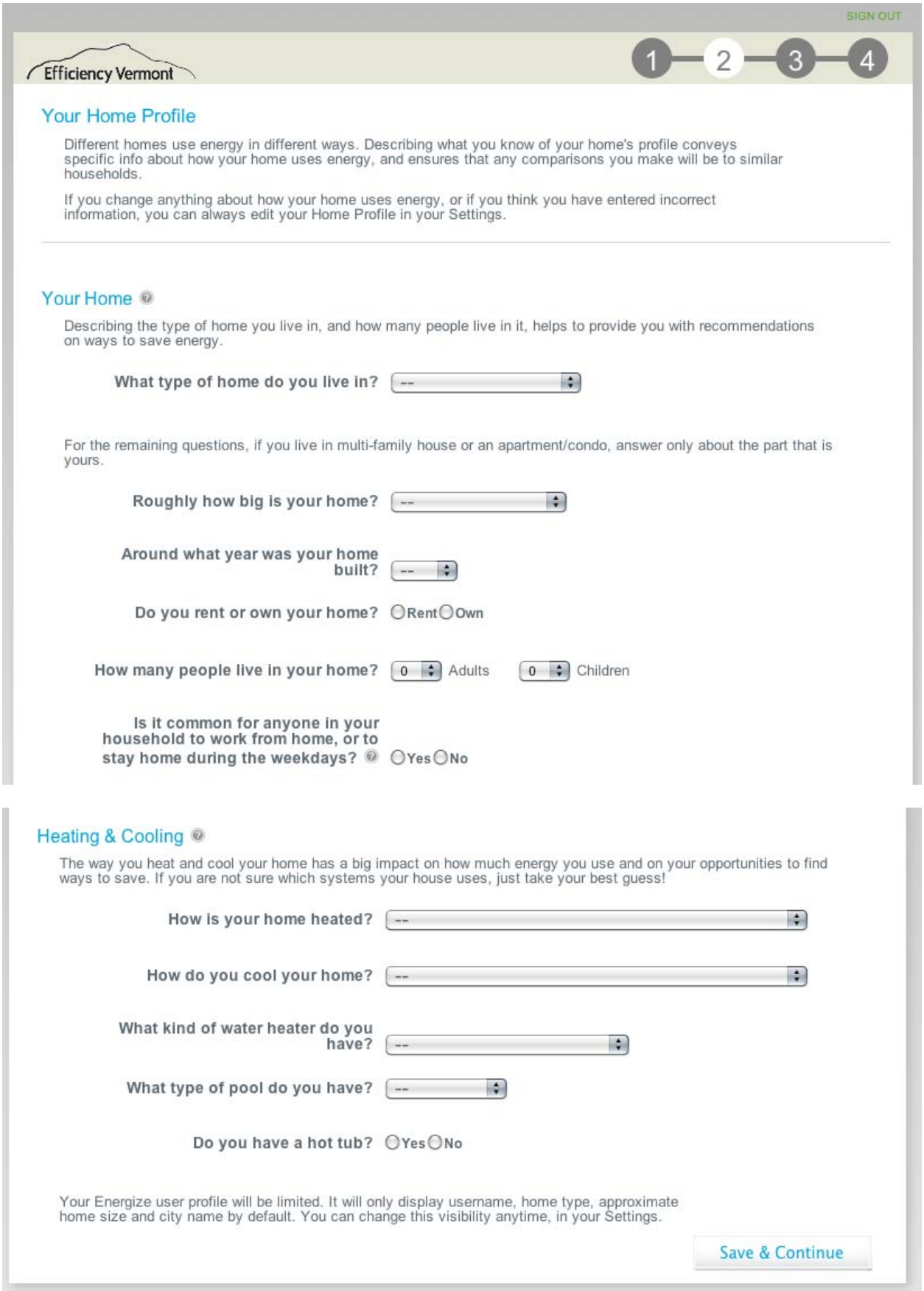
SAMPLE SCRIPT: The first thing you'll want to do is to choose a username. Both your username and your email address can be used as your logon ID, even if they are different. The advantage of picking a username that's different than your email address is that if you post something on our Tips blog or submit a question to 'Ask An Expert', your username will display and you probably don't want to have your email address display to other participants!

SAMPLE SCRIPT: Have you picked out a username? Great! Now you need to choose a new password. Let me know when you're done.

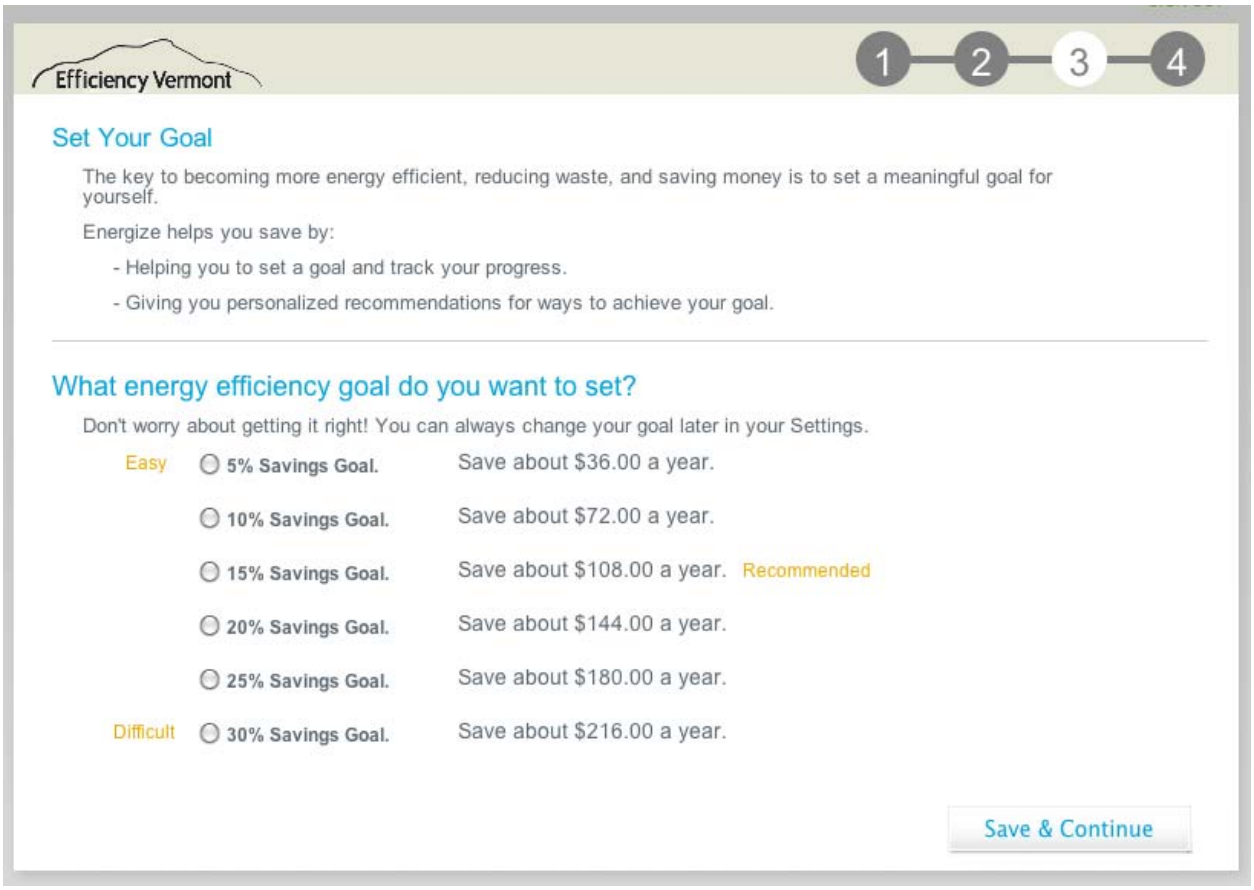
Now, do you see the box where it says 'I agree to the Terms and Conditions ? The Terms and Conditions is the Agreement document that was included in the letter you received in December. You'll need to check that box to move forward. Do you have any questions about the Agreement?

SAMPLE SCRIPT: The next thing you'll be asked for is some quick information about the profile of your home. This will allow you to compare electricity usage with people in your group who have similar home situations—I'll show you how to do that when we get further in to your web portal.

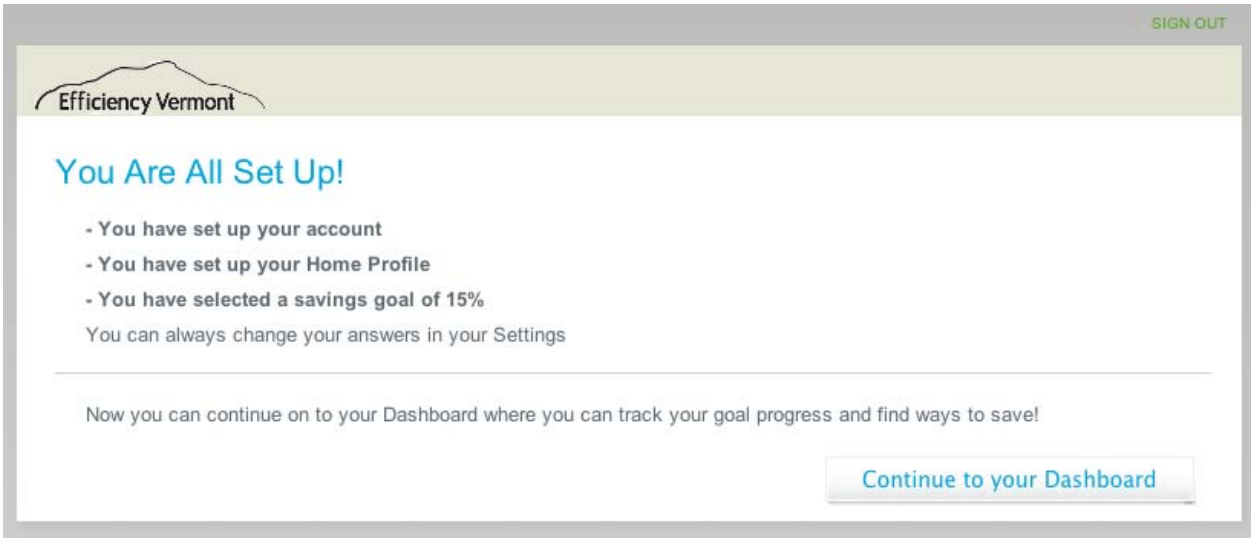
So please fill out the questions about your home and your heating and cooling systems, and let me know when you're done.


SIGN OUT
Efficiency Vermont
1 2 3 4
Your Home Profile
Different homes use energy in different ways. Describing what you know of your home's profile conveys specific info about how your home uses energy, and ensures that any comparisons you make will be to similar households.
If you change anything about how your home uses energy, or if you think you have entered incorrect information, you can always edit your Home Profile in your Settings.
Your Home
Describing the type of home you live in, and how many people live in it, helps to provide you with recommendations on ways to save energy.
What type of home do you live in? --
For the remaining questions, if you live in multi-family house or an apartment/condo, answer only about the part that is yours.
Roughly how big is your home? --
Around what year was your home built? --
Do you rent or own your home? Rent Own
How many people live in your home? 0 Adults 0 Children
Is it common for anyone in your household to work from home, or to stay home during the weekdays? Yes No
Heating & Cooling
The way you heat and cool your home has a big impact on how much energy you use and on your opportunities to find ways to save. If you are not sure which systems your house uses, just take your best guess!
How is your home heated? --
How do you cool your home? --
What kind of water heater do you have? --
What type of pool do you have? --
Do you have a hot tub? Yes No
Your Energize user profile will be limited. It will only display username, home type, approximate home size and city name by default. You can change this visibility anytime, in your Settings.
Save & Continue

SAMPLE SCRIPT: OK, when you're done, you can save and continue—now do you see the page where you can set your goal? Choose the % savings efficiency you'd like to make happen. You can always change this later—people's success really depends on how much you are engaged with the Study and how much variable usage you have--- and I'm going to help you out with that.



SAMPLE SCRIPT: Now that you've set your goal, we can move forward to the website. Click 'Continue to your Dashboard' in the lower right hand corner of your screen.



❒ **4. INITIATE DESKTOP SHARING AT THIS POINT**

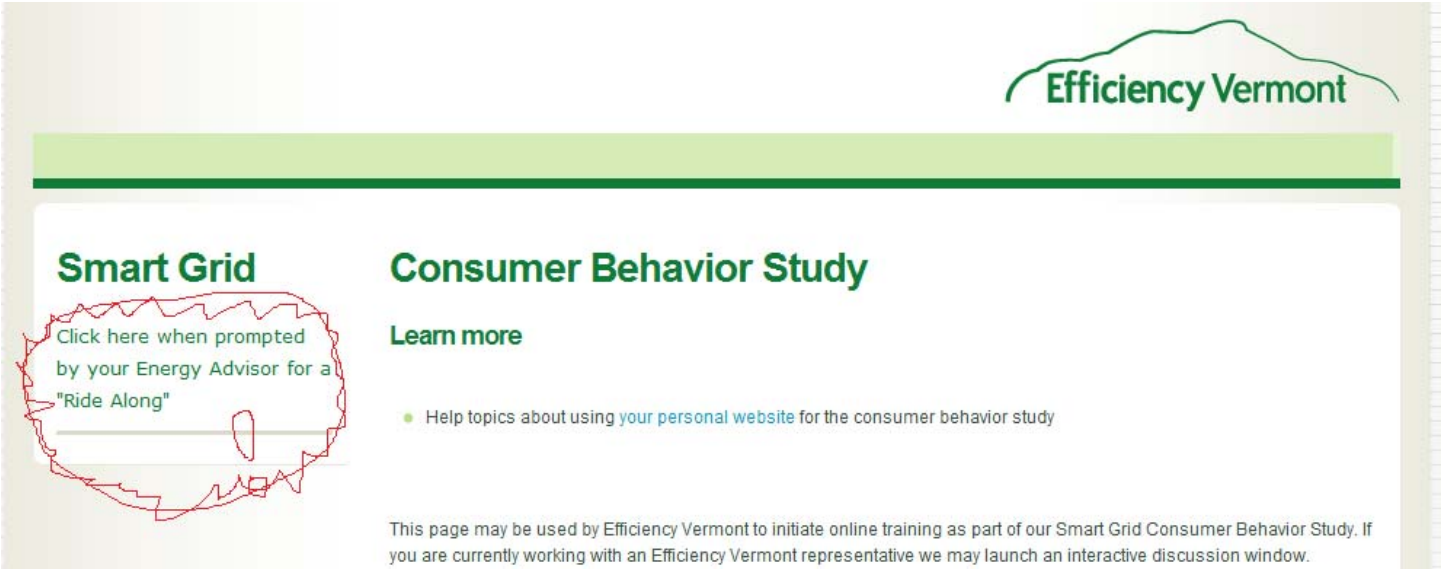
SAMPLE SCRIPT: If it's ok with you, I'd like to ride along on your web portal now so we can walk through together and look at your usage information. This would mean that you allow me to see your computer desktop. I'd want you to close anything else you might have open other than your personal web portal since I would be able to see whatever is on your desktop. Would this be alright?

If YES: Great- the first thing I'd like you to do is close any programs or files you have open on your computer. (give them a chance to close everything down). OK, now from the Dashboard page, look in the upper right hand corner of your screen and click on the 'HELP' link.

IF NO: That's ok- I can still walk you through the website. Let's talk about the Dashboard tab first. *(then proceed to talk about the different tabs. In this case, it would be a good idea to open up a session of Energize so you can talk through it easily—here are the link and credentials for my account in WIPP pre-production.*
Energize
tena.perrelli@gmail.com
install

From here, if you need help with Live Person, please refer to the Live Person instructions for Desktop Sharing.

TROUBLESHOOTING: To get back to the Dashboard from the screen below, direct your participant to minimize this screen--their Dashboard was probably hiding behind this!



❒ **5. WALK THROUGH EACH TAB ON THEIR WEB PORTAL**

- Visit each tab with a quick overview of benefits
- **REMIND:** Website and electric bill cover different time periods, so the numbers will never match.

❒ **6. CLOSE DESKTOP SHARING PROPERLY**

- Refer to the instructions.

SAMPLE SCRIPT: OK, we're done with the going through the website. Do you have any questions? Close down each window to stop the desktop sharing. Great. Now I can no longer see your desktop.

❒ **7. GROUP EMAILS:**

SAMPLE SCRIPT: From time to time I'll be emailing participants in my group and we'll also be sending some seasonal tips for saving energy. Unless you and I email back and forth individually about something, there would never be more than 2 per month. Would you like to receive these email communications? Do you read your email regularly? *Enter in SharePoint.*

To receive these emails, do you prefer that we use the email address I used to contact you? *Enter in SharePoint as the 'preferred email address' even if it is the same as the 'original' email address.*

❒ **8. QUESTIONS?:** Well, we've covered all the basics. Is there anything I can help you with or do you have any other questions? *Capture in SharePoint along with any stories or anecdotes that are interesting or pithy about this participant's situation that might help explain their results at the end of the Study, or would be important or interesting for people at EVT to know.*

❒ **9. SCHEDULE THE NEXT CALL:** I'll be calling you back in a couple of weeks to see how you're doing and review some specifics that will affect your electricity use. Can we set an appointment for that call now? I'm available during the day _____ _____ evenings from _____ or Saturday _____. Do any of those times work for you? *Capture in Sharepoint*

OR

I have openings on _____at_____. Do either of those times fit your schedule? *Capture in Sharepoint and set up the next call in KITT so you get a reminder.*

Do you have a pen handy for my phone number? You can reach me at 855-832-7283 and my extension is ____. I'll call you on _____ at _____. Please call me if you have any questions or need help before then, and I look forward to our next conversation!

❒ **8. APPRECIATION:**

SAMPLE SCRIPT: Thank you so much for being willing to take part in this important pilot study! Be sure and check out your website between now and then and we can see how your usage changes. I'm looking forward to our next conversation!

AFTER CALL WORK:

- ❒ Enter in KITT
- ❒ Enter in SharePoint
- ❒ Enter in your personal spreadsheet

VEC Groups #2 & 3

Call #1 - "Introduce Yourself, Establish a Relationship, Ride Along Web Portal"

Timing: Contacts to be completed January 25 – February 29, 2012

238 total Members

TREATMENT: ***Phone Efficiency Specialist, In-Home Display & Personal Web Portal***

Call Outcome Goals:

1. Member learns your name and that you'll be their partner & available throughout the Study.
2. Member has a basic understanding of the purpose of the Study, which is to reduce electricity use by their chosen % goal compared to last year.
3. Understands that Variable Peak Pricing (VPP) will happen in Year 2.
4. Member understands how to log on to the website and has a basic understanding how to navigate and use.
5. Member understands that the website 'month' and their billing statement month are not the same time period, so the numbers on their VEC monthly bill will not sync with their personal dashboard info.
6. Member feels comfortable about participating in the Study.
7. Member has indicated whether they are willing to receive maximum 2 emails per month from us.
8. Preferred day/time to call Member is established.

CS&D Checklist:

- ❒ MY NAME, WHY I'M CALLING, IS THIS A GOOD TIME?
- ❒ PROGRAM DETAILS REFRESHER, BENEFITS TO YOU, THANKS FOR PARTICIPATING!
- ❒ WEBSITE A-B-Cs
- ❒ CONFIRM EMAILING IS OK
- ❒ QUESTIONS?
- ❒ SET UP NEXT CALL
- ❒ APPRECIATION

CS&D Talking Points

❒ **1. MY NAME, WHY I'M CALLING, IS THIS A GOOD TIME?:**

Hi! This is _____ calling from Efficiency Vermont. I'm following up to the installation of your In-Home-Display and Panel Meter, and am wondering if this is a good time for us to go over the Study process for about 10 or 15 minutes?

If you've caught them at an inconvenient time, make a date for a callback and register that in KITT so you get reminded in your Portal.

❒ **2. PROGRAM DETAILS REFRESHER, BENEFITS TO YOU, THANKS FOR PARTICIPATING!:**

(skip this if you reviewed it already) VEC is partnering with Efficiency Vermont and the USDOE; with only 8 other studies across the country, we're trying to understand how real time electricity consumption information, variable pricing during peak demand hours, and regular contact from an Efficiency Specialist like me influences your overall energy usage and patterns. This will help Vermont and our country plan for future energy needs and hopefully reduce our peak volume spikes. The Study will collect two years of electricity use information, and the data will be used to publish a report to the US Department of Energy.

The first year of this study is designed to help you get familiar and comfortable with using your personal website and In-Home Display that will give you almost real time data about your electricity use, and to set a goal for reducing your electricity consumption. This information will help you make informed decisions about your usage that in turn will allow you to have more control over your costs. What you learn during this first year of the Study will be especially helpful in the second year when your kwh rate will be variable.

Benefits You'll have:

i. Internet access to your hourly electricity usage.
ii. Internet comparison of current year to last year's monthly use
iii. Access to your real time usage through an In-Home Display
iv. Email tips for reducing electricity waste and updates from me and Efficiency VT
v. My expertise for the duration of the Study!

What I'd like to do now is walk you through your website access and do a quick review of the features and how to use them. Before we do that, do you have any questions?

❒ **3. WEBSITE & IHD WALKTHROUGH** *(See Group 1, Call 1 for details)***:**

- Log on and password setting
- Visiting each tab with a quick overview of benefits

- **REMINDER** Website and electric bill cover different time periods, so the numbers will not be the same.

❒ **4. GROUP EMAILS:**
From time to time I'll be emailing participants in my group and we'll also be sending some seasonal tips for saving energy. Would you like to receive these email communications? Unless you and I email back and forth individually about something, there would never be more than 2 per month. *Capture in Sharepoint*

❒ **5. QUESTIONS?:** Well, we've covered all the basics. Is there anything I can help you with or do you have any other questions?

❒ **5. SET UP NEXT CALL:** I'll be calling you back in a couple of weeks to see how you're doing and review some specifics that will affect your electricity use. Is there a particular time of day that is generally best to reach you? *Capture in Sharepoint*

Do you have a pen handy for my phone number? You can reach me at 855-832-7283 and my extension is ____. Please call me f you have any questions or need help before our next call.

❒ **6. APPRECIATION:** Thank you so much for being willing to take part in this important pilot study!

VEC Group #1, 2 & 3

WHAT'S YOUR NUMBER? How many kWh/month?

Call #4 - "Strategies Implemented? Variable Pricing Details Intro"

Timing: Contacts to be completed September 15 – October 15, 2012

Call Outcome Goals:

1. Member has confirmed whether or not the strategies you suggested were implemented and if not, why not
2. Member is aware that the special Study discounted pricing rate will go into effect April 1st instead of January 1st
3. Member is aware that they will receive a detailed explanation of the rate in early March via email.
4. They are able and comfortable logging in to the new website.
5. They are reinvigorated to reduce consumption
6. They understand how the Rate Comparison tool works and can use it
7. They know what their monthly average kWh consumption number is
8. They have filled out the mid-Study eSurvey they received in early November
9. They know about Ask An Expert and are inspired to use it

CS&D Checklist:

- ❒ MY NAME, WHY I'M CALLING, IS THIS A GOOD TIME?
- ❒ THANKS FOR PARTICIPATING!
- ❒ HOW DID YOU DO ON THE STRATEGIES I SUGGESTED?
- ❒ NEW WEBSITE A-B-Cs
- ❒ CONFIRM EMAILING IS OK
- ❒ QUESTIONS?
- ❒ SET UP NEXT CALL, ENTER IN KITT
- ❒ APPRECIATION
- ❒ ALL POINTS ENTERED IN SHAREPOINT

CS&D Talking Points

❒ **1. MY NAME, WHY I'M CALLING, IS THIS A GOOD TIME?:**

SAMPLE SCRIPT: Hi! This is _____ calling from Efficiency Vermont. I'm checking in to review a few things about the Consumer Study and see how you're doing. Is this a good time for us to chat?

If you've caught them at an inconvenient time, make a date for a callback and register that in KITT so you get reminded in your Portal.

❒ **2. DID THEY RECEIVE & FILL OUT THE ESURVEY THAT WAS SENT _____?**

SAMPLE SCRIPT: Did you receive the online survey we sent out in xxxxx?

IF YES: Have you had a chance to fill it out? Great- thanks so much- this will really help us understand your experience in the Study so far and give us feedback for adjusting when possible.

IF NO: Do you remember seeing it? Would you like me to email you the link again? It takes about x minutes to complete and your input and feedback are really important in helping us understand participants experience of being in the Study.

❒ **3. DID THEY IMPLEMENT STRATEGIES?**

SAMPLE SCRIPT: How did you make out implementing the strategies we talked about in _____?

- CONGRATULATE anything they did implement, even if it's a 'partial' implementation and document in SharePoint
  - *Be alert for the possibility of sharing interesting/entertaining success stories in a future Newsletter, and ask if we could use a quote along with their photo!*
- If they didn't implement something, find out why and document in SharePoint

❒ **4. HOW'RE THEY DOING COMPARED TO LAST YEAR?**

SAMPLE SCRIPT: I've checked your usage from (month they started in the Study) through October compared to the same period last year, and your total usage has decreased/increased x%! Your average kWh per month in 2011 was XXX. This is **YOUR NUMBER** and the one to beat in the Study by the x% goal you've established. The average Vermonter uses xxx per month just to give you a frame of reference.

❒ **5. HAVE THEY LOGGED IN TO THEIR NEW WEB PORTAL?**

SAMPLE SCRIPT: I'm wondering if you received the email announcement about the new web portal, and if you've logged in yet?

If YES: That's great. Did you complete the Home Energy Profile? It's important to complete this so your estimated usage can be calculated. Could you log in now? I'd like to so step through a couple of the new features with you.

Be sure and take advantage of the 'Ask An Expert'

IF NO: That's ok- then I'd like to walk you through getting logged on. Are you able to get on to your computer now? The new url is energizevec@[redacted] Just use the same log in and password as your old portal. You'll have to reenter your home energy profile, but you can answer just a few questions now and come back to complete it later.

All set? Let's talk about the Dashboard tab first. *(then proceed to talk about the different tabs).*

Be sure and take advantage of 'Ask An Expert'

❒ **6. DEMONSTRATE THE RATE COMPARISON TOOL & INFORM ABOUT THE APRIL 1st RATE CHANGE**

SAMPLE SCRIPT: There's been a change in the schedule for the new rate, and the special discounted Study pricing will now be going into effect April 1, 2013 – March 31, 2014.

Now, I'd like to show you the way to compare your current costs with what they would be if the Study pricing had been in effect. Let's go to the 'Your Energy Use' tab and then click on 'Rate Comparison'.

IF THEIR COST WOULD BE *LESS* ON VPP: It looks like you're going to be able to do a good job of taking advantage of the discounted pricing during the x hours in the winter schedule when the cost per kWh is low! In future months, if you notice that number starting to creep up, the chart you received in the mail is also available on this page if you just xyz. You might want to jot down the hours in the RED sections and post them on your refrigerator or dryer so it's easy to remember when to try and shift your usage to the discounted times.

IF THEIR COST WOULD BE *MORE* ON VPP: Don't worry! We've still got time to think through some strategies for shifting your usage to take advantage of the discounted rate time periods. What kinds of appliances do you tend to use from 4-8pm October through March?

❒ **7. QUESTIONS & KEEP UP THE GOOD WORK:**

SAMPLE SCRIPT: Is there anything I can help you with or do you have any other questions? I'll be calling you in February or March in advance of the special Study pricing going into effect on April 1st. So, keep checking your Rate Comparison tool every month and I'll be able to answer any questions you may have.

In the meantime, keep up the good work and check out your personal web portal!